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Vol. 1008 Number 1

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of the

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

July 7, 1981

U.S.
DEPARTMENT
OF COMMERCE

Patent
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OFFICIAL GAZETTE of the
UNITED STATES PATENT and TRADEMARK OFFICE

July 7, 1981 Volume 1008 Number 1

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

Availability of Patent and Trademark Office Notices on a Subscription Basis

Effective Mar. 3, 1981, a separate publication of a part of the *Official Gazette* entitled *Patent and Trademark Office Notices* is being made available on a subscription basis. This weekly periodical contains all notices which appear in the Patent *Official Gazette* and the Trademark *Official Gazette*. Additionally, current information regarding the general date status of trademark and patent applications will be provided.

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REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,714,513, Re. S.N. 251,025, Filed Apr. 3, 1981, Cl. 361/415, PRINTED CIRCUIT CARD RETAINER AND RACK ASSEMBLY, Joseph Marconi, Owner of Record: *Inventor,* Attorney or Agent: Charles L. Gholz, Ex. Gp.: 217

4,148,557, Re. S.N. 251,592, Filed Apr. 6, 1981, Cl. 350/96.20, ADJUSTABLE FIBER OPTIC CONNECTOR, Steven E. Garvey, Owner of Record: *Hewlett-Packard Co., Palo Alto, Calif.,* Attorney or Agent: Ronald E. Grubman, Ex. Gp.: 257

4,169,770, Re. S.N. 250,891, Filed Mar. 30, 1981, Cl. 204/28, ELECTROPLATING ALUMINUM ARTICLES, William Ernest Cooke, et al., Owner of Record: *Alcan Research and Development Ltd., Montreal, Quebec, Canada,* Attorney or Agent: Robert S. Dunham, et al., Ex. Gp.: 114

4,171,206, Re. S.N. 248,774, Filed Mar. 30, 1981, Cl. 55/26, SEPARATION OF MULTICOMPONENT GAS MIXTURES, Shivaji Sircar, Owner of Record: *Air Products and Chemicals, Inc., Allentown, Pa.,* Attorney or Agent: E. Eugene Innis, et al., Ex. Gp.: 176

4,236,061, Re. S.N. 252,400, Filed Apr. 9, 1981, Cl. 219/265, QUICK-ACTING ELECTRIC CIGAR LIGHTER, Lawrence E. Fenn, et al., Owner of Record: *Inventor,* Attorney or Agent: H. Gibner Lehmann, Ex. Gp.: 213

4,242,445, Re. S.N. 248,602, Filed Mar. 27, 1981, Cl. 430/569, METHOD FOR PREPARING LIGHT-SENSITIVE SILVER HALIDE GRAINS, Mitsuo Saito, Owner of Record: *Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan,* Attorney or Agent: Richard C. Sughrue, et al., Ex. Gp.: 166

PATENT NOTICES

Certificates of Correction for the Week of July 7, 1981

Plt. 4,673	4,222,780	4,251,708	4,257,409
Re. 30,199	4,230,175	4,251,716	4,257,582
Re. 30,511	4,230,875	4,251,836	4,257,866
D. 258,517	4,231,943	4,252,292	4,258,811
3,893,127	4,232,251	4,252,686	4,259,467
3,911,089	4,234,030	4,252,988	4,259,639
3,979,732	4,234,468	4,253,073	4,259,922
3,993,777	4,235,304	4,253,393	4,259,973
4,033,949	4,235,548	4,253,580	4,260,542
4,047,102	4,235,668	4,253,607	4,260,545
4,131,051	4,236,116	4,253,806	4,260,921
4,135,329	4,237,253	4,253,814	4,261,286
4,137,585	4,237,405	4,253,822	4,261,378
4,159,906	4,238,706	4,253,918	4,261,436
4,162,909	4,239,657	4,254,009	4,261,451
4,165,235	4,240,881	4,254,087	4,261,509
4,166,485	4,241,099	4,254,211	4,261,569
4,175,048	4,244,133	4,254,335	4,261,654
4,188,269	4,245,899	4,255,129	4,261,670
4,188,897	4,246,536	4,255,294	4,261,704
4,189,174	4,246,792	4,255,527	4,261,714
4,191,444	4,246,843	4,255,537	4,261,718
4,205,785	4,247,044	4,255,706	4,261,828
4,207,612	4,247,307	4,256,045	4,261,862
4,214,102	4,248,941	4,256,621	4,262,170
4,220,570	4,249,342	4,256,723	4,263,487
4,220,583	4,250,136	4,256,730	4,263,965
4,221,986			

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $.50 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Va. 22161 for $5.00 each ($10.00 outside North American Continent). Requests for copies of patent applications must include the patent application number. Claims are deleted from patent application copies sold to avoid premature disclosure. Claims and other technical data will usually be made available to serious prospective licensees upon execution of a non-disclosure agreement.

Requests for information on the licensing of particular inventions should be directed to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE AIR FORCE
AF/JACP
1900 Half St., S.W.
Washington, D.C. 20324

Patent application 6–206,412. Argon Purity Tester. Filed Nov. 13, 1980.

Patent application 6–212,955. Load Balancer for Multiple Loads. Filed Dec. 4, 1980.

Patent 4,244,212. Fluidic Pressure Ratio Sensor. Filed May 25, 1979. Patented Jan. 13, 1981. Not available NTIS.

Patent 4,244,271. Ammunition Feed Timing Mechanism. Filed Jan. 10, 1979. Patented Jan. 13, 1981. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent 4,249,655. Cyclone Dust Analyzer for Determining Microdust Content in Fibers. Filed June 29, 1979. Patented Feb. 10, 1981. Not available NTIS.

Patent 4,253,215. Lint Cleaning Apparatus for Automatic Control of Cotton Quality. Filed Feb. 23, 1979. Patented Mar. 3, 1981. Not available NTIS.

Patent 4,253,841. Process for Photoinitiated, Polymeric Encapsulation of Cotton Fibers in Durable-Press Textiles. Filed Feb. 23, 1979. Patented Mar. 3, 1981. Not available NTIS.

Patent 4,254,005. Abrasion Resistance and Strength of Cotton-Containing Fabric Made Resilient with N-Methylolacrylamide-Type Reagent. Filed Feb. 6, 1980. Patented Mar. 3, 1981. Not available NTIS.

Patent 4,254,022. Protein in Concentrate from High-Protein Pearl Millet. Filed Mar. 21, 1980. Patented Mar. 3, 1981. Not available NTIS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6–163,521. Bisulfite Stabilization of 5-Azacytidine. Filed June 27, 1980.

Patent 4,252,800. 7(alpha)-Methylnorethindrone Enanthate and Its Use in Long Term Suppression of Fertility in Female Mammals. Filed Oct. 5, 1979. Patented Feb. 24, 1981. Not available NTIS.

U.S. DEPARTMENT OF THE INTERIOR
Branch of Patents
18th and C Streets, N.W.
Washington, D.C. 20240

Patent application 6–168,815. Machine for Mixing and Injecting Water and Grout Into a Roof Bolt Hole. Filed July 10, 1980.

Patent application 6-168,816. Preflush-Lixiviant Process for Solution Mining of Uranium Ore Beds. Filed July 10, 1980.

Patent application 6-168,822. A Process of Electroplating a Platinum-Rhodium Alloy Coating. Filed July 10, 1980.

Patent application 6-168,823. Readout Circuit for Linear Displacement Transducer. Filed July 10, 1980.

Patent application 6-184,852. Sputtering Apparatus for Coating Elongated Tubes and Strips. Filed Sept. 8, 1980.

Patent application 6-195,539. Instrumentation for Surveying Underground Cavities. Filed Oct. 9, 1980.

Patent application 6-197,864. Production of Ferrochromium Alloys. Filed Oct. 17, 1980.

Patent application 6-200,109. Production of Metal Powder. Filed Oct. 24, 1980.

Patent application 6-200,111. Regeneration of Waste Metallurgical Process Liquor. Filed Oct. 24, 1980.

Patent application 6-206,246. Amine Flotation of Chromite from Acidic Pulps. Filed Dec. 12, 1980.

Patent application 6-206,247. Continuous Transducer Drift Compensator. Filed Nov. 12, 1980.

Patent 4,221,827. Method of Manufacturing a Gas Sensor. Filed Dec. 19, 1978. Patented Sept. 9, 1980. Not available NTIS.

Patent 4,222,611. In-situ Leach Mining Method Using Branched Single Well for Input and Output. Filed Aug. 16, 1979. Patented Sept. 16, 1980. Not available NTIS.

Patent 4,231,859. Molybdenite Flotation. Filed Nov. 27, 1979. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,231,993. Recovery of Metal Values from Lead Smelter Matte. Filed June 11, 1979. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,235,163. Mine Face Ventilation System. Filed July 6, 1979. Patented Nov. 25, 1980. Not available NTIS.

Patent 4,239,735. Removal of Impurities from Clay. Filed Sept. 6, 1979. Patented Dec. 16, 1980. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Counsel for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-176,151. Improved Droop Stop for Fully Articulated Rotor. Filed Aug. 7, 1980.

Patent application 6-188,654. Safety Selector Switch. Filed Sept. 19, 1980.

Patent application 6-191,599. Phase Controlled Shuttering System with Selectable Shuttered and Unshuttered Modes. Filed Sept. 29, 1980.

Patent application 6-216,400. Safing and Arming Mechanism. Filed Dec. 15, 1980.

Patent application 6-219,463. Low Drag Underwaer Vehicle Utilizing Boundary Layer Suction. Filed Dec. 23, 1980.

Patent application 6-222,113. Simple Method for Fabricating Multimode Fiber Optic Access Couplers. Filed Jan. 2, 1981.

Patent application 6-227,568. Wide Band Data Processing Technique. Filed Jan. 22, 1980.

Patent 4,234,044. Chemical Agent Injection System for Fire Fighting Equipment. Filed Sept. 27, 1978. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,234,046. Pressure Differential Seafloor Corer-Carrier. Filed Apr. 30, 1979. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,234,712. Polyphthalocyannine Resins. Filed Sept. 14, 1979. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,236,401. Frequency Response Tester. Filed May 24, 1979. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,237,461. High-Speed Digital Pulse Compressor. Filed Feb. 15, 1979. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,238,856. Fiber-Optic Acoustic Sensor. Filed Jan. 24, 1979. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,244,386. Value Having Pyrotechnic Separation Device. Filed Jan. 30, 1979. Patented Jan. 13, 1981. Not available NTIS.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

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	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
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Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 16, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	2-05-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director .... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-06-78
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	6-22-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,980, inclusive
Plant Patents ..... Numbers 2,399 to 2,406, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JULY 7, 1981

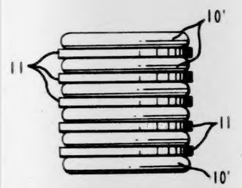
Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T100,801
ENERGY-ABSORBING DEVICE AND METHOD FOR MAKING SAME

Dominick Bianca, 2618 W. Robino Dr., Wilmington, Del. 19808

Continuation of Ser. No. 4,483, Jan. 18, 1979, abandoned. This application Sep. 26, 1980, Ser. No. 190,960
Int. Cl.³ B29H *3/00*; F16F *1/40, 1/44*
U.S. Cl. 267—141.1
2 Sheets Drawing. 16 Pages Specification

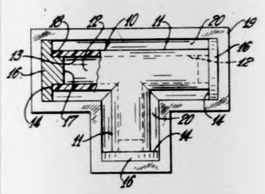


An energy-absorbing device comprising a permanently shortened member of a thermoplastic elastomer wherein said member comprises circumferentially enlarged portions due to permanent shortening by compression of an elongated member along its longitudinal axis of at least 10% of its original length, the enlarged portions being at least partially oriented and at least one unenlarged portion, and rigid retaining means encircling said unenlarged portion of the shortened thermoplastic elastomer member.

T100,802
COMPOSITE PIPE FITTINGS AND THE PRODUCTION THEREOF

Richard L. Vockel, Jr., 151 Highgate St., Granville, Ohio 43023

Continuation of Ser. No. 973,824, Dec. 27, 1978, abandoned. This application May 22, 1980, Ser. No. 152,278
Int. Cl.³ F16L *41/00*
U.S. Cl. 285—156
1 Sheets Drawing. 12 Pages Specification

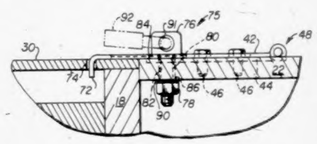


A composite pipe fitting and a method for producing it are provided by encasing a thermoplastic pipe fitting in a thermosetting material reinforced with discrete fibers with an adhesive material intermediate the thermoplastic pipe fitting and thermosetting material bonding the thermoplastic pipe fitting to the thermosetting material.

T100,803
LATCH FOR BATTERY COVERS

David L. Morrow, 1148 Plainfield Rd., South Euclid, Cuyahoga County, Ohio 44121

Filed Jul. 5, 1979, Ser. No. 55,112
Int. Cl.³ E05C *19/08*
U.S. Cl. 292—285
2 Sheets Drawing. 11 Pages Specification



A latch assembly (**32**) is disclosed for use with a compartment (**10**) of the type having a cover structure (**24**) removable therefrom, and a wall end portion (**22**). The latch assembly (**32**) comprises a strap (**34**) with finger members (**56,58**) receivable into apertures (**52,54**) of the cover structure. The strap is pivotally connected to the wall end portion and may be raised from and lowered into the apertures. The strap has a slot (**62**), defining a first surface, which is transverse to a recess (**60**), defining a second surface. A keeper (**75**) is positionable into contact and out of contact with the second surface. When the keeper is positioned out of contact with the second surface, the strap may be raised and the cover structure removed; when the keeper is in contact with the second surface, the latch assembly restrains movements in all directions which would act to displace the cover structure from its covering position. The principal use of the latch assembly is for securing a pair of battery cover members (**28,30**) to the battery compartment (**10**) of an electrically driven vehicle.

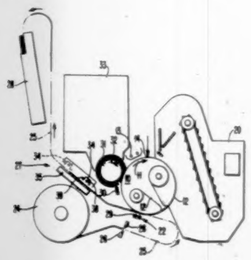
T100,804
MICROPROCESSOR CONTROLLED POWER SUPPLY FOR XEROGRAPHIC FUSING APPARATUS

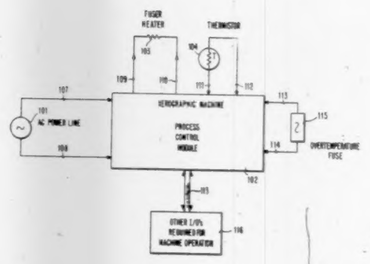
Larry M. Ernst, 5000 Butte #35, Boulder, Colo. 80301

Continuation of Ser. No. 921,659, Jul. 3, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 110,262
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 FU
9 Sheets Drawing. 49 Pages Specification

In a xerographic machine having control apparatus for regulating the temperature of a toner fusing device, said control apparatus comprising: a toner fusing device having electrical heater means for elevating the temperature of at least a portion of said fusing device; first means responsive to the temperature of said fusing device for providing an electrical manifestation indicative of the temperature of said fusing device; a controllable source of electrical energy for providing a controllable number of increments of electrical energy per unit of elapsed time to said heater means of said fusing device; and microprocessor means interconnecting said first means and said controllable source of electrical energy, whereby said micro-

processor means in response to the electrical manifestation indicative of the temperature of said fusing device controls the





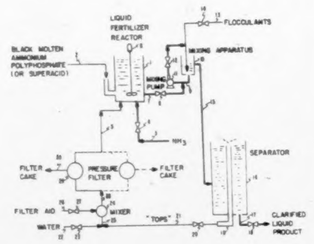
number of increments of electrical energy provided to said heating means during each unit of elapsed time.

T100,805

CLARIFICATION OF BLACK AMMONIUM POLYPHOSPHATE LIQUIDS RECYCLING OF BYPRODUCT TOPS

Horace C. Mann, Jr., Box 345, Rte. 4, Killen, Ala. 35645, and Kenneth E. McGill, Rte. 1, Box 163, Virginia Shores, Sheffield, Ala. 35660

Filed Oct. 6, 1980, Ser. No. 194,304
Int. Cl.³ C05B *7/00*
U.S. Cl. 71—34
1 Sheets Drawing. 30 Pages Specification



The process allows essentially all of the nitrogen and P_2O_5 values in the treated black ammonium polyphosphate liquid to be recovered in the form of valuable clarified product. In the process, a heel of black liquid fertilizer is first clarified by a prior-art procedure using flocculants. The improvement over the prior art picks up with the byproduct tops which is then diluted with the water of formulation required to dissolve additional amounts of ammonium polyphosphate melt. This diluted liquid is filtered, the filter cake containing upwards of 99 percent of the undesirable black carbonaceous material is discarded, and the clear filtrate, which contains essentially all of the nitrogen and P_2O_5 originally in the tops, is then used in lieu of the prior-art water of formulation to dissolve additional ammonium polyphosphate melt to produce more black ammonium polyphosphate liquid.

REISSUES

JULY 7, 1981

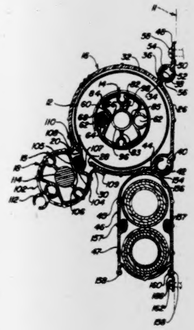
Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,664

RETRACTABLE AWNING

Albert E. Upton, Wichita, Kans., and Donald S. McKee, Louisville, Colo., assignors to The Scott & Fetzer Company, Lakewood, Ohio

Original No. 4,020,888, dated May 3, 1977, Ser. No. 697,777, Jun. 21, 1976. Application for reissue Mar. 26, 1979, Ser. No. 23,837
Int. Cl.³ E04F *10/06*
U.S. Cl. 160—66 **3 Claims**



1. A retractable awning adapted to be attached to a supporting surface and being movable between extended and retracted positions comprising in combination:

a roll bar,

a sheet of awning material anchored along an inner edge to said roll bar and adapted to be wound about the roll bar when the awning is retracted,

a case rotatably supporting the roll bar therewithin,

a mounting rail securable to said supporting surface, said mounting rail and case including connecting elements defining means for a releasable tongue-in-groove connection between the case and the mounting rail,

a lead bar connected to an outer edge of said sheet of awning material,

brace members selectively positionable between the [roll] *lead* bar and said supporting surface to hold the awning in the extended position, and

an auxiliary case adapted to store said brace members, and tongue-in-groove connection means connecting said auxiliary case to the first mentioned case.

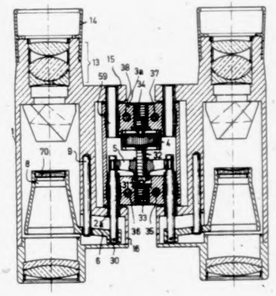
Re. 30,665

BINOCULAR TELESCOPE

Erwin Altenheiner, Hasselborn; Volker Donn, Heidenheim; Joachim Hornschu; Walter Jachan, both of Oberkochen, and Artur Jung, Heidenheim, all of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Original No. 4,080,043, dated Mar. 21, 1978, Ser. No. 620,391, Oct. 7, 1975. Continuation of Ser. No. 376,896, Jul. 5, 1973, abandoned. Application for reissue Apr. 3, 1979, Ser. No. 26,686
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1973, 2316955
Int. Cl.³ G02B *7/06*
U.S. Cl. 350—76 **26 Claims**

1. A binocular telescope comprising two separate individual telescope housings with interior movable-lens mounts and elements for individual telescope systems, a bridge housing between said telescope housings and having separate spaced parallel hinged connections to each of the respective telescope housings, said hinged connections establishing an axially located relation of said bridge and telescope housings, the hinge axes being parallel to the telescope axes, each telescope housing and the associated movable-lens mount including two spaced parallel coacting elongate guide means so related as to assure (a) optical-axis alignment of the movable-lens element for all longitudinally adjusted positions thereof and (b) nonrotation of said movable-lens element with respect to the associated telescope housing, whereby articulation of either or both of the respective housings necessarily articulates the movable-lens elements associated therewith in exact correspondence regardless of the longitudinally guided positioning of said movable-lens elements, a bridge element contained



within said bridge housing and extending between the axes of said hinge connections and including means having longitudinally guided relation to each of said hinge axes, selectively operable externally accessible adjustment means carried by said bridge housing and internally connected to said bridge element for adjusting the longitudinal position of said bridge element, whereby said bridge element may be longitudinally displaced regardless of the pivoted relation of said housings over a range of interocular adjustment of the spacing of telescope axes, and housing-contained lens-positioning means connecting each said movable-lens mount to said bridge element via that one of the hinge-connection axes which applies to the particular housing whereby there will be longitudinally coordinated positioning of said bridge element with respect to the movable-lens mount of each of said telescope systems.

Re. 30,666

AUDIO VISUAL INFORMATION SYSTEM

James A. H. Mitchell, London, and Edward J. Day, Kingston Surry, both of England, assignors to Mitchell Beazley Encyclopedias, Ltd., London, England

Original No. 4,124,943, dated Nov. 14, 1978, Ser. No. 616,551, Sep. 25, 1975. Application for reissue Aug. 27, 1979, Ser. No. 69,830
Int. Cl.³ G09B *5/06*
U.S. Cl. 434—307 **26 Claims**

25. An audio visual information system comprising:

a. first information means comprising pictorial information concerning a particular selected topic;

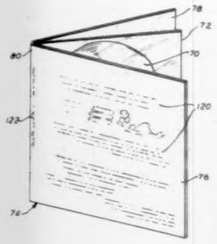
b. second information means comprising first text information means comprising pages of illustrated text and word descriptions relating to said selected topic, and second text information means comprising comprehensive sub topic information

covering said topic and reference to pages of the illustrated text and said descriptions;

c. recording means comprising a recording for audio visual playback including audio visual display of said pictorial and text information; wherein

d. part of said pictorial information being recorded upon said recording means for continuous viewing;

e. said first and second text information means being recorded upon said recording means for frame by frame viewing; and



f. said first and second text information being recorded on said recording means on at least one frame so that in a continuous viewing of said pictorial information the lack of many multiple frames of the text information inhibits viewing thereof, whereby the user may stop the continuous viewing of the topical pictorial information to study the first text information means relative to the topical information and then selectively study the comprehensive sub topic informtion with reference to related sections of said illustrated text.

Re. 30,667

POLY-DICARBON MONOFLUORIDE

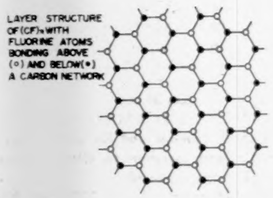
Nobuatsu Watanabe, No. 136, Uguisu-dai, Nagaokakyo-shi, Kyoto, Japan, and Yasushi Kita, Hiroshima, Japan, assignors to Nobuatsu Watanabe and Applied Science Research Institute, both of Kyoto, Japan

Original No. 4,139,474, dated Feb. 13, 1979, Ser. No. 824,911, Aug. 15, 1977. Application for reissue Jul. 6, 1979, Ser. No. 55,358

Claims priority, application Japan, Feb. 22, 1977, 52-017823

Int. Cl.³ C09K *3/00;* **C07C** *19/08*

U.S. Cl. 252—1 **5 Claims**



1. A chemical compound poly-dicarbon monofluoride represented by the formula

$$(C_2F)_n$$

and having a crystalline structure in which a layer structure [as shown in FIG. 12 hereof] is stacked with an interlayer spacing of about 9.0 A to form a packing structure, *said crystalline structure exhibiting a peak at about 10° in terms of an angle of 2θ in the X-ray diffraction powder pattern.*

Re. 30,668

PROCESS FOR PREPARING MATERIALS HAVING IMPROVED MECHANICAL AND THERMAL PROPERTIES AND MATERIALS OBTAINED THEREBY

Franco Buonomo; Vittorio Fattore, and Bruno Notari, all of S. Donato Milanese, Italy, assignors to Snamprogetti, S.p.A., Milan, Italy

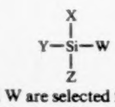
Original No. 4,013,590, dated Mar. 22, 1977, Ser. No. 519,792, Oct. 31, 1974. Application for reissue Mar. 12, 1979, Ser. No. 19,574

Claims priority, application Italy, Oct. 31, 1973, 30787/73

Int. Cl.³ B01J *21/12*

U.S. Cl. 252—455 R **10 Claims**

1. The process of improving the mechanical and thermal properties of aluminum oxide adapted for use as a catalyst or catalyst carrier which comprises impregnating said aluminum oxide with a silicon compound having the general formula:



in which X, Y, Z and W are selected from the group consisting of (—R), (—Cl), (—Br), (—SiH), (—COOR), (—SiH*n*Cl*m*), —[OSi(OR)]p, OSi, $(OR)_3$, in which R is an alkyl, cycloalkyl, aromatic, alkylaromatic or alkyl-cycloalkyl radical having from 1 to 30 carbon atoms; n, m and p are whole numbers from 1 to 3, by bringing said silicon compound or a solution thereof in a compatible organic solvent whose boiling point is lower than the boiling point of the silicon compound into contact with said aluminum oxide, drying said impregnated aluminum oxide at a temperature in the range of from the boiling point of the silicon compound to 500° C., and then subjecting said impregnated aluminum oxide to controlled oxidation.

Re. 30,669

MICROBIAL RENNIN

Louis Feldman, Spring Valley, N.Y., assignor to Gist-Brocades N.V., Delft, Netherlands

Original No. 4,136,201, dated Jan. 23, 1979, Ser. No. 860,636, Dec. 14, 1977. Continuation of Ser. No. 688,349, Dec. 6, 1967, abandoned, which is a continuation-in-part of Ser. No. 631,608, Apr. 18, 1967, abandoned. Application for reissue Oct. 15, 1979, Ser. No. 85,069

Int. Cl.³ C12N *9/58;* **A23C** *19/02*

U.S. Cl. 426—36 **8 Claims**

1. A microbial rennin having relatively high milk coagulating activity and relatively low proteolytic activity and being [relatively] *substantially* free from lipase obtained by cultivating a selected strain of Mucor miehei [(NRRL No's: 3169, A7772, A13131, A13042, and 2543)] *capable of producing microbial rennin* in a medium containing available carbon, nitrogen and trace nutrients and fermenting under aerobic conditions.

Re. 30,670

DRY PLANOGRAPHIC PRINTING PLATE

Yuh Ezumi, Kyoto; Masaharu Kobayashi, Otsu; Takashi Kubota, Kamakura, and Yoichi Shimokawa, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Original No. 4,086,093, dated Apr. 25, 1978, Ser. No. 713,576, Aug. 11, 1976. Continuation of Ser. No. 514,063, Oct. 11, 1974, abandoned. Application for reissue Jul. 16, 1979, Ser. No. 57,753

Claims priority, application Japan, Oct. 17, 1973, 48-115728

Int. Cl.³ G03C *1/68, 1/84*

U.S. Cl. 430—281 **14 Claims**

1. A negative acting presensitized dry planographic printing [place] *plate* comprising:

(a) a flexible base layer,

(b) a sparsely cross-linked linear diorganopolysiloxane layer overlying said base layer, and

(c) a photoadhesive layer overlying said diorganopolysiloxane layer, and in direct contact therewith comprising at least one photopolymerizable unsaturated compound having a boiling point above 100° C. and a photoinitiator wherein at least one said photopolymerizable compound has at least one hydroxyl group and at least one acryloyl group or one methacryloyl group in the same molecule and the total concentration of the hydroxyl groups and the total concentration of the acryloyl [or] *and* methacryloyl groups in the photoadhesive layer are each greater than 0.1 mmol/g.

Re. 30,671

MICROPROCESSOR SYSTEM HAVING HIGH ORDER CAPABILITY

Sydney W. Poland, Arlington, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original No. 4,153,937, dated May 8, 1979, Ser. No. 783,903, Apr. 1, 1977. Continuation-in-part of Ser. No. 714,464, Aug. 16, 1976. Application for reissue Jul. 9, 1979, Ser. No. 55,888

Int. Cl.³ G06F *3/08, 15/02*

U.S. Cl. 364—706 **36 Claims**

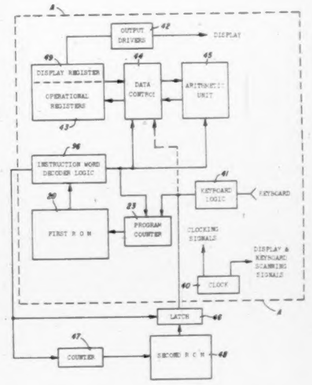
1. In an electronic microprocessor system, having a keyboard, output means for outputting data, a data memory for storing data, an arithmetic unit for performing arithmetic operations on the data stored in said data memory, and a first non-volatile memory for storing groups of instruction words for controlling the arithmetic operations performed by said arithmetic unit, the combination which comprises:

(a) a second non-volatile memory for storing a plurality of sets of program codes, each program code being effective for addressing a preselected group of instruction words stored in first non-volatile memory, said second non-volatile memory being disposed in a module having a plurality of electrical contacts;

(b) a receptacle for temporarily interconnecting the contacts on said module with said microprocessor system;

(c) keyboard logic means for decoding inputs received at said keyboard;

(d) means for addressing said second non-volatile memory to read out preselected sets of program codes, said means for addressing said second memory including a counter re-



sponsive to selected instructions outputted from said first memory;

(e) means for addressing said first non-volatile memory in response to the program codes read out of said second non-volatile memory, said means for addressing said first memory including a first program counter selectively responsive to said keyboard logic means and said program codes outputted from said second memory.

PATENTS

GRANTED JUL. 7, 1981

ERRATA

For CLASS	See PATENT NO.
434-047	4,276,702
411-041	4,276,806
493-287	4,276,815
294-145	4,277,006
493-433	4,277,058
369-248	4,277,070
369-084	4,277,071
023-293 R	4,277,331
422-120	4,277,361
518-703	4,277,416
560-024	4,277,420
570-185	4,277,421
338-308	4,277,542

PATENTS

GRANTED JULY 7, 1981

GENERAL AND MECHANICAL

4,276,657

ACCESSORY TO HARD HAT ATTACHING MEANS

Edward M. Montesi, Barrington, R.I., assignor to Norton Company, Worcester, Mass.

Filed Feb. 25, 1980, Ser. No. 124,119

Int. Cl.³ A44B *21/00*; A61F *9/02*

U.S. Cl. 2—422 **12 Claims**



12. A protective unit including a safety hard hat having a crown portion extending to a lower rim, an accessory engageable in an inoperative rest position with the crown and an accessory band attached to and extending rearwardly from the accessory for connection to the lower rim of the hard hat, wherein the improvement comprises:

a plurality of clips angularly spaced along and attached to the lower rim for attaching and retaining the accessory band thereto and each clip having

a substantially rigid stationary portion extending from an entrance end portion thereof and adapted to frictionally engage a surface portion of the lower rim wall,

a moveable resilient clamping portion situated opposite the stationary portion and which is adapted to engage an opposite surface portion of the lower rim wall, move outwardly, flex and produce a resilient clamping force against a portion of the lower rim wall insertable in between the stationary and moveable resilient portions when the clip is attached to the rim of the hard hat,

a curved slot including an entrance expandable between the stationary and moveable resilient clamping portions for receiving a portion of the lower rim wall, and

a passage extending through the clip adjacent the rigid stationary portion and spaced from the slot and adapted for receiving and retaining the accessory band to the clip.

4,276,658

HEART VALVE PROSTHESIS

Donald W. Hanson, and William E. Palmquist, both of Northfield, Minn., assignors to St. Jude Medical, Inc., St. Paul, Minn.

Continuation of Ser. No. 847,780, Nov. 2, 1977, abandoned. This application Feb. 7, 1980, Ser. No. 119,528

Int. Cl.³ A61F *1/22*

U.S. Cl. 3—1.5 **16 Claims**



1. In a heart valve prosthesis of the type having base means including a blood passageway, means for regulating the flow of blood through the passageway and means for maintaining the regulating means in operative relation to the passageway, the improvement wherein said maintaining means comprises:

(a) recess means within said base means, said recess means having a concave bearing surface formed as a substantially continuous surface of revolution; and

(b) said regulating means comprising at least one leaflet having means projecting from the edge thereof and into said recess means, said projecting means being formed as a surface of revolution means about an axis normal to the plane of said leaflet and compatible with said concave bearing surface for forcibly flushing blood from said recess means upon operative movement of the projecting means of said leaflet within said recess means.

4,276,659

MEDULLARY CANAL PLUG

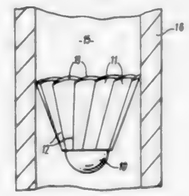
Kevin Hardinge, 'Thornfield ' Legh Rd., Knutsford, Cheshire WA12 8LS., England

Filed Nov. 19, 1979, Ser. No. 95,784

Claims priority, application United Kingdom, Jun. 30, 1979, 22808/79

Int. Cl.³ A61F *1/00*

U.S. Cl. 3—1.9 **3 Claims**



1. A medullary canal plug comprises a relatively rigid center and a plurality of individual leaves radiating therefrom, the said leaves being so connected to the center that they can pivot from a substantially flat disc configuration to a condition in which they take up a frusto conical configuration in which the individual leaves lie in partially overlapping condition.

4,276,660

CARPOMETACARPAL THUMB JOINT

George R. Laure, Kalamazoo, Mich., assignor to Laure Prosthetics, Inc., Portage, Mich.

Filed May 25, 1979, Ser. No. 42,706

Int. Cl.³ A61F *1/03*

U.S. Cl. 3—1.91 **3 Claims**



1. In a surgically implantable endoprosthetic carpometacarpal thumb joint for connection between the first thumb metacarpal bone and an appropriate hand bone, such as the trapezium or the navicular, the improvement comprising:

a one-piece metacarpal component adapted to be fixedly implanted into the upper end of the first thumb metacarpal, said metacarpal component including an elongated pin adapted for reception substantially coaxially into the first thumb metacarpal, a flange fixed on said pin adjacent the upper end thereof for limiting the extent to which the pin can enter into the first thumb metacarpal, the flange being adapted to seat against a substantially flat surface formed on the first thumb metacarpal, a pinlike support fixed to said flange and projecting therefrom in the opposite direction from said pin, and a ball fixedly secured to said pinlike support at the free end thereof; and

a one-piece base component for implanting into said appropriate hand bone, said base component including an enlarged base member constructed of a molded plastic and having a recess formed therein which opens outwardly through an opening formed in one end thereof, said recess defining a substantial portion of a sphere such that central sections through said recess define an arcuate extent in excess of 180°, said base member defining thereon a resilient lip in surrounding relationship to the opening into said recess for snappably receiving said ball directly within said recess and retaining same therein;

said one-piece base member also including a projection fixed to and projecting outwardly from the end thereof which is opposite from but approximately aligned with the recess opening, said projection having means associated therewith for permitting the projection to be nonrotatably implanted into said appropriate hand bone, said projection and said pin being substantially aligned with one another and with the center of said recess when the metacarpal and base components are positioned in a substantially straight positional relationship;

said one-piece base component further including a flange fixed to and projecting outwardly from said base member for limiting the extent of movement thereof into the appropriate hand bone, said flange seating against a substantially flat surface formed on said hand bone for stabilizing said base member, and the base member at the end thereof opposite said recess opening being provided with an outwardly projecting contoured portion of partial spherical shape for reception into a suitably and similarly shaped recess formed in the appropriate hand bone, said contoured portion being positioned directly adjacent and projecting outwardly from the flange fixed to said base member, and said projection being fixed to and projecting centrally outwardly from said contoured portion;

said metacarpal and base components being adapted for reception respectively into said first thumb metacarpal and said appropriate hand bone at such respective depths thereinto that the center of rotation between said ball and said base member will be substantially coincident with the center of rotation of the preexisting thumb joint, and said ball and said recess both being of smooth spherical configurations to permit substantially universal swiveling of the ball within the recess so as to approximate the normal universal pivoting movement of the thumb relative to the hand.

4,276,661

WAVE-MAKING APPARATUS

William H. Baker, 30 Honeysuckle Woods, Clover, S.C. 29710

Filed Jan. 30, 1979, Ser. No. 7,541

Int. Cl.³ E04H *3/18*; E02B *3/00*; F04D *35/00*

U.S. Cl. 4—491 **18 Claims**

1. An apparatus for making waves in bodies of water used for swimming, comprising, in combination:

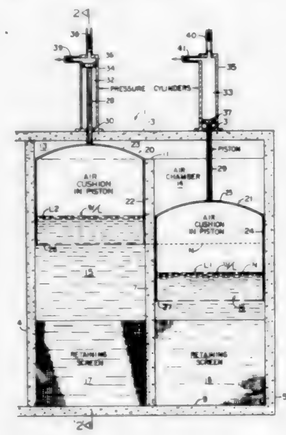
(1) a housing;

(2) a multi-compartmented chamber in the housing having at least one set of separate paired compartments open in a nonintercommunicating lower portion for separate reception of water therewithin from a body of water, and closed in an intercommunicating upper portion in a manner to provide a fluid-tight upper portion confining therewithin a volume of fluid that is common to each pair of compartments;

(3) at least one pair of pistons each disposed in separate paired compartments in the chamber, each piston being mounted across its compartment for reciprocation in alternating power and suction strokes and arranged for fluid-pressure-induced interreaction with each other in balanced strokes, with the movement of each piston engaged in a power stroke interreacting with and inducing opposed movement of an interreacting piston in a suction stroke according to pressure changes in the fluid volume common thereto;

(4) each piston having an upper face with a pressure-receiving surface responding to fluid pressure in the upper portion of its compartment, and a lower face with a pressure-receiving surface responding to water pressure in the lower portion of its compartment;

(5) a plurality of separate passages and ports in the housing, each piston-containing compartment being in flow communication with its own passage and port, each passage admitting water into the housing from the body of water, the passages and ports being isolated from each other within the housing;



whereby on the power stroke each piston pushes water below it in the lower portion of its compartment into its passage and via its port into the body of water, and on the suction stroke each piston draws water from its passage via its port into the lower portion of its compartment, the resulting alternating pulses of water flow generating waves in the body of water beyond the housing moving in an outward direction from the housing, and on the power stroke the fluid pressure reduction in the volume of fluid confined in the intercommunicating upper portions of the separate paired compartments of the interreacting piston pair combined with the water pressure below the interreacting piston of the pair results in actuating that piston on its suction stroke and puts it in position for its next power stroke after the first piston has ended its power stroke.

4,276,662

PLUG DEVICE FOR DRAINPIPE OF BASIN OR BATHTUB

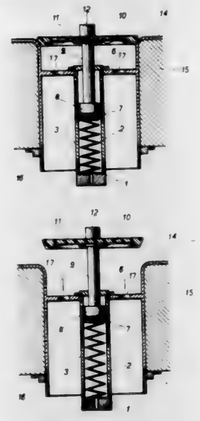
Victor Young, 3rd Fl., No. 4, Alley 31, Lane 41, Wu-Feng Rd., Hsin-Tien Town, Taipei Hsien, Taiwan

Filed Oct. 11, 1979, Ser. No. 83,981

Int. Cl.³ A47K *1/14*

U.S. Cl. 4—295 **4 Claims**

1. A drain plug device for a basin or bathtub comprising a flexible plug fixed to the upper end of a rod, a roller member rotationally mounted on the lower end of said rod, a tubular sleeve member telescopingly engaging said roller member therewithin for relative rotational and slidable movement, a spring member within said tubular sleeve for urging said roller member and rod upwardly, means to attach said device within the drain opening, cooperating means on said roller member and the inner surface of said tubular sleeve which by depressing said plug member only cooperates to fix said plug in position to open or close the drain.



4,276,663

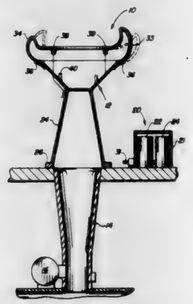
TOILET FACILITY

Walter Gensurowsky, 120 W. Granada, Phoenix, Ariz. 85003

Continuation-in-part of Ser. No. 776,447, Jun. 29, 1977, abandoned. This application Jun. 13, 1979, Ser. No. 48,248

Int. Cl.³ E03D *1/00*; B64D *11/02*

U.S. Cl. 4—313 **7 Claims**



1. A toilet facility for disposal of solid and liquid human waste comprising:

(a) a bowl adapted to be connected to a waste disposal system, said bowl having a receptacle for the reception of waste and having a rim contoured to sealingly engage a portion of the body of the user;

(b) vacuum means for inducing a vacuum within said bowl;

(c) a spray system including a container for a spray medium, spray nozzle means located within said bowl positioned to direct a spray on a portion of the body of the user, conduit means connected said nozzle means and said spray container; and

(d) control means for controlling said vacuum means and said spray system in a predetermined cycle of operation, said control means being associated with said bowl and being actuable by the body weight of the user.

4,276,664

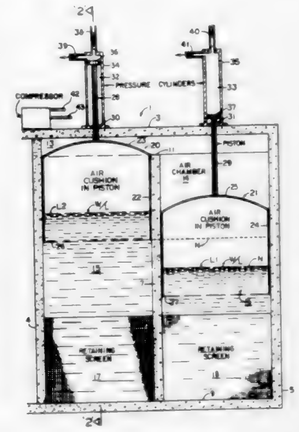
APPARATUS FOR WAVE-MAKING

William H. Baker, 30 Honeysuckle Woods, Clover, S.C. 29710

Filed Jan. 30, 1979, Ser. No. 7,542

Int. Cl.³ E04H *3/18*; E02B *3/00*; F04D *35/00*

U.S. Cl. 4—491 **12 Claims**



1. An apparatus for making waves in bodies of water used for swimming, comprising, in combination:

(1) a housing;

(2) a plurality of hollow pistons in the housing mounted for reciprocation in alternating power and suction strokes and arranged in balanced groups in which the movement of each piston engaged in a power stroke is opposed to the movement of an adjacent piston engaged in a suction stroke;

(3) each piston having an open bottom for reception of water into the lower portion of the hollow piston from the body of water and a closed top confining a gas cushion therewithin between the top and any water within the lower portion of the piston, the gas cushion being under a first pressure during a power stroke of the piston, and under a second lower pressure during a suction stroke of the piston;

(4) pressurized gas supplying means for communication with and periodic replenishment of the gas within the gas cushion of the piston to maintain the gas cushion at a selected volume or pressure;

(5) a plurality of separate passages and ports in the housing admitting water into the housing from the body of water, the passages and ports being isolated from each other within the housing, with each separate passage being in fluid flow connection at one end with its own port and at the other end with the interior of one hollow piston;

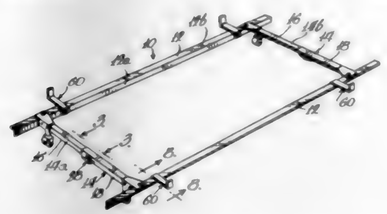
whereby on the suction stroke each piston draws water into its interior via its passage and port from the body of water, and on the power stroke each piston pushes water from its interior via its passage and port back into the body of water, the resulting alternating pulses of water flow generating waves in the body of water beyond the housing moving in an outward direction from the housing, and the gas cushion in each piston acting as a shock absorber reducing mechanical wear on the piston in reciprocating movement thereof.

4,276,665

BED FRAME OF ADJUSTABLE WIDTH

Frank J. Mis, Oak Lawn, Ill., assignor to Harris Hub Co., Inc., Harvey, Ill.

Filed Oct. 4, 1979, Ser. No. 81,765
Int. Cl.³ A47C 19/04
U.S. Cl. 5—184 **9 Claims**



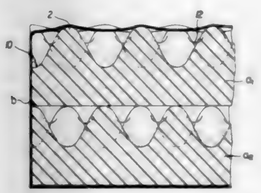
1. An adjustable bed frame for supporting mattress means in spaced relationship to a floor, comprising: a pair of spaced, parallel, horizontally disposed side rails, a pair of spaced, parallel, horizontally disposed end rails extending substantially transversely between said side rails for holding said side rails in spaced, parallel relationship, each end rail including first and second elongated elements each having at least one wall, said first element having a first end mounted to one of said side rails and said second element having a first end mounted to the other of said side rails, each of said elements having a second end disposed in slidable relationship to one another along the axis of said elements, said first element having a series of teeth along one edge of said wall and extending along the axis of said first element, generally L-shaped pawl means pivotally mounted to said second element, thin, flat leaf spring biasing means having one end secured to said pawl and an opposite end for engagement with said end rail, said pawl means having one leg to engage said teeth one at a time, said teeth facing in a direction such that said pawl is free to ride over said teeth when said first and second elements are moved inwardly toward one another, engagement between said one leg of said pawl and one of said teeth preventing said first and second elements from moving outwardly relative to one another, and said pawl having a second leg which is engageable by a user to counteract the bias of the leaf spring biasing means to release said one leg from said teeth for adjusting the width of said bed frame.

4,276,666

MATTRESS

Junji Yamada, Nihonbashi, assignor to Yamada Co., Ltd., Melbourne Plaza, Hong Kong

Filed Aug. 20, 1979, Ser. No. 68,069
Claims priority, application Japan, Dec. 12, 1978, 53-153870
Int. Cl.³ A47C 27/14, 27/15
U.S. Cl. 5—481 **3 Claims**



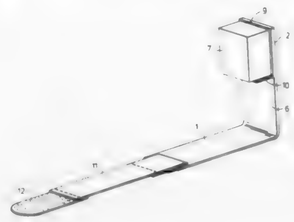
1. A mattress comprising a sponge having a specific gravity of 0.035 and being compressed about 65% of the thickness thereof by the load of 30 Kg per 314 cm^2, wherein said sponge is provided with surface protruberances so that it can be compressed about 65% the thickness thereof by a load of 25 Kg per 314 cm^2, whereby a person weighing 57 kg, when lying on the mattress, does not feel the ground below said mattress.

4,276,667

DEVICE FOR HOLDING BED CLOTHES IN POSITION

Barry C. Osbourne, 3 Cameron St., Herne Bay, Auckland, New Zealand

Filed Jan. 12, 1979, Ser. No. 3,097
Int. Cl.³ A47C 21/02
U.S. Cl. 5—498 **4 Claims**



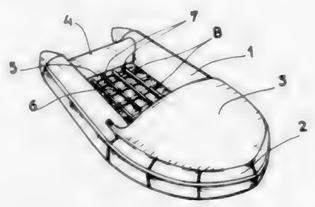
1. A device for holding bed clothes in position, said device comprising: a substantially planar base, a substantially planar head portion which projects in a substantially upright manner from the base, at or near one end of the base, gripping means located on the inner surface of the head portion for gripping bed clothes against a side of a mattress, said gripping means comprising a block of rubber having horizontal ribs or corrugations, said gripping means being located adjacent a flange member having a thickness less than said block of rubber and attached to said head portion, and mattress engaging means comprising a piece of flexible material having a plurality of small hooking means extending from its upper surface, said flexible material being attached to the base of the device by tensioning means comprising an elastic strap such that the hooking means is engagable with the underside of the mattress; the construction and arrangement being such that, in use, the device is positioned on a bed with the base passing under the mattress and engaging with the mattress as aforesaid and with the head portion passing up a side of the mattress to grip the bed clothes between the head portion and the side of the mattress.

4,276,668

DEVICE FOR HOLDING IN POSITION THE FORWARD PORTION OF AN INFLATABLE BOAT

Jean-Pierre Lefebvre, Joinville-le-Pont, France, assignor to Creusot-Loire, Paris, France

Filed Oct. 25, 1979, Ser. No. 87,969
Claims priority, application France, Oct. 30, 1978, 78 30737
Int. Cl.³ B63B 7/08
U.S. Cl. 9—2 A **3 Claims**



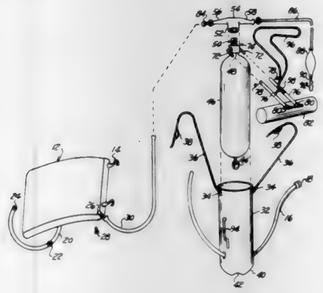
1. In combination with an inflatable boat including a tubular float forming the periphery of the boat and defining a bow of streamlined shape and a bottom consisting of a grating of rigid material and of a sheathing of flexible and impermeable material located at the bottom portion of the boat, a device for holding in position the forward portion of the boat to avoid excessive deformation of the bow under the force of the waves, said device comprising a torsion-bar fixed onto the grating and arranged transversely with respect to the boat, a rigid stay-bar bent so as to reproduce the shape of the bow and having at least one of its ends connected to said torsion-bar, a rigid bearing surface integral with the forward portion of the boat and supporting the central bent portion of the stay-bar for holding in position this forward portion by an elastic force exerted by the torsion-bar, which opposes the lifting forces exerted by the waves upon the bow of the boat.

4,276,669

AUTOMATICALLY-INFLATABLE LIFE PRESERVER

Virgilio Suba, 1050 Campbell Ave., Detroit, Mich. 48209

Filed Jan. 23, 1978, Ser. No. 871,176
Int. Cl.² B63C 9/20
U.S. Cl. 9—313 **1 Claim**



1. An automatically inflatable life preserver adapted to sustain the wearer thereof in the water, said life preserver comprising

an inflatable flotation envelope of flexible gas-tight material,

a life preserver attachment structure connected to said flotation envelope and adapted to extend over the wearer's shoulders and including means for detachably securing said structure to the wearer's body.

a compressed-gas-operated audible alarm device connected to said attachment structure,

bladder means connected to said alarm device, said bladder means becoming inflated upon the immersion of said life preserver in the water and thereby buoying up said alarm device above the water such that said alarm device emits sounds directly above the water,

a compressed gas supply assembly mounted on said attachment structure and connected to said flotation envelope,

said gas supply assembly including a compressed gas tank unit adapted to contain a compressed gas and a normally-closed rotary gas distribution valve unit disposed between said compressed gas tank unit and said envelope and between said compressed gas tank unit and said alarm device and in communication with said envelope and also with said alarm device,

said rotary gas distribution valve unit including a valve casing and a rotary valve member journaled in said casing and rotatable between closed and open positions respectively closing and opening gas flow from said compressed gas tank unit to said envelope and also to said alarm device,

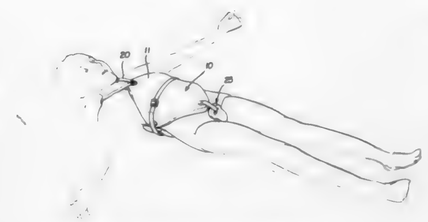
and a float device operatively connected to said rotary valve member and responsive to the immersion thereof in water to rotate said rotary valve member from its normally-closed position to its open position establishing compressed gas flow from said compressed gas tank unit through said gas supply assembly to said envelope and also to said alarm device whereby to inflate said envelope and said bladder means and sound said alarm device automatically upon immersion thereof.

4,276,670

SWIMMER'S FLOATATION AID

John L. Marchello, and Barbara L. Marchello, both of P.O. Box 100, New Hudson, Mich. 48165

Filed Oct. 17, 1979, Ser. No. 85,820
Int. Cl.³ B63C 9/08
U.S. Cl. 9—337 **3 Claims**



1. A swimmer's floatation aid comprising:

a pair of substantially flat, thin, resilient, buoyant, approximately diamond shaped sheets, each having an upper corner, a lower corner and a pair of side corners;

said sheets being dimensioned to be applied against the front and the rear surfaces of a human torso with their upper corners located a short distance below the neck area, their lower corners located a short distance above the crotch area, and the side corners being roughly in the waist area with adjacent side corners of the two sheets being close to each other;

each sheet being formed with enlarged openings through the upper, lower, and side corners respectively;

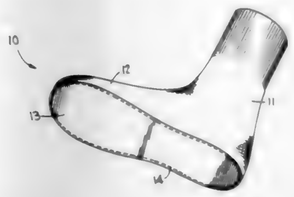
strap means interconnecting the upper corners and extending over the shoulder portions of the torso, said strap means interconnecting the upper corners comprising a pair of narrow, flexible strap members, each arranged to extend over the swimmer's shoulder on opposite sides of the neck, and one end of the straps looped through a single enlarged opening in the upper corner of one sheet and the opposite end of said straps looped through a single enlarged opening in the upper corner of the other sheet;

strap means interconnecting the lower corners and extending around the crotch area between the legs of the swimmer, said strap means interconnecting the lower corners including an elongated strip of flexible, resilient, buoyant material formed of substantially the same material as the sheets, to thereby maintain the position of the sheets on the swimmer's body during swimming activity and to increase the floatation support in the crotch area of the torso;

and strap means interconnecting the adjacent side corners, said strap means interconnecting the side corners comprising a long, narrow strap of a length to extend around the swimmer's body approximately in the waist area thereof, and to pass through adjacent corner openings, and including releasable fastening means for connecting the opposite ends of the strap together and for releasing the strap from around the swimmer's body;

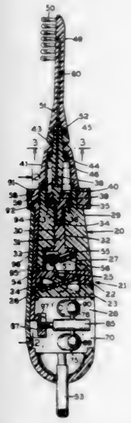
wherein said sheets generally conform to the shape of the torso, without substantially bulging therefrom, and wherein the swimmer's arms, shoulder and shoulder muscle portions, and the hip and upper leg portions are uncovered and unrestricted so that the aid provides a limited floatation assistance, but avoids interference with swimming activity movements of the swimmer's body.

4,276,671
METHOD OF MAKING A SLIPPER SOCK
Florence Melton, 1000 Urlin Ave., Columbus, Ohio 43212
Filed Dec. 4, 1979, Ser. No. 100,228
Int. Cl.³ A43D 9/00; A43B 1/02
U.S. Cl. 12—142 T **8 Claims**



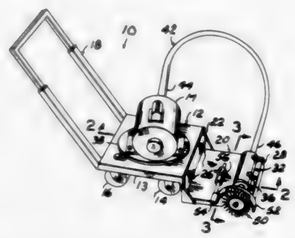
1. A method of forming a stretchable slipper sock which conforms to the shape of the wearer's foot, said method comprising the following steps:
(a) placing on a suitably sized foot form a stretchable knitted sock having an upper portion and a foot portion with unitary bottom, such that at least the bottom of the foot portion is stretched to the desired size and shape,
(b) adhering a suitably sized thin and flexible bottom sole to the bottom of the stretched foot portion of the sock by means of separate adhering means located at the extremities of the heel and toe portions of the bottom sole,
(c) removing the sock with bottom sole attached thereto from the foot form, and
(d) stitching together the periphery of the bottom sole to the bottom of the foot portion of the sock while the bottom of the foot portion of the sock is simultaneously stretched to conform to the size of the bottom sole.

4,276,672
POWER TOOTHBRUSH OR THE LIKE WITH ORBITAL BRUSH ACTION
Walter D. Teague, Jr., Tweed Blvd., Nyack, N.Y. 10960, and Arthur T. Sempliner, 37-04 Van Nostrand Pl., Douglaston, N.Y. 11363
Division of Ser. No. 848,807, Nov. 7, 1977, Pat. No. 4,175,299. This application Aug. 29, 1979, Ser. No. 70,689
Int. Cl.³ A46B 13/06
U.S. Cl. 15—22 R **8 Claims**



1. A powered toothbrush appliance or the like, comprising
(a) a housing,
(b) said housing being of a length suitable to be held by a human hand,
(c) a non-rotatable, orbitally movable wobble shaft mounted for universal pivoting movement in said housing and supporting a standard toothbrush element including a brush end,
(d) the brush end of said toothbrush element being movable by said wobble shaft through a first orbital path of predetermined diameter suitable for oral hygiene,
(e) orbital output drive means mounted in said housing and comprising a fluid-powered nutating action motor having an output element movable through a second orbital path of predetermined diameter,
(f) said orbital output drive means further including a rotary member journalled in said housing and driven to rotate about its axis by said orbitally moving output element,
(g) said rotary member being engageable with an end of said wobble shaft for driving said end through a third orbital path of predetermined diameter,
(h) the diameter of said third orbital path being substantially less than the diameter of said second orbital path whereby the length of said housing is suitable for use as a hand held appliance with the diameter of the first orbital path being suitable for driving the brush end of the toothbrush element in an effective oral hygiene stroke.

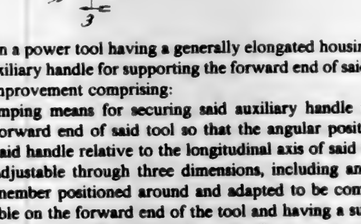
4,276,673
FLOOR WAX STRIPPING APPARATUS
Edward E. Brook, 310 United Founders Life Tower, Oklahoma City, Okla. 73112
Filed Dec. 19, 1979, Ser. No. 105,323
Int. Cl.³ A47L 11/14
U.S. Cl. 15—49 C **4 Claims**



1. A machine for removing wax from the marginal edge of a floor adjacent a mopboard, or the like, comprising:
mobile frame means including a handle at one side thereof for moving the frame means across a floor surface;
a motor having a horizontally disposed drive shaft;
means mounting said motor on said frame means for angular rotation of the motor about a vertical axis;
a flexible shaft connected at one end portion with and driven by said drive shaft;
a floor wax removing disk or brush coaxially secured to the other end of said flexible shaft; and,
means connecting said flexible shaft other end portion with said frame means for vertical movement toward and away from the surface of a floor with the plane of said disk or brush disposed vertically and parallel with the direction of movement of said frame means.

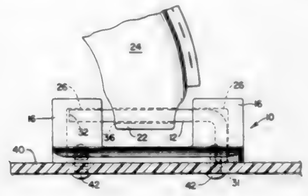
4,276,674
ROTARY BROOM FOR SWEEPER
Frederick B. Hunt, Wauwatosa, Wis., assignor to Milwaukee Dustless Brush Co., Milwaukee, Wis.
Filed Feb. 4, 1980, Ser. No. 118,501
Int. Cl.³ A46B 7/10
U.S. Cl. 15—182 **16 Claims**

1. An improved brush for use on a rotary broom having a central core extendable longitudinally along the axis of rotation of the broom, said improved brush comprising:
sweeping brush means having turns spacedly positionable along the periphery of the core, the turns of said sweeping brush being free to move at least longitudinally along said core; and



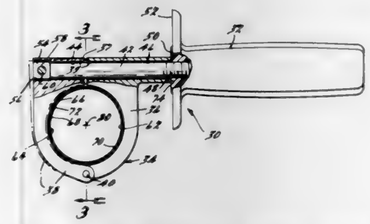
spacer means interconnecting adjacent turns of said brush at a discrete circumferential location on said turns for limiting the longitudinal movement of said turns relative to each other for providing a desired longitudinal spacing to said turns along said core.

4,276,676
HANDLE MOUNTING DEVICE
Edward M. Stolarz, Yorktown Heights, N.Y., assignor to Presto Lock Company, Division of Walter Kidde & Company, Inc., Garfield, N.J.
Filed Jul. 30, 1979, Ser. No. 62,033
Int. Cl.³ A47B 95/02
U.S. Cl. 16—126 **7 Claims**



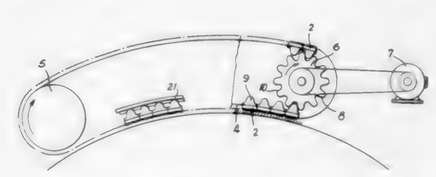
1. A device for mounting a handle on a luggage case or the like comprising a stud having a base, an aperture extending through the base and sized to pass an end of a handle, a slot in the base having a width substantially less than the width of the aperture and having first and second slot portions intersecting opposite ends of said aperture and extending beyond said ends and upwardly with said aperture from the underside of the base to a terminus within the interior of the stud, and a pin sized to fit in the slot, the pin being adapted to be inserted through a hole in the end of the handle to support the handle in the stud.

4,276,675
AUXILIARY HANDLE FOR A POWER TOOL
Peter P. Pioch, Idstein, Fed. Rep. of Germany, assignor to Black & Decker Inc., Newark, Del.
Filed Feb. 7, 1980, Ser. No. 119,560
Int. Cl.³ A47B 95/02; E05B 1/00
U.S. Cl. 16—111 R **8 Claims**



1. In a power tool having a generally elongated housing and an auxiliary handle for supporting the forward end of said tool, the improvement comprising:
clamping means for securing said auxiliary handle to the forward end of said tool so that the angular position of said handle relative to the longitudinal axis of said tool is adjustable through three dimensions, including an inner member positioned around and adapted to be compressible on the forward end of the tool and having a substantially spherically contoured outer surface, an outer clamping member connected to said handle and having an inner clamping surface complimentary to said outer surface thereby permitting said outer clamping member to be moved about the spherical zone defined by said outer surface, and means operative on said outer clamping member to apply a clamping force on said inner member to compress said inner member causing it to grip the forward end of said tool.

4,276,677
TRAVELING COVER
Wolfgang Piske, Monchen-Gladbach, Fed. Rep. of Germany, assignor to Trutzschler GmbH & Co. KG., Monchen-Gladbach, Fed. Rep. of Germany
Filed Sep. 14, 1978, Ser. No. 942,147
Claims priority, application Fed. Rep. of Germany, Sep. 17, 1977, 2742015
Int. Cl.³ D01G 15/08
U.S. Cl. 19—102 **3 Claims**



1. A revolving flats arrangement for carding equipment, comprising: guide means with two sides; flats sliding with both ends on said guide means; deflecting roller means having a driving element, said driving element having members for engaging said flats, said flats being pressable against said guide means by an elastic element, said guide means restricting said flats to a predetermined path, said flats being substantially held in predetermined position by said guide means, said flats forming a gap on one side and at one location; vacuuming means for communicating with said gap inside said revolving flats arrangement and between said deflecting rollers; said flats having clothing located on a side facing away from clothing on a card cylinder; axially movable cleansing means for cleaning the clothing of said flats; said deflecting roller means comprising two deflecting rollers, said flats being arranged between said deflecting rollers only on one side facing said card cylinder; return means for returning said flats; one of said deflecting rollers comprising driving means and having a sprocket-shaped portion, said flats having a peripheral surface shape to conform to said sprocket-shaped portion when said flats are

located adjacent to each other, said sprocket-shaped portion engaging corresponding surface portions of said flats for moving said flats slidingly along said guide means toward the other deflecting roller.

4,276,678

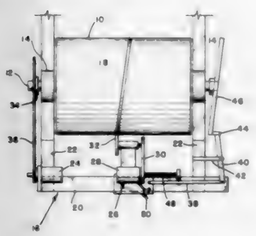
RING DOFFER

James W. Howe, Jr, Durham, N.C., assignor to Gunter & Cooke, Inc., Durham, N.C.

Division of Ser. No. 860,380, Dec. 14, 1977, Pat. No. 4,172,342, which is a continuation of Ser. No. 799,469, May 23, 1977, abandoned, which is a continuation of Ser. No. 457,973, Apr. 4, 1974, abandoned, which is a continuation-in-part of Ser. No. 414,995, Nov. 12, 1973, abandoned, which is a continuation of Ser. No. 392,127, Aug. 27, 1973, abandoned. This application Feb. 9, 1979, Ser. No. 10,574

Int. Cl.³ D01G *15/46*; B24B *1/00*

U.S. Cl. 19—106 R **4 Claims**



1. A ring doffer having a clothing cover of metallic wire teeth that has been disabled at least in one circumferential zone, said zone being of substantially uniform individual width and having a reverse helix pattern the pitch of said helical pattern followed by said zone reversing only once in every complete revolution of the doffer, and said reverse helix pattern following the circumference of the doffer.

4,276,679

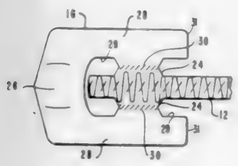
SLIDE FASTENER

George B. Moertel, Conneautville, Pa., assignor to Textron, Inc., Providence, R.I.

Filed Mar. 26, 1979, Ser. No. 24,221

Int. Cl.³ A44B *19/42*

U.S. Cl. 24—205.16 R **9 Claims**



1. A slide fastener comprising
a pair of mounting tapes having adjacent side edges;
a plurality of thermoplastic coupling elements mounted on the adjacent edge of each of the coupling elements, each of the coupling elements including a head portion with a pair of leg portions extending therefrom on opposite sides of the respective mounting tape;
a thickened rib formed on at least one side of each of the mounting tapes near the adjacent edge thereof;
said leg portions each having a heel and a straight interior surface extending from adjacent the respective head portion to the respective heel; and
a raised attachment boss formed on the interior surface of each of the leg portions of the coupling elements, the attachment bosses being spaced apart from the respective head portions and the respective heels and being fused to the respective ribs so that the coupling elements are securely attached to the respective mounting tapes.

4,276,680

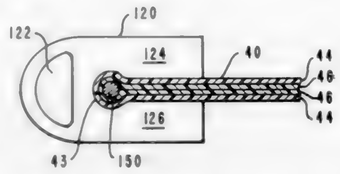
LOW COST SLIDE FASTENER STRINGER

George B. Moertel, Conneautville, Pa., assignor to Textron, Inc., Providence, R.I.

Filed Nov. 19, 1979, Ser. No. 95,829

Int. Cl.³ A44B *19/40*

U.S. Cl. 24—205.16 R **3 Claims**



1. A low cost slide fastener stringer comprising
a tape folded lengthwise to define a folded edge; and
a row of coupling elements attached along the folded edge of the tape;
the tape including a layer of cross-laminated oriented polyolefin film, and a layer of high density polyolefin bonded fiber film;
the tape being folded so that the bonded fiber film is outermost.

4,276,681

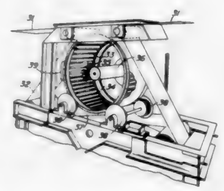
IN AN APPARATUS FOR FORMING BIAXIALLY ORIENTED NONWOVEN FABRICS

Preston F. Marshall, Walpole, Miss., assignor to The Kendall Company, Boston, Mass.

Division of Ser. No. 877,282, Feb. 13, 1978, Pat. No. 4,228,123, which is a continuation-in-part of Ser. No. 506,843, Sep. 17, 1974, Pat. No. 3,969,561. This application Jun. 21, 1979, Ser. No. 50,575

Int. Cl.³ D04N *1/46*

U.S. Cl. 28—105 **6 Claims**



1. In an apparatus for forming a biaxially oriented nonwoven striped fabric having a machine direction to cross direction tensile strength ratio of less than 2 to 1, said apparatus including holding means for sandwiching a carded nonwoven web between a tensioned first screen and a rigid means having fluid-pervious areas thereon; means for applying a fluid force to said holding means that is capable of rearranging the fibers in said web; and, collection means for removing the thusly treated web from said apparatus and collecting same, the improvement comprising said rigid means having fluid-pervious areas thereon that includes a drum consisting essentially of spaced-apart striping bars laterally disposed across a second screen on said drum and around the circumference of said drum, said drum being juxtaposed with at least a portion of said tensioned first screen so that said web can be sandwiched

therebetween in a manner that said striping bars are normal to the axis of the parallelized fibers of the carded web; said means for applying said fluid forces including a bank of fluid nozzles disposed within said drum and behind the portion of said striping bars that is in juxtaposed relation with said tensioned first screen, so that the fluid forces emanating from said nozzles strike the fibers in said web and rearrange them.

4,276,682

DEVICE FOR LAYING DOWN CONTINUOUS MATERIAL BY MEANS OF A PAIR OF PROFILED ROLLS

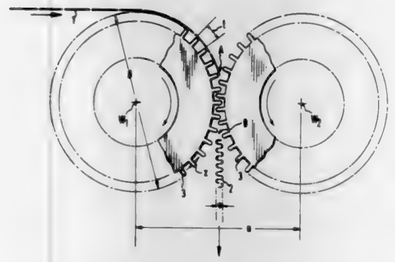
Klaus Rüber, Wehringen, and Karl Zill, Gersthofen, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 12, 1979, Ser. No. 75,142

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840122

Int. Cl.³ B65H *54/80*

U.S. Cl. 28—289 **10 Claims**



1. A device for laying down in spinning cans a tow of filaments with the aid of a pair of profiled rolls, comprising delivery means supplying the tow at a delivery speed to the pair of profiled rollers, the profiled rolls having peripheries which are uniformly provided with teeth having a pitch and which form an engagement zone, the width of the teeth in the engagement zone of the pair of profiled rolls being at least the same in the radial direction outwardly from the center point of each roll and a small fraction of the pitch of the teeth, the profiled rolls having drive means rotating them at a laying-down speed at which the tow is laid down in the spinning cans, and the laying-down speed being reduced relative to the delivery speed by over 15% without winding up around the profiled rolls.

4,276,683

METHOD FOR WINDING ELECTRODE FOILS AND SEPARATORS FOR CAPACITOR

Toshio Konno, Aichi, and Masatoshi Hayakawa, Nagoya, both of Japan, assignors to CKD Corporation, Komaki, Japan

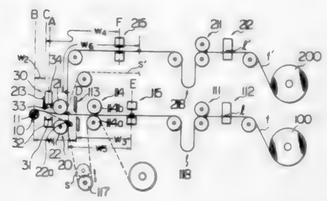
Filed Aug. 17, 1978, Ser. No. 934,596

Claims priority, application Japan, Oct. 4, 1977, 52-119389

Int. Cl.³ H01G *4/32*

U.S. Cl. 29—25.42 **3 Claims**

1. A method for winding electrode foils and separators into a small size capacitor, comprising:
placing a plurality of first lead wires on a first electrode foil at first predetermined intervals and placing a plurality of second lead wires on a second electrode foil at second predetermined intervals greater than the first intervals, said intervals being according to the desired capacitance of the capacitor;
superimposing separators and the first and second foils;
engaging the leading end of said superimposed electrode foils and separators with a winding shaft and thereafter rotating said winding shaft for starting winding of the foils and separators;
stopping rotation of said winding shaft when one of the first lead wires attached to said first electrode foils at a position spaced a first predetermined distance along the wound foils and separators from the leading end is at a first radial position relative to said leading end and then cutting said first electrode foil at a position spaced a second predetermined distance from said one lead wire, said first and second predetermined distances together equalling said first interval;
again rotating said winding shaft to further wind said superimposed electrode foils and separators;
again stopping rotation of said winding shaft when a second lead wire attached to said second electrode foil at a position spaced a third predetermined distance along the



wound foils and separators from the leading end is at a second radial position relative to the leading end and which second radial position is diametrically opposite the radial position of said first electrode on said first foil with respect to the center of the capacitor, and cutting said second electrode foil and the separators at a position spaced a fourth predetermined distance from said second lead wire, said third and fourth predetermined distances together equalling said second interval; and
again rotating said winding shaft to wind the trailing end of said second electrode foil and the separators into a finished capacitor.

4,276,684

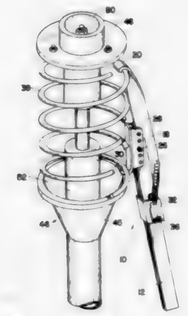
HAND TOOL SPRING COMPRESSOR

Charles T. Mattson, 5184 Sonoma Hwy., Santa Rosa, Calif. 95405

Filed Mar. 7, 1980, Ser. No. 128,238

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—227 **5 Claims**



1. A hand-operated coil spring compressor comprising:
a relatively straight handle;
a first hook at the end of said handle adapted to engage a coil of a spring;
an arm pivoted near one end to said handle intermediate the ends thereof;
a second hook at the other end of said arm adapted to engage another coil of said spring;

a sleeve slidable on said handle and movable to engage over said arm when same is aligned with said handle;

light spring means biasing said sleeve toward said end of the handle; and

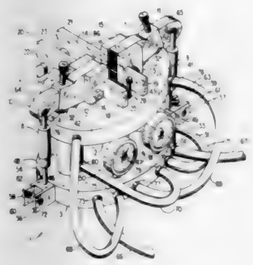
a surface on said arm at said one end adapted to engage and retract said sleeve back in opposition to said spring means to enable passage of said one end into alignment with said handle.

4,276,685

PORTABLE IN-LINE PRESS

David K. Callahan, 102 Partridge Cir., Summerville, S.C. 29483

Filed Dec. 12, 1979, Ser. No. 102,764
Int. Cl.³ E21B *19/00*; B23P *19/04*
U.S. Cl. 29—252 **24 Claims**



1. A device for removing a first object from a second object, in which said first object is set fast, comprising:

(a) a first manifold with a first opening through which said first object may be positioned;

(b) a second manifold with a second opening through which said first object may be positioned with said second object pressed against the side of said second manifold furtherest from said first manifold;

(c) object securing means rigidly secured to said first manifold on the side of said first manifold furtherest from said second manifold;

(d) first hydraulic means connected to and within said device, operative to control said object securing means, said first hydraulic means comprising:

(1) first hydraulic pressure producing means connected to said device; and

(2) a plurality of first pistons operative responsive to said first hydraulic pressure producing means and positioned to press against said object securing means; and

e. second hydraulic means connected to and within said device operative to vary the distance between said first manifold and said second manifold, said second hydraulic means comprising:

(1) second hydraulic pressure producing means; and

(2) a plurality of second pistons operative responsive to said second hydraulic pressure producing means and positioned to pass through said first manifold and press against said object securing means;

whereby said first object may be positioned within said first opening of said first manifold and said second opening of said second manifold with said second object pressed against said side of said second manifold furtherest from said first manifold, said first hydraulic means can be activated to secure said first object within said object securing means, and said second hydraulic means can be activated to move said first manifold apart from said second manifold thereby removing said first object from said second object.

4,276,686

REPLACEMENT SPOONS & FIXTURES FOR ROTARY HOE

Jack A. Tulen, R.R. #1, Coatsworth, Ontario, Canada (N0P 1H0), and James L. Tulen, R.R. #1, Wheatley, Ontario, Canada (N0P 2P0)

Filed Oct. 9, 1979, Ser. No. 83,158
Int. Cl.³ B25P *27/00*
U.S. Cl. 29—270 **3 Claims**



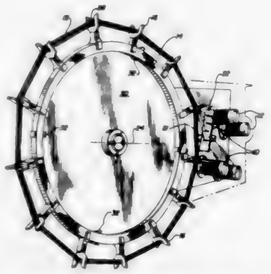
1. For a rotary hoe wheel having a hub, a plurality of teeth having end portions attached to said hub and extending outwardly therefrom, means spaced outwardly from said hub for attaching said teeth together to hold them in spaced relationship relative to said hub, and spoons affixed to free end portions of said teeth; a device for replacing worn out spoons with new ones, by means of which new spoons are held in the proper position and location against the teeth as the spoons are being affixed to the teeth, said device comprising a narrow plate, an open faced shallow container attached to a side surface of said plate for holding therein a single new spoon, locating means at one end portion of said narrow plate effective to cooperate with said attaching means for positioning said container relative to a tooth to which a new spoon is to be affixed, and handle means connected to the other end portion of said narrow plate for extending outwardly beyond said container, whereby said device can be held by said handle means when a spoon located in said container is to be affixed to one of said teeth.

4,276,687

METHOD OF WINDING CAPILLARY FIBER BUNDLES

William J. Schnell, Wheeling, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed May 21, 1979, Ser. No. 41,112
Int. Cl.³ B65H *54/02*, *54/28*
U.S. Cl. 29—407 **10 Claims**



1. The method of making bundles of tubular capillary fibers of semipermeable membrane material for use in a membrane diffusion device by winding said capillary fibers onto a reel member to form an annular assembly of said fibers, and thereafter cutting said annular assembly into separate bundles, the improvement comprising, in combination:

feeding said capillary fibers to said reel through guide slot means elongated in a direction generally parallel to the axis of rotation of said reel and of essentially the width of said annular assembly, at a tension on said capillary fibers sufficiently low to allow said capillary fibers to move laterally about while winding in said guide slot means in generally random manner, whereby said bundles comprise fibers in generally non-parallel, crossing arrangement with adjacent fibers.

6. The method of making bundles of tubular capillary fibers of semipermeable membrane material for use in a membrane diffusion device by winding said capillary fibers onto a reel member to form an annular assembly of said fibers and thereafter cutting said annular assembly into separate bundles, the improvement comprising, in combination:

feeding said capillary fibers to said reel through guide slot means elongated in the direction generally parallel to the axis of rotation of said reel, said guide slot means being of essentially the width of said annular assembly, at a tension on said capillary fibers sufficiently low to allow said capillary fibers to move laterally about while winding in said guide slot means in generally random manner, whereby said annular assembly comprises loops of strands in generally non-parallel, crossing arrangement with adjacent strand loops; wrapping portions of said annular assembly in flexible sheets; and thereafter cutting individual fiber bundles out of said strand loops, making said cuts through the wrapped sheets, whereby individual bundles having an improved cut of the bundle ends are obtained.

4,276,688

METHOD FOR FORMING BURIED CONTACT COMPLEMENTARY MOS DEVICES

Sheng T. Hsu, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,505
Int. Cl.³ H01L *21/86*, *21/88*
U.S. Cl. 29—571 **7 Claims**

1. A method of fabricating a CMOS device having buried contacts therein, comprising the steps of:

providing a body of semiconductor material of a first conductivity type, the body having a common boundary surface;

modifying regions of the body of semiconductor material, at the common boundary surface, to a second opposite conductivity type, to form alternate regions of adjacent first and second conductivity type regions;

providing one first conductivity type region with a first layer of gate insulator;

depositing a layer of refracting metal on the exposed portions of the common boundary surface and the layer of gate insulator material;

growing a layer of doped polycrystalline silicon on the deposited metal;

providing the layer of doped polycrystalline silicon with a patterned layer of photoresist and etching the unmasked portion of the polycrystalline silicon and metal layer thereunder to form a doped polycrystalline silicon gate electrode on the layer of gate insulator over a first conductivity type region;

growing a second gate insulator layer on the body of semiconductor material at a given temperature sufficiently high to form a first buried contact at a junction of abutting first and second conductivity type regions and a second buried contact at a second conductivity type region;

forming a second doped polysilicon gate member on the second layer of gate insulator over a second conductivity type region;

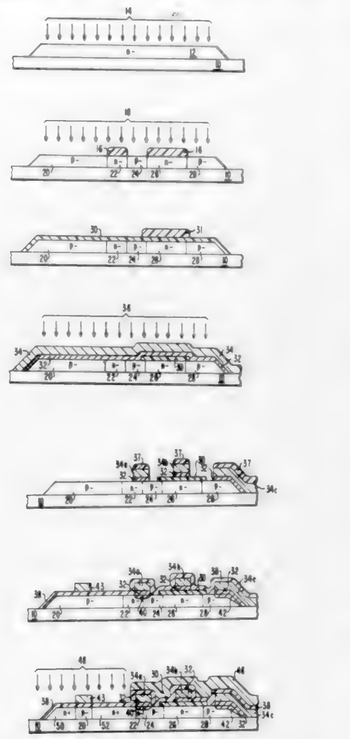
providing a portion of the body with a layer of masking material and ion implanting second conductivity type active areas in the unmasked portion of the body;

removing the masking material fr m the previously masked portion of the body;

providing the previously unmasked portion with a layer of masking material and ion implanting a first conductivity type material in the unmasked portion of the body to form active areas therein;

removing the masking material from the masked portion of the semiconductor body;

providing the body with a layer of insulating material and forming contact openings therein; and



depositing metallic leads in the contact openings, one lead in direct ohmic connection with one active area of a first conductivity type, another lead in ohmic contact with the first and second doped polysilicon gate members and a further lead in ohmic contact with the polycrystalline silicon region adjacent the first buried contact.

4,276,689

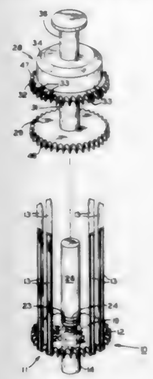
APPARATUS AND METHOD FOR AXIAL INSERTION OF DYNAMOELECTRIC MACHINE END TURN INSULATION

Palmer D. Urick, Decatur, and Robert H. Bienz, Fort Wayne, both of Ind., assignors to General Electric Company, Fort Wayne, Ind.

Filed Apr. 5, 1979, Ser. No. 27,370
Int. Cl.³ H02K *15/06*
U.S. Cl. 29—596 **39 Claims**

1. A method of substantially simultaneously placing a plurality of between phase insulators on a stator assembly comprising a magnetic core having a pair of opposite end faces, a central bore therebetween, and a plurality of slots that open into the bore, and also having at least one phase winding supported on the core with side turn portions thereof disposed in at least some of the slots and end turn portions thereof disposed adjacent the opposite end faces of the core, wherein the phase insulators respectively include a pair of spaced apart end turn insulating portions interconnected by at least one leg extending

therebetween, the method comprising the steps of: containing at least a part of one of the end turn insulating portions of the phase insulators in a generally cylindrical configuration; relatively moving the phase insulators and the core and thereby causing relative movement of the one end turn insulating portion of the phase insulators along the bore of the core and also thereby causing the at least one leg of the phase insulators to at least partially enter respective slots of the core and undergo



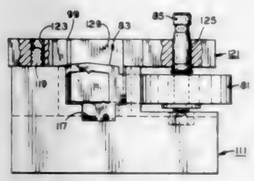
relative movement along such respective slots; displacing the one end turn insulating portion of the phase insulators from the contained generally cylindrical configuration thereof in a direction generally radially outwardly from a general region of the bore into respective positions adjacent one of the opposite end faces of the core; and thereafter placing another phase winding on the core directly adjacent at least a part of at least one of the phase insulators.

4,276,690

METHOD OF ASSEMBLING COMPONENTS OF A THERMOSTAT

Ralph W. Gustafson, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 845,383, Oct. 25, 1977. This application Sep. 17, 1979, Ser. No. 76,166
Int. Cl.³ H01F *41/02*
U.S. Cl. 29—602 R **11 Claims**



1. A method of assembling a pair of magnetic material elements with an assembly having a bimetal element secured between means for carrying the magnetic material elements and means adapted for supporting the assembly, the method comprising the steps of:

(a) disposing the carrying means in a fixed position;

(b) locating a free position of the supporting means with respect to the carrying means in its fixed position; and

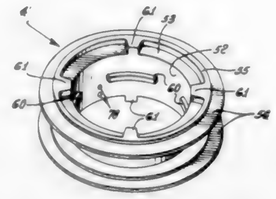
(c) associating the magnetic material elements with the carrying means therefor and arranging a preselected section of each magnetic material element so as to be disposed generally in symmetrical relation with the supporting means in the located free position thereof, respectively.

4,276,691

ROTARY NYLON LINE VEGETATION CUTTER

Vincent A. Palmieri, and John P. Palmieri, both of 3745 El Camino Dr., San Bernardino, Calif. 92410

Division of Ser. No. 925,045, Jul. 17, 1978, Pat. No. 4,185,381. This application Jun. 28, 1979, Ser. No. 52,781
Int. Cl.³ A01D *55/00*
U.S. Cl. 30—347 **2 Claims**



1. In a flexible line- whirling vegetation cutting hand tool, a rotary head for which is provided to be supported on and manipulated by the lower end of a relatively long handle equipped with power means for rapidly spinning said head on a vertical axis, the improvement comprising the following subcombination of elements:

a reserve line winding spool comprising a peripherally radially channelled annulus having a relatively large axial bore:

said bore being provided with line feeding escapement stop means which are symmetrically spaced circumferentially on said spool and are also symmetrically arranged with respect to an inter-facial radial plane of spool symmetry so as to provide duplicate primary sub sets of said stop means on opposite ends of said spool, and a single secondary sub set of said stop means lying in said interfatial radial plane.

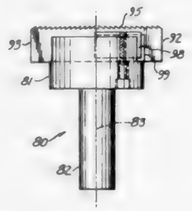
said stop means functioning to facilitate the escapement feeding of line from said spool with either end of said spool turned upward.

4,276,692

CLAMPING MEANS AND TOOL FOR MAKING IT

William A. Casler, and Phillip E. Saureaman, both of Pasadena, Calif., assignors to Clamp Manufacturing Co., Inc., South El Monte, Calif.

Division of Ser. No. 913,968, Jun. 9, 1978, Pat. No. 4,181,392, which is a continuation of Ser. No. 760,696, Jan. 19, 1977, abandoned. This application Oct. 1, 1979, Ser. No. 80,546
Int. Cl.³ B26B *25/00*
U.S. Cl. 30—347 **9 Claims**



1. A device for cutting circular teeth into a face of an article comprising:

(a) a rotatable body having an axis of rotation;

(b) a face adapted to be juxtaposed to the face of the article;

(c) a groove in said face of the body;

(i) said groove having parallel sides spaced from each other;

(d) a cutter insert in the groove,

(i) said insert protruding outwardly from said body to an edge face;

(ii) said edge faces containing arcs of circular teeth for engaging said block face to cut teeth therein;

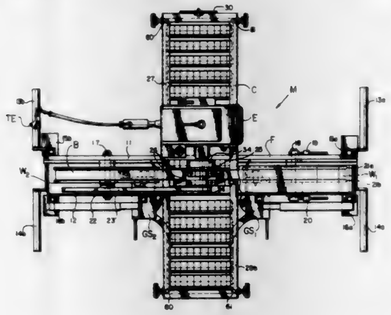
(iii) said arcs of circular teeth having leading edges which protrude further outwardly from said body face than the remainder portions of said teeth, thereby creating a rake at the teeth by which the cutting of teeth into the block face is performed by said leading edges.

4,276,693

PORTABLE BOARD MILL

Joseph R. Lovas, East Stroudsburg, Pa.; Paul J. Lovas, Blairstown, N.J., and Carl F. Koelmel, East Stroudsburg, Pa., assignors to Cyloflex, Inc., East Stroudsburg, Pa.

Filed Nov. 15, 1979, Ser. No. 94,433
Int. Cl.³ B27B *15/00*
U.S. Cl. 30—380 **14 Claims**



1. In a portable mill for cutting lumber from a log, including a frame adapted to be disposed transverse to the log, means mounting a cutting blade for movement in the frame and having an effective zone of cutting, power means carried by said frame for driving said blade, and a carriage mounted to the frame for affording movement of the frame forwardly along the log as the cutting blade cuts the log lengthwise, the improvement wherein said carriage comprises:

an elongated case disposed transversely to the cutting blade and extending in both forward and rearward directions from said frame,

a series of resilient rollers mounted in said cage for rotation on the log to support the frame as it advances,

said series of rollers being disposed in closely spaced relation in said cage and extending on opposite leading and trailing sides of the blade for a distance at least as great as the effective zone of cutting,

whereby the closely spaced resilient rollers deform in response to surface irregularities on the log to produce substantially flat cuts.

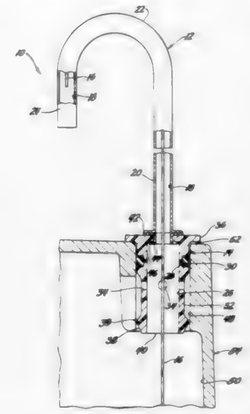
4,276,694

FLUID LEVEL INDICATOR (VENT HOLES)

Mason E. Richardson, Clinton Township, Macomb County, Mich., assignor to Van Products Company, Vanderbilt, Mich.

Filed Sep. 18, 1979, Ser. No. 76,759
Int. Cl.³ G01F *23/04*
U.S. Cl. 33—126.7 R **8 Claims**

1. A dipstick assembly of the type used for measuring fluid levels within a sealed chamber wherein the dipstick assembly is adapted to be received in an access passageway to the chamber, said dipstick assembly comprising: a handle member having a passageway extending throughout as to allow communication therethrough, said handle member having a first straight portion, an elongated fluid level indicating member attached to and extending from said first straight portion of said handle member, a one piece cap member having an attachment end including an opening in a inwardly extending flange portion thereof, said handle member extending through said opening and being secured to said flange portion, the other end of said cap member being open, said cap member also having an outward flange head portion integral with said attachment end of said cap member for limiting the entrance of said dipstick assembly into the access passageway, said cap member including primary ventilation means comprising a longitudinally



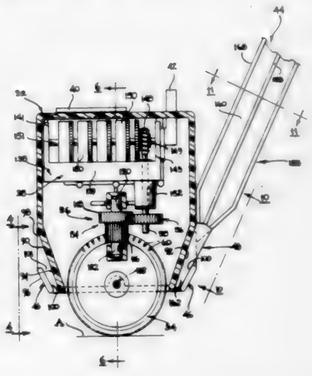
extending passageway for allowing the ventilation of gases from said open end through said cap member and into said handle member, sealing means provided on said cap member for perfecting a seal between said cap member and the interior of the access passageway of the sealed chamber when said dipstick assembly is inserted therein, said cap member also including an auxiliary venting means for allowing the ventilation of gases from the chamber through said handle member in the event that said open end of said cap member is below the fluid level within the sealed chamber.

4,276,695

ROLLER MEASURE DEVICE

Benjamin H. Stansbury, Jr., Beverly Hills, Calif., assignor to Ronco Teleproducts, Inc., Elk Grove Village, Ill.

Filed Jun. 4, 1979, Ser. No. 45,208
Int. Cl.³ G01B *3/12*
U.S. Cl. 33—141 E **16 Claims**



1. A portable mechanical roller measure device having a

detachable segmented handle for measuring a distance along a surface from a remote position, said device comprising:

(a) a portable housing;

(b) a roller rotably mounted in said housing and having a portion protruding outside of said housing for engaging and rolling along the surface along which the distance is to be measured when the housing is moved along said surface;

(c) a resettable counter mechanism in said housing for providing a visual readout to the user of the device;

(d) transfer means for transmitting rotation of said roller to said counter mechanism so that said readout indicates the distance over which said roller has travelled;

(e) housing attachment means on said housing;

(f) an elogated handle means having handle attachment means at one end for releasably engaging and attaching to said housing for moving said housing along the surface having the distance to be measured from a position remote from said surface, said handle comprising a plurality of releasably interconnected elongated sections each having in cross section a generally vertical beam portion and a generally horizontal beam portion, said vertical beam portions being reinforced against deformation in the vertical plane of said vertical beam portions, and said elongated handle sections each including interconnection means at their ends for interconnecting with like means on the ends of other elongated handle sections, said interconnection means each comprising a pair of axially extending finger tabs, wherein said handle sections are each a single molded plastic part and the vertical beam portion of each of said molded plastic handle sections is reinforced by means of an integrally formed transversely extending flange along at least one longitudinal edge of such vertical beam portion; and

(g) locking means for physically but releasably locking interconnection means on one handle section to interconnection means on an adjacent handle section, wherein said locking means comprise mating pairs of projections, one on each of the interconnected interconnection means, said mating pair of projections being axially aligned when their respective handle sections are assembled together to limit disassembly of said handle sections, at least said finger tabs being sufficiently resilient to permit said projections to be forced past one another incident to assembly and disassembly of said handle sections with one another.

4,276,696

PRECISION LENGTH MEASURING INSTRUMENT

Alfons Ernst, Traunreut, Fed. Rep. of Germany, assignor to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,299

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1978, 2850875

Int. Cl.³ G01B 7/02

U.S. Cl. 33—169 R **6 Claims**

1. In a precision length measuring instrument including a bending resistant support member, a guide member mounted to the support member, a measuring scale, a measurement carriage, and means for guiding the measurement carriage along the guide member, the improvement comprising:

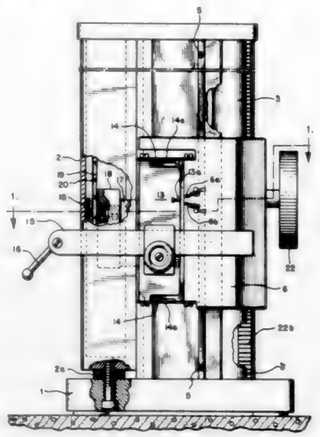
means for precisely adjusting the position of the guide member with respect to the support member at a plurality of positions along the length of the guide member, such that a first guide surface, defined by the guide member, is adjustable to a desired configuration;

means, included in the guide means, for precisely guiding the carriage along the first guide surface;

an intermediate member;

a measurement sensor, mounted on the intermediate member;

a reading unit, mounted on the intermediate member to scan the scale; and



means for mounting the intermediate member to the carriage to move in a substantially friction free manner with respect to the carriage.

4,276,697

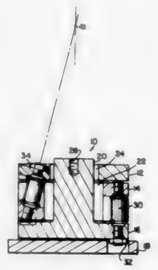
COMPLIANCE ELEMENT FOR REMOTE CENTER COMPLIANCE UNIT

Samuel H. Drake, Lexington, and Sergio N. Simunovic, Newton, both of Mass., assignors to Astek Engineering, Inc., Watertown, Mass.

Filed Apr. 21, 1980, Ser. No. 142,047

Int. Cl.³ G01B 5/25

U.S. Cl. 33—169 C **5 Claims**



1. In a remote center compliance unit having at least first and second platforms interconnected by a plurality of compliance elements, the improvement wherein each said element comprises a multi-stranded cable enclosed within an elastomeric plug.

4,276,698

MACHINES FOR MEASURING THE DIMENSIONS OF WORKPARTS

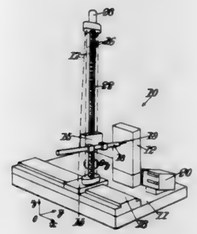
Alain Dore, Conflans-Ste-Honorine, and Henri Judet, Paris, both of France, assignors to Societe D'Applications Generales D'Electricite et de Mecanique Sagem, Paris, France

Continuation of Ser. No. 738,884, Nov. 4, 1976, abandoned. This application Oct. 23, 1978, Ser. No. 953,999

Claims priority, application France, Nov. 7, 1975, 75 34141

Int. Cl.² G01B 3/22, 5/20

U.S. Cl. 33—174 L **8 Claims**



1. Machine for measuring the dimensions of a workpart, comprising a base plate constructed to receive the workpart, a mechanical structure bearing a feeler movable along orthogonal axes, devices carried by said structure for direct measurement of the movement of the feeler along said axes, optical deflection measurement means operatively associated with said structure for determining the errors of measurement or of movement due to play and deformation of movable component members of said mechanical structure along at least one of said axes and for providing electric signals representative of said errors; and computing means connected to receive said electrical signals and for computing the corrections to be made to the results provided by said devices for direct measurement.

4,276,699

METHOD AND TEST APPARATUS FOR TESTING THE TOOTH FLANK PROFILE OF LARGE DIAMETER GEARS

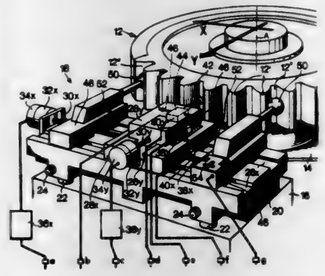
Armin Sterki, Uetikon; Gerd R. Sommer, Dietikon, and Walter Naegeli, Oberengstringen, all of Switzerland, assignors to Maag Gear Wheel & Machine Co. Ltd., Zürich, Switzerland

Filed May 5, 1980, Ser. No. 147,041

Claims priority, application Switzerland, May 14, 1979, 4452/79

Int. Cl.³ G01B 5/20, 7/28

U.S. Cl. 33—179.5 R **11 Claims**



1. In a method of testing a tooth flank profile of large diameter gears having an axis, comprising the steps of:

providing a testing apparatus equipped with two contact elements and a measuring feeler, which is movable along an X-axis essentially parallel to a connection line between both of the contact elements and a Y-axis extending transversely with respect to the X-axis;

placing the contact elements into a respective tooth space of a gear which is to be measured;

bringing the testing apparatus into a position where both axes are located in a plane essentially normal to the axis of the gear, in order to thereby define the origin of a X-Y-coordinate system formed by both axes;

thereafter moving the measuring feeler along at least one of the tooth flanks and comparing the thus measured coordinates with reference values, the improvement which comprises;

measuring the spacing (S) between both contact elements; and determining the spacing (YO) of the coordinate origin from the gear axis according to the equation:

$$YO = \frac{S}{2} \cdot ctg\,(180° \cdot \frac{KZ}{Z}) + C$$

wherein:

C designates a constant of the testing apparatus;

KZ designates the number of teeth between both of the contact elements; and

Z designates the total number of teeth of the gear.

4,276,700

METHOD FOR INSPECTING GEAR CONTACT PATTERNS

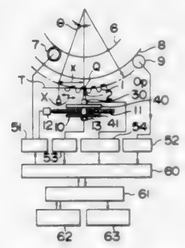
Takashi Tanno, and Shigemitsu Koike, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Aug. 1, 1980, Ser. No. 174,582

Claims priority, application Japan, Aug. 2, 1979, 54-98829

Int. Cl.³ G01B 3/14

U.S. Cl. 33—179.5 R **8 Claims**



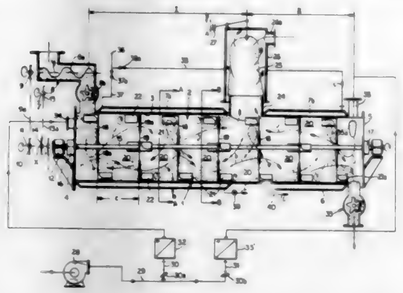
1. Method for inspecting a gear contact pattern between teeth surfaces of mutually engaging gear teeth in a pair of gears which comprises steps of determining on each of the teeth surfaces of the gear teeth a plurality of regularly located measuring points so that respective ones of the measuring points on one tooth surface correspond to the measuring points on the other tooth surface so as to provide a plurality of combinations of measuring points, measuring each tooth surface at the measuring points to detect deviations of the tooth surface from a standard tooth profile at the measuring points, calculating relative distances between the teeth surfaces in the pair of gears at corresponding measuring points on the basis of the deviations, determining a reference which is the relative distance of minimum value, counting number of the combinations of measuring points in the pair of mutually engaging teeth surfaces where the relative distances are within a predetermined limit from the reference, determining a gear contact ratio on the basis of a ratio of the counted number of the combinations of measuring points to the total number of the combinations of measuring points so that the pair of the gears accepted where the gear contact ratio is greater than a predetermined value.

4,276,701

APPARATUS FOR THE DRYING OF WET, PASTY AND/OR FUSIBLE MATERIALS

Istvan Takacs; Peter Rudolf; Bela Szabo, and György Kerey, all of Budapest, Hungary, assignors to Richter Gedeon Vegyészeti Gyár RT, Budapest, Hungary

Filed Nov. 28, 1979, Ser. No. 97,969
Claims priority, application Hungary, Mar. 21, 1979, RI 701
Int. Cl.³ F26B *17/20*
U.S. Cl. 34—109 **8 Claims**



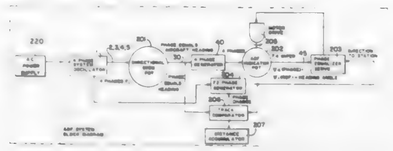
1. An apparatus for the drying of material, especially wet, pasty and/or fusible substances, comprising:
- an axially elongated thermally conductive cylindrical wall defining a cylindrical drying space having a substantially horizontal axis;
- means forming at least one annular heating chamber along the exterior of said wall;
- means for passing a heating fluid through said heating chamber to heat said wall;
- a pair of end walls dispoed at opposite axial ends of said space and closing same;
- feeder means for introducing material to be dried into said space at one end thereof adjacent a respective end wall;
- discharge means connected to said space at an opposite end thereof adjacent the other end wall for discharging dry material from said space;
- inlet means communicating with said space at least at one of said ends thereof for introducing a hot drying fluid into said space for direct contact with the material therein;
- outlet means connected to said space at a location axially separated from said inlet means for discharging said drying fluid from said space;
- a shaft extending along said axis and journaled for rotation relative to said walls;
- drive means connected with said shaft for rotating same;
- a plurality of first disks mounted on said shaft and lying in respective planes transverse to said axis, said first disks comprising outwardly extending arms reaching toward said wall and defining openings located relatively outwardly from said axis;
- a plurality of second disks mounted on said shaft and alternating with said first disks axially therealong whereby each first disk and a second disk axially spaced therefrom define a respective drying cell of adjustable axial length, said second disks being formed with openings communicating between said cells and located relatively inwardly with respect to said axis;
- respective blades mounted on outer portions of said disks and positioned to scrape material from said wall and mix said material with said drying fluid as said material passes through said openings in said disks from cell to cell from said feeder means to said discharge means; and
- respective rollers journaled on outer portions of at least some of said disks and having a predetermined spacing from said wall for comminuting material drying in said space to a predetermined particle size.

4,276,702

AIRCRAFT FLIGHT SIMULATING TRAINER

Joshua Horwitz, Magnolia, Mass., assignor to Pacer Systems, Inc., Burlington, Mass.

Division of Ser. No. 748,116, Dec. 6, 1976. This application Apr. 25, 1979, Ser. No. 33,073
Int. Cl.³ G09B *9/08*
U.S. Cl. 434—47 **15 Claims**



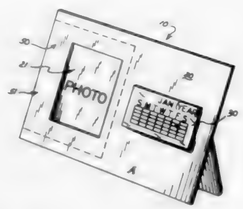
7. An aircraft flight simulator instrument trainer comprising a master system oscillator for producing separate oscillations at ninety degree spaced intervals, a master phase locked oscillator connected to the master system oscillator for dividing oscillations of the master system oscillator, a present divider connected to the master phase locked oscillator for dividing oscillations of the master phase locked oscillator, an accumulator means connected to the divider for counting oscillations and multiplexer means connected to the accumulator means for changing the accumulator means, and input means connected to the multiplexer means and for inputting simulated navigational quantities to the accumulator.

4,276,703

CALENDAR APPARATUS

Donald J. Brindley, 806 SE. Sharon Dr., Ankeny, Iowa 50021

Filed Dec. 12, 1979, Ser. No. 103,070
Int. Cl.³ G09D *3/04*
U.S. Cl. 40—121 **1 Claim**



1. A collapsible display item comprising:
- a self-supporting, rigid, one piece body having a face portion and a rear portion, said face portion and said rear portion having abutting surfaces adhesively secured to each other along the extreme top, bottom and one end thereof;
- shaped aperture means disposed in said face portion, extending through said face portion to said rear portion for holding and displaying a picture;
- pocket means formed by the other side of the face and rear portions for allowing the other end of the face and rear portions to be temporarily separated for selectively allowing a picture to pass between said other side of the face and rear portions to or from said aperture means;
- a calendar disposed on said face portion, said calendar comprising a plurality of detachable sheets secured to said face portion, and each of said sheets having a different month imprinted on its face, and a promotional coupon imprinted on the rear side thereof;
- said rear portion having means including four spaced straight slots disposed therein, for releasably securing a printed promotional item therein, two of said slots being parallel with respect to each other and perpendicular with respect to the other two slots;

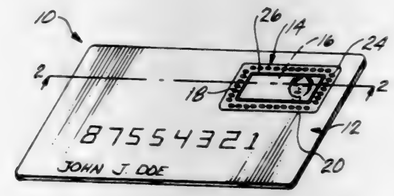
- a flap member depending from said upper rear portion and having a horizontal slot disposed therein; and
- a lower rear portion having an U-shaped slot means disposed therein for forming a flap element, said flap element being configured to fit within the horizonal slot in said flap member.

4,276,704

RECORD BEARING ASSEMBLY FOR ENCAPSULATION OF A RECORD MEMBER, CAPSULE PART FOR A RECORD BEARING ASSEMBLY AND METHOD OF FABRICATION OF RECORD BEARING ASSEMBLY

Peter V. N. Heller, 3396 Calle La Veta, San Clemente, Calif. 92672

Filed Sep. 1, 1978, Ser. No. 938,975
Int. Cl.³ G09F *1/10*
U.S. Cl. 40—159 **45 Claims**



1. A record bearing assembly for encapsulating a planar record member comprising:
- a thin substantially flat base member comprising an aperture therethrough;
- a plastic capsule comprising as an integral part thereof
  - a thin substantially planar closed cavity for such a planar record member positioned within the perimeter of the aperture, first and second sides sandwiching the base member therebetween substantially completely around the capsule cavity,
  - a wall connected between the first and second sides and extending within the aperture of the base member completely around the perimeter of the cavity, and
  - a plurality of pegs integral with and extending between the first and second sides stitching through the base member at a plurality of locations substantially completely around the perimeter of the capsule cavity.

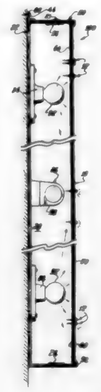
4,276,705

GRAPHICAL DISPLAY MEANS

William L. Barth, 1338 W. Vesta, Ontario, Calif. 91762, and Clifford E. Barth, 16633 Arrow Pines, Azusa, Calif. 91702

Continuation-in-part of Ser. No. 955,959, Oct. 30, 1978, abandoned. This application May 21, 1980, Ser. No. 151,810
Int. Cl.³ G09F *13/18*
U.S. Cl. 40—579 **6 Claims**

1. An internally-lighted display apparatus comprising:
- enclosed housing means having an illumination source therein;
- a relatively thin, laminar graphic display assembly forming a front cover for the housing means comprising a flexible outer layer of a metal foil impervious to light and a metal screen underlying said outer layer;
- a plurality of light transmitting markers of clear plastic construction, each having a shank with a piercing tip at one end and an enlarged head at the opposite end;
- said outer layer being a type of metal foil readily pierceable by light transmitting markers with pointed shanks through which light from the interior of said housing can be transmitted, and said metal screen being of suitable mesh size to receive the shanks of said markers and help hold the latter in place when they are positioned in penetrating relationship therewith;
- and an outermost sheet, adapted to bear a design and readily penetrable by said markers, fastened in overlying relation-



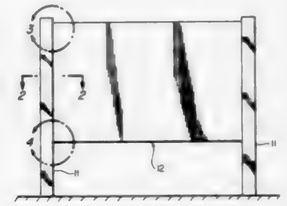
ship against said outer layer of metal foil as a display face for said apparatus; said illumination source is of a heat emitting character and said metal foil is of a type to stretch and tighten said outermost sheet under the influence of heat from said illumination source.

4,276,706

POST AND PANEL SIGN ASSEMBLY

Albert Q. Scott, 922 N. Dutton Ave., Santa Rosa, Calif. 95401

Filed Oct. 20, 1978, Ser. No. 953,171
Int. Cl.³ G09F *15/00*
U.S. Cl. 40—607 **3 Claims**



1. In a sign assembly: an elongated post having a smooth outer surface, an elongated cleat mounted on the outer surface of the post and extending less than the full length of the post, a panel having a first side frame member slidably mounted on the cleat in interlocking engagement therewith and a second frame member abutting against one end of the cleat, and a retaining plate removably secured to the first frame member and abutting against the other end of the cleat.

4,276,707

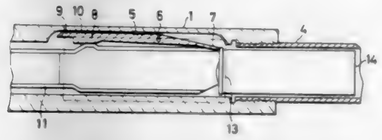
CARTRIDGE/CARRIER LOCKING DEVICE FOR AUTOMATIC GUN

Hisao Hayashi, Tokyo, Japan, assignor to Kabushiki Kaisha Kawaguchiya Hayashi Juho Kayaku-Ten, Tokyo, Japan

Filed Sep. 18, 1978, Ser. No. 943,353
Int. Cl.³ F41C *13/00*
U.S. Cl. 42—17 **1 Claim**

1. An automatic firearm comprising: a barrel having a breech end through which cartridges may be loaded into said barrel; a magazine from which cartridges may be supplied in

succession to said barrel; a breechblock movable between a first position closing said breech end of said barrel and a second position for permitting loading of a cartridge from said magazine into said barrel; a carrier mounted for pivotal movement between a first position for receiving a cartridge from said magazine and a second position for moving a received cartridge into loading position relative to said breech end of said barrel; a latch plate having a first end adjacent said magazine and a second end, said latch plate being pivotally mounted intermediate said first and said second ends for movement between a first and a second pivotal position, said first end of said latch plate operating to block removal of cartridges from said magazine when said latch plate is in said first pivotal position; spring means urging said latch plate toward said second pivotal position; first surface means on said breechblock engaging said second end of said latch plate to hold said latch plate in said first pivotal position against the force of said spring means when said breechblock is in its said first position; said breechblock being configured to release said engagement with said latch plate to permit said latch plate to move to said



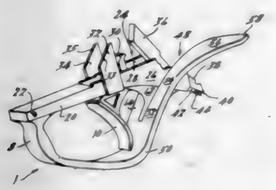
second pivotal position by operation of said spring means when said breechblock is in its second position; carrier engaging means on said second end of said latch plate engaging said carrier when said latch plate is in a position other than said second pivotal position to hold said carrier in said first position; means on said latch plate adapted to be engaged by a cartridge received on said carrier to effect movement of said latch plate against the force of said spring means out of said second position to release said carrier and to thereby permit said carrier to move to said second position to bring a received cartridge into position for loading into said barrel; second surface means on said breechblock engaging said second end of said latch plate when said breechblock is in a position intermediate said first and second positions thereof to permit said latch plate to move to a pivotal position intermediate said first and said second pivotal positions under the force of said spring means; and intermediate surface means on said breechblock extending in a slanted configuration between said first and said second surface means for engaging said second end of said latch plate as said second end moves between engagement with said first and said second surface means of said breechblock.

4,276,708

PISTOL RECEIVER ACTUATING MECHANISM

Marshall D. Chase, 75 E. Van Buren Rd., Alma, Mich. 48801

Filed Feb. 5, 1979, Ser. No. 9,605
Int. Cl.³ F41C 3/00
U.S. Cl. 42—44 **10 Claims**



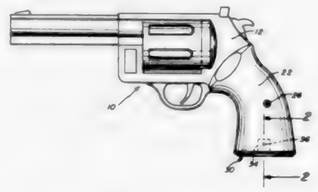
1. A trigger guard for use with a firearm having a trigger guard actuated mechanism, said trigger guard comprising: a generally horizontally extending base; a safety guard member integrally formed with said base and protectively extending in front of and below said base; a rearwardly and upwardly extending elongated lever member integrally formed with said safety member and adapted to be manipulated by the hand of the shooter; means for actuating said mechanism, and a web member extending integrally between a rearward portion of said base and said elongated lever member.

4,276,709

HANDGUN STOCK POMMEL

Robert Bross, Ballville Rd., Bolton, Mass. 01740

Filed Nov. 14, 1979, Ser. No. 94,002
Int. Cl.³ F41C 23/00
U.S. Cl. 42—71 P **8 Claims**



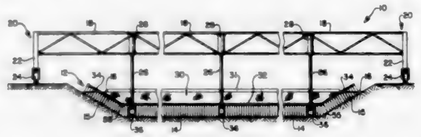
1. A pommel for mounting to stocks of a handgun, said pommel comprising a pommel plate having thereon a mounting boss extending from the inner face of said plate, said mounting boss having means for securing said pommel to said handgun stocks.

4,276,710

AQUACULTURE POND AND HARVESTER

Michael P. Yunker, 3906 Old Pali Rd., Honolulu, Hi. 96817, and David K. Barclay, P.O. Box 911, Kapaau, Hi. 96755

Filed Nov. 29, 1979, Ser. No. 98,640
Int. Cl.³ A01K 79/00
U.S. Cl. 43—4 **12 Claims**



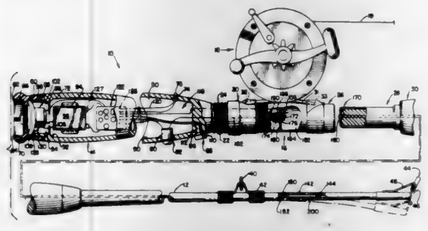
1. An aquaculture harvester, comprising:
an elongated truss maintained at each end thereof by a carriage;
a plurality of support arms depending from said truss;
scraper means connected to and extending between bottom sections of said support arms for making contacting engagement with a water bed; and
a net connected to and extending between said support arms, said net being operatively connected to said scraper means.

4,276,711

FISHING ROD WITH STRIKE SIGNALLING APPARATUS

William R. Mathauser, Box 5, Sun Valley, Id. 83353

Continuation of Ser. No. 806,330, Jun. 14, 1977, abandoned, which is a continuation-in-part of Ser. No. 685,157, May 11, 1976, Pat. No. 4,051,616. This application Dec. 19, 1978, Ser. No. 970,971
The portion of the term of this patent subsequent to Oct. 4, 1994, has been disclaimed.
Int. Cl.³ A01K 97/12
U.S. Cl. 43—17 **9 Claims**



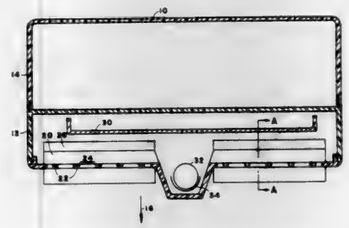
1. A strike alerting means for use in fishing, comprising:
a fishing rod having a handle and a fishing line and which flexes when a fish strikes a hook on said fishing line, said rod and handle each having a longitudinal hollow bore defined by an inside surface thereof;
an electronic circuit mounted within said fishing rod handle in said hollow bore to be protected from damage;
strike signalling means connected to said electronic circuit and controlled by said circuit to signal when a fish strikes said hook, said signalling means including a plurality of strain gages each mounted on said rod inside surface;
said strike signalling means being entirely located in said rod and attaching said rod to said electronic circuit to complete said circuit so that said strike signalling means is connected by said electronic circuit to a power source to be activated to signal a strike when said rod undergoes a predetermined amount of flexure due to said strike, means mounted on said fishing rod handle for adjusting said rod flexure sensing means to vary the sensitivity thereof, said rod flexure sensing means and the elements associated therewith being located within said rod to be protected from environmental conditions which may cause said sensing means to inconsistently sense said rod flexure.

4,276,712

INSECT ELECTROCUTION APPARATUS

Meir Zeldov, Herzlia, and Mordechai Yavalell, Ramat-Hasharom, both of Israel, assignors to Amcor, Ltd., Tel-Aviv, Israel

Filed Aug. 16, 1979, Ser. No. 67,231
Int. Cl.³ A01M 1/22
U.S. Cl. 43—112 **7 Claims**



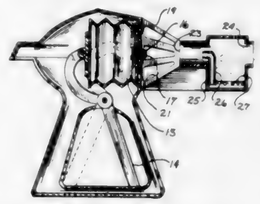
1. Insect electrocution apparatus comprising:
a housing defining an outward facing direction and an inward facing direction;
an inner electrode disposed within said housing;
an array of composite members spaced in an outward facing direction with respect to said inner electrode, and adapted for entrance of insects between elements of said array,
said composite members each comprising an outward facing member fabricated from insulative material defining a safety guard and fixed thereto an inwardly facing conductor, defining an element of an outer electrode array, and
means for coupling said inner electrode and said outer electrode array across a high voltage source.

4,276,713

PERCOLATING BUBBLE GENERATOR

Scott C. Crosbie, 4349 Brookside Ave., Minneapolis, Minn. 55435

Filed Feb. 4, 1980, Ser. No. 117,946
Int. Cl.³ A63H 33/28
U.S. Cl. 46—8 **5 Claims**



1. A bubble generating apparatus comprising:
a hand holdable housing having a source of air under pressure;
a chamber mounted horizontally on the housing and having axially aligned, spaced-apart inlet and outlet openings of a first cross-sectional dimension and a lower portion for receiving liquids, the liquid receiving portion having an outlet for discharging bubbles into the interior of the chamber;
nozzle means of a substantially lesser cross-sectional dimension and being aligned with said inlet opening, said nozzle and said inlet and outlet openings being open to the ambient atmosphere around said chamber so that a stream of air from said nozzle is directed through said nozzle, said inlet opening, said chamber and said outlet opening; and
tube means running upwardly from the bottom of the liquid receiving portion of the chamber, and terminating with an open end facing said inlet opening, whereby a portion of the air stream is directed through the tube means into the fluid receiving portion of said chamber to cause formation of bubbles, which are subsequently drawn out of the chamber by the air stream exiting through said outlet opening.

4,276,714

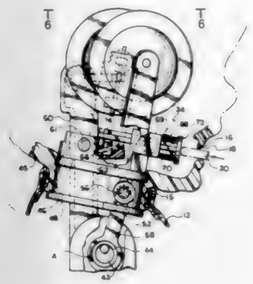
DOLL INCLUDING MECHANISM FOR SUCKING ACTION AND SOUNDS

Judith Albert, Mill Neck, N.Y., and Janos Beny, Torrance, Calif., assignors to Ideal Toy Corporation, Hollis, N.Y.

Filed Oct. 19, 1979, Ser. No. 86,603
Int. Cl.³ A63H 5/00
U.S. Cl. 46—118 **10 Claims**

1. A toy doll comprising, a body and a movable head thereon, said head having a mouth opening formed therein; drive means in said body for selectively oscillating said head in a forward and aft direction; said drive means including a neck block mounted in said head, rotary drive means in the doll's body, and pitman means drivingly engaged between said rotary drive means and neck block for oscillating the block in a forward and aft direction; locking means in said head for

blocking oscillation of said neck block under the influence of said rotary drive means, said locking means being responsive to the insertion of an object in the doll's mouth opening to release

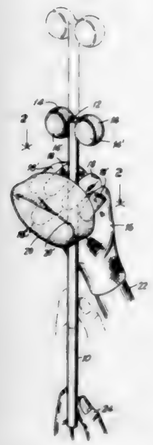


said locking means, unblock movement of the neck block, and allow the drive means to oscillate said head; and means responsive to said oscillation of the doll's head for producing sounds.

4,276,715
PUPPET

Robert D. Rogers, 11 Cornell Pl., New Rochelle, N.Y. 10804

Filed Feb. 25, 1980, Ser. No. 124,490
Int. Cl.³ A63H *3/14, 3/38, 3/36*
U.S. Cl. 46—154 **3 Claims**

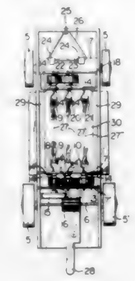


1. A puppet structure for providing a plurality of facial configurations comprising, in combination, an elongated support pole, an eye part fixedly and rigidly attached at one end of said pole, a glove having five fingers including at least a pair of fingers straddling said support pole for up and down and rotative motion thereof and a flexible mouth part mounted at the ends of said five fingers and for retaining said support pole.

4,276,716
MULTI-STAGE ENERGY STORAGE DEVICE

Kenichi Mabuchi, Matsudo, Japan, assignor to Mabuchi Motor Co, Ltd, Tokyo, Japan

Filed Feb. 14, 1979, Ser. No. 12,008
Claims priority, application Japan, Feb. 17, 1978, 53-17262; Feb. 17, 1978, 53-19257[U]; Feb. 18, 1978, 53-18026
Int. Cl.³ A63H *17/00*; F03G *1/00*
U.S. Cl. 46—206 **11 Claims**

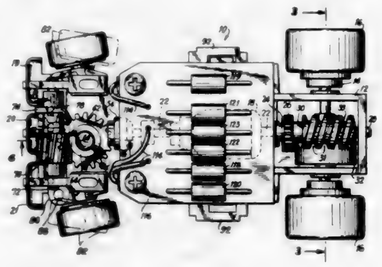


1. A multi-stage energy storage toy car comprising a chassis frame; a plate that is slidably mounted on and movable with respect to one end of said chassis frame; a plurality of pairs of hooks mounted rotatably on said plate and on one end of said chassis frame whereby said hooks are arranged in spacedly opposed pairs; at least one elongated elastic member stretched in the length direction of said chassis frame between each pair of said hooks, each said elastic member being adapted to store energy when twisted about its own longitudinal axis; a tensioner for displacing said movable plate in one direction and for maintaining said movable plate in the displaced position, said tensioner being provided between said chassis frame and said movable plate; an energy transmitting mechanism for transmitting the elastic energy stored in said elastic members after the twisting thereof; and a power transmitting portion which is coupled to said hooks between which said elastic members are stretched, said energy transmitting mechanism being constructed so as to increase the driving torque when transmitting the energy stored in said elastic member located on one side of said car to said elastic member located on the other side of said car.

4,276,717
PERIODICALLY SWERVING TOY VEHICLE

Michael J. Zbriger, Bridgeport, Conn., and Anthony Passamenti, Wantagh, N.Y., assignors to Aurora Products Canada, Ltd., Rexdale, Canada

Filed Jan. 19, 1979, Ser. No. 4,952
Int. Cl.³ A63H *17/36, 17/00*; A63F *9/14*
U.S. Cl. 46—262 **11 Claims**



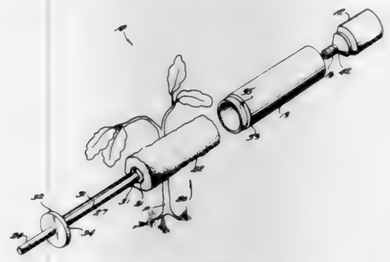
1. A miniature toy vehicle comprising:

a vehicle chassis;
a plurality of wheels mounted on said vehicle chassis for rotation in frictional contact with a surface, whereby said vehicle travels on said surface, a first portion of said plurality of wheels being pivotable for steering and a second portion of said plurality of wheels being non-pivotable and positioned in a longitudinal direction;
means for driving at least one wheel in said non-pivotable portion of said plurality of wheels to cause longitudinal motion of said vehicle on said surface;
means for pivoting at least one wheel in said pivotable portion of said wheels, said at least one pivotable wheel being pivoted about an axis not parallel to the rotational axis of said at least one pivotable wheel;
said means for pivoting at least one wheel in said pivotable portion of said wheels including:
a tie-bar connected to said at least one pivotable wheel;
a cam and a cam follower, said cam in contact with cam follower, said cam when rotating being contoured to cause said tie-bar to translate laterally in reciprocal motion whereby said pivotable wheel is pivoted alternately from left to right so as to produce a zig-zag path of travel for said vehicle;
means for rotating said cam, said means for rotating said cam being operatively connected with said means for driving said at least one wheel in said non-pivotable portion of wheels;
said operative connection between said non-pivotable portion of wheels and said rotating cam includes a snail gear driven when said at least one non-pivotable wheel is driven, said snail gear having one tooth of extended length, said tooth forming an open spiral around the axis of rotation of said snail gear;
a spur gear having its axis of rotation transverse to the axis of rotation of said snail gear, said one tooth of said snail gear being interposed between two adjacent teeth of said spur gear, whereby rotation of said snail gear about its axis causes said spur gear to rotate.

4,276,718
HERBICIDE APPLICATION

John H. Keeton, Campbellsville; Lyle S. Keeton, and Eugene G. Keeton, both of Trenton, all of Ky., assignors to Keeton Enterprises, Inc., Campbellsville, Ky.

Filed Dec. 10, 1979, Ser. No. 101,567
Int. Cl.³ B05C *1/00*
U.S. Cl. 47—1.5 **19 Claims**

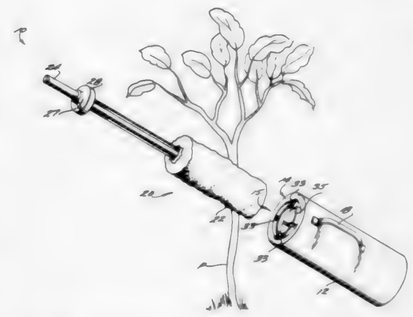


1. A liquid applicator device comprising an elongated container having first and second portions separated by a metering valve, said first portion containing a supply of liquid, and said second portion for receiving metered amounts of liquid from said first portion;
an elongated roller having fibrous covering means for receiving liquid from said container and for ultimately transferring the liquid to another object, and having a cross-sectional area, including said covering means, smaller than the inside cross-sectional area of said container second portion; said roller including a handle extending from one end thereof and valve operating means operatively connected to the other end thereof; and
a valve actuator means operatively associated with said valve disposed between said container first and second portions, for engagement with said valve operating means, so that movement of said roller relative to at least one said portion of said container results in actuation of said valve to meter liquid from said first portion to said second portion.

4,276,719
HERBICIDE ROLLER APPLICATION

John H. Keeton, Campbellsville; Lyle S. Keeton, and Eugene G. Keeton, both of Trenton, all of Ky., assignors to Keeton Enterprises, Inc., Campbellsville, Ky.

Continuation-in-part of Ser. No. 101,567, Dec. 10, 1979. This application Feb. 1, 1980, Ser. No. 117,514
Int. Cl.³ B05C *1/00*
U.S. Cl. 47—1.5 **20 Claims**



1. A liquid applicator comprising
a container elongated along an axis and having a first, closed end, and a second end including means defining an opening therein;
a roller elongated along an axis and having fibrous covering means for receiving liquid from said container and for ultimately transferring the liquid to another object, and having a cross-sectional area, including said covering means, smaller than the inside cross-sectional area of said container and than said opening in said container second end; said roller including a handle extending from one end thereof;
means operatively associated with said roller for closing said opening in said container second end when said roller is in said container; and
means for mounting said roller within said container for relative rotation with respect to said container with the axes of the roller and container coincident.

4,276,720
PLANT WATERING MAT SYSTEM

William Lyon, 116 Myers Ave., Hicksville, Long Island, N.Y. 11801

Filed Sep. 15, 1978, Ser. No. 942,535
Int. Cl.³ A01G *27/00*
U.S. Cl. 47—39 **5 Claims**

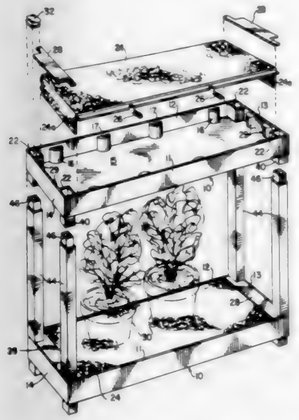
1. A watering and humidifying system for potted plants comprising:
a tray having a bottom wall and side and end walls defining a reservoir for holding water throughout substantially the entire interior area of said tray,
a platform for holding plant pots, means for mounting said platform to said tray for the lower surface of said platform to close off the major portion of said reservoir, the upper surface of said platform being substantially larger in sur-

face area than the bottom of any one pot to be held, said platform terminating short of each of said end walls to provide a space between said platform and each said end wall for providing communication with the reservoir to supply water thereto from the top of said tray through at least one of said spaces without removing said platform,

cover means for closing a part of each said space,

means in the portion of each said space left uncovered by said cover means for accepting and holding a stacking means to permit another tray to be stacked on said first named tray,

a watering mat of fabric material located on and covering



the major portion of the area of the upper surface of said platform, said platform and the tray formed to provide a space between an edge of the platform and one of the walls of the tray such that a portion of the mat extends into the reservoir to draw water from the reservoir by capillary action, the upper surface of said mat being uncovered and the water being conveyed to the entire surface area of the mat to provide water directly to the bottom of a pot placed on the mat and also to evaporate into the area surrounding any pot on the platform water from the portions of the mat left uncovered by pots to provide by the evaporation humidity to the foliage of any plant of a pot on the mat.

4,276,721

METHOD AND DEVICE FOR CONTROL OF TRANSLOCATION IN A STEM

Henry H. Turner, 2702 Techwood Dr., Columbus, Ga. 31906

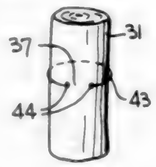
Continuation-in-part of Ser. No. 1,188, Jan. 5, 1979, Pat. No. 4,193,224, which is a continuation of Ser. No. 745,324, Nov. 26, 1976, abandoned, which is a continuation of Ser. No. 610,771, Sep. 5, 1975, abandoned, which is a continuation-in-part of Ser. No. 429,392, Sep. 28, 1973, abandoned. This application Oct. 26, 1979, Ser. No. 88,518

The portion of the term of this patent subsequent to Mar. 18, 1997, has been disclaimed.

Int. Cl.³ A01G *1/00*

U.S. Cl. 47—58 **48 Claims**

1. A method for control of translocation in a stem by restriction of growth comprising, maintaining a linear segment transversely at the surface of said stem at each of a plurality of levels, each said segment subtending an angle of not more than 180° about the axis of said stem, said linear segments being so positioned about the said axis as to form together an incomplete enclosure extending beyond one level, said enclosure being incomplete by virtue of there being a plurality of gaps or breaks in its limits, the number of said gaps corresponding to the number of said linear segments, so that said restriction of



growth occurs at each said level by the said linear segment thereat, said growth extending thereafter through said gaps.

4,276,722

TAP SHARPENER

Millo Bertini, 679 Garden St., Trumbull, Conn. 06611

Filed Jan. 29, 1980, Ser. No. 116,550

Int. Cl.³ B24B *19/00*

U.S. Cl. 51—225 **10 Claims**



1. An apparatus for sharpening a fluted tap, said apparatus comprising:

a base defining a base axis;

a support fixed on said base and pivotal thereon about a support axis inclined to said base axis;

a tap holder fixed on said support for joint rotation therewith about said support axis;

retaining means on said tap holder for securing a tap thereon with the central axis of said tap extending parallel to said support axis;

slide means between said holder and said support for displacement of said holder on said support in a direction passing perpendicularly through said support axis and through the central tap axis of a tap secured by said retaining means in said holder.

4,276,723

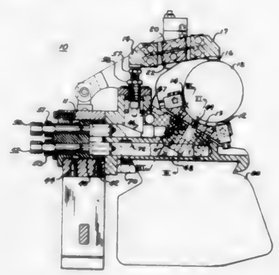
COMPENSATING STEADYREST

Roger H. Fournier, Millbury, Mass., assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed Oct. 9, 1979, Ser. No. 82,519

Int. Cl.³ B24B *41/06*

U.S. Cl. 51—238 S **8 Claims**



1. A steadyrest for supporting various diameter workpieces for rotation about a common centerline comprising:

a main body member;

three flat contact shoes each movable with respect to said main body member for engaging along a line contact and supporting a workpiece;

pivot means pivotally connected to said main body member for supporting an upper one of said three contact shoes and being operable to pivot the supported contact shoe between a load position, remote from the work area, and an operation position, in the work area, for engaging the workpiece;

a hydraulic cylinder formed in said main body member;

a piston disposed in said hydraulic cylinder and being movable in response to the application of pressurized hydraulic fluid;

a first wedge connected to said piston for movement therewith;

a second wedge connected to said piston for movement therewith;

a first wedge follower for following the movement of said first wedge;

a second wedge follower for following the movement of said second wedge;

upper contact shoe positioning means disposed between said upper one of said contact shoes and said first wedge for positioning said upper contact shoe in response to movement of said first wedge;

a lower contact shoe support supporting two of said three contact shoes;

lower contact shoe positioning means disposed between said lower contact shoes and said lower wedge follower for positioning said lower contact shoes as said lower wedge is moved;

said upper and lower contact shoe positioning means operable when said pivot means is in the operating position for simultaneously and at the same rate moving the line contact of each of said three contact shoes into engagement with the workpiece for supporting workpieces of various diameter for rotation about the common centerline.

4,276,724

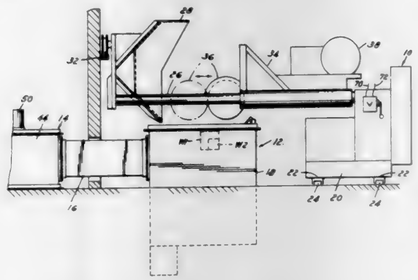
WATER TANK FOR SUBMERGED GRINDING SYSTEM

John L. King, Jr., Owosso, Mich., assignor to MWA Company, Owosso, Mich.

Filed Oct. 1, 1979, Ser. No. 80,491

Int. Cl.³ B24B *55/02*

U.S. Cl. 51—266 **4 Claims**



1. Apparatus for submerged grinding of ferrous or nonferrous metals comprising a work tank adapted to contain a liquid, means for supporting a workpiece in said work tank, and means for controlling the level of liquid in said work tank, said liquid level controlling means comprising a ballast tank, a duct connecting said tanks so as to equalize the level of liquid in the tanks, means for raising and lowering the level of liquid in said ballast tank to correspondingly raise and lower the level of liquid in said work tank comprising a liquid displacement member, means supporting said displacement member in said ballast tank for up and down movement, and power means for moving said displacement member up and down.

4,276,725

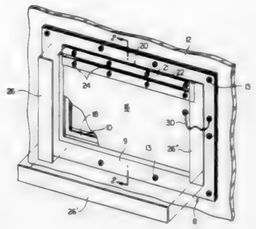
METHOD AND APPARATUS FOR RELEASING AN ELEVATED PRESSURE DEVELOPED BEHIND A WALL

John E. Ash, P.O. Box 3, Benicia, Calif. 94510

Filed Jul. 12, 1979, Ser. No. 56,906

Int. Cl.³ E04H *9/00*

U.S. Cl. 52—1 **17 Claims**



1. Apparatus for releasing an elevated pressure developed behind a wall, comprising:

(a) a rigid frame mountable over an orifice in a wall, said frame having an opening that corresponds to the orifice;

(b) a rigid panel sized to fit within the opening in the frame and to cover the orifice;

(c) hinge means pivotally mounting the panel to the frame along one margin and in registration with the orifice;

(d) means, attachable between the frame and the panel, for releasably securing the panel to the frame so that the panel and frame are secured against fluid leakage when an elevated pressure is not present and so that, if an elevated pressure is developed, the panel will release and pivot with respect to the frame using the hinge, thereby releasing the elevated pressure; and

(e) a margin forming part of said panel and extending around the opening in the latter, said margin having a non-stick surface so that foreign materials cannot bond the panel to the frame and prevent pivoting of the panel during periods of elevated pressure.

4,276,726

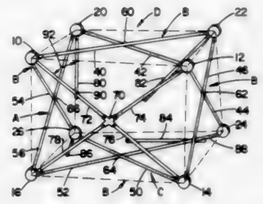
COLLAPSABLE, ARTICULATED WALL STRUCTURE

David L. Derus, 1084 Quilliams Rd., Cleveland Heights, Ohio 44121

Filed Dec. 17, 1979, Ser. No. 104,395

Int. Cl.³ E04H *12/18*

U.S. Cl. 52—109 **28 Claims**



1. A collapsable, articulated structural section which is moveable between an erected configuration and a collapsed configuration, said structure comprising:

a first plurality of pivot means disposed to be substantially in a first plane in said erected configuration and to be substantially adjacent each other in said collapsed configuration;

a second plurality of pivot means disposed to be substantially in a second plane in said erected configuration and to be substantially adjacent each other in said collapsed configuration, said second plane being substantially parallel to said first plane;

a plurality of pivotally interconnected side links for connecting said first plurality of pivot means with said second plurality of pivot means, each of said links being connected with one of said first plurality of pivot means and one of said second plurality of pivot means;

a face pivot means;

a plurality of face links, each of said face links connected with said face pivot means and with one of said first plurality of pivot means; and

a locking link for locking the structural section in said erected configuration, said locking link being pivotally connected near one of its ends with a first one of said plurality of face links and operatively connected near the other of its ends with a first one of said second plurality of pivot means.

4,276,727

TELESCOPIC JIB FOR LOAD-HANDLING DEVICE

Viktor M. Salomatin, Kantsenevskaya ulitsa, 44, kv. 58; Petr N. Belyanin, ulitsa Marshala Tukhachevskogo, 23, korpus 2, kv. 186, and Vladimir I. Pestrikov, Profsojuznaya ulitsa, 59/25, korpus 2, kv. 79, all of Moscow, U.S.S.R.

Filed Sep. 5, 1978, Ser. No. 940,152

Claims priority, application U.S.S.R., Dec. 6, 1977, 2546701

Int. Cl.³ B66C *23/06*

U.S. Cl. 52—115 **1 Claim**



1. A telescopic jib of a load-handling device, comprising: telescopically extensible sections made in the form of fluid cylinders; annular sealing means positioned at the end portions of said sections, each said annular sealing means including a sleeve defining an annular space with the end face of the fluid cylinder of the greater diameter and the side surface of the fluid cylinder of the smaller diameter, a floating ring mounted in said annular space and carrying seals engaging the external periphery of said smaller-diameter fluid cylinder and the end faces of said floating ring; annular grooves made coaxially in the external peripheral surface at the end of each fluid cylinder and in the end face of the respective one of said sleeves; a support ring accommodated in each said pair of annular grooves; means for governing the motion of said sections, including a rope-and-sheave system having at least two runs symmetrically extending with respect of the longitudinal axis of said jib.

4,276,728

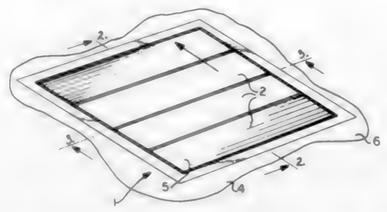
DIRT REMOVING GRID SYSTEM FOR FLOORS

Claude P. Balzer, and Edward M. Corman, both of Wichita, Kans., assignors to Balco, Inc., Wichita, Kans.

Filed Sep. 20, 1979, Ser. No. 77,290

Int. Cl.³ E04F *11/16, 19/10*; A47L *23/24*

U.S. Cl. 52—177 **12 Claims**



1. A floor grid for use in trafficways for removing debris from traffic passing thereover, said grid comprising:

(a) support means below a surface of and connected to said trafficway;

(b) a plurality of parallel spaced transverse tread rails supported by said support means and having an upper tread surface generally flush with said trafficway surface and a base; said tread rails allowing the debris deposited thereon to pass therebetween;

(c) a plurality of parallel traverse spacer bars each having a top and positioned immediately beneath said tread rails, said tread rails crossing said spacer bars at a plurality of locations; and

(d) locking means positioned at each said location for independently securing together said tread rails and said spacer bars and for urging said bases against said tops of said spacer bars.

4,276,729

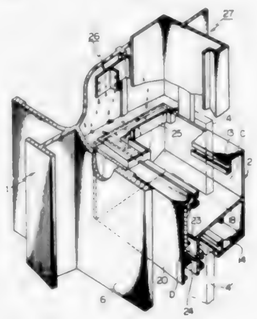
FLASHING CONSTRUCTION FOR A CURTAIN WALL

Yoshinobu Shiga; Ryusuke Kage, and Masakatsu Iwata, all of Tokyo, Japan, assignors to Nippon Light Metal Company Limited, Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,285

Int. Cl.³ E06B *7/14*

U.S. Cl. 52—209 **10 Claims**



1. A flashing construction for a curtain wall having a plurality of vertical mullions disposed parallel to each other at a predetermined distance and panels being mounted between adjacent mullions, said flashing construction comprising:

a vertical mullion provided with a mounting groove at each side thereof for receiving one side portion on the panel;

an enclosed vertical space being formed between said mounting groove and the side portion of the panel, said vertical space being extended in the longitudinal direction of the mullion, and said vertical space being connected to the open air outside the mullion;

an extra bead for the mullion, said extra bead being disposed in said mounting groove at the outermost position therein, so as to form a narrower mounting groove therebetween for receiving another side portion of the panel;

another enclosed vertical spaced formed between said narrower groove and the other side portion of the panel, said other vertical space being extended in the longitudinal direction of the mullion, and said extra bead being provided with intake ports, whereby said other vertical space is connected to the open air outside the mullion.

4,276,730

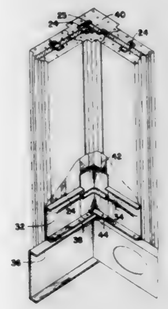
BUILDING WALL CONSTRUCTION

David M. Lewis, 7 McNear Dr., San Rafael, Calif. 94901

Filed Jul. 2, 1979, Ser. No. 54,305

Int. Cl.³ E04B *1/62*; E04C *2/52*

U.S. Cl. 52—221 **4 Claims**



1. Wall structure modules comprising:

a plurality of narrow, substantially ceiling high panels of lightweight concrete;

tongue and groove configurations along opposite sides of said panels conditioning them to be nested together in juxtaposition;

a full height load bearing steel "c" stud embedded in certain of said panels;

a cap channel adapted to fit over and along the tops of a plurality of nested panels;

means for securing said cap members to the load bearing studs in said nested panels;

means forming a horizontal raceway for piping and electrical conduits across the lower ends of said panels;

an electric outlet box in at least one of said panels opening to the interior surface thereof; and

a duct depending from said outlet box and opening into said raceway.

4,276,731

SUPPORTING RIB ARRANGEMENT FOR A LOWER CEILING WHICH IS TO BE SUSPENDED BENEATH A STRUCTURE-FIXED CEILING AND METHOD OF USING SUCH SUPPORTING RIB ARRANGEMENT

Aldo Henggeler, Haldenstrasse 12, Luzern, and Roland Crottaz, Seestrasse 89, Hergiswil, both of Switzerland

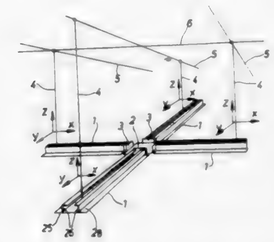
Continuation-in-part of Ser. No. 520,729, Nov. 4, 1974, abandoned. This application Sep. 24, 1976, Ser. No. 726,306

Claims priority, application Switzerland, Nov. 15, 1973, 16052/73

Int. Cl.³ E04B *5/52*

U.S. Cl. 52—484 **4 Claims**

1. A support rib arrangement for a lower ceiling which is to be suspended beneath a structure-fixed ceiling, comprising support profile members for supporting ceiling components of the lower ceiling, said support profile members being arranged in a grid arrangement with oppositely situated support profile members confronting one another at their ends at node points, suspension components which are connected in such a manner with the support rib arrangement and the structure-fixed ceiling respectively, that they render possible limited displacement of the support rib arrangement relative to the structure-fixed ceiling for tolerance compensation, said suspension components being connected with at least given ones of the support profile members at a spacing from the node points, and means for permitting each individual suspension component to be arranged to be adjustably movable between the structure-fixed ceiling and the support rib arrangement in three coordinate



directions independently of the remaining suspension components, means for providing an additional adjustment possibility for the support profile members for selectively adjusting the position thereof in their lengthwise extending direction, each support profile member being movable between two neighboring node points through a predetermined tolerance range, said adjustably movable means for said suspension components and said additional adjustment means enabling each said support profile member to be adjustably movable within said tolerance range at one node point without affecting the other neighboring node point, said additional adjustment means including an angle rail connected to each of said suspension components, said support profile members having confronting angle legs forming lengthwise slots in said profile members for slidably receiving said angle rail.

4,276,732

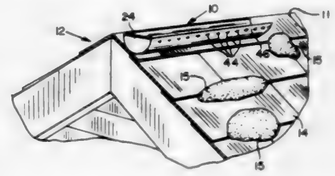
DEVICE FOR KILLING MOSS

James W. Nielsen, Newport, Oreg., assignor to Sharon G. Nielsen, Newport, Oreg.

Filed Aug. 24, 1979, Ser. No. 69,291

Int. Cl.³ B27K *3/22*

U.S. Cl. 52—517 **21 Claims**



1. A device for killing moss on roofs, comprising a trough for positioning along a rooftop to receive and pool water; said trough including at least two elemental metals operable to form a biocidal electrolyte in the presence of water.

4,276,733

METHOD OF CONSTRUCTING AND ERECTING A DOME-SHAPED STRUCTURE

William L. Casper, Lafayette; Michael A. Jordon, Oakland; Craig S. Caulkins, Pleasant Hill, and Robert G. Miller, San Mateo, all of Calif., assignors to Liftech Consultants, Inc., Oakland, Calif.

Filed Jul. 25, 1979, Ser. No. 60,295
Int. Cl.³ E04B 1/32; E04G 21/00
U.S. Cl. 52—745 9 Claims



1. A method of constructing and erecting a dome-shaped structure without temporary internal roof high scaffolding comprising the steps of:
a. installing a foundation including a first portion of a foundation hinge means;
b. pre-fabricating a plurality of base panels having lower ends and upper ends and having the first portion of an inter-panel hinge means at said upper ends and including generally horizontal strut members at said upper ends;
c. fabricating said base panels with a second portion of said foundation hinge means at said lower ends;
d. pivotally attaching said lower ends of said base panels to said foundation at said foundation hinge means;
e. pre-fabricating a plurality of upper panels having lower ends and upper ends and having the second portion of said inter-panel hinge means at said lower ends;
f. hingedly connecting said lower ends of each of said upper panels to said upper ends of each of said base panels;
g. pivotally lifting in a one at a time sequence each of said base panels to their final position and simultaneously raising the lower ends of said upper panels while said upper ends of said upper panels slide away from the center of said dome and remain at a lower elevation to temporarily shore said base panels;
h. connecting said strut of each of said base panels forming a temporary mid-compression ring at the upper ends of said base panels causing said base members to form a free standing immovable structure;
i. pivotally and sequentially lifting diametrically opposed pairs of said upper panels to their final positions about said inter-panel hinge means;
j. attaching said upper ends of said upper panels to one another; and
k. securing each of said base panels to said upper panels to rigidify said inter-panel hinge means forming a plurality of unitary acting upper panels and lower panels.

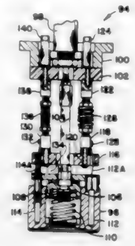
4,276,734

ROTARY FILLING AND CAPPING APPARATUS

Robert J. de Fasselle, Kirtland, Ohio; Richard D. Baron, Indian Rocks Beach, and James E. Nottke, Seminole, both of Fla., assignors to Lykes Pasco Packing Company, Clearwater, Fla.

Filed Apr. 16, 1979, Ser. No. 30,370
Int. Cl.³ B65B 3/04, 7/28
U.S. Cl. 53—77 13 Claims

1. An apparatus for filling and capping a plurality of stackable containers with a fluid from a fluid reservoir, comprising in combination:
a rotary table having a plurality of container receiving means disposed about said rotary table;
a container magazine disposed at a first position relative to said rotary table;
container transfer means for transferring a single one of the plurality of containers from said container magazine to said container receiving means of said rotary table;
a filling head disposed at a second position relative to said rotary table;
pump means connecting the fluid reservoir to said filling head for filling a container disposed on said rotary table with the fluid from the fluid reservoir;
a lid magazine in a third position disposed adjacent a container aperture in said rotary table;
lid transfer means comprising a rotatable vacuum arm for receiving a lid from said lid magazine and rotating about



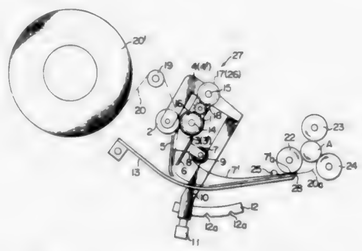
an axis substantially perpendicular to the axis of rotation of said rotary table to position a lid upon the filled container, the terminal end of said rotatable arm comprising a vacuum head for holding a lid thereon;
means for linearly moving said rotatable arm relative to said lid magazine whereby said vacuum head is linearly movable on said rotatable arm relative to the rotational axis of said lid transfer means; and
a mass slidably disposed relative to said vacuum head for applying force to the lid positioned upon the container for enabling proper separation of the lid from said vacuum head.

4,276,735

APPARATUS FOR GUIDING WRAPPING PAPER IN COIN WRAPPING MACHINE

Yorizo Miyazaki, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Nov. 7, 1979, Ser. No. 92,105
Claims priority, application Japan, Nov. 8, 1978, 53-154386[U]
Int. Cl.³ B65B 11/04
U.S. Cl. 53—212 8 Claims



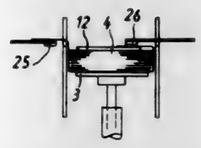
1. In a coin wrapping machine including a set of rollers for wrapping a stack of coins in a selected length of sheet of wrapping paper, means for drawing the sheet from a roll of wrapping paper and for forwarding the sheet to the rollers, a cutter for cutting the forwarded wrapping paper into a selected length of sheet, and means for movably mounting the cutter so that an initial position of the cutter is adjustable with respect to the rollers, an apparatus for guiding the wrapping paper from the cutter to the rollers comprising: a first guide member extending between a point near said cutter and a point near said rollers for guiding the wrapping paper from said cutter to said rollers; a second guide member comprising a single extensible and contractible member extending along and spaced from said first guide member for guiding, in cooperation with said first guide member, the wrapping paper, said second guide member having one end portion thereof fixed near one of said set of rollers; and means for mounting the other end portion of said second guide member on said means for movably mounting the cutter that the location of the other end portion is changed when the initial position of said cutter is changed whereby the other end portion of said second guide member is closely spaced from the cutter in all positions of the cutter.

4,276,736

PROCESS AND APPARATUS FOR DOING UP SHEET MATERIAL WITH LABEL TAPES

Markus Haberstroh, Planegg, and Herbert Bernardi, Haag, both of Fed. Rep. of Germany, assignors to GAO Gesellschaft für Automation und Organisation mbH, Munich, Fed. Rep. of Germany

Filed Jul. 24, 1979, Ser. No. 60,140
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1978, 2835308
Int. Cl.³ B65B 13/06, 27/08
U.S. Cl. 53—399 24 Claims



1. A process for banding a stack of thin material sheets with a sealable tape, said sheets being delivered in seriatim, said method comprising the steps of:
placing a predetermined length of tape on a table constrained for movement only in the direction normal to the face of the stack;
placing the sheets with their faces on the table and one of their edges against a plate adjacent and lying normal to the table to form a stack from the sheets;
placing the plate on top of the stack;
moving the table, stack, and plate in a direction normal to the face of the stack for applying the tape to the stack;
wrapping the tape around the stack and plate with the ends thereof overlapping;
sealing the ends of the tape; and
removing the stack from the table and plate.

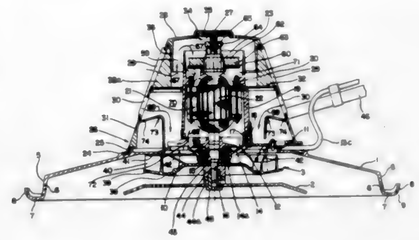
4,276,737

VEGETATION CUTTER

Brian C. R. Henning, Hayes, England, assignor to Black & Decker, Inc., Newark, Del.

Filed Oct. 3, 1979, Ser. No. 81,429
Int. Cl.³ A01D 35/26
U.S. Cl. 56—12.8 16 Claims

1. An air cushion supported vegetation cutter comprising:
a casing having an opening therein; an impeller housed in sid casing for drawing a flow of air through said opening to create an air cushion in conjunction with said casing;
a motor for driving said impeller; and
a support structure for supporting said motor and defining a duct for the flow of cooling air over said motor, said duct having cooling air outlet means located upstream in the air flow to said opening whereby said motor cooling air combines with and forms part of the air drawn by said



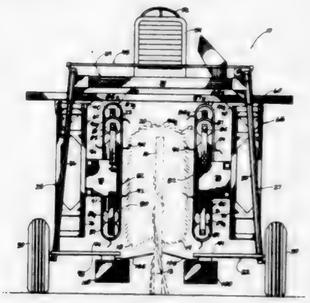
impeller before the combined air is drawn through said opening.

4,276,738

HOP PICKING MACHINE

Dominick Ferraro, Walla Walla, Wash., assignor to Chisholm-Ryder Co., Inc., Niagara Falls, N.Y.

Filed May 1, 1980, Ser. No. 145,868
Int. Cl.³ A01D 46/02
U.S. Cl. 56—130 7 Claims



1. A hop picking machine for harvesting hops from a row of hop vines entrained over a low profile trellis wherein the trellis height may be less than the full straightened length of the vines, said machine comprising:
an inverted "U" shaped mobile frame having a longitudinal passageway therethrough to enable the mobile frame to straddle the trellis and move longitudinally along the row;
said frame having an overhead frame structure spaced above the ground surface a distance greater than the full straightened length of a hop vine, to extend transversely over the trellis with spaced leg frame structures that extend downward from the overhead frame structure to ground engaging wheel assemblies;
a first pair of hop picking conveyors spaced apart transversely on the frame, each having an inner vertically oriented picking flight continuously movable in a downward direction from a top elevation substantially equal to the height of the trellis on opposite sides of the row of hop vines;
a first combing finger assembly mounted on each of the first hop picking conveyors for engaging the hop vines and stripping hops downwardly from the vines as the finger assemblies move downwardly along their inner picking flights;
a second pair of hop picking conveyors spaced apart transversely on the frame and longitudinally spaced from the first pair of hop picking conveyors, each having a second

inner vertically oriented picking flight continuously movable in an upward direction from a top elevation substantially equal in height to the full, straightened length of a hop vine above the top elevation of the first conveyors on opposite sides of the row of hop vines;

a second combing finger assembly mounted on each of the second hop picking conveyors for engaging the hop vines and stripping hops upwardly from the vines as the second finger assemblies move upwardly along their inner picking flights, and for lifting and straightening the hop vines upwardly to their full length over the trellis;

transversely spaced longitudinal receiving conveyors on the frame below the first and second pairs of hop picking conveyors for receiving the hops stripped from the vines; and

drive means operatively connected to the first and second hop picking conveyors, the receiving conveyors, and the wheel assemblies for (a) moving the mobile frame along a row; (b) moving the first and second combing finger assemblies with their respective picking flights to move in opposite directions and strip hops from the vines; and (c) operating the receiving conveyors to remove the stripped hops from below the picking conveyors.

4,276,739

ELECTRONICALLY CONTROLLED SYSTEM FOR MAKING A MULTIPLY EFFECT YARN

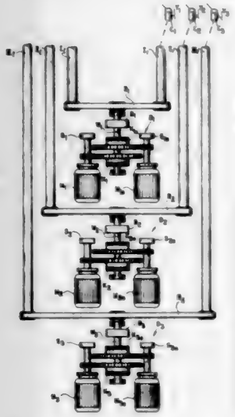
Gerhard Kempf, and Albert Kunz, both of Arbon, Switzerland, assignors to Evolution SA, Rorschach, Switzerland

Filed Nov. 14, 1979, Ser. No. 94,062

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849567

Int. Cl.³ D01H *1/30, 1/22, 1/26*

U.S. Cl. 57—91 **14 Claims**



1. A system for making a multi-ply yarn, said system comprising:

a yarn-winding body;

a pair of separate feed means each including

a strand-feed element for engaging and advancing a respective strand to said body, and

a pair of separate variable-speed electric motors operable at different motor speeds and alternately connectable to the respective element for driving same at a respective feed speed related directly to the respective motor speed;

control means for electrically varying said motor speed of said motors independently of one another and for alternately connecting the motors of each feed means to the respective feed element for feeding each of said strand to said body at either of the two respective feed speeds; and means for winding up said strands on said body to form a multiply yarn.

4,276,740

SELF-TWISTED YARN AND METHOD AND APPARATUS FOR PRODUCING IT

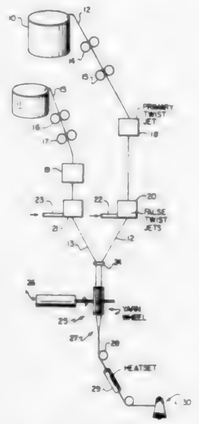
Phillip W. Chambley, and Alan H. Norris, both of Rome, Ga., assignors to WWG Industries, Inc., Rome, Ga.

Continuation-in-part of Ser. No. 844,616, Oct. 25, 1977, Pat. No. 4,215,642, which is a continuation-in-part of Ser. No. 755,671, Dec. 30, 1976, Pat. No. 4,074,511. This application Feb. 16, 1979, Ser. No. 12,771

The portion of the term of this patent subsequent to Feb. 21, 1995, has been disclaimed.

Int. Cl.³ D01H *5/28, 7/90, 7/92;* **D02G** *3/26*

U.S. Cl. 57—205 **13 Claims**



1. Apparatus for forming a self-twist plural strand yarn from at least two single strands, comprising, means for moving each of said single strands longitudinally, means for twisting said single strands individually during their longitudinal movement to form twisted single strands each having longitudinally spaced sections of S-twist and Z-twist separated by nodes at which the direction of twist reverses, joining means for connecting said twisted single strands to each other at longitudinally spaced strand connections between which both strands twist in a same direction, the strand connections preventing relative rotation of said strands about their own axes at the strand connections, and a longitudinally movable rotation preventer located adjacent to said strand connections to prevent rotation of said strand connections, said rotation preventer being movable with the strands to permit the twist in the moving twisted single strands to become redistributed between each pair of strand connections, means for separating the strands from the rotation preventer after the twists are redistributed to permit the strand connections to rotate and enable the strands to twist together to form a self-twist plural strand yarn.

6. A method of forming a self-twist plural strand yarn from at least two single strands, comprising the steps of, moving each of said single strands longitudinally, twisting said single strands individually during their longitudinal movement to form twisted single strands each having longitudinally spaced sections of S-twist and Z-twist separated by nodes at which the direction of twist reverses, preventing rotation of said strands during their longitudinal movement at points which move longitudinally with the strands and between which both strands twist in a same direction, permitting the twist in the strands to become redistributed longitudinally between each pair of points, and releasing the strands after the twists are redistributed to permit the strands to rotate together at said points and twist together to form a self-twist plural strand yarn.

4,276,741

METHOD AND APPARATUS FOR START-SPINNING A THREAD ON AN OPEN-END SPINNING UNIT

Fritz Stahlecker, Josef-Neidhart-Str. 18, D 7341 Bad Ueberkingen, and Dietrich Zilian, Sussen, both of Fed. Rep. of Germany, assignors to Fritz Stahlecker and Hans Stahlecker, both of Sussen, Fed. Rep. of Germany

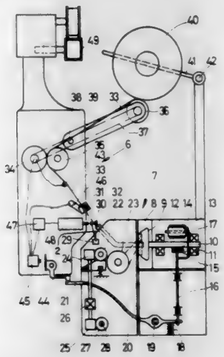
Continuation of Ser. No. 493,158, Jul. 30, 1974, abandoned. This application Aug. 16, 1978, Ser. No. 933,985

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1973, 2341528

The portion of the term of this patent subsequent to Oct. 26, 1993, has been disclaimed.

Int. Cl.³ D01H *15/02*

U.S. Cl. 57—263 **28 Claims**



1. Apparatus for yarn piecing in an open-end spinning assembly comprising:

fibre feeding means for supplying fibre to a spinning rotor of said spinning assembly to form a fibre ring in said rotor, rotor decelerating means for decelerating the speed of the rotor from an operational speed,

piecing means including means for introducing a yarn end back into said spinning rotor to be pieced together with the fibre ring formed in said spinning rotor from said fibre,

piecing control means for controlling the timing of the introduction of said yarn back into said spinning rotor to occur during acceleration of said spinning rotor from said decelerated condition toward its operating spinning speed and before said spinning rotor reaches its operating spinning speed,

and feed control means for controlling the fibre feeding means separately from the control of the spinning rotor speed to vary the supply of fibre to said spinning rotor as said spinning rotor is accelerated during the piecing operation to correlate the fibre feeding speed to the speed of the spinning rotor during piecing as said spinning rotor is accelerated.

11. Method for yarn piecing in an open-end spinning assembly comprising:

supplying sliver to a spinning rotor of said spinning assembly by means of fibre feeding means to form a fibre ring in said rotor,

decelerating the speed of the spinning rotor to a decelerated condition with a lower speed than the spinning rotor operating speed,

introducing a yarn end back into said spinning rotor to be pieced together with the fibre ring formed in said spinning rotor from said fibre, utilizing piecing means,

controlling the timing of the introduction of said yarn back into said spinning rotor to occur during acceleration of said spinning rotor from its decelerated condition toward its operating spinning speed and before said spinning rotor reaches its operating spinning speed, by means of piecing control means,

and controlling the fibre feeding means with feed control means separately from the control of the spinning rotor speed to vary the supply of fibre to said spinning rotor as said spinning rotor is accelerated during the piecing operation to correlate the fibre feeding speed to the speed of the spinning rotor during piecing as said spinning rotor is accelerated.

4,276,742

THREAD-JOINING DEVICE

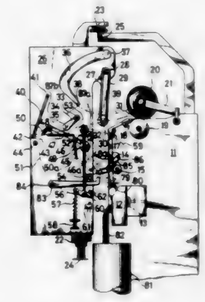
Hans Raasch, and Hans Grecksch, both of Monchen-Gladbach, Fed. Rep. of Germany, assignors to W. Schlafhorst and Co., Monchen-Gladbach, Fed. Rep. of Germany

Continuation of Ser. No. 885,563, Mar. 13, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 79,545

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1977, 2711554

Int. Cl.³ D01H *15/02*

U.S. Cl. 57—263 **1 Claim**



1. Automatic yarn piecing machine for joining a thread to be returned from a take-up coil to a spinning rotor of an open end spinning machine having a delivery tube and a pair of delivery rollers for delivering spun thread from the spinning rotor, comprising means disposed at an upper location of the automatic yarn piecing machine in the vicinity of the take-up coil for locating and sucking a thread end on the take-up coil, and thread regulator means for seizing the thread end from said locating and sucking means, said thread regulator means being movable from said upper location to a position below the pair of delivery rollers below said upper position at an end of the delivery tube, said thread regulator means having a thread clamp including a roller pair, and a motor for driving at least one of the rollers of said roller pair in direction in which the thread is returned.

4,276,743

FUEL CONTROL SYSTEM

Charles H. LaGrone, Phoenix, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Continuation of Ser. No. 743,387, Nov. 19, 1976, abandoned. This application Jan. 31, 1979, Ser. No. 8,027

Int. Cl.³ F02C *9/32*

U.S. Cl. 60—39.14 R **22 Claims**

1. In combination with a gas turbine engine fuel delivery system:

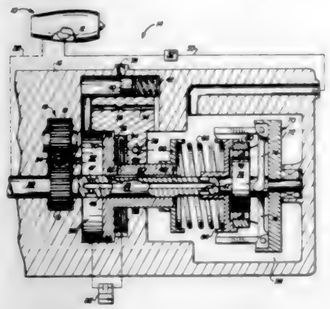
metering means for adjusting the rate of fuel flow delivered to said engine;

governor means responsive to engine speed for exerting a first force on said metering means in relation to engine speed;

biasing means for exerting a second, opposing force on said metering means;

time sensing means for sensing the elapsed time of a preselected portion of engine operation, said time sensing means including mechanism rotatably driven by the engine, and means for sensing the cumulative number of revolutions of said mechanism during said preselected portion of engine operation; and

means responsive to said time sensing means for increasing said second force as a predetermined function of said elapsed time to accelerate said engine.

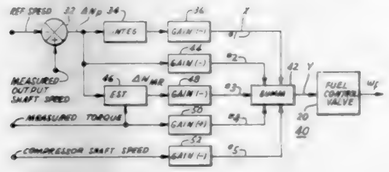


4,276,744

CONTROL SYSTEM FOR GAS TURBINE ENGINE

Alan D. Pisano, Chelsea, Mass., assignor to General Electric Company, Cincinnati, Ohio

Filed Sep. 19, 1979, Ser. No. 76,890
Int. Cl.³ F02C *3/10, 9/28*
U.S. Cl. 60—39.16 R **6 Claims**



1. In combination with a gas turbine engine having first drive shaft means coupled to engine compressor means and second drive shaft means adapted to provide rotational motion to at least one airfoil, a control system for controlling the rotational speed of the second drive shaft means, the control system being of the type including means for developing a first signal representative of a desired rotational speed of the second drive shaft means and a second signal representative of the actual rotational speed of the second drive shaft means, means for developing an error signal representative of the difference between said first and second signals, integrator means for integrating the error signal, first gain means for providing a desired gain to the integrated error signal, the integrated error signal comprising a control signal, and including a fuel valve control means responsive to the control signal for controlling the passage of fuel to the engine, wherein the control system further comprises:

(a) means for developing a third signal representative of the rotational speed of said first drive shaft means;

(b) means for developing a fourth signal representative of the torque provided by said second drive shaft means;

(c) signal processing means coupled to receive the error signal, said third and fourth signals and to develop a plurality of intermediate signals therefrom; and

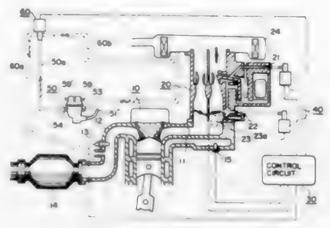
(d) summing means coupled to receive said plurality of intermediate signals and the output of the first gain means and developing an output signal, said output signal comprising the control signal to said fuel valve control means for controlling the passage of fuel to said engine.

4,276,745

EXHAUST GAS CONTROL APPARATUS

Shigetaka Takada, Obbu; Kazumichi Naruse, and Yukihiro Watanabe, both of Nagoya, all of Japan, assignors to Aisan Industry Co., Ltd., Aichi, Japan

Filed Jul. 12, 1979, Ser. No. 56,759
Int. Cl.³ F01N *3/10*
U.S. Cl. 60—276 **9 Claims**



1. In an exhaust gas control apparatus having an exhaust gas sensor means, disposed in the exhaust system of an internal combustion engine having an engine shaft, for detecting the air-fuel ratio of an air-fuel mixture supplied to the engine, a carburetor supplying an air-fuel mixture to the engine having main and slow systems and an air cleaner upstream of the carburetor, temperature detector means for detecting a non-warm condition of the engine, actuator means disposed in the main and slow systems of the carburetor for controlling the air-fuel ratio of the mixture supplied to the engine, control circuit means for driving said actuator means in accordance with a signal from the exhaust gas sensor, a 3-way catalyst disposed in the exhaust system at a downstream side of said exhaust gas sensor, idle detector means for detecting an idle condition of the engine, an air supply means for supplying secondary air to the exhaust system at an upstream side of said 3-way catalyst in accordance with a signal from the temperature detector means for detecting the non-warm condition of the engine, the improvement wherein

said air supply means comprises a diaphragm type fuel pump means, having a diaphragm and a rocker arm operatively connected thereto, for being driven by the engine shaft via said rocker arm,

said detector means are connected to said control circuit means,

said air supply means defining a chamber at one side of the diaphragm and having an air inlet port and air discharge port communicating therewith,

change-over solenoid valve means for being driven by said control circuit means in accordance with signals from said detector means and for communicating therethrough said air discharge port with the upstream side of the 3-way catalyst and the air cleaner respectively.

4,276,746

COMPOUND VALVE DEVICE

Minoru Yamanaka, and Tooru Tamura, both of Toyota, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

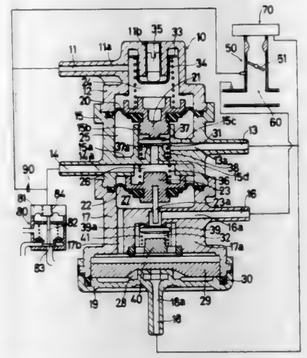
Filed Feb. 6, 1979, Ser. No. 9,906
Claims priority, application Japan, Feb. 10, 1978, 53/14442
Int. Cl.³ F01N *3/10*
U.S. Cl. 60—290 **4 Claims**

1. A compound valve device comprising:

a body member means having a signal port, a first input port connected to an air cleaner, a first output port, a second input port connected to said air cleaner, and a second output port;

a first diaphragm forming a first signal chamber and a first atmospheric chamber within said body member means, said first signal chamber connected to said signal port, said first atmospheric chamber being connected to said first input port, said first diaphragm being movable in response to the signal pressure in said signal chamber;

a first valve member controlling the atmospheric communication between said first input port and said output port by the movement of said first diaphragm;



a second diaphragm forming a second signal chamber and a second atmospheric chamber within said body member means, said second signal chamber connected to said first output port, said second atmospheric chamber being connected to said second input port, said second diaphragm being movable in response to the pressure in said second signal chamber; and

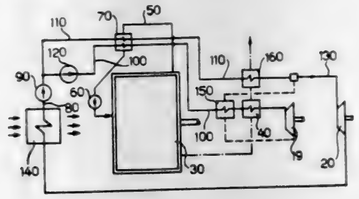
a second valve member controlling the atmospheric communication between said second input port and said second output port by the movement of said second diaphragm, said second valve member being operated immediately after the operation of said first valve member in response to the signal pressure in said signal port.

4,276,747

HEAT RECOVERY SYSTEM

Roberto Faldella, and Riccardo Margary, both of Turin, Italy, assignors to Fiat Societa Per Azioni, Turin, Italy

Filed Nov. 30, 1978, Ser. No. 965,133
Int. Cl.³ F01K *23/10*
U.S. Cl. 60—618 **2 Claims**



1. A heat recovery system for the production of mechanical energy from two heat sources respectively constituted by the cooling circuit of an internal combustion engine and the exhaust gases emitted by said internal combustion engine, said heat recovery system comprising a circuit for a working fluid, said circuit including:

first heat exchange means for transferring heat from said cooling circuit to said working fluid,

second heat exchange means for transferring heat from said exhaust gases to said working fluid,

first expander means and second expander means for expanding the heated working fluid and producing mechanical energy,

a condenser disposed downstream of said first expander means and said second expander means,

a circulation pump downstream of said condenser,

a main duct for working fluid, in which said second expander means, said condenser and said circulation pump are interposed;

said main duct branching into a first branch duct and a second branch duct downstream of said circulation pump,

said second heat exchange means being interposed in said first branch duct and said first expander means being also interposed in said first branch duct downstream of said second heat exchange means,

an auxiliary pump in said first branch duct upstream of said second heat exchange means,

said first branch duct rejoining said second branch duct upstream of said second expander means, and

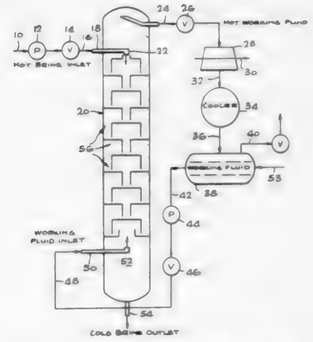
said first heat exchange means being disposed downstream of said circulation pump being traversed by the total flow of working fluid wherein said first heat exchange means is interposed both in said first branch duct and said second branch duct, said auxiliary pump being interposed in said first branch duct upstream of said first heat exchange means.

4,276,748

RECOVERY OF ENERGY FROM GEOTHERMAL BRINE AND OTHER HOT WATER SOURCES

Edward F. Wahl, III, Claremont, and Frederic B. Boucher, San Juan Capistrano, both of Calif., assignors to Occidental Petroleum Corporation, Los Angeles, Calif.

Continuation of Ser. No. 795,523, May 10, 1977, abandoned.
This application Oct. 5, 1979, Ser. No. 83,112
Int. Cl.³ F03G *7/00*
U.S. Cl. 60—641 D **25 Claims**



1. In a process for recovery of energy from hot water-containing fluids including geothermal brine and other hot water-containing sources, by introducing said hot water-containing fluid in a heat exchange column in direct heat exchange relation therein with an immiscible working fluid in liquid form, the improvement which comprises

(a) providing a plurality of vertically spaced sieve plates in said column, said sieve plates including perforated trays and downcomers associated with said trays, and

(b) flowing said hot water-containing fluid and said working fluid in countercurrent direct heat exchange relation through said perforated trays and said downcomers,

the diameter of the holes in said trays, the number of holes

therein, the downcomer area and the spacing between adjacent trays being selected to obtain maximum throughput, i.e. mass flow rate, of said hot water-containing fluid in said column, and

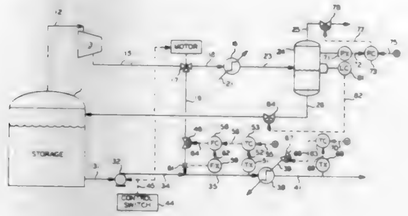
wherein maximum throughput of said water-containing fluid corresponds to maximum downcomer area.

4,276,749

STORAGE SYSTEM FOR LIQUEFIED GASES

Ralph P. Crowley, Bountiful, Utah, assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 16, 1980, Ser. No. 140,904
Int. Cl.³ F17C 7/02
U.S. Cl. 62—51 **11 Claims**



1. Apparatus comprising:

a storage means for liquefied gases;

means for withdrawing liquefied gases from said storage means;

a compressor means having a suction inlet and a discharge outlet;

means for withdrawing a vapor stream from said storage means and for providing said vapor stream to the suction inlet of said compressor means; and

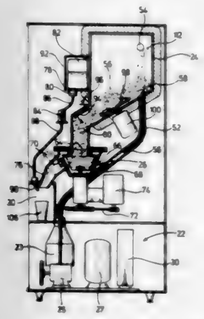
means for withdrawing the compressed gases from the discharge outlet of said compressor means and for mixing at least a portion of said compressed gases with the liquefied gases withdrawn from said storage means to thereby supply heat to the liquefied gases withdrawn from said storage means.

4,276,750

FLAKE ICE VENDING MACHINE

Sakichi Kawasumi, Toyoake, Japan, assignor to Hoshizaki Electric Co., Ltd., Aichi, Japan

Continuation of Ser. No. 826,135, Aug. 19, 1977, abandoned.
This application Jan. 9, 1980, Ser. No. 111,008
Int. Cl.³ F25C 5/14
U.S. Cl. 62—137 **10 Claims**



1. In a flake ice vending machine for vending disposable receptacles filled with a mixture of flake ice and a flavored syrup, the improved combination comprising:

an auger type ice making means comprising a refrigerated cylinder and rotating auger contained within said cylinder, said auger scraping ice formed on an inner circumferential surface of said cylinder;

a storage means for storing said ice formed by said ice making means, said storage means mechanically connected to said ice making means by a conduit, said auger of said ice making means feeding said ice formed from said ice making means to said storage means through said conduit;

a first means provided at an upper portion of said storage means for measuring an upper storage limit of said ice stored therein and for controlling said ice making means;

a second means provided at a bottom portion of said storage means for measuring the presence of ice stored therein;

an agitator means located within said storage means and controlled by said second means for agitating said ice formed by said ice making means;

an ice slicer means for slicing said ice formed by said ice making means into flake ice, said slicer means mechanically connected to said storage means by a feed means for feeding said ice from said storage means to said slicer means; and

a discharge means for discharging said flake ice, said discharge means mechanically connected to said slicer means; said improved combination producing flake ice for dispensing.

9. A flake ice vending machine comprising:

an auger type ice making unit in which an ice layer formed on an inner circumferential wall surface of a freezing cylinder is scraped by an auger and then compressed by a press head to form a plurality of ice masses;

a means for transferring the ice masses extruded from said ice making unit;

a storage chamber for storing the transferred ice masses;

a means for slicing the ice masses supplied from said storage chamber to discharge a flake ice;

a means for storing and supplying a receptacle for receiving the flake ice into a dispensing outlet tray;

a means for pouring a flavored liquid onto the flake ice in the receptacle;

a means for discharging water against a dispensing outlet tray for cleaning;

wherein the ice storage chamber at it upper portion is provided with a means for measuring an upper storage limit of the ice masses and for controlling said ice making unit and is provided at its bottom portion with a means for measuring the presence of the ice masses and for activating an agitator provided in the bottom of the storage chamber.

4,276,751

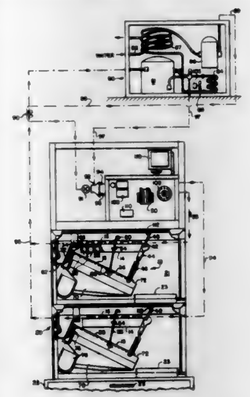
ICE MAKING MACHINE

Robert N. Saltzman, 7420 SW. 163rd St., Miami, Fla. 33157, and Bruce Burrell, 145 NE. 121 Ter., N. Miami, Fla. 33161

Filed Sep. 11, 1978, Ser. No. 940,908
Int. Cl.³ F25C 1/12
U.S. Cl. 62—138 **5 Claims**

1. In an ice making machine having an ice forming enclosure; a refrigeration system; having an evaporator through which evaporating refrigerant is passed in heat exchange relationship with said enclosure to cool said ice forming enclosure during a freezing cycle; valve means in said refrigeration system permitting the flow of hot refrigerant gas to said evaporator to heat said ice forming enclosure to harvest the ice therefrom during a harvest cycle; and water supply means supplying water to said ice forming enclosure; control means for automatically cycling the machine through freezing and ice harvesting cycles, said control means comprising: a pressure responsive switch responding to pressures in the evaporator of the refrigeration system indicating the formation of ice in said ice forming enclosure, said pressure sensitive switch arranged

in a circuit controlling said valve means and said water supply means to cause said valve means to permit the flow of hot refrigerant into heat exchange relationship with said enclosure to effect defrost when a given pressure condition has been



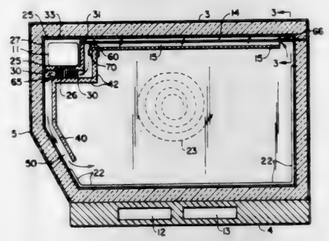
sensed, and to discontinue the flow of water to said ice forming enclosure; and a timer in an electrical circuit with said pressure sensitive switch, said timer causing said switch to move to a position discontinuing defrost and initiating the freezing cycle.

4,276,752

REFRIGERATED AIR CARGO CONTAINER

Peter R. Modler, Los Angeles; Harold E. Dittmer, San Francisco; Richard L. Rose, Newark, and John A. Stafsnes, San Anselmo, all of Calif., assignors to Pax Equipment Management, Inc., San Francisco, Calif.

Filed Sep. 22, 1978, Ser. No. 944,869
Int. Cl.³ F25D 3/12
U.S. Cl. 62—166 **7 Claims**



1. A refrigerated cargo container comprising:

an insulated housing assembly having an insulated top panel, an insulated bottom panel, an insulated back panel, two respective insulated side panels, an insulated front panel with insulated door means releasably engageable across a portion of said front panel, all of said panels being sealably connected to each other and with sealing means cooperating between said door means and said housing assembly to make said housing assembly substantially air-tight when said door means is in the closed position relative to said housing assembly;

a bunker located in said housing assembly for receiving a predetermined amount of coolant, said bunker being substantially insulated to prolong the period during which the coolant sublimes, vaporizes or liquifies such that the time required for the coolant to change states approximately offsets the temperature increase in the housing assembly to maintain the cargo in the housing assembly at a substantially constant temperature, said bunker further having at least one heat exchange portion positioned to allow heat from said housing assembly to pass to said coolant such that said coolant sublimes, vaporizes or liquifies, cooling said heat exchange portion of said bunker;

an insulated baffle surrounding a portion of said bunker including said heat exchange portion of said bunker such that cargo located in said housing assembly in close proximity to said carbon dioxide bunker is protected from freezing temperatures;

an air inlet duct extending along and parallel to the top panel of said housing assembly to said bunker, from the side wall opposite to said bunker, said inlet duct being open to the interior of said housing only at a point adjacent to said opposite side wall, for directing warm air from the area along the side panel of said housing assembly opposite said bunker to the area around said bunker including said heat exchange portion of said bunker where the warm air from said housing assembly is cooled by said heat exchange portion;

a curtain wall extending from said baffle surrounding a portion of said bunker and continuing along one of said housing side panels below said bunker for a major part of the length of said panel forming an output air duct to allow cool air from said heat exchange portion of said bunker to pass through said output air duct to circulate through said housing interior; protruberances projecting from the interior surface of said side, back and bottom panels of said housing assembly to prevent cargo from directly contacting said panels such that cool air from said output duct will circulate along some of the recessed surfaces of said wall and throughout said housing assembly to maintain said cargo at a substantially constant temperature; and

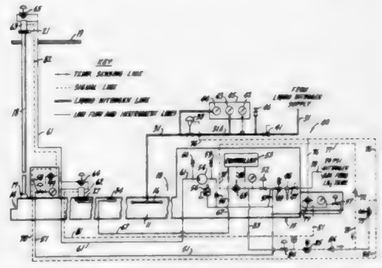
a chimney duct located along the top panel of said housing assembly between said inlet duct and said top panel and extending along said top panel for substantially the length of said top panel and having one of its two-end portions connected to said bunker to allow coolant vapor from said bunker to enter said chimney and to pass through said chimney exiting through the other end portion of said chimney as said coolant sublimes, liquifies or vaporizes, said chimney duct being insulated for the greater portion of its length along said top housing panel with a non-insulated portion located near the opening of said inlet duct near the side panel opposite said bunker;

4,276,753

CRYOGENIC FREEZING TUNNEL CONTROL SYSTEM

Glenn A. Sandberg, Lockport, and Wilbur A. Janssen, New Lenox, both of Ill., assignors to Formax, Inc., Mokena, Ill.

Filed May 19, 1980, Ser. No. 150,893
Int. Cl.³ F25D 17/04
U.S. Cl. 62—186 **6 Claims**



1. In a cryogenic food product freezing tunnel of the kind comprising:

an elongated tunnel housing;

conveyor means extending through the housing to transport

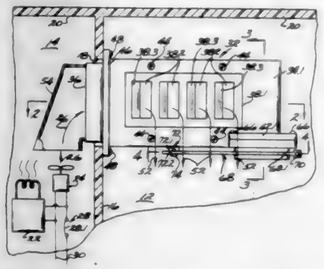
food product from a product entrance end to a product exit end;
cryogen input means to introduce a cryogen into the tunnel at a cryogen input location near the exit end;
exhaust means, including an exhaust stack and an exhaust blower at the top of the stack, to exhaust cryogen gas from a location near the entrance end of the tunnel;
a plurality of circulating fans at spaced locations along the length of the tunnel for deflecting vaporized cryogen into contact with food product traversing the tunnel;
a directional blower, including a variable speed drive, mounted in the tunnel between the cryogen input location and the entrance end;
and cryogen input control means, including a temperature sensor located between the directional control blower and the cryogen input location, for controlling the rate of input of cryogen into the tunnel;
an improved cryogen gas flow control system comprising:
a variable speed drive for the exhaust blower; and
unified blower speed control means for varying the speed of the directional blower and the speed of the exhaust blower, as functions of the temperature in the tunnel taken at a position intermediate the cryogen input location and the position of the directional blower.

4,276,754

REFRIGERATOR CONTROL AND SYSTEM

Heary Ty, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 24, 1979, Ser. No. 78,427
Int. Cl.³ F25D *17/04*; G05D *23/02*
U.S. Cl. 62—187 **7 Claims**



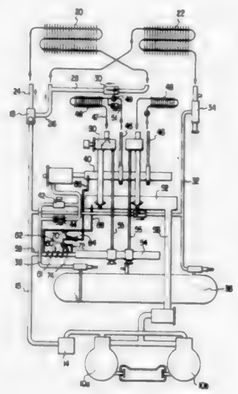
1. An integral thermally responsive air flow control mountable as a unit in a refrigerator for regulating air flow from a first refrigerator compartment through a refrigerator wall into a second compartment in response to changes in temperature in the second compartment comprising an elongated housing having an opening at one end, having a closed opposite end and having an orifice of selected size in a side of the housing, means for mounting the control on a refrigerator with a portion of the housing extending through a refrigerator wall in substantially sealed relation to the wall to dispose the open housing end in the first compartment and to dispose the orifice and the closed housing end in the second compartment, a shaft rotatably mounted on the housing at the closed housing end, the shaft having a first portion inside the housing adjacent the orifice and having an additional portion extending from the housing, an elongated damper blade mounted inside the housing on the first shaft portion to extend longitudinally toward the open housing end to be movable wholly within the housing between a first position extending along said housing side for substantially closing the orifice and a second position opening the orifice to permit air flow from the open housing end through the orifice, a thermally responsive thermostat metal helical coil spring having inner end operatively secured to said additional shaft portion to mount the spring outside the housing to be movable in response to temperature changes in the second refrigerator compartment for moving the damper blade in response to such changes, the coil spring also having an outer end, and adjust means movably mounted on the housing and secured to the outer end of the coil spring for selectively moving the spring to a selected extend so that the spring is adapted to progressively move the damper blade between its orifice opening and closing positions in response to changes in the coil temperature within a selected temperature range, whereby the control is mountable as a unit so that the open housing end is adapted to receive air from a first refrigerator compartment and so that the closed housing end is adapted to extend into a second compartment to permit the orifice to open into the second compartment and to dispose the thermally responsive spring to be responsive to temperature changes in the second compartment.

4,276,755

GAS DEFROST SYSTEM INCLUDING HEAT EXCHANGE

Arthur Perez, and Fayez F. Abraham, both of Niles, Mich., assignors to Tyler Refrigeration Corporation, Niles, Mich.

Filed Oct. 18, 1978, Ser. No. 952,612
Int. Cl.³ F25B *41/00*, *47/00*
U.S. Cl. 62—196 B **29 Claims**



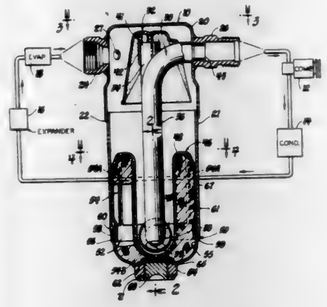
1. A defrosting arrangement for a refrigeration system having compressor means for compressing a refrigerant to a relatively high compressor discharge pressure, condenser means for condensing that compressed refrigerant to a liquid at substantially that relatively high pressure, evaporator means coupled between said condenser means and said compressor means to accomplish the desired normal refrigeration by evaporating that liquid refrigerant at a relatively low pressure and returning the thus formed gaseous refrigerant to the intake of the compressor means as a substantial heat load, said defrosting arrangement comprising:
defrost conduit means for selectively conducting gaseous refrigerant from the compressor discharge to the evaporator means for defrosting that evaporator means;
heat exchange means coupled between the liquid side and the suction side of the refrigeration system and in heat exchange relation with said defrost conduit means for removing heat from hot refrigerant gas passing through said defrost conduit means to the evaporator means, said heat exchange means acting as an additional load to absorb liquid refrigerant produced by the defrosting of said evaporator means; and
means for shutting off refrigerant flow through said heat exchange means when the evaporated refrigerant at the outlet thereof reaches a predetermined temperature.

4,276,756

LIQUID ACCUMULATOR

J. D. Livesay, Tipp City, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 7, 1980, Ser. No. 156,320
Int. Cl.³ F25B *43/00*
U.S. Cl. 62—503 **3 Claims**



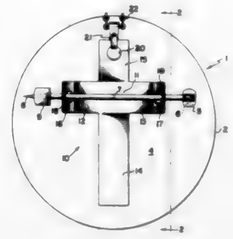
1. In a liquid accumulator for air conditioning systems and the like wherein the accumulator is of the type having a permanently assembled casing enclosing both liquid separator means and desiccant container means and wherein the liquid separator means includes a generally U-shaped tube having a bight portion with a bleed opening therethrough located in a bottom end of the casing and wherein the liquid separator means operates to separate liquid including refrigerant, oil and water from vaporous refrigerant flow received from the system and deposit same in the bottom of the casing and wherein desiccant in the desiccant container means adsorbs the deposited water while the deposited liquid refrigerant and oil is permitted to be returned through the bleed opening in the bight portion and thence through the tube in vaporous form back to the system: the improvement in a serviceable desiccant container arrangement comprising in combination, porous desiccant container means adapted to be received in the bottom of the casing prior to insertion of the bight portion of the tube therein and permanent closure of the casing, said desiccant container means having an open lower end, seal-attaching means for sealingly attaching said lower end of said desiccant container means to said casing so as to retain same in the bottom of the casing when the casing is inverted and to thereafter seal off escape of desiccant from the interior of said desiccant container means to the interior of the casing above said seal-attaching means, said desiccant container means further having an external cavity adapted to receive the bight portion of the tube therein, an access opening formed in the bottom of the casing and opening to the interior of said desiccant container means through said open lower end thereof, access lifting means integral with the bottom end of the casing and extending about said access opening, and detachable seal-closure means for cooperating with said access fitting means to close said access opening after desiccant hs been loaded therethrough into said desiccant container means whereby said desiccant container means may be gravity filled with desiccant both for the first time and later in service through said access opening after the casing has been permanently closed by inversion thereof while said desiccant container means while so inverted remains secured in place by said seal-attaching means and whereby saturated desiccant may be drained from said desiccant container means through said access opening when the casing is in its normal upright position prior to refilling.

4,276,757

JEWELRY SUPPORT

John H. Boening, 250 S. Main St., Frankenmuth, Mich. 48734

Filed Jun. 5, 1980, Ser. No. 156,558
Int. Cl.³ A44C *25/00*, *3/00*
U.S. Cl. 63—1 R **11 Claims**



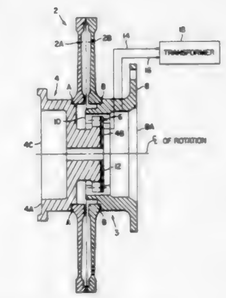
1. A support for use in converting an article of jewelry having a mounting pin to a pendant capable of being suspended from a chain or the like, said support comprising an elongate, resiliently flexible concavo-convex arm terminating at its opposite ends in fingers bent to extend beyond the convex side of said arm, each of said fingers having an opening therein for the accommodation of said pin, and means for attaching said arm to a chain or the like, the sizes and positions of said openings in said fingers being such that alignment of said openings for enabling insertion of said pin through both of said openings requires flexure of said arm to reduce its concavity, the resiliency of said arm enabling the latter to bear firmly against said pin and urge those portions of said fingers at the edges of the respective openings into engagement with said pin.

4,276,758

FAIL SAFE REDUNDANT DRIVE SHAFT APPARATUS INCLUDING ELECTRICALLY OPERATIVE FAILURE DETECTION MEANS

William E. Coman, Newport, and Florian E. Tepolt, Utica, both of N.Y., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Sep. 27, 1979, Ser. No. 79,613
Int. Cl.³ F16D *3/18*, *3/78*
U.S. Cl. 64—9 R **6 Claims**



1. Drive shaft apparatus, comprising:
a drive shaft having driving and driven members;
primary torque transmitting means coupling the driving and driven members;
redundant torque transmitting means coupled to the primary torque transmitting means and rendered operative upon a failure of the primary torque transmitting means for coupling the driving and driven members, the redundant torque transmitting means including a first spline member coupled to the primary torque transmitting means and

coupled to one of the driving and driven shafts, a second spline member coupled to the primary torque transmitting means and coupled to the other of the driving and driven shafts, the first and second spline members being in mating relation, with the respective splines thereof being disengaged so that the redundant torque transmitting means is inoperative when the primary torque transmitting means is operative, and one of the first and second spline members being displaced upon a failure of the primary torque transmitting means, whereupon said means is rendered inoperative so that the respective splines of the first and second spline members are engaged and the redundant torque transmitting means is rendered operative;

the one spline member having a first main torque transmitting section and a second relatively thin section secured to the first section, and an insulating member separating the first and second sections so that an open electrical circuit through the one and the other of the first and second spline members and the primary torque transmitting means is provided when the redundant torque transmitting means is inoperative, with said circuit being closed through the engagement of the respective splines of the first and second spline members when the redundant torque transmitting means is operative;

a transformer circuit arranged with the redundant torque transmitting means and including a stationary winding, means for exciting the stationary winding and a winding inductively coupled to the stationary winding and rotating with the drive shaft;

the operative redundant torques transmitting means affecting the transformer circuit for short circuiting the rotating winding; and

means connected to the transformer circuit for sensing the short circuit which is indicative of a failure of the primary torque transmitting means.

4,276,759

CENTERED DOUBLE JOINT

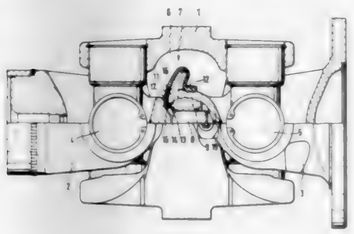
Gerd Faulbecker, Essen, Fed. Rep. of Germany, assignor to Gelenkwellenbau GmbH, Essen, Fed. Rep. of Germany

Filed Jul. 20, 1979, Ser. No. 59,148

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833149

Int. Cl.³ F16D *3/26*

U.S. Cl. 64—17 R **10 Claims**



1. Centered double joint comprising a first single joint, a second single joint, and centering means interconnecting said first and second joints, said centering means comprising a pin secured to and extending axially outwardly from said first single joint toward said second single joint, an intermediate element fitted on and laterally encircling said pin, said intermediate element having a first end located closer to said first single joint and a second end located closer to said second single joint, a journal fixed to said second single joint and extending outwardly therefrom toward said first single joint, said intermediate element located within said journal with the outer surface of said intermediate element disposed in contact with a complementary shaped surface in the interior of said journal, and a gasket laterally enclosing at least an axially extending portion of said pin and said journal, said gasket extending in the axial direction of said pin and having a first end and a second end with the first end secured to said pin and the second end secured to said journal, first means for securing the first end of said gasket to said pin, and second means for securing the second end of said gasket to said journal, wherein the improvement comprises that said first means comprises a reinforcing ring bonded to said gasket at the first end thereof, said reinforcing ring having a first cylindrical part extending in generally parallel relation with the axis of said pin and said first part having a first end spaced from said intermediate element and a second end adjacent the first end of said intermediate element, the second end of said first part forming a stop face extending transversely of the axis of said pin and disposed in surface contact with the transversely extending surface at the first end of said intermediate element, said pin having a first axially extending cylindrical portion fitted into said intermediate element, and a second axially extending cylindrical portion located closer to said first single joint, said second cylindrical portion having a larger diameter than said first portion, and said first cylindrical part of said reinforcing ring is press fit onto said cylindrical portion of said pin.

4,276,760

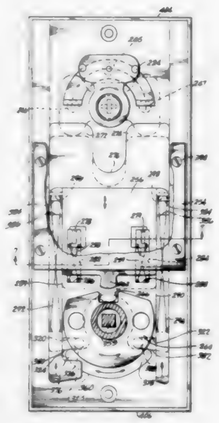
TWO-BOLT LOCKSET WITH SIMULTANEOUS LOCKING AND UNLOCKING OF ITS BOLTS

Roger J. Nolin, 1838 Whitehurst Dr., Monterey Park, Calif. 91754

Filed Oct. 22, 1979, Ser. No. 86,945

Int. Cl.³ E05B *59/02*

U.S. Cl. 70—107 **30 Claims**



1. An improvement in an integrated, two-bolt lockset of the type that mounts on the surface of a door comprising:

(a) a case;

(b) means for mounting the case to the inside of a door;

(c) a deadbolt assembly including an outside operator adapted for mounting on the outside of the door and an inside operator mounted on the case, the deadbolt assembly including a deadbolt and a deadbolt drive responsive to either of the deadbolt operators to rotate between a locked and an unlocked position, the deadbolt drive including crank means;

(d) a latch bolt assembly including an outside operator adapted for mounting on the outside of the door and an inside operator mounted on the case, the latch bolt assembly including a latch bolt and a latch bolt drive responsive to either of the latch bolt operators to rotate between a latch bolt open and a latch bolt closed position;

(e) a slide mounted in the case for translation between a locked position proximate the latch bolt assembly and an unlocked position proximate the deadbolt assembly;

(f) biasing means to bias the slide away from the latch bolt assembly;

(g) an actuator on the latch bolt drive;

(h) means of the slide and the actuator to lock the actuator and lock the latch bolt assembly in a locked position of the slide; and

(i) the crank means of the deadbolt drive being rotatable between a locked and an unlocked position and operable during rotation between its unlocked and locked positions to engage the slide in its unlocked position and to translate the slide against the force of the biasing means into the locked position of the slide upon the locking actuation of either of the deadbolt operators, the crank means rotating with either of the deadbolt operators to disengage the slide and thereby unlock the actuator upon rotation of either of the deadbolt operators into an unlocked position.

4,276,761

STEERING COLUMN AND IGNITION LOCK FOR MOTOR VEHICLE

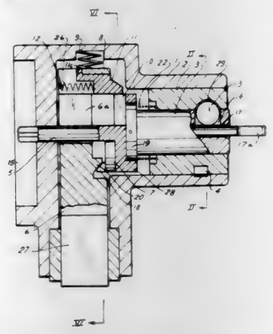
Rudolf Eichenauer, Höllbergstrasse 1, D-6000 Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 4, 1978, Ser. No. 931,397

Claims priority, application Fed. Rep. of Germany, Jan. 14, 1978, 2801531

Int. Cl.³ B60R *25/02*; **E05B** *65/12*

U.S. Cl. 70—252 **3 Claims**



1. In a lock arrangement for a motor vehicle having a steering column, which comprises

(a) a housing defining an axial bore and a cross bore intersecting therewith,

(b) a key controlled lock cylinder mounted in the axial bore of the housing for spring-biased axial displacement from an outwardly into an inwardly displaced position, and for rotation by the key about the axis of the bore in the inwardly displaced position into selected operating positions including a driving position, a ready-to-lock position and a locking position,

(1) the lock cylinder having an axial keyhole for inserting the key in one axial direction and withdrawing the key in the opposite axial direction,

(c) a lock bolt mounted in the cross bore for displacement from a retracted position into a locking position upon withdrawal of the key from the keyhole in the opposite axial direction,

(1) the bolt having a keeper engaging a recess in the steering column in the locking position,

(d) spring means engaging the lock bolt and biased to displace the lock bolt into the locking position,

(1) the lock bolt cooperating with the lock cylinder to displace the lock cylinder into the outwardly displaced position during the displacement of the lock bolt into the locking position under the bias of the spring means

(e) a latch member mounted on the lock bolt, and

(f) actuating means arranged to displace the lock bolt between the retracted and locking positions, the bolt actuating means including

(1) a driving member operated by the rotation of the lock cylinder to displace the bolt against the bias of the spring means into the retracted position to disengage the keeper from the steering column,

the improvement of

(g) the latch member being slidable in the direction of the axis and spring-biased into a position projecting from the bolt towards the lock cylinder,

(h) the driving member including a control ring rotating and axially displaced with the lock cylinder, and eccentric cam means fixedly arranged eccentrically on the control ring, the cam means comprising a first cam cooperating with the latch member in the driving position of the lock cylinder for maintaining the lock bolt in the retracted position, a second arcuate cam having a periphery and an oblique camming face for engagement with the latch member and depressing the latch member against the spring bias during rotation of the lock cylinder from the locking into the driving position, the periphery of the second arcuate cam subtending the projecting latch member during rotation of the lock cylinder from the driving into the ready-to-lock position for maintaining the lock bolt in the retracted position, and a third cam projecting from the control ring towards the lock bolt and having an oblique camming face, and

(i) a fourth cam fixed on the lock bolt, the fourth cam and the third cam being arranged to position the oblique camming face of the third cam in subtending engagement with the fourth cam in the ready-to-lock position whereby the lock bolt is temporarily prevented from displacement from the retracted into the locking position, the cams being dimensioned and shaped to enable the lock cylinder to be rotated into the selected operating positions and to maintain the lock bolt in the retracted position during the driving and ready-to-lock position of the lock cylinder.

4,276,762

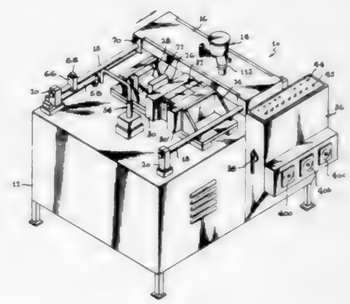
JOGGLING MACHINE

Butler A. Mershon, and Keith A. Wilhelm, both of Burbank, Calif., assignors to Lockheed Corporation, Burbank, Calif.

Filed Nov. 6, 1978, Ser. No. 957,692

Int. Cl.³ B21D *11/18*

U.S. Cl. 72—13 **34 Claims**



1. A joggling machine incuding a joggling tool for forming an indentation in a workpiece comprising:

means for securing said workpiece;

means for heating said workpiece to a preselected temperature;

means for supporting said joggling tool above the plane of said workpiece and for moving said joggling tool into

position over said workpiece prior to actuating said jogging tool; and

means for actuating said joggling tool after said joggling tool has moved into position over said workpiece.

4,276,763

METHOD OF ROLLING ANGULAR PROFILES HAVING FLANGES OF EQUAL LENGTH

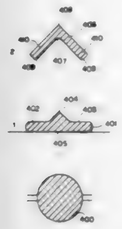
Fernand Schmitz, Lorentzweiler, Luxembourg, assignor to ARBED, Acieries Reunies de Burbach-Eich-Dudelange, Societe Anonyme, Luxembourg, Luxembourg

Filed Jul. 5, 1979, Ser. No. 54,792

Claims priority, application Luxembourg, Aug. 17, 1978, 80119

Int. Cl.³ B21B *1/08*

U.S. Cl. 72—234 **9 Claims**



1. A method of rolling an angle structural shape having a pair of flanges of equal width, at right angles to one another, consisting of the following steps of:

initially rolling a bar of round cross section in a single rolling pass to form a flattened blank having a central protuberance of angular cross section centrally of the blank with the external flanks of said protuberance lying at substantially right angles to one another and with said blank having a pair of wings lying to opposite sides of said protuberance; and

bending said blank, in a single pass by rolling same with interposition of at most two rolling passes in which the blank remains flat while the thickness thereof is reduced, so that said wings lie substantially at a right angle to one another to form said flanges while said protuberance forms a vertex of the resulting angle structural shape.

4,276,764

DIE SET FOR SIZING SECTIONS

Vladislav A. Kozhevnikov, ulitsa Plekhanovskaya, 43, kv. 25; Ivan V. Kononov, ulitsa Torpedo, 40, kv. 4; Ivan E. Maslennikov, ulitsa Lizjukova, 43, kv. 57; Vladimir N. Platonov, ulitsa Lizjukova, 43, kv. 112, all of, Voronezh; Mikhail V. Kharitonovich, Chapaevsky pereulok, 12/1, kv. 69, Moscow, all of U.S.S.R.; deceased Viktor I. Ustinov, late of Moscow, U.S.S.R., and by Klavdia G. Ustinov, administrator, ulitsa Tolbukhina, 8, kv. 65, Moscow, U.S.S.R.

Filed Jul. 17, 1979, Ser. No. 58,308

Int. Cl.³ B21C *3/00*; B21D *28/00*

U.S. Cl. 72—275 **1 Claim**

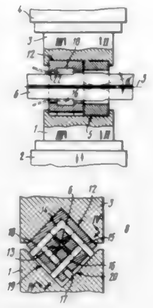
1. A die set having a central axis for sizing sections having projecting flanges, comprising:

a movable block and a stationary block each having end faces;

cutout portions formed in said respective end faces of said blocks facing said central axis of said die set, said cutout portions defining inclined surfaces intersecting along a straight line parallel with said central axis of said die set;

a sizing die accommodated in said cutout portions, and movable knives and stationary knives adapted for trimming said flanges of said sections successively accommodated in said cutout portions;

a jig structure defining said stationary knives secured on said stationary block, said jig structure having formed therein channels arranged in accordance with the contour of said section and having formed therein grooves extending



perpendicularly to said channels, each said movable knives being accommodated in said grooves for direct interaction with said inclined surfaces of said cutout portion of said movable block to be actuated thereby.

4,276,765

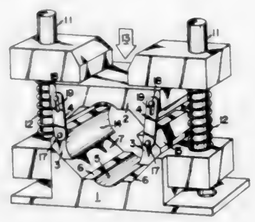
PRESSING DEVICE FOR A HOSE COUPLER

Rikizo Yoneda, 64, Umenokimachi, Sakyoku, Kyoto-shi, Kyoto-fu, Japan

Filed Jun. 14, 1979, Ser. No. 48,653

Int. Cl.³ B21D *41/04*

U.S. Cl. 72—402 **6 Claims**



1. A hose coupler compressor comprising: a lower die on which an external pipe of said hose coupler is placed; an upper vertically movable pressing element; and a pair of side dies engageable by said pressing element and disposed between said lower die and said pressing element, and movable downwardly and inwardly toward the center of the external pipe by means of outwardly facing sloping side surfaces thereof cooperating with inwardly facing sloping surfaces fixed relative to said lower die; whereby upon downward movement of the pressing element the end of a hose is held between the internal and external pipes of a hose coupler, and said external pipe is pressed on its outer periphery and deformed by said dies so that the hose end is secured to the hose coupler; and means suspending each side die from said vertically movable pressing element for limited vertical and transverse movement relative to said vertically movable element so that said side dies separate laterally from the external pipe and are lifted upwardly during upward movement of the pressing element.

4,276,766

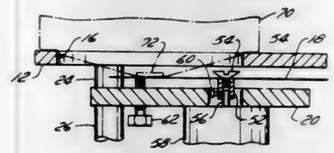
ROUGHNESS SENSOR CALIBRATION

John M. Lucas, Montreal, and Raman Nayar, Baie D'Urfe, both of Canada, assignors to Domtar Inc., Montreal, Canada

Filed Mar. 3, 1980, Ser. No. 126,984

Int. Cl.³ G01B *5/28, 11/30*

U.S. Cl. 73—1 R **3 Claims**



1. A calibrator for calibrating surface sensors having optical parts adapted to contact a surface being sensed comprising; a base plate, a disc having a surface thereof lying substantially in a plane, means for positioning said roughness sensor to be calibrated in a fixed position on said base plate with said optical contacting part of said sensor in a position to contact the surface of said disc and oriented to said plane in substantially the same manner as said sensor is oriented to a surface to be sensed; means for rotating said disc with said surface of said disc in said plane and means to oscillate said disc in a direction substantially perpendicular to the axis of rotation of said disc whereby said optical sensor contacts said surface of said disc and moves back and forth in contact with said surface of said disc along substantially spiral paths.

4,276,767

EROSION POTENTIAL DETERMINATIONS

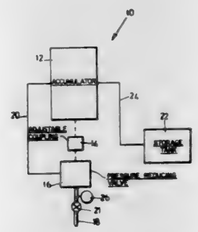
Frederick D. Cartwright, 506 Lake Club Apts., Lake Rd., Germiston, Transvaal, South Africa

Filed Jul. 26, 1979, Ser. No. 60,858

Claims priority, application South Africa, Aug. 4, 1978, 78/4565; Apr. 23, 1979, 79/1906

Int. Cl.³ G01N *3/56*

U.S. Cl. 73—7 **8 Claims**



1. A method of determining the erosion potential of particulate material including the steps of directing a jet of fluid onto the surface of the material from a nozzle located a fixed distance from the surface of the material, progressively increasing the pressure of the jet from zero pressure until particles of material at the surface begin to disperse and measuring the pressure of the fluid leaving the jet when the particles of the material begin to disperse against a scale of known erosion pressures to determine the erosion potential of the material.

4,276,768

RELATES TO APPARATUS FOR MEASURING THE DEW POINT

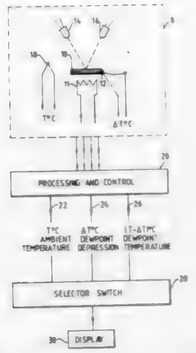
Fali M. Dadachanji, 32 Highfield Park, Marlow, Buckinghamshire, England

Filed Nov. 16, 1979, Ser. No. 95,105

Claims priority, application United Kingdom, Nov. 22, 1978, 45674/78

Int. Cl.³ G01N *25/68*

U.S. Cl. 73—17 A **5 Claims**



1. Apparatus for measuring the dew point, comprising a body on which dew can form, cooling means for cooling said body, dew-sensing means for sensing the formation of dew on said body, temperature sensing means for sensing the temperature of said body, and control means including recording means, said control means being operable to cause the apparatus to perform repeatedly a cycle in which said body is cooled gradually until the formation of dew thereon is detected, the temperature at which dew forms on said body is recorded by said recording means, and the temperature of said body is subsequently allowed to rise prior to cooling again in the next succeeding cycle, the temperature of said body being monitored continuously by said temperature sensing means and the rate of cooling of said body being controlled by said control means in dependence upon the difference between the instantaneous temperature of said body and the dew point temperature measured in a preceding cycle and recorded by said recording means, in such a way that the rate of cooling is lower for at least a range of temperatures closer to said dew point temperature recorded in said previous cycle than for instantaneous temperatures of said body further from said dew point temperature recorded in said previous cycle.

4,276,769

APPARATUS FOR DETERMINING THE CARBON DIOXIDE CONTENT OF A LIQUID, ESPECIALLY A BEVERAGE

Dieter Wieland, Oststrasse 1, 4000 Düsseldorf, and Hartnut Meinert, Hünnefeldstrasse 22, 4950 Minden/Westfalen, both of Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,709

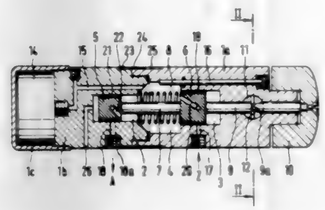
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849401; May 16, 1979, 2919767; May 18, 1979, 2920154

Int. Cl.³ G01N *7/14*

U.S. Cl. 73—19 **17 Claims**

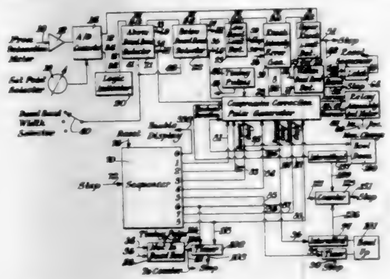
1. In an apparatus for determining the carbon dioxide content of a liquid, especially of a beverage, comprising a housing which has an expansion chamber for receiving the liquid to be measured, said chamber connected to an inlet line and an outlet line provided with valve means to a liquid inlet and a liquid outlet, respectively, and which is or can be connected to a pressure gauge and to a temperature measuring device, and whose volume is variable according to the position of a piston

guided displaceably in it, and having a means for the displacement of the piston from a first position in which the volume of the expansion chamber is at a minimum to a second position in which the volume of the expansion chamber is at a maximum, the improvement wherein said apparatus comprises a plurality of hollow cylindrical sections comprising a first hollow cylindrical section and a second hollow cylindrical section each of which accommodates a displaceably guided piston, said pistons being in line with one another axially, and rigidly joined with one another, the piston of said first hollow cylindrical section being of a smaller diameter than the piston of said second



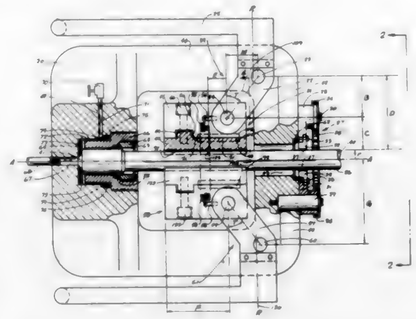
hollow cylindrical section, said expansion chamber being disposed between the confronting end surfaces of said pistons and connected at one of its ends to a liquid feed line carried through the piston of said second hollow cyindrical section and at its other end to a liquid drain line carried through the piston of said first hollow cylindrical section, said pistons serving as valve means in that, in the first position of said piston, the liquid feed line and liquid drain line are open and upon movement of said pistons to a second position, said lines are closed, said apparatus comprising means for the displacement of said pistons from said first position to said second position.

4,276,770
RAPID OCTANE RATING
John M. Bittner, Princeton, N.J., assignor to Ethyl Corporation, Richmond, Va.
Filed Jul. 27, 1979, Ser. No. 61,473
Int. Cl.[3] G01N *33/22*
U.S. Cl. 73—35 **14 Claims**



1. In the process for automatically determining the octane rating of a fuel by using the fuel to operate a test engine having a variable compression ratio, a knock intensity output signal, and automatic compensation means for automatically changing the compression ratio to compensate for knock intensity departures from standard and to do so in a predetermined relation to those departures, which process includes the steps of lowering the fuel-air ratio to bring the knock intensity below standard, then intermittently increasing the fuel-air ratio to determine when the knock intensity reaches a maximum, the improvement according to which the compression ratio is adjusted to bring the knock intensity to standard before the intermittent increases, then during the intermittent increases permitting automatic compensatory changes of the compression ratio in the downward direction only at a rate less than half that of said predetermined relation, and indicating the compression ratio reading after the knock intensity remains at the desired standard during two to four successive intermittent increases.

4,276,771
HYDROSTATIC TESTING APPARATUS
William E. Wesch, Jr., P.O. Box 94162, Houston, Tex. 77018
Filed May 8, 1979, Ser. No. 37,140
Int. Cl.[3] F16L *55/10*; G01M *3/28*
U.S. Cl. 73—49.8 **49 Claims**

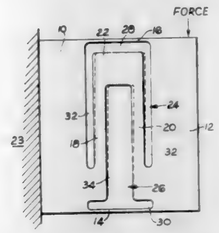


9. A hydrostatic testing apparatus for capping an open end of a pipe, comprising:
a body having an interior zone, said body adapted to axially receive a pipe;
an arm pivotally connected to said body at a first pivot point, said arm having a second pivot point;
a jaw pivotally connected to said arm at the second pivot point, said jaw having a friction surface adapted for gripping the pipe, said friction surface operable to bear against an outside surface of the pipe when said arm is rotated in a first sense about said first pivot point;
a purge valve connected to said body;
a passageway, to place said purge valve in fluid communication with the interior zone of said body;
a seal axially positioned within said body and adapted to form a hydraulic seal between said body and the pipe to be capped, said seal having a first lip disposable against the interior surface of said body, and a second lip connected to said first lip and adapted to displace toward an outer surface of the pipe to be capped; and,
said seal having a plurality of lugs formed upon said second lip defining a plurality of interstices in fluid communication with said passageway.

4,276,772
FORCE TRANSDUCER
Andrew C. Ferguson, Sutton Coldfield, England, assignor to W. & T. Avery Limited, West Midlands, England
Filed Oct. 3, 1979, Ser. No. 81,348
Claims priority, application United Kingdom, Feb. 24, 1979, 79 06621
Int. Cl.[3] G01L *1/22*
U.S. Cl. 73—862.62 **10 Claims**

1. A force transducer for force measurement, including a pair of loading members coupled together and constrained for relative movement in a predetermined direction by a first pair of flexure elements and a second pair of flexure elements arranged in spaced apart relation and extending alongside one another in their lengthwise directions and in the direction of relative movement between the loading members, each of said second pair of flexure elements having one end portion thereof rigidly united with a respective one of said loading members

the arrangement being such that, when the loading members are subjected to a force which tends to move them relatively in said predetermined direction, the second pair of flexure ele-

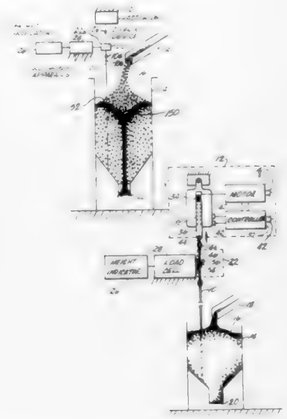


ments deflect laterally about their connections with the loading members, characterized in that said loading members and at least said second pair of flexure elements are all embodied in a single block of material.

4,276,773
GAS FLOW MEASURING APPARATUS
Hisasi Kawai, Toyohashi; Tsuneyuki Egami, Aichi; Tokio Kohama, Nishio, and Hideki Obayashi, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan
Filed Dec. 11, 1979, Ser. No. 102,352
Claims priority, application Japan, Feb. 22, 1979, 54-20010
Int. Cl.[3] G01F *1/68*
U.S. Cl. 73—204 **6 Claims**

1. A gas flow measuring apparatus comprising:
a gas flow measuring tube provided in a duct through which gas to be measured is flown;
an electric heater provided in said gas flow measuring tube;
a first temperature dependent resistor provided in said gas flow measuring tube on the downstream side of said electric heater;
a second temperature dependent resistor provided in said gas flow measuring tube at a position where there is substantially no thermal effect of said electric heater, said electric heater and said first and second temperature dependent resistors each including an insulator frame and a resistance wire stretched across said frame;
a temperature compensation resistance means provided in said gas flow measuring tube, and which exhibits a resistance value indicative of the temperature of said insulator frame; and
a measuring circuit connected with said electric heater, said first and second temperature dependent resistors and said temperature compensation resistance means, for controlling electric power to be supplied to said electric heater in accordance with resistance change of said first and second temperature dependent resistors so as to measure the amount of flow of gas to be measured, the control of power supply to said electric heater being corrected in accordance with the resistance value of said temperature compensation resistance means.

4,276,774
METHOD AND APPARATUS FOR MEASURING THE LEVEL OF SEMI-SOLID MATERIAL
Hugh R. McGookin, 9455 S. Friendly Woods La., Whittier, Calif. 90605, assignor to Hugh R. McGookin, Whittier, Calif.
Filed Jun. 8, 1979, Ser. No. 46,785
Int. Cl.[3] G01F *23/20*
U.S. Cl. 73—290 B **18 Claims**



1. Apparatus for measuring the level of semi-solid material comprising:
a substantially uniform cable having a smooth outer coating for reducing drag on the cable;
means for suspending the cable vertically into the semi-solid material and for selectively introducing slack in the cable;
weighing apparatus; and
means for coupling a slackened portion of the cable above the level of the semi-solid material to the weighing apparatus, causing the weighing apparatus to weigh the slackened portion of the cable.

4,276,775
TEMPERATURE SENSOR FOR MEASURING THE TEMPERATURE OF A PART OF AN AUTOMOBILE
Robert Provasnik, Holland, Pa., assignor to Siemens Corporation, Iselin, N.J.
Filed Nov. 15, 1979, Ser. No. 94,439
Int. Cl.[3] G01K *1/08, 7/22*
U.S. Cl. 73—346 **3 Claims**



1. In an automotive testing device having an easily removable temperature sensor for selectively measuring the temperature of various parts of an automobile, comprising:
(a) a clip for attachment to a selective one of said automobile parts, said clip having a first and a second curved jaw to more accurately measure the temperature, said jaws being movable between a first position, in which the jaws are positioned remote from each other, and a second position,

in which the jaws are positioned close to each other, thereby enclosing said automobile part;

(b) an extended recess extending along said first jaw and facing said second jaw;

(c) a thermistor having electrical leads, said thermistor being retained within said recess by a heat-conductive material and said electrical leads being arranged in said recess;

(d) first and second handles connected to the first and second jaw, respectively, wherein said first handle has a longitudinal axis and an opening formed along said axis for leading at least one electrical connecting lead therethrough; and

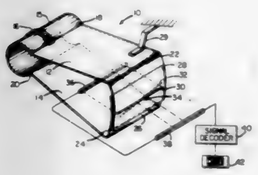
(e) an electric cable having at least one electrical connecting lead, wherein at least one of said leads from said thermistor is electrically connected to a connecting point being arranged within said recess, and wherein said connecting lead of the cable is conducted through said opening in said first handle and along said first jaw and is electically connected to said connection point, whereby the electric cable is adapted to be detachably connected to a remote temperature indicating device.

4,276,776

TEMPERATURE/PRESSURE TRANSDUCER

James M. Lapeyre, New Orleans, La., assignor to The Laitram Corporation, New Orleans, La.

Filed Jan. 17, 1980, Ser. No. 112,908
Int. Cl.³ G01K *5/64*; G01L *7/06, 9/00*
U.S. Cl. 73—363.7 **25 Claims**



1. An optical gauge comprising:

a sensing element adapted to produce movement in response to changes in a selected one of a fluid temperature and pressure to be measured;

a first surface having an indication means disposed thereon, said indication means being elongated in a longitudinal dimension;

a second surface movable relative to said first surface in a direction transverse of said longitudinal dimension, and having a second longitudinally elongated, indication means disposed thereon, said second surface and said first surface being in a confronting, overlapping relationship, said second indication means being disposed at an acute angle with respect to said first indication means and having a common point of intersection with said first indication means, the position of said point of intersection being indicative of a measurement of said selected one of a fluid temperature and pressure; and

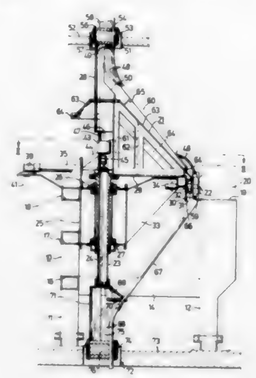
linkage means connecting said second surface with said sensing element and adapted to cause transverse movement of said second surface relative to said first surface in response to movement of said sensing element to produce longitudinal movement of said common point of intersection.

4,276,777

APPARATUS FOR ANALYSING FLOWING MEDIA

Gustaf J. Sundkvist, Skelleftehamn; Fred O. Lundgren, Skellefteå; Mats-Ove R. Lindberg, Skelleftehamn, and Erik A. Boström, Skellefteå, all of Sweden, assignors to Boliden Aktiebolag, Stockholm, Sweden

PCT No. PCT/US 79/00158, §371 Date Dec. 6, 1979, §102(e) Date Dec. 6, 1979, PCT Pub. No. WO79/00934, PCT Pub. Date Nov. 15, 1979
This PCT application filed Apr. 11, 1979, Ser. No. 174,526
Claims priority, application Sweden, Apr. 14, 1978, 7804262
Int. Cl.³ G01N *1/10, 23/00*
U.S. Cl. 73—864.81 **4 Claims**



1. An apparatus for use in the analysis of flowing media, and in particular for the analysis of pulp-flows taken from different locations in at least one flotation plant, in which apparatus analysis cells (22) through each of which a respective one of said media flows, are brought one at a time into a respective position for co-operation with an analysis instrument (20), particularly an X-ray analyser, which includes supply lines (48) by which the analysis cells can be connected to associated media sources; a stationary means (12, 19) for carrying said instrument; a movable means (21) for carrying said cells (22); means (35, 36) for setting the movable carrying means relative to the stationary means such that the cells are placed relative to the analysis instrument; and means (66, 67, 68) for collecting the media departing from said cells, characterized in that the movable carrier means (21) is rotatable about a substantially vertical axis (24) and carries the cells (22) adjacent to one another along a substantially horizontal circular-arcuate line which is concentrical with said axis; and that in an area located at a distance above the level of said cells the supply lines (48) extending from the sources of said media to said analysis cells comprise an elastomeric material and are joined to form a collected bunch (49) of lines comprising substantially vertically extending line-sections and arranged concentrically relative to said axis, from which bunch said lines extend obliquely downwardly and outwardly to respective associated analysis cells (22).

4,276,778

ANAEROBIC SAMPLING METHOD

Robert K. Ham, Madison, Wis., assignor to Getty Synthetic Fuels, Inc., Signal Hill, Calif.

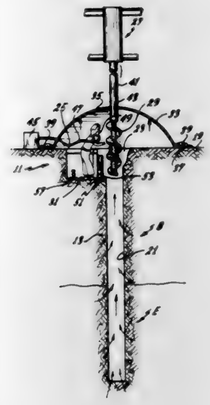
Filed Feb. 21, 1980, Ser. No. 123,439
Int. Cl.³ G01N *1/04*
U.S. Cl. 73—864.43 **21 Claims**

1. A method of obtaining a substantially anaerobic sample of refuse from a landfill comprising:

providing a bore hole in the landfill with the bore hole having an opening at the surface of the landfill;

substantially excluding atmospheric air from a zone which includes at least a region of the bore hole to define an essentially anaerobic zone whereby air from the atmosphere is essentially excluded from said anaerobic zone;

loading at least some of the refuse into a sample container within the anaerobic zone to provide a sample within the sample container;



substantially sealing the sample container in the anaerobic zone so that the sample within the sample container is substantially sealed therein; and

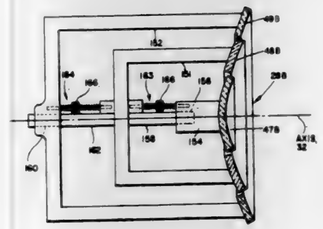
removing the sample container with the sample therein from the anaerobic zone.

4,276,779

DYNAMICALLY FOCUSSED ARRAY

Luther Davis, Jr., Wayland, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 29, 1979, Ser. No. 24,939
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—626 **7 Claims**



1. A dynamically focused radiant energy system comprising:

an array of fixed- focused radiators of radiation, each of said radiators having a different radius of curvature to provide a focus along an axis different from the others of said radiators;

a receiver for receiving signals of said radiators;

means for coupling said receiver to said array; and wherein

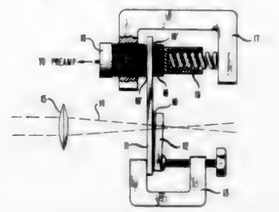
said coupling means includes means synchronized to the propagation of a signal of said radiation for coupling one or more successive said radiators to said receiver, said successive radiators being coupled to said receiver in the order of their increasing focal distance to cause the focal point to move in the same direction and in correspondence with the propagation distance of said synchronized radiation.

4,276,780

OPTOACOUSTIC SPECTROSCOPY OF THIN LAYERS

Chandra K. N. Patel, Summit, N.J., and Andrew C. Tam, Sunnyvale, Calif., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 29, 1979, Ser. No. 98,630
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—643 **14 Claims**



1. A method for high-sensitivity optoacoustic spectroscopy of samples of condensed matter in layer form, comprising

(a) selecting a solid substrate that consists at least in part of material essentially transparent to a probe radiation of frequency ν, at least part of the substrate being adapted to permit propagation therein of ultrasonic waves having frequencies much larger than a repetition frequency ν, the substrate containing a substrate source region, and, located to be nonoverlapping with that source region, a detection region, and the substrate source region being in intimate contact with at least part of the sample of condensed matter comprising a layer source region,

(b) irradiating the substrate source region and the layer source region with intermittent probe radiation of frequency ν, the repetition rate of the intermittent irradiation being ν_R,

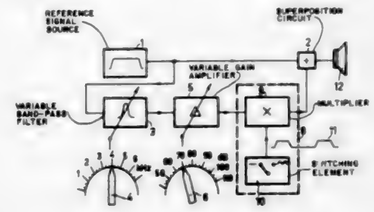
(c) detecting ultrasonic waves of frequencies much greater than ν_R that arrive at the detection region of the substrate after propagation through at least part of the substrate, whereby the absorption of the probe radiation of frequency ν in the sample layer can be determined.

4,276,781

METHOD OF AND ARRANGEMENT FOR ADAPTING A HEARING AID

Harald Leitner, Neubörnsen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 24, 1979, Ser. No. 78,545
Claims priority, application Fed. Rep. of Germany, Oct. 9, 1978, 2843923
Int. Cl.³ A61B *5/12*; H04R *25/00*
U.S. Cl. 73—647 **8 Claims**



1. A method of adjusting a hearing aid by means of a series of acoustic test signals of variable frequency and sound-level for determining the sound-level which is pleasing to the user of the hearing aid as a function of the frequency as compared to a reference sound-level range which is pleasing to persons with normal hearing abilities, after which the gain of the hearing aid as a function of the frequency may be changed so that the

sound level found to be pleasing corresponds to the reference sound-level, the method comprising first presenting a wide-band reference signal of predetermined constant level to the user, adjusting the gain of the hearing aid so that the user just perceives the reference signal, subsequently presenting to the user a series of narrow-band test signals of at least 70 msecs. duration and with an interval therebetween of at least 150 msecs., the central frequency and sound level of said test signals being variable, and determining the pleasing sound level of said test signals as a function of the frequency at a constant level of the reference signal.

4,276,782

TORSIONAL VIBRATION MONITORING APPARATUS FOR ROTATING SHAFT SYSTEM

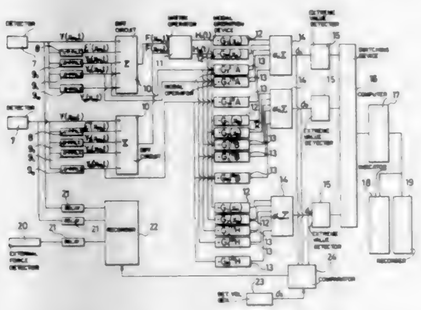
Ichiji Shima; Tatsuo Yamamoto; Shigeru Yoshibayashi; Hiroshi Teshima, all c/o The Kansai Electric Power Co., Inc., Technical Research Centers of 2, Ichinotsubo 1-chome, Wakaoji, Amagasaki City, Osaka; Akio Hizume, 8-11, Naka-machi 1-chome, Setagaya-ku, Tokyo; Tetsuo Iki, 1998-5, Yakoo-machi, Nagasaki City, Nagasaki Pref.; Takashi Yamamoto, 347, Motomurago, Tokitsu-cho, Nishisonogi-gun, Nagasaki Pref.; Kyozo Kanamori, 16-10, Shiraiwa-cho, Isahaya City, Nagasaki Pref.; Kenzo Noguchi, 5-24, Nameshi 6-chome, Nagasaki City, Nagasaki Pref., and Shinobu Kishikawa, 22-1, Hanaoka-machi, Nagasaki City, Nagasaki Pref., all of Japan

Filed Jun. 8, 1979, Ser. No. 46,912

Claims priority, application Japan, Jun. 9, 1978, 53/69498

Int. Cl.³ G01N *29/04*

U.S. Cl. 73—650 **2 Claims**



1. In a torsional vibration monitoring apparatus in which torsional vibrations at arbitrary positions of a rotating shaft system are measured by torsional vibrations detected at certain positions of the rotating shaft system on the basis of the fact that the torsional vibration produced in the rotating shaft system is an accumulation of modal vibrations thereof and that each modal vibration can be represented by a product of a vibration mode type and a vibration mode component, the improvement comprising n sets of detectors for detecting the torsional vibrations of the rotating shaft system at n certain positions thereof, decomposers for separating the respective torsional vibrations obtained by said detectors into respective (n+1)th or higher modal vibrations inherent to the rotating shaft system, subtractors for subtracting sums of the respective modal vibrations obtained by said decomposers from the modal vibrations obtained by said detectors, respectively, a matrix operator for multiplying the n vibrations having sums of the respective modal vibrations obtained by said subtractors with the previously obtained n sets of constants, each set including n constants, respectively, and adding them, respectively, to obtain up to the n-th vibration mode components, first modal operation devices for dividing the (n+1)th or higher modal vibrations at arbitrary ones of the certain positions by the vibration mode types at the arbitrary positions, respectively, and multiplying the vibration mode types at the arbitrary positions of the rotating shaft system to obtain respective (n+1)th or higher modal vibrations at the arbitrary positions, second modal operation devices for multiplying the up to the n-th vibration mode components obtained by said matrix operator with the vibration mode types at the arbitrary positions to obtain the up to n-th modal vibrations at the same positions and adders for adding the modal vibrations obtained by said first and second modal operation devices to obtain the torsional vibrations at the arbitrary positions.

4,276,783

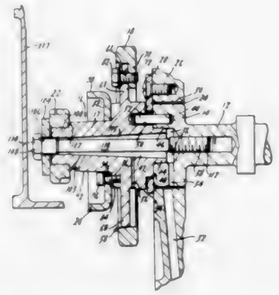
LIGHTWEIGHT MOUNTED CAMSHAFT POST

Dale W. Anderson, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jun. 21, 1979, Ser. No. 50,944

Int. Cl.³ F16H *37/12*

U.S. Cl. 74—15.63 **10 Claims**



1. A camshaft post assembly comprising:

a camshaft and a camshaft post connected thereto;

said camshaft post comprising a material having a specific gravity less than the camshaft;

said post mounted on the end of the camshaft and axially extending beyond the camshaft;

said post including a radially extending flange portion, a toothed sprocket ring attached about the outer periphery of said flange portion, and means for securing said post to said end of said camshaft.

4,276,784

STEPLESS, VARIABLE STROKE DRIVE HAVING A NON-ROTATING CAM

Clive Waddington, Stratford, Conn., assignor to Avco Corporation, Stratford, Conn.

Division of Ser. No. 836,727, Sep. 26, 1977, Pat. No. 4,181,043. This application Sep. 20, 1979, Ser. No. 77,205

Int. Cl.³ F16H *5/42, 5/60*

U.S. Cl. 74—336 R **1 Claim**

1. Apparatus for adjusting the position of a threaded shaft according to the speed of a rotating member, said shaft being rotatably fixed but axially movable comprising:

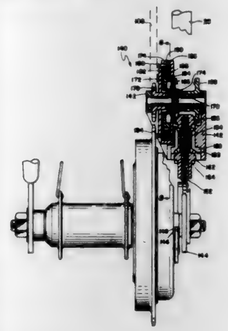
a support housing;

a pinion gear mounted for rotation within the housing and having a cylindrical portion extending axially therefrom, said cylindrical portion having an axially oriented concentric receptacle which is threaded to receive the threaded shaft in operative engagement;

an axle mounted for rotation in the housing about an axis transverse to the axis of the pinion gear, said axle adapted to receive the rotating member for rotation thereon;

first and second bevel gears mounted for rotation on the axle and positioned to engage opposite sides of the pinion gear, so that, when the first bevel gear drives the pinion gear, the threaded shaft extends and, when the second bevel gear drives the pinion gear, the threaded shaft retracts;

inner and outer clutch races separately mounted for rotation on the axle and each constructed with axially extending radially spaced opposing flanges, said inner race connected to the first bevel gear for rotation therewith and said outer race connected to the second bevel gear for rotation therewith; and



a centrifugal ring element constructed to radially expand or contract proportionally to speed, mounted on the rotating member for rotation therewith, said ring extending into the space between the flanges of the inner and outer clutch races and radially positioned therein to engage the inner race at relatively low rotational speeds and to engage the outer race at relatively high rotational speeds.

4,276,785

LOW-NOISE GEARING

William S. Rouverol, P.O. Box 9122, Berkeley, Calif. 94709

Filed Nov. 16, 1979, Ser. No. 94,798

Int. Cl.³ F16H *55/06*

U.S. Cl. 74—462 **16 Claims**



1. A pair of mating gears that are not preloaded, are mounted on coplanar axes, and have conjugate teeth formed to make contact, when said gears are transmitting torque, over a transverse plane path of contact that affords a ratio of roll angle to pitch angle of at least 2.5,

said path being non-straight and having an average pressure-angle smaller than 14°.

4,276,786

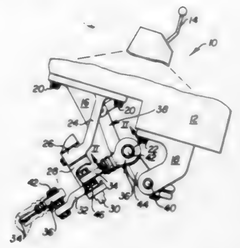
BOOT SEAL

Joseph G. Langenstein, Edelstein, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 5, 1979, Ser. No. 127,997

Int. Cl.³ G05G *7/00*; F16C *11/06, 33/72*

U.S. Cl. 74—491 **10 Claims**



1. In a joint assembly (36) including a joint (60) for connecting a first member (50) to a second member (42) extending transversely therethrough, the first member (50) having an end portion (52), a stem (58), and first and second side portions (54,56), the improvement comprising:

a boot seal (48) encompassing the joint assembly (36), the seal (48) including a cylindrically shaped body portion (76) disposed over the end (52) of the first member (50), a flexible portion (82) extending along the stem (58), a plurality of apertures (86) in the body portion (76) positioned adjacent the first and second sides (54,56) for receiving the second member (40); and

means (42,100,102) for releasably coupling the seal (48) to the joint assembly (36).

4,276,787

STEERING DEVICE FOR A CYCLE

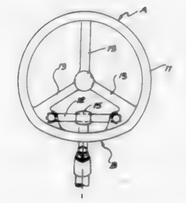
Andrew Kellner, 92 Cardigan St., Stanmore, New South Wales 2048, Australia

Filed Jul. 27, 1979, Ser. No. 61,342

Claims priority, application Australia, Aug. 23, 1978, PD5638

Int. Cl.³ B62K *21/00, 21/12, 21/16*

U.S. Cl. 74—552 **4 Claims**



1. A steering arrangement for a bicycle having a steering shaft, said arrangement comprising:

(a) a steering wheel consisting of a first section defining a portion of the circumference of a circle and a second part generally defining a cord of said circle, with said second part subtending an angle with respect to said circle which is smaller than the angle subtended by said first part;

(b) a generally U-shaped member attached at its extremities to said wheel at spaced locations adjacent the juncture of said first and second parts of said wheel, and extending from the general plane of the wheel to enable attachment of said member to said shaft; and

(c) a clamp to adjustably attach said member to said shaft to enable pivoting of said wheel about an axis transverse of the bicycle.

4,276,788

PROCESS FOR THE MANUFACTURE OF A DRILL HEAD PROVIDED WITH HARD, WEAR-RESISTANT ELEMENTS

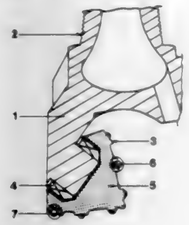
Hans B. van Nederveen, Zeist, Netherlands, assignor to SKF Industrial Trading & Development Co. B.V., Nieuwegein, Netherlands

Filed Mar. 17, 1978, Ser. No. 887,931

Claims priority, application Netherlands, Mar. 25, 1977, 7703234

Int. Cl.³ B21K *5/02*

U.S. Cl. 76—108 A **4 Claims**



1. In a process for manufacturing a drill head having a core part with hard wear-resistant cutting elements each cutting element comprising a shank part embedded in said core part and a cutting tip at one end of the shank part that projects outward from the surface of said core part, the process comprising the steps:

(a) filling with a metal powder a compressible mold which generally defines said core part,

(b) forming the shank of each said cutting elements so that its diameter at at least one point along its length is greater than its diameter at some other point along its length,

(c) embedding the shank part of each of said cutting elements in said powder,

(d) locating said shank parts of said cutting elements in said powder in the mold in essentially exactly the final position they will have after said step of compacting,

(e) cold isostatically compacting said mold and included powder and embedded shank parts thereby precisely forming said drill head are precisely locating said cutting elements therein, and

(f) removing said drill head from said mold, and subsequently hot isostatically compacting said drill head until said powder is completely densified.

4,276,789

CORK EXTRACTOR

Herbert Alles, Houston, Tex., assignor to Hallen Company, Houston, Tex.

Filed Jul. 17, 1978, Ser. No. 925,365

Int. Cl.³ B67B *7/00*

U.S. Cl. 81—3.36 **32 Claims**

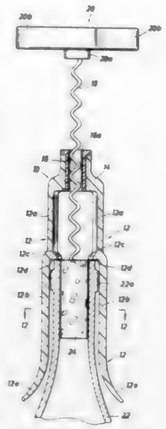
23. Apparatus for extracting a cork from a bottle comprising: a holder including

guide means having a guide passageway extending generally longitudinally therethrough and having generally radially facing guide surface means;

stop means engageable with the bottle to limit downward movement of said holder with respect to the bottle; and

grip means connected to and spaced downwardly from said guide means and engageable with the bottle to radially align said guide means with the bottle; and

a cork-engaging member including a generally helical corkscrew, for at least partial passage into the cork and longitudinally movable in said guide passageway, selectively with or without simultenaous rotation and having a diameter sized to lie closely adjacent said guide surface means,



said corkscrew comprising a central body and an outer layer of friction reducing material.

4,276,790

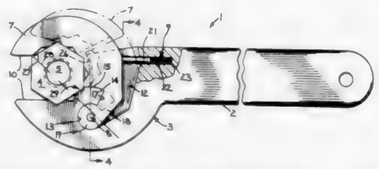
OPEN-ENDED WRENCH HAVING RATCHETING ACTION

Brian L. Davis, 610 Newbury, Ripon, Wis. 54971

Filed May 16, 1979, Ser. No. 39,644

Int. Cl.³ B25B *13/28*

U.S. Cl. 81—111 **8 Claims**



1. A ratcheting open-ended wrench for turning of a drive head such as a nut or bolt head, comprising an operating handle having a fixed jaw fixedly secured to one end thereof, said fixed jaw extending outwardly and laterally to define one side of a drive head opening, a pivoted jaw including a base portion pivotally connected to the fixed jaw in alignment with the fixed jaw and extending laterally across the end of the handle and extending outwardly from said base portion to the opposite side of the handle to define the base portion and opposite side of the drive head opening, said pivoted jaw being spaced from said fixed jaw to define an entrance to said drive head opening and said fixed and pivoted jaws having notched surfaces including at least one notch in each of said fixed jaw and said base portion and said opposite side of said pivoted jaw and complementing a correspondingly shaped drive head, whereby said drive head opening is oriented with said entrance essentially aligned with the operating handle and said pivot position is located to one side of said drive head opening, each of said fixed jaw and said movable pivoted jaw include a plurality of substantially V-shaped adjacent notches, each notch of which consists of a pair of similar planar surfaces and defining a first plurality of interrelated equicircumferentially spaced notches and a second identical plurality of interrelated equicircumferentially spaced notches interposed in offset orientation with respect to each other to define an opening in accordance with a six-sided drive head whereby the drive head is adapted to be positioned in two alternate positions within the opening, said notches being located and oriented within the pivoted jaw to include an outermost notch forming the outermost of said first plurality of notches and an immediately adjacent inner notch forming the outermost of the second plurality of notches, each of said outermost notches being oriented and constructed such that in the closed jaw position the head engaging surface of each of the outermost notches is perpendicular to a line from the notch which passes inwardly of the pivot axis.

4,276,791

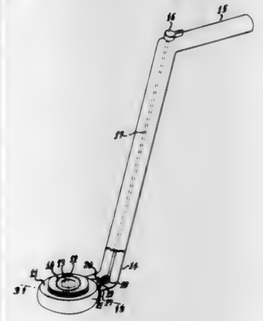
DISTRIBUTOR RATCHET WRENCH

John W. Thompson, 951 Mikael Ave., Jacksonville, Fla. 32205

Filed Jun. 1, 1979, Ser. No. 44,599

Int. Cl.³ B25B *13/46*

U.S. Cl. 81—62 **1 Claim**



1. A ratchet wrench for use in tightening or loosening nuts or bolts in remote locations which are difficult to reach, said wrench comprising a socket wrench head, and a ratchet means mounted on said head capable of rotating said head with a ratchet movement clockwise or counterclockwise and capable of being locked to prevent ratchet movement of said head, a generally horizontal member connected to and extending laterally from said wrench head, means mounted on said horizontal member to engage and disengage said ratchet means, a generally elongated vertical extension connected at its lower extremity to said horizontal extension, a generally horizontal handle extension connected to the upper extremity of said vertical extension, and a control means having a control element on one of said extensions remote from said wrench head and closely adjacent to the upper extremity for selectively controlling the direction of rotation of ratchet movement or the locking to prevent ratchet movement, said control means including a control knob adjacent said upper extension and a vertical element extending substantially the length of said vertical extension and operatively connecting between said control knob and said means mounted on said horizontal member thereby controlling said ratchet means, said horizontal member and both of said extensions form a Z-shaped handle and support for said wrench head, said wrench head being adapted to fit the clamp of a distributor of a internal combusion engine and said vertical extension locating said handle extension above the top of said distributor for ready selection between the ratchet positions without removal of said wrench head from said clamp.

4,276,792

METHOD FOR CONTINUOUS PATH CONTROL OF A MACHINE TOOL

Herbert Strobel, Oberndorf, Fed. Rep. of Germany, assignor to Heckler & Koch GmbH, Fed. Rep. of Germany

Filed Sep. 21, 1978, Ser. No. 944,399

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1977, 2742933

Int. Cl.³ B23B *3/00*

U.S. Cl. 82—1 C **4 Claims**

1. A method for the continuous path control of a machine tool, the workpiece and tool of which are moved by actuators relative to each other along a curve to produce a given contour, with the curve being approximated by a plurality of calibrated and stored set points between which set points the motions are performed by an interpolator determining the actual position of said tool and workpiece and a controller providing an input displacement pulses to said actuators for movement to the next succeeding point and where intermediate point scanning is effected, followed by an intermediate point/actual value comparison with a corresponding correction value input to the actuators characterized in that intermediate point scanning is carried out after a given sum of interpolator displacement pulses have been received by the actuators.

4,276,793

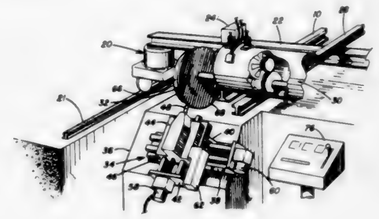
METHOD AND APPARATUS FOR TRUING A METAL WHEEL, ESPECIALLY OF A RAILROAD LOCOMOTIVE OR OTHER ROLLING STOCK

Arthur T. Wirtz, 105 Sharon Dr., Pittsburgh, Pa. 15221

Filed Jul. 5, 1979, Ser. No. 54,803

Int. Cl.³ B23B *3/00, 5/28*

U.S. Cl. 82—1 C **14 Claims**



1. In a method of truing metal wheels of railroad locomotives and other rolling stock having a traction motor for driving a locomotive wheel to be trued wherein the locomotive or other rolling stock is moved into position on rail sections extending over an open pit, the locomotive or other rolling stock is lifted from the rail sections and the rail sections are removed to provide access to the wheel to be trued from the pit, the improvement comprising the steps of:

A. connecting an independent power source to the traction motor and thereby driving a wheel to be trued at a controlled speed with the traction motor;

B. removing metal from said wheel as it is driven with a cutting tool mechanism provided in the pit; and

C. controlling said mechanism in accordance with a preestablished pattern to cause the cutting tool to move across the driven wheel to remove metal to form a wheel contour corresponding to said pattern.

4,276,794

TOOL MACHINE FOR MACHINING CRANKSHAFTS AND A METHOD OF OPERATION THEREOF

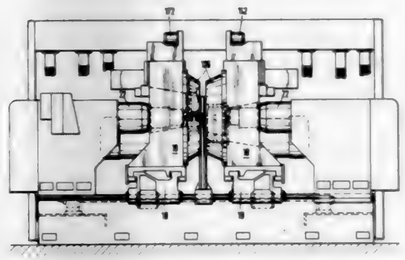
Hermann Berbalk, Göppingen, Fed. Rep. of Germany, assignor to Gebrüder Boehringer G.m.b.H., Fed. Rep. of Germany

Continuation-in-part of Ser. No. 876,867, Feb. 10, 1978, abandoned, which is a division of Ser. No. 741,519, Nov. 12, 1976, Pat. No. 4,090,422. This application Nov. 16, 1979, Ser. No. 94,948

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1975, 2551250

Int. Cl.³ B23B 1/00, 5/18

U.S. Cl. 82—1 C 6 Claims



1. A machine tool for simultaneously machining a pair of crankshaft sections comprising a frame, means on said frame for holding said crankshaft in stationary condition, a pair of parallel guideways extending transversely to said crankshaft at equal distances therefrom, and a pair of tool units one movably mounted on each of said guideways, each tool unit comprising

(a) a cross-slide on each of said guideways;

(b) an eccentric body journalled in said cross-slide for rotation about a first axis;

(c) an annular tool having internal cutting edges, said tool being journalled in said eccentric body for rotation about a second axis and surrounding said crankshaft;

(d) first driving means for imparting rotation to said annular tool determining the cutting speed of said edges;

(e) second driving means for imparting a plunging feed motion to said cross-slide on said guideway to a position in which said first axis coincides with the axis of the crankshaft section being machined;

(f) third driving means for imparting a revolution to said eccentric body causing said annular rotary tool to orbit around said crankshaft section;

(g) adjustable controlling means responsive to said feed motion and operative, when the feed motion has caused said annular tool to plunge into said crankshaft held in stationary condition to an adjustable depth to stop said cross-slide and to start said third driving means of both tool units to impart revolution to said eccentric bodies of said tool units in the same direction and with the same velocity;

the second driving means of one tool unit and said second driving means of the other tool unit being operative to impart the feed motion to the respective cross-slides of said units in opposite directions thus causing said annular tools of said tool units to plunge into opposite sides of said crankshaft and to start on opposite sides of said crankshaft to orbit therearound.

4,276,795

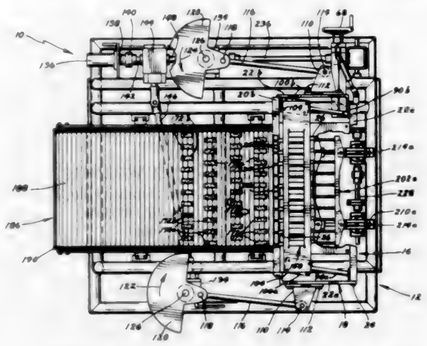
FISH STICK CUTTING METHOD AND APPARATUS

Glenn Rasmussen, Champlin; Larry Huston, Buffalo, both of Minn.; Donald W. Morse, Rowley, Mass.; Takuzo Tsuchiya, St. Louis Park, Minn.; Clifton H. Morrison, St. Paul, Minn.; Stanley C. Rustad, Golden Valley, Minn., and Leo Eiden, New Hope, Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Jul. 26, 1979, Ser. No. 60,952

Int. Cl.³ B26D 1/06

U.S. Cl. 83—42 61 Claims



1. A method of severing frozen slabs of fish or the like into individual sticks comprising the steps of arranging a pair of said slabs in a generally parallel relation, cutting in one direction and in one plane a first stick from the end of one of said slabs, providing a substantially rigid surface in a second plane parallel to and spaced from said one plane, abutting one end of the other of said slabs against said rigid surface, and then cutting in said one plane and in a second direction substantially opposite to said first direction a second stick from the other of said slabs, whereby said second stick has a thickness determined by the distance between said planes.

4,276,796

APPARATUS FOR CUTTING TO LENGTH THE CONNECTING WIRES OF ELECTRICAL COMPONENTS

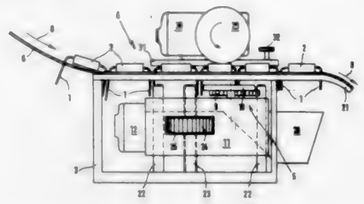
Thomas Weresch, Greschbachstr. 19, D-7500 Karlsruhe 41, Fed. Rep. of Germany

Filed Mar. 8, 1979, Ser. No. 18,515

Claims priority, application Fed. Rep. of Germany, Apr. 1, 1978, 2814182

Int. Cl.³ B26D 1/24

U.S. Cl. 83—167 17 Claims



1. Apparatus for cutting to length connecting wires of electrical components, comprising a component guide and a cutting device arranged below the component guide, wherein the component guide comprises a slideway defining a guide slot through which the connecting wires can project downwardly, the cutting device comprises two shearing wheels which are each provided with a peripheral cutting edge and at least one of which is capable of being driven in rotational movement, the shearing wheels having peripheral cutting edges and being arranged one above the other and having facing surfaces abutting on one another and partly overlapping one another so as to form two points of intersection of the peripheral cutting edges, a forward one of said points of intersection, in the direction of rotation of the driven shearing wheel, being situated below the guide slot, and means, engageable with said electrical components, for holding and conveying said electrical components during cutting of said connecting wires, said means for holding and conveying being operable to convey said electrical components in a direction parallel to said guide slot, wherein said means for holding and conveying comprises a conveying roller which is situated above the guide slot in the region of the shearing wheels and is operable to be driven in rotational movement about an axis across the guide slot perpendicular to the slot plane with a circumferential surface arranged for uniformly engaging and conveying said electrical components in a straight line, and wherein the conveying roller is formed of a soft foamed plastic material whereby said roller is inherently adaptable to configurational variations of said components.

4,276,797

APPARATUS FOR DISPENSING SHEETS OF WEB MATERIAL OF PREDETERMINED LENGTH

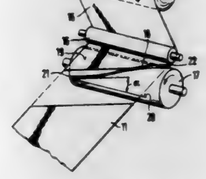
Manfred Baumann, and Walter Besserer, both of Diepoldsau, Switzerland, assignors to APURA GmbH, Mainz-Kostheim, Fed. Rep. of Germany

Division of Ser. No. 897,453, Apr. 18, 1978, Pat. No. 4,186,633. This application Jan. 1, 1979, Ser. No. 44,745

Claims priority, application Switzerland, Apr. 19, 1977, 4859/77

Int. Cl.³ B26D 1/56; A47K 10/36

U.S. Cl. 83—308 11 Claims



1. An apparatus for dispensing sheets of web material of predetermined length from a supply of the web material comprising:

a housing,

means for storing the supply of web material in the housing, and

separating means arranged in the housing for separating a sheet of the web material from the remainder thereof in response to a user of the apparatus pulling from the housing the free end of web material in the storing means,

the separating means comprising a roller mounted for rotation in the housing, means for guiding the free end of the web over the roller and into frictional driving engagement therewith as it is pulled from the housing, and cutting means arranged on the surface of the roller to provide a cutting line at least part of which extends at an angle other than zero to the axis of the roller such that when a sheet of the web is withdrawn by the user a portion of the leading edge of the remainder of the web is simultaneously advanced outside the housing solely as a direct result of such withdrawal to be available for gripping by a subsequent user.

4,276,798

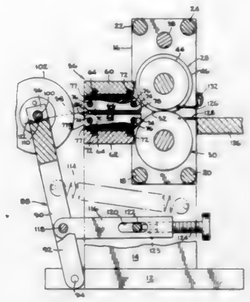
FLAT CABLE CONDUCTOR SEPARATING APPARATUS

Klaus W. Gottschalk, 934 Heatherstone Way, Sunnyvale, Calif. 94087

Filed Nov. 23, 1979, Ser. No. 96,616

Int. Cl.³ B26D 1/24

U.S. Cl. 83—430 7 Claims



1. In a conductor separator for separating conductors of a flat cable that has plural conductors and insulation material for retaining the conductors in uniformly spaced apart parallel relation, the insulation forming webs of reduced thickness between adjacent conductors so as to define longitudinally extending slots, the separator being of the type having means for shearing the webs at plural spaced apart sites corresponding to the location of the webs, improved apparatus for guiding the cable toward the shearing sites in precise alignment therewith comprising a first body having a plurality of parallel elongate ribs that are spaced from one another by an integral multiple of the distance between adjacent slots in the cable, a second body having a plurality of parallel elongate ribs indentical in spacing and location to the ribs in said first body and means for mounting said bodies so that said ribs of said bodies confront one another to define a path to said sites, said ribs being aligned with said sites, said mounting means including means for yieldably biasing said bodies and said ribs toward said path.

4,276,799

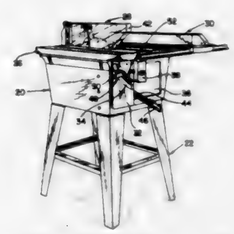
POWER TOOL APPARATUS

Anthony A. Muehling, Detroit, Mich., assignor to Black & Decker Inc., Newark, Del.

Filed Apr. 18, 1979, Ser. No. 31,271

Int. Cl.³ B27B 5/24

U.S. Cl. 83—473 53 Claims



3. A power tool apparatus comprising:

a housing including a tabletop having an opening through which a motor-driven tool can pass;

assembly means pivotally mounted in said housing about a first pivot axis, said assembly means including,

pivot means defining a second pivot axis and fixedly connected to said assembly means,

subassembly means pivotally mounted on said pivot means and including the tool,

first control means including,

a control lever operatively connected to said subassembly means for pivoting same about said second pivot axis, whereby the tool is raised or lowered in said opening to a first elevation with respect to the tabletop in a relatively quick setting manner, and locking means for securing said control lever at a position corresponding to said first elevation setting for the tool,

said locking means proximately disposed to said control lever such that both are manipulatable by the same hand of the operator, without removing the hand from said lever throughout the complete elevation setting operation, and,

second control means operatively connected to said subassembly means for pivoting said subassembly means about said second pivot axis independently of said control lever to provide a further elevation adjustment of the tool,

said second control means proximately disposed to said control lever such that said second control means is manipulatable by the same hand of the operator without removing the hand from said lever throughout the complete elevation setting operation; and,

means for pivoting said assembly means about said first pivot axis, whereby the angle of the tool relative to said table top is varied.

4,276,800

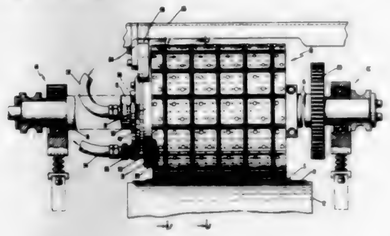
ROTARY CUTTER FOR SCORING DOUGH SHEETS

Daniel A. Koppa, Bloomfield, and Agostino J. Aquino, Paterson, both of N.J., assignors to Nabisco, Inc., East Hanover, N.J.

Filed Apr. 16, 1980, Ser. No. 140,956

Int. Cl.³ A21C *11/00*

U.S. Cl. 83—863 **4 Claims**



1. A rotary cutter assembly for cutting and scoring a sheet of dough for producing crackers of the like with clipped corners, said assembly comprising in combination a drum, a plurality of cruciform shaped members arranged upon the face of said drum, each cruciform member having four arms and a center portion at the junction of said arms, said center portion having a dough cutting egge defining an enclosed area to cut from the dough sheet a piece of dough having the shape of the enclosed area, said arms each having a dough scoring edge running outwardly from said dough cutting edge, said cruciform members being arranged so that said arms are positioned along intersecting lines with the center portions positioned at the intersections of said lines, means for applying a vacuum to said center portions to hold the cut dough pieces within the center portions and lift them from the dough sheet, means for applying a positive pressure to said center portion to expell said dough pieces, and means for receiving the dough pieces and carrying them away from the dough sheet.

4,276,801

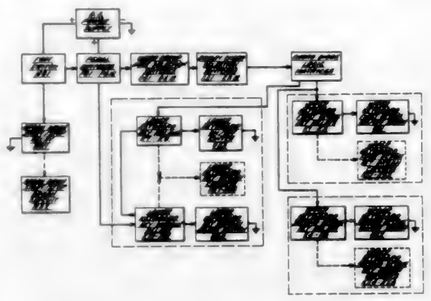
PEDAL ACTUATED MUSICAL CHORD SYSTEM

Joseph A. Yerusavage, 1425 W. 4th La., Hialeah, Fla. 33012

Filed Nov. 19, 1979, Ser. No. 95,228

Int. Cl.³ G10H *1/00*

U.S. Cl. 84—1.01 **13 Claims**



1. Apparatus for generating selected chords in response to foot pedal actuation for use with an electronic musical instrument having note generating means, comprising logic means associated with said note generating means, said logic means having a plurality of input terminals, each of said input terminals producing a chord containing preselected notes upon energization thereof; a plurality of foot pedals; first switch means associated respectively with each of said foot pedals and actuated by depression thereof for energizing said logic means; and second switch means associated respectively with each of said foot pedals for permitting selection of which one of said logic means input terminals said first switch means shall energize; whereby a user can select which one of a plurality of chords will be generated upon depression of each of said pedals.

4,276,802

ELECTRONIC KEYBOARD INSTRUMENT

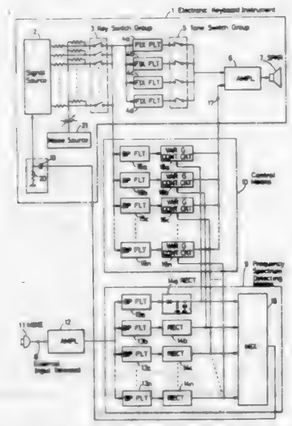
Fumio Mieda, Sakado, Japan, assignor to Keio Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 3, 1979, Ser. No. 26,515

Claims priority, application Japan, Apr. 3, 1978, 53/38943

Int. Cl.³ G10H *1/12, 5/00*

U.S. Cl. 84—1.19 **10 Claims**



1. An electronic keyboard instrument wherein note signals each containing a pitch frequency and harmonics respectively

corresponding to keys of a keyboard are selectively generated from an internal signal source by depressing the keys and musical tones corresponding to the generated note signals from the internal signal source are reproduced, the electronic keyboard instrument comprising: an external input terminal for supplying thereto an external sound signal; frequency spectrum detecting means coupled to said input terminal and having band-pass characteristics at predetermined center frequencies for detecting the spectrum components and their levels of the external sound signal which approximately represent the tone color of the external sound signal; bandpass filter means, having center frequencies respectively corresponding to the center frequencies of the spectrum detecting means, for separately extracting the spectrum components of note signals generated from the internal signal source; and level control means for controlling, with the respective levels of the spectrum components detected by said frequency spectrum detecting means, the levels of the respectively corresponding spectrum components of the note signals extracted by the bandpass filter means at the respective center frequencies, thereby to reproduce musical tones each of which has a tone color similar to that of the external sound signal.

4,276,803

STOP TAB FOR CAPTURE COMBINATION ACTION SYSTEMS USED IN ELECTRONIC ORGANS

William L. Fritz, Cincinnati, Ohio, assignor to Baldwin Piano & Organ Company, Cincinnati, Ohio

Filed Feb. 14, 1980, Ser. No. 121,539

Int. Cl.³ G09B *15/02*; G10B *3/10*

U.S. Cl. 84—343 **9 Claims**



1. A stop tab mechanism for an electronic organ, said stop tab mechanism comprising an elongated stop tab having a front portion, a central portion, and a rear portion, a mounting bracket for said stop tab, spaced apart front and rear rests secured to said mounting bracket, guide means mounting the central portion of said stop tab for pivotal movement relative to said rests, including spring means urging the central portion of said stop tab into contact with said front and rear rests, switch means operatively connected to the rear portion of said stop tab, said stop tab having a "neutral" position in which its central portion is seated against both of said rests and held in engagement therewith by said spring means, an "on" position in which the front portion of the stop tab is depressed, the stop tab pivoting about said rear rest to move its rear portion upwardly, and an "off" position in which the front portion of the stop tab is elevated, the stop tab pivoting about the said front rest to move its rear portion downwardly, said spring means acting to return said stop tab to its "neutral" position when the stop tab is released.

4,276,804

PITCH ADJUSTER FOR VALVED BRASS INSTRUMENTS

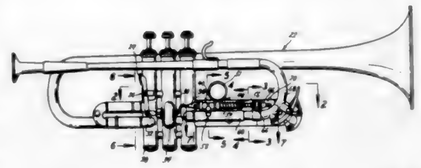
Jack O. Holland, 3314 W. End Ave., Nashville, Tenn. 37203

Filed Jan. 11, 1979, Ser. No. 47,143

Int. Cl.³ G10D *9/00*

U.S. Cl. 84—394 **9 Claims**

1. A valved brass instrument with a tuning slide crook with means for selectively adjusting the pitch of the note as the instrument is played including a main push rod, means connecting said main push rod to the tuning slide crook, means to controllably retract or extend said main push rod from a center position to thereby retract the tuning slide crook from its tuned position or extend the tuning slide crook from its tuned posi-



tion, respectively, and adjustable detent means to limit the travel of said main push rod and provide a preselected retracted, center, and extended position, thereby enabling play in the just intonation scale, said adjustable detent having means to lock the main push rod in said center position for tuning.

4,276,805

COVERING WIRE TIGHTENING DEVICE COMPOSITE STRINGS OF PIANOS

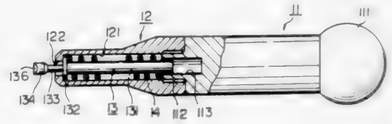
Yasutoshi Kaneko, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed Jul. 26, 1979, Ser. No. 60,975

Claims priority, application Japan, Jul. 29, 1978, 53-104946[U]

Int. Cl.³ G10G *7/00*; G10D *3/14*

U.S. Cl. 84—458 **7 Claims**



1. A covering wire tightening device for composite strings of pianos comprising:

an elongated cylindrical main body open in one end thereof, and

a spring-loaded operating shaft axially movably encased within said main body with one end portion being axially exposable out of said main body via said open end, the free end of said one end portion being adapted for engagement with the top of a frame pin, said one end portion being made up of a first section which includes said free end and a second section which is remote from said free end, and said first section being larger in cross-sectional diameter than said second section.

4,276,806

SELF-RETAINED AND REUSABLE FASTENER

Henri Morel, Maule, France, assignor to ITW de France, Beauchamp, France

Filed Jul. 9, 1979, Ser. No. 55,713

Claims priority, application France, Jul. 13, 1978, 78 21054

Int. Cl.³ F16B *13/06*

U.S. Cl. 411—41 **9 Claims**

1. A fastening assembly including a one piece self-retained reusable plastic fastener in combination with at least a pair of elements to be fastened together including

an apertured first element wherein said aperture has a first predetermined extent,

an apertured second element wherein said aperture has a second predetermined extent less than said first predetermined extent and recess means which has a third diametral extent greater than said first predetermined extent and

forming shoulder means spaced a predetermined distance from a surface of said second element,

said fastener including a male member and a female member initially joined by a frangible means in coaxial relationship

said female member including a head and a stud extending integrally therefrom with a common bore transversing the head and substantially all of said stud,

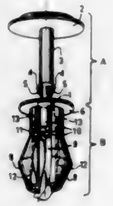
said stud including a first portion adjacent to said head complimentary to said second aperture and a second portion at the end opposite said head and having shoulder means intermediate its extremities, said shoulder means being greater in measurement than said first predetermined extent

said stud being bifurcated by at least one slot throughout substantially its entire axial extent, and forming at least two flexible tabs,

groove means extending axially within the base of said bore but terminating abruptly in spaced relationship to said head to form a shoulder facing away from said head,

at least one spring strip integral at one end with said head and extending axially within said at least one slot, said strip having a laterally extending shouldered lug at its opposite end and spaced from said head a distance substantially equal to the distance of said recess means from the surface of said second element,

said male member including a rigid locking stem having manipulation means at one end and initially connected coaxially by frangible means to the head of said female member at its opposite end,



at least one resilient retaining strip extending outwardly from said stem adjacent said opposite end and positionable within a stem recess when said stem is axially driven into said bore through said female head, said at least one strip being aligned with and complimentary to the groove means within said bore,

whereby the first portion of the stud of said female member can be telescopically assembled into the aperture of said second element until said lugs interlock with said recess means, said second portion having shoulder means being then positioned within the aperture of said first element, an axial force against manipulation means of said locking stem causes said frangible means to fracture, said retaining strips collapse inwardly during passage of said stem through said bore until they pass said groove shoulder and are adapted to then expand to lie within said groove and permit non-rotatable axial movement of said stem to a position for locking said lug carrying spring strip within the recess of said second element and said shouldered second portion within the aperture of said first element,

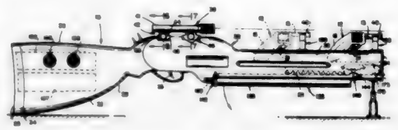
an oppositely directed axial force on said manipulation means causes said locking stem to be retracted through said head until the free ends of said retaining strip contacts said shoulder in said groove thereby permitting removal by inward flexing of said second portion of the stud tabs from said first apertured element, while retaining said first portion in assembled locked relationship with said second element reassembly with said first element being possible by reversal of the procedure.

4,276,807

RIFLE BATON

Ben H. Whitlock, 137 Cedarhurst St., Islip Terrace, N.Y. 11752

Filed Aug. 10, 1979, Ser. No. 65,721
Int. Cl.³ F41C 23/00
U.S. Cl. 89—37 BA 20 Claims



1. A support assembly for hand gun comprising in combination:

A. a rifle-like unit having a front end and spaced body-engaging rear end, with an upper end and lower end intermediate said front and rear ends,

B. sighting means for use with the support assembly,

C. mounting means for removably securing said sighting means relative to said upper end so as to obtain adjustment thereof as desired,

D. coupling means associated with said upper end and adapted for receiving a hand gun in removably coupled relation thereto adjacent to said front end when in assembled position with the support assembly,

E. said coupling means includes:

(1) a seat formed on said upper end adapted to receive the butt of the hand gun to be contained therein,

(2) said seat having a bottom wall adapted to have the free end of the butt rest thereon when the hand gun is positioned,

(3) a first wall and a second wall extending upwardly from said bottom wall in spaced apart relationship to each other such that the butt of the hand gun is contained within said seat,

(4) engaging means associated with either said first or second wall for yieldably urging the butt into contact with the opposite one of said walls such that removable retainment of the butt within said seat is obtained,

F. holding means mounted intermediate said coupling means and said front end for maintaining the barrel of the hand gun in fixed position during use thereof, and

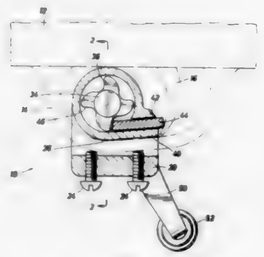
G. said holding means including a vertically extending channel having a resilient arm associated therewith for maintaining the barrel in removably positioned confinement within said channel.

4,276,808

ATTACHMENT FOR FIREARMS

Norman N. York, 3703 Broadway, Houston, Tex. 77017

Filed Aug. 27, 1979, Ser. No. 70,143
Int. Cl.³ F41C 19/00
U.S. Cl. 89—136 7 Claims



1. An apparatus for use with a semiautomatic firearm having a trigger enclosed within a trigger guard, comprising:

(a) clamp means adapted to be releasably attached to a trigger guard;

(b) rotor means pivotally supported by said clamp means;

(c) manually operated handle means connected to said rotor means for rotation on hand operation to impart rotation to said rotor means; and

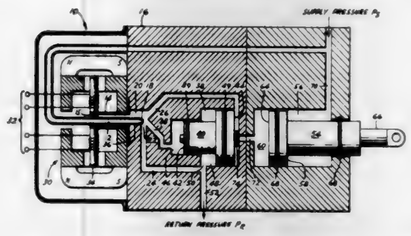
(d) movable striker means supported by said clamp means and positioned to move toward a trigger and contact thereagainst to discharge the firearm through operation of the trigger, said striker means moving on operation of said rotor means.

4,276,809

SIMPLIFIED FAIL-FIXED SERVOVALVE

Howard B. Kast, Fairfield, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Apr. 23, 1979, Ser. No. 32,577
Int. Cl.³ F15B 15/17, 13/044
U.S. Cl. 91—417 R 3 Claims



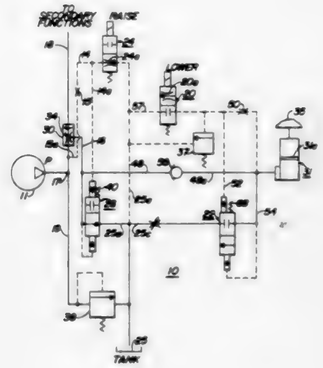
1. A fail-fixed electrohydraulic servovalve for use with a piston translatably disposed within a bore, the servovalve comprising means for maintaining the piston in a fixed position for electrical input signals which are less than a first predetermined percent of a maximum rated electrical input signal, for causing the piston to translate in a first direction for electrical input signals which are greater than said first percent but less than a second predetermined percent of said maximum rated electrical input signal, for maintaining the piston in a fixed position for electrical input signals which are equal to said second percent of said maximum rated electrical input signal, and for causing the piston to translate in the second direction for electrical input signals which are greater than said second percent of said maximum rated electrical input signal.

4,276,810

PROGRAMMED VALVE SYSTEM USED FOR POSITIONING CONTROL

Kenneth W. Zeuner, Newtown, and Alonzo B. Jarman, Wrightstown, both of Pa., assignors to Control Concepts, Inc., Newtown, Pa.

Continuation-in-part of Ser. No. 578,006, May 16, 1975, Pat. No. 3,980,002, and Ser. No. 723,023, Sep. 13, 1976, Pat. No. 4,202,280, said Ser. No. 578,006, is a continuation of Ser. No. 304,816, Nov. 8, 1972, abandoned, said Ser. No. 723,023, is a continuation-in-part of Ser. No. 578,006,. This application Oct. 14, 1977, Ser. No. 842,264
Int. Cl.³ F15B 13/043
U.S. Cl. 91—449 8 Claims



1. A programmed valve system in combination with load means and a fluid source having a raise and a lower two-stage valve assembly comprising

said raise two-stage valve assembly comprising a raise first solenoid operated pilot stage maintained normally open during the rest state, a raise second stage divided into inlet and outlet sections, a raise second stage orifice between the sections within which a raise second stage poppet reciprocates,

said lower two-stage valve assembly comprising a lower first solenoid operated pilot stage maintained normally closed during the rest state, a lower second stage divided into inlet and outlet sections, a lower second stage orifice between the sections within which a lower second stage poppet reciprocates,

said raise and lower second stage poppets each having an outer substantially parabolic contour to provide a predetermined flow area between the respective orifice and parabolic contour, said first raise and lower pilot stages being respectively coupled to said raise and lower second stages only by fluid communication for normally maintaining the respective second stages opened and closed and whereby said respective raise and lower second stage poppets are controlled in closing with substantially linear flow rate change with poppet within orifice for minimized shock when the respective pilot stage is actuated to the valve closed position,

means coupling said inlet section of said raise second stage and said load means to said fluid source whereby the normally open raise second stage unloads the fluid source during the normal rest state, a differential pressure compensated flow divider which is self piloted and coupled between said fluid source and both said load means and the inlet section of said raise second stage, said flow divider including a pilot chamber with a biasing means therein, said pilot chamber being in continuous restricted communication with said fluid source, said coupling means supplying a divided portion of said fluid source, said raise pilot stage having a pilot line directly coupled to said fluid source for full source pressure without coupling through a flow divider upstream of said flow divider for providing pilot pressure whereby upon solenoid actuation of said raise pilot stage to the valve closed state pilot pressure from said fluid source is immediately available to said raise pilot stage thereby to actuate said raise second stage and apply fluid to said load means with a substantially short dead time from actuation of raise pilot stage to initiation of raising of said load means.

4,276,811

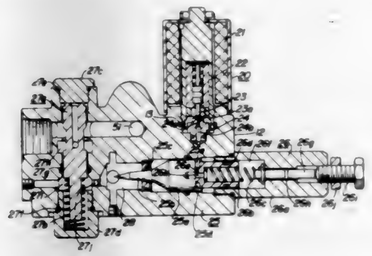
CLOSED CENTER PROGRAMMED VALVE SYSTEM WITH LOAD SENSE

Kenneth W. Zeuner, New Hope, and Alonzo B. Jarman, Wrightstown, both of Pa., assignors to Control Concepts, Inc., Newtown, Pa.

Continuation-in-part of Ser. No. 842,264, Oct. 14, 1977, Ser. No. 723,023, Sep. 13, 1976, Pat. No. 4,202,250, and Ser. No. 578,006, May 16, 1975, Pat. No. 3,980,002, said Ser. No. 578,006, is a continuation of Ser. No. 304,816, Nov. 8, 1972, abandoned, said Ser. No. 723,023, and Ser. No. 842,264, each is a continuation-in-part of Ser. No. 578,006,. This application Apr. 30, 1979, Ser. No. 34,778

Int. Cl.³ F15B *11/08, 11/20*

U.S. Cl. 91—449 **12 Claims**



1. A programmed valve system having a load sense fluid source with a load sense line for control of the positioning of load means by a pair of two stage valve assemblies comprising

a first of said two stage valve assemblies comprising a solenoid operated pilot stage maintained normally closed, a second stage divided into inlet and outlet sections with said inlet section being coupled to said fluid source, a second stage orifice between the sections within which a second stage poppet reciprocates,

a second of said two stage valve assemblies comprising a solenoid operated pilot stage maintained normally closed, a second stage divided into inlet and outlet sections, a second stage orifice between the sections within which a second stage poppet reciprocates,

said second stage poppets each having an outer substantially parabolic contour to provide a predetermined flow area between the respective orifice and parabolic contour, and

means coupling said load means to said outlet sections of said pair of valve assemblies, means free of a valve actuator for coupling said load sense line to said outlet section of said first valve assembly whereby a load sense signal is applied by way of said outlet section and said load sense line to said fluid source during the time said first assembly pilot stage is actuated to the valve open state.

4,276,812

POWER STEERING VALVE AND METHOD OF MAKING THE SAME

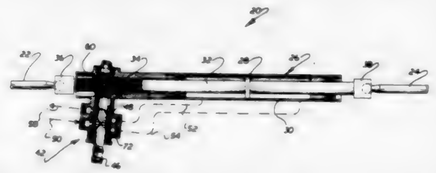
Richard W. Dymond, Rochester, Mich., assignor to TRW Inc., Cleveland, Ohio

Filed Mar. 27, 1978, Ser. No. 890,032

Int. Cl.³ F15B *13/04*

U.S. Cl. 91—467 **8 Claims**

1. A power steering apparatus comprising hydraulic motor means for assisting in operation of a vehicle steering gear, a housing having a plurality of passages connected in communication with a source of fluid and said hydraulic motor means, and valve means disposed in said housing for use in controlling fluid flow through said passages to thereby control operation of said hydraulic motor means, said valve means including an inner valve member and a one-piece cylindrical valve sleeve circumscribing said inner valve member, said valve sleeve including outer side surface means for defining an array of annular grooves each of which opens radially outwardly and extends around said sleeve, said array of annular grooves including a first annular groove connected in fluid communication with a first one of said passages in said housing, a second annular groove disposed to one axial side of said first annular groove and connected in fluid communication with a second one of said passages in said housing, said second annular groove having a radial depth which is greater than the radial depth of said first annular groove, said second annular groove having an annular bottom surface which slopes radially inwardly and axially in a direction away from said first annular groove so as to include a relatively large diameter surface portion and a relatively small diameter surface portion which small diameter portion is spaced further from said first annular groove than said relatively large diameter portion, and a third annular groove disposed to another axial side of said first groove opposite from said one axial side and connected in fluid communication with a third one of said passages in said housing, said third annular groove having a radial depth which is greater than the radial depth of said first annular groove, said valve sleeve further including inner surface means for defining a plurality of axially extending grooves on the inside of said valve sleeve and circumscribed by said array of annular grooves, each of said axially extending grooves having an axial length which is less than and within the axial extent of the array of annular grooves in the outside of said valve sleeve, at



least one of said plurality of axially extending grooves having a first sloping end surface which is disposed adjacent to said second annular groove and extends at an acute angle to the longitudinal central axis of said valve sleeve and a first constant depth main section which extends axially away from said first sloping end surface and is at least partially disposed radially inwardly of said first annular groove, said first sloping end surface of said one of said plurality of axially extending grooves sloping radially inwardly and axially outwardly in a direction away from said first annular groove from a portion having a relatively large cross sectional area which is disposed adjacent to said relatively large diameter portion of said bottom surface of said second annular groove to a portion having a relatively small cross sectional area which is disposed adjacent to said relatively small diameter portion of said bottom surface of said second annular groove, at least another one of said plurality of axially extending grooves having a second sloping end surface which is disposed adjacent to said third annular groove and extends at an acute angle to the longitudinal central axis of said valve sleeve and a second constant depth main section which extends axially away from said second sloping end surface and is at least partially disposed radially inwardly of said first annular groove and passage means for connecting each of said plurality of axially extending grooves in fluid communication with one of the grooves of said array of annular grooves.

4,276,813

PNEUMATIC CYLINDER ASSEMBLIES

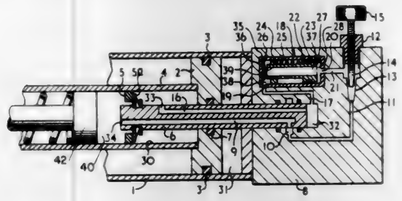
Henry W. Weyman, Waterworks Rd., Worcester, England

Filed Jun. 14, 1978, Ser. No. 915,515

Int. Cl.³ F15B *15/22*

U.S. Cl. 92—12 **3 Claims**

1. A system for controlling the ram speed of a pneumatic piston in a pneumatic piston and cylinder assembly comprising a hydraulic circuit which includes a hydraulic piston and cylinder assembly and a fluid reservoir, said hydraulic piston being responsive to the operation of said pneumatic piston causing hydraulic fluid to be displaced from one side of said hydraulic piston to the other side via said hydraulic circuit, said circuit further including flow controlling means for controlling the rate of flow of hydraulic fluid to said reservoir whereby the ram speed of said pneumatic piston is controlled, said flow controlling means comprising a variable flow control orifice and a low pressure governer located upstream of said orifice, means for maintaining said fluid reservoir under constant pressure, said low pressure governer including a generally cylindrical chamber having an inlet and an outlet for hydraulic fluid and including a wall movable in response to an increase in hydraulic pressure on the outlet side of said chamber, said wall comprising a piston and associated piston rod having a free end and movable in said cylindrical chamber, said piston and piston rod having coaxial passageways formed therethrough, said free end of said piston rod forming one valve member of a valve which includes two cooperating valve members for controlling the flow of hydraulic fluid into said cylindrical chamber, and resilient means acting against said piston normally urging said free end away from said cooperating valve member.



4,276,814

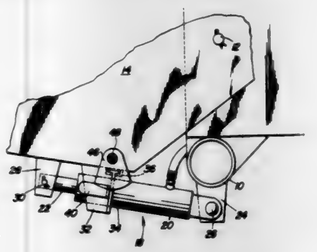
SAFETY LOCK FOR RAISING AND LOWERING MECHANISM

Merlyn D. Bass, and Donald W. Demorest, both of Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jul. 10, 1979, Ser. No. 56,386

Int. Cl.³ F15B *15/26*

U.S. Cl. 92—23 **6 Claims**



1. In a machine having a fixed part, a movable part carried by the fixed part for raising and lowering relative to the fixed part, and a fluid-operated unit for selective raising and lowering of the movable part and including a cylinder connected at one end to the fixed part and a piston rod extending from the other end of the cylinder and connected to the movable part, the improvement comprising a stop fixed to the movable part closely alongside the cylinder and so positioned as to move beyond the piston rod end of the cylinder when the movable part is raised, a blocking member having a pair of side walls defining a slot extending generally transverse to said cylinder, said slot having a first portion with a first dimension larger than the diameter of said piston rod and smaller than the outer diameter of said cylinder, a tranverse slide mounting the blocking member on the movable part adjacent to the stop, said blocking member selectively movable in said slide between a blocking position with the side walls interposed between the stop and piston rod end the cylinder and with said rod inserted through said first slot portion and an unblocking position with the side walls and the first slot portion clear of the said end of the cylinder and said rod, and means for selectively moving the blocking member between its two positions.

4,276,815

APPARATUS FOR OPENING, CONVEYING AND DIVIDING TUBULAR COVERINGS

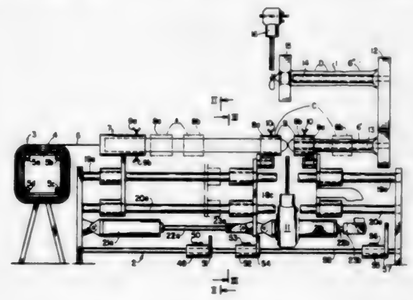
Gerhard Peter, Bomlitz, Fed. Rep. of Germany, assignor to Gerhard Peter KG, Bomlitz, Fed. Rep. of Germany

Filed May 8, 1978, Ser. No. 904,104

Claims priority, application Fed. Rep. of Germany, May 12, 1977, 2721392

Int. Cl.³ B31B *23/02*

U.S. Cl. 493—287 **11 Claims**



1. In an apparatus for opening conveying and dividing tubular coverings, the improvement comprising: means for continuously feeding a moist tubular covering, pneumatically operating tubular covering opening means, pneumatically operating tubular covering conveying means in synchronous operation with the opening means, and dividing and closing means spatially overlapping the conveying means and in synchronous operation therewith, the opening means, conveying means and closing and dividing means arranged consecutively on the tubular covering conveying run, and wherein the tubular covering conveying means comprises a tong like conveying gripper device movably mounted on both sides of the tubular covering in the tubular covering conveying direction for grasping and conveying the open tubular covering, which is free from filling, on its outer circumference on alternate sides.

4,276,816

WIND PROPELLED FAN

Bertha L. Tuley, 850 Maddox St., LaBelle, Fla. 33935

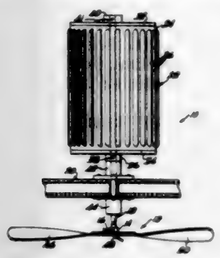
Filed Jan. 29, 1979, Ser. No. 7,050

Int. Cl.³ B60H *1/24*

U.S. Cl. 98—23 **1 Claim**

1. A wind propelled fan assembly for mounting through the roof of a building structure comprising, a multi-bladed fan structure disposed within an existing interior area of the structure and fixed to the lower end of a vertical drive shaft, said drive shaft being rotatably supported relative to the roof and with an extended portion upwardly outwardly a predetermined distance above the roof, a squirrel cage rotor, including a vertically extending drum with a plurality of parallel longitudinally extending circumferentially spaced apart vanes thereabout, upper and lower drum end closure plates with axially aligned center holes for through passage of said extended portion, means to fix said extended portion to said squirrel cage

rotor comprising a hub fixed to each of said upper and lower end closure plates with said drive shaft passing therethrough in a pinned relation therewith, said drive shaft being divided centrally of the squirrel cage into separate upper and lower axially aligned drive shaft portions, with said multi-bladed fan structure fixed to a bottom end of said lower portion, said means to fix comprising a hub fixed to said upper end closure plate with said upper drive shaft portion extending therethrough in a pinned relation therewith whereby said upper drive shaft portion and squirrel cage rotor rotate in unison under the influence of wind forces, speed control means to limit the rotational speed of the fan, including a ratchet, fixed

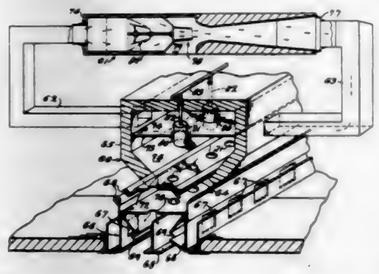


about an upper end portion of said lower drive shaft portion, vertically pivoted normally depending pawl means fixed to a lower end portion of said upper drive shaft portion in a manner whereby said pawl means depends under gravity forces into driving engagement with said ratchet to drive said lower drive shaft portion with said multi-bladed fan under the influence of normal wind forces, and said pawl means being pivoted upwardly and outwardly out of engagement with said ratchet means by centrifugal forces under the influence of abnormally severe wind forces to reduce the drive connection to said lower drive shaft portion and multi-bladed fan to limit the rotational speed of the fan.

4,276,817
AIR BAR ASSEMBLY

Gershon Meckler, 7425 Democracy Blvd. Unit 212, Bethesda, Md. 20034

Continuation of Ser. No. 959,634, Nov. 13, 1978, which is a continuation of Ser. No. 829,939, Sep. 1, 1977, which is a continuation of Ser. No. 741,092, Nov. 11, 1976, which is a continuation of Ser. No. 489,745, Jul. 18, 1974, which is a division of Ser. No. 308,180, Nov. 20, 1972, Pat. No. 3,828,180.
This application Aug. 1, 1979, Ser. No. 62,870
Int. Cl.³ F24F *13/04*
U.S. Cl. 98—38 E 3 Claims

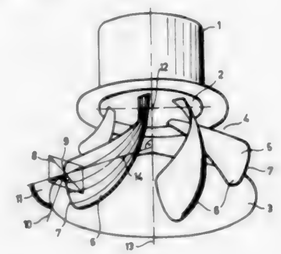


1. Air delivery apparatus comprising, in combination, an air bar assembly and an induction box, said air bar assembly comprising an air delivery section including an elongate channel having a web and opposed sidewalls, there being a plurality of longitudinally spaced openings in the web of said channel, means operatively associated with said channel and effective in combination therewith to form a duct having the web of said channel as one wall, the duct being essentially closed except for the openings in the web of said channel, a divider interior of and effective to divide the duct into a primary duct spaced from the web of said channel and a secondary duct adjacent the web of said channel, there being a plurality of openings in said divider through which air can flow between the primary and secondary duct, and valve means for controlling the flow of air through the openings in said divider, said induction box having means forming a passage for air flow from an inlet end to an outlet end, and at least one induction nozzle through which air flowing through the passage passes, there being an opening from the exterior of said induction box to the interior thereof, which opening is so positioned that air flowing through said induction nozzle induces a flow of air into said induction box, a duct for delivering air from the primary duct of said air bar assembly to the inlet end of said induction box, and a duct for delivering air from the outlet end of said induction box to the secondary duct of said air bar.

4,276,818
AIR DISTRIBUTOR

György Makars; Andras Mortin; Andras Foso, and Robert Fülöp, all of Budapest, Hungary, assignors to Fűtőber Épület-gépészeti Termékeket Gyártó Vállalat, Budapest, Hungary

Filed Mar. 9, 1979, Ser. No. 19,096
Claims priority, application Hungary, Mar. 10, 1978, FU 359
Int. Cl.³ F24F *7/00*
U.S. Cl. 98—40 B 10 Claims



1. An air distributor for injecting air into a space in which the injected air is mixed with the air of the space, said distributor comprising:

a cylindrical connecting pipe having an axially open circular air-discharge mouth;

a baffle plate of larger diameter than said mouth and axially spaced therefrom in the direction of flow of air from said mouth while being aligned therewith; and

a vane crown between said pipe and said plate, said vane crown comprising a multiplicity of angularly equispaced curved vanes disposed at least predominantly outwardly of an axial projection of said mouth on said plate for imparting vortex movement to air emerging from said mouth and impinging on said plate.

4,276,819
ADSORBENT ENCLOSURE FOR AUTOMATIC TISSUE PROCESSORS

Max Goldman, Latham, and Arthur A. Stein, Albany, both of N.Y., assignors to Pathology Products, Ltd., Albany, N.Y.

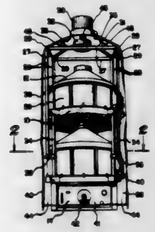
Filed Apr. 29, 1980, Ser. No. 144,910
Int. Cl.³ F23J *11/00*
U.S. Cl. 98—115 LH 3 Claims

1. An apparatus for use with a tissue processing machine comprising of:

a rigid frame means formed of a plurality of substantially vertically extending spaced apart members and a plurality of horizontal members, each vertical member secured to each adjacent vertical member by at least one horizontal member;

means for securing the tissue machine to said frame means so that the tissue processing means extends substantially into the volume defined by said frame means;

a transparent impermeable tent means secured to and surrounding said frame means, said tent means having a first



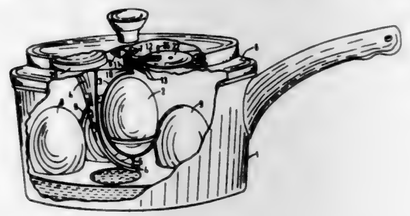
opening through which the tissue machine extends into said frame means and having a second opposed opening parallel to said first opening said tent means having a plurality of entrance panels through which access may be gained to the tissue machine; and

fume removal means attached to said frame means and communicating through said second tent means opening, said fume removal means evacuating the toxic fumes within said tent means, filtering said toxic fumes and releasing the filtered fumes to the atmosphere.

4,276,820
AUTOMATIC EGG COOKER

Constantinos J. Joannou, 2008 Dorval Ave., Ottawa, Ontario, Canada (K1G 2N8)

Filed Mar. 9, 1978, Ser. No. 884,995
Int. Cl.³ A47J *29/00*
U.S. Cl. 99—334 8 Claims

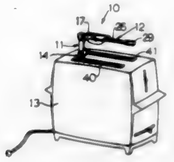


1. A device for cooking eggs comprising a pot, a lid and an egg holder in which an egg can be placed, torsion spring means being attached to said lid and said egg holder so as to suspend the egg holder from the lid so that said egg holder and said egg are free to oscillate; steam operated means to cause said egg holder to oscillate, a mechanism for measuring the total travel undergone by said egg holder and said egg any time said egg holder is made to oscillate, said mechanism being located on said lid; an alarm mechanism which is arranged to sound an alarm when said total travel undergone by said egg holder exceeds a pre-set amount of travel, said alarm mechanism also being located on said lid.

4,276,821
BUTTER MELTER DEVICE FOR TOASTER

John B. Brown, Rte. 2, Box 85, Colerain, N.C. 27924

Filed Jan. 7, 1980, Ser. No. 109,849
Int. Cl.³ A47J *37/08*
U.S. Cl. 99—339 5 Claims



1. An attachment for an electrically heated pop-up type toaster having a housing enclosing a toasting chamber and at least one opening in the top of the housing through which a bread slice or the like may be inserted into and removed from said toasing chamber, said attachment comprising:

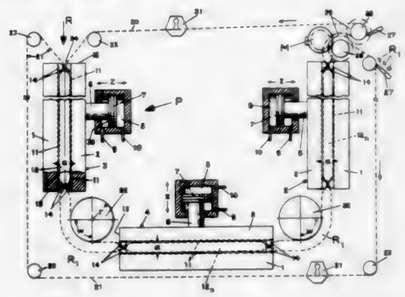
(a) an upright support member detachably securable to said toaster housing and providing a support structure having a cantilevered arm with an upright member and a lip portion thereon elevated above the top of said housing: and

(b) a ladle adapted to be removably supported on said support structure above said housing opening and having a heat conductive receptacle portion for receiving and melting butter or the like therein, said receptacle portion having an opening adapted to be releasably fitted over said lip portion for holding said ladle during the melting of said butter or the like and integral therewith a handle portion such that when said ladle is mounted on said support structure above said toaster housing opening and said toaster is energized said butter or the like may be melted in said receptacle portion by utilizing heat rising from said housing opening.

4,276,822
APPARATUS FOR THE BATCH FILTERING OF SUSPENSIONS

Wendel Bestgen, Betzdorf, Fed. Rep. of Germany, assignor to Alb. Klein & Co. GmbH KG, Niederfischbach, Fed. Rep. of Germany

Division of Ser. No. 902,039, May 2, 1978, Pat. No. 4,211,162.
This application Nov. 9, 1979, Ser. No. 92,701
Claims priority, application Fed. Rep. of Germany, May 5, 1977, 2720178
Int. Cl.³ B30B *15/30*
U.S. Cl. 100—207 18 Claims



1. Apparatus for discontinuously filtering suspensions, said apparatus comprising discrete, first and second pressure cham-

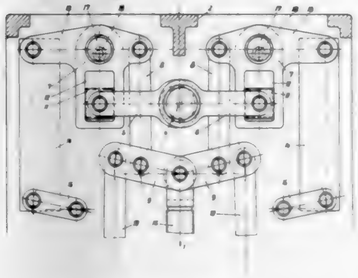
bers, means for advancing a suspension stepwise along a path of travel through said discrete separated first and second pressure chambers, means for applying external pressure to said suspension to effect filtering of the suspension by compression in said first pressure chamber to form a filter cake, the suspension being stationary in said first pressure chamber during said compression of said suspension, means for applying shearing forces to the surface of the resulting filter cake to alter its structure in the travel of said filter cake from the first filter chamber to the second filter chamber and means for applying external pressure to the filter cake to effect filtering of the cake by compression in said second pressure chamber, said filter cake being stationary in said second pressure chamber during said compression of said cake.

4,276,823

ECCENTRIC PRESS

Frank Rotzler, Oetisheim, Fed. Rep. of Germany, assignor to R W M-Raster-Werkzeugmaschinen GmbH, Oetisheim, Fed. Rep. of Germany

Filed Dec. 27, 1979, Ser. No. 107,583
Claims priority, application Fed. Rep. of Germany, Jan. 11, 1979, 2900900; Jan. 11, 1979, 2900901
Int. Cl.³ B30B *1/06*
U.S. Cl. 100—257 **15 Claims**



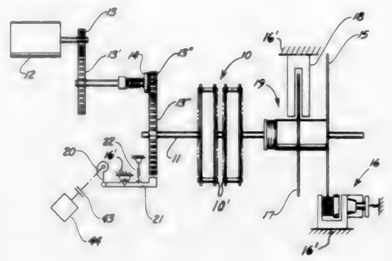
1. An eccentric press comprising
a frame,
an eccentric shaft rotatably mounted in said frame,
a ram vertically slidably mounted in said frame,
first and second connecting rod means, each of which has an inner end rotatably mounted on said eccentric shaft and an outer end, said first and second connecting rod means being arranged to perform mutually opposing motions in response to a rotation of said eccentric shaft,
first and second slot-defining means carried by said frame and disposed on opposite sides of said eccentric shaft and defining first and second horizontal guide slots, respectively, which are horizontally aligned and arranged to guide said outer ends of said first and second connecting rod means, respectively,
first and second ball crank lever means disposed on opposite sides of said eccentric shaft and pivoted to said frame, first and second bell crank lever means having first and second output arm means, respectively, which are operatively connected to said ram, and first and second guide arm means, respectively, which extend at an angle to said output arm means and are formed with substantially vertical first and second guide slot means, respectively, which are arranged to guide said outer ends of said first and second connecting rod means, respectively.

4,276,824

DRIVING AND BRAKING SYSTEM FOR AN ELECTRONIC EMBOSSING MACHINE

Helmut A. M. Schöttle, Berlin, Fed. Rep. of Germany, assignor to Pitney Bowes Deutschland GmbH, Heppenheim, Fed. Rep. of Germany

Filed Mar. 19, 1979, Ser. No. 22,014
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1978, 2812333
Int. Cl.³ B41J *1/44*
U.S. Cl. 101—18 **9 Claims**



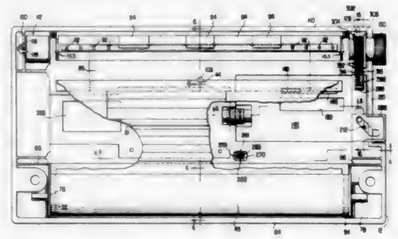
1. Driving and braking apparatus for an electronic embossing machine, comprising: a housing, a shaft rotatably disposed within said housing, a die drum having a plurality of embossing dies mounted on said shaft, a drive motor, means for drivingly engaging said motor and said shaft, a control disk having location sensing means at the perimeter thereof mounted on said shaft, a sensor located to receive a portion of said control disk and a brake means for braking the die drum including an elastic coupling mounted on said shaft, a brake disk supported by said elastic coupling, and an electric clutch supported by said housing, said brake disk being brakingly engageable by said electric clutch.

4,276,825

PORTABLE TRANSACTION LOG RECORDER

Morton W. Thomson, South Easton, Mass., assignor to DBS, Inc., Randolph, Mass.

Filed Jan. 29, 1979, Ser. No. 7,637
Int. Cl.³ B41F *3/04*
U.S. Cl. 101—45 **20 Claims**



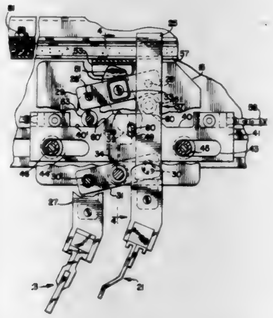
1. A portable transaction log recorder for processing therein at least one transaction log sheet having a plurality of transaction data entry blocks disposed along the length thereof and a plurality of registration holes respectively associated with said data entry blocks, said recorder comprising
a base;
means supported by said base for removably receiving a printing plate;
supply means disposed on one side of said printing plate receiving means supported by said base for removably storing said transaction log sheet;
take-up means disposed on the other side of said printing plate receiving means supported by said base for advancing said transaction log sheet from said supply means across said printing plate receiving means;
a sensing pin;
first biasing means for biasing said sensing pin toward said transaction log sheet so that said pin extends through one of said registration holes when said one hole and said pin are aligned;
said sensing pin being so located with respect to said printing plate receiving means that when said pin extends through said one registration hole, an associated one of said transaction data entry blocks is aligned with said printing plate receiving means;
means for moving said sensing pin out of the path of travel of said transaction log sheet prior to advancement of the next data entry block following said one data entry block to the printing plate receivig means so that said log sheet may be advanced by said take-up means until said sensing pin is urged through the next registration hole following said one registration hole under the influence of said first biasing means; and
second biasing means for biasing said sensing pin in a second direction which is so angled with respect to the biasing direction of said first biasing means that, as said next hole is advanced to said sensing pin, the sensing pin is moved away from a first point on the periphery of said next hole as soon as said pin contacts said first point thereby lessening the tendency for said registration holes to be damaged as the sensing pin is urged therethrough.

4,276,826

SQUEEGEE AND FLOOD BAR ACTUATOR

Henry J. Bubley, Deerfield, and Claude H. Oltra, Chicago, both of Ill., assignors to American Screen Printing Equipment Company, Chicago, Ill.

Filed Feb. 6, 1980, Ser. No. 118,920
Int. Cl.³ B41F *15/36*
U.S. Cl. 101—123 **9 Claims**



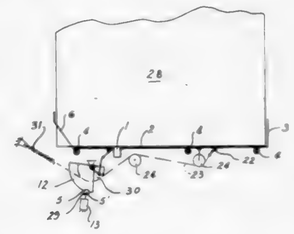
4. In a screen printing press including a frame, a printing bed supported on said frame to receive work to be printed, a press head pivotally mounted to said frame for angular movement relative to said printing bed, a carriage mounted to said press head for reciprocation therealong relative to said printing bed, a screen removably mounted to said carriage in a position above said work on said printing bed, a squeegee and flood bar mounted to said carriage and being movable therewith, drive means associated with said carriage and being operable to reverse direction for moving said squeegee across said screen in a first direction for the print stroke, and for moving said flood bar across said screen in the reverse direction for the flood stroke, the improvement comprising:
a fixed surface mounted to said press head above said carriage;
a chassis movably mounted to said carriage, said chassis having an upper surface;
a parallelogram support pivotally mounted to said carriage, said squeegee being mounted to one end of said parallelogram support and being pivotal therewith relative to said screen, said flood bar being mounted to the other end of said parallelogram support and being pivotal therewith relative to said screen;
first and second roller means, said first roller means being mounted to one end of said parallelogram support and being movable along said upper surface for raising and lowering said squeegee relative to said screen, said second roller means being mounted to the other end of said parallelogram support and being movable along said upper surface for raising and lowering said flood bar, said first and second roller means cooperating to simultaneously raise said squeegee while lowering said flood bar, and to lower said squeegee while raising said flood bar; and,
actuator means pivotally mounted to said carriage and attaching at one end of said chassis, said actuator means having an engaging means at the other end lightly contacting said fixed surface during said print and flood strokes, said engaging means firmly contacting said fixed surface in response to a change in direction of movement of said carriage to secure said carriage from movement as said first and second rollers raise and lower said squeegee and flood bar relative to said screen for said print and flood strokes.

4,276,827

OPERATOR SAFETY DEVICE

Hans Johne, Radebeul; Arndt Jentzsch, Coswig; Lothar Schmidt, Radebeul; Wolfgang Müller, and Mandred Funke, both of Coswig, all of German Democratic Rep., assignors to Veb Polygraph Leipzig Kombinat für Polygraphische Maschinen und Ausrüstungen, Leipzig, German Democratic Rep.

Filed Mar. 5, 1979, Ser. No. 17,139
Claims priority, application German Democratic Rep., Mar. 16, 1978, 204213
Int. Cl.³ B41F *5/00*
U.S. Cl. 101—212 **7 Claims**



1. An operator safety device for a printing press having at least two parts defining a footpath therebetween, comprising a supporting traverse arranged across said footpath, a double cover including a main cover and a first side cover, said main cover being hinged at one side thereof to said traverse and at the opposite side to said first side cover, a second side cover hinged to said traverse opposite said main cover, said covers being rotatable between a first position in which they cover said parts and a second position in which said parts are exposed, a rotatable switching cam arranged under said covers and defining a recess in its periphery, a switch having a movable control rod springbiassed against said switching cam, said switch being in its closed state when said rod engages said recess and in its open state when said rod disengages said recess, linking means coupled between each of said covers and said switching cam to rotate the same into a position in which said control rod engages said recess when all covers are in said

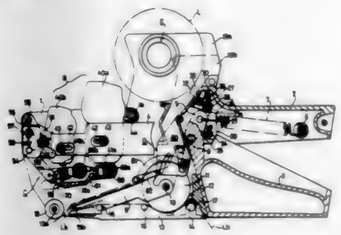
first position and to disengage said rod from said recess when at least one of said covers is moved from said first into said second position.

4,276,828

CONSTANT PRESSURE ASSEMBLY FOR HAND OPERATED LABEL PRINTING MACHINE

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato Kenkyusho, Japan

Filed Apr. 19, 1979, Ser. No. 31,639
Claims priority, application Japan, Apr. 24, 1978, 53/47804
Int. Cl.³ B41J 5/00
U.S. Cl. 101—291 2 Claims



1. A label printing machine, comprising:

a machine frame;

an operating lever, for being operated to move with respect to the machine frame; a printing lever integrally connected with said operating lever such that said operating lever and said printing lever move together from a rest position toward a printing position; a first pivot connection between said operating and printing lever, on the one hand, and said machine frame, on the other hand, and being located intermediate the length of said operating and printing lever; a printing device, including printing types, carried on said printing lever;

a platen connected to said machine frame and positioned in opposition to said types as said printing lever moves to said printing position, whereby said types will engage a label on said platen when said printing lever is in said printing position;

printing pressure regulating means interposed between said operating lever and said machine frame, said printing pressure regulating means comprising:

a pressure applying cam pivotally supported at a second pivot connection on one of said operating lever and said machine frame and in the vicinity of said first pivot connection; said cam having a cam surface thereon spaced from the said second pivot connection;

a pressure receiving roller and a support for said roller, said support being pivotally attached at a third pivot connection to the other of said operating lever and said frame;

respective means for positioning said roller support and said cam such that said cam surface will abut said roller as said operating lever moves toward said printing position and before said type engage said platen, said third pivot connection being spaced from the location on said roller to be abutted by said cam surface, whereby pivoting of said support moves said abuttable location of said roller on an arcuate pathway;

first biasing means for urging said cam to pivot to a position for blocking bypassage of said cam surface and said roller;

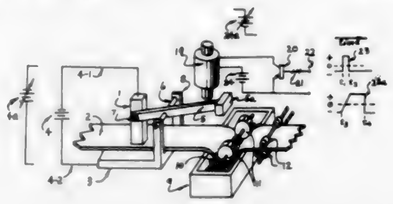
second biasing means for urging said roller support to move said roller location to a position for blocking bypassage of said cam surface and said roller; said first and said second biasing means being of such relative strengths that when said cam surface has been moved into abutment with said roller and when a predetermined pressure is applied on said operating lever, at least one of said cam and said roller support resiliently deflects and pivots to permit said cam surface to bypass said roller, so that said types are then freed to abut a label on said platen due to force being applied to said operating lever to move said printing lever to said printing position.

4,276,829

MECHANO-ELECTROSTATIC CHARGE-IMAGING METHOD AND APPARATUS

Wu Chen, 26 W. Ridge Pike, Royersford, Pa. 19468

Continuation-in-part of Ser. No. 873,900, Jan. 31, 1978, abandoned, which is a continuation-in-part of Ser. No. 683,429, Dec. 8, 1975, abandoned, which is a continuation-in-part of Ser. No. 469,522, May 13, 1974, abandoned, which is a continuation-in-part of Ser. No. 311,532, Dec. 4, 1972, abandoned. This application Sep. 20, 1979, Ser. No. 77,285
Int. Cl.³ G03G 15/22
U.S. Cl. 101—426 24 Claims



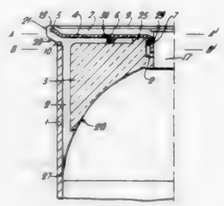
1. The method of operating a charge-imaging system in its mechano-electrostatic imaging domain for forming charge-image on a charge-retaining imaging object with an imaging means capable of transmitting a mechanical image-activating energy and an electrical image-activating energy, and which comprises: positioning said imaging means and said imaging object in operative relationship; applying said mechanical image-activating energy in pre-set magnitude to said imaging object via said imaging means; applying said electrical image-activating energy, in magnitude within the range of operation of the mechano-electrostatic imaging domain of said system, to said imaging object via said imaging means; and controlling the timing of at least one of the said applications of the mechanical and of the electrical image-activating energies so that there is an overlapping time period during which both said image-activating energies act on a shared location of the said imaging object.

4,276,830

CARTRIDGE CASE

Julio C. Pastora Alice, c/3.-Av. 4-6 - No. 429, San Jose, Costa Rica

Filed Apr. 12, 1979, Ser. No. 29,509
Int. Cl.³ F42B 5/26, 7/06
U.S. Cl. 102—467 2 Claims



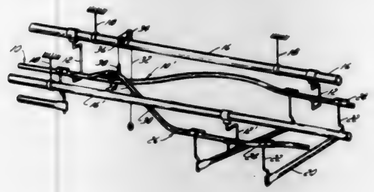
1. An improved cartridge case comprising an external plastic tube, a metallic member located adjacent one end of said external plastic tube, an inner plastic welding mass extending within said external plastic tube adjacent one end thereof and over and beyond said one end, said metallic member including a generally flat portion with an elevated conical peripheral portion forming a blunt angle with said flat portion, said conical portion extending to a circular surface and a sharp edge, said inner plastic welding mass fully enclosing said metallic member to provide an extraction collar reinforced by said metallic member fully enclosed therein.

4,276,831

TROLLEY STORAGE

Jean-Paul Leger, 5000-4e rue, Chomedey, Laval, Quebec, Canada

Filed Jan. 2, 1979, Ser. No. 9
Claims priority, application Canada, Jan. 6, 1978, 294510
Int. Cl.³ E01B 25/22
U.S. Cl. 104—93 3 Claims



1. A trolley storage system for storing a plurality of individual trolleys, each trolley having a leading wheel assembly and a trailing wheel assembly; the system comprising: a main generally horizontal rail having an upstream portion and a storage portion; a secondary generally horizontal storage rail spaced from the storage portion of the main rail and forming a storage area with the storage portion of the main rail for trolleys; a switching rail at the entrance to the storage area and movable between a first closed position where it connects the upstream portion of the main rail to the secondary rail and a second open position where it disconnects the upstream portion of the main rail from the secondary rail; means for moving the switching rail between its first and second position; said switching rail moving means including operator means located in the storage area and positioned to be actuated by the leading end of a leading trolley in the storage area before the trailing end of the same trolley reaches the entrance of the storage area, the operator means controlling the moving means to automatically allow the trailing wheel assembly of the leading trolley, and the leading wheel assembly of an adjacent trailing trolley, to enter the storage area on the other rail from the rail in the storage area already carrying the leading wheel assembly of the leading trolley.

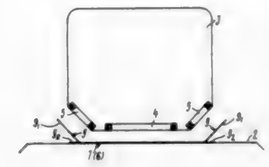
4,276,832

TRANSPORTATION DEVICE WITH AN ELECTRODYNAMIC SUSPENSION

Zigurd K. Sika, ulitsa A. Eremenko, 9, kv. 40; Voldemar V. Apsit, ulitsa Lenina, 66, kv. 22; Khubert L. Dauguls, ulitsa Blaumanya, 12-a, kv. 5, and Ivan I. Kurkalov, ulitsa Tilts, 11/3, kv. 14, all of Riga, U.S.S.R.

Filed Dec. 12, 1978, Ser. No. 968,869
Claims priority, application U.S.S.R.,
Int. Cl.³ B61B 13/08
U.S. Cl. 104—292 13 Claims

1. A transportation device with an electrodynamic suspension, comprising a vehicle adapted for moving along a track bed having a track axis, field coils of a motor, field coils of a suspension, and field coils of transverse stabilization, said coils being each mounted on said vehicle, and a three-phase winding mounted horizontally along said track bed and including active portions of turns formed as plates having a width of up to one-third of the pole pitch of said three-phase winding, and end portions comprising rectangular plates formed in two layers and arranged in parallel with the track axis, at least one layer of said end portions being mounted parallel to said field coils of transverse stabilization, said three-phase winding and said field



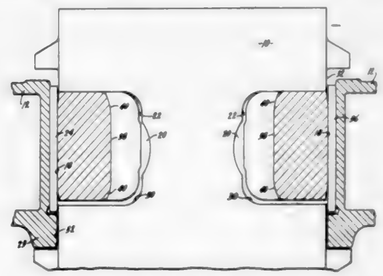
coils of said motor forming a linear synchronous motor, and said end portions being used as reactive buses for transverse stabilization of said transportation device.

4,276,833

RAILWAY TRUCK FRICTION STABILIZING ASSEMBLY

Robert L. Bullock, Lombard, Ill., assignor to Standard Car Truck Company, Chicago, Ill.

Filed Nov. 8, 1978, Ser. No. 958,790
Int. Cl.³ B61F 5/06, 5/12, 5/50
U.S. Cl. 105—197 DB 5 Claims



1. A friction member for use in the bolster pocket of a stabilized railroad car truck having a bolster positioned within a side frame window, said friction member having a slanted friction surface adapted to bear against a slanted wear surface within the bolster pocket and a vertical friction surface adapted to bear against a side frame wear surface, said slanted friction surface having a profile in a generally horizontal plane through the bolster consisting of a central flat portion and adjoining outside arcuate portions, said flat portion having a width equal to twice the distance between the side frame center line and the point of rotation of the side frame relative to the bolster means positioning said point of rotation such that, during side frame rotation, the distance from the side frame center line to the point of intersection of the plane of said vertical friction surface and the plane of the side frame wear surface is no greater than one half of said friction member horizontal thickness.

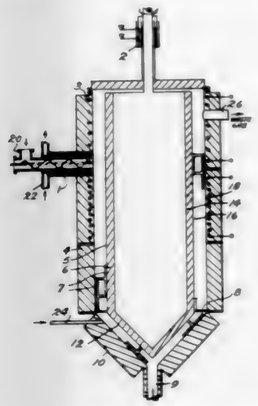
5. A friction member for use in the bolster pocket of a stabilized railroad car truck having a bolster positioned within a side frame window, said friction member having a slanted friction surface adapted to bear against a slanted wear surface within the bolster pocket and a vertical friction surface adapted to bear against a side frame wear surface, said slanted friction surface having a profile in a generally horizontal plane through the bolster consisting of a central flat portion and adjoining outside arcuate portions, said arcuate portions having a radius such that, during rotation of the side frame relative to the bolster, there is contact between the side frame and bolster before the friction member arcuate portion contacts an interior corner of the bolster pocket.

4,276,834

FURNACE FOR INCINERATION OF NUCLEAR FISSION AND FERTILE MATERIAL WASTE PARTICULARLY PLUTONIUM AND URANIUM CONTAINING ORGANIC WASTE

Eduard Bregulla, Bruchkobel; Alfred Chrubasik, Neuss, and Horst Vietzke, Maintal, all of Fed. Rep. of Germany, assignors to Nukem G.m.b.H., Hanau, Fed. Rep. of Germany

Filed Apr. 27, 1979, Ser. No. 34,184
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1978, 2819059
Int. Cl.³ F23G 7/00; G21F 9/32
U.S. Cl. 110—237 8 Claims



1. A furnace especially adapted for incinerating nuclear fission waste and fertile material waste, particularly organic waste containing plutonium or uranium, by pyrohydrolysis with steam or combustion with oxygen in safe geometry, said furnace comprising:

a stationary cylindrical outer jacket terminating at its lower end in the shape of a funnel:

a rotatable inner cylinder coaxially disposed within said jacket and also terminating at its lower end in the shape of a funnel to define, with said jacket, an annular gap therebetween, the wall of said inner cylinder being provided with material especially adapted to absorb neutrons, the diameter of said inner cylinder being so regulable that said annular gap guarantees a safe layer thickness; and

scrapers for the outer surface of said cylinder and the inner surface of said jacket secured respectively to the inner side of said jacket and the outer side of said cylinder.

4,276,835

METHOD FOR PROCESSING SEWAGE SLUDGE

Erich Zeltner, Gockhausen, Switzerland, assignor to Von ROLL AG, Gerlafingen, Switzerland

Filed Oct. 4, 1979, Ser. No. 81,683
Int. Cl.³ F23B 7/00
U.S. Cl. 110—342 9 Claims

1. A method of self-energized drying of sewage sludge while leaving essentially dust-free and odor-free effluent from an apparatus having

a combustion chamber (60, 60a) having a solid particle or powder burner (90);

a mixing or pulverizing-type dryer (1) receiving the sludge, in which the sludge is dried;

a solid-particle separator (2) for removing solid particles upon drying of the sludge;

a blower (4) generating an air stream;

a heat exchanger (5);

said combustion chamber, dryer, solid-particle separator, blower, and heat exchanger being connected in a closed loop circuit;

and a controlled bypass connection (P2) between the downstream side of the heat exchanger (5) and the dryer, bypassing the combustion chamber,

said method comprising the steps of

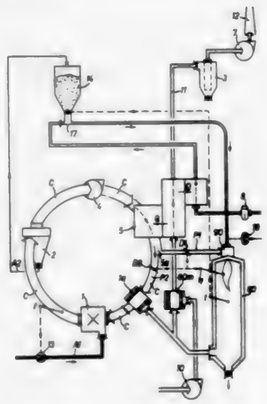
generating, by means of the blower (4), a stream of air in the closed circuit;

introducing sludge material into the dryer (1) where the sludge is dried and at least partly converted into volatile combustible dust components and gaseous components to form a gas;

removing solid dust particles from the mixture of the air in the air stream and volatile combustible components from the dried sludge in the separator (2) to obtain a powder of combustible dust;

passing the remaining gas of the stream through the heat exchanger (5) and removing heat therefrom;

conveying the powder of combustible dust as a fuel to the powder burner (90);



introducing a portion (P1) of the gas received from the heat exchanger to the combustion chamber (60, 60a) to provide combustion air thereto;

circulating the remaining portion (P2) of the gas received from the heat exchanger (5) to the dryer (1);

removing from the combustion chamber (60, 60a)

(a) ash and non-combustible residue after burning of the combustible dust by the burner in the presence of the first portion (P1) of gas from the heat exchanger and

(b) hot combustion gases;

re-introducing a portion of said hot combustion gases from the combustion chamber to the dryer (1);

mixing the hot combustion gases received from the combustion chamber with the gas received from the heat exchanger to provide to the dryer and the sludge introduced thereto drying air at a temperature which is below the temperature of the combustion chamber and which has an oxygen content insufficient for spontaneous combustion of the sludge introduced into the dryer;

and filtering the remaining portion of hot gases removed from the combustion chamber and then venting them to the atmosphere.

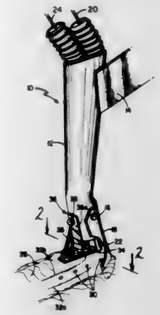
4,276,836

GRAIN DRILL UTILIZING A FERTILIZER SPOUT AND ADJUSTABLE DEFLECTOR THEREPOR

Waldo H. Post, Savage, Mont. 59262

Filed Oct. 31, 1979, Ser. No. 89,900
Int. Cl.³ A01C 5/08
U.S. Cl. 111—86 4 Claims

1. In a grain drill, a downwardly extending boot, said boot having a forward portion, a furrow opener mounted on the forward portion of said boot, a first spout having an opening at a first predetermined level extending downwardly through said boot for depositing seed into a furrow as the grain drill traverses a field to be planted, a second spout having an opening at a second predetermined level extending downwardly through said boot in rearward spaced alignment with said seed spout for depositing fertilizer into said furrow in a trailing



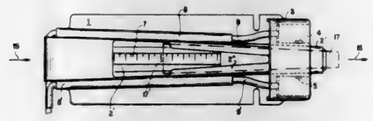
relation with respect to said first spout, said second predetermined level being above said first predetermined level, a deflector plate disposed in a generally horizontal plane between said first and second predetermined levels and extending laterally to each side thereof, and means for adjusting said deflector plate forwardly into contact with said seed spout and rearwardly in said generally horizontal plane out of contact with said seed spout.

4,276,837

WELT FEEDER FOR SEWING MACHINES

Kurt Biermann, and Kurt Reinke, both of Bielefeld, Fed. Rep. of Germany, assignors to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

Filed Feb. 1, 1980, Ser. No. 117,770
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1979, 7902807[U]
Int. Cl.³ D05B 35/06, 69/20
U.S. Cl. 112—152 4 Claims



1. At a sewing machine having a reciprocating sewing-needle drive and a stitch counter for arresting same upon reaching a predetermined count, the combination therewith of a device for feeding a workpiece to a sewing station, said device comprising:

guide means for guiding said workpiece along a feed path extending to said station;

marker means on said guide means for implementing the manual positioning of said workpiece prior to the feeding thereof to said station;

a photocell on said guide means connected to said counter for activating same upon detecting the passage of a back edge of said workpiece during feeding thereof to said station; and

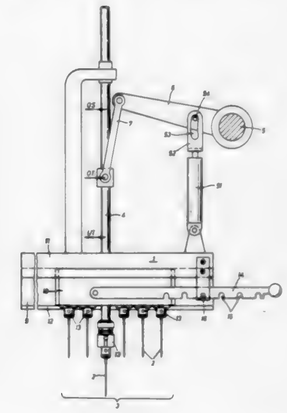
a light source disposed on said guide means across said path from said photocell for emitting thereto a light beam extending substantially transversely to said path, whereby a beam interrupted by said workpiece is reinstated upon passage thereof to energize said photocell.

4,276,838

THREAD CHANGER FOR EMBROIDERING MACHINES

Kurt Bolldorf, Kaiserslautern, Fed. Rep. of Germany, assignor to Pfaff Industriemaschines GmbH, Fed. Rep. of Germany

Filed Jul. 3, 1980, Ser. No. 165,799
Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927142
Int. Cl.³ D05B 55/16; D05C 11/06
U.S. Cl. 112—221 13 Claims



1. In a machine for embroidering a workpiece of the type having a needle magazine, a plurality of needles movably mounted to the needle magazine to define a needle group, each needle of the needle group equipped with a different thread, and means for selectively imparting axial reciprocatory movement to needles of the needle group to perform a thread change, the improvement wherein the reciprocating means comprises a single elongated needle bar associated with the group, and further comprising means for moving the needle magazine relative to said needle bar to selectively align each needle with said needle bar, means for disengageably coupling a selected needle of the needle group to said needle bar, and means for detachably locking each of the needles to the needle magazine.

4,276,839

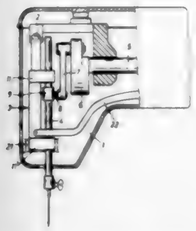
NEEDLE BAR PENDULUM FOR SEWING MACHINES

Willi Meier, Karlsruhe-Durlach, Fed. Rep. of Germany, assignor to Dorina Nahmaschines GmbH, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,161
Claims priority, application Fed. Rep. of Germany, Jul. 5, 1978, 2829497
Int. Cl.³ D05B 55/06
U.S. Cl. 112—227 3 Claims

1. A needle bar pendulum for sewing machines, comprising a carrier bar having a bearing engagement end at each end, first and second separate bearing members each having a carrier bar bore therethrough through which respective engagement ends of said carrier bar engage and are connected by adhesive, each

of said first and second bearing members having a needle bar bore therethrough for the passage of a needle bar, each of said

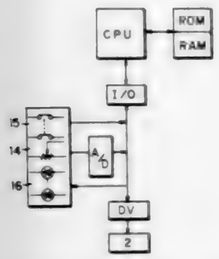


needle bar bores and carrier bar bores of each said bearing members being substantially parallel to each other.

4,276,840
ELECTRONIC SEWING MACHINE WITH A FEED CONTROL DEVICE

Hideaki Takesoya, Hachioji, and Hachiro Makabe, Fussa, both of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,631
Claims priority, application Japan, Jun. 14, 1978, 53-70772
Int. Cl.³ D05B *27/22*
U.S. Cl. 112—315 **3 Claims**



1. In a sewing machine which utilizes a pulse motor to control feed rates of cloth sewed thereby and in which such feed rates can only be discontinuously varied between available feed rates that are spaced apart adjacent each other, an improvement allowing a user of the machine to operate the machine at a desired overall feed rate intermediate available feed rates, comprising:

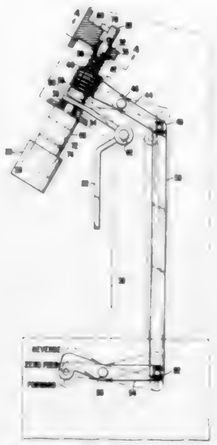
a user-variable means for selecting the overall feed rate desired; and

a computer cooperating with the means and the pulse motor, the computer operating in a manner that when the means is adjusted to an overall rate corresponding to an available feed rate the computer causes the pulse motor to operate at said available feed rate, and when the means is adjusted to an overall rate corresponding to a rate intermediate two adjacent available feed rates the computer causes the pulse motor to operate in a repeated sequence, in which sequence the pulse motor is first operated at a one of said adjacent available feed rates and is subsequently operated at another of said adjacent available feed rates.

4,276,841
STITCH LENGTH AND FEED REVERSING CONTROL FOR A SEWING MACHINE

William Weisz, Tenafly, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Sep. 24, 1979, Ser. No. 78,335
Int. Cl.³ D05D *27/00*
U.S. Cl. 112—317 **8 Claims**



1. In a sewing machine, stitch length regulating and feed reversing control means including a rotatably and axially movable shaft having a worm gear affixed thereon; a pivotally mounted member having a gear segment thereon in engagement with the worm gear; a manually operable control movable in one direction for imparting axial movement to said shaft effective to cause the worm gear to move the gear segment and member, and movable in another direction for imparting rotational movement to the shaft effective to cause the worm gear to move the said gear segment and member; and linkage means operably connected to said member and positionable thereby for conditioning the operation of feed regulating mechanism for reverse feed in response to axial movement of the shaft, and for controlling the operation of the feed regulating mechanism in forward feed in response to rotational movement of the shaft.

4,276,842
DEVICE FOR REGULATING THE TRANSPORT MECHANISM IN SEWING MACHINES

Giancarlo D. Torre, Biassono, Italy, assignor to Rockwell-Rimoldi, S.p.A., Milan, Italy

Filed Nov. 16, 1979, Ser. No. 95,181
Claims priority, application Italy, Jan. 5, 1979, 19061 A/79
Int. Cl.³ D05B *27/12*
U.S. Cl. 112—322 **4 Claims**

1. A regulating device for the workpiece transport mechanism in sewing machines having a needle and presserfoot disposed in the machine's sewing zone and of the type for joining a plurality of layers of material forming the workpiece, said regulating device comprising:

(a) a tubular support (14) pivotably attached to the sewing machine;

(b) a rotatably driven shaft (13) mounted in and extending from said tubular support including:

(i) a wheel member (12) fixed on the end of said driven shaft (13) extending from said tubular support (14);

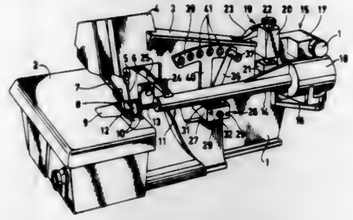
(c) biasing means (19) operatively connected to said tubular support (14) for urging the latter in a direction to effect engagement of said wheel member (12) with the upper layer of the workpiece; and

(d) regulating means (26) operatively associated with said tubular support (14) including:

(i) a body portion (27) forming a support structure attached to the machine;

(ii) a limiting member (31) defining an eccentric roller mounted for rotative movement within said body portion (27) in operative engagement with said tubular support (14); and

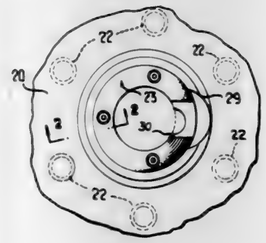
(iii) means for rotating said limiting member (31) to any one of a plurality of fixed positions for selectively changing the operating position of said wheel member (12) to accommodate workpieces of different thicknesses.



4,276,843
DOME TOOLING TO ELIMINATE TAB PROTRUSION OF A CAN END

Everett T. Hansen, Chicago, Ill., assignor to The Continental Group, Inc., New York, N.Y.

Filed Jun. 1, 1979, Ser. No. 44,816
Int. Cl.³ B21D *51/38*
U.S. Cl. 113—1 F **7 Claims**



1. A method of doming an end panel of a metal easy opening end unit having a removable panel portion defined by a peripheral line of weakness to remove inherently loose metal from the end panel, said method comprising the steps of clamping an outer portion of an end panel including said peripheral line of weakness on an annular support, and while holding said end panel including said peripheral line of weakness on the annular support, engaging a central part only of said end panel and axially displacing said end panel within said support to stretch the metal of said end panel to remove said loose metal from said end panel and to effect a minor doming of said end panel radially inwardly of said peripheral line of weakness.

4,276,844
SOFT SAILBOARD

Michael J. Fremont, Encinitas, Calif., assignor to Kransco Manufacturing, Inc., South San Francisco, Calif.

Filed Jun. 18, 1979, Ser. No. 49,094
Int. Cl.³ B63B *35/00*; B63H *9/00*
U.S. Cl. 114—39 **4 Claims**

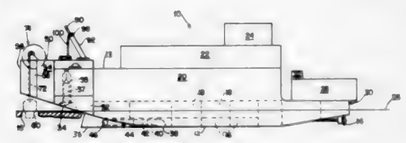


1. A soft sailboard comprising an elongated soft foam slab, elongated longitudinally extending generally rigid support means embedded in said slab adjacent the longitudinal midline thereof, said support means comprising a pair of spaced parallel stringers extending for substantially the full length of said slab, said stringers having opposed planar surfaces, and a box-like mast mount insert disposed between and connected to said opposed planar surfaces of said stringers.

4,276,845
ICE CUTTING AND BREAKING VESSEL

W. F. Spanner, 4 Albion Ter., The Common, Patchway, Bristol BS12 6AN, England

Filed Aug. 17, 1979, Ser. No. 67,452
Int. Cl.³ B63B *35/08*
U.S. Cl. 114—42 **6 Claims**



1. An icebreaker vessel including a hull for clearing a channel through an ice layer comprising:

a rectangular forefront, extending out over the ice layer, which is wider than the hull;

a plurality of elongate hollow guides attached to said forefront and extending in a vertical direction, said guides being located above the water line;

a corresponding plurality of cutting blades, each of said blades disposed respectively in one of said guides;

means for lowering said blades into the ice layer and raising said blades back into said corresponding guides;

a bow portion extending downward and aft in a generally planar configuration from said forefront to the hull, said bow portion being substantially rectangular in vertical cross section;

a prow, depending from said bow portion and forming a wedge-shaped keel, said prow widening gradually to merge with said bow portion;

means, including orifices located on the port and starboard sides of said prow, for discharging water laterally along the bottom of said bow portion; and

an emergency water ballast tank, located above the water line at the aft end of the vessel, which is quickly emptied through large ports;

such that as the icebreaker travels through an ice layer, said cutting blades break the ice layer into pieces which slide below said bow portion and are then pushed under the surrounding ice layer by said prow and said water discharging means.

4,276,846

RECOVERY APPARATUS

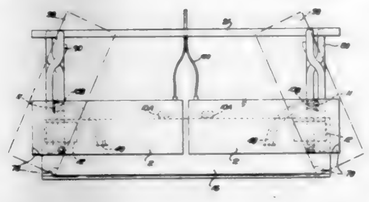
Douglas E. Anderson, "Little Timbers", Horley Row, Horley, Surrey RH6 8DH, England

Continuation of Ser. No. 850,047, Nov. 9, 1977, abandoned. This application Oct. 5, 1979, Ser. No. 82,153

Claims priority, application United Kingdom, Oct. 27, 1973, 50119/73; Nov. 26, 1973, 54704/73; Jun. 3, 1974, 24576/74

Int. Cl.³ B63C *7/08*

U.S. Cl. 114—52 **11 Claims**



1. In an apparatus for use in recovering an at least partially submerged article or material such as an article stranded in water, at least two floatable members each having a longitudinal axis and whose buoyancy can be varied and each of said members having an arm connected to an end portion thereof, each of said arms carrying a recovery member selected from gripping and scooping means and being connected by means of a pivot to the remainder of said arms, said arms being so shaped and arranged as to oppose two or more of said respective recovery members such that a portion of said apparatus in the region of the pivot is adapted to move downwardly under the influence of gravity thereby causing said opposed recovery members to tend to come together in a caliper-like action, the improvement comprising providing for each of at least two of said floatable members a pivotal connection to one of said arms such that said at least two of said floatable members are pivotable floatable members which are pivotable in an upward direction about said pivotal connections in a substantially vertical plane to a maximum elevation when the angle between said longitudinal axis and the horizontal in said vertical plane is less than 90° said pivotable floatable members being so arranged about said apparatus as to stabilise said apparatus when they are elevated against rolling thereof, a floatable member locking means being provided to hold each of said pivotable floatable members at least in the horizontal and said maximum elevated positions.

4,276,847

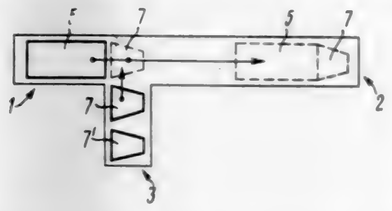
METHOD FOR ASSEMBLING HULLS OF VESSELS

Jury P. Ivanov, Grazhdansky prospekt, 92/2, kv. 1, Leningrad, U.S.S.R.

Filed Jun. 27, 1978, Ser. No. 919,510

Int. Cl.³ B63B *3/00, 5/00, 9/06*

U.S. Cl. 114—65 R **18 Claims**



1. A method for assembling hulls of vessels intended to carry bulk, liquid and gas cargo and comprising an aft end, a parallel middlebody and a fore end, the method being carried out on a building berth comprising a main site composed of a rear area and a front area and including at least one adjacent transverse lateral area, said method comprising:

assembling a first part of said parallel middlebody, adjacent to said aft end, in the rear area of said main site;

assembling said aft end in said lateral area;

transferring said assembled aft end to the front area of said main site;

transferring said assembled part of the parallel middlebody adjacent to said aft end to the front area of said main site;

assembling a second part of said parallel middlebody, adjacent to said fore end, in the front area of said main site;

assembling said fore end in said lateral area;

transferring said assembled fore end to the front area of said main site;

joining together said assembled aft end, said assembled part of the parallel middlebody adjacent to the aft end, said assembled part of the parallel middlebody adjacent to the fore end, and said assembled fore end to form a completed hull; and launching the completed hull.

4,276,848

DEVICE FOR CONNECTING A SAILMAST TO A SAILBOARD

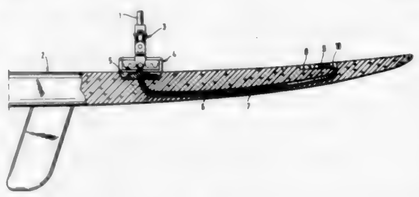
Hannes Marker, Hauptstrasse 51-53, 81 Garmisch-Partenkirchen, Fed. Rep. of Germany

Filed Nov. 15, 1978, Ser. No. 961,050

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1977, 2751246

Int. Cl.³ B63B *15/02*

U.S. Cl. 114—91 **3 Claims**



1. A device for connecting a sailmast to a sailboard, comprising a mast-connecting universal joint, which is connected at one end of the mast and which is connected at its other end to a supporting member, the supporting member when the device is in position for use being received at least in part by a first recess in the upper surface of the sailboard so as to be positively connected thereto, spring biasing means for constantly biasing the supporting member into contact with the sailboard so that the positive connection can be eliminated only when the force of the spring biasing means is overcome, the force when overcome tending to reestablish the positive connection between the supporting member and the sailboard, said sailboard having a second recess in its upper surface spaced from said first recess and a duct extending in the longitudinal direction of the sailboard interconnecting said recesses, said spring biasing means comprising a rubber spring positioned in said duct and having one end connected to said supporting member, a spring tightener adjustable in the longitudinal direction of the sailboard positioned in said second recess, and a flexible connecting element interconnecting said spring tightener with the other end of said rubber spring so that the force of said spring biasing means is adjusted by said spring tightener.

4,276,849

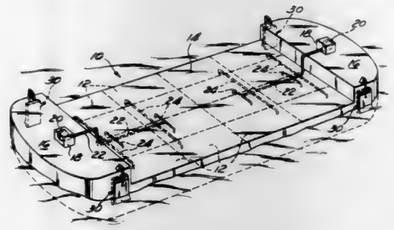
BALLAST CONTROL SYSTEM FOR SUBMERSIBLE VESSEL

Roger W. Bloxham, P.O. Box 304, Trabuco Canyon, Calif. 92678

Continuation-in-part of Ser. No. 933,591, Aug. 14, 1978, which is a continuation-in-part of Ser. No. 889,454, Mar. 23, 1978, abandoned, which is a continuation-in-part of Ser. No. 847,341, Oct. 31, 1977, abandoned. This application Oct. 5, 1979, Ser. No. 82,231

Int. Cl.³ B63B *43/06*

U.S. Cl. 114—125 **18 Claims**



1. In a submersible vessel, of the type having a hull and plural ballast compartments therein, and means for filling said compartments with water and evacuating water from said compartments by the application of predetermined negative and positive air pressure, respectively, the improvement comprising:

first means for conducting water from said ballast compartments to the exterior of said vessel through an outlet in response to said positive air pressure; and

second means for maintaining said outlet at a constant height above the level of water in said ballast compartments as said ballast compartments are evacuated, so that said predetermined positive air pressure can be held constant at a value sufficient to lift water to a height equal to or slightly greater than said constant height.

4,276,850

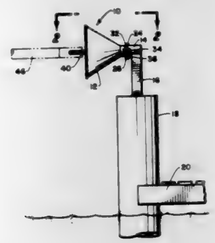
APPARATUS TO AID IN THE DOCKING AND MOORING OF A BOAT

C. Estaban Valencia, 495 Mariposa Dr., Ventura, Calif. 93003

Continuation-in-part of Ser. No. 916,267, Jun. 16, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 89,283

Int. Cl.³ B63B *21/00*

U.S. Cl. 114—230 **2 Claims**



1. An apparatus to aid in the docking and mooring of a boat comprising:

a housing adapted to be secured to a fixed structure such as a piling, pier or the like;

an opening formed within said housing, said opening having an open front end;

guiding means connected to said housing and located about said opening, said guiding means adapted to direct a free end of an elongated member into said opening when such is moved in close proximity to said opening, said guiding means having an enlarged open outer end, said guiding means being in the shape of a funnel;

a latching means mounted on said housing connecting with said opening, said latching means being movable in respect to said opening between a latched position and an unlatched position, said latched position being when said latching means extends into said opening and said unlatched position being when said latching means is displaced from said opening, said latching means when at rest being normally located in said latched position, said latching means being continuously spring biased to said latched position;

actuation means to manually move said latching means from said latched position to said unlatched position;

an elongated member the free end of which is to be locatable within said opening, said free end being rigid, said latching means to connect with said free end of said elongated member in said latching position and secure said elongated member to said housing, said free end of said elongated member to be disconnectable from said housing, said elongated member being disconnected from said boat and adapted to be hand held by an occupant of said boat; and

said elongated member having an enlarged abutment means adjacent said free end, a lanyard means being attached to said abutment means and extending rearwardly therefrom, a tubular member having an end thereof engaging said abutment means and having an internal chamber, said lanyard means to be located within said internal chamber and to contact said abutment means, the cross-sectional area of said lanyard means being substantially smaller than the cross-sectional area of said internal chamber, said lanyard means to extend entirely through said tubular member, said tubular member to be readily disengaged from said abutment means and said lanyard means to be removed from said internal chamber of said tubular member with said tubular member to be then put aside and said lanyard means used by a boat occupant to move the boat to the mooring position.

4,276,851

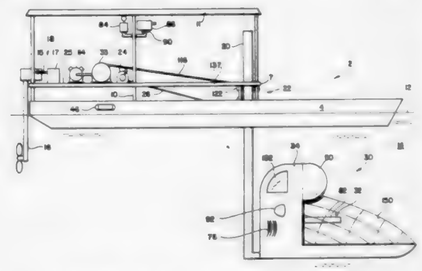
UNDERWATER CRUISE DEVICE

Jess A. Coleman, Rte. 1, Box 29, Dunnellon, Fla. 32630

Filed Aug. 10, 1979, Ser. No. 65,648

Int. Cl.³ B63G *8/00;* **B63B** *1/00*

U.S. Cl. 114—313 **38 Claims**



1. In an underwater cruise device including, a vessel floating on the surface of a body of water, a vertical boom slidably mounted to said vessel, a boom driving means connected between said vessel and said boom for selectively extending said boom vertically into said water, and a chair means mounted to said vertical boom for selective submersion of a diver seated thereon, in response to the operation of control means mounted to said chair means and operatively connected to said boom driving means, the improvement comprising:

a concave canopy mounted to said chair means having a

closed upper portion for containing a breathable gas ambient and an open lower portion for admitting the head of said seated diver;

whereby said diver can breathe said breathable gas ambient while seated in said submerged chair.

4,276,852

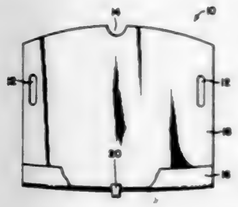
PAINTING AND MISTING SHIELD

Daisy E. Adams, 1415 E. Bethany Home Rd., #18, Phoenix, Ariz. 85014

Filed Aug. 3, 1979, Ser. No. 63,540

Int. Cl.³ B05C *15/00*

U.S. Cl. 118—326 **3 Claims**



1. A freely portable shield for capturing a sprayed liquid, comprising:

a portable upright spray catching member;

trough means connected to the bottom of said spray catching member for holding sprayed unused liquid; and

said upright spray catching member having a continuous uninterrupted concave curved surface located above said trough means.

4,276,853

EXPERIMENTAL PLANT FOR THE COATING AND DRYING OF MATERIAL IN THE FORM OF WEBS

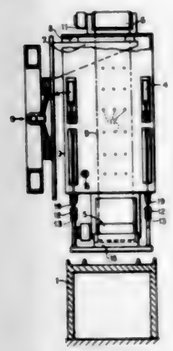
Hans Gref; Hans Hofmann, both of Cologne; Werner Zander, Leverkusen, and Josef Busch, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Jan. 15, 1979, Ser. No. 3,701

Claims priority, application Fed. Rep. of Germany, Jan. 19, 1978, 2802184

Int. Cl.³ B05C *3/172*

U.S. Cl. 118—643 **11 Claims**



1. An experimental plant for the of single or multiple coating of webs of paper or foil with viscous liquids, followed by drying, and subjected to vibration of machine and workroom, comprising at least one casting device for applying the liquid coating and a nozzle air drier with inertia free adjustability of the temperature and humidity parameters of the drying air, the experimental plant further comprising an elongated support means with guide elements for movably carrying an endless loop of web thereon past a said casting device, movable bracket means on the support means for disposing the support means and endless loop of web over one or more of said casting devices, means for individually moving a casting device into an operative position adjacent the endless loop for coating in a predetermined time sequence, detachable coupling means included in the support means for engaging a portion of the loop of the web which is to be coated to a casting device during the coating process, isolation means between the movable bracket means and the elongated support means for causing the casting device to be free from vibrations of the machine and workroom; and further characterized in that the nozzle drier is disposed about the loop of web, the nozzle drier is a channel having a removable nozzle channel portion for disposition about a portion of the loop immediately after it has been coated, and clamping means between the nozzle channel and the removable nozzle channel portion for clamping the removable nozzle channel portion into position as part of the nozzle channel in the place of a casting device so that the loop of web is completely covered by an air blast.

4,276,854

APPARATUS FOR DETECTING TONER DENSITY

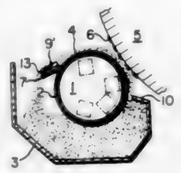
Hisao Fujita; Yasuhiko Tanaka; Isao Kobayashi, and Ken Nakamura, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,809

Claims priority, application Japan, Nov. 15, 1978, 53/156048[U]

Int. Cl.³ B05C *11/00*; G03G *15/09*

U.S. Cl. 118—689 **4 Claims**



1. In an improved apparatus for detecting the density of toner in a developer for an electrostatic recording apparatus which includes an operatively movable surface for carrying developer onto an electrostatic latent image bearing member during image development, and a scraper element having at least a flat surface, disposed in contact with the movable surface for scraping developer therefrom and for directing along the flat surface of the scraper element a substantially steady and uniform stream of the developer scraped from the movable surface, the improvement comprising:

a substantially flat detection coil assembly having oppositely-directed faces; and

means for mounting said coil assembly on and in spaced apart relation to the flat surface of the scraper element and adjacent the movable surface such that said oppositely-directed faces are arranged substantially parallel to the flat surface and to the stream of scraped developer and such that the stream of developer is passed along both said coil assembly faces directly after being scraped from the movable surface whereby the toner density detection sensitivity of said coil assembly is significantly enhanced.

4,276,855

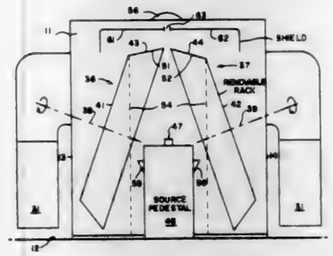
COATING APPARATUS

Richard I. Seddon, Santa Rosa, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed May 2, 1979, Ser. No. 35,396

Int. Cl.³ C23C *13/08*

U.S. Cl. 118—719 **10 Claims**



1. In a coating apparatus, a housing, means for establishing a vacuum in the housing, a source of coating material mounted in the housing for providing a vapor stream having approximately a cosine distribution, at least one rotor mounted in the housing for rotation about an axis which is offset from the horizontal by less than 45°, said rotor extending above and below the source and having a generally circular rack, said rack having interior substrates carrying surfaces facing the axis of rotation and overlying the vapor sources at least part of the time that the rotor is rotated, said rack having a dimension parallel to the axis of rotation which is such so that an imaginary line extending vertically from the innermost extremity of the rack at the top portion thereof clears the outer extremity of the bottom portion of the rack whereby debris falling downwardly by force of gravity from the top portion of the rack will clear the lower portion of the rack.

4,276,856

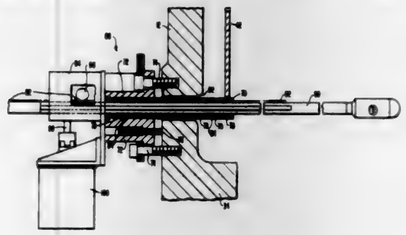
STEAM GENERATOR SLUDGE LANCING METHOD

Thomas H. Dent, Greensburg; Diane E. Jordan, Irwin; William E. King, McCandless Twp., Allegheny County, and Frank W. Rieger, Penn Hills, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 28, 1978, Ser. No. 974,177

Int. Cl.³ F22B *37/52, 37/54*

U.S. Cl. 122—382 **9 Claims**



1. A method for removing sludge deposits from a steam generator comprising the steps of:

inserting fluid injection apparatus into said steam generator near the base thereof;

placing fluid suction apparatus in said steam generator in a position substantially opposite said fluid injection apparatus;

positioning a movable fluid lance in said steam generator near said base;

supplying a first fluid to said fluid injection apparatus at between approximately 35 to 45 gpm and establishing a peripheral fluid stream from said fluid injection apparatus to said fluid suction apparatus;

supplying a second fluid to said fluid lance and causing said fluid lance to emit pulses of fluid with each pulse being approximately 14–16 gpm and having a pulse length of approximately 3–7 seconds and simultaneously discharging the same along said base dislodging said sludge deposit while forming a sludge-fluid mixture that becomes entrained in said peripheral fluid stream;

moving said fluid lance in a linear direction along said base; and

discharging said mixture into said fluid suction apparatus.

4,276,857

BOILER CONTROL SYSTEMS

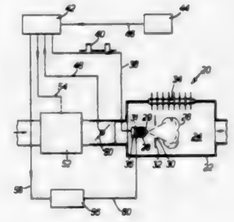
Barrie J. Martin, Sheenfield, England, assignor to Plessey Handel und Investments AG, Zug, Switzerland

Filed Jun. 19, 1979, Ser. No. 50,056

Claims priority, application United Kingdom, Jun. 20, 1978, 27341/78

Int. Cl.³ F22B *37/42*

U.S. Cl. 122—448 R **9 Claims**



1. An oil-burner system for heating a boiler, comprising a combustion chamber, a burner, constituted by an electrically operated injection device, for injecting fuel oil into the combustion chamber, and electric-circuit means establishing, when connected to an electric-power supply, a circuit for energising the injecting device; said circuit means including switching means operative to periodically close and open such circuit for periodic energisation of the injecting device at a frequency high enough to ensure the maintenance of a steady flame in the combustion chamber, and control means co-operating with said switching means to adjustably vary the ON/OFF ratio of the periodic energisation.

4,276,858

TWO-CYCLE INTERNAL COMBUSTION ENGINE

Christian Jaulmes, Paris, France, assignor to Ateliers de la Motobecane, Pantin, France

Filed Feb. 1, 1980, Ser. No. 117,557

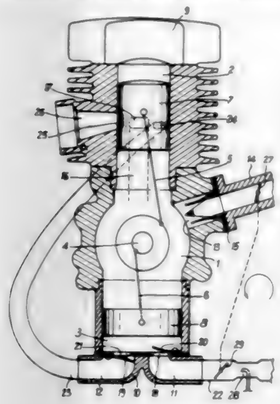
Claims priority, application France, Feb. 26, 1979, 79 04842

Int. Cl.³ F02B *33/04*

U.S. Cl. 123—73 CC **9 Claims**

1. A two cycle internal combustion engine comprising at least one power cylinder; a drive piston in said power cylinder; at least one auxiliary cylinder; at least one first transfer duct extending between said auxiliary cylinder and said power cylinder; at least one second transfer duct extending between said pump crankcase and said power cylinder; means for intaking carburetted air into said auxiliary cylinder; means for intaking pure air into said pump crankcase; an exhaust port from said power cylinder; a scavenging intake port opening into said power cylinder; and a carburetted air intake port opening into

said power cylinder, said exhaust port, said scavenging port and said carburetted air inlet port being so positioned that said



scavenging port starts to open after said exhaust port and before said carburetted air intake port.

4,276,859

PRESSURE LUBRICATION FOR INTERNAL COMBUSTION ENGINES

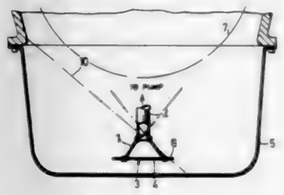
Kurt Streicher, Heppenheim, and Achim zur Nieden, Cologne, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Division of Ser. No. 685,752, May 13, 1976. This application Claims priority, application Germany, May 22, 1975, 2522605

Jan. 16, 1980, Ser. No. 112,648

Int. Cl.³ F01M *1/00*

U.S. Cl. 123—196 R **2 Claims**



1. A pressure lubricating system for an internal combustion engine, which includes in combination: an oil pan for receiving and storing lubricating oil, a suction conduit connectable to a pump and extending into said oil pan in the central longitudinal plane of said engine and having an inlet opening at its lower end immersed into lubricating oil below the normal level of oil in said oil pan, said suction conduit for air-free suction including a slim funnel-shaped intake with its largest inside cross section amounting to only about five times that of the cross section of the suction conduit portion adjacent said funnel-shaped intake for a cross-sectional surface ratio of 1:5, said funnel-shaped intake having an inlet opening defined by an annular outer surface with a perimeter terminating in an enlarged end thereof, and a flat, disc-shaped member extending only outwardly beyond the perimeter of the outer surface of said funnel-shaped intake and having a flow stabilizing effect to assure that fewer air bubbles are taken along as well as for avoiding of air suctioning during low oil level and inclined positioning of said funnel-shaped intake to attain air-bubble-free flow, said funnel-shaped intake having an acute flat conical angle smaller than 90° for span of said disc-shaped member, the inner diameter of said disc-shaped member at least approximately equalling the greatest inner diameter of said funnel-shaped intake.

4,276,860

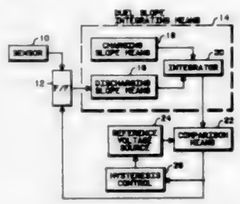
APPARATUS FOR THE GENERATION OF MONOSTABLE PULSES HAVING PREDETERMINED DURATIONS INDEPENDENT OF INPUT SIGNAL PERIOD

Zbynek A. Capurka, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 1, 1979, Ser. No. 90,209

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—415 **10 Claims**



1. An apparatus for generating selectable duration periodic pulses comprising:

sensor means producing periodic sensor signals having a variable period;

bi-stable flip-flop means, coupled to said input sensor means, said flip-flop means capable of producing a first and second logic state signals and producing said first logic state signal in response to each periodic sensor signal;

dual slope rate means, coupled to said bi-stable flip-flop means, producing a time varying signal at a first predetermined rate in one direction in response to said first logic state signal and at a second predetermined rate in the opposite direction in response to said second logic state signal;

reference source means providing a first predetermined reference voltage level;

comparator means, coupled to said dual slope rate means and said reference source means, comparing the magnitude of said time varying signal to said first predetermined reference voltage level and producing an output pulse when the magnitude of said time varying signal equals said first reference voltage level;

means for coupling said output pulse to said bi-stable means, said bi-stable means producing said second logic state signal in response to the initiation of said output pulse and maintaining said second logic state signal until a subsequent sensor signal is received, whereby said first and second logic state signals have durations equal to a predetermined percentages of the variable period of said periodic sensor signals; and

hysteresis means, responsive to said comparator means and coupled to said reference source means, for adjusting the magnitude of the reference voltage level to a second predetermined voltage level, whereby the duration of the output pulses produced by said comparator is selectable and independent of the period of the sensor signal.

4,276,861

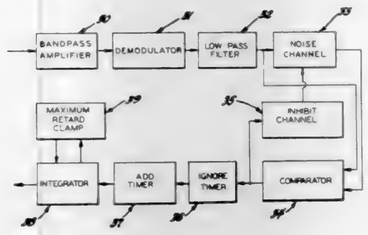
ENGINE KNOCK CONTROL WITH KNOCK PULSE DURATION ADJUSTMENT

Mark B. Kearney; Kenneth D. Mowery, both of Kokomo, and L. Joseph Peckous, Carmel, all of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed May 14, 1980, Ser. No. 149,644

Int. Cl.³ F02P *5/04*; F02B *33/00*

U.S. Cl. 123—425 **6 Claims**



1. In combination:

a vehicle mounted, spark ignited internal combustion engine of the type which occasionally exhibits bursts of knock induced engine vibrations, the knock induced vibration bursts being of varying intensity and being characterized by durations varying directly with said intensity;

first means effective to sense the knock induced vibration bursts and generate pulses having durations varying directly with the durations of the bursts;

second means effective to lengthen selected ones of the pulses by a common predetermined duration, whereby the ratio of durations between the shorter pulses indicating less intense knock and the longer pulses indicating more intense knock is decreased; and

third means effective, at least at some times, to control a knock reducing parameter of said engine in response to the lengthened pulses to limit knock intensity, whereby the reduced ratio of duration between shorter and longer pulses provides more effective control of both less and more intense knock.

4,276,862

INTERNAL COMBUSTION ENGINE OF FUEL INJECTION TYPE

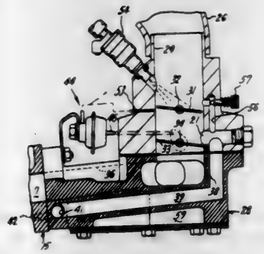
Hiromitsu Matsumoto, Hamamatsu, Japan, assignor to Yamaha Hatsukoki Kabushiki Kaisha, Iwata, Japan

Filed Jul. 17, 1979, Ser. No. 58,253

Claims priority, application Japan, Jul. 17, 1978, 53-87398

Int. Cl.³ F02B *29/00*; F02D *9/08*; F02M *51/02*

U.S. Cl. 123—432 **22 Claims**



1. In an internal combustion engine having a variable volume chamber in which combustion ocurs, a main intake port, a main intake passage communicating with said chamber through said main intake port for delivering a charge thereto, an auxiliary intake port, an auxiliary intake passage inlet, and an auxiliary intake passage communicating said auxiliary intake passage inlet with said chamber through said auxiliary intake port, said auxiliary intake passage having an effective cross sectional area substantially less than the effective cross sectional area of said main intake passage for causing a given mass flow of charge through the said auxiliary intake port to enter said chamber at a substantially greater velocity, and valve means for controlling the ratio of communication of said ports with said chamber during a given cycle of operation of said engine, said auxiliary passage inlet being in communication with said main intake passage, the improvement comprising a fuel injection nozzle discharging into said main intake passage and means for directing the outlet spray from said fuel injection nozzle in a direction where the major portion of the spray therefrom is directed toward said auxiliary intake passage inlet.

4,276,863

APPARATUS FOR CONTROLLING THE NUMBER OF ENABLED CYLINDERS OF AN INTERNAL COMBUSTION ENGINE UPON DECELERATION

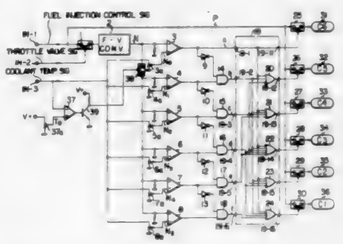
Fukashi Sugasawa, Yokohama; Haruhiko Iizuka, and Junichiro Matsumoto, both of Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Apr. 30, 1979, Ser. No. 34,285

Claims priority, application Japan, May 12, 1978, 53-56892

Int. Cl.³ F02D *17/00*

U.S. Cl. 123—481 **20 Claims**



1. Apparatus for controlling the number of enabled cylinders of an internal combustion engine having a plurality of cylinders during deceleration, comprising:

(a) first means for producing a first signal indicative of the rotational speed of a crankshaft of said engine;

(b) second means for producing a second signal indicative of deceleration of said engine;

(c) a plurality of threshold detecting circuits having respective inputs and outputs, said inputs being connected to said first means for producing respective output signals responsive to said first signal at each of said outputs, the thresholds of said detecting circuits being arranged stepwise;

(d) a plurality of switching means responsive to the output signals of said threshold detecting circuits for stepwise increasing the number of enabled cylinders as said engine decelerates;

(e) third means responsive to said second signal for enabling the stepwise increase upon deceleration of said engine; and

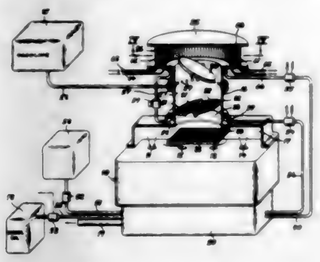
(f) means for varying the thresholds of said threshold detecting circuits in accordance with the engine temperature.

4,276,864

FUEL-VAPORIZING SYSTEM FOR INTERNAL-COMBUSTION ENGINE AND METHOD OF OPERATING SAME

Gerhard Waschkuttis, 19800 NE. 14th Ave., North Miami Beach, Fla. 33179

Filed Feb. 9, 1979, Ser. No. 10,993
Int. Cl.³ F02M 31/00
U.S. Cl. 123—544 21 Claims



1. In an internal-combustion engine comprising a set of combustion cylinders provided with an intake manifold for the aspiration of an air/fuel mixture and an exhaust manifold for the discharge of hot combustion gases, a carburetor forming a mixing chamber which opens into an entrance of said intake manifold, a throttle valve in said carburetor separating said mixing chamber from said entrance, and storage means for holding a supply of liquid fuel to be aspirated in vaporized form into said mixing chamber for admixture with an air stream drawn into said intake manifold,

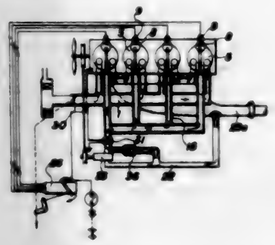
the improvement wherein said storage means comprises a main fuel tank to be filled with a relatively light hydrocarbon and an ancillary fuel tank to be filled with a relatively heavy hydrocarbon, said main fuel tank being provided with first conduit means opening into said mixing chamber upstream of said entrance, said ancillary fuel tank being provided with second conduit means opening at a location downstream of said throttle valve into a space of said carburetor separating said mixing chamber from said entrance, said second conduit means including a boiling chamber positioned in heat-exchanging relationship with the combustion gases passing through said exhaust manifold.

4,276,865

DIESEL ENGINE HAVING A SUBCHAMBER

Kyugo Hamai, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 15, 1979, Ser. No. 48,784
Claims priority, application Japan, Jun. 22, 1978, 53/75578
Int. Cl.³ F02B 47/08
U.S. Cl. 123—569 5 Claims



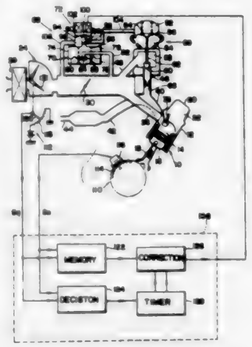
1. A Diesel engine having a subchamber in its cylinder head, comprising an exhaust gas recirculating passageway connecting an exhaust system of the engine to said subchamber for recirculating an exhaust gas of the engine, valve means operating in synchronism with rotation of said engine to open and to close said recirculating gas passageway, wherein the exhaust gas recirculating passageway is interposed with a pump driven in synchronism with the engine rotation, and controlling means for adjusting an amount of said recirculating exhaust gas in response to respective load conditions of the engine, wherein the exhaust gas recirculation is effected during a term starting from suction stroke of the engine to a beginning period of compression stroke of the engine.

4,276,866

COMPUTER-CONTROLLED EXHAUST GAS RECIRCULATION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Kazuhiro Higashiyama, Atsugi, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Nov. 26, 1979, Ser. No. 97,386
Claims priority, application Japan, Dec. 6, 1978, 53-151443
Int. Cl.³ F02B 47/08; F02M 25/06
U.S. Cl. 123—571 11 Claims



1. In an internal combustion engine having an air-fuel mixture supply system, an exhaust system and an exhaust gas recirculation system including exhaust gas recirculation passageway means for providing communication between the exhaust system and the mixture supply system, and valve means operative to vary the recirculation rate of exhaust gases through said passageway means depending upon a signal supplied to the valve means, the improvement comprising detecting means for detecting prescribed operational parameters of the engine and producing signals representative of the detected operational parameters, and control means comprising

a decision circuit responsive to said signals for producing either of signals respectively representative of at least two predetermined load conditions of the engine,

a timer circuit responsive to predetermined one of the signals from the decision circuit for producing an output signal for a period of time related to the time duration of said predetermined one of the signals from the decision circuit, and

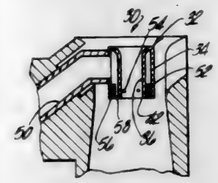
control signal delivery means responsive to the signals from said detecting means and the signal from said timer circuit for supplying to said valve means a control signal dictated by the signals from the detecting means and corrected by the signal from the timer circuit.

4,276,867

FUEL ATOMIZING DEVICE

Dieter W. Metzenthin, 5916 Wayburn, Detroit, Mich. 48224

Filed Mar. 19, 1979, Ser. No. 21,992
Int. Cl.³ F02M 29/00
U.S. Cl. 123—590 6 Claims



1. For use with a carburetor having an air induction tube and a source of fuel, a fuel atomizing device comprising:

a tubular body having an inner tubular part and an outer tubular part, said inner part being coaxial with but spaced inwardly from said outer part and forming a tubular chamber therebetween the inner periphery of said inner part forming a through bore which extends entirely through said body,

said chamber being closed at one end of the body; said inner and outer parts being spaced apart from each other at the other end of the body thus forming a slot therebetween, said slot being open to the tubular chamber;

said body being coaxially disposed within the air induction tube so that said one end of the body faces upstream and so that said slot faces downstream in said induction tube whereby air flow through the induction tube flows both around the outer periphery of the tubular body and through said body through bore and around both the inner and outer sides of said slot; and

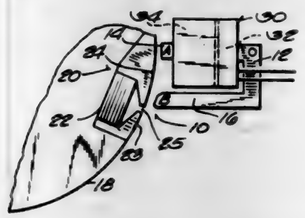
means for fluidly connecting said chamber within said fuel source.

4,276,868

CAPACITOR DISCHARGE IGNITION SYSTEM HAVING AUTOMATIC SPARK ADVANCE

Thomas W. Burrows, West Allis, and David T. Cavil, Menomonee Falls, both of Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Nov. 1, 1978, Ser. No. 956,658
Int. Cl.³ F02D 3/06
U.S. Cl. 123—602 11 Claims



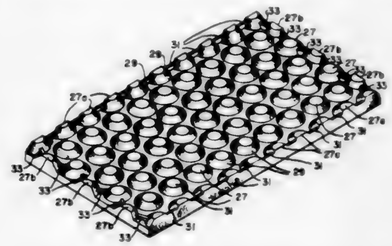
1. A capacitor discharge ignition system comprising a generally U-shaped magnetic core having a pair of legs spaced apart at a first distance, a rotatable member including magnet means having first and second pole shoes spaced apart and located for movement past said spaced legs, said second pole shoe having a length greater than said first distance and trailing said first pole shoe relative to a normal direction of rotation of said rotatable member, and ignition circuit means including a charge capacitor, switch means for selectively discharging said capacitor to effect ignition, and coil means wound on the one of said magnetic core legs which is first approached by said magnet means during normal rotation of said rotatable member and responsive to each passage of said magnet means past said core for sequentially charging said charge capacitor and operating said switch means to discharge said capacitor to effect ignition so as to provide a single discrete advance in the time of ignition distinct from gradual advance in the time of ignition resulting from increased rotational speed of said rotatable member, said single discrete advance occurring in response to increased rotational speed of said rotatable member above a predetermined lower speed.

4,276,869

BARBECUE GRILL SLAB

Eugene F. Kern, 12115 Lake Meade Ct., Creve Coeur, Mo. 63141

Filed Apr. 16, 1979, Ser. No. 30,532
Int. Cl.³ A47J 37/00; F24C 3/04
U.S. Cl. 126—41 R 7 Claims



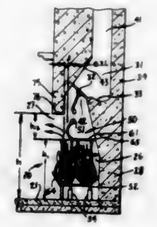
1. A molded refractory slab for positioning in a barbecue grill between the burner unit and the food-supporting grate having fluid retaining means for containing grease and rendered meat juices on the slab and preventing such fluids from dripping off the slab, said fluid retaining means including a plurality of uniformly spaced bosses simulating coals projecting upwardly from the slab top surface, and integral dam means connecting adjacent bosses nearest the periphery of the slab to form an upstanding continuous peripheral parapet around the slab periphery to contain grease and rendered meat juices on top of the slab and prevent such fluids from dripping off the sides of the slab.

4,276,870

FIREPLACE DEVICE

Charles B. Heard, Jr., 569 Brandy Creek Cir., Lawrenceville, Ga. 30245

Filed Feb. 26, 1980, Ser. No. 124,815
Int. Cl.³ F24C 15/22
U.S. Cl. 126—141 2 Claims



1. A device which is adapted to be supported from a hearth of a fireplace to heat a room into which the fireplace faces, the fireplace including a firebox having a rear wall, side walls, and a flue that is connected through a damper to the firebox, said device comprising:

a heat energy conductor adapted to be interposed between a hearth and a damper and extending longitudinally in a direction between side walls of the fireplace for causing air heated by an energy source to be directed toward the room and for causing substantial heat energy to be radiated therefrom, said conductor including:

an elongated planar portion adapted to assume a substantially horizontal position in a firebox, said planar portion having one longitudinal edge adapted to be adjacent to a rear wall of the firebox and another longitudinal edge between the rear wall and the room into which the fireplace faces, said planar portion having lateral edge surfaces extending between said longitudinal edges and being spaced from side walls of the fireplace; and

a convexly curved portion having one longitudinal edge connected to the other longitudinal edge of said planar portion and another longitudinal edge unattached with its center of curvature being between it and the rear wall, said curved portion adapted to be positioned a selected distance from an upper depending wall of the fireplace to provide a continual opening between it and the upper depending wall which cooperates with the damper above the firebox to control the air currents from the room to the flue; and

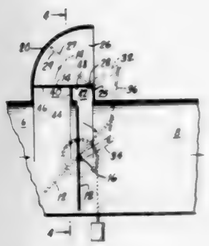
a plurality of supporting legs for holding said heat conductor a distance above the hearth to space said curved portion a selected distance from the upper depending wall, said supporting legs each being capable of being moved in a vertical direction to move said heat conductor upwardly or downwardly to space said curved portion the selected distance, said legs being distributed generally adjacent to a perimeter of said planar portion to permit said legs to have an energy source disposed therebetween.

4,276,871

FLUE DAMPER AND DRAFT REGULATOR

Herbert Lindtveit, West Hempstead, N.Y., assignor to Sid Harvey, Inc., Valley Stream, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,057
Int. Cl.³ F23L *3/00*
U.S. Cl. 126—292 **7 Claims**



1. A draft regulator for a furnace, comprising:

(a) a smoke pipe;

(b) a damper in the smoke pipe operable between open and closed positions;

(c) a shaft supporting the damper in the smoke pipe;

(d) a casing in fluid communication with said smoke pipe;

(e) a movable vane within said casing, said vane having an outer face and an inner face, the outer face being subject to atmospheric pressure outside the smoke pipe, the inner face being subject to the pressure inside the smoke pipe;

(f) means supporting the vane for movement within the casing;

(g) a partition separating a portion of the casing into an upstream duct communicating with the smoke pipe upstream from the damper and a downstream duct communicating with the smoke pipe downstream from the damper, said partition serving as an abutment to engage the vane when the damper is in the closed position, so that a portion of the inner face of the vane is then subject to the upstream pressure and another portion is subject to the downstream pressure; and

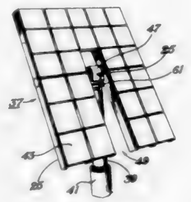
(h) means connecting the vane to the damper for concurrent movement, said vane acting in a direction to close the damper when the atmospheric pressure exceeds the pressure inside the smoke pipe.

4,276,872

SOLAR SYSTEM EMPLOYING GROUND LEVEL HELIOSTATS AND SOLAR COLLECTORS

Floyd A. Blake, Littleton, Colo., and Lynn L. Northrup, Jr., Hutchins, Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Nov. 13, 1978, Ser. No. 960,307
Int. Cl.³ F24J *3/02*; G01J *1/20*; G03B *21/00*
U.S. Cl. 126—425 **5 Claims**



1. In a combination employing solar energy, disposed on the surface and exposed to the sun and having:

a. at least one energy receiving collector for receiving and using radiant energy from the sun; and

b. at least one reflector means for reflecting said radiant energy from the sun on said collectors:

the improvement comprising:

c. having said at least one energy receiving collector comprise a plurality of towerless collectors that are disposed at substantially the same level as respective said reflector means that reflect onto it;

d. having respective said reflector means comprise a plurality of towerless heliostats that are disposed at substantially the same level as the respective said collector onto which they reflect said radiant energy; said heliostats being moveable to maximize their radiant energy reflected onto said collector; each said heliostat being configured so as to avoid interference with a co-mounted sensor;

e. a means for moving said heliostat to maximize said radiant energy reflected onto the collector and through arcs that will not interfere with a co-mounted sensor;

f. a dual purpose support structure carrying said heliostat and a sensor; said support structure being firmly anchored in the surface; and

g. a sensor controllably connected with said means for moving said heliostat for maintaining the maximum radiant energy reflected onto said collector; said sensor being mounted on said support structure and aligned with a straight line from said heliostat to said collector such that said sensor does not require an expensive, firmly anchored separate support structure to prevent receiving small surface movements different from those received by said heliostat;

said heliostat having a central reflector; said sensor being cantilevered from said support structure below said central reflector and aligned between the center of said central reflector and said collector; said heliostat having a slot below said central reflector so as to be pivotal through an arc without hitting said support structure, said sensor and said cantilevered mountings; said heliostat being pivotally movable about a horizontal axis through said central reflector; said means moving said heliostat including an elevation drive means for pivoting said heliostat to a desired angle about said horizontal axis;

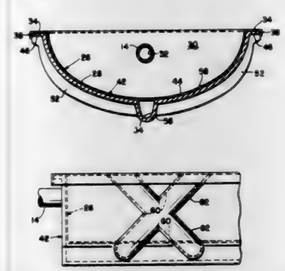
said heliostat being rotatable about a vertical axis through said central reflector and said means for moving said heliostat including a rotation means for rotating said heliostat through a limited arc about said vertical axis.

4,276,873

REFLECTORS FOR SOLAR ENERGY COLLECTORS

Miroslav Uroshevich, Cincinnati, Ohio, assignor to Alpha Solarco Inc., Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 52,090
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—438 **3 Claims**



1. In a focusing solar energy collector, a reflector assembly comprising:

an elongated, relatively thin, vacuum formed sheet defining a reflective surface having a uniform parabolic cross sectional configuration and integral end walls forming a trough like element for reflecting and focusing the beam component of solar radiation, said thin sheet having an integral perimeter flange and a perimeter wall extending at a right angle to said perimeter flange;

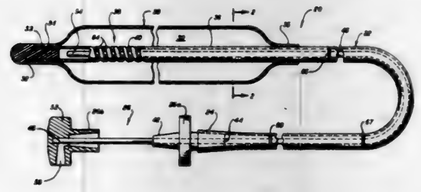
an elongated structural sheet conforming to and supporting the thin sheet, said structural sheet having integral end walls to form a trough like element into which said thin sheet is nestled and an integral perimeter flange abutting said perimeter flange of said thin sheet, said perimeter wall of said thin sheet being positioned to extend over said perimeter flange of said structural sheet, said structural sheet further having an integral depression extending away from said thin sheet to form an elongated central rib and a plurality of integral depressions extending away from the thin sheet to form raised elongated ribs connecting with said central rib and extending to said perimeter flange of said structural sheet for stiffening said structural sheet.

4,276,874

ELONGATABLE BALLOON CATHETER

Sidney Wolvek, Brooklyn, N.Y., and Bruce L. Hanson, Wayne, N.J., assignors to Datascope Corp., Paramus, N.J.

Filed Nov. 15, 1978, Ser. No. 960,789
Int. Cl.³ A61B *19/00*; A61M *25/00*
U.S. Cl. 128—1 D **18 Claims**



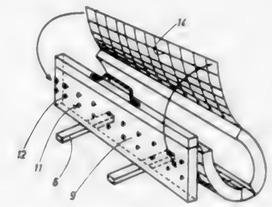
1. A catheter comprising an inflatable and deflatable chamber having a proximal end and a distal end, said chamber in use being adapted to have substantially the same surface area when inflated and when deflated, a catheter tube portion having a passage communicating with the interior of said chamber for admitting fluid into and withdrawing fluid from said chamber, means extending in said chamber substantially to said distal end of said chamber for supporting said chamber, said supporting means, said catheter tube portion, and said chamber being connected substantially at said proximal end of said chamber, said supporting means and said chamber being connected substantially at said distal end of said chamber, said chamber being sealed substantially at said proximal and distal ends thereof, said supporting means within said chamber having at least one space therein which at least partially extends transversely of said supporting means and means for selectively increasing said space substantially axially of said supporting means to thereby elongate said supporting means sufficiently to elongate said chamber and transversely decrease the size of said chamber, whereby insertion of said catheter into a body passageway or the like is substantially aided.

4,276,875

SPLINT FOR EXTREMITIES

Jan Sandegard, S-830 43 As, Prästgarden, Sweden

Filed Apr. 4, 1979, Ser. No. 27,094
Int. Cl.³ A61F *5/04*
U.S. Cl. 128—89 R **10 Claims**



1. A medical splint for application to at least one injured extremity for the support and fixation of the latter, comprising: a substantially rigid, elongated frame having upper and lower longitudinal edge portions, and a wrapping element having four pairwise opposite edge portions, a first of said edge portions being connected to said frame and extending substantially parallel to and adjacent said upper edge portion, a second edge portion opposite said first edge portion being adapted to be applied to said upper longitudinal edge portion and releasably attached to said frame, fastening means at said frame for attaching said second edge portion to said frame, said wrapping element being selectively movable from a first position to a second position, and vice versa, in said first position said wrapping element forming a spread-out surface with said second edge portion in unattached condition, on which surface the extremity may be placed, in said second position said wrapping element being wrapped around the extremity and forming a sling hanging down from said upper edge portion, with the frame positioned outside the sling.

4,276,876

RESPIRATOR APPARATUS

Taisto Hikkinen, Kaarlonkatu 25, 13210 Hämeenlinna 21, Finland

Filed Apr. 17, 1979, Ser. No. 30,843
Claims priority, application Finland, Apr. 18, 1978, 781170
Int. Cl.³ A61M *11/00*
U.S. Cl. 128—200.14 **8 Claims**

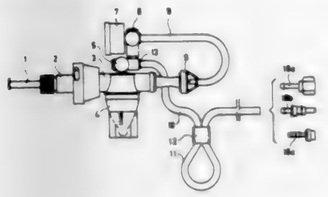
1. Modular respirator system apparatus for assisting in the respiration of a patient who, for example, is indisposed, unconscious or whose lungs are damaged or otherwise diseased, comprising:

a basic assembly comprising drug atomizing means having an outlet and atomizer control valve means attached to

said drug atomizing means for regulating a flow of oxygen or air into said drug atomizing means, said atomizer control valve means having an entrance connector fitting provided thereon for conducting air or oxygen into said control valve means, and a first flexible tubular connector having one end attached to said entrance connector fitting of said atomizer control valve means and the other end adapted to be connected to a pressure supply source;

valve means for controlling respiration pressure detachably connected to said atomizer control valve means of said modular system, said respiration pressure control valve means including pressure gauge means for monitoring the respiration pressure at which the respirator operates;

means for detachably connecting said respiration pressure control valve means to said atomizer control valve means so that the former can be selectively connected to or detached from the latter;



an injector member one end of which is detachably connected to said drug atomizing means of said modular system;

a second flexible tubular connector which, when said respiration pressure control valve means and injector member are connected to said atomizer control valve means and said drug atomizing means of said modular system, respectively, has one end fluidly coupled to said respiration pressure control valve means and its other end fluidly coupled to the other end of said injector member;

expiration valve means for steplessly adjusting the counter-pressure presented to the patient's expiration, said expiration valve means being fluidly detachably connectable between the outlet of said drug atomizing means and a mouthpiece; and

a mouthpiece having one end fluidly detachably connected to said expiration valve means.

4,276,877

RESPIRATORY METHOD AND APPARATUS

Manfred Gdulla, Lübeck, Fed. Rep. of Germany, assignor to Drägerwerk Aktiengesellschaft, Lübeck, Fed. Rep. of Germany

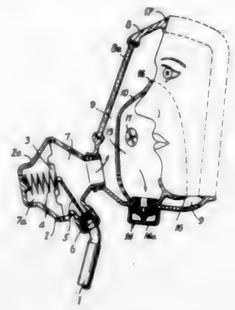
Filed Dec. 18, 1979, Ser. No. 104,881

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1979, 2908528

Int. Cl.³ A62B 7/04

U.S. Cl. 128—200.27 **6 Claims**

1. A breathing apparatus, comprising wall means forming a larger outer mask dimensioned to fit over the face of a user, and a smaller inner mask dimensioned to cover only the external respiratory organs of the user and to subdivide the space within the outer mask into an inner chamber adapted to communicate with the external respiratory organs, and an outer chamber about said inner chamber and adapted to be at superatmospheric pressure; control means operative for communicating said chambers with one another in response to suction created by inhaling so that the inhaled air from said inner chamber is replenished by air entering from said outer chamber and for interrupting such communication in response to pressure created in said inner chamber by exhaling; demand-valve means for admitting air into said outer chamber in response to a pressure drop in said outer chamber which results upon communication of said outer chamber with said inner chamber; and venting means for venting exhaled air from said inner chamber to the ambient atmosphere; said control means comprising at least one control valve in said wall means between said inner and outer chambers, including a valve member movable between an open and a closed position and means urging said valve member to said closed position with a force



exceeding substantially the force applied to said valve member by said super-atmospheric pressure present in said outer chamber, so that the user is required to exert only the normal inhaling pressure drop when breathing in for opening said control valve, said control valve closing immediately upon exhaling so that the user is required to overcome only the normal exhaling resistance of said venting means.

4,276,878

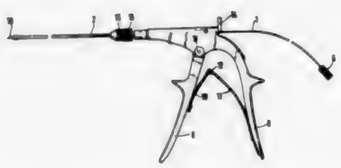
INJECTION SYRINGE

Karl Storz, Auf dem Schildrain 39, 7200 Tuttlingen, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 67,812

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 PA **14 Claims**



1. An injection syringe for injection of high viscosity pastes comprising: a frame; a pair of handles mounted to said frame, at least one of which is pivotally mounted to said frame, said handles comprising grip means which can be squeezed to move the handles toward one another; an elongated cylinder mounted to and projecting beyond said frame having a first end spaced from said frame to which an injection cannula can be mounted; a piston slidably fitted in said cylinder; a piston rod connected to said piston and extending from the other end of said cylinder, said piston having discontinuities along its length; piston advancing means connected to said grip means and adapted to engage said discontinuities to move said piston rod and piston toward said end when said grip means is squeezed, at least that portion of said cylinder which is adjacent to its first end being flexible, and at least that portion of said piston rod which occupies said portion of said cylinder when said piston is adjacent to said first end being flexible, the ratio of the length diameter and wall thickness of said portion of said cylinder being such that said cylinder with the rod inside it can be bent and still allow the advance of the piston rod and piston to eject paste from said cylinder through said cannula.

4,276,879

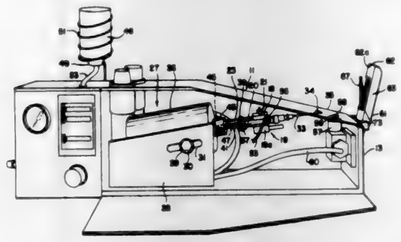
AUTOMATIC INJECTION APPARATUS

Costas Ylournas, Vineland, N.J., assignor to Vineland Laboratories, Inc., Vineland, N.J.

Filed Mar. 14, 1980, Ser. No. 130,406

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 A **3 Claims**



1. In an automatic apparatus for injecting fluids into animals, having:

a housing having a planar work surface;

a reservoir of fluid;

a hypodermic syringe supplied with fluid by said reservoir, the hypodermic needle of said syringe being positioned opposite an opening in said planar work surface, the axis of stroke of said hypodermic needle being at an acute angle with respect to said work surface;

syringe drive means for cyclically moving said syringe from a retracted to an extended position so as to reciprocate said needle through said opening, said drive means actuating said syringe while in said extended position;

switch means for cycling said syringe drive means, the actuating member of said switch means protruding through said work surface adjacent said opening; the improvement comprising:

a rigid retention plate hindedly joined at its bottom end to said work surface, said retention plate being pivotable about said hinged joint from a lowered position against said work surface, said retention plate having,

a planar bottom surface which conforms generally to said planar work surface when said retention plate is in said lowered position,

a cylindrically curved top surface for accepting the animal member to be injected,

side retaining walls extending upwardly from opposite sides of said planar bottom surface,

a spring member for biasing said retention plate away from said lowered position, and

an elongated aperture through said retention plate,

said retention plate being located on said sloped surface whereby said aperture is aligned with said opening to allow passage of said needle therethrough, and whereby lowering said retention plate to said lowered position causes said retention plate botton surface to operate said actuating member of said switch means.

4,276,880

CANNULA AND PROCESS

Oscar Malmin, 127 E. Wayne St., Akron, Ohio 44301

Continuation-in-part of Ser. No. 942,370, Sep. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 789,667, Apr. 21, 1977, abandoned, which is a continuation-in-part of Ser. No. 766,013, Feb. 7, 1977, abandoned. This application Dec. 14, 1979, Ser. No. 103,935

Int. Cl.³ A61M 5/00

U.S. Cl. 128—221 **14 Claims**

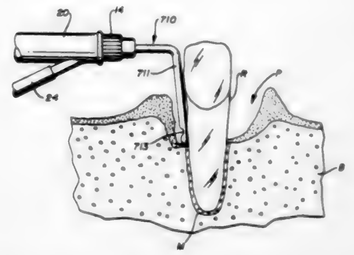
1. A cannula for attachment to and use with an instrument capable of selectively supplying fluid under pressure and a suction force, comprising:

(A) an elongate, cylindrical, rigid body having a central, longitudinally extending bore and having first and second ends;

(B) said central bore opening into said first end of said body;

(C) said second end of said body being closed smooth, and rounded;

(D) said body being imperforate throughout substantially its entire length;



(E) said body having only one elongate opening in its wall with one end thereof being disposed in close adjacency with said closed end; and

(F) attachment means carried by said first end for releasable engagement with said instrument.

4,276,881

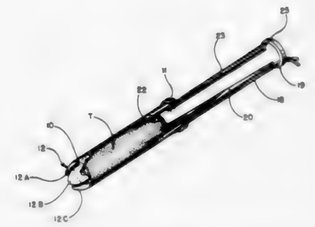
COMPACT TAMPON APPLICATOR

Amansey Lilaonitkul, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 22, 1979, Ser. No. 86,810

Int. Cl.³ A61F 15/00

U.S. Cl. 128—263 **9 Claims**



1. A tampon applicator comprising in combination:

an outer tube, having:

a forward end for delivery of a tampon;

a rearward end with an open base for receiving an inner tube;

an inner surface; and

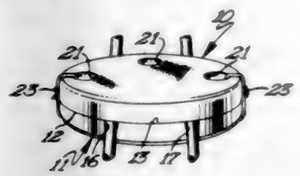
injection guide means on said inner surface tapering inwardly longitudinally toward said forward end of said outer tube from an area substantially at said base to a situs slightly above said base; and

an inner tube of substantially the same length of the outer tube and the tampon to be inserted by said applicator for slidable mating in said outer tube said inner tube having:

a forward end and a rearward end corresponding to the forward and rearward ends of the outer tube when mated; and

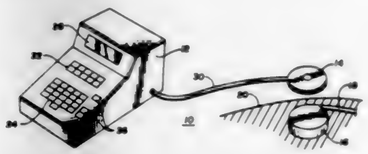
a radially compressible means at least at the forward end of said inner tube compressed by said injection guide means during withdrawal of the inner tube from the outer tube, comprising a pair of inwardly and downwardly tapering slots at either side of said flanges, said slots having stops located near the rearward edge of the inner tube.

4,276,882
LEAD ANCHORING DEVICE
Eugene A. Dickhudt, St. Paul, and Charles D. Ray, Long Lake, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed May 18, 1979, Ser. No. 40,285
Int. Cl.³ A61N 1/04
U.S. Cl. 128—419 P **10 Claims**



1. An anchor for a body stimulation lead which comprises:
first and second body members having opposing surfaces;
an aperture within said first body member;
a post extending from said opposing surface of said second body member into said first body member aperture, at least a portion of said post being slightly larger than said aperture to establish a press fit therein;
at least one groove within at least one of said body member opposing surfaces, said groove having a groove opening and a groove depth and being adapted to accept a body stimulation lead of known generally circular cross section, the groove opening being no greater than the lead diameter and the groove depth being at least as great as the lead radius; and
suture cooperating means within said first and second body members.

4,276,883
BATTERY MONITOR FOR DIGITAL CARDIAC PACEMAKER
Ray S. McDonald, St. Paul, and David L. Thompson, Fridley, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Continuation of Ser. No. 958,211, Nov. 6, 1978, abandoned. This application Nov. 5, 1979, Ser. No. 91,279
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PT **21 Claims**



1. A body-implantable medical device adapted to periodically treat the body comprising:
battery means for supplying energy to said device, said battery means having a characteristic such that the energy provided thereby decreases with time;
controllable timing means for establishing a parameter of the periodic treatment of the body in response to a control signal; and
battery monitoring means for periodically detecting the energy of the battery means just prior in time to the periodic treatment of the body and for providing the control signal for controlling the treatment parameter as a function thereof, the controlled parameter providing an externally recognizable indication of the energy of the battery means.

4,276,884
BRASSIERE
Avis K. O'Daniels, 3801 Marquette Pl., San Diego, Calif. 92106
Filed Sep. 24, 1979, Ser. No. 78,012
Int. Cl.³ A41C 3/02
U.S. Cl. 128—510 **3 Claims**

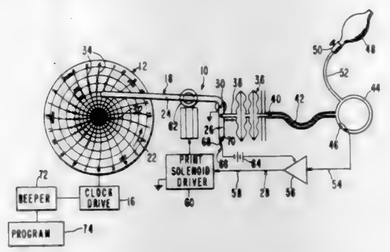


1. A brassiere which comprises:
two breast-receiving cups in side-by-side relation;
means for frontally attaching together said cups;
a halter-type strap having its opposite ends connected to respective cups, said strap extending over the wearer's shoulders and having a median section spread horizontally across the wearer's back;
a pair of dorsal straps, each strap of said pair being attached laterally to one of said cups and extending horizontally and arcuately into the middle of the wearer's back;
means for attaching the free ends of said dorsal straps together;
at least one pair of tensioning straps adjoining said halter-type strap to said dorsal straps, said tensioning straps having one of its extremities connected to the end of the horizontal median section of the halter-type strap and the other extremity connected to the rear lateral section of one of the dorsal straps; and
said tensioning straps and said halter-type strap are positioned and dimensioned so that said horizontal median section extends generally from the lower end of one of the wearer's shoulder blades to the other, whereby the sections of the halter-type strap rest on top of the area above the lateral ends of the wearer's clavicles.

4,276,885
ULTRASONIC IMAGE ENHANCEMENT
Ernest G. Tickner, Morgan Hill, and Ned S. Rasor, Santa Clara County, both of Calif., assignors to Rasor Associates, Inc, Sunnyvale, Calif.
Filed May 4, 1979, Ser. No. 36,098
Int. Cl.³ A61B 10/00
U.S. Cl. 128—660 **15 Claims**

1. A method of enhancing ultrasonic echographic imaging in a liquid enclosed in a vessel by increasing image contrast, comprising:
providing a plurality of microbubbles in said liquid, each of said microbubbles having a coalescence resistant surface membrane encapsulating a gas of a selected composition, said membrane including a multiplicity of non-toxic and non-antigenic organic molecules, said microbubbles having a diameter of no more than about 300 microns and no less than about 0.5 micron; and
obtaining an enhanced ultrasonic echographic image of said liquid opposite a position therein containing said microbubbles by increasing the relative contrast between said liquid and said vessel.

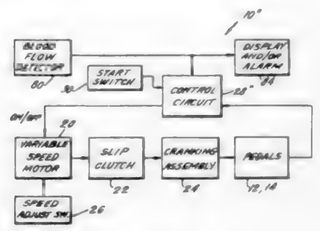
4,276,886
BLOOD PRESSURE RECORDER
Alfred E. Sibley, Box 432L, Rte. 1, Boulder Creek, Calif. 95006
Continuation of Ser. No. 842,203, Oct. 14, 1977, abandoned. This application Aug. 27, 1979, Ser. No. 70,076
Int. Cl.³ A61B 5/04
U.S. Cl. 128—681 **5 Claims**



1. In a blood pressure recorder of the type having an inflatable cuff: a record capable of being marked; means mounting the record for movement in one direction; means coupled with the record for moving the same in said one direction; a marking device; first means mounting the marking device in spaced relationship to the record and for movement along a line adjacent to and spaced from the record, said line extending in a second direction transverse to said one direction, said first means permitting the marking device to move into and out of engagement with said record when the marking device is at any of a number of locations along a line extending in said second direction, whereby a dot is market on the record each time the marking device is shifted into engagement with the record as the marking device moves along said line; means coupled with said marking device for moving the same along a line extending in said second direction as a function of cuff pressure; electrically actuated means coupled with the marking device and responsive to Karotkoff sounds for shifting the marking device into and out of engagement with the record a number of times as the marking device moves along a line extending in said second direction, said shifting means including an electronic circuit for actuating said shifting means when the circuit is enabled; and means responsive to fluid pressure in said cuff for enabling said circuit, whereby a line of unconnected dots will be marked on the record at locations along a line extending in said second direction when the marking device is shifted into and out of engagement with the record.

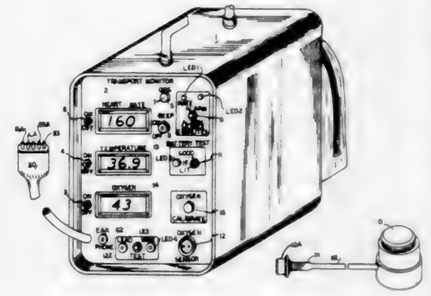
4,276,887
FOOT EXERCISER
Steven R. Hofstein, North Brunswick, N.J., assignor to World Medical Marketing Corporation, New York, N.Y.
Division of Ser. No. 85,330, Oct. 29, 1979. This application Jan. 14, 1980, Ser. No. 111,531
Int. Cl.³ A61B 5/02
U.S. Cl. 128—691 **3 Claims**

1. A foot exercising device, comprising:
a pair of foot pedals;
motor means for reciprocating said foot pedals;
blood flow detector means for detecting the flow of blood through a leg of a patient using said foot exercising device; and



control means connected to said blood flow detector means for controlling the operation of said motor means as a function of said blood flow.

4,276,888
VITAL FUNCTION MONITOR
Charles A. Smith, 46 Hill Rd., Louisville, and Thomas J. Hoehler, 2109 Jaalyn Rd., Jeffersontown, both of Ky.
Filed Oct. 26, 1978, Ser. No. 955,108
Int. Cl.³ A61N 5/04
U.S. Cl. 128—706 **7 Claims**

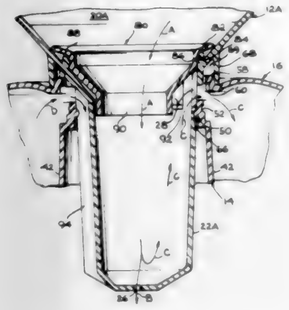


1. A multi-function patient monitor arrangment including patient heartbeat rate monitor means, patient body temperature monitor means, and patient oxygen concentration sensor means, power supply means to supply direct current voltage at positive source voltage V1, first voltage regulator means connected to the output of power supply and having first and second and third output means to supply positive dc voltage V2 where the voltage V2 is less than V1, second voltage regulator having an input connected to an said third output from said first voltage regulator and having first and second voltage regulator output means to supply a voltage V3 which is negative, relative to voltages V1 and V2 wherein said first output of said first voltage regulator means is supplied only to said heartbeat rate monitor means and second output means is supplied to said patient body temperature monitor means and said patient oxygen concentration sensor means and said first output of the second voltage regulator means is selectively supplied to said patient heartbeat rate monitor means and said second second voltage regulator means output is supplied to said patient temperature monitor means and said patient oxygen concentration monitor means.

4,276,889
URINE SPECIMEN COLLECTING DEVICE

David H. Kanca, Los Angeles, and James A. Ingram, Costa Mesa, both of Calif., assignors to SHS Enterprises, Ltd., Newport Beach, Calif.

Continuation-in-part of Ser. No. 31,427, Apr. 19, 1979. This application Jul. 24, 1979, Ser. No. 60,217
Int. Cl.³ A61B 10/00
U.S. Cl. 128—761 19 Claims



1. A urine specimen collecting device for selectively collecting a mid-stream portion of voided urine, the device comprising in combination:

an integral collector and specimen container, the collector having a first drain exit and a second transfer exit for different portions of the voided urine, the first exit being positioned near the bottom of the collector for bleeding off the first-voided urine, the second exit being positioned above the first exit for transferring urine following the first-voided urine to the specimen container;

the collector including a bleed-off conduit extending between the first and second exits;

the specimen container being toroidally-shaped and configured for releasable mounting on the bleed-off conduit in a position surrounding said conduit for receiving urine flowing through the second exit;

a flexible lid sealingly mounted on the specimen container about the periphery thereof and having a central ring opening spaced from the container to define an opening adjacent the second exit for transferring a specimen of urine into the container; and

overflow means coupled to the specimen container for transferring excess urine from the device.

4,276,890
TOBACCO SMOKING INHIBITOR

Anthony T. Fichera, 319 Palos Verdes Blvd., #310, Redondo Beach, Calif. 90277

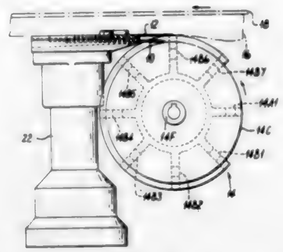
Continuation-in-part of Ser. No. 29,107, Apr. 11, 1979, abandoned. This application Oct. 9, 1979, Ser. No. 82,967
Int. Cl.³ A61K 9/68
U.S. Cl. 131—270 10 Claims

1. A method of inhibiting tobacco smoking of smokers without physiological symptoms of nicotine withdrawal comprising smoking while awake during the waking hours of the day and administering to such a smoker 500 mg to 1500 mg total daily dose of ethyl maltol or maltol as a gamma pyrone divided into several incremental doses during the waking hours of the day, each incremental dose being retained in the smoker's mouth and released therein over a period of at least 10 minutes, for at least about 5 to 10 days, for a total of about 20 to 30 days or at least until there results either of a gradual decrease in the number of cigarettes smoked and the length of time they are smoked or until such point as the lowered tobacco consumption rate becomes obvious.

4,276,891
TRIMMING DEVICES FOR CIGARETTE-MAKING MACHINES

Derek H. Dyett, and Jan A. Rakowicz, both of London, England, assignors to Molins Limited, London, England

Filed Oct. 27, 1978, Ser. No. 955,225
Claims priority, application United Kingdom, Oct. 27, 1977, 44673/77
Int. Cl.³ A24B 5/18, 5/30
U.S. Cl. 131—84 C 9 Claims

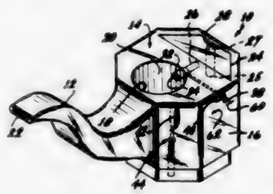


1. A trimming device for trimming cigarette filler stream in a cigarette making machine comprising a first fixed blade and a first rotating brush member which cooperate to remove from the tobacco stream tobacco lying further than a first predetermined distance from the tobacco conveyor; a second fixed blade and a second rotating brush member which cooperate to remove tobacco at regular spaced intervals corresponding to portions of the stream forming intermediate sections of the filler for each finished cigarette, the second blade being set at a second predetermined distance from the tobacco conveyor which is smaller than the first predetermined distance.

4,276,892
SMOKING DEVICE WITH SELF CONTAINED LIGHTING APPARATUS

Joseph Inguinto, 540 Rancho Ter., Escondido, Calif. 92025

Filed Nov. 6, 1979, Ser. No. 91,795
Int. Cl.³ A24F 47/00
U.S. Cl. 131—185 12 Claims



1. A smoking device with an improved self-lighting apparatus in combination therewith, said smoking device having an enlarged end structure with a hollow bowl therein for containing a substance to be smoked and a hollow stem attached thereto and communicating with said hollow bowl, said stem having a bit receiving end portion, said apparatus comprising:

a supply of pressurized fuel positioned within said enlarged structure;

a first fixedly positioned fuel delivery tube extending from said supply of pressurized fuel to a position adjacent said hollow bowl and terminating within said enlarged structure;

a second translatable fuel delivery tube engaging a portion of said first fuel delivery tube in a telescoping manner for selectively extending the length of said first fuel delivery tube, said first and second fuel delivery tubes comprise a fuel control valve, said second translatable fuel delivery tube is translatable with respect to said first fuel delivery tube between a first position wherein it is contained within said enlarged structure to a second position wherein it extends into said hollow bowl, said fuel control valve shutting off the supply of fuel through said delivery tubes when said translatable fuel delivery tube is in said first position and opens allowing fuel to flow through said delivery tubes when said translatable fuel delivery tube is in said second position;

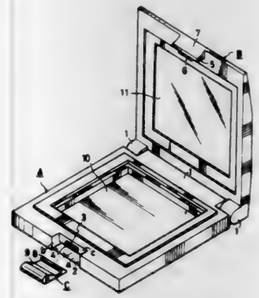
translating means for translating said second fuel delivery tube; and

an ignitor for igniting said fuel.

4,276,893
COMPACT

Seikichiro Enomoto, 40, Arisugawa machi, Segano, Sakyo-ku, Kyoto, and Yoshiharu Hatakeyama, 5-29-10, Tachibana, Sumida-ku, Tokyo, both of Japan

Filed May 31, 1979, Ser. No. 44,222
Claims priority, application Japan, Apr. 20, 1979, 54-52020[U]
Int. Cl.³ A45D 33/00
U.S. Cl. 132—83 R 2 Claims



1. A compact comprising:

a case body (A) having tray means (10) therein for holding a substance;

a lid body (B);

hinge means (1) for interconnecting like edges of said case body and said lid body for pivotable movement between open and closed positions;

a box like dent (2) formed in an edge of said case body opposite the edge of said case body connected to said hinge means, said dent having a base (a), side walls (b) extending upwardly from the base and inwardly from the case body edge, and an inner wall (c) extending upwardly from the base and interconnecting inner edges of the side walls;

first hook means (3) protruding from an upper portion of said inner wall;

a slide hole (4) defined in and extending inwardly from a lower portion of said inner wall with the bottom of the slide hole being in the plane of the base;

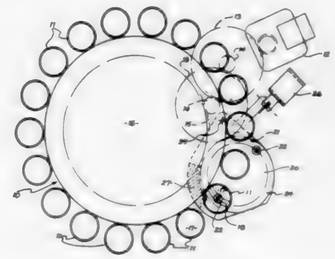
latch means protruding downwardly from an edge of said lid body opposite the edge connected to said hinge means, said latch means having an inner surface with second hook means (6) protruding therefrom, said first and said second hook means being mutually engageable with each for releasably holding said case body and said lid body in the closed position, said latch means having an outer edge with a recessed lower portion (7) formed therein; and

a slide member (C) having a leading end inserted into said hole, a lower surface slidable on said base, and an upper surface having a tapered portion extending downwardly from an outer portion to an inner portion of said slide member, said tapered portion being located in the recessed lower portion of said latch means when said first and said second hook means are engaged with each other and being movable into said dent so that a lower portion of said latch means is moved upwardly by said tapered portion to thereby disengage said first and said second hook means from each other.

4,276,894
AUTOMATIC COIN DISPENSER

Joseph R. Heywood, 118 Morgan St., Kingsgrove, New South Wales, Australia, assignor to Joseph Richard Heywood, Kingsgrove and Leonard Hastings Ainsworth, Roseberry, both of, Australia

Filed May 23, 1979, Ser. No. 41,773
Claims priority, application Australia, Oct. 24, 1978, PD6518
Int. Cl.³ G07D 1/00
U.S. Cl. 133—5 R 3 Claims



1. An automatic coin dispenser comprising a plurality of coin holding tubes of equal length mounted in a circle on a rotatable base, means at the lower end of each tube to support a column of coins in the tube, rotatable coin ejecting means constructed and arranged when activated to eject coins from the bottoms of a sequence of columns of coins during rotation of said base, means to activate or deactivate said coin ejecting means, means to rotate the base, means to collect coins ejected, means to remove from said columns of coins, coins projecting above the tops of said tubes as the base rotates and means to receive coins so removed, and wherein the coin ejecting means comprises a member rotated in synchronism with said base beneath the said tubes, at least one coin ejecting member on said rotated member, said at least one coin ejecting member being movable to and from an activated position in which during rotation it makes contact through an aperture in each said tube with the bottom coin of each passing column to eject that coin from its tube and to and from a deactivated position in which no contact is made with coins, said means to activate or deactivate said coin ejecting means comprising cam means movable to and from an activated position in which each coin ejecting member is caused by said cam means to assume an activated position during rotation beneath said tubes.

4,276,895
APPARATUS AND METHOD FOR TEMPERATURE COMPENSATION OF FLUIDIC CIRCUITS

Tadeusz M. Drzewiecki, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 20, 1979, Ser. No. 77,442
Int. Cl.³ F15C 1/14
U.S. Cl. 137—2 8 Claims

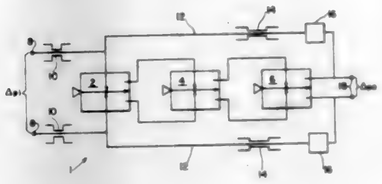
8. In a fluidic circuit comprising at least one fluidic element having dual outputs for fluid flow, a method for compensating said circuit for changes in gain due to variations in temperature of the fluid in said circuit, said method comprising,

directing the fluid flow from said outputs of said circuit to

respective dual control inputs of a fluid proportional amplifier,

regulating the flow through said control inputs in accordance with the density of the fluid flowing therethrough,

controlling the output of said fluid proportional amplifier in response to the flow through said control inputs and directing the output of said amplifier through two output paths,



feeding back at least a portion of the flow from the respective two output paths of said amplifier to the respective control inputs thereof, and

regulating the flow feeding back to said control inputs in accordance with the viscosity of the fluid,

whereby the output flow from the fluid proportional amplifier represents the output from said fluidic circuit compensated for variations in temperature of the fluid in the circuit.

4,276,896

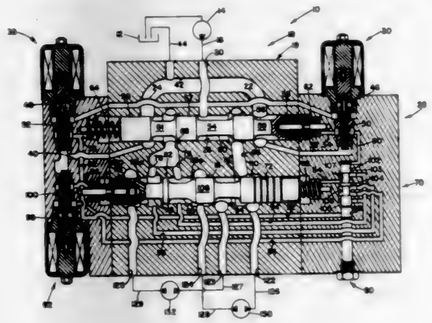
FLOW CONTROL VALVE ASSEMBLY WITH INTEGRATED TORQUE AND FLOW DIVIDER CONTROL

Billie G. Hunck, Cedar Falls, and Robert W. Nelson, Waterloo, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Nov. 5, 1979, Ser. No. 91,101

Int. Cl.³ F15B *13/06*

U.S. Cl. 137—101 **11 Claims**



1. A flow control valve comprising: a valve body having a bore provided therein having a first and a second closed end; said valve body having first and second pilot passages provided therein respectively connected to the first and second closed ends of the bore; said valve body having first, second, and third ports provided therein spaced apart and connected to the bore; said valve body having a first function passage provided therein fluidly connected to the first port; said valve body having second, third, and fourth function passages provided therein spaced apart and connected to the bore proximate the first function passage; said valve body having first and second sensing passages provided therein respectively fluidly connected to the second and third ports; control means disposed in the valve body connected to the second pilot passage for selectively relieving fluid pressure in the second closed end of the bore; spool means disposed in the bore blocking the first closed end thereof from the second closed end and slidable between a first and a second position; said spool means having groove means provided therein for metering the flow of fluid between the second port and the third function passage and between the third port and the fourth function passage in the first position, and for connecting the second function passage to the third function passage and the second and third ports to the fourth function passage in the second position; said spool means including land means for blocking the second function passage from the third function passage and the second port from the third port in the first position and for blocking the first port from the second function passage and the second port from the third function passage in the second position; and direction sensing valve means provided in the valve body for fluidly connecting the first and second sensing passages to the first and second pilot passages, respectively.

4,276,897

BACKFLOW PREVENTION APPARATUS

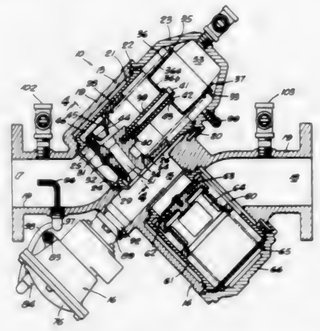
David E. Griswold, Corona Del Mar, Calif., assignor to Griswold Controls, Irvine, Calif.

Continuation of Ser. No. 918,646, Jun. 23, 1978, abandoned.

This application Feb. 13, 1980, Ser. No. 121,156

Int. Cl.³ F16K *17/02*

U.S. Cl. 137—218 **17 Claims**



2. In backflow prevention apparatus for installation between a supply pipe and a discharge pipe, the apparatus including upstream and downstream check valve assemblies with a zone between them, and a relief valve device for venting the zone to atmosphere under predetermined pressure conditions in the pipes, the improvement comprising, in combination: an inlet passage from the supply pipe terminating in a stationary valve seat forming a part of the upstream check valve assembly, a stationary barrel positioned coaxially of said valve seat, a valve poppet guided for movement in said barrel toward and away from said valve seat, a spring acting to move said valve poppet into sealing contact with said valve seat, said spring acting to create a pressure drop through the upstream check valve assembly when said valve poppet is initially moved away from said seat by fluid pressure in said inlet passage, means cooperating with said barrel and said valve poppet to define a spring chamber remote from said valve seat and enclosing said spring, an ejector nozzle on said valve poppet receiving fluid from said barrel when said valve poppet has separated from said valve seat, said ejector nozzle having a discharge end communicating with said spring chamber so that relatively rapid fluid flow from said ejector nozzle causes a reduction in fluid pressure in said spring chamber to oppose the action of said spring and thereby reduce the pressure drop across the upstream check valve assembly.

11. In backflow prevention apparatus for installation between a supply pipe and a discharge pipe, the apparatus including upstream and downwstream check valve assemblies with a zone between them, and a relief valve device for venting the

zone to atmosphere under predetermined pressure conditions in the pipes, the improvement comprising, in combination: an inlet passage from the supply pipe terminating in a stationary valve seat forming a part of the upstream check valve assembly, a valve poppet guided for movement toward and away from said valve seat, a first spring acting to move said valve poppet into sealing contact with said valve seat, said first spring acting to create a pressure drop through the upstream check valve assembly when said valve poppet is initially moved away from said seat by fluid pressure in said inlet passage, means cooperating with said valve poppet to define a chamber remote from said valve seat, aspirator means on said valve poppet receiving fluid when said valve poppet has separated from said valve seat, and acting to cause a reduction in fluid pressure in said chamber to oppose the action of said first spring and thereby reduce the pressure drop across the upstream check valve assembly, said relief valve device having a movable valve element cooperating with a stationary seat for controlling flow to atmosphere from said zone, a second spring acting to cause said movable valve element to move toward open position, and differential pressure means sensitive to pressure in said inlet passage and in said aspirated chamber for changing the effective force of said second spring.

12. In backflow prevention apparatus for installation between the supply pipe and the discharge pipe, the apparatus including upstream and downstream check valve assemblies with a zone between them, and a relief device for venting the zone to atmopshere under predetermined pressure conditions in the pipe, the improvement comprising, in combination: an inlet passage from the supply pipe leading to the upstream check valve assembly, said upstream check valve assembly having a chamber aspirated by fluid flow through said upstream check valve assembly, said relief valve device having a movable valve element cooperating with a stationary seat for controlling flow from said zone to atmosphere, said movable valve element including a stem, a body enclosing said stem and having a cover, a plate having a spherical hub portion fixed to said stem, a first flexible diaphragm engaging said plate and having an outer periphery clamped between the cover and the body to form a first expansible space, a second flexible diaphragm extending between the stem and the body, a self-aligned member mounted on said spherical hub portion of said plate, a spring operatively positioned between said member and said body and acting to move said movable valve element away from said stationary seat, means for connecting said first expansible space to said inlet passage, and means for connecting the space within the body and between said diaphragms to said aspirated chamber.

4,276,898

DELIVERY SYSTEM FOR PNEUMATIC VESSELS

Peter Ross, New York, N.Y., assignor to Stop-A-Flat Corporation, Huntingdon Valley, Pa.

Filed Jan. 30, 1980, Ser. No. 117,008

Int. Cl.³ F16K *15/20, 51/00*

U.S. Cl. 137—231 **15 Claims**

1. In a delivery system including a pump for pumping a treatment fluid into the interior of a pneumatic vessel under pressure through the valve thereof wherein the valve includes a valve stem and a valve core, the combination of

a one way valve housing, said one way valve housing being in fluid communication with the pump and the vessel to permit flow of the treatment fluid toward the vessel when the pump is activated,

the one way valve housing including a first seal to prevent loss of vessel pressure,

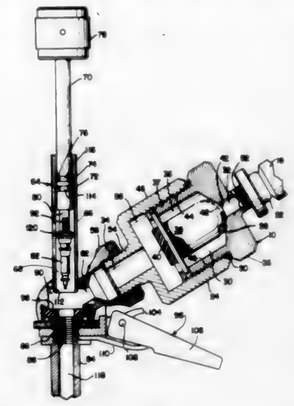
the first seal comprising a valve seat, a resilient plug and means to normally bias the plug against the seat to close the one way valve housing; and

an extractor assembly fitting means, said one way valve housing being securely engaged to said extractor fitting means,

a valve core extractor assembly means in fluid communication with the one way valve housing,

the valve core extractor assembly means comprising a valve core extractor means to remove the valve core and a second seal to prevent loss of vessel pressure when the valve stem is removed,

the valve core extractor assembly means and the one way



valve housing being in fluid communication with the pressurized interior of the pneumatic vessel when the valve stem is removed,

the valve core extractor means being adapted to remove or replace the valve core within a pressurized atmosphere without loss of pressure and said valve core extractor assembly means being securely engaged to said extractor fitting means.

4,276,899

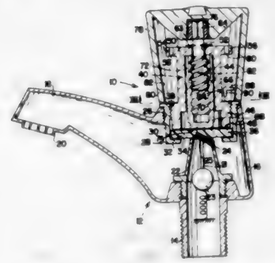
FAUCETS

Brian A. C. Kirk-Duncan, The Rectory, St. Mary at Hill, London, EC3R 8EE, England

Filed Feb. 15, 1979, Ser. No. 12,420

Int. Cl.³ F16K *15/18, 7/16, 43/00*

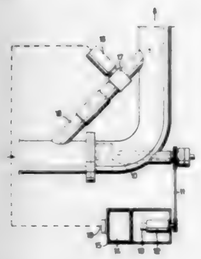
U.S. Cl. 137—327 **10 Claims**



1. A faucet for controlling liquid flow comprising a housing, wall means in said housing defining an orifice through which liquid is to flow, a substantially flat sealing member overlying said orifice, a support surface for the periphery of said sealing member, said surface being provided by a radially inwardly extending flange coaxial with said orifice, clamping means for holding the periphery of said sealing member into sealing contact with said support surface, pressure applying means selectively operable to apply pressure to the other face of said sealing member to force said one face into sealing contact with

said orifice, and a handle adapted to operate said pressure applying means, said pressure applying means including a piston slidably mounted in said housing and having guide means co-operating with said housing to prevent rotation of said piston relative to said housing and a spindle rotatably mounted in said housing and connected to said handle for rotational movement therewith, said spindle having a threaded portion engaging a complementary threaded portion provided on said piston whereby rotation of said spindle by said handle includes sliding movement of said piston relative to said housing to control movement of said sealing member and regulate flow through said orifice.

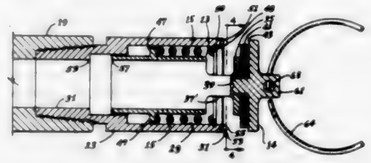
4,276,900
IRRIGATION DEVICE
Lars Rosenqvist, Gringelstad, 290 24 Gärds-Köpinge, Sweden
Filed Aug. 2, 1979, Ser. No. 63,083
Int. Cl.³ B05B *3/18*
U.S. Cl. 137—355.21 **2 Claims**



1. An irrigation device comprising a hose which is adapted to be connected at one end to a variable water supply means and at the other end to a spraying device, a drum which is rotatable to coil said hose during an irrigation process, a turbine in communication with said water supply means and adapted to rotate said drum to coil up said hose at a speed dependent upon the pressure of water passing from the supply means to said hose, a bypass pipe including a flow control valve such that a portion of said water from said water supply means to said turbine bypasses said turbine through said control valve, means for sensing said speed at which said hose is being coiled onto the drum and producing a corresponding electrical signal, means for comparing said electrical signal with a preset reference signal corresponding to a desired speed of rotation of the drum, means for adjusting the speed of rotation of the drum comprising means for opening and closing the flow control valve comprising an electric motor and a generator therefor, said generator operably connected with said turbine to be driven thereby, said electric motor opening and closing said flow control valve in response to the difference between said signals, whereby said electrical signal becomes substantially equal to said reference signal such that the rotation of said drum substantially corresponds to said desired speed of rotation.

4,276,901
HIGH FLOW PRESSURE RELIEF VALVE
Jerry L. Lyons, St. Louis County, Mo., assignor to Essex Cryogenics of Missouri Inc., St. Louis, Mo.
Filed Sep. 27, 1979, Ser. No. 79,378
Int. Cl.³ F16K *17/20*
U.S. Cl. 137—469 **7 Claims**

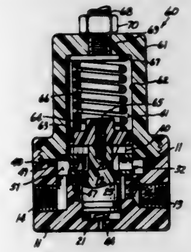
1. A gas pressure relief valve for automatic venting of a high pressure source to an area of lower pressure with high volumetric flow in response to pressure build-up of said source, said valve comprising a valve body, an elongated recess in said body, a passage connecting one end of said recess with said source for receiving fluid flow therefrom through said recess toward the opposite end thereof, a poppet element fitted in said recess other end and adapted for normally closing said other end, said poppet element including a tubular sleeve fitted axially and slidably within said recess, said sleeve opening at one end into said passage, a closure extending across the other end of said sleeve and configured for providing a gas-tight sealing engagement with said valve body at said opposite end of said recess, said sleeve defining a second passage having a transverse cross-sectional area at least as great as that of the first said passage, said second passage being of substantially constant diameter and forming with said first passage a flow path through said valve substantially devoid of any constriction productive of a vena contracta within said flow path, said sleeve having at least one gas release port providing a cross-sectional area at least as great as the transverse cross-sectional area of said second passage, said port being proximate said closure, means for resiliently urging said poppet element toward said one end of said recess defining a valve seat for maintaining said gas-tight sealing engagement, said valve body terminating substantially commensurate with said valve seat, thereby to avoid extending beyond said poppet any fluid flow restrictive structure, said poppet element being axially movable away from said valve seat of said recess in response to a



predetermined value of gas pressure differential between said source and area of lower pressure for opening said port to said area of lower pressure, said sleeve effectively defining a nozzle for maintaining a constant dynamic pressure upon said closure upon movement of said poppet element away from said valve seat, said poppet element upon said movement introducing into said flow path no constriction productive of a vena contracta within said flow path, the extent of opening of said port being dependent upon the differential in gas pressure between said source and lower pressure area, said poppet being maintained in a position opening of said port by the dynamic impact of a gaseous stream flowing through said second pressure against said closure, and whereby said gaseous stream during flow along said flow path exhibits substantially no divergence within said valve, said closure being flanged, said closure including an area of sealing engagement with said valve body having a sealed diameter which is less than the effective diameter of said flanged closure, said flanged closure extending across said gaseous stream during said flow, said impact of said gaseous stream upon said flanged closure thereby preventing said closing engagement with said valve body until said gas pressure differential is less than said predetermined valve.

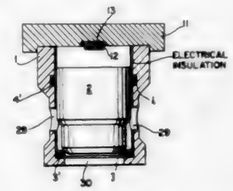
4,276,902
MODULAR FLUID PRESSURE REGULATOR VALVES
Verlon C. Roth, Pasadena, Calif., assignor to RK Industries, Ontario, Calif.
Filed Nov. 5, 1979, Ser. No. 90,907
Int. Cl.³ F16K *31/12*
U.S. Cl. 137—505.18 **3 Claims**

1. A fluid pressure regulator valve combination comprising:
a rigid plastic composition valve housing having coaxial aligned opposed inlet port and outlet port, and a hollow cylindrical interior having four stepped concentric cylindrical bores, said concentric bores comprising a deep base bore, a fluid transfer bore disposed above said deep base bore, an outlet base bore disposed above said transfer bore, and a screw cap retainer bore having internal screw threads disposed above said outlet base bore, each one of the stacked aforesaid concentric bores having a successively larger selected bore diameter on serially proceeding from said deep base bore to said screw cap retainer bore;
a cylindrical sealing solid piston having a first flat piston crown end face and an opposed second flat piston end face, said second piston end having a larger diameter than said crown face, said piston having one diametrically concentric fluid transfer channel disposed in and circumferentially around the piston cylindrical axis adjacent to said first piston crown end face, said piston having a circumferential shoulder suitable for sealing fluid flow disposed adjacent to said channel;
two sealing O-rings disposed in O-ring sealing channels, each of said O-rings separately concentrically disposed adjacent said second flat piston end face and said circumferential shoulder adjacent to said fluid transfer channel, providing slidable fluid sealants on said piston;
a cylindrical screw cap having a shaped hollow dome and external concentric screw threads secured in said hollow cylindrical valve housing interior, said external screw threads mating with the screw threads of screw cap retainer bore;
an interior fluid distribution annular washer compressively secured and seated between the base of said outlet base bore and a concentric annular washer recess disposed in the interior face of said screw cap adjacent said cap screw threads, said annular washer having multiple concentric radial apertures extending normally from the annular washer symmetry axis, providing a connecting fluid flow



path to a concentric tubular cap bore disposed in said screw cap;
a solid flat slidable sealant piston head diametrically sized to provide a close slidable linear alignment in said screw cap tubular bore, said flat sealant piston head coaxially secured by fastener to said first flat crown end face of said solid piston, said solid flat sealant piston head having an O-ring sealant, providing a fluid transfer seal between a lower fluid cavity in said screw cap bore and an upper cavity in said screw cap bore;
a first actuating means secured in said screw cap adjacent said solid flat piston head and disposed to cooperatively variably actuate said solid flat piston head;
a second actuating means having a compression loaded metal spring biased in an aperture disposed at said second piston end face;
one sealing O-ring disposed in an O-ring channel concentrically disposed in the base of said outlet base bore adjacent to said fluid transfer bore, providing a fluid transfer seal;
one sealing O-ring disposed in an O-ring channel concentrically disposed in the base of said screw cap retainer bore, providing a fluid transfer seal;
a first internal fluid port connecting conductively said inlet port to said fluid transfer bore; and,
a second internal fluid port disposed in said base of said screw cap retainer bore connecting conductively said outlet base bore to said outlet port;
whereby actuating said first actuating means positions said sealant piston head of said piston in an open valve position, providing an open fluid transfer path from inlet port, through said first internal fluid port, through said concentric fluid transfer channel disposed around said piston axis, through said fluid transfer bore, through said outlet base bore, through said second internal fluid port and through said outlet port,
and whereby actuating said second actuating means positions said second piston end face in a selected valve position, positioning said piston in a selected position, regulating the pressure of said fluid flow at a controlled pressure value.

4,276,903
CONTROL VALVE
Hanswerner Spolr, Leibroddestr. 1, Witten 7 - Stockum, Fed. Rep. of Germany (5810)
Filed May 16, 1978, Ser. No. 906,676
Claims priority, application Fed. Rep. of Germany, May 24, 1977, 2723309
Int. Cl.³ F16K *37/00*; H01H *9/06*
U.S. Cl. 137—554 **3 Claims**



1. A valve for controlling fluidic media, comprising valve housing means (1) of electrically conducting material and including a valve cavity and a plurality of fluid passage means in said valve housing means, stationary valve seat means located between said fluid passage means in said valve housing means and including first stationary electrical contact means and means on the inner surface of said cavity electrically insulating said first contact means from said valve housing means, electrically conducting valve plug means (2) axially movable in said valve cavity and having a given axial length, second stationary electrical contact means (4) forming part of said valve housing means and means on the inner surface of said cavity electrically insulating said second contact means from said valve housing means and located on an opposite side of said passage means and spaced from said first stationary electrical contact means at such a distance relative to said given axial length of said electrically conducting valve plug means that an electrical circuit is closed through said first and second electrical contact means directly through said electrically conducting valve plug means (2) when the electrically conducting valve plug means is in a valve closing position resting on said valve seat means, said electrical circuit being opened when said electrically conducting valve plug means moves off said valve seat means, whereby a wire connection to the valve plug means is avoided, and means insulating the valve housing means from said electrical circuit through said valve plug means wherein said valve cover means forms part of said valve housing means, third stationary electrical contact means (12) electrically insulated from said valve cover means and from said valve housing means, and being operatively supported relative to said second electrical contact means (4) in such a position that a further electrical circuit is closed through said stationary second and third electrical contact means and directly through said electrically conducting valve plug means (2) when the latter is in a valve opening position, said third stationary electrical contact means (12) supported in an insulating manner in said valve cover means, said valve cover means with said third staionary electrical contact means therein limiting the maximum open position of the valve plug means.

2. A spool valve for controlling fluidic media, comprising electrically insulated valve housing means (5) made of electri-

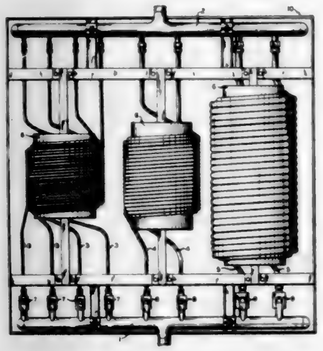
cally non-conductive material, a longitudinal bore through said electrically insulated valve housing means, electrically conducting valve spool means operatively supported for axial movement in said longitudinal bore, said electrically conducting valve spool means comprising a plurality of spool pistons spaced along the valve spool means, said valve housing means comprising a corresponding plurality of fluid passage means positioned to be opened and closed by a respective one of said spool pistons, and stationary electric contact means (6, 7, 8, 9) electrically insulated from and positioned in said valve housing means on both sides of each of said respective fluid passage means, said electrically conducting valve spool means completing, depending on the instantaneous position of said electrically conducting valve spool means relative to the fluid passage means, different electrical circuits directly through a respective piston and a respective set of contact means, whereby a wire connection to the electrically conducting valve spool means is avoided, and whereby various circuits may be closed in various positions of the spool pistons relative to the fluid passages.

4,276,904

ADJUSTABLE FLOW RATE CONTROLLER FOR POLYMER SOLUTIONS

Kenneth M. Jackson, Bartlesville, Okla., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 1, 1976, Ser. No. 719,869
Int. Cl.³ G05D 7/00
U.S. Cl. 137—599 **11 Claims**



1. An adjustable device suitable for controlling the flow rate of a polymer solution comprising

(1) an inlet manifold having an inlet,

(2) an outlet manifold having an outlet,

(3) a plurality of tubes each connected to the inlet and outlet manifolds so that polymer solution flowing into the inlet manifold can flow through the tubes into the outlet manifold, wherein each tube has an internal diameter that is smaller than the internal diameter of the inlet manifold while being large enough that the viscosity of the polymer solution passing through the tube will not be reduced more than about 25 percent, and

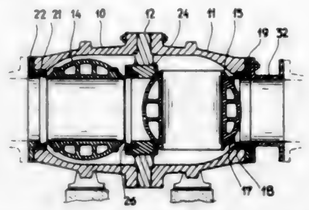
(4) a valve associated with each tube, wherein each said valve is capable of both allowing or preventing flow of polymer solution from the inlet manifold to the outlet manifold through said tube and wherein each said valve when fully opened has an internal diameter that is substantially at least as great as that of the tube with which it is associated.

4,276,905

MECHANISM INCLUDING TWO CUT-OFF DEVICES IN SERIES

Bernard Lourdeaux, Ismier, France, assignor to Neyrpic, Grenoble, France

Filed Mar. 10, 1980, Ser. No. 128,562
Claims priority, application France, Mar. 13, 1979, 79 06321
Int. Cl.³ F16K 5/00; F03B 1/00
U.S. Cl. 137—613 **1 Claim**



1. A tandem hydraulic valve assembly for use in high pressure and high flow environments such as a high-fall hydroelectric installation, the valve comprising:

a main valve shell, including an upstream shell half and a downstream shell half symmetrically disposed on opposite sides of a transverse medial plane, the respective shell halves having radial flanges at the mutually presented juxtaposed ends thereof;

bolts extending through said flanges and immovably securing the respective shell halves to each other;

a rotatable valve member and an adjacent cooperating valve seat therefor positioned within said upstream shell half;

a rotatable valve member and an adjacent cooperating valve seat therefor positioned within said downstream shell half; and

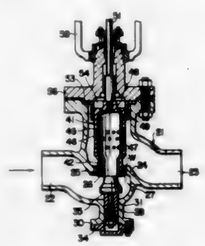
a journal for each rotatable valve member, the respective journals being supported in their associated shell half for independent rotary movement, and a generally planar plate interposed between said mutually presented juxtaposed ends of the respective shell members and their associated flanges, said bolts extending through said plate and said flanges and immovably securing said plate and said shell halves to each other, and at least one of said adjacent valve seats carried by said plate and cooperating with an adjacent one of said valve members.

4,276,906

SINGLE-SEAT GLOBE CONTROL VALVE

Katsumi Eguchi, 26-16, Kurobaru 2-chome, Kokura-Kita-ku, Kitakyushu City, Fukuoka Prefecture, Japan

Filed Nov. 13, 1978, Ser. No. 959,777
Claims priority, application Japan, Nov. 16, 1977, 52/136683
Int. Cl.³ F16K 47/14, 47/04
U.S. Cl. 137—625.38 **6 Claims**



1. A single seat globe control valve comprising:

a body having an inlet chest and an outlet chest;

a dividing wall located in said body between said inlet chest and said outlet chest for separating said inlet chest from said outlet chest, said dividing wall having a vertical opening therein for allowing communication between said inlet chest and said outlet chest;

a disk secured to the bottom of said inlet chest and spaced opposite said opening in said dividing wall;

an inverted bottle shaped floating cylinder having a cylindrical hollow chamber and communicating with a cylindrical throat extending downward therefrom, said cylindrical throat being smaller in diameter and volume than said cylindrical hollow chamber, said cylindrical hollow chamber being disposed for upward and downward movement in said outlet chest and having a plurality of small openings in the peripheral walls thereof;

said cylindrical throat having a seat which is adapted for coming in contact with said disc for airtightly sealing therewith, said cylindrical throat being slidably and airtightly fitted in said opening in said dividing wall; and

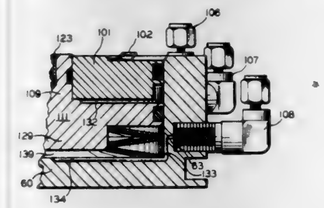
a stem connected to the top end of said floating cylinder.

4,276,907

FLUID ACTUATED VALVE

Arthur B. Broerman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 21, 1979, Ser. No. 96,716
Int. Cl.³ F16K 31/143, 31/163, 31/363
U.S. Cl. 137—637.2 **16 Claims**



1. A multi-port diaphragm-sealed valve comprising:

a piston housing comprising a tubular sidewall and a base portion closing off the lower end of said tubular sidewall portion;

a plunger housing in sealing engagement with said piston housing to close off the upper end of said tubular sidewall, said plunger housing having upper and lower planar faces, a plurality of spaced-apart passageways therein communicating between the upper and the lower faces of said plunger housing, and a plurality of recesses on the upper face of said plunger housing each extending from one of the passageways in said plunger housing to another of the passageways in said plunger housing;

a cap in sealing engagement with the upper face of said plunger housing and covering the passageways in said plunger housing, said cap having upper and lower planar faces and a plurality of spaced-apart passageways therein communicating between the upper and lower faces of said cap, each said passageway being adapted to be positioned above a different one of the recesses in said plunger housing;

a diaphragm positioned between the lower face of said cap and the upper face of said plunger housing, said diaphragm being adapted to cover the recesses in the upper surface of said plunger housing;

a plurality of plunger means each being positioned in and extending through a respective one of the passageways in said plunger housing;

a first piston means having an opening therethrough, said first piston means being positioned in said piston housing between the base thereof and the lower surface of the plunger housing for reciprocal movement along the central axis of said piston housing in sealing engagement with the inner surface of said tubular sidewall, the upper surface of said first piston having such configurtion that a first chamber is formed between the outer portions thereof and the lower surface of said plunger housing;

a second piston means positioned in said piston housing between the base thereof and the lower surface of said first piston means for reciprocal movement along the central axis of said piston housing in sealing engagement with the inner surface of said tubular sidewall, said second piston means having projecting portion which extends upwardly from the main portion of said second piston through said opening in said first piston means and in sealing. engagement therewith for reciprocal movement therein relative to said first piston means, said first and second piston means being of such configuration that when said pistons are brought into abutting relationship, there is a gap between the outer portions of the lower face of said first piston and the outer portions of the upper face of said second piston, said gap defining a second chamber;

first spring means positioned in said first chamber between the lower face of said plunger housing and the upper face of said first piston means to urge said first piston means away from said lower face of said plunger housing;

second spring means positioned in a third chamber defined by the lower face of said second piston means and the base portion of said piston housing to urge said second piston means toward said plunger housing, said second spring means extending from the inner surface of the tubular sidewall to an opening extending through said second spring means;

a stop means extending downwardly from the lower surface of said second piston and through the opening extending through said second spring means, said stop means extending downwardly a distance sufficient to limit the downward movement of said piston;

a first passageway extending through the tubular sidewall of said piston housing and into communication with said first chamber;

a second passageway extending through the tubular sidewall of said piston housing and into communication with said second chamber;

a third passageway extending through the tubular sidewall and into communication with said third chamber;

a groove in the inner surface of the tubular sidewall of said piston housing in communication with said third passageway and extending in said third chamber from the upper surface of the base portion to a point above that where the uppermost portion of said second spring means contacts said tubular sidewall;

a groove in the upper surface of the base portion of said piston housing extending from the groove in the tubular sidewall to a point beneath said stop means;

wherein the lengths of said plunger means and the configurations of said first and second piston means are such that when said second piston means is in its uppermost position and said first piston is in its lowermost position only a first set of said plunger means engages said diaphragm to seal the corresponding spaces between adjacent pairs of recesses, and when said first and second piston means are in their uppermost positions all of said plunger means engage said diaphragm to seal the corresponding spaces between adjacent pairs of recesses, and when said second piston means is in its lowermost position and said first piston is in its uppermost position only a second set of said plunger means engages said diaphragm to seal the corresponding spaces between said adjacent pairs of recesses;

means for releasably securing said cap to said plunger housing; and

means for releasably securing said plunger housing to said piston housing.

4,276,908

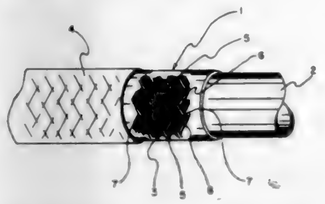
BONDED THERMOPLASTIC HOSE

Shek C. Herne, Reading, Pa., assignor to The Polymer Corporation, Reading, Pa.

Continuation of Ser. No. 936,871, Aug. 25, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,730

Int. Cl.³ F16L 11/08

U.S. Cl. 138—125 8 Claims



1. A high pressure thermoplastic hose having a compact high coverage reinforcement, characterized in that the reinforcement is a mixed braid made from (1) yarns which intersect and are interwoven with (2) monofilaments or yarns which remain substantially round in cross section when processed in textile machines, whereby stereo interstices are established at the intersection of the (1) yarns and (2) monofilaments or yarns into which interstices is extruded a portion of the adjacent element of the hose.

3. A method for bonding a high coverage reinforcement to another element of a hose characterized in that stereo interstices forming sites for mechanical bonding are established by making a mixed reinforcement layer from a combination of interwoven and intersecting (1) yarns and (2) monofilaments or yarns which remain substantially round in cross section when processed in textile machines.

4,276,909

HEAT-RECOVERABLE WRAP-AROUND DEVICES

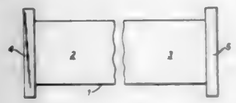
Francois Biscop, Strijderstraat 3, 3200 Kessel-lo, Belgium

Continuation of Ser. No. 971,559, Dec. 20, 1978, abandoned. This application Jun. 16, 1980, Ser. No. 159,499

Claims priority, application United Kingdom, Dec. 23, 1977, 53704/77

Int. Cl.³ F16L 11/12, 25/00, 55/16

U.S. Cl. 138—167 29 Claims





1. A heat-recoverable wrap-around device made from heat-recoverable sheet material, wherein two opposed edge regions of the sheet material which are securable together by a fastening means to form a sleeve prior to recovery are each provided with a strip of relatively rigid material, the strips lying generally in the plane of the heat-recoverable sheet material and having end portions extending beyond the sides of the sheet material which end portions are capable of being engaged with each other and/or one or more other members at or beyond the sides of the heat-recoverable sheet material to form the fastening means thereof.

4,276,910

PHOTOELECTRICAL BOBBIN FEELER

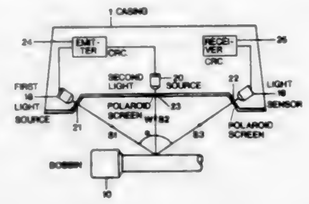
Werner Eichenberger, Zürich, Switzerland, assignor to Gebrüder Loepfe AG, Wetzikon, Switzerland

Filed Feb. 22, 1980, Ser. No. 123,842

Claims priority, application Switzerland, Mar. 15, 1979, 2443/79

Int. Cl.³ D03D 45/12

U.S. Cl. 139—273 A 3 Claims



1. A photoelectrical bobbin feeler for monitoring the winding condition of a textile bobbin, comprising a light source, first and second light sensors for receiving light emitted by the light source and reflected specularly and diffusely, respectively, from the bobbin, wherein the light source and light sensors have optical axes defining a scanning plane, the optical axes of the light source and first light sensor form an obtuse angle α, the optical axes of the light source and the second light sensor form an angle β of at least 30°, and a polaroid screen is arranged in front of the light source such as to pass light components oscillating in a plane perpendicular to the scanning plane.

4,276,911

TAKE-OFF APPARATUS FOR THE FABRIC WEB OF A TEXTILE MACHINE, ESPECIALLY A LOOM

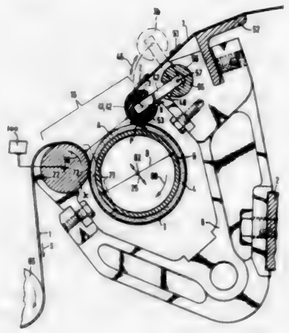
Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Nov. 2, 1979, Ser. No. 90,694

Claims priority, application Switzerland, Dec. 5, 1978, 12385/78

Int. Cl.³ D03D 49/20

U.S. Cl. 139—308 11 Claims



1. A take-off apparatus for the cloth web of a textile machine, especially a loom, comprising:

a driven cloth take-off roll;

a respective deflection element, one of which is arranged forwardly and the other of which is arranged after the take-off roll with respect to the direction of travel of the cloth;

said deflection elements serving for the deflection of the cloth and bearing against the take-off roll while the cloth is interposed therebetween;

means for mounting said deflection elements;

means for movably mounting said cloth take-off roll for movement transversely with respect to its lengthwise axis;

said deflection elements being arranged relative to one another and with respect to the cloth take-off roll such that inner spacing of both deflection elements from one another is smaller than the diameter of the cloth take-off roll;

the deflection element arranged forwardly of the cloth take-off roll being structured as a spreader device for the cloth;

said forwardly arranged deflection element comprising a rod member having two halves; and

said two halves having opposite pitch threaded grooves defining said spreader grooves.

4,276,912

WEFT THREAD CONTROL DEVICE FOR A WEAVING LOOM WITH REMOVAL OF THE WEFT THREAD FROM A SUPPLY SPOOL BESIDE THE LOOM

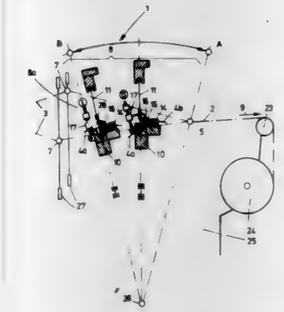
Karel Pejchal; Hans G. Fritzon, both of Ulricehamn, and Raimo Lindström, Västra Frölunda, all of Sweden, assignors to Aktiebolaget IRO, Ulricehamn, Sweden

Filed Aug. 22, 1979, Ser. No. 68,547

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1978, 2836715; Mar. 30, 1979, 2912728

Int. Cl.³ D03D 47/24

U.S. Cl. 139—437 11 Claims



1. A weft thread control device for a loom having a supply spool from which weft thread is drawn, an insertion element having a thread engaging element and which is movable along a defined path to carry thread drawn off of the supply spool through the shed of warp threads, a batten movable substantially transversely to said path between a pair of reversal positions at each of which the batten reverses its direction of motion and at one of which it engages the last-placed weft thread to beat up the same, and a movable thread guide element by which thead drawn off of the supply spool is presented to said thread engaging element as the insertion element enters the shed and is held clear of the thread engaging element as the insertion element moves out of the shed, said weft thread control device being characterized by:

A. a member by which said thread guide element is carried;

B. means mounting said member on the batten for bodily movement therewith and for limited movement relative thereto between

(1) a first position of said member wherein the thread guide element is so located that thread drawn off of the supply spool extends across said path and

(2) a second position of said member wherein the thread guide element is located to dispose said thread clear of said path; and

C. means connected with said member for yieldingly resisting its movement with the batten during reversal of the direction of motion of the batten, so that said member is moved from one to the other of its said positions in consequence of each movement of the batten through a reversal position.

4,276,913

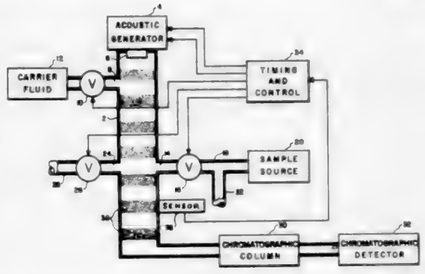
METHOD AND APPARATUS FOR FLUID SAMPLE INJECTION FOR FLUID CHROMATOGRAPHY

Eugene L. Szonntagh, Flourtown, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 4, 1979, Ser. No. 81,629

Int. Cl.³ B65B 3/04

U.S. Cl. 141—1 18 Claims



6. A method of injecting a fluid sample comprising the steps of producing an acoustic standing wave in a closed chamber, introducing a fluid sample between two adjacent nodes of the standing waves, trapping the fluid sample between the nodes and ejecting the trapped fluid sample from the chamber.

4,276,914

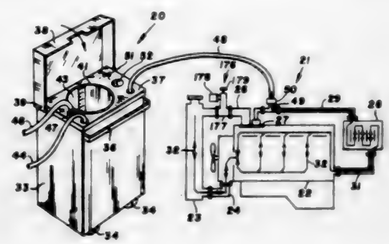
CLEANING APPARATUS AND METHOD

Robert V. Albertson, 2100 Shadywood Rd., Wayzata, Minn. 55391

Filed May 22, 1978, Ser. No. 908,273

Int. Cl.³ B65B 3/12; B08B 9/00

U.S. Cl. 141—92 56 Claims



1. An apparatus for cleaning, flushing, and filling a liquid cooling system of an internal combustion engine, said cooling system including an engine block and radiator for accommodating cooling liquid, and means for carrying liquid connected to the block comprising: a portable housing adapted to be moved to a desired location, said housing having a top wall, a pump assembly mounted on the housing below the top wall, said pump assembly having a cylinder and a pump piston located within the cylinder, drive means connected to the pump piston to reciprocate the pump piston in the cylinder,

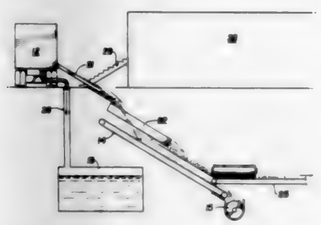
said drive means being operated in response to air under pressure; a manifold having a first chamber, a second chamber, and a one-way valve allowing liquid to flow in a forward direction from the first chamber to the second chamber, a pump hose connected to the pump assembly and manifold for carrying liquid from the pump assembly to the first chamber of the manifold, an input hose connected to the manifold for receiving liquid from the second chamber and adapted to be connected to the means for carrying liquid connected to the block, a control valve mounted on the top wall connected to the manifold in liquid communication with the first chamber, said control valve having a valving means movable to a flush position, an agitate position, a fill position, and an off position, means for carrying water under pressure to the control valve, said valving means when in the flush position being operable to direct said water under pressure to the manifold, thereby providing water under pressure to the cooling system, a by-pass hose connected to the control valve and manifold in liquid communication with the second chamber, said valving means when in the agitate position connecting the by-pass hose to the first chamber of the manifold whereby reverse flow of liquid moves from the second chamber through by-pass hose, control valve, and first chamber to the pump hose so that the reciprocating pump piston causes sequential movement of the liquid in forward and reverse directions in the liquid cooling system of the internal combustion engine.

4,276,915

SLUDGE SEPARATION PLANT

Marion H. Argyll, 15 E. Irving St., Chevy Chase, Md. 20015

Filed Jan. 24, 1980, Ser. No. 114,834
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—98 **1 Claim**



1. For use with a truck which converts sludge and effluent into a dry granular material forming a base for fertilizer and concentrated effluent in liquid form for making urea fertilizer, a sludge handling and distribution plant comprising:

(a) means for receiving a plurality of truck bodies at a plurality of discharge areas;

(b) means for discharging the dry granular material containing debris into a sieve type shaker arranged over a conveyor belt both of which are on an angle of declination from the truck toward a central collector and conveyor system positioned to receive the non-liquid discharge contents of a plurality of trucks and which will separate the dry granular material from the debris and discharge each separately,

(c) means at each truck discharge area for discharging the concentrated liquid effluent from each vehicle and storing same in underground tanks for further processing into urea fertilizer;

(d) bin storage means positioned to receive the dried granular material from said central collector and conveyor system and bin storing it until it is further processed for conversion into fertilizer, and

(e) bagging and storing means for said granular material, in communication with said bin storage means,

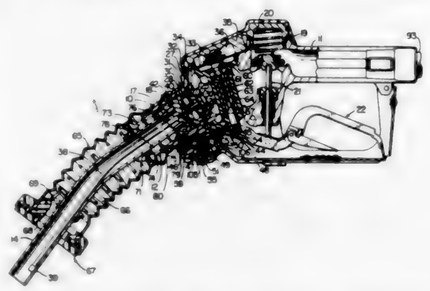
(f) and conveyor means positioned to convey said granular material from said bin storage means to said bagging and storage means.

4,276,916

SENSING ARRANGEMENTS FOR SENSING THE PRESENCE OF LIQUID IN A VAPOR LINE

Paul R. Ostand, Cincinnati, Ohio, assignor to Dover Corporation, New York, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,202
Int. Cl.³ B65B *3/18, 57/14*
U.S. Cl. 141—206 **24 Claims**



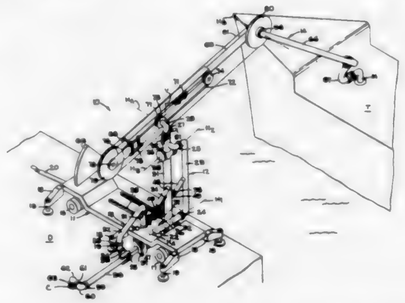
1. An arrangement for sensing the presence of liquid in a vapor line including a body having an inlet communicating with a source of liquid and vapor and an outlet communicating with an area for receiving vapor, said body having passage means therein connecting said inlet and said outlet, movable means disposed in said body and movable between a first position and a second position, said movable means moving from its first position to its second position when a predetermined quantity of liquid flows into said inlet of said body in a predetermined period of time, and means to sense said movable means in its second position to cause stopping of liquid flow to said inlet of said body.

4,276,917

MOBILE APPARATUS FOR FLUID TRANSFER

George Fujita, Norwalk, Calif., assignor to FMC Corporation, San Jose, Calif.

Continuation of Ser. No. 938,997, Sep. 1, 1978, abandoned. This application Oct. 15, 1979, Ser. No. 85,090
Claims priority, application United Kingdom, Apr. 8, 1978, 13846/78
Int. Cl.³ B65B *3/04;* **F16L** *27/00*
U.S. Cl. 141—387 **16 Claims**



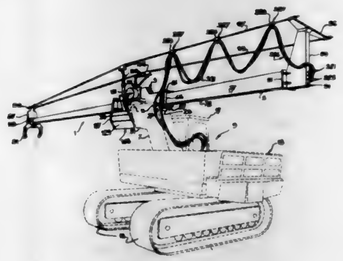
1. An apparatus for establishing a fluid transferring connection between two conduits, said apparatus comprising a mobile platform that travels horizontally to a position adjacent one conduit, a riser assembly mounted upon the mobile platform, said riser assembly having an upper end and a lower end, a jumper hose assembly having a proximate end coupled to the lower end of the riser assembly and a distal end adapted to be coupled to the one conduit, and a loading arm assembly having a proximate end mounted to the upper end of the riser assembly and a distal end adapted to be coupled to the other conduit, said riser assembly having a rotatable pipe section supporting the loading arm assembly for horizontal rotation about a vertical axis, said riser assembly having a mechanism supporting the rotatable pipe section for swinging movement in a vertical plane between lowered and elevated positions, said mechanism including a parallel linkage having a non-rotatable pipe section that supports the rotatable pipe section for rotation about the vertical axis, a fluid conducting link pivotally connected between the non-rotatable pipe section and a lower portion of the riser assembly, and a support link pivotally connected between the non-rotatable pipe section and the mobile platform, said fluid conducting link and said support link having the same length between pivotal axes at the ends thereof, said pivotal axes extending horiztonally in a direction transversely of the mobile platform, said pivotal axes being laterally spaced by the same distance at the mobile platform and at the non-rotatable pipe section, said mechanism maintaining the vertical orientation of the rotatable pipe section, said riser assembly including a traveling link having an upper end pivotally connected to the support link and a lower end mounted for guided travel along the mobile platform, a guide means mounted on said mobile platform for guiding the lower end of said traveling link, and means for mechanically locking the traveling link in a position where the support link projects upright from the mobile platform, said traveling link providing lateral support for the upright support link.

4,276,918

TREE PROCESSING UNIT

Roger Sigouin, 601, R. 111 West, Amos, Quebec, Canada (J9T 2Y1)

Filed Dec. 6, 1978, Ser. No. 967,050
Claims priority, application Canada, Jun. 22, 1978, 306062
Int. Cl.³ A01G *23/08*
U.S. Cl. 144—2 Z **22 Claims**



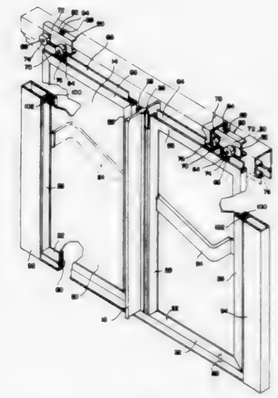
5. A tree processing unit comprising a base member; a boom with a front end and a back end extending through the base member; means for moving the boom through the base member; means on the base member for gripping a tree adjacent its butt end; means fixed on the front end of the boom for gripping and debranching a tree; means fixed on the front end of the boom for cutting the top of the tree; the base member having upper and lower sides and a pair of lateral sides extending between the upper and lower sides; means on the base member adjacent the lower side thereof for detachably connecting the unit to a base support on a motor vehicle which contains hydraulic power means; an upright support at each end of the boom; and at least one tension cable extending between the supports above the boom to strengthen the same; the gripping means on the base member including: a backing member extending down from the lower side of the base member at one lateral side thereof, a jaw member extending down form the lower side of the base member at the other lateral side thereof, and hydraulic means on the base member for moving the jaw member toward the backing member to grip a tree trunk therebetween, said hydraulic means being fed by said hydraulic lines.

4,276,919

ENCLOSURE DOORS

Kenneth I. Walters, Philadelphia, Pa.

Continuation of Ser. No. 807,160, Jun. 16, 1977. This application Dec. 28, 1978, Ser. No. 974,025
Int. Cl.³ E05D *15/26*
U.S. Cl. 160—206 **2 Claims**



1. In an enclosure of the type having an opening defined laterally between right and left jambs and vertically defined between an upper track and a lower track, the combination of

a first door and a second door suspended from said upper track,

each of said doors having respective inward and outward right and left vertical framing members and a vertical medial axis,

said doors being pivotal from a first position wherein the doors position in planar alignment to substantially close the opening to a second, pivotal position wherein the doors are angularly arranged relative to the upper track to expose the opening;

a handle pivotally connecting the first and second doors,

said handle including means adapted to pivotally hold each door to permit each door to pivot relative to the upper track between the said first and second positions,

hanger means connected to each door, part of said hanger means being in sliding relation within the upper track, the hanger means being adapted to slide the doors between the right and left jambs when the doors are pivoted to the said second position, and a pivot pin connected to the bottom of each door, the pivot pin being in sliding relation within the lower track, the pivot pin being in vertical alignment below the hanger means,

said hanger means and pivot pin being laterally offset from the medial axis of its associated door, said hanger means being positioned between a right or left vertical framing member and the medial axis, each door being adapted to pivot about its said hanger means;

magnetic lock means to lock the doors in the first position, said magnetic lock means comprising a movable first magnet means affixed to a movable jamb strip and a second magnet means affixed to a door, said first magnet means being movable to a position to be attracted to the second magnet means when the doors are in the said first position; and

means to laterally adjust the position of the movable jamb strip to vary the size of the opening defined between the said jambs,

whereby the doors when pivoted about the hanger means may be slidable along the tracks to a position adjacent either the right jamb or the left jamb to expose the opening.

4,276,920

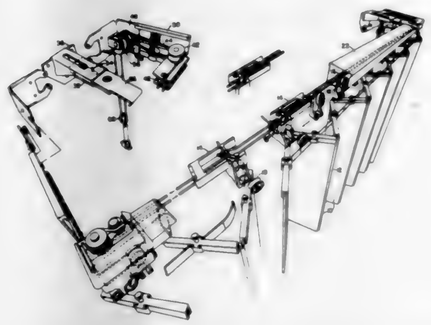
TRAVERSE ROD AND SUPPORT COMBINATION

Paul E. Comeau, Warwick, R.I., assignor to Kenney Manufacturing Company, Warwick, R.I.

Continuation-in-part of Ser. No. 23,071, Mar. 23, 1979, and a continuation-in-part of Ser. No. 27,466, Apr. 5, 1979. This application Apr. 25, 1979, Ser. No. 33,161

Int. Cl.³ A47H 5/032

U.S. Cl. 160—345 **1 Claim**



1. A drapery traverse rod and support combination comprising:

a traverse rod having a slot;

curtain carriers movable in said slot for supporting a curtain;

a draw cord for moving said carriers;

a pulley case at each end of said rod;

a multiplicity of suspension brackets mounted on a wall connected to said rod said brackets located intermediate of the ends of said rod and free of the path of said carriers;

said suspension brackets providing the sole support of said rod on said wall,

means for leading a loop of said draw cord horizontally toward said wall, a pair of adjacent wall pulleys for receiving said loop, means for mounting said wall pulleys to rotate in mutually adjacent relation, a rotatable separating disc between said wall pulleys, and at least one notch in said disc for leading a loop of the draw cord over said wall pulleys.

4,276,921

PROCESS AND APPARATUS FOR THE CONTINUOUS CASTING OF METAL

Alfons E. Lemmens, Herentals, and Hendrik A. L. Gielen, Kasterlee, both of Belgium, assignors to Metallurgie Hoboken-Overpelt, Brussels, Belgium

Filed Apr. 4, 1979, Ser. No. 26,808

Claims priority, application Luxembourg, Apr. 6, 1978, 79390

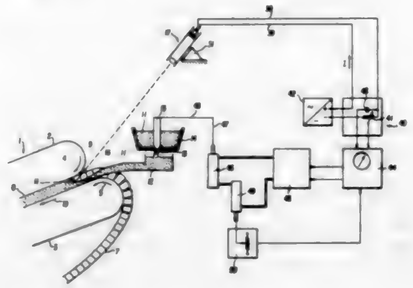
Int. Cl.³ B22D 11/06, 11/16

U.S. Cl. 164—4 **8 Claims**

1. A process for controlling the casting of metal comprising:

(a) flowing molten metal to an inlet opening of a mold cavity, said mold cavity being formed partially by moving belts including an upper and lower belt and enclosed by a pair of side dams serving as a heat sink to solidify said metal as it traverses said mold cavity to an outlet opening,

(b) exposing a photosensitive element whose range of sensitivity essentially is between 500 and 650 nanometers and only weakly responsive to infra-red radiation by an optical device removed from said cavity to radiation emanating from a zone within said cavity, said zone extending on both sides of a line of demarcation between said molten metal and a surface on one of said side dams not covered by said metal,



(c) generating a signal which varies as a function of the area of said surface not covered by said molten metal whereby said signal is indicative of the level of said molten metal within said zone, and

(d) using said generated signal to control one of the volume of molten metal flowing to said inlet opening and the speed of movement of said moving belts and side dams.

4,276,922

PLUG MOLD ASSEMBLY

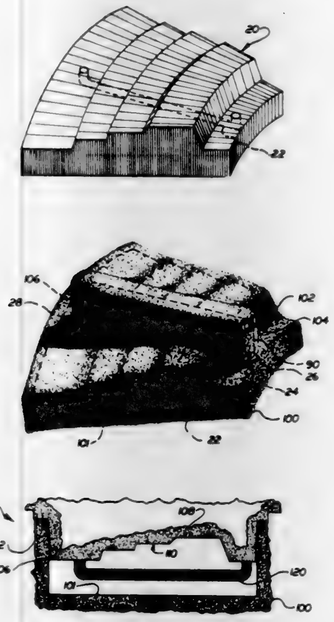
Ronald R. Brookes, North Canton, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed May 24, 1978, Ser. No. 908,804

Int. Cl.² B22C 9/10, 9/00

U.S. Cl. 164—27 **12 Claims**

1. A method of forming a mold for use in casting, said method comprising the steps of, forming a positive pattern having a surface the shape of a part to be cast; forming a negative wax partial pattern having a casting surface complimentary to a selected portion of the surface of the positive pattern and a reference surface in a fixed spatial relationship with the casting surface; forming an assembly by accurately positioning the casting surface of the negative wax partial pattern in complimentary engagement with the selected portion of the surface of the positive pattern; forming a first mold section having a surface complimentary to the surface of the part by dipping the assembly formed in the preceding step in a ceramic material; forming a second mold section of ceramic material having a casting surface identical to the casting surface of the negative wax partial pattern and a reference surface identical to the negative wax partial pattern reference surface, the casting and reference surfaces bearing the same spatial relationship to each other as the identical surfaces of the negative wax partial pattern bear to each other; attaching a core to one of the mold sections; and forming a complete mold by placing the reference surface of the second mold section in abutting engagement with the reference surface of the first mold section



thereby putting the casting surface of the second mold section in registry with the casting surface of the first mold section.

4,276,923

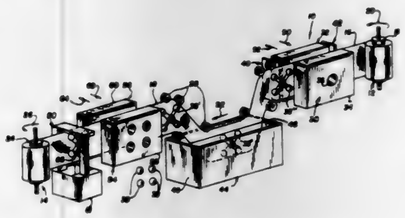
METHOD FOR PRESSURE CASTING METAL OBJECTS

Joseph D. Mislan, 4 Sunset Rd., Lawrenceville, N.J. 08648

Filed Sep. 4, 1979, Ser. No. 71,932

Int. Cl.³ B22D 19/00

U.S. Cl. 164—76 **20 Claims**



1. A method for pressure casting objects in a metal casting die assembly, said method comprising the steps of:

(a) providing carrier means including a flexible material,

(b) providing a metal casting die assembly including a pair of pressure forming die sections having an open position and a closed, operative position,

(c) said die sections defining a pressure forming die cavity when the die sections are in the closed, operative position,

(d) placing the flexible material between the die sections with the material projecting outwardly from the die assembly when the dies are in the open position, then

(e) moving the die sections to the closed, operative position to hold the flexible material in place with the closed die sections to enclose the material of the carrier means within the die cavity,

(f) introducing molten metal under pressure into the enclosed die cavity to produce a pressure formed object which integrally includes a portion of the flexible material,

(g) engaging the flexible material projecting outwardly from the die assembly to strip the material away from a die section when the die sections are in the open position, and

(h) removing the pressure formed object together with the integrally included portion of said flexible material from the carrier means.

4,276,924

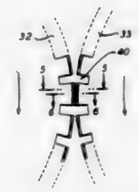
METHOD AND APPARATUS FOR CASTING A SPLAT-COOLED FLEXURE MEMBER

Bo H. G. Ljung, Wayne, N.J., assignor to The Singer Company, Little Falls, N.J.

Division of Ser. No. 912,231, Jun. 2, 1978, Pat. No. 4,202,089. This application Oct. 12, 1979, Ser. No. 84,049

Int. Cl.³ B22D 23/00

U.S. Cl. 164—130 **3 Claims**



1. The method of making high strength metallic glass flexure, comprising the steps of:

heating a metal ingot to form a molten material,

placing a quantity of the molten material between a pair of oppositely facing bearing surfaces with arcuately disposed oppositely facing elongate peripheral protuberances on a pair of rapidly rotating water cooled wheels having peripherally spaced surface portions separated by preformed transverse indentations each time a corresponding pair of oppositely facing bearing surfaces reach their mutual point of near-contact

rapidly cooling said molten material disposed between said pair of oppositely facing bearing surfaces at the point of near-contact upon its contact with said water cooled wheels and forming said molten material into metallic glass flexures by means of said pair of oppositely facing bearing surfaces with protuberances on said wheels.

4,276,925

ELECTRONIC TEMPERATURE CONTROL SYSTEM

Joseph M. Palmieri, Deep River, Conn., assignor to Fuel Computer Corporation of America, New Haven, Conn.

Filed Sep. 19, 1979, Ser. No. 77,105

Int. Cl.³ F25B 29/00

U.S. Cl. 165—12 **15 Claims**

1. A temperature control system for controlling the ambient temperature at a plurality of locations, respectively, each of which locations is provided with a thermostat, comprising:

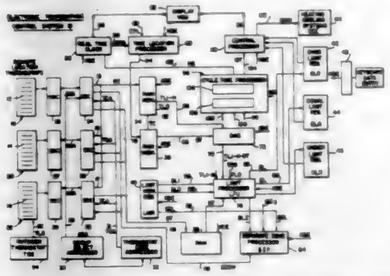
(a) data entry means;

(b) means for polling each of said thermostats to determine the temperature at each said location at a preselected point in real time and to thereby produce polled temperature data;

(c) first memory storage means for storing digital data corresponding to the desired temperature limits for said locations;

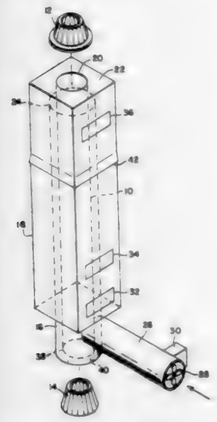
(d) second memory storage means for storing said polled temperature data;

(e) first comparator means for comparing said polled temperature data which said desired temperature limits data and operative to selectively produce over-limit, underlimit and equal limit occurs corresponding to the difference between said polled temperature data and said desired temperature limits data;
(f) third memory storage means for storing said overlimit, underlimit and equal limit counts;



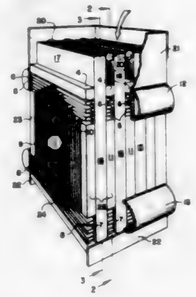
(g) central calculator means operative to alternately, selectively produce temperature changing, and no operation command signals in accordance with said overlimit, underlimit and equal limit counts, and
(h) means for applying said temperature changing signals to a temperature changing source.

4,276,926
STOVE PIPE HEATER
James Evangelow, R.D. #1, Burlington Flats, N.Y. 13315
Filed Aug. 9, 1979, Ser. No. 65,358
Int. Cl.[3] F24B 7/00; F28D 7/00
U.S. Cl. 165—39 6 Claims



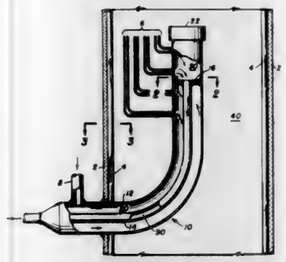
1. A heat transfer apparatus, for cooperation with an associated multistory building, which comprises first and second elongated hollow members, said first elongated hollow member having a circumference which is smaller than the circumference of said second elongated hollow member, said first elongated hollow member having at least an axial portion disposed within said second elongated hollow member, said first elongated hollow member being in fluid communication with an associated combustion chamber on one story of the associated building, and also in fluid communication with the ambient above the associated building, said second elongated hollow member being disposed in fluid communication with an outlet register which is in fluid communication with a story of the associated building higher than the story on which the associated combustion chamber is located, said apparatus further including a third elongated hollow member having a circumference greater than said second elongated hollow member and said third elongated hollow member having at least an axial portion disposed around said second elongated hollow member, said second and third elongated hollow members being in fluid communication at one axial location of each, and said one axial location is at the upper axial extremity of both said second and third elongated hollow members.

4,276,927
PLATE TYPE HEAT EXCHANGER
Harry D. Foust, Dakota, Minn., assignor to The Trane Company, La Crosse, Wis.
Filed Jun. 4, 1979, Ser. No. 45,547
Int. Cl.[3] F28F 3/10, 19/00
U.S. Cl. 165—70 7 Claims



1. A plate type heat exchanger for transferring heat between two fluids of differing temperature comprising
(a) first means for defining a plurality of flow passages through the heat exchanger for one of said fluids, said flow passages being configured in a plurality of generally planar layers;
(b) second means for defining a plurality of flow passages through the heat exchanger for the other of said fluids, said flow passages being configured in a plurality of generally planar layers in alternating relationship with the generally planar layers of flow passages defined by said first means, and which on at least one end, extend substantially beyond the flow passages defined by said first means, said first and second means separating said fluids one from the other in heat exchange relationship;
(c) distribution manifold means for distributing the one of said fluids into the flow passages defined by said first means;
(d) collection manifold means for collecting the one of said fluids exiting the flow passages defined by said first means;
(e) inlet means for channeling the other of said fluids into the flow passages defined by said second means at the one end extending substantially beyond the flow passages defined by said first means; said inlet means including means for sealing the extending ends of the flow passages of adjacent generally planar layers defined by said second means, such that any leak occuring in the extending ends or in said inlet means does not result in the mixing of said fluids, and wherein said sealing means include filler bar means having a rounded surface in contact with the other of said fluids, for reducing flow turbulence in said inlet means; and
(f) outlet means for collecting the other of said fluids exiting the flow passages defined by said second means.

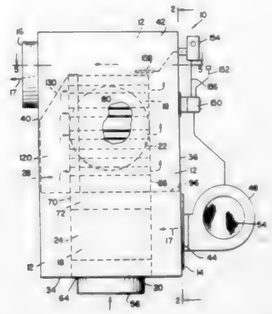
4,276,928
SUPERHEATER INLET/OUTLET HEADER
Henry J. Blaskowski, West Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Feb. 12, 1979, Ser. No. 11,298
Int. Cl.[3] F28F 5/00
U.S. Cl. 165—82 3 Claims



1. A heat exchanger of the type for transferring heat between two heat transfer fluids without contact between the two fluids, comprising:
a. a shell;
b. a first plurality of heat exchange tubes lining the interior of the shell thereby defining a chamber within the shell for containing a first heat transfer fluid;
c. an elongated L-shaped outer enclosure having one leg disposed within said shell chamber and the other leg penetrating through and welded directly to the shell;
d. an elongated L-shaped inner tube disposed within said outer enclosure and spaced radially therefrom to provide an annular space therebetween; said inner tube having one leg rigidly connected to one leg of said outer enclosure and the other leg rigidly connected to the other leg of said outer enclosure at a point external of the shell, the interior of said inner tube defining a first flow path through said outer enclosure and said annular space defining a second flow path through said outer enclosure;
e. a second plurality of heat exchange tubes disposed within said shell chamber and interconnected in fluid communication between said annular chamber and said inner tube, said tubes providing a flow passageway for passing the second heat transfer fluid in heat exchange relationship with the first heat exchange fluid such that the temperature of the second heat transfer fluid is higher within said inner tube than within said outer enclosure; and
f. means for passing the second heat transfer fluid first through the plurality of heat exchange tubes lining the interior of the shell, thence through said annular chamber, thence through said second plurality of heat exchange tubes, and thence out of the shell through said inner tube.

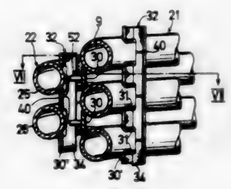
4,276,929
HEAT EXCHANGER
Thomas Howard, Lindenhurst, N.Y., assignor to T.J.D. Industries, Ltd., Lindenhurst, N.Y.
Filed Dec. 10, 1979, Ser. No. 101,449
Int. Cl.[3] F28F 9/22; F24H 3/08; F24B 7/04
U.S. Cl. 165—145 9 Claims

1. A heat exchanger comprising:
(a) an outer chamber having an inlet and an outlet for passing a flow of air through the outer chamber,
(b) an inner chamber disposed within said outer chamber having a second inlet and second outlet for passing a flow of gas through said inner chamber,
(c) heat exchange tubes being arranged in said inner chamber whereby said flow of gas contacts the outer surface of said tubes, and wherein said heat exchange tubes include a first plurality of tubes disposed in a first section of said inner chamber closest to said second inlet, and a second plurality of tubes disposed in a second section of said inner chamber above said first section so that air passes through the heat exchange tubes in the first and second sections for higher heat exchange;
(d) baffle means disposed between said inner and outer chambers for directing said flow of air from said inlet



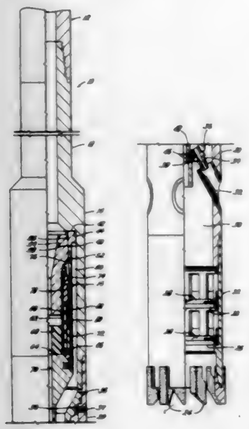
through said heat exchange tubes wherein said baffle means includes a horizontal plate joined between the inner and outer chambers at the juncture of the first and second sections and extending partially around the inner chamber to form an L-shaped opening whereby the flow of air enters the first plurality of tubes, then into said outer chamber and back into said heat exchange tubes whereby heat is exchanged between the air and gas flows.

4,276,930
TUBE NEST FOR A HEAT EXCHANGER
Max Weber, Weisendangen, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland
Filed Jul. 12, 1979, Ser. No. 57,018
Claims priority, application Switzerland, Jul. 12, 1978, 7573/78
Int. Cl.[3] F28F 9/00; F22B 37/20
U.S. Cl. 165—172 12 Claims



1. A tube group for a heat exchanger comprising a plurality of tubes disposed in approximately horizontal planes and vertical disposition relative to each other; and a plurality of ribs interconnecting said vertically disposed tubes of each tube group and being alternately disposed on opposite sides of a respective tube, each said rib being integrally secured between two vertically disposed tubes eccentrically of each said tube, each rib having an outer face aligned with a corresponding generatrix of said two integrally connected tubes.

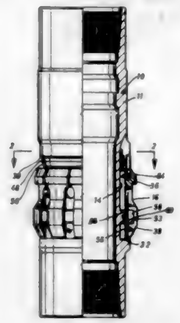
4,276,931
JUNK BASKET
William K. Murray, Bossier Parish, La., assignor to Tri-State Oil Tool Industries, Inc., Bossier City, La.
Filed Oct. 25, 1979, Ser. No. 88,188
Int. Cl.[3] E21B *3/08*
U.S. Cl. 166—99 5 Claims



1. A junk basket comprising
a housing having central bore extending therethrough,
cutting means on the lower end of said housing,
junk retaining means supported within said housing central bore,
a valve assembly mounted within the bore of said housing above said junk retaining means, said valve assembly including
a tubular valve housing positioned in said housing bore,
valve means for controlling flow through said valve housing,
pressure responsive operating means with support means for actuating said valve means whereby said valve means is moved responsive to the stopping and starting of the flow of drilling fluid through said housing between supported open position and unsupported position allowing closing, and
means providing circulation of fluid through said valve housing and said basket housing when said valve means is closed.

4,276,932
WELL CASING HANGER ASSEMBLY
Kenneth C. Seliger, Houston, Tex., and Martin B. Jansen, Agoura, Calif., assignors to NL Industries, Inc., New York, N.Y.
Filed Oct. 10, 1979, Ser. No. 83,200
Int. Cl.[3] F16L *39/00*; E21B *43/10*
U.S. Cl. 166—214 4 Claims

1. In a casing hanger assembly for releasably supporting a first tubular member to and from a second member in a well by longitudinal movement of the first member, said first member including an annular recess in its peripheral surface, a radially extending stop shoulder on the first member at each end of the recess, a resiliently expandable and contractible C-shaped spring support ring positioned in the recess and axially slidable thereon between said stop shoulders and locking means on the first member for locking said ring in an expanded position, the improvement comprising,
coacting means on said first member and said support ring allowing longitudinal movement of the support ring relative to the first member but preventing rotational movement of the support ring relative to the first member, and



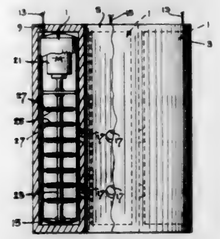
a fluid flow slot positioned in the periphery of said first member aligned with the split in the C-shaped support ring.

4,276,933
SURFACTANT WATERFLOOD METHOD FOR THE RECOVERY OF OIL
Mohan V. Kudchadker; George Kalfoglou, both of Houston, and Lawrence E. Whittington, Katy, all of Tex., assignors to Texaco Inc., White Plains, N.Y.
Continuation-in-part of Ser. No. 900,962, Apr. 28, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,598
Int. Cl.[3] E21B *43/24*
U.S. Cl. 166—266 10 Claims

1. In a method of recovery of oil from a subterranean oil-bearing reservoir traversed by at least one injection well and at least one production well wherein a first aqueous slug containing an anionic surfactant is injected via said injection well and thereafter an aqueous drive agent is injected via said injection well to displace said surfactant slug and said oil through the reservoir to said production well from which production occurs, the improvement comprising the injection via said injection well of a postflush aqueous slug prior to the injection of said drive agent; said postflush containing a nonionic solubilizer selected from the group consisting of alkoxylated alcohols, alkoxylated alkylphenols, and alkoxylated mercaptans wherein the alkyl portion of the said alcohols, alkylphenols and mercaptans have from 9 to 16 carbon atoms and the alkoxylated portion of the said alcohols, alkylphenols and mercaptans have from 1 to 20 ethylene oxide or propylene oxide groups.

4,276,934
METHOD AND DEVICE FOR BLOCKING WELLS TO EXTINGUISH FIRES, PROHIBIT SALTWATER INTRUSION, ETC.
Ward M. Fraser, 23309 Lockness Ave., Harbor City, Calif. 90710
Filed Mar. 6, 1980, Ser. No. 127,585
Int. Cl.[3] E21B *33/13*
U.S. Cl. 166—286 6 Claims

1. A device for plugging wells, when required, comprising:
a plurality of foam generating capsules, each comprising
a series of frangible compartments
a power unit including motor means
mixing means responsive to said motor means such that operation of said motor means causes fracture of the adjacent walls of said frangible compartments and intermixing of the contents of said frangible compartments
foam producing ingredients stored in said frangible compartments so as to be inert before mixing and to actively generate foam when the contents of adjacent frangible compartments are mixed
a fixture for maintaining said plurality of foam generating capsules disposed in a circular pattern around the centerline of the well comprising
a clear central aperture large enough for a well drill string (not part of the present invention) to pass through, and
a plurality of ports so located and shaped as to direct foam generated by said capsules into said clear central aperture.

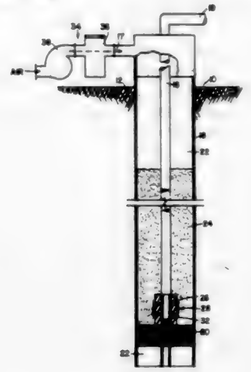


4. A method of plugging wells on command comprising:
the placing of a plurality of foam generating capsules, each capable of generating large volumes of foam on command, disposed around the centerline of the well sufficiently displaced from the centerline of the well to allow drilling to continue without interference from said capsules, at a predetermined depth in the well,
the activation of said foam generating capsules, on command, causing foam to be produced and forced into the well hole where it will harden, forming a plug.

4,276,935
TREATMENT OF SUBSURFACE GAS-BEARING FORMATIONS TO REDUCE WATER PRODUCTION THEREFROM
James E. Heuert, and Chester C. Johnston, Jr., both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Oct. 30, 1979, Ser. No. 89,421
Int. Cl.[3] E21B *33/138, 43/00*
U.S. Cl. 166—295 16 Claims

1. A process for reducing the flow of water from a gas producing subsurface formation into the well bore of a gas producing well penetrating said formation, comprising:
injecting a hydrocarbon-diluted polymeric latex concentrate into said formation via said well bore, said hydrocarbon-diluted polymeric latex concentrate comprising a quantity of viscosifying polymer, a quantity of hydrocarbon diluent and a quantity of water, said quantity of water being present in an amount in the range from about 0.01 to about 5.0 percent by weight based on the weight of said hydrocarbon-diluted polymeric latex concentrate; and
allowing said polymeric latex concentrate to be contacted with connate water in said subsurface formation so as to substantially reduce the water permeability of said subsurface formation proximate said well bore while maintaining the gas permeability of said subsurface formation substantially unrestricted.

4,276,936
METHOD OF THERMALLY INSULATING A WELLBORE
Howard L. McKinzie, Houston, Tex., assignor to Getty Oil Company, Inc., Houston, Tex.
Filed Oct. 1, 1979, Ser. No. 80,228
Int. Cl.[3] E21B *36/00, 43/24*
U.S. Cl. 166—303 5 Claims



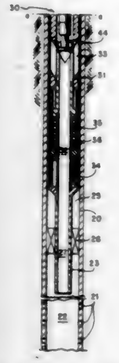
1. A well operation for a well having a tubing string suspended within a casing string, defining an annulus therebetween, with a packer disposed on the tubing string sealing the tubing-casing annulus above an oil-bearing formation which is penetrated by the well, which comprises the steps of:
filling substantially the entire length of the tubing-casing annulus above the packer with a flowable, solid material having thermal insulating properties introduced in the absence of a carrier liquid to thermally insulate the tubing string; and
fluidizing the solid insulating material for removal from the tubing-casing annulus.

3. A method for thermally insulating a tubing string suspended in a cased wellbore, defining a tubing-casing annulus therebetween, with a packer disposed on the tubing string sealing the tubing-casing annulus above an oil-bearing formation which is penetrated by the well, which comprises the steps of:
entraining a flowable, solid material having thermal insulating properties in a stream of low pressure air;
directing the stream of air entrained material into the tubing-casing annulus; and
filling a portion of the tubing-casing annulus above the packer with the flowable, solid material.

4,276,937
WELL SAFETY SYSTEM
Michael B. Calhoun; Russell I. Bayh, III, both of Carrollton, Tex., and Robert E. Dutton, Aurora, Colo., assignors to Otis Engineering Corporation, Dallas, Tex.
Filed Feb. 7, 1979, Ser. No. 9,869
Int. Cl.[3] E21B *43/12*
U.S. Cl. 166—323 17 Claims

1. A surface controlled subsurface safety valve for use in wells, comprising:
(a) an outer housing adapted to be made up as part of a tubing string;
(b) a longitudinal bore through the outer housing, communicating with the bore of the tubing string;
(c) a lateral passageway, intermediate the ends of the outer housing, communicating with the longitudinal bore and the exterior of the outer housing;
(d) a valve closure means disposed within the longitudinal

bore between the lateral passageway and the lower end of the outer housing;
(e) the valve closure means having a first position allowing fluid flow through the longitudinal bore and a second position blocking fluid flow through the longitudinal bore;
(f) an operating tube slidably disposed within the longitudinal bore to move the valve closure means from the second position to the first position;
(g) means for resiliently urging the valve closure means from its first position to its second position;
(h) means for actuating the operating tube;
(i) means for releasably engaging the actuating means within the upper portion of the longitudinal bore;
(j) means for sealing between the exterior of the actuating means and the inside diameter of the longitudinal bore;



(k) the sealing means preventing communication of fluids from the tubing string above the safety valve with fluids flowing through the valve closure means and the lateral passageway;
(l) first piston means disposed within the actuating means;
(m) means for communicating control fluid pressure from the tubing above the safety valve to one side of the first piston means;
(n) the first piston having a first piston in which the actuating means moves the operating tube to open the valve closure means and a second position in which the resilient urging means can close the valve closure means; and
(o) means for biasing the first piston means to its second position.

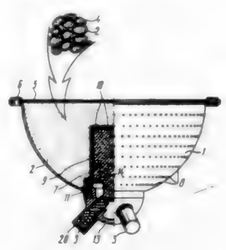
4,276,938

METHOD AND APPLIANCE FOR FIRE EXTINGUISHING IN ENCLOSED COMPARTMENT

Alexandr S. Klimenko, Leningradskoe shosse, 118, korpus 91; Igor V. Emelyanov, Leningradsky prospekt, 60-A, kv. 137; Anatoly A. Krylov, Entuziastov ulitsa, 11, kv. 95, and Semen A. Yantovsky, ulitsa 26 Bakinskikh komissarov, 3, korpus 3, kv. 240, all of Moscow, U.S.S.R.

Filed Nov. 13, 1978, Ser. No. 959,416
Int. Cl.³ A62C 3/02
U.S. Cl. 169—47 **11 Claims**

1. A method for fire extinguishing in an enclosed compartment by using a chemically active liquid inhibitor as a fire extinguishant; wherein said chemically active inhibitor is confined in miniature capsules made from a thermoplastic material and placed in an individual gas permeable container located in the enclosed compartment and fitted with a fuse extending outside the container and responsive to infrared radiation; said chemically active inhibitor being distributed over the compartment after ignition of the fuse, which acts to change the chemically active inhibitor from a liquid to a gas under the indluence of the temperature rising in the container after ignition of said fuse, destroying the material of the miniature capsules and evaporating the inhibitor whose vapors escape from openings



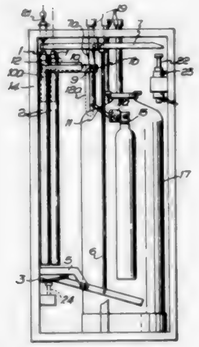
in the container and produce a noncombustible atmosphere in the compartment.

4,276,939

FIRE DETECTION AND EXTINGUISHING SYSTEMS

Joseph Atack, Huddersfield, England, assignor to Fire (Waterless Sprinklers) Limited, Guernsey, Channel Islands

Filed May 16, 1979, Ser. No. 45,081
Claims priority, application United Kingdom, May 30, 1978, 24056/78
Int. Cl.³ A62C 37/18
U.S. Cl. 169—60 **1 Claim**



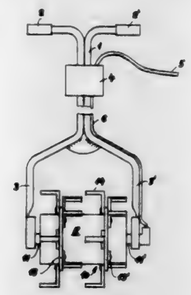
1. Fire detecting and extinguishing apparatus comprising a plurality of individual detectors arranged at respective areas to be protected, each of said detectors emitting an electrical signal of a different frequency from the others when energized by fire, a central receiver having means for receiving each different frequency signal and emitting an electrical switching signal of corresponding frequency, a plurality of switch means each tuned to receive a different one of said switching signals and a solenoid operably connected to each switch means, a plurality of pressurized cylinder assemblies containing fire treatment fluid located in the respective areas, each cylinder assembly having a discharge valve, and means operably connecting each solenoid to the discharge valve of the associated cylinder assembly whereby upon energization of a particular detector a fire treating fluid will be discharged from a cylinder assembly in that area, said last-named means providing a plurality of movably mounted platforms, one at each cylinder assembly, with each of said solenoids operatively connected to displace a different one of said platforms when actuated by the switching signal, and there being a weight on each platform connected to the associated cylinder discharge valve and adapted to fall and open that valve when the associated platform is displaced.

4,276,940

GARDEN IMPLEMENT WITH A DRUM MOTOR

Allan K. Kirkegaard, Nykobing Mors, Denmark, assignor to Anpartselskab, Nykobing Mors, Denmark

Filed Aug. 20, 1979, Ser. No. 67,910
Claims priority, application Denmark, Aug. 21, 1978, 3692/78
Int. Cl.³ A01B 33/02, 33/08
U.S. Cl. 172—42 **6 Claims**



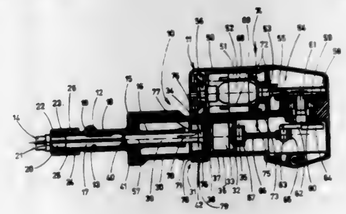
1. A garden implement comprising:
means for defining a frame having spaced apart downwardly extending prongs;
a drum motor having non-rotating protruding shafts carried by said prongs; and
a shell encompassing and rotatably driven by said drum motor, the shell constituting a roller forming a garden implement.

4,276,941

HAND-HELD POWER TOOL

Karl Wanner; Werner Lehmann, and Ulrich Ranger, all of Leinfelden, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 13, 1979, Ser. No. 66,007
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1978, 2844086
Int. Cl.³ B23B 45/02; B25D 11/04, 17/22
U.S. Cl. 173—117 **14 Claims**



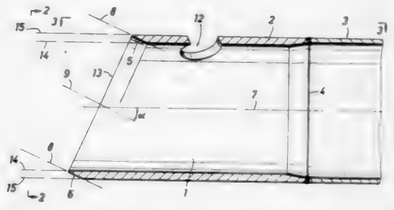
1. A hand-held power tool, comprising a tool holder arranged to hold a tool; a striking mechanism including a cylindrical sleeve having a longitudinal axis, a drive piston axially reciprocable in said cylindrical sleeve, and a striker actuated by said drive piston so as to transmit impact energy to the tool which is held in said tool holder; a drive motor located in axis-parallel relationship with and laterally adjacent to said cylindrical sleeve and having a rotatable shaft with two end portions, one of said end portions extending in a direction opposite to said tool holder and carrying a drive pinion, whereas the other of said end portions extends in a direction toward said tool holder and carries a fan; drive means for converting rotation of said shaft of said drive motor into reciprocal motion of said drive piston of said striking mechanism, said drive means being formed as a one-stage crank drive located rearwardly of said drive piston and having a drive train which extends transversely to said longitudinal axis of said cylindrical sleeve, said crank drive including a bevel gear meshing with said drive pinion of said shaft of said drive motor, a rotatable drive shaft having two end sections, on one of which end sections said bevel gear is mounted for joint rotation therewith, and a crank lever mounted on the other of said end sections of said drive shaft for joint rotation therewith and provided with a crank pin; means for connecting said drive means with said striking mechanism and including a connecting rod articulated with said drive piston of said striking mechanism at a rear side of said drive piston and having a connecting lug which is pivotally connected with said crank pin of said drive means; and means for guiding cooling air so that the latter passes through said drive motor and discharges onto an outer surface of said cylindrical sleeve in the axial region of said striking mechanism and then toward said tool holder.

4,276,942

DEVIATION DEVICE

Kornelis N. Zijlstra, Aberdeen, Scotland, assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 15, 1980, Ser. No. 112,262
Claims priority, application United Kingdom, Jan. 19, 1979, 01968/79
Int. Cl.³ E21B 7/08
U.S. Cl. 175—21 **8 Claims**



1. A deviation device for causing a conductor string to deviate as it is being driven into a subterranean formation, comprising a straight tubular element, open at both ends, wherein the wall of the tubular element at an end part is provided with guide faces, said guide faces being inclined relative to the longitudinal axis of the tubular element and being arranged within the periphery of the tubular element, wherein said guide faces consist of a first guide face at the outer side of the tubular element and a second guide face at the inner side of the tubular element, wherein the wall portion of the tubular element which is provided with the first guide face is arranged diametrically opposite to the wall portion of the tubular element which is provided with the second guide face with each of said first guide face and said second guide face extending substantially one-half way around the tubular element and joint each other in smooth transition.

4,276,943

FLUIDIC PULSER

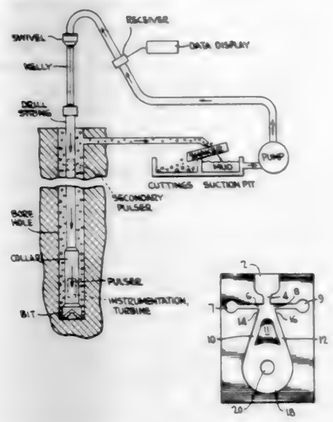
Allen B. Holmes, Rockville, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 25, 1979, Ser. No. 78,748
Int. Cl.³ E21B 47/12; F15C 1/16
U.S. Cl. 175—40 **8 Claims**

1. A device for producing pulses in a fluid body comprising,
bi-stable fluid amplifier means for establishing a stable flow of fluid through one outlet thereof, said bi-stable amplifier having dual outlets,
vortex chamber means hving inlets on the periphery thereof and at least one outlet at the center thereof,
said outlets of said bi-stable amplifier means entering said

vortex chamber tangentially in opposite directions through said inlets on the periphery thereof,

and control means associated with said bi-stable amplifier means for selectively diverting the stable flow in one outlet thereof and for establishing stable flow through the other of said dual outlets,



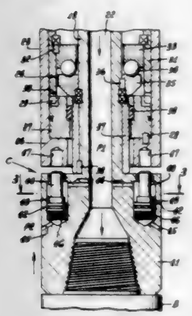
whereby fluid flow through said amplifier means and said vortex chamber means is restricted to a first degree during diversion of the stable fluid flow, and to a second greater degree when the stable flow passes through only one of said outlets, thereby producing pulses in said fluid each time said flow is diverted.

4,276,944

IN-HOLE MOTOR WITH BIT CLUTCH

Bela Geczy, Glendale, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Aug. 20, 1979, Ser. No. 67,756
Int. Cl.³ E21B *4/02*
U.S. Cl. 175—102 **9 Claims**



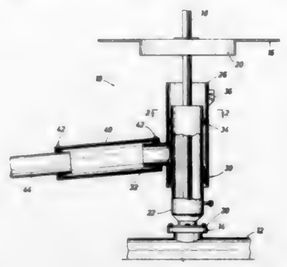
1. An in-hole motor adapted for connection with a rotatable pipe string and a bit, said assembly comprising: a motor stator including a housing structure adapted to be installed in a pipe string; a rotor in said stator; a drive shaft in said housing connected at one end of said shaft with said rotor for rotation therewith and extending from said housing at the other end of said shaft to drive a drill bit; a fluid opening in said shaft having an inlet at said one end of said shaft to conduct fluid from said stator to said other end, a fluid discharge opening at said other end of said shaft and a fluid discharge opening from said housing to the exterior of said housing; a clutch member mounted on said shaft and an other clutch member mounted on said housing springs biasing one of said members towards the other of said members to engage said clutch to couple said housing to said shaft for joint rotation; and fluid operated means to disengage said clutch when fluid pressure in said shaft is in excess of the pressure outside the housing.

4,276,945

MUD RETURN LINE CONNECTOR APPARATUS

Bobby N. Ward, Sr., 11607 Primwood Dr., Houston, Tex. 77070

Filed Jun. 8, 1979, Ser. No. 46,829
Int. Cl.³ E21B *17/02, 21/06*; F16J *15/46*; F16L *17/00*
U.S. Cl. 175—209 **10 Claims**



8. For use above a well during drilling and below the rig floor of a drilling rig which drills the well, wherein the well is drilled with drilling mud which flows back toward the surface where the rig is installed and the mud flow is upwardly through the well, mud handling apparatus which connects with the mud handling equipment therebelow and which comprises:

(a) a detachable, upstanding, mud receiving means having a mud receiving space therein;

(b) an outlet nipple means extending from the mud receiving space and adapted to deliver an outwardly directed flow of mud from the mud receiving space;

(c) a laterally extending mud flow line adapted to deliver a flow of mud to a mud pit; and

(d) telescoping elongate connector means sealingly connecting said mud line and nipple means to define a mud flow path to the mud pits of adjustable length.

4,276,946

BIASED LUBRICANT COMPENSATOR FOR AN EARTH BORING DRILL BIT

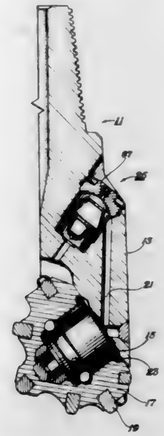
Stuart C. Millsapps, Jr., Houston, Tex., assignor to Hughes Tool Company, Houston, Tex.

Continuation-in-part of Ser. No. 814,609, Jul. 11, 1977, abandoned. This application Mar. 13, 1978, Ser. No. 885,723
Int. Cl.³ E21B *10/22*
U.S. Cl. 175—228 **12 Claims**

1. In an earth boring drill bit of the type having rotatable cutters mounted on bearing shafts and lubricated by a lubrication system that includes a lubricant reservoir for supplying lubricant to the cutters and a passage extending from the reservoir to the exterior of the bit for the admission of borehole fluid, an improved lubricant compensator comprising:

a flexible cup-shaped diaphragm with sidewalls, a bottom, and a mouth that sealingly surrounds the entrance to the passage; and stiffening means in engagement with a portion of the sidewalls for preventing a portion of the sidewalls from folding, the stiffening means being located intermediate the mouth and bottom, dividing the sidewalls into a folding portion extending from the bottom to the stiffening means and a stiff portion extending from the folding portion to the mouth; the stiffening means being

located so that when the folding portion is fully folded and under no pressure differential, a substantial void space



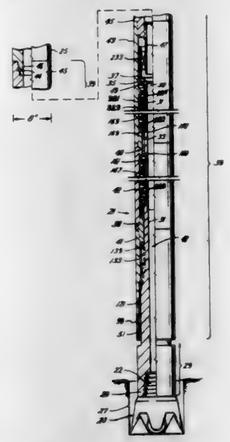
exists in the borehole fluid side of the reservoir between the bottom of the diaphragm and entrance to the passage.

4,276,947

ROLLER BELLEVILLE SPRING DAMPER

James B. Hebel, Houston, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Filed May 14, 1979, Ser. No. 38,790
Int. Cl.³ E21B *17/00*
U.S. Cl. 175—321 **23 Claims**



1. Double acting resilient telescopic unit for use in a drill string to reduce transmission of vibration from the drill bit to the upper drillstring, i.e. that part of the drill string above the drill bit, said unit comprising

a splined sealed tubular telescopic joint,

variable spring modulus resilient means urging the joint to a zero deflection neutral position with like force upon equal deflection, whether contraction or extension, from neutral position, and

means to contract the length of and thereby equally increase the strain of the resilient means upon equal departures from neutral position upon both extension and contraction of the joint,

said resilient means comprising variable moment arm Belleville springs providing a low spring rate over a working range of travel constituted by positive and negative deflections from said neutral position and a gradually increasing and then sharply increasing spring rate as the limits of both extension and contraction of the joint are approached upon farther positive and negative deflection respectively,

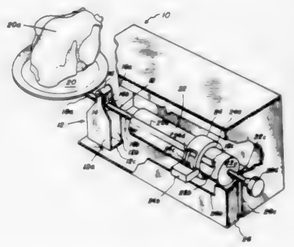
said units, when employed between a three cone rock bit and an upper drill string having a mass of 32,000 pounds, rotating at one revolution per second, providing at said zero deflection neutral position, a frequency ratio in excess of the square root of two.

4,276,948

MICROWAVE OVEN COOKING TIME SCALE

Donald H. Nichols, 4324 IDS Center, Minneapolis, Minn. 55402

Filed Jan. 18, 1979, Ser. No. 4,297
Int. Cl.³ G01G *23/22, 19/00*
U.S. Cl. 177—44 **3 Claims**



1. Microwave oven cooking time scale for determining the length of time to cook a particular piece of food as a function of a predetermined temperature comprising:

a. balance beam scale means including a fulcrum support means, a fulcrum point positioned on said fulcrum support means, a cylindrical means supported on said fulcrum point and including a downwardly extending pivot means and balance beam means extending longitudinally and at right angles from both sides of said pivot means;

b. food container means positioned on one side of said balance beam means for weighing food on said scale;

c. cylindrical information microwave chart means rotatably engaged over the other end of said balance beam means and being of a weight to substantially equal and compensate for said food container means in which said food is weighed and including longitudinally extending rod including a knurled knob at one end, and an informational chart columnly divided as a function of temperature and time and subdivided into at least one subdivision column for cooking efficiencies of food, each subdivision corresponding to low efficiency, medium efficiency, and high efficiency of food for microwave cooking;

d. counterweight means including a cylindrical member engaged over said chart means and including a transparent window, a knob extending horizontally outward, and pointer extending vertically upward and encompassing a portion of said transparent window; and,

e. housing means covering said scale including a rectangular configuration having a horizontal rectangular window substantially corresponding to the diameter and length respectively of said cylindrical information chart means and a substantially upward extending rectangular vertical slot to accommodate said longitudinal rod extending from said chart means whereby said food is placed on said container means and said counterweight means is respectively adjusted to substantially align said information

cylinder means with said horizontal window means thereby indicating the temperature, time and efficiency of the food microwave cooking conditions.

4,276,949

ELECTROMAGNETIC FORCE-COMPENSATING WEIGHING APPLIANCE

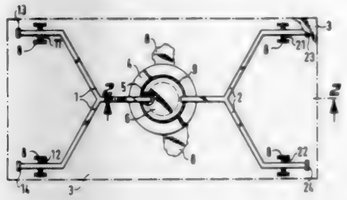
Erich Knothe, Bovenden; Christoph Berg, Adelebsen, and Franz J. Melcher, Hardegsen, all of Fed. Rep. of Germany, assignors to Sartorius GmbH, Göttingen, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,036

Claims priority, application Fed. Rep. of Germany, Dec. 8, 1978, 2853073

Int. Cl.³ G01G *7/00, 3/14*

U.S. Cl. 177—212 **9 Claims**



1. An electro-magnetic force-compensating weighing appliance comprising:

a load scale;

at least two levers having opposite ends and extending at one of their respective ends in supporting relationship with opposite portions of the load scale;

said levers being pivotally supported between their ends;

stationary magnet means having an air gap;

each lever bearing a compensating coil at their respective other ends and said compensating coils being immersed in the magnet means air gap to interact therewith, whereby the location of the load on the load scale determines the proportion each coil contributes to the counter force produced and the sum of the force compensation effected by the coils provides a load-proportional measuring signal, thus eliminating the need for mechanical coupling between the levers.

4,276,950

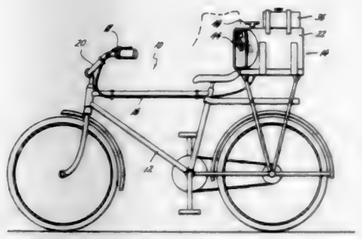
POWER ASSISTED PEDICYCLE

John M. Vance, Bryan, Tex., assignor to J. Wylie Harris, Jr., Houston, Tex.

Filed Apr. 11, 1979, Ser. No. 29,096

Int. Cl.³ B62D *57/04*

U.S. Cl. 180—7 P **4 Claims**



1. A power assisted pedicycle comprising

a frame

a plurality of wheels, each wheel rotatably mounted to the frame

a seat for the rider mounted on the frame

a set of handlebars mounted to the frame

a power package having

a housing secured to the rear of the frame of the pedicycle behind the seat, the interior of the housing having a circumferential groove lined with fibrous material, the housing having a rear end having a protective guard mounted over it to prevent foreign objects from entering the housing, and a front end having formed integrally thereof two opposed air inlets which project outwardly and away from the plane of the pedicycle, each air inlet having a protective guard mounted over it,

an engine mounted within the housing, the engine having a drive shaft extending therefrom, the engine enclosed in a suitable acoustic material to reduce noise generated by the engine, the engine having a throttle,

a throttle control extending from the throttle to the handle bars and secured to the handle bars so that the speed of the engine is conveniently adjustable,

a pull mechanism connected to the engine and extending through the housing for starting the engine,

a propeller secured to the drive shaft and mounted so that the tips of the propeller travel in the circumferential groove of the housing immediately adjacent the fibrous material thereby providing motive force, and

a fuel tank in fluid communication with the engine.

4,276,951

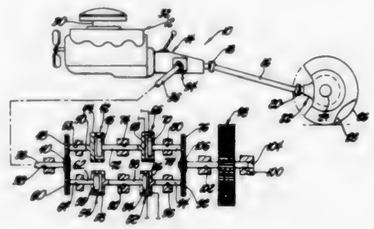
VEHICULAR ENERGY STORING MEANS AND SYSTEM

Marion L. Smitley, Birmingham, Mich., assignor to Colt Industries Operating Corp, New York, N.Y.

Continuation-in-part of Ser. No. 796,754, May 13, 1977, abandoned. This application Apr. 16, 1979, Ser. No. 30,567

Int. Cl.³ B60K *9/04*

U.S. Cl. 180—165 **19 Claims**



1. An energy storing and supplying system for a vehicle having a prime mover and surface-engaging vehicular propelling drive wheel means, comprising vehicular primary power transmitting means operatively interconnecting said prime mover and said wheel means, a flywheel, and secondary power transmitting means operatively connected to said drive wheel means and to said flywheel, said secondary power transmitting means being effective during a first condition of operation of said vehicle for transmitting energy from said vehicle drive wheel means and into said flywheel as to thereby impart rotation to said flywheel, said secondary power transmitting means being effective during a second condition of operation of said vehicle for transmitting energy from said flywheel during its rotation and into said drive wheel means as to at least assist in propelling said vehicle, said secondary power transmitting means including clutching means to prevent during all conditions of operation of said vehicle the transfer of any power from said prime mover to said flywheel and from said flywheel to said prime mover.

4,276,952

APPARATUS FOR INSTALLING VEHICLE COMPONENTS

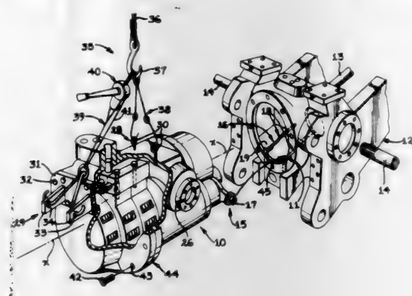
Alvin L. Kuhfuss, Jr., Morton, and Craig W. Riediger, Washington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

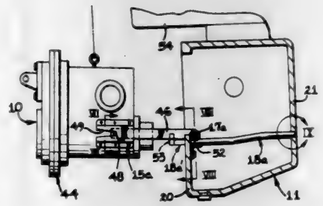
PCT No. PCT/US79/00158, §371 Date Mar. 16, 1979, §102(e) Date Mar. 16, 1979, PCT Pub. No. WO80/01894, PCT Pub. Date Sept. 18, 1980

This PCT application filed Mar. 16, 1979, Ser. No. 81,220

Int. Cl.³ B60K *5/10*

U.S. Cl. 180—294 **10 Claims**





1. In a vehicle having a stationary support (11), a component (10) removably mounted on said support (11), first guide means (15*a*) on said component (10) for supporting and guiding said component (10) between removed and installed positions thereof relative to said support (11), second guide means (16*a*) on said support (11) for engaging said first guide means to support and guide movements of said component (10) between its removed and installed positions, and fastening means (42) for releasably securing said component (10) to said support (11) when said component (10) is in its installed position, the improvement comprising:

said first guide means (15*a*) including a bar and means (47) for slidably mounting said bar (46) on said component (10) for reciprocal movement thereon between extended and retracted positions.

4,276,953

SHIFT LINKAGE FOR A TILT CAB TRUCK

Roger P. Penzotti, Livermore, and Gordon F. Schmeisser, Aptos, both of Calif., assignors to Paccar Inc., Bellevue, Wash.

Filed Jan. 28, 1980, Ser. No. 115,763

Int. Cl.³ B62D *27/06*; B60K *23/00*

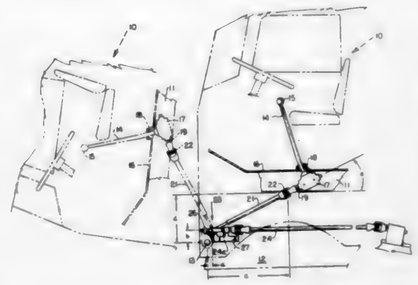
U.S. Cl. 180—328 **11 Claims**

1. A gear shift linkage for a cab-over-engine type truck having a shift lever extending up through the cab floor, said linkage enabling the forward tilting of the cab on the frame about the cab pivot axis without disengagement of the shift linkage and without dislocation of the shift lever from the cab, comprising:

a shifter control unit secured to the cab just below the floor and having an output shaft, the shift lever having a base pivotally mounted to the control unit, and the control unit being operably connected to receive side-to-side movement of the shift lever and translate it into rotation of the output shaft, and to accept forward and rearward movement of the shift lever and translate it into generally forward and rearward movement of the output shaft;

a transmission linkage shaft oriented generally horizontally and adapted for operable connection to a transmission, and bearing means connected to the truck frame and mounting the transmission linkage shaft for axial sliding movement and rotational movement to operate the transmission;

control shaft means connecting the control unit output shaft with the transmission linkage shaft for transferring rotary



and axial movement of the output shaft to the transmission linkage shaft, with first flexible connection means connecting the output shaft to one end of the control shaft and second flexible, pivotal connection means joining the other end of the control shaft with the transmission linkage shaft;

said control shaft means and transmission linkage shaft forming a sharply acute angle at the second connection means at the forward ends of the two shafts; and

said connection means being located near the cab pivot axis; whereby, upon forward tilting of the cab, the shift lever undergoes minor changes of position which depend upon the lever's initial position, but the lever remains connected in the shift linkage.

4,276,954

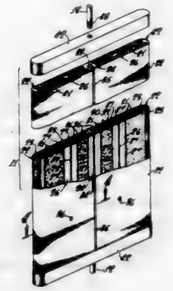
ADJUSTABLE LIGHT AND AIR-ADMITTING WINDOW THERMAL AND ACOUSTIC BARRIER SYSTEM

Paul L. Romano, Orange, Calif., assignor to Acoustic Standards, Orange, Calif.

Filed Oct. 1, 1979, Ser. No. 80,337

Int. Cl.³ E04F *17/04*; E04B *1/343, 1/82*; E06B *9/26*

U.S. Cl. 181—224 **5 Claims**



1. An adjustable light and air-admitting thermal and acoustic barrier, comprising a plurality of sound and heat transfer atten-

uating blades pivotally mounted in longitudinally parallel and mutually spaced apart relation, each said blade comprising:

(a) a self-supporting core of sound reflective material, said core comprising

(1) an elongated web,

(2) generally C-shaped side edge flanges on said web having opposite ends defining laterally inwardly projecting lips on opposite sides of and spaced apart from said web, the lips of opposite side edge flanges extending towards each other substantially parallel to and spaced from the web to define longitudinally extending cavities on opposite sides of the web with the lips of said side edge flanges partially overlying and partially enclosing such cavities,

(3) a plurality of strips of sound-absorbing insulating material positioned in respective ones of said cavities, said lips partly overlying said strips of sound-absorbing insulating material and compressing side edge portions thereof to secure said strips within said cavities, and

(4) a sound-absorbing cover laterally enfolding said core, whereby said strips of sound-absorbing material are readily mounted upon said core and retained in said cavity by the side edge compression thereof.

4,276,955

MULTIPLE-PURPOSE WORK UNIT

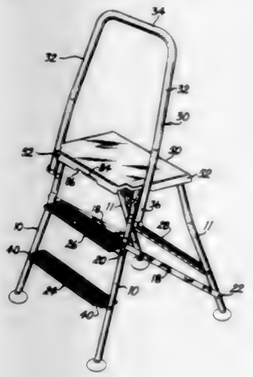
Ronald P. Hickman, Jersey, United Kingdom, assignor to Tekron Licensing B.V., De Leersum, Netherlands

Filed May 29, 1979, Ser. No. 43,179

Claims priority, application United Kingdom, May 30, 1978, 23899/78; Dec. 29, 1978, 50193/78; Dec. 29, 1978, 50194/78; Dec. 29, 1978, 50195/78

Int. Cl.³ A47C *13/00*; B25B *1/10*

U.S. Cl. 182—33 **41 Claims**



1. A portable combination step stool-stepladder-workbench unit, comprising:

(a) a substructure including at least one step;

(b) a top structure carried by said substructure and including (1) a vise unit, (2) a seat-forming member, and (3) means for mounting said seat-forming member on said top structure for movement between a first position, in which the seat-forming member overlies the vise unit and defines a seating surface, and a second position, in which the seat-forming member is out of overlying relation to the vise unit and the vise unit is accessible for use; and

(c) a handrail member attached to one of the top structure and the substructure for movement between a raised position, in which the handrail member extends above said top structure for supporting a user standing on a step or the seating surface of the work unit, and a storage position, in which the handrail member extends downward along the substructure;

whereby the unit can be used interchangeably as a step stool, with the seat-forming member in said first position and the handrail in said storage position, as a stepladder, with the seat-forming member in said first position and the handrail in said raised position, and as a workbench with said seat-forming member in said second position and said handrail in said storage position.

4,276,956

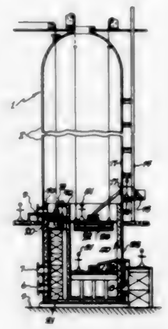
SWING SCAFFOLD FOR HOT BLAST STOVE CHECKER CHAMBER RELINING

Ronald S. Mamula, Williamsville, N.Y., and Samuel C. Dotson, Weirton, W. Va., assignors to Andco Incorporated, Buffalo, N.Y.

Division of Ser. No. 935,706, Aug. 21, 1978, Pat. No. 4,221,537. This application Jan. 16, 1980, Ser. No. 112,611

Int. Cl.³ E04G *3/10, 5/08*

U.S. Cl. 182—128 **3 Claims**



1. A swing scaffold for use in relining the checker chamber of a hot blast stove comprising a platform shaped to conform with the shape of the checker chamber, an open grill in said platform to permit air flow through said scaffold from one side to the other, and a catch board suspended from said platform to catch debris passing through said grill and prevent it from falling into the chamber below.

4,276,957

PORTABLE SCAFFOLD ASSEMBLY WITH MOVABLE ANCHOR

H. Lee Kilgore, 5563 Rattlesnake Hammock Rd., C-11, Naples, Fla. 33942

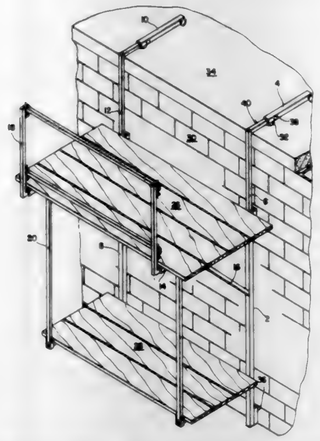
Filed Jan. 8, 1980, Ser. No. 110,508

Int. Cl.³ E04G *3/08, 3/10*

U.S. Cl. 182—130 **4 Claims**

1. A portable scaffold assembly adapted to be engaged and supported upon a vertically extending portion of a building structure, said scaffold assembly comprising a pair of vertically extending, open-ended tubular members, each member having at least one horizontally extending walkway support for supporting a superposed walkway thereon, an upper arm which is adjustably fitted, at a proximate end, for a telescopic engagement within said tubular member, said each upper arm further comprising, at its distal end, a horizontally extending portion which is adjustably fitted to enter a first end and engage within a horizontally extending, open-ended tubular member which extends horizontally to a second end and comprises an anchor said anchor further comprising a vertically extending portion proximate said first end, and adapted to be adjustably and

removably fit against a vertically extending first portion of a building structure, whereby each of said vertically extending



scaffold tubular members will thereby engage the opposite side of said vertically extending structure portion.

4,276,958

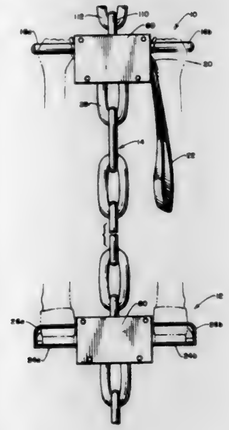
PERSONNEL CHAIN CLIMBER

Clifford L. Skaalen, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 21, 1980, Ser. No. 142,281

Int. Cl.³ A63B *27/00*

U.S. Cl. 182—135 **11 Claims**



1. Apparatus for use by a person in ascending or descending a chain compriaing:

a rigid assembly having a central opening, the chain being disposed through said opening during operation of said apparatus;

a pair of parallel cam pins fixed to said rigid assembly and disposed in said central opening, said pins being on opposite sides of said chain in said opening;

a pair of cams disposed in said assembly on opposite sides of said chain for mating with a link of said chain, each said cam having an elongated aperature through which one of said cam pins is disposed, each said cam being free to rotate about said cam pin and slidable upward and downward on said cam pin as permitted by said elongated aperture;

a pair of resilient means, each resilient means coupled between one of said cams and said rigid assembly for urging said cams inward toward said chain in a direction normal to the direction of said cam pins; and

a pair of cam stops fixed to said assembly, each said cam stop projecting inward on opposite sides of said chain into said central opening toward said cam pins for mating with one of said cams when said cams are mated with a link of said chain.

4,276,959

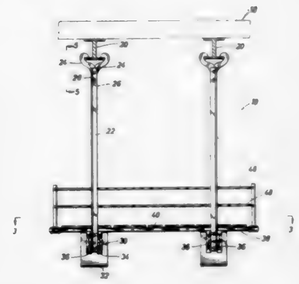
QUICK WAY SCAFFOLD

Ronald A. Barber, 519 S. Harrison St., West, Tex. 76691

Filed Aug. 23, 1979, Ser. No. 68,915

Int. Cl.³ E04G *3/10, 5/06*

U.S. Cl. 182—150 **12 Claims**



1. A scaffold structure adapted to be rigged beneath and supported from a set of horizontal beams comprising:

(a) upright hanger strap means defining a pair of spaced apertures at the upper end thereof, said strap means having a central elongate portion of specified length extending downwardly from said hook means and terminating at a lower end beam support means;

(b) a pair of oppositely facing hook elements each having a hook portion for engagement with a flange of a beam and each defining a downwardly extending shank having spaced apertures formed therein;

(c) a pair of bolts extending through said apertures of said shank portions of each hook element and extending through said apertures of said hanger strap means and securing the same in immovable assembly with said strap means;

a beam extending between a pair of upright hanger strap means rested on said beam support means, said beam having an extent enabling a deck to be positioned thereon; and

wherein at least two of said upright hanger support means cooperatively support said beam spaced below a platform by a distance determined by the length of said strap means.

4,276,960

OIL DISTRIBUTING MEANS

Paul D. Webb, Tioga, Pa.; William J. Kiefer, and James M. Aumick, both of Addison, N.Y., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed May 17, 1979, Ser. No. 39,811

Int. Cl.³ F04B *39/02*

U.S. Cl. 184—6.22 **17 Claims**

1. Oil distributing means, for a gas-compressing or like system, comprising:

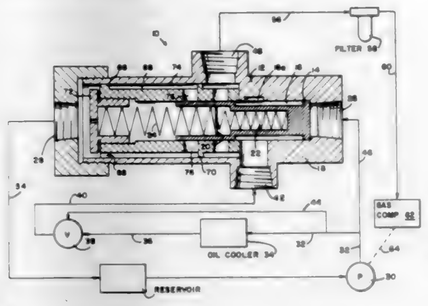
a housing having a given chamber formed therewithin;

a first port formed in said housing, and opening into said chamber at a first location, for admitting oil into said chamber;

a second port formed in said housing, and opening into said chamber at a second location spaced apart from said first location, for discharging oil from said chamber;

valving means slidably disposed in said chamber;

said valving means having closure means for closing off said first and second ports from communication with each other, in a first slidable disposition of said valving means, and for opening said first and second ports to mutual communication, in a second slidable disposition of said valving means; and



means biasing said valving means in said first disposition; wherein

said biasing means comprises means urging said valving means toward said first disposition with a first range of biasing forces, upon said valving means slidably moving away from said first disposition and in the direction of said second disposition, through a first, given distance of slidable movement thereof, and with a second range of biasing forces, upon said valving means slidably moving in said direction through a second distance beyond said first, given distance; and further including

means for addressing a counter-biasing force to said valving means to effect slidable movement thereof in said direction.

4,276,961

MAST AND CARRIAGE ASSEMBLY

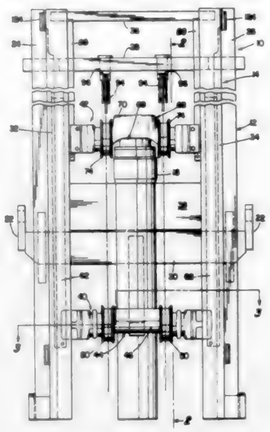
Jun-ichi Sagiyama, Philadelphia, Pa., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 12, 1979, Ser. No. 19,689

Int. Cl.³ B66B *9/20*

U.S. Cl. 187—9 E **8 Claims**

1. In an industrial truck, a stationary upright assembly, a movable upright assembly mounted for vertical movement relative to said stationary upright assembly; a load carriage mounted for vertical movement relative to said movable upright assembly; a lift cylinder having a cylinder body and a vertically extendible ram assembly; means mounting said cylinder for bodily vertical movement relative to said stationary and movable upright assemblies; means interconnecting said stationary upright assembly, said cylinder and said load carriage whereby extension of said ram assembly lifts said load carriage relative to said upright assemblies; first stop means mounted on said load carriage and engageable with said ram assembly to limit upward movement of said load carriage relative to said ram assembly; second stop means attached to said movable upright assembly; and means mounted on said load carriage for engagement with said second stop means to cause said movable upright assembly to move upward when



said ram assembly is extended beyond the point wherein said first stop means engages said ram assembly.

4,276,962

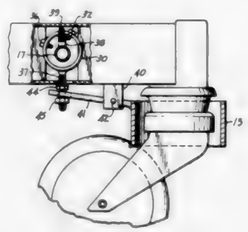
CASTER BRAKE FOR STRETCHER OR THE LIKE

Clarence J. Aulik, Manitowoc, Wis., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Mar. 9, 1979, Ser. No. 18,979

Int. Cl.³ F16D *49/00*

U.S. Cl. 188—1 D **12 Claims**



1. A stretcher or the like with a wheel brake, wherein the improvement comprises: a pivot support on the stretcher; a pivot arm connected to the pivot support; a wheel engaging brake connected to one portion of the pivot arm; a coupling means connected to another portion of the pivot arm; and an elongated actuator rotatably mounted on the stretcher or the like and having longitudinally spaced apart torque receiving and torque delivering portions, with the torque delivering portion being joined to the coupling means, whereby applying a rotational torque to the torque receiving portion of the elongated actuator engages and disengages the wheel brake.

4,276,963

SPREADING DISC BRAKES FOR VEHICLES

Robert A. Anderson, Birmingham, England, assignor to Lucas Industries Limited, Birmingham, England

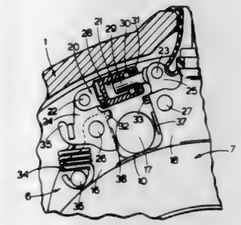
Filed Nov. 14, 1979, Ser. No. 94,232

Claims priority, application United Kingdom, Nov. 14, 1978, 44327/78

Int. Cl.³ F16D *55/16, 55/18*

U.S. Cl. 188—71.4 **5 Claims**

1. A self-energising spreading disc brake comprising a housing having opposed spaced radial surfaces, friction discs within said housing provided with friction linings for engagement with said radial surfaces, stationary pilot lugs in said housing, a servo pressure plate and an arrested pressure plate located between said friction discs, centred by said pilot lugs and relatively movable both axially and angularly, a stop abutment in said housing, said pressure plates having adjacent faces provided with co-operating oppositely inclined recesses, and balls or rollers located in said recesses, wherein said brake is initiated by moving said pressure plates in opposite directions into engagement with said friction discs which, in turn, are urged into engagement with said radial surfaces whereafter said pressure plates are carried round with said discs until said arrested pressure plate is arrested by said stop abutment and the continued angular movement of said servo-pressure plate provides a servo-action, and wherein an automatic slack adjuster is located within said housing, said adjuster comprises an extensible strut which is floatingly mounted within said hous-



ing and acts to maintain said pressure plates in relative angular positions in which braking clearances are maintained within predetermined limits, said strut being extensible automatically when angular movement of said servo plate relative to said arrested plate in the application of the brake exceeds a predetermined value due to wear of said friction linings, at least one spring-loaded member through which said strut acts between said pressure plates, said spring-loaded member being operative to preclude extension of said strut at a limit point when a drag-force between said arrested plate and said stop abutment exceeds the spring loading applied to said member, said member comprising a lever through which said strut is coupled to one of said plates, a pivotal connection between said lever and said plate, and a spring for urging said lever into a neutral position, the load in said spring being chosen to permit said lever to move angularly about said pivotal connection to prevent the effective length of said strut from being increased further at said limit point.

4,276,964

CALIPER CARRYING STRUCTURE OF PIN-SLIDE TYPE DISC BRAKE

Yoichi Iwata, Satte, Japan, assignor to Akebono Brake Industry Co., Ltd., Tokyo, Japan

Filed Nov. 9, 1979, Ser. No. 92,842

Claims priority, application Japan, Nov. 17, 1978, 53-141883

Int. Cl.³ F16D *65/02*

U.S. Cl. 188—73.3 **12 Claims**

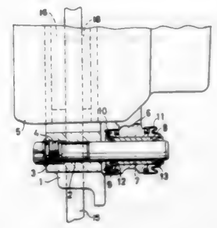
1. A caliper carrying structure for a pin-slide type disc brake having a caliper member which is carried by a support member in such a way as to be slidable in the axial direction of a disc and is arranged to push a friction pad against said disc, said caliper carrying structure comprising:

a slide pin which is secured to one of said two members;

an opening provided in the other of said two members and arranged to have said slide pin inserted therein;

a rigid sleeve disposed between said slide pin and said opening and arranged to be slidable on both said slide pin and said opening;

a first sliding part provided between said opening and said sleeve; and



a second sliding part provided between said slide pin and said sleeve.

4,276,965

FLOATING CALIPER SPOT TYPE DISC BRAKE

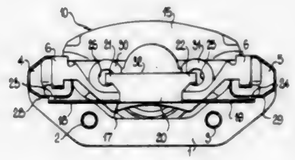
Hajo Pickel, Kelkheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Aug. 16, 1979, Ser. No. 66,960

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840374

Int. Cl.³ F16D *65/02*

U.S. Cl. 188—73.5 **15 Claims**



1. A floating caliper spot type disc brake comprising:

a brake support member disposed substantially parallel to a brake disc, said support member having a pair of arms extending over the periphery of said disc;

a brake caliper being disposed to embrace said disc and axially slidably guided on said support member and disposed between said pair of arms; and

a spring clamping said caliper relative to said support member radially, said spring including

a middle section fastened to an end surface of said caliper parallel to said disc and remote from an actuating device for said brake, and

two spring arms extending substantial parallel to said discs in opposite directions from said middle section, each of said two spring arms being in slidable abutting engagement with a different one of said pair of arms of said support member.

4,276,966

AUTOMATIC ADJUSTING STRUT

David T. Ayers, Birmingham, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

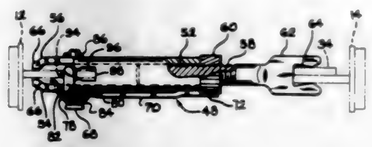
Filed Nov. 16, 1978, Ser. No. 961,322

Int. Cl.³ F16D *65/56*

U.S. Cl. 188—79.5 P **15 Claims**

1. A self-adjusting strut comprising: a carrier body having a longitudinally extending opening therein; a threaded extensible member projecting in one direction out of said longitudinally extending opening; star wheel means for causing said extensible member to be threaded outwardly of said opening in said direction; a ratchet lever rotatably supported along the side of said carrier with a finger portion positioned for engaging said

star wheel means; first and second spaced apart adjuster abutments on said carrier facing in the opposite direction from said extensible member, said first adjuster abutment being adapted to be engaged by a first driven structure abutment it adjusts, said ratchet lever having an actuating tang adapted to abut said second adjuster abutment and a second driven structure abutment, the distance between said adjuster abutments being



greater by a predetermined distance than is the spacing of the driven structure abutments; and whereby after a predetermined driven structure movement away from said carrier, the actuating tang is moved by the second driven structure abutment to rotate said ratchet lever and in turn rotate said star wheel means to thread said extensible member out of said carrier body.

4,276,967

SNUBBER ASSEMBLY

Terrence P. Dowell, Van Nuys; Edwin L. Banks, Jr., Lakeview Terrace, and Carl T. Lace, Woodland Hills, all of Calif., assignors to Barry Wright Corporation, Watertown, Mass.

Continuation of Ser. No. 822,241, Aug. 5, 1977, abandoned. This application Apr. 20, 1979, Ser. No. 31,976

Int. Cl.³ F16F 7/06, 7/10

U.S. Cl. 188—134 **7 Claims**



1. A snubber comprising first and second concentric arranged elements, means for mounting said elements for telescopic motion relative to each other along a common axis, a shaft axially fixed relative to said first element and rotatable by said second element, a braking surface on said first element, a driver fixed to said rotatable shaft for rotation therewith, a primary brake assembly mounted on said driver, an inertia mass supported by said shaft and freely rotatable about said shaft relative to said driver, brake actuating means interconnecting the inertia mass and the primary brake assembly, said inertia mass being rotated by said brake actuating means, said primary brake assembly being applied to said braking surface when acceleration between elements exceeds a predetermined value of acceleration causing the inertia mass to rotationally lag the driver and a velocity sensitive brake assembly mounted on the inertia mass and operable by centrifugal force when the rate of rotation of the inertia mass exceeds a predetermined value of velocity to frictionally engage said braking surface to brake rotation of said inertia mass to thus increase the force applied by the primary brake assembly through said brake actuating means whereby the force is increased due to the aforementioned lagging of the inertia mass.

4,276,968

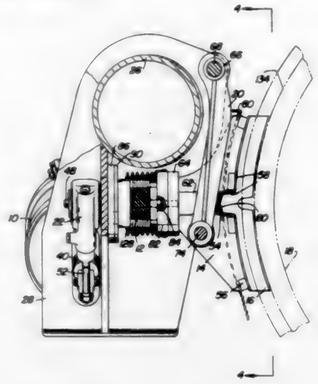
RAIL CAR BRAKE SYSTEM

Alan R. Cripe, and Christopher A. Cripe, both of Richmond, Va., assignors to Bi-Modal Corporation, Greenwich, Conn.

Filed Apr. 10, 1978, Ser. No. 894,731

Int. Cl.³ B60T 1/04; F16D 65/52

U.S. Cl. 188—153 R **6 Claims**



1. In a rail car truck having a support member and rail wheels, a brake mechanism for each wheel comprising a brake head and shoe carried thereby, hanger means pivotally suspending said brake head from said support member, a long-lead screw, a nut carried by said brake head and receiving one end of said screw, a housing mounted on said support member, anti-friction bearing means in said housing and rotatably supporting the other end of said screw, a pneumatic cylinder and push rod operative thereby and means connecting said push rod with the outer end of said screw whereby admission of compressed air into said cylinder will rotate said screw and advance said brake head and shoe essentially linearly towards and into braking engagement with a wheel, said bearing and hanger means acting to minimize frictional resistance to the linear motion of said brake head while maintaining said brake head positively in proper angular relationship with said wheel, said bearing means including a diametrically split spherical bearing providing opposed spaced planar faces, one of which split bearing portions is mounted for rotation with said screw and the other of which floats thereon, a pair of rings in said housing providing an outer race for each of said split bearing portions respectively, and an anti-friction, free-floating roller bearing positioned on said screw between said faces and bearing thereon to combine with said floating split bearing portion and absorb reactive thrust when the brake is applied while said spherical bearing carries the radial loads.

4,276,969

METHOD AND MEANS FOR FASTENING FRICTION WEAR PADS

Robert W. Chin, Akron, Ohio, and Walter J. Krause, Bradenton, Fla., assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Apr. 2, 1979, Ser. No. 15,260

Int. Cl.³ F16D 65/10

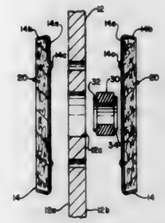
U.S. Cl. 188—218 XL **4 Claims**

1. A friction component comprising:

a substantially disk-like core member having a plurality of mounting apertures formed therein at a specific distance from the core axis and at equal angular positions about the core member;

a plurality of cup-like friction pads containing friction material within the cup mounted on opposite face surfaces of the core member, two such pads in mutual base-to-base alignment with one of said apertures; and

a plurality of substantially cylindrical metal bushings each positioned in one of said mounting apertures, said bushings having a diameter to wall thickness ratio equal to at least 3:1 and having annular projections at the ends thereof that are substantially triangular in cross-section and extend the total bushing length beyond the core aperture by an



amount equal to the projections, said projections being in contact with respective bases of two aligned pads such that upon subjection to an electric welding current said pads and associated bushings are intimately resistance welded at the interface of the annular bushing projections and the pad bases and thus securely affixed to the core member.

4,276,970

HIGH SPEED HYDRODYNAMIC BRAKE

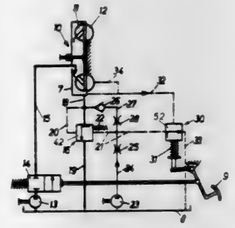
Berthold Herrmann, and Hans Lindenthal, both of Heidenheim, Fed. Rep. of Germany, assignors to Voith Getriebe KG, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,673

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855654

Int. Cl.³ F16D 57/02

U.S. Cl. 188—296 **29 Claims**



1. A hydrodynamic brake comprising: a working chamber, which can be filled with working fluid; a rotor and a stator in said working chamber and positioned and operable such that working fluid in said working chamber operates on said rotor and said stator for causing braking torque; said working chamber having a working fluid outlet;

an overflow valve in said outlet for selectively permitting and prohibiting exit of working fluid from said working chamber through said outlet;

a regulating valve connected at a connection with said overflow valve for closing said overflow valve against flow out of said working chamber through said outlet and for opening said overflow valve; said regulating valve having a first condition at which said regulating valve closes said overflow valve; said regulating valve having a second condition at which said regulating valve causes said overflow valve to open for permitting outlet of working fluid from said working chamber through said outlet;

a brake operator for establishing a desired braking torque in said brake; said brake operator being connected with said regulating valve for adjusting said regulating valve to said first condition thereof;

said regulating valve also being connected with said working chamber for sensing the braking torque of said brake;

said regulating valve being adapted to compare the desired braking torque established by said brake operator with the actual braking torque in said brake, and said regulating valve adjusting its said condition to the selected first and second condition thereof which tends to equalize the two measurements of braking torque.

4,276,971

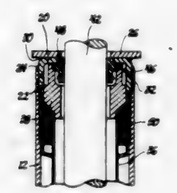
VEHICLE SUSPENSION STRUT WITH SERVICEABLE SHOCK ABSORBER

Richard A. Horvath, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 16, 1979, Ser. No. 94,691

Int. Cl.³ F16F 9/54

U.S. Cl. 188—322 **5 Claims**



1. A motion damping and support strut for a vehicle suspension comprising an elongated outer tube forming a supporting part of the vehicle suspension, enclosure means closing one end of said outer tube, an elongated cylinder tube having a damping fluid therein mounted within said outer tube and coextending therewith, said tubes being radially spaced to define a fluid reservoir therebetween, a valved piston mounted for reciprocal movement in said cylinder tube, base valve means secured to said cylinder tube adjacent said enclosure means and cooperating with said piston to form a compression chamber, a rod guide mounted in the other end of said cylinder tube, a piston rod extending from said piston through said rod guide, a seal for said piston rod supported by said rod guide, a seal cover, fastener means for securing said seal cover to said outer tube, said outer tube having a helical threaded section in the inner wall thereof disposed adjacent to said seal cover, and external groove means on said outer tube transversely located between said fastener means and said helical threaded section to serve as a guide for a tool whereby said outer tube can be circumferentially cut to separate said outer tube into two parts so that one part can be moved from the other to facilitate removal of components supported within said other part so that said other part forms the entirety of said outer tube for reception of a replacement shock absorber cartridge.

4,276,972

METHOD OF, AND APPARATUS FOR, RETARDING THE MOTION OF A POWER DRIVEN VEHICLE

Stanley F. Burnett, Leyland; Michael Dunkley, LongridgeW.; Raymond M. Grimes, Charnock Richard, and Keith Parmee, Leyland, all of England, assignors to British Leyland UK Limited, London, England

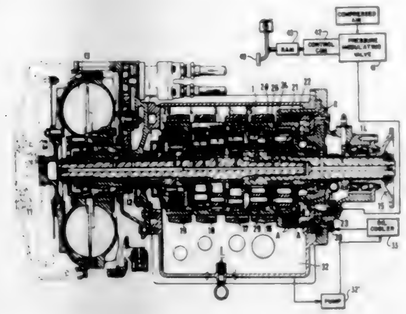
Filed Dec. 29, 1977, Ser. No. 865,586

Int. Cl.³ B60K 41/26; F16D 67/00

U.S. Cl. 192—4 C **6 Claims**

1. In a method of retarding a vehicle, equipped with a transmission utilising a sequence of epicyclic gear trains, each train being operable to link the input and output shaft to provide the desired relative potential speed difference: each of the trains incorporating a reaction member whose motion can be clamped by an associated clamping means to bring the train

into operation and having in addition a reverse gear train whose motion can be clamped by an associated clamping means to cause the output shaft to rotate in the opposite direction to its direction of rotation when any other gear train is



engaged; the improvement comprising the step of causing the clamping means for the reverse gear train to slip or act intermittently so as to cause a retarding torque to be applied to the output shaft by means of the reverse gear train.

4,276,973

CONTROL MECHANISM FOR A TRANSMITTING-PAWL AT A TRANSMISSION HUB FOR A BICYCLE

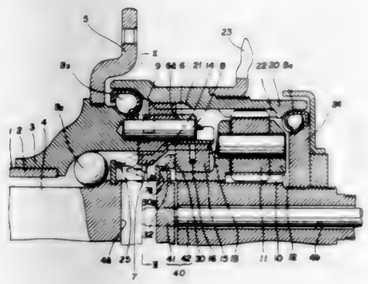
Seiji Fukui, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

Filed Sep. 4, 1979, Ser. No. 72,401

Claims priority, application Japan, Sep. 13, 1978, 53-126648[U]; Jan. 30, 1979, 54-11260[U]

Int. Cl.³ G05G 1/00; F16H 3/44; F16D 41/30, 41/26

U.S. Cl. 192—47 5 Claims



1. A control mechanism for a transmitting-pawl which is supported swingably around a shaft parallel to a hub shaft in a transmission hub of a bicycle, said pawl being biased into an active condition where said pawl is engaged with ratchet teeth of said transmission hub by means of a pawl spring, said control mechanism being operable to move said pawl so it disengages from said ratchet teeth and comprising a pawl control member supported movably to said hub shaft and an operating member for moving said control member axially of said hub shaft, said pawl control member being substantially cylindrical and being provided at the rear side thereof in the direction of its movement to control said pawl to disengage from said ratchet teeth with a holding portion having a peripheral surface which contacts with said pawl to retain said pawl in a condition of disengagement from said ratchet teeth, said control member being provided at the front side thereof in its moving direction with at least one pawl-receiving portion having a depressed face for receiving therein said pawl when said pawl is in its active condition, said control member being further provided at both circumferential sides of said pawl-receiving portion with control portions which are provided in continuation of the depressed face of said pawl-receiving portion and of said peripheral surface of said holding portion, said control portions having slant faces for controlling movement of said pawl received within said pawl-receiving portion to said disengaged condition.

4,276,974

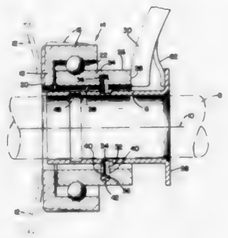
SELF-ALIGNING CLUTCH RELEASE BEARING

Eli M. Ladin, Ann Arbor, Mich., assignor to Federal-Mogul Corp., Detroit, Mich.

Continuation-in-part of Ser. No. 890,473, Mar. 27, 1978, abandoned. This application Feb. 5, 1979, Ser. No. 9,247

Int. Cl.³ F16D 23/14

U.S. Cl. 192—98 48 Claims



1. In an automobile power train or the like including a rotatable clutch having clutch release means, a guide member disposed substantially coaxial with the axis of rotation of the clutch and clutch actuating means, the improvement comprising a clutch release assembly slidably mounted on the guide member and reciprocable therealong by the actuating means for contacting the clutch release means, said clutch release assembly comprising a tubular bearing carrier slidably mounted on the guide member, a bearing supported on said bearing carrier including a plurality of anti-friction elements interposed between a stationary race member and a rotatable race member, said rotatable race member formed with an engaging face for engaging the clutch release means, said stationary race member formed with an internal surface disposed in radial spaced clearance relationship relative to the periphery of said bearing carrier, a groove extending inwardly of said internal surface, a spring washer disposed with its peripheral portion in axially biased preloaded engagement within said groove permitting restricted radial shifting movement between said carrier and said bearing and restricted angular displacement of the axis of said bearing relative to the axis of said carrier, said spring washer having plural layers of a helically wound serpentine strip of resilient material, engaging means on said carrier for retaining said spring washer in longitudinally fixed position therealong, and coacting means on said bearing carrier for preventing rotation of said carrier relative to the guide member.

11. In an automobile power train or the like including a rotatable clutch having clutch release means, a guide member disposed substantially coaxial with the axis of rotation of the clutch and clutch actuating means, the improvement comprising a clutch release assembly slidably mounted on the guide member and reciprocable therealong by the actuating means for contacting the clutch release means, said clutch release assembly comprising a tubular bearing carrier slidably mounted on the guide member, a bearing supported on said bearing carrier including a plurality of anti-friction elements interposed between a stationary race member and a rotatable race member, said rotatable race member formed with an engaging face for engaging the clutch release means, said stationary race member formed with an internal surface disposed in radial spaced clearance relationship relative to the

periphery of said bearing carrier, a groove extending inwardly of said internal surface, a spring washer disposed with its peripheral portion in axially biased preloaded engagement within said groove permitting restricted radial shifting movement between said carrier and said bearing and restricted angular displacement of the axis of said bearing relative to the axis of said carrier, engaging means on said carrier for retaining said spring washer in longitudinally fixed position therealong, and coacting means on said bearing carrier for preventing rotation of said carrier relative to the guide member, said coacting means comprising a radially extending flange formed with a radially extending notch therein.

4,276,975

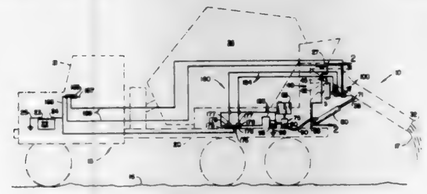
INCLINATION MAINTAINING SYSTEM FOR A DISCHARGE CHUTE

Eugene M. Jenkins, 206 E. Camino Colegio, Santa Maria, Calif. 93454

Filed Nov. 1, 1978, Ser. No. 956,648

Int. Cl.³ B65G 11/12

U.S. Cl. 193—10 4 Claims



1. For use with a truck for transporting ready-mix concrete or the like including a body and an elongated discharge chute having a receiving end pivotally mounted on the body for movement about a mounting axis extending substantially horizontally and transversely of the chute and a distal end, an inclination maintaning system for said chute comprising:

A. contractible and extensible powered means having opposite ends connected to said chute and to said body,

B. a mass movably mounted on the chute for gravitational motivation between a first position when the chute is pivoted about said mounting axis so that the longitudinal axis of the chute has an inclination to the horizontal less than a predetermined angle and a second position when the chute is pivoted so that said inclination is greater than said predetermined angle, the first and second positions of the mass being individually defined by a pair of sensors disposed on opposite sides of the mass along the longitudinal axis of the chute,

C. means pivotally mounting the sensors on the chute for corresponding movement about an axis substantially parallel to the mounting axis of the chute,

D. a powered, reversible, remotely controlled drive connected to the sensor mounting means for simultaneously moving the sensors pivotally about their axis to adjust said predetermined angle, and

E. control means responsive to movement of the mass for contracting said contractible and extensible means when the mass is in the first position and for extending said contractible and extensible means when the mass is in the second position so that said inclination of the chute is maintained substantially at said predetermined angle.

4,276,976

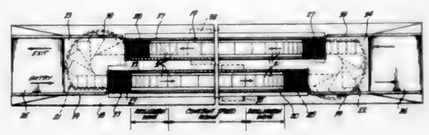
ACCELERATING AND DECELERATING MOVING WALKWAY WITH MINIMAL WALKWAY SURFACE IRREGULARITIES

Phillip E. Dunstan, and Charles H. McConnell, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jul. 20, 1978, Ser. No. 926,336

Int. Cl.³ B65G 23/00

U.S. Cl. 198—334 32 Claims



1. In an accelerating and decelerating moving walkway that includes a plurality of overlapping platforms driven along a substantially horizontal path-of-travel that includes linear regions joined by change-of-direction regions, said platforms having leading edges and trailing edges, said accelerating and decelerating moving walkway also including an overlapping control means for controlling the relative acceleration and deceleration of the walkway by controlling the amount of overlap between adjacent platforms as the platforms are driven along said substantially horizontal path-of-travel, the improvement comprising change-of-direction means, located in the change-of-direction regions, for separating, turning and bringing together adjacent platforms, said change-of-direction means including:

support means for supporting the trailing edge of said platforms in said change-of-direction regions as said adjacent platforms are separated, turned and brought back together; and,

accelerating and decelerating means forming part of said overlapping control means for accelerating said platforms in said change-of-direction regions to separate adjacent platforms and for decelerating said platforms in said change-of-direction regions to bring adjacent platforms together.

4,276,977

DISTRIBUTION AND CONVEYOR APPARATUS FOR EGGS

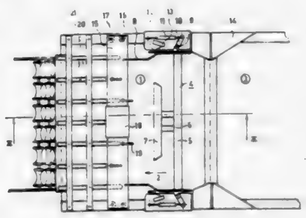
Hendrik J. van Kattenbroek, Barneveld, Netherlands, assignor to Moba Holding Barneveld B.V., Barneveld, Netherlands

Filed May 4, 1978, Ser. No. 902,718

Claims priority, application Netherlands, May 5, 1977, 7704938

Int. Cl.³ B65G 47/68

U.S. Cl. 198—446 15 Claims



1. Distribution and conveyor apparatus for eggs comprising a moveable supporting surface for transport of the eggs, and at least one thin flat transverse member for controlling the distribution of eggs on said support surface being fixedly disposed in overlying relationship with respect to said supporting surface

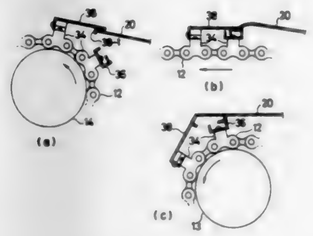
and extending completely across the width of the supporting surface such that all eggs transported by said supporting surface must pass over said at least one transverse member and said transverse member having a height above the support surface low enough for eggs to pass thereover when pushed by eggs behind them.

4,276,978

SHEET CONVEYOR FOR USE IN COPYING MACHINES

Masanobu Deguchi, Yamatotakada, and Takeshi Ikegami, Kurashiki, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 3, 1979, Ser. No. 81,434
Claims priority, application Japan, Oct. 8, 1978, 53/123929
Int. Cl.³ B65H *29/04*
U.S. Cl. 198—654 **8 Claims**



1. A sheet conveyor for conveying a sheet while the sheet being fed is held by a sheet gripper supported by a conveying means comprising:

a sheet gripper;

a conveying means for transporting said sheet gripper in a substantially straight direction and including means for changing the direction of said conveying means;

said conveying means including attachment means spaced at predetermined positions along a length of said conveying means;

said sheet gripper including a sheet pressure rod and a sheet retainer, said sheet pressure rod being affixed to a first pair of attachment means, said sheet retainer being affixed to a second pair of attachment means, said sheet pressure rod being disposed upstream in the direction of transporting with respect to said sheet retainer;

said sheet retainer being a substantially U-shaped member including, relative to the direction of transporting, a trailing long leg member and a leading shorter leg member, said trailing long leg member including at least one cut-out portion which forms a sheet retaining arm;

said sheet pressure rod including a hold plate with an outwardly projecting restricting finger;

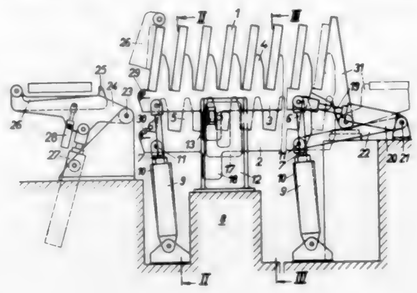
wherein a sheet is supplied to said sheet conveyor during the changing of direction of said conveying means and abuts against said restricting finger of said hold plate, thereafter said conveying means travels in said substantially straight direction and said sheet pressure rod pivots said hold plate and said restricting finger into engagement with said sheet retainer whereby said sheet is sandwiched between said trailing long leg, said sheet retaining arm and said hold plate during transporting through said substantially straight portion and is released during a subsequent changing of direction of said conveying means.

4,276,979

SLAB COOLING AND CONVEYING APPARATUS

Horst Buschmann, Solingen-Ohligs, Fed. Rep. of Germany, assignor to Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Jan. 24, 1979, Ser. No. 6,173
Claims priority, application Fed. Rep. of Germany, Jan. 28, 1979, 2803705
Int. Cl.³ B65G *25/00*
U.S. Cl. 198—775 **7 Claims**



1. Slab cooling and conveying apparatus comprising a plurality of conveyor beams arranged parallel and each formed with a uniformly spaced longitudinal succession of upwardly projecting shoulders each with an inclined support face for receiving slabs extending across said beams and supporting them in an "on edge" position, whereby cooling is facilitated;

pressure-medium cylinders supporting said conveyor beams from below and adapted to move said beams up and down;

displacement means for displacing said beams back and forth by an amount equivalent to said longitudinal spacing of said shoulders, said conveyor beams being moved vertically and horizontally by said pressure-medium cylinders and said displacement means, respectively;

a plurality of elongate and parallel support beams each provided with a like succession of said shoulders for supporting said slabs, laid across them, while said displacement means displaces the conveyor beams in the direction opposite to a conveying direction;

pressure-medium cylinders supporting said support beams from below and adapted to move said support beams up and down, the stroke of the pressure-medium cylinders in both sets of beams being greater than the projection of said shoulders;

guide rods pivotally connected at one end to said support beams and pivotally connected at the other end to a fixed member to guide said support beam for vertical movement only;

the conveyor beam pressure-medium cylinders being pivotally connected to the conveyor beams so that the conveyor beams can be moved by the displacement means while supported by the conveyor beam pressure-medium cylinders.

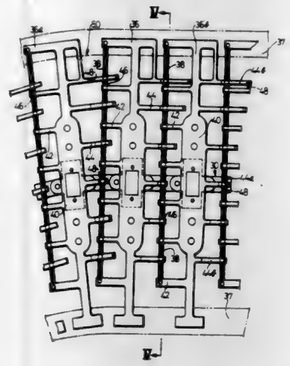
4,276,980

CONVEYOR BELT FOR CONVEYOR SYSTEM

Yoshio Oizumi, Ibaragi, Japan, assignor to Yamakyu Automatics Co., Ltd., Takatsuki, Japan

Filed Sep. 18, 1979, Ser. No. 76,613
Claims priority, application Japan, Oct. 25, 1978, 53-147293[U]
Int. Cl.³ B65G *17/06*
U.S. Cl. 198—851 **4 Claims**

1. A conveyor belt for a conveyor system having a plurality of driving and driven wheels mounted for rotation about parallel axes with said wheels rotating in planes substantially parallel to the plane of transport of the conveyor system and a chain reeved around and interconnecting said wheels, said belt comprises a plurality of support bar means arranged side by side having top surfaces in the plane of transport and a chain attached to the support bar means beneath the plane of transport, said chain being flexible in a plane parallel to the plane of transport, each of the support bar means having a plurality of branch bars projecting from each of opposite sides thereof, each of the support bar means having one group of branch bars on one side thereof interposed in an alternating arrangement



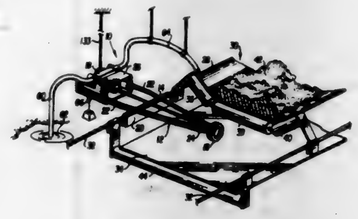
between another group of branch bars on the other side of another support bar means immediately adjacent thereto, a connecting rod fixedly extending through said one group of branch bars and loosely extending through slots formed in said another group of branch bars to interconnect the support bar means and render the support bar means movable longitudinally of the belt and turnable with respect to an adjacent support bar means in a horizontal plane within the range permitted by the loose arrangement of the connecting rod in the slots.

4,276,981

PUMP ASSEMBLY

Frank K. Hurt, and Edwin L. Wellons, both of North Tazewell, Va., assignors to Mefcor, Inc., Bluefield, Va.

Division of Ser. No. 898,062, Apr. 20, 1978, Pat. No. 4,213,743, which is a continuation-in-part of Ser. No. 771,855, Feb. 23, 1977, Pat. No. 4,088,222. This application Jan. 8, 1980, Ser. No. 110,514
The portion of the term of this patent subsequent to May 9, 1995, has been disclaimed.
Int. Cl.³ B65G *35/00*
U.S. Cl. 198—866 **2 Claims**



1. An endless conveyer energy take-off system to be mounted on a rope-like member of an endless conveyer support adjacent to an endless conveyer for taking energy from said endless conveyer, said energy take-off system comprising:

an elongated frame;

a shaft journaled for rotation in said frame and extending longitudinally along said frame;

a drive wheel attached to and rotatable with said shaft, said drive wheel being positioned near a first end of said elongated frame;

an energy utilization means attached to said shaft and mounted on said elongated frame at a position spaced from said drive wheel for utilizing the rotary energy of said shaft;

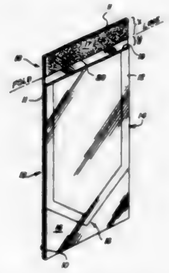
a pivotal mounting means attached to said elongated frame for mounting said elongated frame on said rope-like member running parallel to said endless conveyer for allowing said elongated frame to pivot freely about said rope-like member with the weight of said frame and its attachments causing pivoting of said frame to bring said drive wheel into contact with said endless conveyer, said energy utilization means being mounted intermediate said pivotal mounting means and said drive wheel.

4,276,982

PRESSURE SENSITIVE TAPE CLOSURE POUCH

Joseph S. Sihrava, Chicago, Ill., and Frank E. Caroselli, North Arlington, N.J., assignors to Arvey Corporation, Chicago, Ill.

Continuation of Ser. No. 845,615, Oct. 26, 1977, abandoned. This application Apr. 10, 1979, Ser. No. 29,102
Int. Cl.³ B65D *33/20*
U.S. Cl. 206—439 **13 Claims**



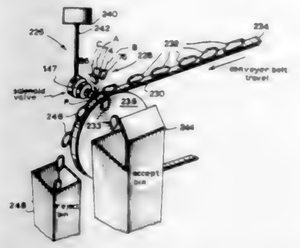
1. A sterilizable pouch comprising first and second opposing webs, said first web including a flap extending outwardly beyond one edge of the second web, said edge of said second web being free of said first web to provide an open mouth for said pouch, one of said webs being made from a transparent thermally stable material and the other said web being made of a steam permeable paper, said first and second webs being sealed to one another around the sides and bottom thereof to close said pouch except for said open mouth, sealing means for closing the mouth of said pouch and including a strip of adhesive on one of said webs adjacent to and spaced from said open mouth, thereby defining an adhesive free zone between said adhesive strip and said open mouth, means forming a fold line at the edge of said adhesive strip closest to said open mouth, said adhesive having a width that is greater than the width of the adhesive free zone whereby when said flap is folded about said fold line (a) said open mouth is sealed by said adhesive strip, and (b) the area from said fold line to said open mouth and throughout said adhesive free zone and an area on the web without said adhesive strip adjacent to said open mouth are engaged by said adhesive strip, to thereby form a contaminant-proof seal in said mouth, said adhesive strip having sufficient holding strength to said paper web to tear at least a portion of said paper web if said seal is opened, to thereby provide a telltale that the seal has been opened and avoid accidental resealing of a sterilized pouch.

4,276,983

SORTING APPARATUS

Theodore B. Witmer, Winona Lake, Ind., assignor to Bickley Manufacturing Company, Narberth, Pa.

Filed Oct. 23, 1978, Ser. No. 953,800
Int. Cl.³ B07C 5/344
U.S. Cl. 209—587 4 Claims



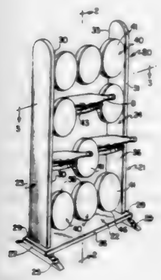
1. Sorting apparatus for sorting objects comprising means for causing said objects to travel in a predetermined direction or path, light emitting means for emitting light pulses at a sufficient frequency or periodic time intervals that each object is subjected to at least one light pulse, said light emitting means comprising a squarewave generator, a light emitting diode driver and associated light emitting diodes connected to said squarewave generator and means for varying the frequency of the generated square wave of said squarewave generator, said light emitting diodes being located in position to illuminate at least a portion of each of said objects as said objects travel in said predetermined direction or path, reflected light detecting means for detecting at least a portion of the reflected light pulses resulting from the illumination of at least a portion of each of said objects at a sufficient time frequency or periodic intervals to insure that reflected light is detected from each object, said reflected light detecting means including a phototransistor and associated signal amplifying circuit and means for varying the responsiveness of said reflected light detecting means to varying intensities of the reflected light in a given light frequency range, and means responsive to said reflected light detection means for sorting said objects based upon said reflected light.

4,276,984

WINE RACK

Bobbye C. Simmons, 511 Summit St., Ridgewood, N.J. 07450

Filed Apr. 24, 1979, Ser. No. 32,760
Int. Cl.³ A47F 7/28
U.S. Cl. 211—81 3 Claims



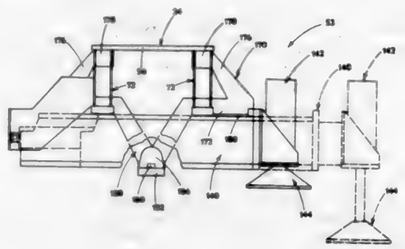
1. An apparatus for selectively supporting at least one container comprising frame means, said frame means including a pair of generally vertically disposed side walls, at least one shelf means disposed between said side walls, means for rotatably mounting said shelf means between said side walls, said shelf means having first and second surfaces, said means for mounting said shelf means being offset to one side of the center of mass of said shelf means so that said shelf means will normally assume a first vertical position in which said first surface of said shelf means is disposed substantially parallel to and viewable from one side of said frame means, said second surface of said shelf means having means for supporting a container thereon when said shelf means is rotated to a second position, and means for retaining said shelf means in said second position, whereby said shelf means normally is freely suspended vertically in a first position with said first side facing outwardly of said frame and is rotatably movable to a second position wherein a container may be supported on said second side of said shelf means, said shelf means being rotatable counterclockwise at least 270 degrees from said first position to said second position.

4,276,985

TRUCK MOUNTED RAILROAD CRANE

Timothy L. Newman, 1810 Craig Rd., St. Louis, Mo. 63141

Filed Sep. 17, 1979, Ser. No. 76,013
Int. Cl.³ B66C 23/62
U.S. Cl. 212—177 9 Claims



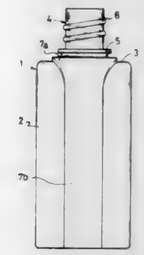
1. In a mobile vehicle including a frame and a boom mounted on said frame, stabilizing outrigger apparatus comprising supporting hanger means centrally disposed relative to said frame and extending downwardly therefrom for mounting oppositely directed outrigger beams, equal bearing means associated with the supporting hanger means for directing equal forces through the supporting hanger means to the frame during extensible or retractable movement of the oppositely directed outrigger beams, outrigger beam guide means supported by and extending laterally outwardly from said frame, outrigger beam support means aldo extending laterally outwardly from said frame and including means for distributing through the frame the load encountered when the outrigger beams are in engagement with the ground, the frame including an upper main bearing plate upon which the boom is mounted and an inner supporting frame section separating a pair of outer supporting frame sections, all of which underlie and support the upper main bearing plate for substantially the entire length thereof, the pair of outer supporting frame sections each having a rectangular cross sectional configuration, and said outrigger beam support means at least partially undergirding and being attached to the upper main bearing plate while also at least partially extending through and being attached to one of the outer supporting frame sections on each side of said frame.

4,276,986

BOTTLE MADE OF SATURATED POLYESTER RESIN

Takami Tsukada, Funabashi; Masao Akutsu, and Tadao Saito, both of Tokyo, all of Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Filed Sep. 12, 1979, Ser. No. 74,881
Int. Cl.³ B65D 1/02
U.S. Cl. 215—1 C 3 Claims



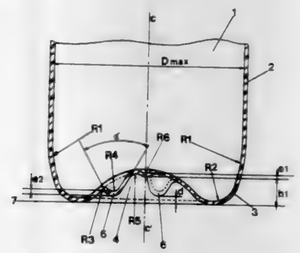
1. In a bottle made of saturated polyester resin having a neck and a trunk and formed by biaxial orientation of a parison of said saturated polyester resin, the improvement comprising a vertically extending, strip-shaped projection formed on the outer surface of said trunk by said biaxial orientation of (1) a strip-shaped piece welded on the outer surface of said parison and (2) said parison.

4,276,987

HOLLOW BODY MADE OF AN ORIENTED THERMOPLASTIC

Edmond Michel, Brussels, Belgium, assignor to Solvay & Cie, Brussels, Belgium

Filed Jan. 18, 1980, Ser. No. 113,264
Claims priority, application France, Feb. 7, 1979, 79 03414
Int. Cl.³ B65D 1/02
U.S. Cl. 215—1 C 13 Claims



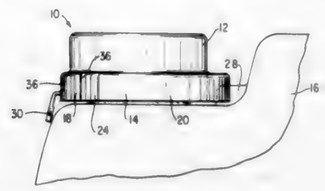
1. Hollow body made of an oriented thermoplastic, which has a longitudinal axis of symmetry and possesses a cylindrical neck, a side wall of general cylindrical shape and a base which comprises a central part in the form of an inset dome, which central part is joined to the side wall by means of an arched peripheral moulding forming a bearing surface for the hollow body in the vertical position, and is provided with a plurality of hollow protuberances which project outwards from the hollow body and are distributed about its longitudinal axis, characterised in that the protuberances have the appearance of cones with a rounded vertex and have tops which are separated from the longitudinal axis of the hollow body by a distance which is equal to at most 60% of the external diameter of the neck of the hollow body.

4,276,988

TAMPER-PROOF CLOSURE

Otfried Kimm; Theo Hammes, and Peter Loebler, all of Cologne, Fed. Rep. of Germany, assignors to Mauser-Werke GmbH, Brühl, Fed. Rep. of Germany

Filed Jan. 18, 1980, Ser. No. 113,274
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1979, 2901953
Int. Cl.³ B65D 41/62, 55/06
U.S. Cl. 215—254 11 Claims



1. A tamper-proof closure for containers having a screw cap and a projection on the container, comprising:

a. a seal cap having a dimension and configuration adapted for receiving at least a portion of the screw cap therein;

b. a lock ring disposed about the seal cap at one end thereof, and characterized in that the lock ring has:

(1) a first portion integral with the seal cap;

(2) a second portion breakably attached to the seal cap;

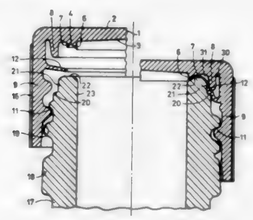
the first and second portions being separated at their respective ends by recesses, the projection being disposed within one of the recesses when the seal cap is installed on the screw cap such that when the screw cap is opened, the second portion is at least partially detached from the seal cap and thereby evidences tampering with the screw cap.

4,276,989

CLOSURES

David M. Hicks, 13 Janet St., East Keilor, 3033, Victoria, Australia

Filed Oct. 31, 1979, Ser. No. 89,893
Claims priority, application Australia, Nov. 6, 1978, PD6664
Int. Cl.³ B65D 53/00
U.S. Cl. 215—270 9 Claims



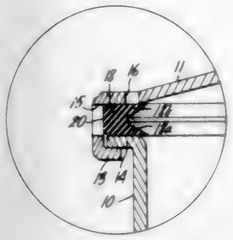
1. A closure comprising a top, a depending skirt, a first flange depending from the top and spaced from the skirt, and a resilient second flange on the depending skirt extending inwardly and which is deformable on moving the closure onto the finish of a container to conform against the outside side wall of the neck of the container and wherein said first flange is adapted to engage with said second flange to force said second flange into close conformity with the outside side wall or the top radius of the neck of the container.

4,276,990

PRESSURE COOKER WITH SEAL SAFETY RELIEF

Morvan Chiodo, Rua Dr. Berto Conde No. 321, Sao Paulo, Brazil

Continuation of Ser. No. 954,096, Oct. 24, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,409
Claims priority, application Brazil, Nov. 1, 1977, 5701390
Int. Cl.³ B65D *51/16*
U.S. Cl. 220—209 **1 Claim**



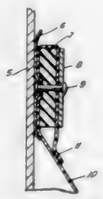
1. In combination, a container for containing therein contents capable of developing a vapor pressure, means for relieving a vapor pressure in said container comprising a cover for said container having a peripheral flange, said cover having at least one lateral through opening on said flange, a vent opening comprising a through opening on a top cover surface of said cover in a locality adjacent said lateral opening in the flange, a flexible seal providing a seal between the cover and the container and underlying said vent opening and effectively sealing said lateral through opening and said vent opening simultaneously when the cover is disposed on said container, said seal comprising a flexible material flexing into said lateral through opening in the flange when vapor pressure in said container exceeds a predetermined pressure, the lateral through opening in the flange being sufficiently large in a circumferential direction to allow a circumferential section of said seal to flex outwardly thereinto and uncover the vent opening and vent the container vapor upwardly when the seal has flexed sufficiently into said lateral through opening when the vapor pressure exceeds said predetermined pressure, and the seal material having memory and restoring inwardly to a position sealing said vent opening when the vapor pressure in said container is less than said predetermined pressure.

4,276,991

FLOATING ROOFS WITH MAGNETIC SEALS

Arnold Gunther, 29 Lorelei Rd., West Orange, N.J. 07052

Filed May 4, 1979, Ser. No. 36,378
Int. Cl.³ B65D *88/44*
U.S. Cl. 220—223 **1 Claim**



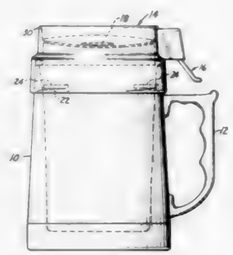
1. A magnetic seal for a floating roof steel tank in which a generally cylindrical tank is provided with a cylindrical floating roof therewithin of a diameter less than the inside diameter of the tank, the magnetic seal comprising a plurality of substantially narrow, flexible and permanently magnetized segments, the width of said segments being a fraction of the height of the floating roof, the totality of the segments covering substantially the inner circumference of said tank's shell, a ring-like shaped, flexible curtain with its outer circumferential portion attached to said plurality of magnetized segments and its inner circumferential portion attached to said floating roof, said permanently magnetized segments being composed of: a substantially thin and narrow metallic strip in sliding contact with the tank's shell, said metallic strip being substantially non-magnetic, a narrow and permanently magnetized flexible strip parallelly located to said non-magnetic metallic strip, a narrow and substantially thin metallic strip facing said magnetized strip, the said non-magnetic metallic strip, magnetized strip, metallic strip and outer circumferential portion of said curtain being held together by convenient fastening means, linkage means between said floating roof and said plurality of segments, said linkage means causing the segments to follow the vertical displacements of the floating roof.

4,276,992

DRINKING CUP WITH LATERALLY ACTUATED VALVE

Roland J. Susich, 3518 Bayberry La., Malibu, Calif. 90265

Filed Mar. 5, 1979, Ser. No. 17,494
Int. Cl.³ A47G *19/22*
U.S. Cl. 220—254 **4 Claims**



1. A mug type drinking receptacle with cover and valve assembly, including, in combination:

(a) a drinking receptacle having an open top and laterally extending handle on one side;

(b) a flat plate and surrounding rim defining a cup-shaped cover for closing off said open top of said receptacle, said plate having an opening adjacent to a first point of said rim, said receptacle and cover having inter-engaging means for removably securing said cover to said receptacle in a position in which said opening is circumferentially spaced 90° from said handle;

(c) a valve head beneath said opening in said plate having resilient support means secured to the bottom surface of said plate biasing the valve head upwardly against the bottom periphery of said opening to normally close said opening; and

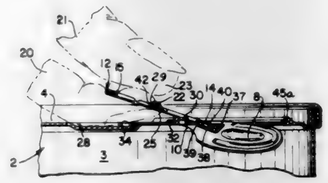
(d) an actuating member passing through a side opening in said rim beneath the undersurface of said plate at a point circumferentially spaced 90° from said opening so as to fall in vertical alignment with said handle, said member terminating in a camming surface engaging a portion of said valve head such that when said member is urged inwardly through said side opening in said rim, it cams said valve head away from said opening to thereby open the same so that a person can drink a beverage from said receptacle by holding said handle with one hand in the manner of a mug and operating said actuating member with the thumb.

4,276,993

EASY-OPENING CONTAINER WITH NON-DETACH TAB

Gary K. Hasegawa, Chicago, Ill., assignor to The Continental Group, Inc., Stamford, Conn.

Filed Oct. 10, 1979, Ser. No. 83,450
Int. Cl.³ B65D *17/34*
U.S. Cl. 220—269 **10 Claims**



1. An easy opening container having an end panel with a scored area defining a closure disk adapted to be severed from said panel and pushed into the container;

a tab having a nose portion at one end overlying said disk, an ear secured to said panel in an area spaced from said disk and a lift portion at the opposite end of the tab;

said lift portion having an aperture therein dimensioned to only admit the nodes of the user's finger grasping said lift portion; and

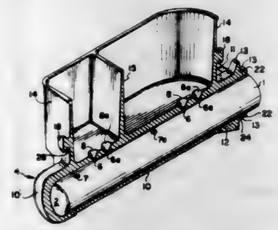
finger-placement-limiting means on the tab between said aperture and the area of securement of said tab to said end panel.

4,276,994

COMPOSITE POWER CYLINDER

George Spalding, Monroe City, Mo., assignor to Diemakers, Inc., Monroe City, Mo.

Continuation-in-part of Ser. No. 702,880, Jul. 6, 1976. This application Aug. 28, 1978, Ser. No. 937,405
Int. Cl.³ F15B *7/00*
U.S. Cl. 220—454 **23 Claims**



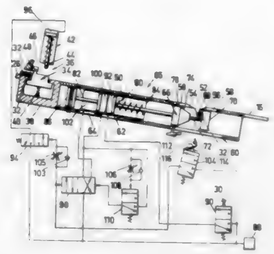
1. A composite hydraulic brake master cylinder comprising a preformed oversized tubular steel sleeve having a bore therein for at least one hydraulic piston, a metal die casting having a generally cylindrical configuration surrounding and concentric with said sleeve exerting a substantially uniform shrinkage force on the entire exterior cylindrical surface of said sleeve, said sleeve having an operating cylinder bore diameter sized by said shrinkage force of the casting placing the sleeve under predetermined compression, and said sleeve having an exterior surface with an end closure over which said casting extends and which is thereby encased by said casting.

4,276,995

GARMENT-HANGING STATION ON A CONVEYOR

Manfred A. Jennewein, Mörfelden-Walldorf, Fed. Rep. of Germany, assignor to Sussman Bügeltechnik GmbH, Walldorf, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 68,177
Claims priority, application Fed. Rep. of Germany, Aug. 23, 1978, 2836750
Int. Cl.³ B65G *47/06*; B65H *3/30*
U.S. Cl. 221—15 **26 Claims**



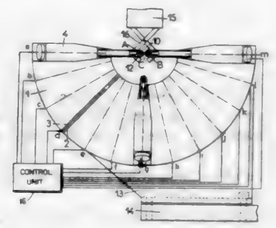
1. In an arrangement for the conveyance along a predetermined path of suspended elements which have objects, particularly of hangers which have garments, supported thereon for joint conveyance at least along a portion of the path, a combination comprising a support rail extending at least along a section of the path and supporting a portion of a suspended element; means for temporarily detaining the suspended element on said rail for handling of the respective object, including an abutment inclined relative to the path section, and means including a mobile latch for confining said portion of the suspended element between said rail, said abutment and said latch; means for releasing said portion of the suspended element from engagement with said abutment; and means for effecting relative movement between said portion of the suspended element, said abutment and said latch during detaining and releasing phases of operation.

4,276,996

DEVICE FOR FEEDING A WORK STATION WITH A SERIES OF ARTICLES, PARTICULARLY ELECTRIC WIRES, IN A PREDETERMINED ORDER

Serge Leandris, Saint Sauveur, France, assignor to Precision Mecanique Labinal, France

Filed Sep. 25, 1979, Ser. No. 78,799
Claims priority, application France, Sep. 28, 1978, 78 27855; Jan. 18, 1979, 79 01287
Int. Cl.³ B65G *61/00*
U.S. Cl. 221—87 **20 Claims**



1. A device for supplying a work station with a series of articles in a predetermined order, said device comprising:

n mobile article-holders adapted to receive articles fed to them, n being an even integer greater than 1;

n moving means each adapted to move a respective said

article-holder between a respective taking-up position and one of two delivery positions, said two delivery positions being in a predetermined zone; (n/2) of said article-holders being movable between their respective said taking-up positions and one of said delivery positions, and the remaining (n/2) said article-holders being movable between their respective said taking-up positions and the other said delivery position;

control means for actuating in a predetermined order each said moving means to move the corresponding said article-holder from its said taking-up position to its said delivery position and then, after a predetermined time, to move it back from its said delivery position to its said taking-up position; and

taking-up means for taking up the articles successively in said zone in the sequence in which they are moved thereto by said article-holders, and for supplying the articles to a work station.

4,276,997

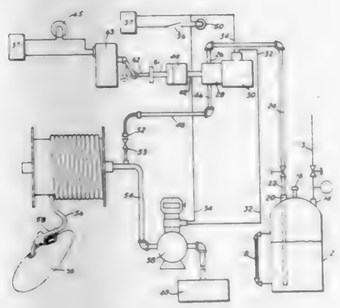
DISPENSING APPARATUS FOR AN AIRCRAFT ANTI-ICING AND BIOCIDAL FUEL ADDITIVE

Theodore C. Ambler, 727 S. Washington, Casper, Wyo. 82601

Filed Aug. 3, 1978, Ser. No. 930,570

Int. Cl.[2] **B67D** *5/06*

U.S. Cl. 222—23 **4 Claims**



1. An additive metering and dispensing system including:

an additive storage tank, having inlet and outlet means, adapted to receive an additive under pressure;

a volume regulator, having inlet-outlet means, adapted to receive and dispense through said inlet-outlet means a selected variable measured amount of additive on each operation cycle and wherein the volume regulator has means for selectively varying the amount of additive during the operation cycle;

a three-way valve means having first and second outlet means and an inlet means connected to the outlet means of said storage tank adapted to selectively connect said first outlet means thereof to the inlet-outlet means of the volume regulator in response to a signal and to selectively connect said inlet-outlet means of volume regulator to said second outlet means to deliver thereto a measured amount of additive;

measuring means for measuring a fluid stream to which the additive is to be added;

means connecting said second outlet into the measured fluid stream;

means for developing a signal in response to a predetermined measure of fluid by said measuring means and means for applying the developed signal to the three-way valve to deliver a measured amount of additive to the measured fluid stream in response to the measuring means passing a predetermined amount of fluid.

4,276,998

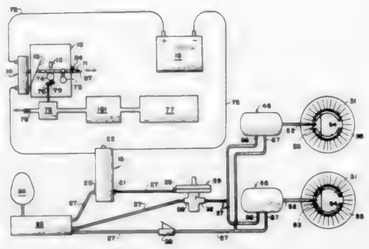
METER-CONTROLLED BRAKING SYSTEM FOR A FLUID-DELIVERING VEHICLE

Eugene L. Blackburn, 7136 Chamberlayne Rd., Mechanicsville, Va. 23111

Continuation-in-part of Ser. No. 16,667, Mar. 1, 1979, abandoned. This application Nov. 26, 1979, Ser. No. 97,244

Int. Cl.[3] **B67D** *5/24*

U.S. Cl. 222—30 **4 Claims**



1. In an automotive vehicle designed for the transportation and delivery of fluid fuel provided with an electrical system, a pedal-controlled service brake system utilizing pressurized air, and a recording meter assembly for recording the volume of fuel delivered from said vehicle, said assembly having a tray for supporting a sales slip, said tray being sequentially and cylically moveable between a first position wherein said assembly is not functionally disposed to properly record the volume of fuel delivered, and a second position wherein said assembly is functionally disposed to properly record the volume of fuel delivered, and means mechanically coupled to said tray for imprinting data on said sales slip corresponding to the status of said assembly prior to and subsequent to said delivery of fuel, an improved braking system comprising:

(a) an electric switch associated with said assembly in a manner adapted to establish a first mode of flow of electrical current in a circuit connected to said electrical system when said tray is in said first position, and adapted to establish a second mode of flow of electrical current in said circuit when said tray is in said second position,

(b) a solenoid-controlled valve electrically connected to said circuit and adapted to transmit air pressure from an upstream high pressure reservoir to downstream components when said circuit is in said second mode, and adapted to discontinue transmission of air pressure and to release downstream pressure when said circuit is in said first mode,

(c) an air control valve having a first chamber which receives air pressure transmitted from said solenoid valve and is bounded in part by a first pressure-displaceable diaphram having associated valve means, an upstream port communicating with said high pressure reservoir, and a downstream port adapted to transmit air from said upstream port, whereby high pressure within said first chamber causes said valve means to interrupt flow between upstream and downstream ports, and

(d) at least one pair of brake control assemblies, each of said assemblies being comprised of an outer housing confining a second chamber bounded in part by a second pressure-displaceable diaphram which engages a coiled power spring, and a third chamber bounded in part by a third pressure-displaceable diaphram which engages a push rod extending out of said housing and connected to means which apply braking action to a wheel of said vehicle when said push rod is displaced away from said housing, said second chamber communicating with the downstream port of said air control valve, said third chamber communicating with said pedal-controlled service brake system, and force transmitting means interactively disposed between said second and third diaphrams, whereby high pressure air supplied to said second chamber causes said push rod to move into said housing and removal of said high pressure from said second chamber causes said push rod to be displaced away from said housing, the opposite responses of the push rod to pressure being produced by said third chamber.

4,276,999

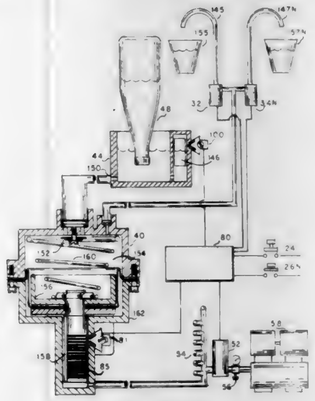
BEVERAGE DISPENSING SYSTEM

Arthur M. Reichenberger, 1916 N. 21st Pl., Phoenix, Ariz. 85006

Continuation-in-part of Ser. No. 767,772, Feb. 11, 1977, Pat. No. 4,162,028. This application Nov. 1, 1978, Ser. No. 956,439

Int. Cl.[3] **B67D** *5/56*

U.S. Cl. 222—129.4 **4 Claims**



1. A beverage dispenser comprising:

(a) a dispenser handset;

(b) a plurality of liquid delivery conduits coupled to said dispenser handset for delivering liquid beverage ingredients thereto;

(c) a plurality of liquid delivery means, each coupled respectively to said delivery conduits;

(d) a plurality of liquid ingredient supplies, each coupled respectively with one of said delivery means;

(e) a plurality of electronic selection switches on said dispenser handset for sending electronic signals when actuated;

(f) a plurality of electronic signal generating means, each cooperating with one of said plurality of delivery means for generating volume related signals;

(g) an electronic control means coupled in circuit with said plurality of selection switches, said plurality of delivery means and said plurality of signal generating means and including driving means for energizing selected ones of said plurality of delivery means upon receiving an electronic signal from any of said plurality of selection switches; and

(h) stopping means for de-energizing said selected ones of said plurality of delivery means upon counting a preset number of said volume related signals from the respective said signal generating means.

4,277,000

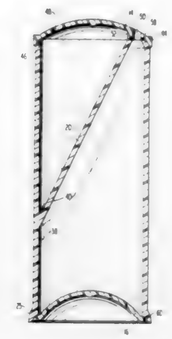
MULTI-COMPARTMENT CONTAINERS

Frank C. Jaarsma, Chatham, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed May 17, 1979, Ser. No. 39,721

Int. Cl.[3] **B65D** *1/04;* **B43L** *25/04*

U.S. Cl. 222—142.4 **11 Claims**



1. A multi-compartment container comprising:

a body portion formed of thermoplastic material and including a confining wall forming upper and lower ends and an inner space therewithin, a divider wall integrally formed with said confining wall and dividing said inner space into a plurality of compartments, and a separately formed base connected to said confining wall for closing off said lower end of said confining wall and forming a bottom for a first of said compartments;

said upper end of said confining wall forming a first continuous edge;

said divider wall intersecting an internal surface of said confining wall and including a second edge forming an opening adjacent an upper end of said body portion communicating with said first compartment, said opening disposed internally of said first edge,

a top portion formed of thermoplastic material and secured to said upper end of said confining wall to form a seal therearound, said top portion including

a third continuous edge overlying said first edge of said body portion and immovably fixed thereto,

a downwardly projecting collar forming a fourth edge overlying said second edge, said collar forming a first port communicating with said opening to form a passage therewith, and

endless resilient seal means disposed in one of said second and fourth edges and engaging the other thereof in surrounding relationship to said passage to provide a seal between said compartments.

4,277,001

INVERTIBLE MINIATURE ATOMIZER OF MANUAL TYPE

Takamitsu Nozawa, Tokyo, Japan, assignor to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 707,006, Jul. 20, 1976, abandoned. This application Sep. 12, 1978, Ser. No. 941,619

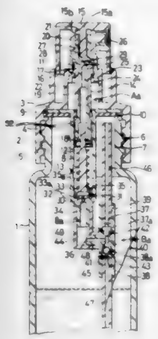
Claims priority, application Japan, Jul. 21, 1975, 50-100965[U]

Int. Cl.[3] **B05B** *9/043;* **G01F** *11/36*

U.S. Cl. 222—321 **8 Claims**

1. A liquid spraying device comprising a container for liquid, including an axially perforated cap, spray means including a nozzle associated with said container and including reciprocable means extending through said cap, first pressure chamber means depending beneath said cap, said last named means including spaced upper and lower vent means, second pressure

chamber means in axial alignment with said first pressure chamber means and positioned above said cap, said reciprocable means including plural piston members having spaced upper and lower skirt means, the spaced upper and lower skirt means of the lower piston member are adapted to open and close said vent means and further including first valve means, said valve means being arranged to control liquid flow from said second pressure chamber means to the nozzle of said spray means, spring means arranged to maintain said first valve means in a closed condition to prevent inadvertent emission of



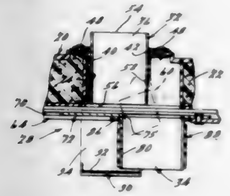
liquid therefrom, second valve means in said first pressure chamber means provided with a seat having a perforation and having an opening in non-aligned orientation with said perforation so as to permit passage of liquid from said container to said first pressure chamber means upon the application of said reciprocable means, liquid carrying means depending from said last-named means and extending into said container, further characterized by suction means including a three-way valve assembly being associated with the said first pressure chamber means.

4,277,002

ICE DISPENSING MECHANISM

Donald R. Christensen, and Ralph F. Staaford, both of Albert Lea, Minn., assignors to King-Seeley Thermos Co., Prospect Heights, Ill.

Filed Jul. 13, 1979, Ser. No. 57,315
Int. Cl.³ G01F *11/10*
U.S. Cl. 222—349 **21 Claims**



1. In combination in an ice dispensing machine including an ice storage area and means defining an ice transfer path having an ice inlet communicable with the ice storage area and an outlet from which ice may egress,

an ice dispensing assembly including first and second enclosure means,

said first enclosure means being communicable with the outlet of the ice transfer path and adapted to transfer ice to said second enclosure means,

means supporting said second enclosure means for generally horizontally slidable drawer-like reciprocal movement along a sliding axis between an ice receiving position whereby ice is transferred from said first enclosure means to said second enclosure means, and an ice dispensing position whereby the ice within said second enclosure means may be dispensed into a suitable ice receptacle, and

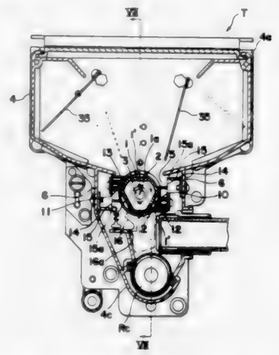
a generally vertically disposed deformable and compliant wall means on said second enclosure means arranged at generally right angles to said axis so as to be capable of deformably moving upon engagement with an ice article for preventing damage to said article and said assembly due to said ice article being dispensed thereby from becoming jammed or lodged therewithin as said second enclosure means is moved along said axis between said positions.

4,277,003

DEVELOPING MATERIAL SUPPLYING DEVICE

Kenji Tabuchi, Sakai, and Hidehito Iwata, Toyohashi, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Sep. 19, 1979, Ser. No. 76,955
Claims priority, application Japan, Sep. 19, 1978, 53-129280[U]; Dec. 28, 1978, 53-180190[U]
Int. Cl.³ G01F *11/10*
U.S. Cl. 222—350 **7 Claims**



1. A developing material supplying device for supplying developing material to an electrostatic latent image developing apparatus, which supplying device comprises:

a developing material storage tank for accommodating therein developing material to be supplied and having a developing material supplying opening in the lower portion thereof;

a developing material supplying roller rotatably mounted in said developing material supplying opening of said developing material storage tank and having at least one recessed portion in the peripheral surface thereof for measuring the amount of the developing material to be supplied, said recessed portion extending along substantially the entire length of said supplying roller except for the opposite end portions of said supplying roller;

a regulating member for regulating the amount of developing material to be supplied by said supplying roller and being mounted at a position where said recessed portion of said supplying roller in said supplying opening moves from the interior to the exterior of said storage tank during rotation of said supplying roller, said regulating member having an arcuate surface which is opposed to the peripheral surface of said supplying roller and which has a radius of curvature approximately equal to that of said circumferential surface of said supplying roller and having a size sufficient for covering the entire portion of the peripheral surface of the recessed portion of said supplying roller and contacting the opposite end portions of said supplying roller, said regulating member being mounted for movement toward and away from said peripheral surface of said supplying roller around an axis of rotation, said regulating member lying on the side of a line extending from the axis of rotation through the axis of rotation of said supplying roller, the regulating member being positioned on a side of the line in which the direction of rotation of said supplying roller is away from said line, and biasing means urging said regulating member toward said circumferential surface of said supplying roller with the portions of said regulating member contacting said end portions of said supplying roller contacting said end portions under pressure; and

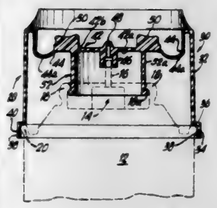
a shield member being mounted at a position where said recessed portion of said supplying roller in said supplying opening moves from the exterior to the interior of said storage tank during rotation of said supplying roller, said shield member having an arcuate surface which is opposed to the peripheral surface of said supplying roller and which has a radius of curvature approximately equal to that of said circumferential surface of said supplying roller and having a size sufficient for covering the entire portion of the peripheral surface of the recessed portion of said supplying roller and contacting the opposite end portions of said supplying roller, said shield member being mounted for movement toward and away from said peripheral surface of said supplying roller around an axis of rotation, said shield member lying on the side of a line extending from the axis of rotation through the axis of rotation of said supplying roller, said shield member being positioned on the side of the line in which the direction of rotation of said supplying roller is away from said line, and biasing means urging said shield member toward said circumferential surface of said supplying roller with the portions of said shield member contacting said end portions of said supplying roller contacting said end portions under pressure.

4,277,004

COVER AND AEROSOL ACTIVATOR FOR AEROSOL SPRAY CAN

John J. Barlics, 676 Denver Blvd., North Edison, N.J. 08817

Filed Oct. 15, 1979, Ser. No. 84,559
Int. Cl.³ B65D *83/14*
U.S. Cl. 222—402.14 **19 Claims**



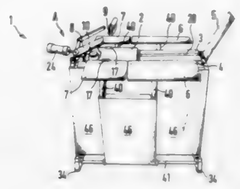
1. An integrated cap for an aerosol container, which container includes a top having an aerosol valve and an annular lip surrounding the aerosol valve, said cap comprising covering means for covering the aerosol valve of the container; positioning means formed integrally with said covering means for positioning said covering means above the aerosol valve of the container, said positioning means including connecting means for connecting said covering means to said positioning means such that said covering means is linearly movable relative to said positioning means towards the top of the container in a generally vertical direction, said connecting means including a first resilient member attached to said covering means on one side thereof and a second resilient member attached to said covering means on an opposite side thereof; activating means movable with said covering means and integral therewith for activating the aerosol valve of the container when said covering means is moved a predetermined distance towards the top of the container; and locking means movable with said covering means and integral therewith for automatically locking said covering means to the annular lip of the container when said covering means is moved said predetermined distance towards the top of the container, whereby the aerosol valve of the container is continuously activated by said activating means.

4,277,005

APPARATUS FOR FOLDING GARMENTS SUCH AS SHIRTS

Peter Heap, Ashby de-la-Zouch, England, assignor to IROPA (Textile Accessories) Ltd., Leicester, England

Filed Jun. 11, 1979, Ser. No. 47,247
Claims priority, application United Kingdom, Jun. 15, 1978, 27013/78
Int. Cl.³ A41H *33/00*
U.S. Cl. 223—37 **9 Claims**



1. In an apparatus for folding a garment, such as a shirt, said apparatus including: a supporting plane for permitting a portion of the garment to be positioned thereon, the supporting plane having a collar expander associated therewith, a forming plate positionable over the supporting plane for permitting the garment to be folded thereabout, support means positioned adjacent one end of the supporting plane for supporting thereon the tail portion of the garment, means for moving the support means into a position wherein it overlies the forming plate for folding the tail portion of the garment over the forming plate so that the tail portion overlies the garment portion lying on the supporting plane, reciprocal means disposed adjacent the opposite sides of the forming plate for folding the side parts of the garment about lines which are substantially parallel to the longitudinal axis of the garment and are defined by the side edges of the forming plate, holding means movable into a position above said forming plate for holding the folded-over tail portion along a further folding line so that the free-end tail part of the folded-over tail portion is suspended downwardly from the holding means, and a device for tucking in the free-end tail part of the partially-folded garment about said further folding line so that said free-end tail part is inserted between the forming plate and the holding means, comprising the improvement wherein said device includes a tucking member mounted for tiltable movement between an upright position wherein it does not engage the partially-folded garment and a lowered position wherein it is disposed in a plane below the holding means for engaging the free-end tail part of the garment which is suspended downwardly from the holding means, said device also including means for moving the tucking member from said upright to said lowered position and then reciprocably moving the tucking member when in said lowered position in a direction substantially parallel to the longitudinal axis of the garment for causing the free-end tail part to be tucked beneath the holding means so as to be positioned between the latter and the forming plate.

4,277,006

ROLLER SKATE CARRIER

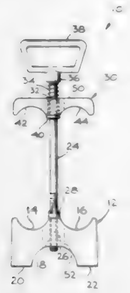
William A. Plackard, Woodland Hills, Calif., assignor to Vicky England Patsick, Sepulveda, Calif., a part interest

Filed Nov. 19, 1979, Ser. No. 95,781
Int. Cl.³ B65D *71/00*
U.S. Cl. 294—145 **10 Claims**

1. A carrier for roller skates, said carrier including:

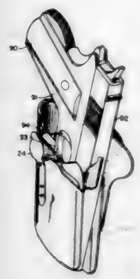
a threaded rod having first and second extremities;

a stand portion carried on said rod towards said first extremity of said rod and including adjusting means for adjustably supporting said stand portion on said rod;
a clamping portion carried towards the second extremity of said rod in slidable relation to said rod;
a handle carried at said second extremity of said rod and including a shoulder portion engaging said rod;
a spring having first and second ends, said first end forcefully engaging said shoulder portion and said second end forcefully engaging said clamping portion and urging it towards said stand portion;



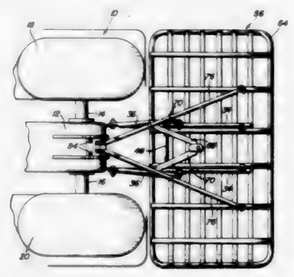
stop means carried by said rod and engaging said clamping portion for limiting the movement of said clamping portion in the direction of said stand portion;
said clamping portion including arcuate, wheel-receiving recesses therein;
said stand portion including arcuate, wheel receiving recesses therein positioned, during use of said carrier, opposite respective recesses in said clamping portion; and,
feet carried by said stand portion and integral with said stand portion.

4,277,007
FRONT OPENING HOLSTER FOR PISTOLS
John E. Bianchi, and Richard D. E. Nichols, both of Fallbrook, Calif., assignors to Bianchi Leather Products, Inc., Temecula, Calif.
Filed Feb. 12, 1979, Ser. No. 11,418
Int. Cl.³ F41C *33/04*
U.S. Cl. 224—193 **19 Claims**



1. A front opening holster for use with handguns comprising:
a body of leather or leather-like material defining a weapon pouch and including portions defining a top opening for the insertion of a handgun into the holster and a front opening of sufficient length to allow the withdrawal of a handgun through the front opening;
resilient means biasing the front opening to substantially closed position and responsive to withdrawal forces applied to the handgun to allow the opening of the front opening and allowing the portions of a handgun contained within the holster to pass therethrough;
obstruction means secured to and mounted with respect to said body and positioned to enter the finger guard of the handgun when a handgun is located in its normal carrying condition within the holster;
said obstruction means being configured including a beveled surface on the upper side thereof whereby insertion of a handgun into the holster by the top opening allows the displacement of the obstruction means temporarily;
said obstruction means configured to substantially prevent the removal of a handgun through the top opening
wherein said obstruction means includes a second beveled surface allowing the displacement of said obstruction means when handgun removal forces are applied to the handgun in the direction of the front opening of said holster.

4,277,008
MULTI-PURPOSE RACK AND HITCH FOR ATC
Donald J. McCleary, 733 E. McKinney, Neosho, Mo. 64850
Filed Sep. 17, 1979, Ser. No. 76,268
Int. Cl.³ B60R *9/06*
U.S. Cl. 224—273 **11 Claims**

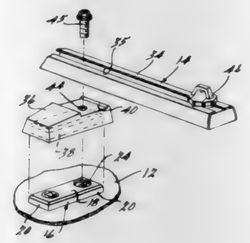


1. In combination with an all-terrain vehicle including lower and upper opposite side mounting portions, a tow hitch for said vehicle, said tow hitch including opposite side arm assemblies each having upper and lower support arms having front and rear ends, means attaching the front ends of said lower arms to said lower mounting portion and the front ends of said upper arms to said upper opposite side mounting portions, transverse bracing means extending between and connecting said arm assemblies adjacent the rear ends of at least one pair of corresponding upper and lower arms, a horizontally forwardly opening rigid V-shaped tow member including rearwardly convergent bars joined at their rear ends to define an apex, the forward ends of said bars being rigidly anchored to the rear ends of said one pair of arms, and said apex including means for attachment of a towed vehicle thereto.

4,277,009
PERMANENT LUGGAGE CARRIER ADAPTERS WITH REMOVABLE PRIMARY LUGGAGE CARRIERS
John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236
Filed May 15, 1979, Ser. No. 39,391
Int. Cl.³ B60R *9/10*
U.S. Cl. 224—309 **9 Claims**

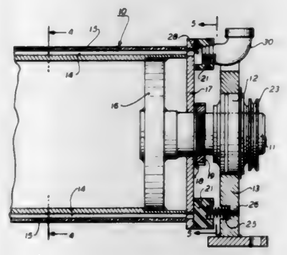
1. A luggage carrier mounted on a substantially horizontal surface of an automotive vehicle, said carrier comprising a plurality of four combination mounting and positioning elements disposed over said surface in four-corner areas thereof and permanently attached thereto, each of said elements being of a polygonal configuration and projecting above said surface and including a pair of openings for the reception of a pair of

blind fasteners, first fastening means securing each of said elements to one of each of said pair of blind fasteners associated therewith a luggage carrier system comprising four support members disposed one above each of said elements, each of said support members having an opening therein and a lower end portion, the underside of which is formed with a recess which is slightly larger than and of a generally complementary shape with respect to the shape of said elements so that when said support members are surmounted on said elements, said



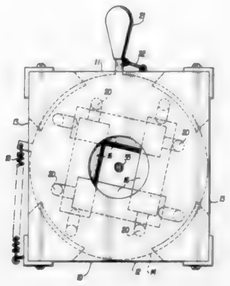
elements are substantially nestingly received within the recesses of said support members so that said support members are properly oriented upon the associated vehicle and so that said opening in each said support member is aligned with the other of said pair of blind fasteners associated with each of said elements, whereby cooperating second fastening means may extend through said openings in said supporting members and into said other of said pair of blind fasteners associated with each of said elements to removably secure said support members of said luggage carrier system to said vehicle.

4,277,010
VACUUM ROLLER FOR TRANSPORTING A WEB
Peter A. Landskroener, Bernardsville; John F. Dusenbery, Montclair, and Roger W. Young, Upper Montclair, all of N.J., assignors to John Dusenbery Company, Inc., Randolph, N.J.
Filed Apr. 10, 1980, Ser. No. 139,129
Int. Cl.³ B65H *17/30*
U.S. Cl. 226—95 **8 Claims**



1. A roller for transporting a web by suction and comprising:
a. a cylindrical member mounted for axial rotation,
b. a plurality of spaced longitudinally-extending channels formed in the peripheral surface of said cylindrical member,
c. bars of air permeable material positioned in said channels, each bar having an inner surface spaced from the bottom wall of the associated channel and an arcuate outer surface lying on the outside diameter of said cylindrical member, and
d. means for controlling the air pressure in selected channels.

4,277,011
QUICK ADJUSTING ELONGATED OBJECT GUIDE
David R. Jeter, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed Dec. 14, 1979, Ser. No. 103,754
Int. Cl.³ B65H *23/32*
U.S. Cl. 226—199 **11 Claims**

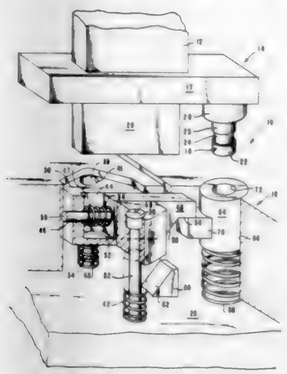


1. An apparatus for guiding various sizes of elongated objects through a predetermined path comprising:
a rigid frame;
a disc rotatably secured to the front of said frame and adapted to allow the continuous passage of an elongated object therethrough;
a rear plate adapted to allow the continuous passage of an elongated object therethrough secured to said frame parallel to and behind said disc, said disc and said rear plate being linearly arranged to form a predetermined elongated object path having a variable diameter and a non-variable longitudinal axis and so arranged whereby the longitudinal axis of said elongated object path is coincident with a line drawn perpendicular to said disc and said rear plate and longitudinally through the centers of said disc and said rear plate; and
at least three elongated object guide rollers of equal radius, said elongated object guide rollers being symmetrically spaced about and equidistant from the longitudinal axis of said elongated object path, movably secured to said disc by a sliding means and pivotally secured to said rear plate by a pivoting means whereby an elongated object passing along said predetermined path is compelled to pass along that portion of said predetermined path which is substantially equivalent to the longitudinal axis thereof.

4,277,012
APPARATUS FOR INSTALLING A FERRULE
Robert R. Mercer, Ortonville, Mich., assignor to General Motors Corporation, Detroit, Mich.
Division of Ser. No. 954,751, Oct. 26, 1978, Pat. No. 4,227,294.
This application Feb. 8, 1980, Ser. No. 119,647
Int. Cl.³ A43D *69/00*
U.S. Cl. 227—68 **3 Claims**

2. A die set for sequentially cutting out an area of a panel and fastening a reinforcing member having a plurality of fastening portions in the cut out comprising: a male die; a female die; a female die housing; a spring continually biasing said female die upwardly in said housing; a latching lug on said female die; detent means in said female die housing releasably actuated to latch and unlatch said female die in relation to the force of its biasing spring; means movable with said male die engaging said female die and moving it against its biasing spring compressing the spring as said male die is moved into said female die; means on said female die engaging said means movable with said male die unlatching said detent from said female die permitting its biasing spring to rapidly move said female die upwardly when said male die has moved into said female die a predetermined

distance; and means on said male die receiving and supporting a reinforcing member to be installed in said panel; movement of one of said dies towards the other engaging said male die with said female die cutting out an area of a panel placed on said female die and moving the fastening portions of said reinforcing member into the cut out; further movement of the die into the female die expanding the fastening means on the underneath side of the panel while said means movable with said male die compresses said female die biasing spring; the extreme movement of said male die within said female die engaging said unlatching means releasing said detent from said female die permitting its biasing spring to rapidly move said female die upwardly clenching said fastening portions against the underneath side of said panel securing said reinforcing member in said panel cut out.

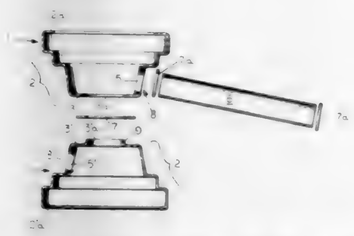


4,277,013

METHOD FOR BRAZE-ASSEMBLING METAL COMPONENTS HAVING LOW SOFTENING TEMPERATURES, WITHOUT DISRUPTING REGIONS OF STABILIZED DIMENSIONS

Louis Spanoudis, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Aug. 17, 1979, Ser. No. 67,638
Int. Cl.³ B23K *31/00*
U.S. Cl. 228—136 **3 Claims**



3. A method of braze-assembling a plurality of composite units, each unit comprising a pair of cups disposed in back to back relationship, each cup having a side wall aperture, and a connector tube inserted in a side wall aperture of one of the cups, said cups and tubes being formed of a metal having a low softening temperature and said cups having regions thereof requiring stabilized dimensions, said method comprising the steps of:

(1) mechanically joining the cups in back to back relationship with a preform of brazing material disposed therebetween, inserting a tube in the side wall aperture of one cup together with a preform brazing material, thus forming a mechanically assembled unit;

(2) positioning a plurality of said units in aligned lower heat sink members with the stabilized dimensional regions of the lower cup disposed in the heat sink and the free end of the tube of each unit engaging the side wall aperture of the lower cup of the adjacent unit;

(3) placing upper heat sink members around the stabilized dimensional regions of each of the upper cups;

(4) directing a brazing flame to only the braze juncture areas in the upper cups to obtain brazed joints;

(5) removing the upper heat sink members;

(6) removing the assembly of units from the lower heat sink members;

(7) rotating the unit assembly 180° about its longitudinal axis and reinserting the previously upper cup members into the lower heat sink members;

(8) placing the upper heat sink members onto the previously lower cups of the assembly;

(9) directing a brazing flame to only the braze juncture areas in the previously lower cups to obtain brazed joints therein, and

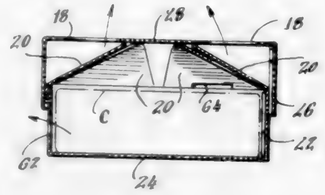
(10) removing the upper heat sink members from the assembly and removing the assembly from the lower heat sink members.

4,277,014

AIR FRESHENER

George Webinger, Minneapolis, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Dec. 12, 1979, Ser. No. 102,898
Int. Cl.³ B65D *5/32, 5/38*
U.S. Cl. 229—11 **14 Claims**



1. A carton having selectively openable openings to control the flow of air therethrough comprising:

an upper unit including

a regular, polygonally-shaped top wall portion and

a plurality of sidewall panels connected thereto extending downwardly substantially perpendicular from each edge of said regular, polygonally-shaped top wall portion,

said top wall portion of said upper unit including a plurality of openings therethrough, and

a lower unit adapted to mate with and slide relative to said upper unit along a common longitudinal axis, said lower unit including

a regular, polygonally-shaped base member complemental in shape to the top wall portion of said upper unit, and

a plurality of sidewall panels extending upwardly from each edge of said regular polygonally-shaped base member substantially perpendicular thereto, the sidewall panels of said upper unit overlying the sidewall panels of said lower unit, and slidable relative thereto, and

a finger member extending substantially parallel to said base member connected to the upper edge of each of said sidewall panels of said lower unit in spaced relation to each other, each of said finger members being adapted to selectively close one of said openings in said upper unit by being positioned therebeneath, and

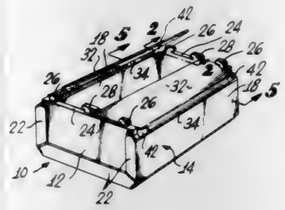
means on said upper and lower units for precluding their separation in a direction along said longitudinal axis.

4,277,015

CONTAINER FOR PRODUCE AND THE LIKE HAVING RELEASABLY SECURABLE FLAPS

Walton B. Crane, Sherman Oaks, Calif., assignor to Industrial Designs & Services, Encino, Calif.

Filed Nov. 7, 1979, Ser. No. 92,230
Int. Cl.³ B65D *5/02, 85/34*
U.S. Cl. 229—23 C **16 Claims**



1. A container for produce or the like comprising:

a floor panel;

a pair of sidewalls;

at least one cover flap movable between open and closed positions and having at least one end tab;

a pair of endwalls to which said floor panel and said sidewalls are attached, at least one of said endwalls having a recess on a top surface thereof to receive said tab when said flap is in said closed position, said recess including an undercut portion adapted to interlock with said tab and prevent said flap from moving toward said open position; and

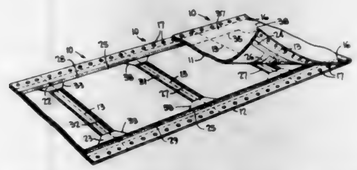
a joiner strip bendably connected to one of said sidewalls along one edge thereof and bendably connected to said flap along an opposite edge thereof, whereby said joiner strip permits both lateral and pivotal movement of said flap to engage and disengage said tab from said undercut portion.

4,277,016

ENVELOPE ASSEMBLY

William R. Wakeman; Edmund G. Van Malderghem, and Kenneth R. Greulich, all of Niagara County, N.Y., assignors to Moore Business Forms, Grand Island, N.Y.

Division of Ser. No. 895,451, Apr. 11, 1978. This application Aug. 31, 1979, Ser. No. 71,490
Int. Cl.³ B65D *27/10*
U.S. Cl. 229—69 **2 Claims**



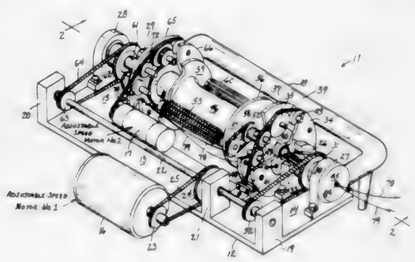
1. An assembly of stuffed, sealed envelopes, comprising, superimposed upper, intermediate and lower continuous plies respectively defining envelope fronts, inserts and envelope backs series-connected together along spaced cross lines of weakening in said plies, said intermediate ply having diecuts at said lines of weakening so as to define opposed side edges of said inserts spaced inwardly of said lines of weakening and initially defining connecting portions between said inserts, opposed end edges of said intermediate ply lying inwardly of opposed end edges of said upper and lower plies, first and second sealing means of like material in confronting relationship on said front and back plies, said material being characterized so as to adhere only to itself upon said first and second means contacting one another, said connecting portions being severed from said inserts by cuts extending through one of said upper and lower plies so as to completely free said inserts from attachment to one another, said material lying both outwardly and inwardly of said side and end edges, said material which lies outwardly of said edges adhering to itself for securing said fronts and backs together to form envelope pockets for said inserts, said material contacting said inserts without being attached thereto for snugly holding said inserts in place without shifting between said fronts and backs while said envelopes are series-connected together as well as after said envelopes are detached from one another, and means on said fronts and backs for opening the envelope pockets and extracting said inserts.

4,277,017

GEAR DRIVE FOR SEAL-LESS COUNTER CURRENT CHROMATOGRAPHY

Stephen B. Leighton, Silver Spring, Md., assignor to The United States of America as represented by the Department of Health, Education and Welfare, Washington, D.C.

Filed Oct. 11, 1979, Ser. No. 83,829
Int. Cl.³ B04B *9/00, 11/00*
U.S. Cl. 233—25 **12 Claims**



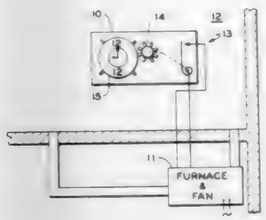
1. A flow-through coil planet centrifuge comprising a support, bearing means on the support defining a main rotational axis, two spaced spider structures journalled on said bearing means, spool means rotatably mounted between said spider structures for rotation on said axis, coiled centrifuge column means rotatably mounted on said spool means for rotation on a column axis spaced from and parallel to said main axis, a first independent stationary motor, means drivingly coupling said first motor to said two spider structures for simultaneous rotation thereof, fixed guide means on the support, inlet and outlet fluid conduit means connected to and in fluid communication with said column means and extending through said fixed guide means, column-rotating gearing means drivingly coupling a first one of said spider structures to said column means to rotate said column means responsive to rotation of said first spider structure, a second independent stationary motor, spool-rotating gearing means on the other spider structure, and means drivingly coupling said second motor to said spool-rotating gearing means to drive the spool means independently of the first motor.

4,277,018

CLOCK THERMOSTAT APPARATUS FOR RESETTING THE TEMPERATURE OF A SPACE DURING SELECTED TIME PERIODS WITH MEANS FOR VARYING THE PICKUP TIME AS A FUNCTION OF THE DROP IN SPACE TEMPERATURE DURING THE SETBACK PERIOD

Lorne W. Nelson, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 11, 1979, Ser. No. 83,914
Int. Cl.³ F23N *5/20*
U.S. Cl. 236—46 R **1 Claim**



1. In a time controlled thermostat apparatus for providing a normal operation and no operation during a setback time period comprising,

first temperature responsive switch means adapted for controlling the operation of a temperature conditioning apparatus for maintaining a predetermined normal temperature in a space,

time controlled means connected to said temperature responsive switch means terminating the operation of the temperature conditioning apparatus for a predetermined time period and then restoring the operation for a temperature setback operation, and

second temperature responsive means responsive to space temperature connected to said time controlled means for varying the operation of said first temperature responsive switch means for starting the operation of said conditioning apparatus at a time depending on the space temperature which drops from said normal temperature during the setback time period when the operation of said temperature conditioning apparatus was terminated,

said first temperature responsive means is a switch mechanism having an operation position for a normal temperature control and a non-operation position,

said time control means is a rotating member, and

said second temperature responsive means is a member mounted on said rotating member having a stepped member for engaging said first temperature responsive means to move it from a non-operating position to an operating position.

4,277,019

ELECTRICALLY-CONTROLLED DAMPER

James S. Shreve, 10027 Black Ct., Fairfax, Va. 22032

Filed May 12, 1980, Ser. No. 148,652
Int. Cl.³ F24F *7/06*
U.S. Cl. 236—49 **8 Claims**

1. Temperature control system comprising,

at least two conduits for carrying flow of thermally conditioned fluid to a corresponding number of zones;

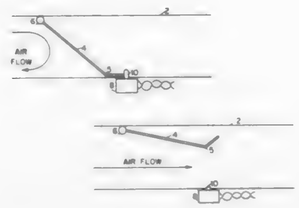
closure means in each conduit for selectively blocking off flow in each respective conduit or allowing flow therethrough, said closure means being freely movable in said conduit;

securing means for selectively maintaining said closure means in closed condition or allowing said closure means to open in response to flow through said conduit;

thermostat means associated with each said zone for sensing temperature within said respective zones; and

conditioning means to thermally condition fluid to be fed to said conduits;

wherein said thermostat means are operatively connected with respective ones of said securing means for each said



zone, and all of said thermostats are operatively connected with said conditioning means,

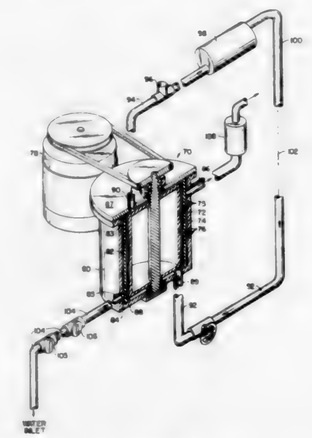
whereby each said thermostat controls the flow of fluid to its respective zone by simultaneously opening the respective closure means and causing operation of said conditioning means.

4,277,020

FLUID FRICTION HEATER

Wilfred J. Grenier, Rutland, Mass., assignor to General Industries, Inc., Rutland, Mass.

Filed Apr. 30, 1979, Ser. No. 34,828
Int. Cl.³ F24C *9/00*
U.S. Cl. 237—1 R **19 Claims**



1. A fluid friction heater comprising:

a housing having a cylindrical inner surface with at least nearly circumferentially directed, closely spaced grooves formed therein, the depth of said grooves being small relative to the diameter of the cylindrical inner surface;

means for supplying a liquid to the housing at one end and exhausting the liquid from the housing at the other end;

a drum mounted within the housing and having a cylindrical outer surface in close proximity to the cylindrical inner surface of the housing to define a narrow annular space through which the fluid flows through the housing, said cylindrical outer surface having a plurality of at least nearly circumferentially directed, closely spaced grooves formed therein, said grooves being small relative to the diameter of the cylindrical outer surface, the pitch of the grooves in said inner surface being different from the pitch of the grooves in said outer surface; and

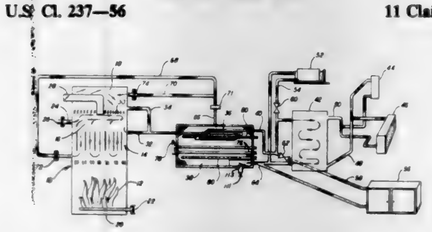
means for rotating the drum so that the pitch of the grooves in the drum relative to the pitch of the grooves in the housing tends to advance the liquid through the housing from its inlet end to its outlet end, the rotation of the cylindrical outer surface of the drum and the cylindrical inner surface of the housing subjecting the liquid to agitation and shearing action which heats the liquid as it passes through the annular space between the housing and the drum.

4,277,021

CLOSED CIRCUIT HEATING SYSTEM

Leslie G. Daye, P.O. Box 11, Depauville, N.Y. 13632

Filed Sep. 7, 1979, Ser. No. 73,263
Int. Cl.³ F24D *3/00*
U.S. Cl. 237—56 **11 Claims**



1. A heating system comprising:

(a) a fuel-burning furnace having at least one outlet for a supply of air heated by-products of combustion therein:

(b) a heat storage chamber including an enclosure containing a heat absorbing and retaining material with substantial surrounding air space;

(c) first duct means conducting said supply of air from said furnace to and through said heat storage chamber for mutual heat exchange between said air and said material;

(d) an air-to-water heat exchanger positioned exteriorly of said heat storage chamber wherein heat from said air is transferred to water passing through said exchanger;

(e) at least one space heating means through which water flows to give up heat to room air, said water flowing in a continuous path between said exchanger and said space heating means;

(f) second duct means conducting air from said air space surrounding said material in said heat storage chamber to said furnace for re-heating therein;

(g) a smoke pipe for venting said products of combustion from said furnace;

(h) third duct means for conducting said supply of air from said heat storage chamber to said heat exchanger; and

(i) fourth duct means for conducting said supply of air from said heat exchanger back to said heat storage chamber.

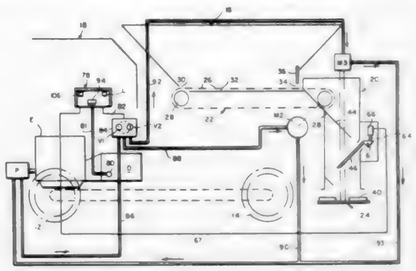
4,277,022

MOBILE MATERIAL DISTRIBUTION SYSTEM

Dennis W. Holdsworth, 33 Old Farm Rd., Dover, Mass. 02030, and Ernst Adler, Chestnut Hill, Mass., assignors to Dennis W. Holdsworth, Dover, Mass.

Continuation of Ser. No. 788,891, Apr. 19, 1977, abandoned.
This application Dec. 14, 1978, Ser. No. 969,469
Int. Cl.³ G01F *1/05;* **A01C** *17/00*
U.S. Cl. 239—7 **31 Claims**

20. The method of distributing material in an uniformly thick layer comprising gravitationally depositing the material onto the surface of a motor-driven conveyor, receiving the material from the discharge end of the conveyor and applying it on a downwardly inclined plate such that it slides gravitationally downwardly thereon onto a distributor, sensing only the dead weight of the mass flowing on the downwardly inclined plate and hence the rate of mass flow at any given instant substantially independent of the impact forces of said material received on said downwardly inclined plate and sending a signal proportional to said dead weight to the motor-driven conveyor to change its speed in a manner to maintain a controlled rate of mass flow of material.



4,277,023

CENTER PIVOT IRRIGATION SYSTEM WITH CORNER WATERING ARRANGEMENT

John L. Anderson, Columbus, Nebr.; John C. Davidson, Alexandria, Minn.; Henry W. Schaaf, Madison, and Charles H. Meis, Genoa, both of Nebr., assignors to Lindsay Manufacturing Company, Lindsay, Nebr.

Filed May 27, 1977, Ser. No. 801,099
Int. Cl.³ B05B *3/12*
U.S. Cl. 239—11 **11 Claims**



1. A method of operating a center pivot irrigation system which is constructed for irrigating a main circular area of a field and noncircular areas outside of the main circular area in which the system includes a string of pipe supported at intervals on movable towers and extending outwardly from and adapted to move around a center pivot with a series of sprinkler units on the pipe string with a normal end gun on the outer end of the pipe string to irrigate limited areas outside of the noncircular area and an enlarged end gun on the outer end of the pipe string directed generally radially outwardly therefrom to irrigate substantially larger portions of the noncircular areas, including the steps of moving the pipe string around the main circular area and operating the series of sprinkler units thereon to irrigate the main circular area in the normal manner, at the same time periodically operating the normal end gun opposite the noncircular areas to irrigate limited areas outside of the main circular area in the noncircular areas, and, from time to time, deenergizing the series of sprinkler units on the pipe string and energizing the enlarged end gun for a certain limited extent of movement of the pipe string opposite a noncircular area so that the full water pressure of the system is

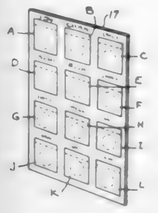
applied to the enlarged end gun during such limited extent of movement.

4,277,024

SELF-STICK AROMA-DISPENSING TAB

Donald Spector, 380 Mountain Rd., Union City, N.J. 07087

Filed Dec. 20, 1978, Ser. No. 971,380
Int. Cl.³ A61L 9/04
U.S. Cl. 239—36 **1 Claim**



1. A perfume sampler constituted by a card having an array of individually removable, hermetically-sealed, rupturable metal foil plastic laminate packages thereon having a rectangular form and separate from each other, each housing an aroma-dispensing button-shaped tab that is removable from the ruptured package and is stickable onto any surface, each of said tabs comprising:

A. a sac of synthetic plastic material non-reactive with liquid perfume and formed by a base having a perforated dome marginally secured thereto to define a vented chamber, said base having a pressure-sensitive adhesive layer on its underside covered by a peel-off sheet; and

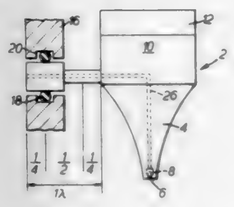
B. an absorbent pad disposed in said chamber saturated with a liquid perfume scent to exude a desired aroma through the perforated dome when the tab is removed from its hermetically-sealed package, the pads in the array of packages having different scents which are identified on the packages so that a consumer can try out the various scents without having to purchase separate bottles thereof.

4,277,025

VIBRATORY ATOMIZER

Dennis Harvey, Tilbury, England, assignor to Plessey Handel und Investments AG, Zug, Switzerland

Filed Jun. 21, 1979, Ser. No. 50,604
Claims priority, application United Kingdom, Jun. 29, 1978, 28332/78
Int. Cl.³ B05B 3/14
U.S. Cl. 239—102 **9 Claims**



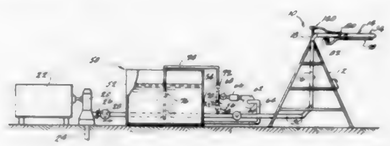
1. A vibratory atomizer for atomizing a liquid, which atomiser comprises a nozzle portion from which the liquid is ejected, a body portion having a longitudinal direction and a radial direction, means for vibrating said body portion in said longitudinal direction with a specified longitudinal vibration frequency and wavelength causing radial vibrations to be transmitted, and a liquid inlet pipe attached to the body portion at a nodal plane of the longitudinal vibrations and extending in said radial direction from the body portion by a length equal to an integral number of vibration half wavelengths which causes the pipe to resonate when it receives any of said radial vibrations generated by said means for vibrating said body portion, wherein, in use, energy passing into the pipe from said body portion reflects back into the body portion in phase with the vibrations thereof.

4,277,026

LIQUID CHEMICAL SPRAYING APPARATUS MOVABLE BY A TOWER-TYPE WATER IRRIGATION SYSTEM

Peter M. Garvey, Rte. 1, Box 186, Lenox, Ga. 31637

Filed Feb. 20, 1980, Ser. No. 123,769
Int. Cl.³ B05B 9/00
U.S. Cl. 239—127 **14 Claims**



1. Apparatus for treating a field crop with liquid chemical for use with a water irrigation system of the type including a plurality of longitudinally spaced towers, and means for intermittently moving each of said towers to move the system through the field, said apparatus comprising:

means for applying liquid chemical to the field crop canopy and/or ground in a first pattern arranged to extend from one of said towers a majority of the distance toward an adjacent tower in amounts which diminish in a direction away from said one tower,

means for communicating liquid chemical under pressure with said first pattern applying means only when said one tower is in motion,

means for applying liquid chemical to the field crop canopy and/or ground in a second pattern arranged to extend from said adjacent tower for a majority of the distance toward said one tower in amounts which diminish in a direction away from said adjacent tower, and

means for communicating liquid chemical under pressure with said second pattern applying means only when said adjacent tower is in motion.

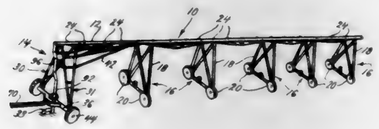
12. Apparatus for treating a field crop with liquid chemical comprising: a pivot move water irrigation system of the type including a stationary structure providing a swivel fitting movable about a fixed vertical axis, a power driven water pump for drawing water from a supply and delivering the same under pressure, a main conduuit having one end connected with said swivel fitting and a plurality of water sprinkler heads thereon, a plurality of longitudinally spaced towers movingly supporting said main conduit and sprinkler heads, and means for intermittently moving each of said towers to move the main conduit and sprinkler heads thereon through the field about the axis of said swivel fitting, a liquid chemical supply tank for containing a supply of liquid chemical, a power driven liquid chemical pump for drawing liquid chemical from said liquid chemical supply tank and delivering the same under pressure and a liquid chemical supply line extending generally parallel with said main conduit, liquid chemical applying means communicating with said liquid chemical supply line, input valve means upstream from said fitting for selectively communicating liquid chemical under pressure delivered by said liquid chemical pump or water under pressure delivered by said liquid water pump with the upstream side of said swivel fitting, and output valve means downstream from said swivel fitting for (1) communicating said liquid chemical supply line with the downstream side of said swivel fitting and closing off communication of said main conduit means therewith when said input valve means is operable to communicate liquid chemical under pressure with the upstream side of said swivel fitting and (2) communicating the main conduit means with the downstream side of said swivel fitting and closing off communication of said liquid chemical supply line therewith when said input valve means is operable to communicate wate. under pressure with the upstream side of said swivel fitting.

4,277,027

TOWABLE CENTER-PIVOT IRRIGATION SYSTEM

Owen W. Sherwin, Omaha, Nebr., assignor to Valmont Industries, Inc., Valley, Nebr.

Filed Jun. 7, 1979, Ser. No. 46,336
Int. Cl.³ B05B 3/00
U.S. Cl. 239—177 **8 Claims**



1. A towable center-pivot irrigation system having a liquid conduit communicating with a liquid source and extending generally radially from a central pivot location, the conduit being supported along its length by spaced support towers movable is generally circular paths about the pivot location, a plurality of liquid dispensers spaced along the conduit for dispensing liquid fed through the conduit onto the field to be irrigated, a pivot assembly for pivotally locating said system and supporting said conduit at the pivot location, said pivot assembly further comprising a structural assembly supporting the end of the conduit near the pivot location above the ground, the structural assembly being supported on a plurality of circumferentially spaced wheels which turn in a generally circular path about the pivot location as the system operates in irrigating the field, the conduit at the pivot location having a generally downwardly extending portion, and a sleeve slidingly engaged with the generally downwardly extending portion of the conduit to slide axially relative thereto, the lower end of said sleeve being engaged with the ground in a lowered position for operation of the system and disengaged with the ground in a raised position for towing the system.

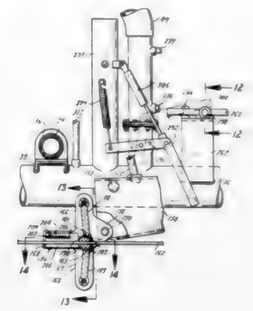
4,277,028

IRRIGATION SYSTEM AND DRIVE UNIT THEREFOR

Dale E. Olson, Fremont, Nebr., assignor to Valmont Industries, Inc., Valley, Nebr.

Filed Dec. 20, 1976, Ser. No. 752,318
Int. Cl.³ B05B 3/18
U.S. Cl. 239—184 **5 Claims**

5. In an irrigation system for irrigating an area of a field which irrigation system includes a liquid conduit supported by wheels extending over a portion of said area to be irrigated, a drive unit for supplying liquid to said conduit and for rotating said conduit and wheels, said drive unit comprising means allowing movement of said drive unit along a path, means rotatably mounting said conduit to said drive unit for rotation about a generally horizontal axis generally normal to the path of the drive unit, means for rotating said conduit, a reciprocating cable gripping means for engagement with a fixed cable extending along said path, means for reciprocating said cable gripping means to move said drive unit along said cable, and control means for controlling the relative speed of reciprocation of said cable gripping means and the conduit drive means



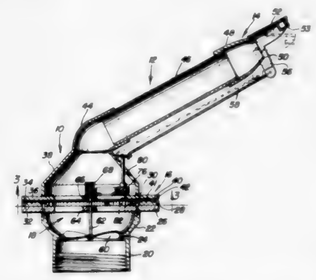
in response to relative fore and aft displacement of said drive unit and said conduit.

4,277,029

IRRIGATION SPRINKLER

Benjamin F. Rabitsch, P.O. Box 1062, Millen, Ga. 30442

Filed Dec. 3, 1979, Ser. No. 100,692
Int. Cl.³ B05B 3/04, 3/08
U.S. Cl. 239—232 **8 Claims**



1. An irrigation sprinkler comprising a discharge nozzle for discharging water at a substantially constant volume and velocity, means rotatably supporting said nozzle for movement about a vertical axis with the nozzle discharging water in a lateral path, and drive means rotating said nozzle at varying rotational speeds in each cycle of rotation for varying the quantity of water discharged along radial land areas extending from the axis of rotation as the length of the radial land areas varies when irrigating a non-circular land area, said nozzle including movable diffuser means, said diffuser means including an actuating mechanism drivingly connected with the drive means for the nozzle to vary the radial length of discharge of water corresponding to the rotational speed of the nozzle with the greatest radial length of discharge occurring when the nozzle is travelling at its slowest rotational speed.

4,277,030

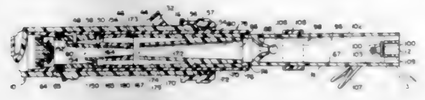
SPRAY AND FOAM DISPENSING NOZZLE

Valentine Hechler, IV, 26 Meadow View Rd., Northfield, Ill. 60093

Continuation-in-part of Ser. No. 651,521, Jan. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 615,800, Oct. 22, 1975, abandoned, which is a continuation-in-part of Ser. No. 520,676, Nov. 4, 1974, Pat. No. 3,984,053. This application Sep. 1, 1978, Ser. No. 938,897

Int. Cl.³ B05B 7/04

U.S. Cl. 239—407 23 Claims



7. Nozzle means having an elongated wall defining a compartment receiving a jet pressure inlet nozzle at its upstream end for liquid mixture under pressure and opening directly to atmosphere at its downstream end through a discharge opening many times greater in size than said jet inlet nozzle and disposed substantially coaxially in alignment therewith,

splash target means at least twice the area size of said inlet nozzle supported proximate to said discharge opening for movement into and out of alignment with said discharge opening, wherein the position of said splash target means relative to said discharge opening may be selectively varied within a range from a position substantially perpendicular to the flow of fluid through said nozzle means to a position substantially parallel to said fluid flow,

said jet inlet nozzle initially ejecting the mixture with jet flow energy as a jet stream flow directly against said wall and said target means causing it to splash laterally against said wall and ingest air in said compartment for final turbulent mixture discharge through said opening.

4,277,031

DUAL GAS SUPPLY BLOW TORCH

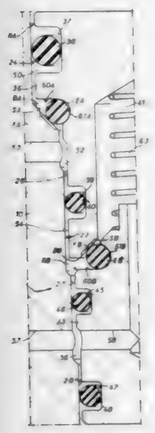
Francis Moumaneix, Le Raincy, and Cesar Marietta, St Leu la Foret, both of France, assignors to Anciens Etablissements Leon Guilbert & Fils, Paris, France

Filed Sep. 27, 1979, Ser. No. 79,454

Claims priority, application France, Sep. 29, 1978, 78 27934

Int. Cl.³ F16K 11/18, 7/20

U.S. Cl. 239—414 7 Claims



1. A blow torch having a dual gas supply one of which is a fuel gas and the other of which is a combustion supporting gas, comprising a body having a first inlet connection for a first gas, a second inlet connection for a second gas, an outlet connection for supplying a lance with a mixture of the two gases, a first duct extending between the first inlet connection and the outlet connection and comprising a first valve means, and a second duct extending between the second inlet connection and the outlet connection and comprising a second valve means, a single control for the total flow rate of the mixture of the two gases common to the first and second valve means and adapted to act simultaneously on the first and second valve means, each of said valve means comprising a bore member and a core member, each of said bore members and its associated core member having opposed transverse annular zones, said core member being displaceable in its associated bore member between open and closed positions, said annular zone of a first of said members having an annular elastic seal, while said annular zone of a second of said members forms a seat for said seal, supporting means including a radial shoulder for holding said seal on said first member axially opposite to said seat and a circumferential flange for holding said seal radially, the diameter of said flange being substantially that of said seal in its undeformed state, and a feed passage in each of said valve means with a cross section which can be varied by elastic deformation of said seal of its associate valve means, at least one of said valve means having regulating means for metering the relative flow rates of the first and second gases.

4,277,032

AUTOMATIC APPARATUS FOR CONTINUOUSLY FORMING CLOTH ROLLS

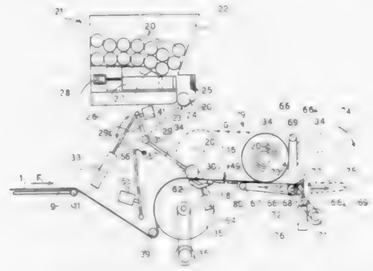
Pietro Alberto, Via Lamarmora, 16, and Giorgio Meseghetti, Via Schiapparelli, 12, both of Biella, Italy

Filed Nov. 27, 1979, Ser. No. 97,638

Claims priority, application Italy, Nov. 29, 1978, 30325 A/78

Int. Cl.³ B65H 19/26

U.S. Cl. 242—56 R 15 Claims



1. An automatic apparatus for continuously forming cloth rolls from a fabric substantially in the shape of a band made of a multiplicity of pieces mutually joined together by sewing, comprising a cloth feeding station; conveying means for the forward movement of the cloth; presetable control means for said conveying means capable of causing the cloth to advance successively along paths of the same length; a measuring station for detecting the length of cloth advanced from the feeding station; a cloth rolling up station; a tube feeding means, each tube being the core of a roll to be formed, said means being provided to carry successively each tube from a tube magazine to said rolling up station; a cutting station for transversely cutting the cloth; discharge means for the finished rolls, wherein the cloth feeding station comprises first detecting means upstream of the measuring station being responsive to the seams between two adjoining pieces to disable said presetable control means, the measuring station comprising second detecting means enabled by said first detecting means to be also responsive to said seams to cause the cloth feed to stop once a seam arrives at this station, there being further provided control means for causing the cloth to be fed forward along a fixed length corresponding to the distance between the measuring station and the cutting station.

4,277,033

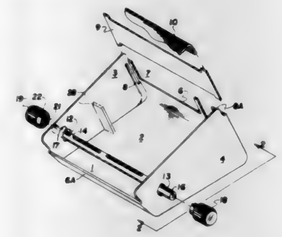
WEB SUPPLY ARRANGEMENT

Robert E. Swenson, P.O. Box 688, Jeffersonville, Ind. 47130

Continuation of Ser. No. 835,730, Sep. 22, 1977, abandoned, which is a continuation-in-part of Ser. No. 657,619, Feb. 12, 1976, abandoned. This application Oct. 23, 1978, Ser. No. 953,931

Int. Cl.³ B65H 17/02

U.S. Cl. 242—67.3 R 3 Claims



1. A web supply and take-up arrangement including:

(a) a web supply roll means to provide a supply of selected web;

(b) a rotatable web take-up means to receive web supplied from said web supply roll means including elongate web take-up spindle means of selected diameter having at least one longitudinally extending groove means of selected depth located adjacent at least one first end of said spindle means, and wherein said web is would onto a portion of said spindle means adjacent said groove means upon rotation of said spindle means;

(c) flexible radially outwardly biased detent means disposed for rotation with said spindle means and normally located radially outwardly from said groove means and spaced aligned relation therewith whereby said detent means is capable of being selectively urged into said groove means;

(d) journal means including cooperative aperture means to rotatably receive said first end of said spindle means, wherein said aperture means has a diameter larger than the diameter of said spindle and a portion of the periphery of said aperture means engages said detent means to urge said detent means into said groove means, saidaperture means periphery further includes outwardly extending lobe opening means for receiving said detent means to restrict rotation of said spindle means; and (e) web guide means to guide said web from said web supply means to said web take-up means.

4,277,034

PAPER ROLL HOLDER WITH DANCER BAR FOR USE WITH PRINTERS AND THE LIKE

James M. Buzzell, Deerfield, N.H., assignor to Centronics Data Computer Corp., Hudson, N.H.

Filed May 21, 1979, Ser. No. 40,897

Int. Cl.³ B65H 17/02

U.S. Cl. 242—67.3 R 12 Claims

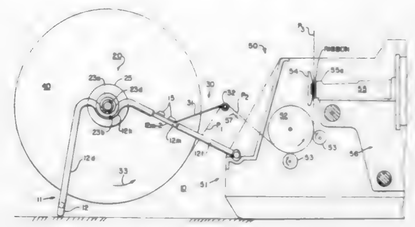
1. A holder assembly for a paper supply roll comprised of an elongated paper web of indeterminate length being wound in the form of a paper supply roll, said holder assembly comprising:

an axle assembly insertable through the central opening of said paper supply roll;

holder support means for rotatably supporting the free ends of said axle assembly;

dancer bar means including a dancer bar and means for resiliently mounting said dancer bar to said holder support means;

the paper from said paper supply roll extending from said supply roll and being guided about said dancer bar so as to move the dancer bar against its resilient mounting means during a paper feed operation; and



said resilient dancer bar support means being adapted to yieldably bend upon the abrupt feeding of the portion of the paper web extending away from said dancer bar, whereby said resilient mounting means act to substantially fully absorb any abrupt pulling of the paper web during feeding of the paper in order to prevent the abrupt pulling of the paper web to be imparted to the paper supply roll to assure that the paper will be fed in a neat, orderly fashion.

4,277,035

FLEXIBLE MEMBER CADDY

John M. Gaski, 5821 N. Lacey, Chicago, Ill. 60606

Filed Aug. 13, 1979, Ser. No. 66,071

Int. Cl.³ B65H 75/36

U.S. Cl. 242—85.9 14 Claims



14. An apparatus for windably receiving and storably holding for rapid removal of an elongated continuous flexible insulated conductive wire comprising: an elongated columnar support having a flat longitudinal column, said flat column having a pair of longitudinally spaced square apertures formed therein, each of said square apertures having a pair of opposed corners defining a diagonal being aligned with each other and being substantially parallel to the length of the column, a rest end formed integral with one end of the flat column, and a support head formed integral with the other end of the flat column, said support head having a flat arcuate band having one end formed integral with said other end of the flat column and a mounting aperture formed in the free end of the arcuate band, an elongated lower arm being flat and having a pair of opposed edges extending the length of the arm, said lower arm

having a lower arm square aperture adjacent to one end, said lower arm square aperture having a pair of opposed sides substantially parallel to the edges of the lower arm; a lower fastener securing the lower arm to the column, said lower fastener including a bolt extending through the aperture adjacent to the rest end of the column and through the aperture in the lower arm, said bolt having a head and a square shank adjacent to the head, said square shank being mateably positioned in the aperture of the lower arm and one aperture in the column adjacent to the rest end to hold the lower arm in an attitude, whereby one edge of the lower arm forms an acute angle with that portion of the column adjacent to the rest end, said bolt having a threaded portion having one end formed integral with the square shank, said fastener including a nut threadedly mounted on the threaded portion of the bolt; and an elongated upper arm having a circular tubular body having a center axis along the length of the tubular body; said upper arm having a flat end formed integral with one end of the tubular body; said upper arm having a flat end formed integral with one end of the tubular body; said flat end having an upper arm square aperture formed therein with a pair of opposed sides of the apertures being parallel to the axis of the tubular body; and an upper fastener releasably securing the upper arm to the column; said upper fastener including an upper bolt; said upper bolt havng an upper head; an upper square shank formed integral with the upper head and an upper threaded portion formed integral with the upper square shank; the upper square shank of the upper bolt being mateably and removably mounted in the upper arm square aperture and the other square aperture in the column adjacent to the support head to hold the upper arm in an attitude, whereby the center axis of the tubular body forms an acute angle with that portion of the column adjacent to the support; said upper fastener includes a wing nut mounted on the upper threaded portion of the upper bolt for releasably holding the upper square shank in said other square aperture in the column and the square aperture in the upper arm, whereby release of wing nut allows the upper square shank to be removed from one of said apertures to allow the upper arm to pivot toward the lower arm to facilitate removal of a wound wire from the upper and lower arms.

4,277,036

AUTOMATIC WIND-UP ROLLER FOR A SAFETY BELT

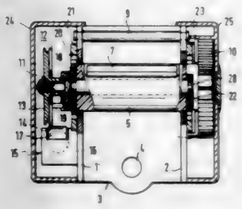
Helmut Seifert, Schwäbisch Gmünd; Wolf-Dieter Höal, Mutlangen; Johannes Schmid, Schwäbisch Gmünd-Hussehhofen, and Bernhard Frei, Waldstetten, all of Fed. Rep of Germany, assignors to Repa Feinstanzwerk GmbH, Alfdorf, Fed. Rep of Germany

Filed Jun. 13, 1979, Ser. No. 48,184

Claims priority, application Fed. Rep. of Germany, Jun. 15, 1978, 2826286

Int. Cl.[3] **A62B** *35/02;* **B65H** *75/48*

U.S. Cl. 242—107.4 A **1 Claim**



1. Automatic wind-up roller for a safety belt of a vehicle with means to block a belt shaft on which the safety belt is wound in case of danger, having a housing, a belt shaft rotatably supported in the housing, a safety belt rolled around the belt shaft, a release mechanism which is activated when a predetermined acceleration or deceleration of the vehicle is exceeded, a single control element arranged on the axis of said belt shaft at one end of the belt shaft to normally rotate with the belt shaft, activated by the release mechanism, at least two locking pawls with at least one locking pawl at each end of the belt shaft activated simultaneously by said single control element, locking tooth means at each end of the belt shaft for engagement with the locking pawls, said locking pawls when activated simultaneously interacting with said locking tooth means to block said belt shaft, and wherein at least one connecting shaft connects said locking pawls arranged at each end of the belt shaft and which locking pawls are movable radially into the locking position away from the belt shaft axis, said belt shaft having a hollow space for the disposition of said connecting rod.

4,277,037

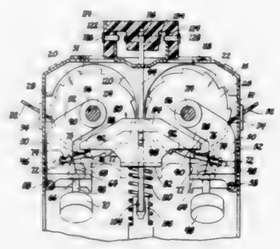
LOCK BAR RELEASE FOR INERTIA LOCKING SEAT BELT RETRACTOR

Richard D. Loose, Birmingham, and Harley L. Kapanka, Utica, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 30, 1980, Ser. No. 116,836

Int. Cl.[3] **A62B** *35/02;* **B65H** *75/48*

U.S. Cl. 242—107.4 A **3 Claims**



1. A seat belt retractor for winding an occupant restraint belt comprising:

a housing having laterally spaced first and second walls;

a belt reel journaled for rotation on the housing walls;

a ratchet plate attached to each end of the reel generally adjacent the housing walls;

a lock bar extending generally between the housing walls and journaled for rotation relative thereto, said lock bar having locking teeth adapted for selective engagement with the ratchet plates upon rotation of the lock bar toward the ratchet plates;

a release member adapted to forcibly disengage the lock bar from engagement with the ratchet plates, said release member having laterally spaced first and second abutment portions adapted to extend between the respective ratchet plate and the adjacent housing wall to overlie the locking teeth of the lock bar in spaced relation therefrom; and

manually actuated release means adapted to move the release member into simultaneous engagement with the latch teeth at both ends of the lock bar to forcibly disengage the lock bar from engagement with the ratchet plates whereby belt unwinding rotation of the reel is permitted.

4,277,038

TRAJECTORY SHAPING OF ANTI-ARMOR MISSILES VIA TRI-MODE GUIDANCE

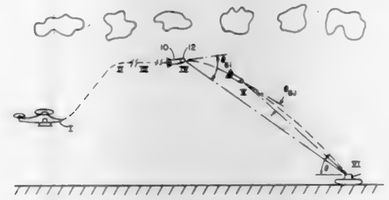
Robert E. Yates; John P. Leonard; Robert E. Alongi; Wilfredo V. Albanes, and Charles M. Bishop, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 27, 1979, Ser. No. 34,088

Int. Cl.[3] **F42B** *15/02*

U.S. Cl. 244—3.15 **6 Claims**

1. A missile guidance system for guiding a missile in a predetermined trajectory to impact with a target, said trajectory including initial climb, cruise, and attitude transition portions, said guidance system comprising: a seeker carried by said missile for tracking said target; an autopilot, said seeker having a yaw rate channel output coupled to said autopilot for controlling flight of the missile by proportional navigation in the yaw plane; a pitch programmer coupled to said autopilot for controlling flight of the missile in the pitch plane during said climb and cruise portions; a pseudo-time-optimal controller



coupled to said autopilot for sharply diving said missile towards the target; and means for controlling the missile in pitch during said attitude transition portion including, threshold detector and switching logic means coupld for receiving pitch gimbal angle signals from said seeker for causing said pseudo-time-optimal controller to apply a constant angular rate to the missile to cause the missile to pitch down sharply towards the target under control of said pseudo-time-optimal controller.

4,277,039

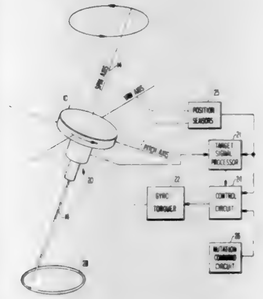
METHOD AND SYSTEM FOR INDUCING AND CONTROLLING NUTATION OF A GYROSCOPE

Robert B. Blanning, Orlando; Archie B. Treadwell, Winter Park, and James A. Logie, Orlando, all of Fla., assignors to Martin Marietta Corporation, Orlando, Fla.

Filed Feb. 22, 1978, Ser. No. 880,210

Int. Cl.[3] **F41G** *7/26;* **G01C** *19/54*

U.S. Cl. 244—3.16 **32 Claims**



1. A system for scanning an area of interest in relation to a space stabilized reference axis comprising:

a momentum member rotatably mounted on a support so as to rotate about a spin axis and establish a space stabilized reference;

a sensor having a line-of-sight and being mounted with the line-of-sight in known relation to the space stabilized reference;

electrical signal responsive means cooperating with the momentum member for selectively applying torque to the member; and

means for selectively generating a torquer control signal and applying said control signal to said signal responsive means, said control signal having characteristics causing a controlled nutation of the momentum member such that the spin axis and the sensor line-of-sight move through a desired scan pattern centered about the space stabilized reference.

4,277,040

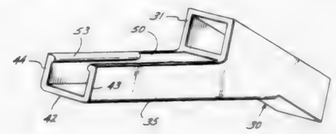
KITE STRUT CONNECTOR

Julius M. Christoffel, Jr., Decatur, Ill., assignor to Damon Corporation, Needham Heights, Mass.

Filed Jul. 14, 1978, Ser. No. 920,679

Int. Cl.[3] **B64C** *31/06;* **A63H** *27/08*

U.S. Cl. 244—153 R **2 Claims**



1. In a collapsible kite structure having a front end, at least two stiffening support struts secured to a body of flat material and at least one bracing strut detachably secured to the stiffening struts, the improvement comprising a snap lock including a fastening body affixed to one stiffening strut and a resilient hollow retainer body extending laterally from said fastening body with the hollow opening therein fixedly aligned to receive an end part of the detachable strut, wherein said retainer body includes a slot through the side thereof and facing the front end of said kite and extending longitudinal to the extension of the retainer body for the passage therethrough of an end part of the detachable strut, and wherein the interior of said retainer body is configured to removably and replaceably receive and to snugly and resiliently hold said end part of the detachable strut, and further including resilient interengaging means adjacent the hollow portion of said retainer body and adjacent said slot for resiliently engaging the end portion of the detachable strut within said hollow retainer body, said interengaging means comprising a longitudinal bead along at least a part of the inner edge of at least one side of said slot.

4,277,041

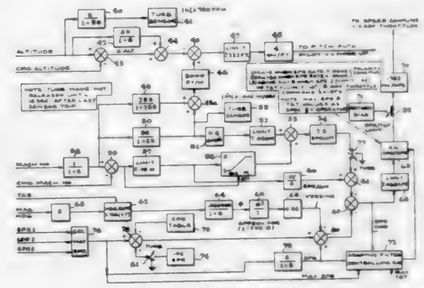
AIRCRAFT CRUISE SPEED CONTROL SYSTEM

Graham J. Marrs, Lancaster; Richard J. Oliver, Newhall; Alfred J. Potthast, Northridge, and Roland M. Samuelson, Saugus, all of Calif., assignors to Lockheed Corporation, Burbank, Calif.

Filed Sep. 11, 1978, Ser. No. 941,230

Int. Cl.[3] **G05D** *1/08*

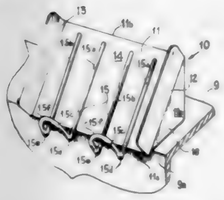
U.S. Cl. 244—182 **32 Claims**



1. An aircraft speed control system for controlling an engine through a throttle linkage and for controlling aircraft pitch comprising:

means for determining the speed error which is the difference between actual and commanded speed,
means for determining the altitude error which is the difference between actual and commanded altitude,
means for generating an altitude rate term from said actual altitude,
means for generating a speed rate term from said actual speed,
speed means for using the sum of the speed error and speed rate terms to control aircraft speed through said engine and throttle linkage, and
pitch means for using the sum of altitude error, altitude rate term and speed rate term to control aircraft pitch to correct small speed errors by varying aircraft altitude.

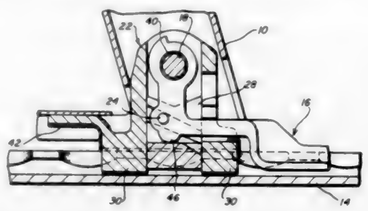
4,277,042
BAR SOAP RECEPTACLE
Arthur A. Ash, Sr., 34 La Rose Cir. SW., Marietta, Ga. 30060
Filed Apr. 15, 1980, Ser. No. 140,474
Int. Cl.³ A47F 5/00
U.S. Cl. 248—309 R **11 Claims**



1. A receptacle for a bar of soap which comprises:
(a) a chute having at least one inclined wall which is also a bottom wall thereof and two side walls which extend generally upwardly from the inclined bottom wall, the chute having an opening between the ends of the side walls, the opening extending approximately the entire length of the lower front edge of the inclined bottom wall, the lower front edge of the inclined bottom wall being adapted to extend over the edge of a ledge and downwardly into a sink basin; and
(b) a soap retaining means having at least two ribs connected to the chute, the upper portions of the ribs extending upwardly from the inclined bottom wall to hold the bar of soap out of contact therewith, the lowermost portions of the ribs extending over the lower front edge to facilitate drainage of water and suds away from the bar of soap and to concentrate residual soap solution below the chute so that it will drip into the basin before evaporating to form a soap scum.

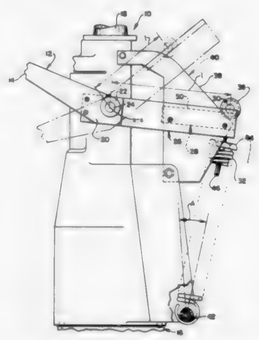
4,277,043
LOCKING ASSEMBLY FOR AIRCRAFT SEAT
Kirby B. Weik, Litchfield, Conn., assignor to Koehler-Dayton, Inc., New Britain, Conn.
Filed May 25, 1979, Ser. No. 42,325
Int. Cl.³ A47B 97/00
U.S. Cl. 248—503.1 **2 Claims**

1. An aircraft seat adapted to be releasably secured to a track having a plurality of longitudinally spaced openings interconnected by slots in the top surface thereof and an internal channel communicating with these openings and slots, comprising:
a rear leg,
a track fitting secured to said rear leg including lug means selectively sized and located for downward insertion into the track channel through selected track openings and for longitudinal displacement therein to a selected position beneath said track slots,
a shear pin selectively configured for substantial mating insertion into one of the spaced track openings,
said shear pin including a flange for engaging the top surface of said track when said shear pin is inserted into one of said openings,
an L-shaped control lever pivotally mounted to said fitting on one end and having a medial elbow portion for camming said shear pin downwardly when said track fitting is at said selected position until said shear pin flange engages the top surface of said track and for then displacing said



lug means upwardly until said track member is forcefully clamped between said lug means and said flange,
said elbow portion including lobe means for maintaining said control lever in its forceful clamping position, and
pin means projecting from said lever proximate said elbow portion for upwardly displacing said shear pin when said lever is releasably pivoted from its clamping position.

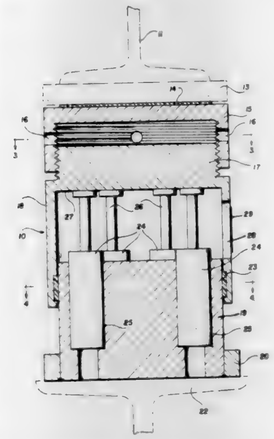
4,277,044
MECHANICAL COUNTERBALANCE
W. Duane Hamilton, Middletown, R.I., assignor to American Optical Corporation, Southbridge, Mass.
Filed Sep. 7, 1979, Ser. No. 73,471
Int. Cl.³ F16M 13/00
U.S. Cl. 248—571 **8 Claims**



1. A mechanism for counterbalancing a distally loaded object carrying arm which is proximally pivoted upon a support therefor, said mechanism comprising:
an extension of said arm having thereon a first cam disposed oppositely of said distal loading of said arm;
a first cam follower engaging said first cam;
a second cam fixed to said support for said arm;
a second cam follower engaging said second cam;
means carrying said first and second cam followers;
spring means having one end fixed to said support and an opposite end connected to said carrying means;
said first cam and first follower being constructed and arranged to effect extension of said spring means when said distal end of said arm is lowered and vice versa; and
said second cam and second follower being constructed and arranged to simultaneously move said opposite end of said spring means toward the location of proximal pivoting of said arm when said distal end of said arm is lowered and vice versa;

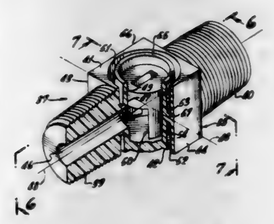
whereby arm length-to-moment ratio and spring force angle are altered to compensate spring extension forces.

4,277,045
LIQUID SPRING STANCHION
Thomas C. Bargeron, 3832 Williamsburg Cir., Birmingham, Ala. 35243, and Stanley T. Moodie, 3300 Burningtree Dr., Birmingham, Ala. 35226
Filed Oct. 23, 1978, Ser. No. 953,915
Int. Cl.³ F16M 13/00
U.S. Cl. 248—599 **4 Claims**



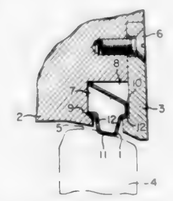
4. A stanchion comprising a substantially solid base member adapted to be fixed to an underlying support, a hollow cover member telescopically engaged over the solid base member and extending thereabove to define a chamber above the base member, load bearing spring means within said chamber, a threaded extension rising from the cover member, a coacting adjusting cap having screw-threads on said extension and including a top dry lube bearing surface for sliding contact with an overhead structure being supported, said cap having diametrically arranged turning tool engaging elements whereby the height of the cap is easily adjusted, and a dry lube bearing strip to resist lateral forces disposed between the telescopically engaging parts of the base member and cover member and being held in a recess formed in the cover member.

4,277,046
IRRIGATION VALVE
Watson V. Cavileer, 2861 Amherst Dr., Fullerton, Calif. 92631
Continuation-in-part of Ser. No. 945,337, Sep. 25, 1978, abandoned. This application Jan. 13, 1980, Ser. No. 159,124
Int. Cl.³ F16K 5/02
U.S. Cl. 251—312 **11 Claims**



1. A valve comprising
a body of resilient plastic material having opposite top and bottom walls,
a relatively deep narrow uninterrupted annular groove extending inwardly from each of said walls,
said grooves extending toward each other and having inner ends closely spaced apart at a location intermediate said top and bottom walls, so that said body has an outer portion on the outside of said grooves, an inner portion on the inside of said grooves, and a connecting portion between said ends of said grooves connecting said inner portion and said outer portion,
said inner portion having an opening therein having a frustoconical surface closely spaced from said grooves so that said inner portion has a continuous relatively thin wall,
and a passageway extending through said outer portion, said connecting portion and said inner portion and intersecting said opening in said inner portion,
and a valve member in said opening,
said valve member having a frustoconical exterior surface complementarily engaging said frustoconical wall of said opening in said inner portion,
said valve member having a passageway therethrough and being rotatable relative to said body for selectively interconnecting said passageway in said valve member with said passageway in said body for controlling the flow of fluid through said body,
said inner portion having a shoulder overlapping the outer end surface of said valve member for retaining said valve member in said opening,
said valve member having a greater external diameter adjacent the outer end surface thereof than the free diameter of said opening adjacent said shoulder,
whereby said valve member has an interference fit within said opening for providing a seal between said valve member and said body.

4,277,047
METALLIC SEALING DEVICE FOR VALVE
Sadazi Zinnai, Yokohama, Japan, assignor to Tokyo Koso Kabushiki Kaisha, Saitama, Japan
Filed Jan. 28, 1980, Ser. No. 116,248
Claims priority, application Japan, Jan. 30, 1979, 54-8780
Int. Cl.³ F16K 25/00
U.S. Cl. 251—362 **1 Claim**



1. A metallic sealing device for a valve including a fluid passage therein and an inner valve positioned in said fluid passage, which comprises an annular groove having nearly T-shape in section formed around the fluid passage by the valve body and a metallic seat retainer fixed thereto and a metallic seat arranged in said annular groove and partially projecting into the fluid passage, said metallic seat comprising a metallic sheet having a projecting part for contacting with the inner valve, shoulders formed at the sides thereof to limit the projection of said seat into the fluid passage and an extension of one of said sides extending in the nearly T-shaped groove at the part opposite to the fluid passage toward the other of said sides, thereby promoting the fluid sealing property as well as elastic property of the metallic seat and nullifying the dependency of the sealing property thereof on the fluid flowing direction to utilize the function of the fluid pressure at

the time of shutting off the fluid, said metallic seat being formed by press-forming of a single sheet metal.

4,277,048

HYDRAULIC ACTUATOR WITH AUTOMATIC TRAVEL LIMIT BYPASS

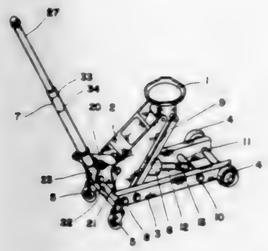
Genzaburo Okada, 263-banchi Tanjo Mihara-cho, Minamikawachi-gun Osaka-pref, Japan

Filed Aug. 24, 1979, Ser. No. 69,508

Claims priority, application Japan, Aug. 28, 1978, 53/117511[U]

Int. Cl.³ B66F *3/24*

U.S. Cl. 254—8 B **8 Claims**



1. In a hydraulically operated lifting device of the type wherein load-supporting means is mounted for vertical movement on frame means, and cylinder-and-piston means is connected between the frame means and load-supporting means for effecting said vertical movement in response to hydraulic fluid intermittently supplied under pressure from reservoir means by pump means manually actuated by handle means mounted for swinging movement on said device, the improvement which comprises end wall means for the cylinder provided with a bore which slidably receives and wholly supported the piston for axial movement, said bore being provided with a bypass opening located medially of the ends of the bore and in communication with the fluid reservoir means, the piston being provided adjacent its inner end with a bypass for communication between the interior of the cylinder and the bypass opening at a predetermined position of the piston to limit further outward movement of the piston, and annular sealing means in said bore located axially on each side of the bypass opening.

4,277,049

LIFT STRUCTURE FOR SERVICING VEHICLES

Donald A. Clausen, 815 W. 34th St., Minneapolis, Minn. 55408

Filed May 19, 1980, Ser. No. 151,257

Int. Cl.³ B66F *7/02*

U.S. Cl. 254—91 **2 Claims**

1. An elevating structure for servicing relatively small vehicles, having in combination

a base frame substantially rectangular in plan,

a pair of transversely spaced upstanding frame members adjacent one end of said base frame,

a cross member removably carried by said upstanding frame members,

said cross member carrying a winch,

longitudinally spaced transversely disposed pairs of elevating members pivoted to said base frame at their lower ends,

a pair of longitudinal transversely spaced supporting frame members pivotally carried by said last mentioned elevating members,

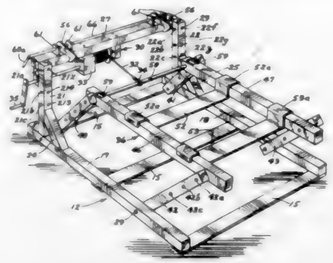
a shaft extending transversely of said last mentioned longitudinal members at their end portions adjacent said cross member,

said winch having a cable removably connected to said shaft,

a pair of longitudinally spaced plate members carried by said pair of longitudinal members,

said cross member carrying a pair of hook members,

said longitudinal members carrying a pair of recessed keepers at their respective ends adjacent said cross member to



be engaged automatically by said hook members when said longitudinal members are drawn by said cable into abutting engagement with said cross member,

a crank member carried by said cross member disengaging said hook members, and

bolts extending through aligned holes of the pair of elevating frame members adjacent the pair of upstanding frame members.

4,277,050

METHOD OF JACKING UP A VEHICLE, AND JACK THEREFOR

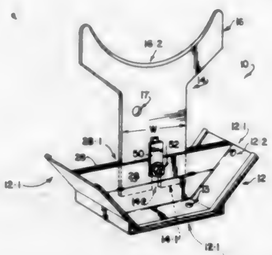
Jacob J. Mostert, West Krugersdorp, Muldersdrif, South Africa (1742)

Filed Aug. 13, 1979, Ser. No. 66,082

Claims priority, application South Africa, Aug. 25, 1978, 78/4857; Nov. 3, 1978, 78/6218

Int. Cl.³ B66F *7/24*

U.S. Cl. 254—94 **17 Claims**



1. A method of jacking up of a road vehicle having a pair of double wheels, of the kind described;

the method including the steps of

providing a jack comprising a base, and a strut adapted to pass into the clearance space between the wheels, the strut having an upper load bearing end;

locating the jack in a position such that the base rests against the ground, such that the strut is at a slope in the clearance space between the wheels, and such that the upper load bearing end engages simultaneously with the bosses of both wheels along an engagement zone; and

then moving the vehicle against the strut to cause the wheels to ride up onto the strut in polevault fashion, to lift the wheels clear of the ground.

4,277,051

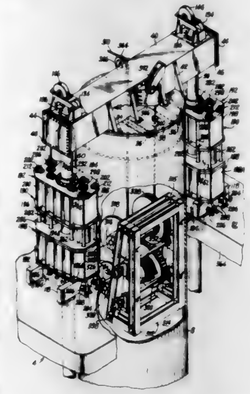
TILT-UP/JACK-UP OFF-SHORE DRILLING APPARATUS AND METHOD

Joseph E. Lucas, Houston, Tex., assignor to Marine Engineering Company, C. A., Caracas, Venezuela

Filed Apr. 24, 1978, Ser. No. 899,391

Int. Cl.³ B66F *1/00*

U.S. Cl. 254—106 **23 Claims**



11. The method of substantially evenly distributing the load in a jacking unit having an upper and a lower slip housing surrounding a jacking leg and a piston and cylinder for moving the slip housings toward and away from each other along the jacking leg, comprising: axially-yieldably and angularly-flexibly attaching one end of the piston to one of the slip housings; and axially-yieldably and angularly-flexibly attaching the end of the cylinder remote from the piston to the other slip housing, whereby to avoid misalignment between the piston and cylinder under load conditions.

4,277,052

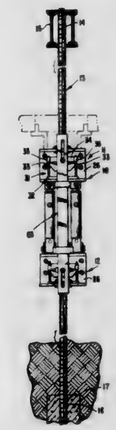
JACKING APPARATUS

Franz Kallinger, 58 Hunt Ter., Greenwich, Conn. 06830

Filed Aug. 17, 1979, Ser. No. 67,533

Int. Cl.³ B66F *1/00*

U.S. Cl. 254—106 **18 Claims**



1. In an apparatus for selectively moving a load, said apparatus being arranged for use with an elongated structural element having a plurality of longitudinally spaced substantially similar projecting shoulder portions, said apparatus having gripping means comprising:

wall means defining a portion of the gripping means engageable with said structural element and having a grooved surface configuration complementary to said shoulder portions of the structural element;

means for mounting said wall means adjacent said structural element including a parallelogram linkage carrying said wall means for causing the wall means to be maintained parallel to the longitudinal extent of the elongated structural element in engaging said element; and

means for resiliently urging the wall means into engagement with said element to have mechanically interlocked engagement selectively with successive ones of said shoulder portions as said apparatus is caused to be aligned successively with said successive ones of the shoulder portions, said resilient urging means permitting said surface configuration of the wall means to adjustably seat on said shoulder portions for subsequent transfer of force from the load for firmly locking the gripping means to the element to support the load.

4,277,053

LIFTING AND HANDLING EQUIPMENT UNIT, ESPECIALLY FOR SHIPSIDE OPERATIONS

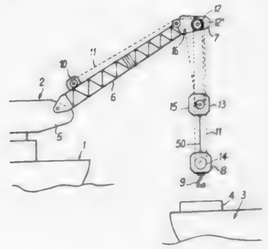
Francois Simon, Route d'Annecy, 73410 Albens, France

Filed Sep. 29, 1978, Ser. No. 947,013

Claims priority, application France, Dec. 20, 1977, 77 29835

Int. Cl.³ B66D *1/48*

U.S. Cl. 254—326 **5 Claims**



1. A lifting and handling equipment unit comprising a powered hoisting machine for controlling lifting and handling operations between a hoisting machine support and a load support, said hoisting machine including a boom having a boom head, said load support being naturally movable with respect to said boom head in a vertical direction, said lifting equipment comprising:

a first hoisting sheave block provided with at least one first idle pulley and with a load-carrying means for carrying a load,

a second floating compensation sheave block provided with at least one second idle pulley and adapted for upward and downward movements relative to said first sheave block,

at least one third idle pulley vertically fixed with respect to the boom head, said first, second and third pulleys being vertically aligned,

a cable reeved around said first, second and third pulleys and anchored at at least one of its ends, so that said first and second sheave blocks are freely suspended to said third pulley by said cable, said second floating compensation sheave block forming a counterweight upwardly biasing said first hoisting sheave block when substantially no downwardly directed external force is applied to said load-carrying means,

stop means for limiting at least the upward movement of said second floating compensation sheave block relative to said first hoisting sheave-block when a downwardly directed

external force is applied to said load-carrying means, whereby said second floating compensation sheave block is in its upper stopped position when the load is carried by the load carrying means, said second floating compensation sheave block virtually movable by gravity force with respect to said hoisting machine support, to said first hoisting sheave block and to said load support when said load carrying means and said first hoisting sheave block are maintained fixed with respect to said load support, said free vertical movement of said second floating sheave block being responsive to the vertical relative movement between said machine and load support.

4,277,054

MULTIFLOW REFINING BLASTPIPES FOR EQUIPPING CONVERTERS FOR REFINING

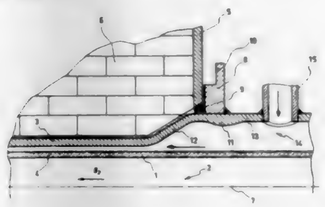
Hugues Zanetta, Metz, France, assignor to Creusot-Loire, Paris and Emile Spruneck, Moyeuvre Grande, both of, France

Filed Nov. 5, 1979, Ser. No. 91,138

Claims priority, application France, Nov. 29, 1978, 78 33911

Int. Cl.³ C21B 7/16

U.S. Cl. 266—268 **2 Claims**



1. A multiflow refining blastpipe through which fluids are introduced into a converter from an inlet for said fluids, and comprising at least two concentric tubes which define between them an annular gap, and an annular ring connected by welding to the outer tube, wherein the outer tube exhibits in the vicinity of the end of it which is located next to the inlet for the fluids into the blast-pipe a shoulder prolonged by a cylindrical portion which defines with the inner tube an annular chamber wider than said annular gap and in that said annular ring is arranged on said cylindrical portion.

4,277,055

CUSHIONING FENDER

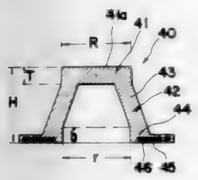
Tetsuo Yamaguchi, and Tomokazu Kashiwara, both of Nishinomiya, Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Dec. 26, 1978, Ser. No. 972,829

Claims priority, application Japan, Sep. 21, 1978, 53/130741[U]; Sep. 21, 1978, 53/130742[U]

Int. Cl.³ F16F 1/36; B63B 59/02

U.S. Cl. 267—140 **9 Claims**



1. A cushioning fender adapted to be mounted on one or both of an impact applying element and an impact receiving element for cushioning the impact applied from the impact applying element to the impact receiving element, said fender comprising a substantially cup-like body of one-piece construction made of an elastic material and including a circular buffer block having an outer surface adapted to serve as an impact receiving surface to which the impact is applied, said buffer block having a thickness within the range of about 0.15H to about 0.25H, wherein H represents the overall height of the fender and a hollow support wall depending from the circular buffer block and radially outwardly enlarged in a direction away from the buffer block, said hollow support wall being constituted by a leg section of uniform wall thickness and a heel section on one side of the leg section remote from the buffer block, one annular end of said heel section opposite to the leg section being formed integrally with a radially outwardly extending annular fitting flange, said buffer block having its peripheral face lying in a plane at right angles to the plane of the impact receiving surface and a diameter substantially equal to or smaller than the maximum inner diameter of the heel section.

4,277,056

HYDRAULICALLY DAMPED RUBBER MOTOR MOUNTING

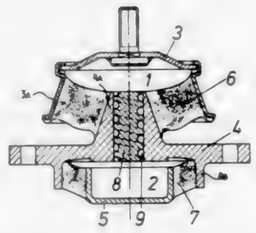
Gerd-Heinz Ticks, Birkenau, Fed. Rep. of Germany, assignor to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Jul. 6, 1979, Ser. No. 55,463

Claims priority, application Fed. Rep. of Germany, Feb. 10, 1979, 2905091

Int. Cl.³ F16F 9/34

U.S. Cl. 267—140.1 **6 Claims**



1. A hydraulically damped rubber motor mount comprising a mounting flange, a motor connection above the flange, a rubber annulus interconnecting the connection and flange and forming therewith a hydraulic chamber, an elastically expansible and contractible hydraulic enclosure, means for hydraulically interconnecting the chamber and enclosure via a flow path that is of substantially uniform cross-sectional area throughout its length and at least 50 times longer than its cross sectional area, and hydraulic fluid filling the chamber, enclosure and path.

4,277,057

METHOD FOR USING A MULTIPLE INPUT BIN COLLATING MACHINE WITH A SINGLE OUTPUT HOPPER

Wilfried Jaedicke, Abenberg, Fed. Rep. of Germany, assignor to Maul Lochkartengeräte GmbH, Schwabach, Fed. Rep. of Germany

Filed Nov. 28, 1979, Ser. No. 98,137

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851754

Int. Cl.³ B65H 39/04

U.S. Cl. 270—58 **3 Claims**

1. A method for utilizing a collating machine having a plurality of infeed bins equal to B and exactly one output hopper for conveniently sorting a plurality of stacks of sheets exactly equal to B into a plurality of sets of sheets exactly equal to S

wherein each of the sets of sheets contains a plurality of pages exactly equal to P arranged in a first predetermined order

and wherein B, S and P are each integers at least equal to 2 and all sets are to be sorted into the output hopper in a single stack in which stack each of the sets retains the first predetermined order and the sets themselves are arranged in a second predetermined order

when the machine is programmed to feed sheets from the bins into the hopper to form a collated stack with a top and a bottom in a repeated sequence, which sequence has a plurality of operations equal to B and which sequence is repeated a plurality of times equal to P and in which

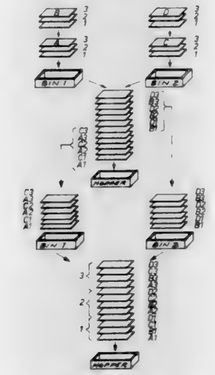
a single sheet is selected from a first bin and is fed into the hopper and

another single sheet is selected from another bin and is fed into the hopper

with such selection and feeding encompassing all the bins in a third predetermined order until exactly B sheets have been fed into the hopper, at which point

the sequence is repeated a plurality of times exactly equal to P, beginning again with the first bin and maintaining the third predetermined order until all sheets in all bins have been fed into the hopper, the method comprising the following steps:

(a) providing a plurality of groups exactly equal to P of sheets, each group containing a plurality of identical pages exactly equal to S;



(b) providing a plurality of X-cards, which X-cards are easily visually distinguishable from the sheets, the plurality of the X-cards being exactly equal to P;

(c) stacking each group into an individual stack with a top and a bottom;

(d) placing each X-card on one of said top and bottom of each group so individually stacked so as to bring the X-cards and individual stacks into one-to-one correspondence;

(e) arranging all the individually stacked groups with their X-cards in the first predetermined order;

(f) computing a first quotient in which P is numerator and B is denominator;

(g) determining whether said quotient is an integer;

(h) in the event that said first quotient is non-integral, computing a number N, which, when added to P and used as numerator in a second quotient in which B is denominator, is of such a value as to produce a second quotient which is an integer;

(i) in the event that said first quotient is non-integral, providing a plurality of blank sheets, which plurality is exactly equal to N multiplied by S;

(j) in the event that said first quotient is non-integral, stacking said plurality of blank sheets into exactly N additional groups, each group having a top and a bottom and each such group containing exactly S sheets;

(k) in the event that said first quotient is non-integral, providing an additional plurality of X-cards, which additional plurality of X-cards is exactly equal to N;

(l) in the event that said first quotient is non-integral, placing each additional X-card on said one of said top and bottom of each additional group so as to bring the additional X-cards and additional groups into one-to-one correspondence;

(m) arranging any and all additional groups with their X-cards after the first predetermined order to form a series of groups;

(n) dividing the series of groups evenly into B super-groups, with each super-group containing an equal number of sheets and X-cards, while maintaining the order of the groups within the super-groups;

(o) placing each super-group into a corresponding one of the bins in the third predetermined order;

(p) operating the machine to feed all the sheets and X-cards into the hopper;

(q) determining the number of X-cards which are located on said one of the top and bottom of the collated stack;

(r) in the event that the number of X-cards which are located on said one of the top and bottom of the collated stack is equal to the sum of P and N if N was computed and P otherwise, removing the sets from the hopper; and

(s) in the event that the number of X-cards which are located on said one of the top and bottom of the collated stack is unequal to the sume of P and N if N was computed and P otherwise, re-dividing the collated stack into B super-groups each containing an equal number of sheets and X-cards while maintaining any order of the sheets and re-placing the super-groups into the bins while maintaining all previous orders, and re-operating the machine to feed all the sheets and X-cards into the hopper once again; and

(t) repeating the steps listed in steps (r) and (s) above as many times as are necessary until the number of X-cards which are located on said one of said top and bottom of said collated stack is equal to the sum of P and N if N was computed and P was not computed.

4,277,058

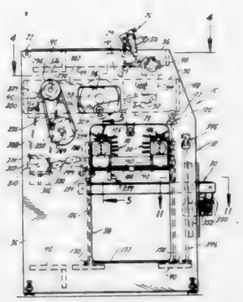
FOLDING APPARATUS AND METHOD FOR FOLDING A CONTINUOUS WEB

Frank M. Biggar, III, Lakeview, N.Y., assignor to Elizabeth Short Biggar, Hamburg, N.Y.

Filed Feb. 16, 1979, Ser. No. 12,799

Int. Cl.³ B65H 45/20

U.S. Cl. 493—433 **13 Claims**



1. In a method of folding a continuous web of material such as paper wherein the web is guided generally downwardly by an oscillating arm that oscillates fore and aft about a horizontal transverse axis relative to the direction of web travel and directed by the oscillating arm alternatively between opposed folding assemblies, said folding assemblies having a plurality of gripper means which travel continuously about a preselected

path and which receive the web at locations where the fold is to occur, grip and thus fold the web, and thereafter release the web allowing it to exit downwardly in a folded configuration, said method comprising the steps of:

timing the gripper means at web speeds in excess of 800 fpm (243.84 meters per minute) to receive the web fed thereto and then close on and fold the web before the oscillating arm swings so far toward the opposite folding assembly as to allow the web to escape from the gripper means,

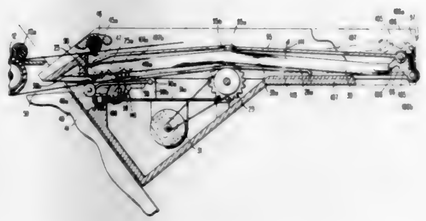
after gripping the web to create a fold, continuing to grip the folded web while other gripper means of the same folding assembly and the opposite folding assembly grip the web at other locations to create other folds as the folded web moves downwardly, whereby at least three folds are gripped by each folding assembly at any instant of time as the folded web continues its downward movement.

4,277,059

SHEET FEEDER FOR TYPEWRITERS

Gordon R. Dunning, Versailles, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 18, 1980, Ser. No. 131,324
Int. Cl.³ B65H 3/20
U.S. Cl. 271—23 **12 Claims**



1. In a sheet paper feed apparatus for a printer having a platen for holding and providing at least longitudinal motion to a sheet of paper, said apparatus comprising a rectangular tray including a rear paper support portion and a spaced apart forward paper support portion, said portions for supporting thereon the opposite ends of a stack of paper, at least one shingler wheel intermediate said support portions for engaging the lowermost sheet of said paper sheet stack, and means for effecting rotation of said shingler wheel in a first direction to move the lowermost sheet of said stack away from said forward support portion until said lowermost sheet is no longer supported thereby, and then in the opposite direction to drive said lowermost sheet beneath said forward paper support portion, said forward paper support portion comprising a pair of inwardly projecting, spaced apart fingers, the improvement comprising:

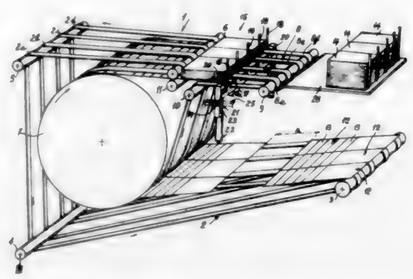
paper stack lift means moveably mounted adjacent said fingers, and actuator means to effect movement of said paper stack lift means between a first recessed position below said fingers and a second position above said fingers so that upon loading of said stack of papers into said tray, said lift means is first placed in said second position by said actuator means, said paper stack impinging upon said rear paper support portion and said lift means, and then said lift means is moved to said first position by said actuator means to deposit said stack of paper on said fingers.

4,277,060

METHOD OF FORMING A PACKET OF SIGNATURES AND STACKER FOR IMPLEMENTING SAID METHOD

Aldo Perobelli, and Giorgio Pessina, both of Paderno Dugnano, Italy, assignors to Messrs. O.M.G. Officina macchine Grafiche de pessina e Perobelli, Paderno Dugnano, Italy

Filed Sep. 14, 1979, Ser. No. 75,586
Claims priority, application Italy, Nov. 21, 1978, 29983 A/78
Int. Cl.³ B65H 29/00
U.S. Cl. 271—186 **10 Claims**



1. A method of forming a packet of signatures including the step of depositing onto a feeding belt of a stacker signatures from a folding machine, characterized in that said method comprises:

(a) the step of transporting groups of said signatures in overlapping arrangement to a stacking station including detent means selectively movable to and from a stacking position;

(b) the step of detecting the presence or absence of signatures upstream of said stacking station by upstream sensor means, and issuing a corresponding control signal to said detent means for movement thereof to said stacking position upon detection of the presence of signatures upstream of said stacking station;

(c) the step of forming a stack of said signatures by feeding of said signatures carried by said belt against detent means, while said detent means is in said stacking position;

(d) the step of moving said detent means from said stacking position after a stack is formed to permit a formed stack to be carried downstream from said stacking station;

(e) the step of carrying a formed stack of said signatures downstream from said stacking station, and

(f) the step of detecting the presence or absence of signatures downstream from said stacking station by downstream sensor means, and issuing a corresponding control signal for controlling movement of said detent means into said stacking position.

4,277,061

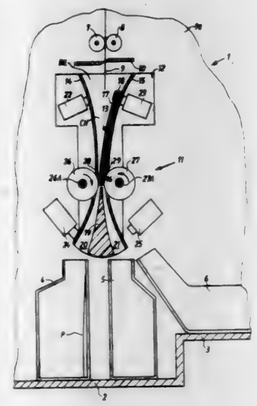
APPARATUS FOR CLASSIFYING PHOTOGRAPHIC PRINTS OR THE LIKE

Erich Nagel, Anzing; Rainer Türcke, and Heinz Lüdemann, both of Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Dec. 19, 1978, Ser. No. 971,118
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1977, 2757848
Int. Cl.³ B65H 29/60
U.S. Cl. 271—302 **25 Claims**

1. Apparatus for classifying successively delivered sheets of predetermined length, particularly for classifying sections which are severed from the leader of a web of exposed and developed photosensitive material having indicia denoting different classes of sections, comprising a support; a carrier pivotally mounted on said support; guide means mounted on said carrier for pivoting therewith and defining an elongated channel having an inlet and a plurality of outlets remote from said inlet; sheet diverting means including at least one switching member consisting at least in part of magnetizable material, mounted on said carrier for pivoting therewith, and installed in said channel intermediate said inlet and said outlets, said member being movable between a plurality of different positions in each of which it establishes a path for movement of oncoming sheets from said inlet to a different outlet; first magnet means mounted on said carrier for pivoting therewith, located externally of said channel and being operable to move said member to any one of said positions; and second magnet means mounted on said support and operable to pivot said carrier with respect to said support.

14. Apparatus for classifying successively delivered sheets of predetermined length, particularly for classifying sections which are severed from the leader of a web of exposed and developed photosensitive material having indicia denoting different classes of sections, comprising guide means defining



an elongated channel having an inlet and a plurality of outlets remote from said inlet and including two elongated side walls flanking said channel; sheet diverting means including at least two switching members each consisting at least in part of a permanently magnetically attractable material and installed in said channel intermediate said inlet and said outlets, said switching members normally assuming respective rest positions in which they are spaced from each other and from the neighboring side walls and being movable from said rest positions to different active positions in each of which they establish a path for movement of oncoming sheets from said inlet to a different outlet; and magnet means located externally of said channel and including two electromagnets each outwardly adjacent to one of said side walls and being selectively energizable to magnetically attract said switching members from said rest positions to said active positions in which each of said two switching members is situated at the respective neighboring side wall or both switching members are situated at one or the other side wall.

4,277,062

LEG STRETCHING EXERCISE

Mark Lawrence, 212 Church St., White Plains, N.Y. 10603

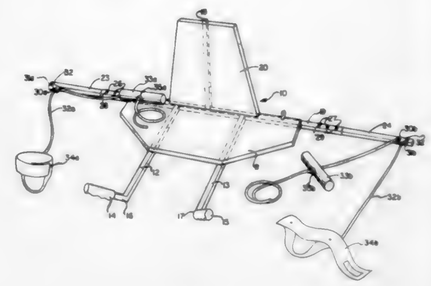
Filed Jan. 28, 1980, Ser. No. 116,007
Int. Cl.³ A63B 23/04, 21/12
U.S. Cl. 272—126 **6 Claims**

1. A leg stretching exercise device comprising:

a platform having an upright rear portion forming a backrest,

a pair of spaced support members extending outwardly from beneath the platform substantially perpendicular to the backrest, each of said members having an end portion extending upward in a divergent direction and at an acute angle,

a support member extending substantially along the plane of the backrest beneath the platform and outwardly therefrom, the end portions thereof having a tubular configuration with a plurality of spaced apertures along the upper surface thereof,



a pair of telescoping bars each having a plurality of spaced apertures on the upper surface thereof, said bars being mounted one in each end of the tubular support member,

locking means engaging corresponding apertures in the support member and telescoping bars to lock said members together at predetermined lengths, and,

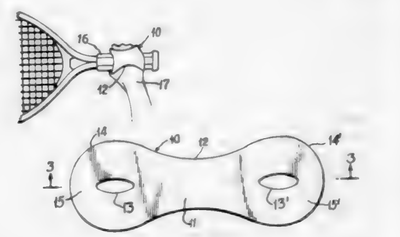
a pulley mounted to an end portion of each bar including a rope engaging the pulley, a stirrup for one's foot at one end of the rope and a handle at the other end of the rope.

4,277,063

SUPPORT DEVICE FOR STRENGTHENING THE HAND GRIPPING OF RACQUET HANDLES AND OTHER SHAFT MEMBERS

Albert L. Perrone, deceased, late of Westwood, N.J., and Mary Perrone, administratrix, 43 Brickell Ave., Westwood, N.J. 07675, assignors to Mary Perrone, Westwood, N.J., administratrix, Estate of Albert Perrone

Filed Mar. 28, 1979, Ser. No. 24,586
Int. Cl.³ A63B 69/38
U.S. Cl. 273—75 **19 Claims**



1. A support device for strengthening the hand gripping of a racquet handle or other hand grip shaft when held in the palm and encircled by the fingers of the hand, said device being substantially planar and formed of flat sheet material which has planar flexibility and at least in part is resiliently expansible, the central portion of said device being adapted to overlie the back of the hand, one end of the device adapted to extend beyond the thumb side of the hand and having an enlarged enclosed planar rounded contour portion which is substantially wider than said central portion said rounded contour portion being resiliently expansible and having a central aperture spaced

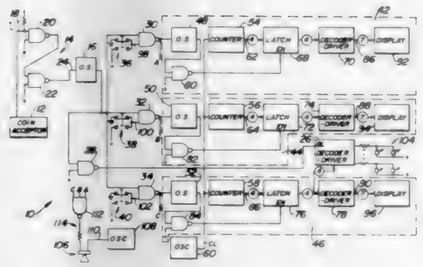
from the outer periphery thereof with said aperture being within the plane of said sheet material, said central aperture being of a size to closely and expansibly engage said hand grip shaft while establishing essentially linear circumferential contact therewith, said enlarged rounded contour extending into said central portion to engage the back of the hand from the base of the thumb to the base of the index finger, the other end of said device adapted to extend beyond the other side of the hand and having means adjustably engaging and securing said other end to said hand grip shaft, said device as mounted on a hand grip shaft providing a hand receiving loop which resiliently supports the palm of the hand in firm, comfortable engagement with the hand grip shaft even when finger gripping of the shaft is released, and the essentially linear circumferential and expansible contact of said central aperture with a hand grip shaft in conjunction with said securing said other end to said base-of-thumb to base-of-index-finger engagement with the back of the hand maintaining rotary orientation of the hand grip shaft with respect to the relaxed hand, while permitting easy forceful rotary adjustment of the hand grip shaft.

4,277,064

LOTTERY NUMBER GENERATING METHOD AND APPARATUS

Thomas M. Newman, Sicklerville, N.J., assignor to Compu-Pic Incorporated, Philadelphia, Pa.

Filed Nov. 6, 1978, Ser. No. 958,083
Int. Cl.³ A63F 9/00
U.S. Cl. 273—138 A **14 Claims**



1. Apparatus, comprising:

at least one clock oscillator for generating a clock signal having a preselected repetition frequency,

plural display channels associated with said clock oscillator,

plural switches associated with said display channels, each of said switches being operatively associated with one of said display channels,

each of said plural display channels comprising at least one counter for generating a sequence of digital signals at said preselected repetition frequency in response to said clock signal, display means for sequentially displaying indicia corresponding to said digital signals, at least one latch for transmitting said digital signals to said display means, and latch control means for generating a latch control pulse having a preselected time interval Ti in response to operation of the switch associated with the display channel for causing said latch to halt the sequential transmission of said digital signals to said display means at said preselected repetition frequency and to transmit only one of said digital signals to said display means for said preselected interval of time Ti following operation of said switch associated with the display channel and for causing said latch to resume transmitting said sequence of digital signals to said display means at the end of said preselected interval of time Ti,

said preselected repetition frequency preventing visual recognition of individual indicia displayed by said display means at the preselected repetition frequency,

said preselected interval of time Ti permitting visual recognition of individual indicia displayed by said display means during the preselected interval of Ti, and

said switches and display channels being constructed and arranged such that operation of said switches in sequence causes said plural display channels to simultaneously display said visually recognizable individual indicia during the time that the latch control pulse generated in the display channel associated with the last operated switch and the latch control pulse generated in the display channel associated with the first operated switch overlap.

12. A method, comprising:

generating at least one clock signal having a preselected repetition frequency,

generating plural sequences of digital signals each at said preselected repetition frequency in response to said clock signal,

displaying indicia corresponding to each of said plural sequences of digital signals at said preselected repetition frequency, said preselected repetition frequency preventing visual recognition of individual indicia,

successively generating pulses having time intervals T1 and T2 respectively,

successively halting the display of said indicia corresponding to one of said plural sequences of digital signals for a time interval T1 and the display of said indicia corresponding to another of said plural sequences of digital signals for a time interval T2, and

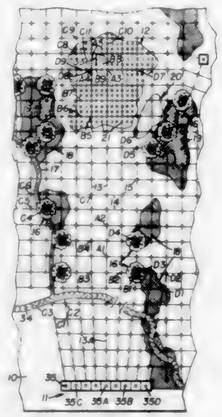
displaying indicia corresponding to one of said digital signals of one of said plural sequences of digital signals and one of said digital signals of another of said plural sequences of digital signals during the time that said preselected intervals of time T1 and T2 overlap, said time during which said intervals T1 and T2 overlap permitting visual recognition of said indicia.

4,277,065

GOLF GAME AND METHOD FOR PLAYING THE SAME

William D. White, 8680 Emard Ter., Sidney, British Columbia, Canada (V8L 1K4)

Filed Sep. 13, 1978, Ser. No. 941,967
Int. Cl.³ A63F 3/00
U.S. Cl. 273—245 **16 Claims**



1. A golf game comprising

a board defining at least one golf hole thereon comprising a tee and a green spaced at a predetermined distance from said tee to simulate a fairway and the yardage therebetween, means simulating an array of hazards on said fairway, said tee including a plurality of laterally spaced tee-off positions,

a coordinate system defined on said board comprising a plurality of first lines extending from said tee to said green and a plurality of second lines disposed transversely relatively to and intersecting at least most of said first lines whereby the point of intersection of each pair of said first and second lines is adapted to simulate the position of a golf ball on said board, each of said tee-off positions located at the termination of one of said first lines on said tee, whereby the position of the said hazards with respect to one of said tee off positions is different from the position of the said hazards with respect to another of said tee positions,

marker means positionable on said board at one of said points of intersection of said first and second pair of lines,

means controlled by a player for randomly displaying information thereon to simulate the distance and direction said marker means must be moved on said board from one of said tee-off positions on said tee to said green,

a sub-coordinate system defined on said green and comprised of a plurality of spaced points with each adjacent pair of such points being spaced-apart at a distance less than an adjacent pair of points of intersection of the first and second lines of said first-mentioned coordinate system, and

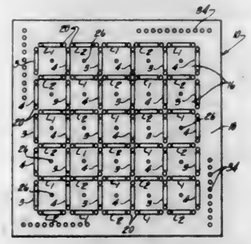
flag means removable and pre-positionable on any one of the points of said sub-coordinate system defined on said green whereby a player may place said marker means at a selected one of said tee-off positions taking into consideration the position of said flag means on said green.

4,277,066

GAME APPARATUS

Sherman C. Hough, 30547 Blairmoor, Madison Heights, Mich. 48071

Filed Nov. 10, 1980, Ser. No. 205,312
Int. Cl.³ A63F 3/00
U.S. Cl. 273—267 **9 Claims**



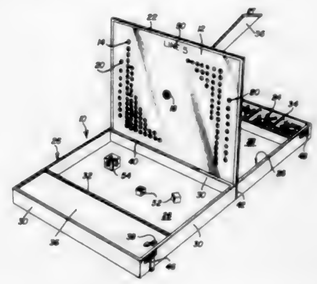
1. Game apparatus comprising: a board having a flat playing surface with a plurality of square playing areas, each of said playing areas having sides designated by four different indicia, a plurality of cards, each having a marking indicating at least one of the sides of each of said squares, said sides designated on said cards being equal in number to the number of sides designated on said board, a plurality of fence elements for disposition on the board in a position on a selected side of a selected square in accordance with the play of a card having a marking corresponding to the indicia of the selected side of said selected square, four of said fence elements being required to surround a square, and player identifying markers coded to identify each player, said markers being disposed within each square upon disposing the fourth fence element in position to surround a given square.

4,277,067

GAME DEVICE WITH BOARD SURFACES VISIBLE ONLY TO OPPOSING PLAYERS

Sara L. Gettleman, 9846 N. Kendall Dr., Apt. A114, Miami, Fla. 33176

Filed Jun. 4, 1979, Ser. No. 45,233
Int. Cl.³ A63F 3/00
U.S. Cl. 273—271 **9 Claims**



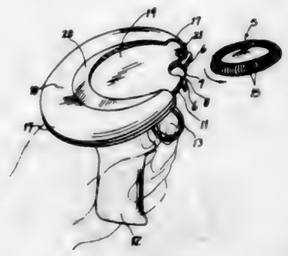
6. A game device comprising a board having playing surfaces visible only to opposing players, visually distinguishable means sequentially rendered operative by opposing players and chance control means comprising dice sequentially actuated by the opposing players to indicate to the opposing players which distinguishable means is to be made operable, said visually distinguishable means including means visible by each of the opposing players whereby operation of the visually distinguishable means may affect the association of the individual visually distinguishable means on both surfaces of the board, and further having trays with hinge means provided for securing said trays to a lower portion of the board for pivotal movement to a position alongside the opposite surfaces of the board, the lower portion of the board projecting below the trays when they are positioned alongside the board with the projecting lower portion of the board including a slot-like handle formed thereon to enable transportation of the game device.

4,277,068

DISK PROJECTOR AND CATCHER

Sei'ichi Sasaki, Goseshi, Japan, assignor to Kabushiki Kaisha Keiheisha, Japan

Filed Oct. 9, 1979, Ser. No. 82,819
Claims priority, application Japan, Mar. 30, 1979, 54-42404[U]
Int. Cl.³ A63B 65/10
U.S. Cl. 273—324 **6 Claims**



1. A flying saucer toy including a pistol for firing a flying disk, wherein said pistol includes a pair of resilient pinching blades adapted to hold said disk therebetween under compression, one said pinching blade having an opposing corner adja-

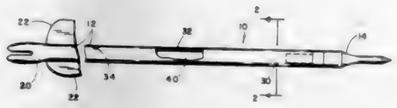
cent the free end thereof while the other blade has a slippery corner, said opposing corner and said slippery corner being opposedly located, said opposing corner being adapted to resist a thrust provided by said pinching blades to said disk while said slippery corner is adapted to allow said thrust to pass, thereby enabling a torque to be exerted on said disk as a firing impetus, said pistol further including a pocket defined by a side wall in which said disk can be caught during its flight, said flying disk having an inwardly concave bottom adapted to receive a lift efficiently, and means for releasing said disk from said pinching blades so as to fire said disk.

4,277,069

ARROW FOR BLOOD TRACKING

Michael F. Rouse, Rte. 3, Blair, Nebr. 68008

Filed Apr. 4, 1979, Ser. No. 27,072
Int. Cl.³ F41B *5/02*
U.S. Cl. 273—418 **4 Claims**



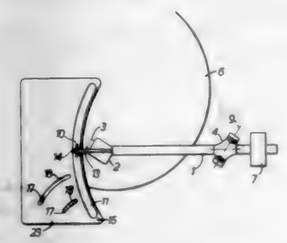
4. An arrow for blood tracking comprising an elongated tubular shank having a head at one end and a nock at its other end, said shank having a plurality of holes extending therethrough from the exterior of said shank, the inner ends of said holes being in communication with the interior of said shank, the walls of substantially all of said holes being slanted rearwardly toward their outer ends for substantial elimination of whistling noise from said arrow.

4,277,070

PHONOGRAPH

Jack Dinsdale, Carlton; David W. Parkins, Bedford, and John P. Hardwick, Bolton, all of England, assignors to Cranfield Institute of Technology, Cranfield, England

Filed Dec. 28, 1979, Ser. No. 108,300
Claims priority, application United Kingdom, Jan. 9, 1979, 675/79
Int. Cl.³ G11B *3/18*
U.S. Cl. 369—248 **14 Claims**



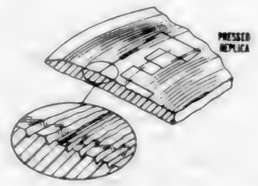
1. A phonograph record disc player comprising:
a support;
a bearing arrangement fixedly coupled to the support;
a pick-up arm mounted on the bearing arrangement or horizontal and vertical movement on the record disc and having carrying means for attaching a pick-up cartridge to the arm;
first damping means secured to the carry means at a position nearer the carrying means than the bearing arrangement; and
second damping means overlying said disc having means for securing the second damping means to the support, said first and second damping means cooperating to provide damping between the carrying means and the support, for damping a range of frequencies of vertical and horizontal vibrations of the carrying means, whilst allowing free movement over warps and eccentricities of the record disc, thereby to provide relatively low damping for frequencies below 5 Hz, moderate damping between 5 Hz and 20 Hz, and relatively high damping for frequencies above 20 Hz.

4,277,071

DISC RECORDS HAVING SURFACE MARKINGS

David E. Birt, Hanwell, and Lyn Ho'., Maidenhead, both of England, assignors to E M I Limited, Hayes, England

Filed Feb. 17, 1978, Ser. No. 878,872
Claims priority, application United Kingdom, Feb. 18, 1977, 6845/77
Int. Cl.³ G11B *3/84*
U.S. Cl. 369—84 **1 Claim**



1. A method of making a disc record having a distinctive surface marking including the steps of:
providing a blank lacquer surface,
providing a pattern for forming the said distinctive surface marking,
applying a marking fluid to the pattern and impressing the surface of the lacquer therewith to a depth less than the depth to which recorded information is cut into the lacquer, causing or allowing the removal of the fluid,
cutting such information to be recorded into the lacquer surface,
electroplating the cut lacquer surface to form a stamper and pressing therewith mouldable material into a disc record.

4,277,072

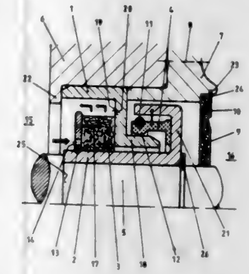
SEAL FOR THE GAP BETWEEN A REVOLVING SHAFT AND THE BORE OF A HOUSING AGAINST A MIXTURE OF A LIQUID AND A GAS

Hans Forch, Birkenau, Fed. Rep. of Germany, assignor to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Dec. 6, 1979, Ser. No. 100,749
Claims priority, application European Pat. Off., Dec. 15, 1978, 78101712.4
Int. Cl.³ F16J *15/32, 15/38*
U.S. Cl. 277—65 **17 Claims**

1. In a seal for the gap between a rotatable shaft and the bore of a housing, which housing encloses a medium to be retained in said housing, said medium comprising a finely divided liquid entrained in a gas, wherein an inner ring is secured to the shaft and an outer ring is secured to the bore of the housing in a liquid- and gas-tight manner, and having a radially-movable, ring-shaped sealing lip secured to said inner ring and biased into contact with a surface of said outer ring, the improvement which comprises a flange means secured to said inner ring at a point between the medium to be retained and the sealing lip; said flange means having an inner end face, an outer end face, and an outer circumferential surface, said outer end face of said flange means being biased into contact with a ring-shaped surface of said outer ring, said flange means also having openings distributed over the inner end face of said flange, which

openings are connected by passages extending generally axially through said flange means, said flange means further having a multiplicity of openings on said outer circumferential surface which openings are connected to said axial passages by passages extending in a generally radial direction.

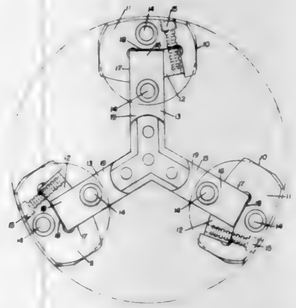


4,277,073

INSERT TYPE SOFT CHUCK JAWS

Lyndel G. Ferguson, Comanche, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Oct. 9, 1979, Ser. No. 82,845
Int. Cl.³ B23B *31/16*
U.S. Cl. 279—1 SJ **4 Claims**



1. A soft chuck jaw adapted to engage the chuck of a machine tool comprising:
hardened jaw body means including:
base portion means;
upper portion means having a substantially U-shaped opening therein, wherein the substantially U-shaped opening comprises:
first side wall means;
second side wall means angularly disposed with respect to the first side wall means; and
bottom wall means having a portion thereof disposed substantially perpendicular with respect to the first side wall means and having the remaining portion thereof disposed substantially perpendicular with respect to the second side wall means;
lug means disposed on the bottom of the base portion of the hardened jaw body means adapted to engage the chuck of a machine tool;
recess means disposed between the lug means disposed on the bottom of the hardened jaw body means;
aperture means located in the remaining portion of the bottom wall means of the upper portion means, the aperture means being disposed substantially parallel to the second side wall means of the substantially U-shaped opening in the upper portion means;
aperture means extending through the base portion means and one of the lug means disposed on the bottom of the base portion means;
aperture means extending through the raised portion means, through the base portion means, and through one of the lug means disposed on the bottom of the base portion means; and
aperture means located in the recess means disposed between the lug means disposed on the bottom of the hardened jaw body means, extending into the base portion means and having thread means on a portion thereof;
wedge locking means slidably engaging the second wall means of the substantially U-shaped opening in the raised portion of the hardened jaw body means, the wedge locking means comprising:
wedge shaped means having a first side wall portion substantially parallel to the first side wall means of the substantially U-shaped opening in the raised portion means in the hardened jaw body means, having a second side wall portion substantially parallel to the second side wall means of the substantially U-shaped opening in the raised portion means of the hardened jaw body means, having end wall portions substantially parallel with respect to each other, having top and bottom wall portions substantially parallel with respect to each other, and having aperture means therein substantially parallel to the second side wall means of the substantially U-shaped opening in the raised portion means of the hardened jaw body means;
soft jaw insert means releasably retained in the substantially U-shaped opening in the raised portion means of the hardened jar body means, the soft jaw insert means comprising:
substantially rectangular body means having one end portion releasably retained in the substantially U-shaped opening of the raised portion means of the hardened jaw body means by the wedge locking means while the other end thereof extends beyond the raised portion means of the hardened jaw body means whereby the soft jaw insert means is releasably clampingly engaged by the wedge locking means and the hardened jaw body means; and
fastening means releasably securing the wedge locking means to the raised portion means of the hardened jaw body means and extending through the aperture means located in the raised portion means of the hardened jaw body means into the aperture means in the wedge locking means.

4,277,074

KEYLESS CHUCK

Harry Kilberis, 4411 Stallion Brook La., Spring, Tex. 77379

Filed Nov. 26, 1979, Ser. No. 97,366
Int. Cl.³ B23B *31/06, 31/16*
U.S. Cl. 279—60 **14 Claims**

1. In a chuck for grasping tools for rotation about an axis with a plurality of jaws, wherein said jaws are radially movable in response to relative rotational movement between a chuck collar and said jaws for changing said tools in said chuck, the improvement comprising:
a first dog member secured for rotation with said chuck collar,
a second dog member located adjacent said first dog member and adapted to be secured against rotation with said chuck collar,
said first and second dog members having tapered engaging surfaces for producing an axial force separating said dog members when said second dog member is secured against rotation while said chuck collar is rotating,
guide means for allowing axial movement of said first dog member relative to said chuck collar in response to said axial force, and
resilient means for opposing said axial force and yielding to

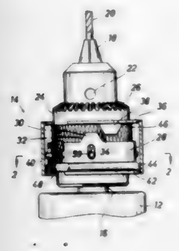
allow said first dog member to pass by said second dog member.

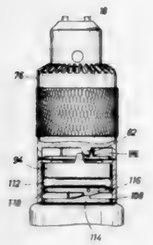
7. In a chuck for grasping tools for rotation about an axis with a plurality of jaws, wherein said jaws are radially movable in response to relative rotational movement between a chuck collar and said jaws for changing said tools in said chuck, the improvement comprising:

a first dog member secured for rotation with said chuck collar,

a second dog member located adjacent said first dog member and adapted to be secured against rotation with said chuck collar,

said first and second dog members having tapered engaging surfaces for producing an axial force separating said dog





members when said second dog member is secured against rotation while said chuck collar is rotating,

guide means for limiting rotational movement of said second dog member and allowing for axial movement of said second dog member relative to said chuck collar in response to said axial force,

resilient means for opposing said axial force and yielding to allow said first dog member to pass by said second dog member,

positioning means for axially moving said second dog member toward said first dog member to allow for engagement of said dog members, and

a sleeve member enclosing said second ring member and said positioning means.

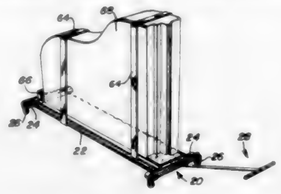
4,277,075

MOVING DOLLY

Robert W. Shay, 501 SW. Second St., Hallandale, Fla. 33009

Filed Mar. 27, 1979, Ser. No. 24,325
Int. Cl.³ B62B 3/02, 3/04, 3/10
U.S. Cl. 280—47.36 6 Claims

1. A moving device for transporting a bulky object having greater width and height than depth, comprising, in combination, platform means for supporting the object in a generally vertical plane and framework means for supporting the platform means during transport of the object, said framework means comprising retaining means for holding the platform means, wheel means attached to the retaining means for permitting movement in any direction, handle means attached to the retaining means for manually pulling the device, and pivot means for pivotal movement of the handle means and for detachably attaching the handle means to a selectable location on the retaining means, said platform means including a cushioning element surfaced with a resilient cushioning material for supporting the object, the cushioning element comprising a substantially flat, elongated plank conforming in size to the framework means for support thereby in substantially horizontal configuration and a layer of cushioning material attached on the upper surface of the plank and presenting a contacting surface to the object, the plank including an upraised retaining portion at one end for more securely retaining the object resting on the cushioning element, said retaining means including



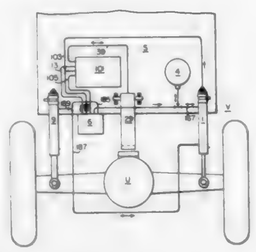
a pair of substantially parallel longitudinal frame members having inwardly projecting flanges for supporting the cushioning element, the retaining means further comprising a pair of substantially parallel end supports attached to the longitudinal frame members for further support of the cushioning element, said cushioning element including fastening means for passing upwardly and securing said object during transport thereof by the moving device, said fastening means including a plurality of straps attached to the cushioning element, at least one strap passing upwardly along the inside edge of the frame member in securing relationship to the object, and at least one other strap passing upwardly around the outside edge of the frame member in securing relationship to the object.

4,277,076

STABILIZING VEHICLES

Clinton R. Hanna, 2756 N.E. 37th Dr., Fort Lauderdale, Fla. 33308

Filed Jun. 12, 1979, Ser. No. 47,792
Int. Cl.³ B60G 11/30
U.S. Cl. 280—112 A 14 Claims



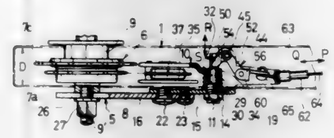
6. In a hydropneumatic suspension for a vehicle having sprung and unsprung masses, a source of hydraulic power, hydraulic actuators for supporting the sprung mass of said vehicle from said unsprung mass, means for supplying pressure to said actuators from said power source, and positive mechanical means for supporting said sprung mass when said power source is idle, and means connected to said mechanical supporting means for enabling said supporting means when said source is idle and means connected to said mechanical supporting means for disabling said supporting means when said source is operative.

4,277,077

VARIABLE-SPEED BICYCLE

Nobuo Ozaki, Osaka, Japan, assignor to Maeda Industries, Ltd., Osaka, Japan

Filed Jun. 25, 1979, Ser. No. 51,396
Claims priority, application Japan, Jul. 5, 1978, 53-82340; Jul. 5, 1978, 53-93247[U]
Int. Cl.³ B62M 9/12, 25/04
U.S. Cl. 280—236 11 Claims



1. A variable-speed bicycle having a gear case mounted to one side of a bicycle frame, said bicycle comprising:

a multi-stage freewheel assembly housed within said gear case;

said freewheel assembly having at least two sprockets of different diameter mounted on a rear wheel hub of said bicycle;

a rear derailleur housed within said gear case;

said derailleur having a tensioner, a pulley support frame formed integral with said tensioner, and a pair of pulleys rotatably supported by said pulley support frame;

said derailleur being adapted to cooperate with said freewheel assembly for switching over a drive chain from one sprocket to another sprocket when said tensioner is shifted by operation from a remote location by means of a speed change lever through a control cable both of which are mounted on said bicycle frame;

said derailleur including a substantially horizontal support shaft disposed within said gear case and extending transversely with respect to a longitudinal axis of said gear case;

said tensioner being axially slidable on said support shaft as well as rotatable about said support shaft;

at least one helical spring surrounding said support shaft and engaged at its movable end with said tensioner to bias said tensioner to slide on said support shaft axially outwardly as well as to impart a torsional force to said tensioner to urge the tensioner to rotate about said support shaft in one direction;

said derailleur further including an action converter for converting an axial tension force imparted in a first direction by said control cable into a thrust force acting in a second direction transverse to said first direction of said tension force; and

said action converter having at least one push arm connected at its one end to said control cable and arranged to be in contact at its free end with said tensioner to selectively position said tensioner on said support shaft in accordance with said tension force imparted by said control cable.

4,277,078

THREE-WHEEL CONVEYANCE

Myron A. Root, P. O. Box 398, Milroy, Ind. 46156

Filed Feb. 22, 1979, Ser. No. 14,106
Int. Cl.³ B62K 5/02, 5/08
U.S. Cl. 280—269 6 Claims

1. A three-wheel conveyance comprising:

an integral frame member including a rear wheel support and a front center post;

handlebars assembled to said front center post;

a rear wheel retained by said rear wheel support;

a wheel fork support assembly clamped about said center post and including two wheel forks, each arranged with a center pivot stem and a positive camber and located at opposite ends of said wheel fork support assembly;

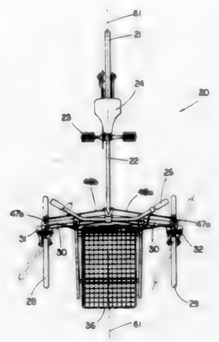
two front steering wheels, each wheel being retained by a different one of said two wheel forks;

a center steering assembly comprising:

(a) a handlebar bracket attached to said front center post and retaining said handlebars for steering said three-wheel conveyance; and

(b) a center steering link rigidly joined to said handlebar bracket;

two pivot links, one link being rigidly attached to the top of said center pivot stem of each wheel fork;



a first connecting rod connecting together one of said two pivot links with a first side of said center steering link;

a second connecting rod connecting together the other of said two pivot links with a second opposite side of said center steering link, said connecting rods in combination with said center steering link transferring steering motion from said handlebars to said two front steering wheels; and

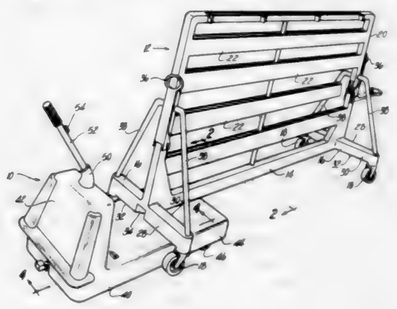
a plurality of spherical connectors arranged for providing the connections at each end of said two connecting rods.

4,277,079

MATERIAL HANDLING SYSTEM

Robert L. Propst, Bellvue, Wash., and Paul L. Propst, Ann Arbor, Mich., assignors to Herman Miller, Inc., Zeeland, Mich.

Filed Oct. 4, 1979, Ser. No. 81,687
Int. Cl.³ B60D 1/16; B62D 53/00
U.S. Cl. 280—411 R 9 Claims



1. In a material handling system,

a transport unit having a load-carrying body portion, end portions extending transversely of said body portion and

ground wheels secured to said end portions and arranged in substantially spaced pairs thereon,

a transport vehicle having a frame and ground-engaging drive wheels,

coacting means on said vehicle frame and one of said transport unit end portions at a position between the pair of wheels thereon operable to releasably connect said frame and said end portion for controlled movement of said transport unit in response to movement of said vehicle,

said vehicle frame comprising a front section and a back section, said back section being located so that said vehicle can be moved toward said transport unit to a position in which said back section underlies said end portion,

coacting abutment means on said back section and said end portion releasably connecting said frame to said end portion,

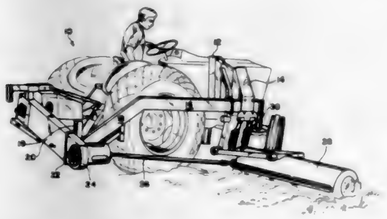
said coacting abutment means comprising projection means on said vehicle frame extending upwardly therefrom, means forming a recess in said transport unit end portion operable to receive said projection means upon horizontal movement of said vehicle frame to thereby limit relative movement of said transport unit and said vehicle, and means on said end portion and said frame operable to retain said projection means in said recess in the connected positions of said vehicle and frame and said transport unit and to restrict articulation of said transport unit and said vehicle.

4,277,080

QUICK HITCH POWER FRAME

Alexander Smith, and Burton D. Beggs, both of Sanford, Fla., assignors to Smitty's, Inc., Sanford, Fla.

Filed Mar. 16, 1978, Ser. No. 887,830
Int. Cl.³ B60D 1/14
U.S. Cl. 280—473 **8 Claims**



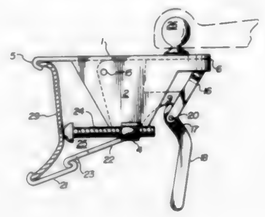
1. A quick disconnect arrangement for use in combination with a tractor or other farm implement, comprising an elongate structural member having a substantially straight mid portion, and front and rear support means for rigidly yet removably supporting the entire weight of said elongate structural member outboard of one of the driving wheels of the tractor, with said substantially straight portion residing essentially parallel to the longitudinal centerline of the tractor and adapted to support an implement thereon, portions of said front and rear support means being affixed to the tractor, and having quick disconnect means operatively associated with said elongate structural member, each end of said elongate structural member being readily releasable from support by the tractor by operation of said quick disconnect means.

4,277,081

BUMPER TRAILER HITCH

Garnet H. Stoutenburg, 1411 - 19 Ave., NW., Calgary, Alberta, Canada

Filed Jul. 31, 1979, Ser. No. 62,427
Int. Cl.³ B60D 1/00
U.S. Cl. 280—502 **6 Claims**



1. A trailer hitch for mounting on the bumper of a vehicle comprising

(a) a main hitch member carrying a hitch ball and having a bumper catch thereon at one end, the bumper catch being capable of attaching to and gripping the upper edge of the bumper of the vehicle;

(b) a pivot member pivotally connected to the main hitch member;

(c) a second bumper catching means connected to the pivot member, said bumper catching means being capable of attaching to and gripping the lower edge of the bumper of the vehicle and permitting the distance between the bumper catching means and the pivot member to be adjusted;

(d) two adjustable length bumper legs fitted into two respective leg holders mounted on either side of the main hitch member, the two bumper legs permitting the distance between the bumper and the hitch member to be adjusted;

(e) a hand lever pivotally engaging with the pivot member, and a fork hinge pivotally engaging with the main hitch member, the handle lever and the fork hinge being pivotally interconnected with one another whereby pivoting said hand lever about said pivoted interconnection with the fork hinge rotates said pivot member to provide a mechanical advantage and enable the second bumper catching means to be tensioned against the lower edge of the bumper while the bumper catch of the main hitch member is secured to the upper edge of the bumper of the vehicle and the two bumper legs support the hitch on the bumper.

4,277,082

SKI BRAKE

Tilo Riedel, Eching, Fed. Rep. of Germany, assignor to S.A. Etablissements Francois Salomon & Fils, Annecy, France

Division of Ser. No. 815,364, Jul. 13, 1977, abandoned. This application Aug. 27, 1979, Ser. No. 70,031
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1976, 2632849
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 **7 Claims**

1. A ski brake for use on a ski having a snow-engaging lower surface and a boot-carrying upper surface and normally adapted to travel forwardly in a predetermined travel direction, said ski brake comprising:

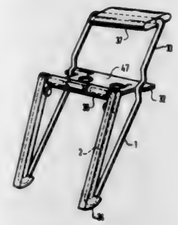
a pivot on said ski defining an immovable pivot axis fixed relative to said ski and extending generally parallel to said turfaces and transverse to said direction;

an abutment fixed and offset on said ski in said direction from said pivot axis;

a brake element having a guided leg having one end bearing in said direction on said abutment and a pivot leg having one end pivoted in said pivot about said pivot axis, said

legs having opposite joined-together other ends, said brake element being displaceable with sliding of said one end of said guided leg longitudinally of said guided leg over said abutment between a braking position with said legs extending transversely to said direction and downwardly below said lower surface into snow underneath said ski and a rest position with said legs extending generally parallel to said direction and lying above said surfaces;

means including an actuator connected to one of said legs



and displaceable between an advanced position relatively far from said upper surface and a depressed position relatively close to said upper surface and spaced from said advanced position for displacing said braking element from said braking into said rest position on displacement of said actuator from said advanced into said depressed position; and

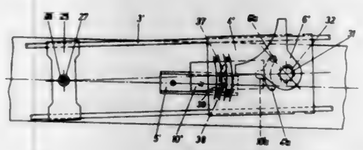
spring means on said element for urging same into said braking position, for urging said one end of said guided leg in said direction against said abutment, and for urging said actuator into said advanced position.

4,277,083

SAFETY SKI BINDING

Alois Hinmetsberger, and Heinz Wittmann, both of Vienna, Austria, assignors to TMC Corporation, Baar, Switzerland

Division of Ser. No. 896,234, Apr. 13, 1978, Pat. No. 4,190,264.
This application Nov. 5, 1979, Ser. No. 91,434
Claims priority, application Austria, Apr. 15, 1977, 2635/77
Int. Cl.³ A63C 9/081
U.S. Cl. 280—618 **7 Claims**



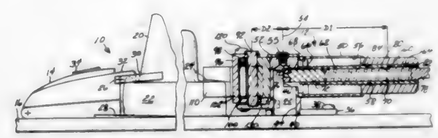
1. A safety ski binding comprising a pivotally supported sole plate provided adjacent a front end thereof with a jaw plate having a holding jaw pivotally supported for movement about an axis which is perpendicular with respect to an upper surface of a ski, said sole plate being maintained in a centered position at said front end by means of a locking mechanism which is released upon exceeding a predetermined torque, the improvement comprising wherein said locking mechanism has a mounting plate secured to said ski, said jaw plate having means defining an elongated track thereon, the longitudinal axis of said track extending parallel to the longitudinal axis of said sole plate, slide piece means slidably mounted on said track for reciprocal movement thereon, said holding jaw having extension means thereon, releasable connecting means operatively connecting said extension means to said slide piece means without restricting the reciprocal movement capability of said slide piece means and operatively effecting a locking of said holding jaw in a fixed position on said jaw plate, and means responsive to a pivotal movement of said sole plate for effecting a movement of said slide piece means and a resulting release of said connecting means to thereby unlock said holding jaw from said jaw plate to permit a pivotal movement of said holding jaw on said jaw plate.

4,277,084

ACCELERATION COMPENSATED STEP-IN SKI BINDINGS

Duane J. Bonvallet, 375 Becket, Brighton, Mich. 48116

Filed Jun. 11, 1979, Ser. No. 46,993
Int. Cl.³ A63C 9/08
U.S. Cl. 280—629 **10 Claims**



1. An acceleration compensated ski boot release device for a safety ski binding comprising:

a support member adapted to be fixably mounted to a ski;

a body member pivotally carried by said support member for movement about a first pivot point;

means, carried by said body member, for releasably connecting a first portion of said boot to said body member;

means for maintaining the fulcrum length between the effective acting point of the mass of said boot and said first pivot point constant regardless of where said first portion of said boot engages said boot connecting means;

a mass; and

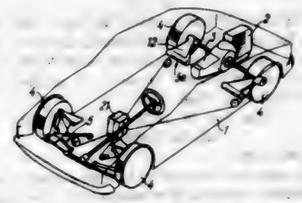
means, for connecting said mass to said body member such that said mass and said body member pivot together as a unit about said first pivot point and the center of gravity of said mass is disposed on the opposite side of said first pivot point from the mass of said boot to generate a moment at said first pivot point equal and opposite to the moment generated by said boot mass during acceleration of said boot to cancel the internal acceleration forces generated by said boot mass.

4,277,085

TRANSPORT VEHICLE

Jury A. Bryansky, Leningradskoe shosse, 61-63, kv. 67; Stanislav B. Geas de Kalve, ulitsa Fersmana, 11, kv. 13, and Igor V. Ermilin, Brigadirsky pereulok, 3-5, kv. 92, all of Moscow, U.S.S.R.

Filed Nov. 29, 1978, Ser. No. 964,501
Claims priority, application U.S.S.R., Nov. 30, 1977, 2546930; Apr. 28, 1978, 2611956; May 30, 1978, 2621560; May 31, 1978, 2624801; Jun. 8, 1978, 2624401; Sep. 26, 1978, 2662301
Int. Cl.³ B62D 7/00
U.S. Cl. 280—660 **13 Claims**



1. A transport vehicle comprising a sprung mass and unsprung masses, suspensions coupling said mass through said unsprung masses so that said unsprung masses can move inde-

pendently in a vertical direction with respect to said sprung mass over a predetermined range between limits on said sprung mass; each of said suspensions comprising a resilient element and arms, the ends of which are hingedly connected to an unsprung mass while their other ends are connected to said sprung mass and are capable of moving in a vertical direction over a limited range; said resilient elements located on said sprung mass in a unit for said resilient elements arranged on said sprung mass; and a plurality of flexible elements, each coupling one of said resilient elements with an unsprung mass; and said flexible elements being under tension over the entire range of the vertical movement of an unsprung mass with respect to said sprung mass due to a pretightening or preloading of the resilient elements.

4,277,086

HYDRAULIC DAMPER SYSTEM

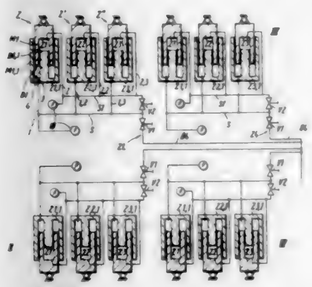
Horst Thiele, Friedhofstrasse 12, D-7106 Neuenstadt, Fed. Rep. of Germany

Filed Jul. 30, 1979, Ser. No. 62,229

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1978, 2851324

Int. Cl.³ B60G *19/06*

U.S. Cl. 280—709 **3 Claims**



1. A support and safety arrangement for a hydraulic damper system supporting a trailer on a wheel axle at one end thereof, comprising a unit of pairs of cooperating cylinders, each cylinder having a piston with a pressure face, the pressure faces of the pistons of the cylinders of each pair having substantially the same area and each pressure face delimiting an operating chamber in the respective cylinder, the operating chambers of the cylinders of each pair being separated from each other in a fluid-tight manner, two separate conduits each containing a metered amount of hydraulic fluid, each conduit connecting the operating chambers of the respective cylinders, and a shut-off valve in each conduit for selectively permitting delivery of the metered amounts of hydraulic fluid to each separate conduit and for discontinuing the hydraulic fluid delivery and locking the metered amounts of hydraulic fluid in each conduit.

4,277,087

VEHICLE REAR LEAF SPRING SUPPORT

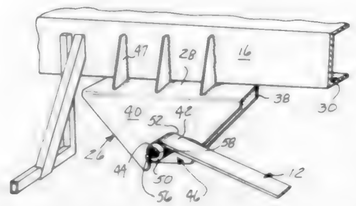
Nelson R. Turner, Battle Creek; Daniel E. Sanders, Lansing, and Charles A. Blumenstein, Bloomfield, all of Mich., assignors to The Model A and Model T Motor Car Reproduction Corporation, Battle Creek, Mich.

Filed Sep. 28, 1979, Ser. No. 79,998

Int. Cl.³ B60G *11/04*

U.S. Cl. 280—718 **1 Claim**

1. In an automotive vehicle having a pair of side frame elements which converge forwardly and a transverse rear axle underlying the frame elements adjacent the rear ends thereof, a suspension for the rear axle comprising an open-bottomed mounting box suspended beneath each of the frame elements forwardly of the axle and having spaced vertical side walls, each mounting box being angularly related to the overlying frame element so that each of the box sidewalls is perpendicular to the axis of the axle, a transverse mounting bolt projecting across each said box below the frame elements and parallel to the axis of the axle, a pair of parallel, longitudinally extending leaf springs supporting the rear axle, each leaf spring having its forward end lying between the side walls of the associated



mounting box and secured to the adjacent mounting bolt, and means securing the rear end of each of said springs to the adjacent frame element in longitudinal alignment with the front end of the respective spring, so that the springs are retained in parallel relation and are guided for movement in a plane which is truly perpendicular to the axis of said axle regardless of the convergence of the side frame elements.

4,277,088

PASSIVE SEATBELT SYSTEM

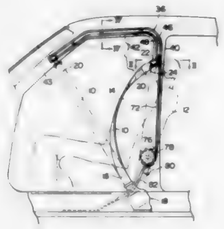
Ichiro Suzuki, Nagoya; Masanao Motonami, and Hiroshi Ogawa, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Apr. 25, 1979, Ser. No. 33,054

Claims priority, application Japan, Aug. 17, 1978, 53-113244[U]

Int. Cl.³ B60R *21/10*

U.S. Cl. 280—804 **11 Claims**



11. A passive seatbelt system comprising for a vehicle which includes a guide rail fastened to a vehicle body, a runner piece which is provided in said guide rail and moves along the length of said guide rail and a driving mechanism which moves said runner piece along the length of said guide rail, said seatbelt system further comprising:

a sliding shoe provided between said runner piece and said guide rail, said sliding shoe comprising grooves formed on the edge thereof and portions of said guide rail being inserted into said grooves such that the sliding shoe guides the movement of said runner piece;

a pair of projections formed on said runner piece through which said runner piece is coupled to said driving mechanism by engaging with a transmitting tape;

a pair of slide projections formed on said runner piece on the other side opposite to said pair of projections whereby said runner piece contacts said guide rail via said slide projections; and

an anchor shaft attached to said runner piece, said anchor shaft projecting through said guide rail to the inside of the vehicle for anchoring the outer end of a passenger restraining belt, whereby the movement of said runner piece is prevented in a lateral direction of the vehicle.

4,277,089

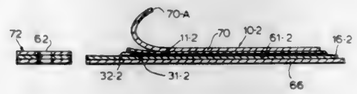
PHARMACEUTICAL RECORD AND LABEL SYSTEM

James L. Lockhart, 1645 E. 50th St., Chicago,, Ill. 60615

Continuation-in-part of Ser. No. 831,818, Sep. 9, 1977, Pat. No. 4,159,129. This application Jan. 29, 1979, Ser. No. 7,217

Int. Cl.³ G09F *3/10;* **B41L** *1/32, 1/36*

U.S. Cl. 282—27 R **1 Claim**



1. A record and label system for computerized pharmaceutical accounting, comprising:

unitary information storage means comprising a top information storage sheet storing information in readable form as ink characters, relative to pharmaceutical prescriptions, transferred thereto by means of ink character impressions which apply the ink directly to said top information storage sheet,

a series of adhesively backed pharmaceutical prescription label segments secured to said information storage means in underlying relation to said top information storage sheet, while permitting manual stripping of the label segments with adhesive backing intact from said information storage means, said label segments each having label information receiving locations thereon for receiving information concerning a pharmaceutical prescription,

said top information storage sheet having formatted zones thereon corresponding in location to said label information receiving locations so as to be in direct alignment therewith, for facilitating entry of said ink character impressions directly to the portions of said top storage sheet overlying said label information receiving locations of said label segments, and having supplemental data segments providing for recording of supplementary information with respect to each formatted zone at a location adjacent the formatted zone, such that after entry of information on the top storage sheet, the top storage sheet has stored thereon at each of a succession of unified identifiable regions of the top storage sheet both formatted information as also required for a respective one of said label segments and necessary supplementary data pertaining to a given prescription,

said information storage means having character impression transfer means interposed between said top storage sheet and said series of label segments with said top storage sheet overlying all of said pharmaceutical label segments such that ink character impressions applied to said top storage sheet are transferred to said label segments,

said top storage sheet having means providing exterior machine readable surface portions at said formatted zones for retaining said ink characters in machine readable form which ink characters are at the same time in the form of visually readable conventional characters, said top storage sheet being of opaque paper stock with the identical information which is transferred to said label segments by means of said character impression transfer means, being present in said formatted zones of said top information storage sheet, and being readable by both optical character reading equipment and by personnel processing such top storage sheet.

4,277,090

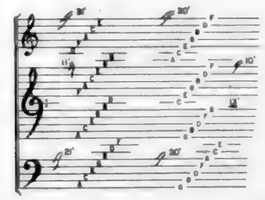
MUSIC SCORING AND MUSICAL STAFFS

Domenico F. Lusi, 427 Cedarville St., Pittsburgh, Pa. 15224

Continuation of Ser. No. 643,710, Dec. 23, 1975, abandoned, which is a continuation of Ser. No. 137,126, Apr. 26, 1971, abandoned. This application Nov. 22, 1978, Ser. No. 963,096

Int. Cl.³ G10G *1/00*

U.S. Cl. 283—47 **8 Claims**



1. A composite musical staff for receiving musical notes comprising at least two sets of five equally spaced lines each, said at least two sets of five equally spaced lines forming at least one of a composite bass and treble clef staff, a composite bass clef staff, a composite treble clef staff, a composite multiple treble clef and multiple bass clef staff, a composite multiple treble clef and single bass clef staff, and a composite single treble clef and multiple bass clef staff, the at least two sets of five equally spaced lines forming said composite treble and bass clef staff being separated by one line and two spaces, the at least two sets of five equally spaced lines forming the composite bass clef staff being separated by two lines and three spaces, the at least two sets of five equally spaced lines forming the composite treble clef staff being separated by two lines and three spaces, the composite multiple bass clef and multiple treble clef staff having at least two sets of five equally spaced lines separated by two lines and three spaces forming the multiple treble clef portion of the staff separated from at least two sets of five equally spaced lines forming the multiple bass clef portion of the staff by one line and two spaces and the at least two sets of five equally spaced lines forming the multiple bass clef portion of the staff being separated by two lines and three spaces, the composite multiple treble clef and single bass clef staff having at least two sets of five equally spaced lines forming the multiple treble clef portion of the staff separated from a set of lines forming the bass clef portion of the staff by one line and two spaces and the at least two sets of lines forming the treble clef portion being separated by two lines and three spaces, and the single treble clef and multiple bass clef staff having a set of five equally spaced lines forming the treble clef portion of the staff separated from at least two sets of five equally spaced lines forming the multiple bass clef portion of the staff by one line and two spaces and the at least two sets of lines forming the bass clef portion of the staff being separated from each other by two lines and three spaces.

4,277,091

COUPLING FOR LINED PIPE

John J. Hunter, 1410 Willow Road, Abilene, Tex. 79602

Continuation-in-part of Ser. No. 31,533, Apr. 19, 1979, abandoned. This application Jun. 11, 1979, Ser. No. 47,151

Int. Cl.³ F16L *9/14, 13/14*

U.S. Cl. 285—55 **18 Claims**

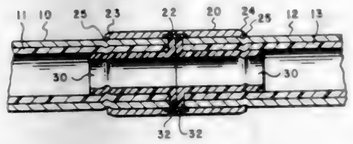
1. A coupling joint interconnecting two lengths of metal pipe comprising:

(a) first pipe means having a plastic liner on the internal surface thereof, the end face of said plastic liner substantially coterminous with the end face of said pipe means;

(b) an end face collar comprising a tubular plastic body, the external diameter thereof substantially conforming to the internal diameter of said liner in said first pipe means and having a radially extending flange at one end thereof, said end face collar positioned within the open end of said first

pipe with said radially extending flange adjacent the end face of said first pipe means; and

(c) second pipe means having an internal diameter at the open end thereof less than the external diameter of said first pipe means and having a plastic liner on the internal



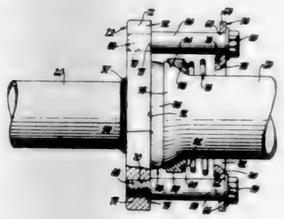
surface thereof, the end of said plastic liner terminating within said second pipe means at a point removed from the open end thereof, wherein the end of said first pipe means is telescopically interference fit within the open end of said second pipe means and said radially extending flange overlaps said plastic liner in said second pipe means.

4,277,092

SUPPLE EXHAUST COUPLING

Homer J. Viers, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 19, 1979, Ser. No. 58,789
Int. Cl.³ F16L 27/04
U.S. Cl. 285—263 3 Claims



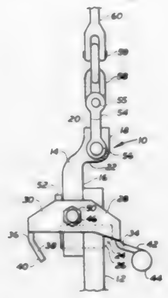
1. A flexible exhaust coupling assembly for maintaining a uniformly biased circumferential seal between exhaust flow segments subject to angular movement therebetween during exhaust flow therethrough comprising: an exhaust component having an exteriorly located spherical seal surface and an exhaust flow path therethrough, a pair of spaced bolts fixedly secured to said exhaust component and extending axially therefrom on either side of said spherical seal surface, head portions on each of said bolts located in spaced relationship to said exhaust component, a pipe having a flared free end formed continuously circumferentially therearound, said flared free end having a spherical outer surface and a spherical inner surface thereon, a spacer flange, means securing said spacer flange to said bolts at a point located in axially spaced relationship to said flared free end and having a center hole therein receiving said pipe and spaced therefrom radially to permit equally free universal angular movement of said pipe with respect to said exhaust component, and also with respect to said spacer flange, a spring retainer ring having a spherical surface thereon slidably supported for floating movement on said outer spherical seal surface, a coil spring surrounding said pipe having opposite ends thereon in engagement with said spacer flange and said retainer ring for biasing said retainer ring axially against said spherical outer surface and said retainer ring assuming an equilibrium position on said spherical outer surface to uniformly force said pipe against said spherical seal surface, said coil spring being spaced with respect to said pipe to permit angular movement thereof with respect to said exhaust component, said coil spring biasing said flared free end with respect to said spherical seal surface when the retainer ring is in its equilibrium position to maintain a uniformly continuous circumscribing spring pressure force therearound throughout the range of angular movement between said exhaust component and said pipe.

4,277,093

SAFETY HOOK DEVICE

Bernard C. Turley, Pittsburgh, and David E. Hochbein, Sarver, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sep. 17, 1979, Ser. No. 76,213
Int. Cl.³ B66C 1/36
U.S. Cl. 294—83 R 3 Claims



2. A hook device for attachment to an overhead transporting means and adapted for automatic uncoupling from a coupled object comprising:

(a) a vertical frame member having an upper portion adapted for attachment to an overhead transporting means and a coupling rod projecting generally horizontally from a lower portion of said frame member for inserting into an opening in an object to be transported;

(b) a housing pivotally attached to said frame member about a horizontal axis and having a first portion enclosing at least a portion of said coupling rod for retaining a coupled object on said coupling rod extending outward from said horizontal axis in imbalance with a second portion extending outward from said horizontal axis in the opposite direction and having said enclosing portion heavier than said second portion; and a stop means for preventing gravitational rotation of said housing about said horizontal axis when said enclosing portion encloses said coupling rod.

4,277,094

DEVICE FOR THE REMOTE-CONTROLLED CLOSING OF A GASOLINE VENT

Yves Rose, Foyer de Puteaux, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Sep. 7, 1979, Ser. No. 73,292
Claims priority, application France, Sep. 22, 1978, 78 27172
Int. Cl.³ B60K 15/04
U.S. Cl. 296—1 C 4 Claims

1. A remote control gasoline vent closing device for a motor vehicle, comprising:

a vent cup;

a vent portal for the vent cup, said vent portal including an interior keeper fixed thereto;

an activator mounted inside the body of said motor vehicle, said activator including a movable core;

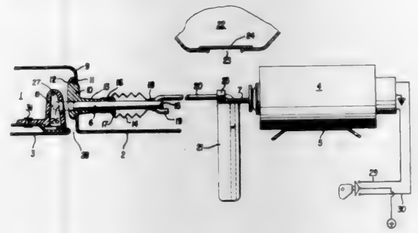
a hollow guide means passing through said vent cup;

a bolt having one end fixed to said movable core and having another end inserted in said hollow guide means to lock said interior keeper; and

at least one gasoline vapor retaining means attached between said hollow guide means and said bolt; wherein said guide means is a perforated plug obstructing an opening of said cup and extended in the direction of said activator by a sleeve surrounding said bolt and wherein said gasoline vapor retaining means is an elastic bellows having a collar at each end, one of said collars fits tightly around the end of said sleeve, said sleeve including a retaining flange, and the second of said collars fits tightly around said one end of said bolt.

2. A remote control gasoline vent closing device for a motor vehicle, comprising:

an activator mounted inside the body of said motor vehicle, said activator including a movable core;



a vent portal including an interior keeper affixed thereto, said interior keeper comprising a stirrup connected to a tapered blind housing having a stud hole thereon; and

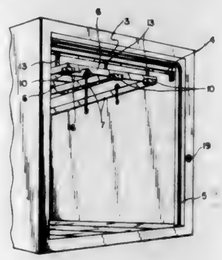
a bolt having one end fixed to said movable core and movable by said core from an extended position into a retracted position, and having another end insertable into said stud hole to lock said vent portal, whereby said blind housing encloses said other end of said bolt to prevent tampering therewith and said taper of said blind housing permits the closing of said vent portal when said bolt is in said extended position.

4,277,095

TRUCK RAILS AND TIME SAVER

Jacob Barraw, 367 Fern Dr., Ft. Lauderdale, Fla. 33326

Filed Dec. 12, 1977, Ser. No. 859,666
Int. Cl.³ B62D 33/04
U.S. Cl. 296—24 B 4 Claims



1. An improved meat rack for use in a mobile transportation compartment having an overhead door on at least the unloading end which travels in guide rails longitudinally adjacent the roof of the compartment in a plane parallel to the roof when the door is opened and closed either manually or by a prime mover, comprising:

a plurality of first elongated members attached to the sides of said compartment transverse of the longitudinal axis thereof and below said roof thereof;

a plurality of spacers attached to said first elongated members, said spacers projecting downwardly therefrom;

a plurality of second elongated members attached to said spacers and disposed transverse of said first elongated members;

a plurality of third elongated members, each said third elongated member attached to said roof and disposed in parallel, coplanar relation with a respective second elongated member;

a plurality of meat hooks, each said meat hook movably connected to a respective second elongated member, each said meat hook movable in a longitudinal direction with respect to said compartment;

a plurality of cam means, each said cam means for preventing longitudinal movement of a respective meat hook in one direction each said cam means pivotally connected to a respective third elongated member and extending downwardly therefrom into the path of a respective meat hook and the path of said overhead door;

a plurality of stop means, each said stop means for preventing rotational movement of a respective cam means in one direction, each said stop means attached to a respective third elongated member, adjacent a respective cam means;

a plurality of biasing means, each said biasing means for biasing a respective meat hook from longitudinal movement in one direction, each said biasing means spaced a predetermined distance from a respective cam means to allow the portion of said meat hook which is movably connected to said respective second elongated member to fit therebetween;

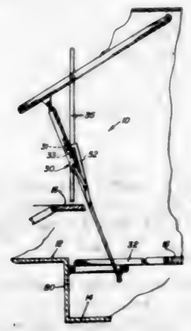
said overhead door having a top edge which when the door is opened contacts each said cam means forcing said cam means to rotate in a direction against a respective meat hook, causing each said meat hook to move longitudinally in the direction of said top edge overcoming the force of said biasing means, allowing further rotational movement of each said cam means out of the path of each said meat hook and the path of said overhead door, allowing longitudinal movement of each said meat hook along a respective second elongated member, each said cam means returning to its original position when said overhead door is closed.

4,277,096

TELESCOPING REACH ROD FOR GATE AND RAMP DEVICE WITH LIFT DECK

Mack A. Lewis, Sioux City, Iowa, assignor to Wilson Trailer Company, Sioux City, Iowa

Filed Oct. 1, 1979, Ser. No. 81,024
Int. Cl.³ B62D 33/04
U.S. Cl. 296—24 C 8 Claims



1. In a compartment for retaining livestock, said compartment having sidewalls, a base floor and an upper platform disposed between said sidewalls within said compartment: a ramp hingedly connected to said platform, a lower gate, a hinge means connected to said base floor, one end of said lower gate being connected to said hinge means, an upper gate, a

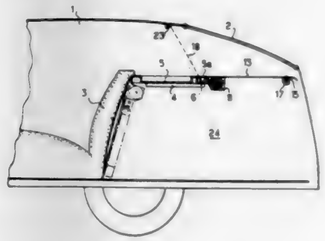
hinge arrangement connecting said upper gate to said sidewalls, and a telescoping rod hingedly connected between said upper and lower gates and including first and second operably associated members, said first member being slidably received into a hollow interior portion of said second member, said telescoping rod including adjustment means connected thereto for causing a change in an effective length of said rod between an extended position and a retracted position, said effective length corresponding to a slidable movement of said first and second members relative to one another.

4,277,097

VEHICLE HAVING A REAR DECK FOR COVERING A LUGGAGE BOOT

Andre P. Lalanne, Le Mesnil St-Denis, France, assignor to Societe Anonyme Automobiles Citroen and Societe dite: Automobile Peugeot, both of Paris, France

Filed Jul. 19, 1979, Ser. No. 59,052
Claims priority, application France, Jul. 21, 1978, 78 22533
Int. Cl.³ B60R 5/04
U.S. Cl. 296—37.16 **8 Claims**



1. In a vehicle, the combination which comprises:
a body having a roof, a rear window, and a luggage boot;
a rear seat having an upper part and a back;
a rigid shelf removably fixed to the body in the immediate vicinity of the upper part of the back of the rear seat to extend rearwardly over part of the boot, the length of the shelf in the longitudinal direction of the vehicle being less than that of the luggage boot;
a flexible roller curtain with automatic return positioned to be spread behind said shelf to cover the remaining part of the boot and to define with the shelf a rear deck;
at least one roller blind in the form of a sun blind with automatic return, said roller blind being carried by the rear portion of the shelf, said roller blind having a free edge which, in the extended condition of the blind, is located under the roof of the vehicle in front of the upper edge of the rear window; and
means for fixing the free edge in the extended condition.

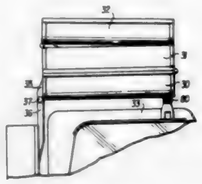
4,277,098

FOLDABLE TRUCK CAP ASSEMBLY

Lloyd Gibney, 14 E. Cemetery St., Funkstown, Md. 21734

Filed Sep. 18, 1978, Ser. No. 943,091
Int. Cl.³ B60P 7/04
U.S. Cl. 296—100 **15 Claims**

1. A foldable truck cap assembly for selectively enclosing an open bed portion of a pick-up truck or the like and comprising:
first and second similarly shaped side window assemblies ach mounted on a separate, longitudinally extending truck panel forming opposite sides of said open truck bed;
fastening means for detachably connecting each of said first and second window assemblies to a respective opposite side panel;
a plurality of at least three separate, substantially rigid cap section assemblies each extending between said first and second side window assemblies and positioned adjacent to one another for selectively enclosing said open truck bed;
hinge assembly means extending between and engaging confronting surface portions of said adjacently disposed, substantially rigid cap sections for pivotally joining said substantially rigid cap sections to one another, whereby said pivotally attached substantially rigid cap sections are selectively foldable into a stacked configuration to uncover said open truck bed; and,
said hinge assembly means comprising a first hinge assembly connecting an interior side portion of a first substantially rigid cap section nearest said truck cab with an interior



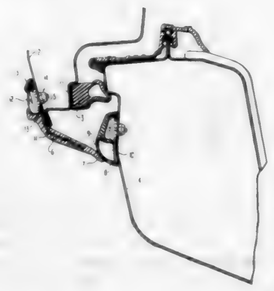
side portion of an adjacently disposed substantially rigid cap section, and
said hinge assembly means further comprising a second hinge assembly connecting an exterior central wall portion of said adjacent substantially rigid cap section with an exterior central wall portion of a further substantially rigid cap section,
whereby said interior hinge assembly allows said cap sections attached thereto to pivot substantially away from said truck bed and said exterior hinge assembly allows said cap sections attached thereto to pivot substantially toward said truck bed, forming said stacked configuration.

4,277,099

MOTOR VEHICLE WITH AT LEAST ONE DOOR

Wilhelm Klein, Aidlingen; Max Baisch, Sindelfingen, and Dieter Eckert, Magstadt, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Jan. 19, 1979, Ser. No. 4,880
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1978, 2802140
Int. Cl.³ B60J 5/04
U.S. Cl. 296—146 **5 Claims**



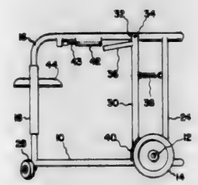
1. A motor vehicle body construction comprising:
passenger door means arranged on at least one side of a vehicle body;
side rail means forming an outer wall of the vehicle body and having a surface facing said door means in a closed position of said door means, said side rail means extending from underneath to above a lower edge of said door means; and
sealing means for preventing soiling of an upper area of said side rail means, said sealing means comprising a first resilient seal means on a lowermost portion of said door means and a second resilient seal means on said surface of the side rails means, said first and second seal means being mutually engaged in said closed position of the door means, wherein said second seal means is provided with cavity means for rendering an outer wall of the second seal means resiliently, inwardly displaceable, said first seal means being positioned relative to said second seal means so as to cause the first seal means to urge said outer wall inwardly in said closed position of the door means whereby seal means freezing problems are minimized.

4,277,100

AMBULATORY APPARATUS

Gael Beougher, Grinnell, Kans. 67738

Filed Oct. 18, 1979, Ser. No. 85,853
Int. Cl.³ A61H 3/04
U.S. Cl. 297—5 **4 Claims**



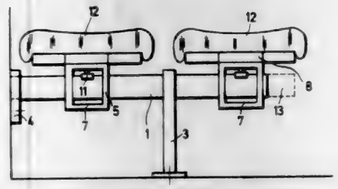
1. A walker for assisting an invalid which comprises a rigid frame, at least three wheels carrying said frame, a brake comprising a shoe dimensioned for engagement with the periphery of one of said wheels, said shoe cooperating with at least said one of said wheels, biasing means for urging said shoe into engagement with said one of said wheels to limit rotation of said one wheel, means for locking said shoe away from said one wheel and against said biasing means so that said shoe does not limit rotation of said one wheel, said means for locking comprising an elongated handle pivotally mounted on said frame and having a generally transverse bore, said means further including a bracket carried on said frame and a pin engaging said bracket and said generally transverse bore when said handle is moved against said biasing means to prevent limitation of rotation of said wheel.

4,277,101

VEHICLE SEAT SUPPORT

Ignaz Vogel, Kleinsteinbacher Str. 44, Karlsruhe, Fed. Rep. of Germany (7500)

Filed Jan. 17, 1980, Ser. No. 112,834
Claims priority, application Fed. Rep. of Germany, Jan. 23, 1979, 2902389
Int. Cl.³ A47C 15/00
U.S. Cl. 297—232 **5 Claims**



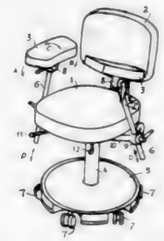
1. A vehicle seat support comprising; a stiff support tube so supported in a vehicle body that it extends in the vehicle body below a row of seats so as to provide support for said seats, said support tube being trapezoidal in cross-section and so arranged that the wider of its two parallel sides is disposed on top facing the seats to be supported; a seat structure including a support shackle mounted on said support tube and having a seat mounted thereon, said seat support shackle having a trapezoidal opening corresponding, in cross-section, essentially to, and receiving, said support tube but being of greater height such that gaps remain between the parallel sides of the support tube and the adjacent support shackle sections; and a thumbscrew mounted in said seat structure above, and extending toward, said support tube for forcing said seat support shackle into firm engagement with said support tube.

4,277,102

CHAIR

Arne Aaras, Lorenskog; Kjell M. Martinsen, Oslo, and Rikard Nakland, Hovik, all of Norway, assignors to International Standard Electric Corporation, New York, N.Y.

Filed May 17, 1979, Ser. No. 39,758
Claims priority, application Norway, May 24, 1978, 781801
Int. Cl.³ A47C 7/54
U.S. Cl. 297—411 **8 Claims**



1. A chair having a body and at least one arm rest secured to the chair body, structure for supporting said arm rest and for rendering said arm rest adjustable in all directions, the improvement comprising a first universal joint affixed to the arm rest to render said arm rest rotatable about and tiltable relative to a pivot axis of said joint, an axially elongate support member mating with said joint to support the arm rest and to render the arm rest rotatable about the axis of said support member, a second universal joint affixed to the body of the chair and mating with said support member, the support member being axially advanceable and retractable in said second joint to raise and lower the arm rest accordingly, and means in said second joint allowing lever and rotational movement of said support member in said second joint to render said arm rest movable in a plurality of other motions.

4,277,103

AIRCRAFT SEAT WITH PELVIC PAD

Kirby B. Welk, Litchfield, Conn., assignor to Koehler-Dayton, Inc., New Britain, Conn.

Filed May 25, 1979, Ser. No. 42,329
Int. Cl.³ A47C 7/16, 7/22, 7/02
U.S. Cl. 297—457 **1 Claim**

1. A vehicular seat comprising a sheet of aluminum or the like including,
a first horizontally extending substantially planar portion at the front of the seat,
a second portion rearwardly declining at a selected angle relative to said first portion defining the rear portion of said seat, and
a "V" shaped channel joining said first and second portions, and

a strip of aluminum, having a width selected to be wider than the opening of said "V" shaped channel, and secured to said first and second portions along either side of said



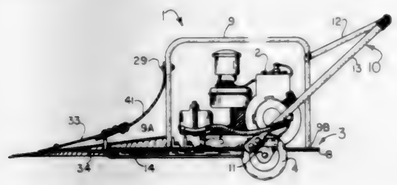
channel for maintaining said selected angle between said first and second portions and for defining with said sheet a tubular element to maintain said first portion substantially planar.

4,277,104

RECIPROCATING SHINGLE REMOVER WITH UPWARD THRUST BLADE

Edward J. Sanchez, 727 Richland Ave., Baton Rouge, La. 70806

Continuation-in-part of Ser. No. 953,411, Oct. 23, 1978. This application Jan. 10, 1980, Ser. No. 111,054
Int. Cl.[3] E04D *15/00*
U.S. Cl. 299—37 2 Claims



1. A roof shingle remover comprising:

(a) a power source mounted on a frame, said power source attached to one end of a drive means to impart a reciprocal motion thereto, said drive means connected at its other end to a shingle remover plate,

(b) parallel guide plates attached to said frame and extending on opposite sides of said shingle remover plate, said guide plates having aligned slots, and

(c) a plate pushing rod extending through said slots and attached to said shingle remover plate, said slots being positioned in said guide plates and having a sufficiently arched forward end portion to impart an upward thrust by said shingle remover plate during its forward motion.

4,277,105

CONVEYOR SYSTEM FOR A CONTINUOUS MINING MACHINE

John C. Taylor, 128 Fairway Dr., LaFollette, Tenn. 37766

Filed Aug. 7, 1979, Ser. No. 64,565
Int. Cl.[3] E21B *35/70*
U.S. Cl. 299—64 5 Claims

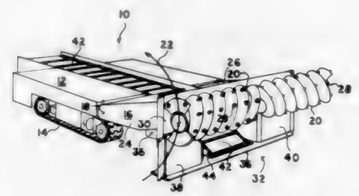
1. A single continuous conveyor for use with a continuous narrow seam mining machine having a dozer type gathering head, a rotating helical or auger mining head and for conveying materials from the front of said mining machine to the rear comprising:

driving means;

a pair of drive sprockets mounted at the rearward portion of said mining machine, said drive sprockets being driven by said driving means;

two continuous parallel drive chains, each of said drive chains extending from a small diameter turn around shaft at the front of the mining machine to and around said drive sprockets at the rear of the mining machine thereby forming a top portion and a bottom portion of each of said chains, said drive chains being driven by said drive sprockets such that said top portion moves in a rearward direction and said bottom portion moves in a forward direction;

a front small diameter turn around shaft, said turn around shaft having a diameter substantially equal to the length of a link of said drive chain and being located at the front most portion of said dozer gathering head and in close proximity to said rotating auger;



a multiplicity of flight bars, each of said multiplicity extending between and attached at its two ends to said two parallel drive chains; and

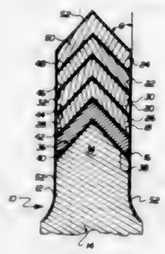
a base surface extending the full length of said mining machine and location below said top portion of said parallel drive chains and said attached flight bars thereby forming said single continuous conveyor for transporting mined material dislodged from the face of a mine, said continuous conveyor including a pivot for allowing operation in two planes and having an obtuse angle therebetween such that a first portion of said continuous conveyor transports mined material upward and rearward from the foremost portion of the mining machine to the second portion of said continuous conveyor which extends substantially horizontal and rearward from said first portion for further transporting said material maintained to the rearmost portion of said mining machine.

4,277,106

SELF RENEWING WORKING TIP MINING PICK

Lloyd W. Sahley, Mayfield Heights, Ohio, assignor to Syndrill Carbide Diamond Company, Cleveland, Ohio

Filed Oct. 22, 1979, Ser. No. 86,648
Int. Cl.[3] E21C *25/38*
U.S. Cl. 299—79 9 Claims



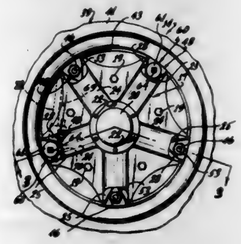
1. A pick having a shank and a nose portion extending from the shank and terminating in a conically-shaped lead end working face for the pick, said nose portion having an axis coinciding with the pick axis, said pick being adapted to be mounted for rotation about said pick axis by a tool holder of a machine for utilizing the pick, said nose portion comprising a series of alternating conically-shaped laminations of hard and softer materials overlying each other proceeding axially of said pick axis, with the layer at the lead end of the pick forming the working face of the pick, said laminations each being concentric about the pick axis and diverging away from the pick axis and the lead end of the pick whereby in use the laminations successively present conically-shaped lead end working faces with the laminations of softer material wearing quickly to expose the next lamination of hard material.

4,277,107

SECURITY BOLTS FOR TRAILER WHEELS

Samuel L. Stone, 6327 La Jara, Lakewood, Calif. 90713

Filed May 29, 1979, Ser. No. 43,444
Int. Cl.[3] B60B *23/00*
U.S. Cl. 301—13 SM 7 Claims



1. Apparatus for preventing unauthorized removal of tires from wheels where the tires are mounted on demountable cylindrical rims which are in turn held in place on the periphery of a wheel hub, said apparatus comprising: a plurality of end clamps angularly spaced about the wheel hub, each said end clamp having a lug portion for wedging against the rim to hold the rim in place on the wheel hub, threaded studs and hexagonal nuts for attaching some of said end clamps on the wheel hub, and security bolts having threaded ends and cylindrical heads for attaching the remaining ones of said end clamps on the wheel hub, each said cylindrical head having a diameter whereby, when the threaded end of the security bolts engages said wheel hub, the side of the cylindrical head substantially contacts the inner cylindrical surface of said rim, and wherein each said cylindrical head has a key opening on the end thereof for receiving a complementary key projection on an adaptor for a wrench by which said security bolt can be rotated.

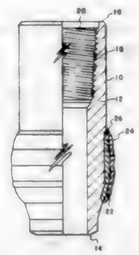
4,277,108

HARD SURFACING FOR OIL WELL TOOLS

Duane W. Wallace, Houston, Tex., assignor to Reed Tool Company, Houston, Tex.

Division of Ser. No. 7,090, Jan. 29, 1979. This application May 1, 1980, Ser. No. 145,413
The portion of the term of this patent subsequent to Aug. 23, 1994, has been disclaimed.
Int. Cl.[3] F16C *29/02*
U.S. Cl. 308—4 A 3 Claims

1. A well tool having surface wear properties enhanced by hard metal banding, said tool comprising a generally cylindrical steel tool body, a first layer of hardbanding material fused to said body, said first layer comprising large particles of sintered tungsten carbide in a mild steel matrix, and a second layer of hardbanding material on top of said first layer, said second



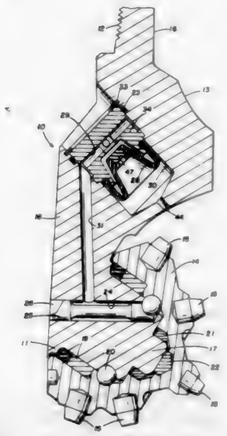
layer comprising sintered tungsten carbide particles in a mild steel matrix.

4,277,109

AXIAL COMPRESSION POSITIVE ROCK BIT SEAL

Morgan L. Crow, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 12, 1979, Ser. No. 75,282
Int. Cl.[3] F16C *21/00*
U.S. Cl. 308—8.2 3 Claims



1. In an earth boring bit, comprising:

a bit body;

a bearing pin extending from said bit body and defining an annular sealing surface at the juncture of said pin and body comprising a cylindrical portion on said pin and an annular flange portion on said body and an annular transition portion therebetween;

a rolling cone cutter rotatably mounted on said bearing pin and having an annular cone mouth;

an annular seal cavity defined between a portion of said cone mouth and said annular sealing surface of said bearing pin; and

an improved seal assembly sealingly disposed in said seal cavity, said improved seal assembly including:

a first annular rigid ring defining a sealing face for sealingly engaging said flange portion;

an elastomeric ring attached to said annular metal ring and extending radially from both sides thereof with at least the portion extending on the radially inner side also extending axially beyond said sealing face to define a portion that sealingly contacts said transition portion, and;

a second rigid ring attached to the elastomeric ring generally opposite said first ring and defining at least a radially inner axially extending annular leg subadjacent the lip portion and having a greater diameter than said bearing pin to provide annular clearance therebetween and wherein,

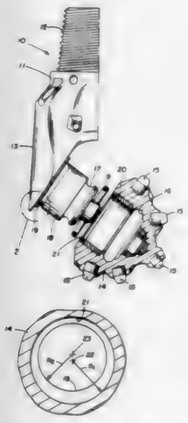
the outer circumferential face of said elastomeric ring is axially coextensive with said leg portion and has an outer diameter larger than said cone mouth whereby the frictional engagement between said cone and said seal assembly is greater than the sealing friction between said lip portion and said pin so that said seal assembly rotates with said cutter on said pin.

4,277,110

EARTH BORING BIT WITH ECCENTRIC SEAL GROOVE

Lenwood Fox, Grand Prarie, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 24, 1979, Ser. No. 78,357
Int. Cl.[3] F16C *33/72*
U.S. Cl. 308—8.2 2 Claims



1. A rolling cutter earth boring bit, comprising:

a bit body;

at least one bearing pin extending from said bit body, said bearing pin having a central axis;

a rolling cone cutter rotatably mounted on said bearing pin with at least some radial clearance therebetween;

a seal groove on said bearing pin having a center offset from said central axis in the direction of the unloaded surface; and

a seal positioned in said seal groove that is substantially evenly squeezed during operation of said bit.

4,277,111

SUPPORT ELEMENT FOR COMPLIANT HYDRODYNAMIC THRUST BEARING

Stanley Gray, Skaneateles, and Hooshang Heshmat, Troy, both of N.Y., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,256
Int. Cl.[3] F16C *32/06*
U.S. Cl. 308—9 11 Claims

1. A compliant hydrodynamic fluid film thrust bearing comprising:

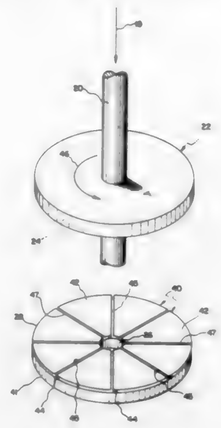
a thrust plate and a relatively rotatable thrust runner, defining therebetween a gap;

a resilient support element positioned in said gap and connected to said plate, said element having a series of raised compliant resilient projections;

a flexible bearing sheet connected to and overlying said support element and being supported thereby;

said support element having an inner circumferential edge and an outer circumferential edge;

said support element having a radial inner zone adjacent said



inner circumferential edge, and two radial outer zones which are radially outboard of said inner zone;

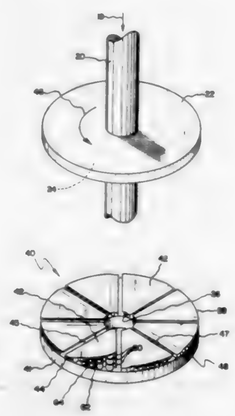
said outer zones both having portions which are compliant independently of each other and said inner zone, and at least one of said outer zones having a compliance different from that of said inner zone.

4,277,112

STEPPED, SPLIT, CANTILEVERED COMPLIANT BEARING SUPPORT

Hooshang Heshmat, Troy, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,503
Int. Cl.[3] F16C *32/06*
U.S. Cl. 308—9 33 Claims



1. A compliant hydrodynamic bearing for dynamically supporting a rotating rotor on a mount, including a plurality of pad assemblies positioned between the rotor and the mount, each said pad comprising:

a flexible sheet metal bearing sheet having a bearing surface

in bearing relationship to said rotor and operatively attached to the mount along the bearing sheet leading edge, in the sense of the direction of rotation of the rotor;

a compliant support element, operatively fixed to the mount, lying between said bearing sheet and the mount, and having resilient elevations projecting therefrom compliantly supporting said bearing sheet;

a first flat stiffener sheet having a leading edge and a trailing edge, said first stiffener sheet lying upon said support element with said trailing edge thereof aligned with said trailing edge of said bearing sheet, and extending toward said bearing sheet leading edge; and

a second flat stiffener sheet having a leading edge and a trailing edge, said second stiffener sheet lying between said first stiffener sheet and said bearing sheet and extending forwardly toward said bearing sheet leading edge, substantially beyond said first stiffener sheet, but short of the forward edge of said support element.

15. A compliant hydrodynamic fluid film bearing including a fixed member; a rotating member; said members defining therebetween a gap; a plurality of bearing pads in said gap attached to said fixed member and in bearing relation to said rotating member; said pads each having a bearing sheet facing said rotating member and a resilient, compliant support element underlying and supporting said bearing sheet and fastened to said fixed member; wherein the improvement comprises:

means establishing a gradient of decreasing stiffness of each of said bearing pads from the trailing edge thereof toward the leading edge in the direction of rotation of the rotating member, said pads each having a compliant zone adjacent the leading edge and terminating in a stiff zone;

wherein the stiffness pattern over the area of the bearing pad militates for an optimal deflection pattern of said bearing sheet, viz. large deflection adjacent the leading edge and decreasing deflection toward the trailing edge of said pad to provide a tapering wedge at the leading edge and strong support at the trailing edge, to produce a maximal load bearing capacity hydrodynamic fluid film over the bearing sheet throughout the full speed range of the bearing.

25. A compliant hydrodynamic fluid film bearing comprising:

a mount and a relatively rotating rotor, defining therebetween a gap;

a plurality of bearing pads in said gap, affixed to said mount, each having a leading edge and a trailing edge in the sense of the direction of rotation of said rotor;

each said pad including a bearing sheet having a bearing surface in bearing relationship to said rotor, a resilient support element attached to said mount and underlying and providing compliant support for said bearing sheet, and stiffening means lying between said bearing sheet and said support element for increasing the stiffness of portions of the support for said bearing sheet;

said stiffening means including a stiffener element extending from said trailing edge toward said leading edge, terminating short of said leading edge;

said stiffener element being formed of a plurality of strips running generally parallel to each other and to the direction of motion of said rotor.

4,277,113

COMPOSITE MATERIAL COMPLIANT BEARING ELEMENT

Hooshang Heshmat, Troy, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,504
Int. Cl.[3] F16C *32/06*
U.S. Cl. 308—9 21 Claims

1. A compliant fluid film bearing for dynamically supporting a rotating rotor, comprising:

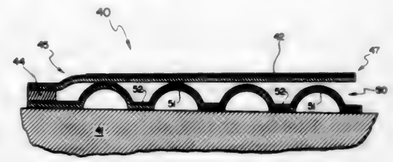
a mounting member mounted in coaxial relationship to the rotational axis of said rotor and having a surface facing a bearing surface of said rotor;

a compliant support element fastened to said surface of said mounting member, said compliant support element including a metal support sheet having a plurality of resilient support elevations projecting therefrom;

a bearing sheet lying between said support element and the bearing surface of said rotor;

said support element formed of a composite material having a first layer of metal in engagement with said mounting member, and an overlying layer of metal in engagement with said bearing sheet and bonded to said first layer, said overlying layer having a coefficient of thermal expansion greater than the coefficient of thermal expansion of said first layer;

whereby a decrease in the stiffness of the material of the support element with increasing temperature is compensated for by an increase in stiffness of said elevations by



virtue of the difference in coefficients of thermal expansion of the materials of the first and overlying layers.

17. A compliant fluid film bearing for dynamically supporting a rotating rotor on a mounting member, comprising:

a flexible bearing sheet having a bearing surface facing and supporting said rotor;

a resilient compliant support element between said bearing sheet and said mounting member for compliantly supporting said bearing sheet;

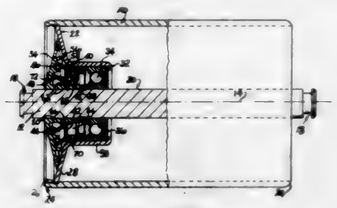
said flexible bearing sheet being formed of a composite material including a base sheet of strong springy metal and a second metal diffused into said first metal and distributed therein in a concentration decreasing exponentially with the depth below one surface of said base sheet, said second metal having a yield strength less than the yield strength of said strong springy metal, whereby the damping and high temperature load bearing capacity of said bearing is enhanced.

4,277,114

ROLLERS INCLUDING LABYRINTH SEALS

Eric X. Lindegger, P.O. Box 835, Germiston, 1400, South Africa

Filed Sep. 18, 1979, Ser. No. 76,537
Claims priority, application South Africa, Sep. 26, 1978, 78/5451
Int. Cl.[3] F16C *13/02, 33/80*
U.S. Cl. 308—20 16 Claims



1. A roller for a conveyor, the roller comprising:

a roller shaft;

a tubular shell;

a plurality of bearing means, each including a bearing hous-

ing having a mounting wall secured to said shell and a housing portion receiving a respective bearing, said tubular shell being rotatably mounted on said roller shaft by said plurality of bearing means; and labyrinth seals associated with said plurality of bearing means for inhibiting ingress of dirt and moisture to said bearings, wherein each labyrinth seal comprises a slinger rotatable with the shell and having annular slinger walls extending away from each associated bearing and diverging away from said shaft and a labyrinth shield mounted on said shaft and having annular shield walls interleaved with said slinger walls, said labyrinth shields each having a tubular portion fitting firmly on said shaft and a radially outwardly extending wall extending away from said shaft and having an outer edge terminating close to said mounting wall of each associated bearing means, said shield walls diverging away from said shaft as they extend in a direction towards said mounting wall from said radially outwardly extending wall.

4,277,115

MOUNT FOR CALOTTE BEARINGS

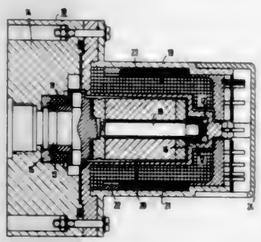
Botho Stüwe, and Wilhelm Vobel, both of Fürth, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 86,956

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1978, 2847009

Int. Cl.³ F16C 27/06

U.S. Cl. 308—26 **8 Claims**



1. An improved mount for calotte bearings which are disposed opposite a bearing support element comprising:

(a) a ring of an elastomer or of felt disposed between the calotte bearing and the bearing support element; and

(b) grooves in the support element and the calotte bearing in the region of said ring.

4,277,116

BEARING CONSTRUCTION AND RETAINER THEREFOR

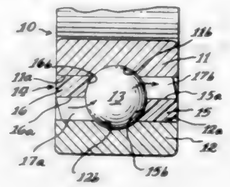
Jerre F. Lauterbach, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Filed Oct. 17, 1979, Ser. No. 85,803

Int. Cl.³ F16C 33/38

U.S. Cl. 308—188 **12 Claims**

1. A bearing comprising inner and outer races arranged in concentric radially spaced relation with respect to a common axis; a plurality of spherical elements disposed intermediate said races and in movable contact therewith; and a unitary retainer disposed intermediate said races and having said spherical elements in movable contact therewith and being separated thereby into annularly spaced relation, said retainer including first and second ringlike sections arranged in axially spaced concentric relation, said first section having an inner annular peripheral surface and said second section having an outer annular peripheral surface, the diameter of said first section inner surface being at least as great as the diameter of said second section outer surface, said first and second sections being interconnected by a plurality of struts arranged in annularly spaced relation, each strut being disposed between a pair of spherical elements, the segments of each ringlike section disposed intermediate said struts having contoured surfaces in



substantial contact with said spherical elements, the contour of said contacting surfaces corresponding substantially to but slightly greater than the curvature of the exterior surface of said spherical elements.

4,277,117

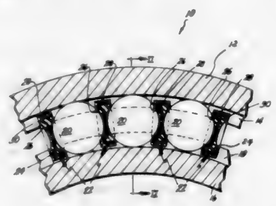
INTERNALLY REINFORCED BALL BEARING SPACER

Richard F. George, Muskegon, Mich., assignor to Keene Corporation, New York, N.Y.

Filed Aug. 15, 1979, Ser. No. 66,646

Int. Cl.³ F16C 33/38

U.S. Cl. 308—199 **11 Claims**



1. A spacer for interposition between adjacent balls in a ball bearing assembly having a plurality of spherical balls comprising:

a thermoplastically molded body formed from a resiliently deformable thermoplastic material, said body having a cylindrical periphery and oppositely disposed ball-engaging sides;

an internal reinforcement disc formed from sheet metal stock, said reinforcement disc being embedded and centered in said thermoplastically molded body;

a generally flat central portion roughly centered on said disc;

a circumferential flange formed on said reinforcement disc, said circumferential flange being disposed about the periphery of said generally flat central portion of said disc, said circumferential flange being embedded in said body and extending beneath said cylindrical periphery of said body;

whereby said body cools more rapidly than said reinforcement disc after the thermoplastic molding of said body and said reinforcement disc thereby provides a compressive prestress on said body.

4,277,118

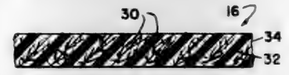
BEARINGS WITH FELTED TEFLON LINERS

Albert R. McCloskey, Fairfield, Conn., assignor to Incom International Inc., Pittsburgh, Pa.

Filed May 15, 1978, Ser. No. 905,854

Int. Cl.³ F16C 27/00

U.S. Cl. 308—238 **92 Claims**



1. A sheet of material comprising

a sheet of felted fibers in combination with resin having no surface bonding to the felted fibers, wherein the intertangled relationship of the felted fibers within the resin mechanically entraps the felted fibers in the resin, said felted fibers comprising polytetrafluoroethylene fibers and said fibers and said resin being formed of dissimilar material.

4,277,119

COVER FOR COUNTING ZONE IN NOTE COUNTER

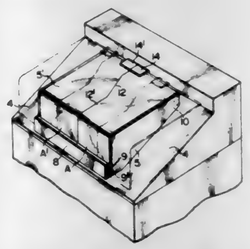
Shinya Uchida, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Aug. 8, 1978, Ser. No. 931,903

Claims priority, application Japan, Aug. 8, 1977, 52-105995[U]

Int. Cl.³ A47B 63/00; B42F 17/00

U.S. Cl. 312—208 **4 Claims**



1. In a note counter wherein the number of a bundle of notes packed in a holder is counted, the combination of a frame provided with an open counting zone, a cover for covering the open counting zone, said cover comprising two transparent cover members disposed side by side and each having a front portion and a rear portion, front guide means for guiding each of front portions of said cover members into position, rear guide means for guiding each of rear portions of said cover members into position, and motor drive means for driving said two transparent cover members to move in respective opposite directions, whereby to alternately separate them from each other and join them together, wherein said opening counting zone has a front edge and a rear edge, and said front guide means comprises two vertically disposed grooves laterally extending along the front edge of said open counting zone, said rear guide means comprising one groove laterally extending along the rear edge of said open counting zone, each of said cover members being provided with a slider at the front portion thereof to slidably move in either one or two vertically disposed grooves and a roller at the rear portion thereof to rotatably move in said one groove laterally extending along the rear edge of said open counting zone.

4,277,120

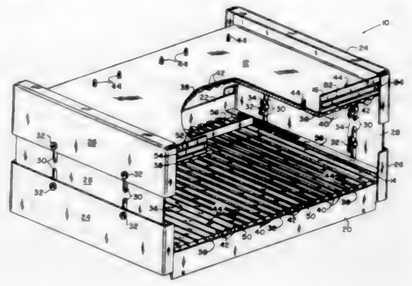
PRINTED CIRCUIT BOARD STORAGE CABINET

Leo O. Drake, Ridge La., Mill Neck, N.Y. 11765, and Randall S. Drake, 85A Old Oak La., Levittown, N.Y. 11756

Filed May 29, 1979, Ser. No. 42,867

Int. Cl.³ H02B 1/02; H05K 7/14; A47B 88/00

U.S. Cl. 312—320 **2 Claims**



1. A retaining and storage device for printed circuit boards comprising:

a pair of substantially parallel and opposingly spaced surfaced support members for accommodating a plurality of printed circuit boards substantially normally therebetween,

a pair of sidewalls substantially perpendicularly depending from and connecting opposite ends of said support members so as to define an enclosure bounded by said opposed support members and said connecting sidewalls and having a frontal opening for enabling insertion of printed circuit boards into said enclosure,

printed circuit board retaining means for detachable securement on each of said support members in the interior of said enclosure and comprising plural retaining plates, each of said plates being substantially flat and planar and including a plurality of parallel grooves of a predetermined width defined therein and extending uninterruptedly between opposite edges of said plate for supportedly receiving in said grooves edges of printed circuit boards which substantially conform in thickness to the predetermined width of said grooves, and means on each said plate for interlocking adjacently disposed ones of said plates so as to form a substantially continuous and unbroken planar surface of a plurality of said adjacently disposed plates as though the same were unitarily formed, the plurality of grooves of one of said plates being capable of being of a predetermined width different from that of the grooves of others of said plates,

and means for detachable engagement of said plural plates on said opposed surfaces of said support members to strengthen and rigidify the same and so that said grooves extend from said frontal opening into the interior of said enclosure for receiving and guiding printed circuit boards inserted into said device through the frontal opening and for supporting the printed circuit boards in said grooves substantially parallel to said sidewalls and perpendicularly between said opposed support members,

the provision of said plural interlocked retaining plates engaged by said detachable engaging means in planar surface to surface engagement with said surface of each of said support members connects and joins said planar surfaces together into an integral unitary surface by which said planar surfaces add to said surfaces of such support members to reinforce and rigidify the same,

said detachable engagement means comprises plug means integral with and projecting out of the plane of said plates for receipt in openings correspondingly defined in said support member surfaces and include radially flexible resilient elongated fingers each having a normal diameter

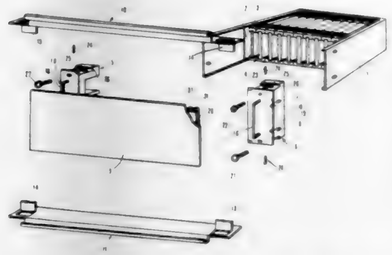
along at least a portion of its length larger than the diameter of said support member openings, each of said fingers being radially inwardly contractable during insertion of the finger into the corresponding support member opening and radially outwardly expandable to return the same to its normal diameter following said insertion into the corresponding opening.

4,277,121

DRAWER FOR ELECTRIC CABINETS

Mario Possati, and Giuliano Longhi, both of Bologna, Italy, assignors to Fiaike Italiana Marposs S.p.A., S. Marino di Bentivoglio, Italy

Filed Dec. 13, 1979, Ser. No. 103,359
Claims priority, application Italy, Dec. 21, 1978, 3628 A/78; Dec. 21, 1978, 3629 A/78
Int. Cl.³ A47B 88/00, 95/02
U.S. Cl. 312—320 14 Claims



1. Drawer for electric cabinets comprising a frame with a rectangular front opening, the frame defining stationary surfaces adapted to permit pivotal movements; a rectangular removable panel for closing said front opening; a locking device for rigidly locking the panel to the frame and for permitting removal of the panel, the locking device including a mobile horizontal cross-member, the cross-member defining a first portion, channel shaped, adapted to grip a corresponding edge of the panel, a second portion having a side adapted to be coupled with said stationary surfaces, and reference surfaces, the second portion defining an arm for controlling substantially vertical movements of the first portion with respect to the panel; control means, which cooperate with the mobile cross-member and with the frame, for coupling said stationary surfaces and said side of the second portion and for permitting substantially pivotal movements of the cross-member, the control means including mobile elements which cooperate with the reference surfaces for controlling said substantially pivotal movements of the cross-member for bringing the grip surfaces in contact with the panel and for moving the grip surfaces away from the panel for permitting a frontal removal of the panel.

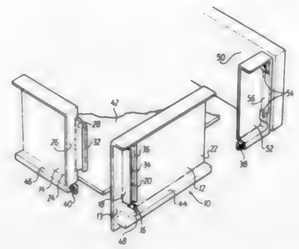
4,277,122

CORNER FITTINGS

Stefan Bargiel, Liverpool, England, assignor to Newage Kitchens Limited, Liverpool, England

Filed Oct. 11, 1979, Ser. No. 83,611
Int. Cl.³ A47B 88/00
U.S. Cl. 312—330 R 10 Claims

1. A kit of parts for making up a drawer comprising a bottom wall, side walls, a front wall and a rear wall, the two side walls and the rear wall on their inner aspects being formed with a groove such that with the side walls joined to the rear wall, the bottom wall can be positioned in place by being slid in the grooves of the side walls until the rear edge of the bottom wall is received in the groove of the rear wall, said drawer walls being held rigidly together by cooperating means integrally formed as end portions of the rear wall as rear end portions of the side walls, and separately formed fastening means securing the front ends of the side walls to the front wall; said integrally formed cooperating means comprising in respect of each side wall rear end portion and respective rear wall end portion, a barb-like member on one of them and an elongated throughgoing opening on the other of them passing transversely thereof and with, on the exterior side of the other wall portion, an upstanding member partially bounding said opening so that



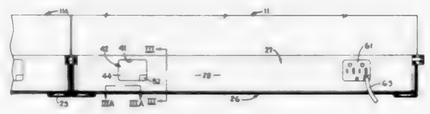
when the barb is inserted through the elongate opening from the interior side of the other wall portion, the upstanding member acts as a shoulder over which the barb-like member can be engaged in a snap-fitting manner; and on the exterior of the other wall portion, means for biassing the barb-like member and the upstanding member when engaged against one another to maintain them in engagement.

4,277,123

RACEWAY STRUCTURE FOR POWER PANEL

Richard G. Haworth, Holland; Harold R. Wilson, Holland Township, Ottawa County, and Ditmar K. Tillmans, Holland, all of Mich., assignors to Haworth Mfg., Inc., Holland, Mich.

Filed Aug. 8, 1979, Ser. No. 64,931
Int. Cl.³ H02G 3/22
U.S. Cl. 339—22 R 19 Claims



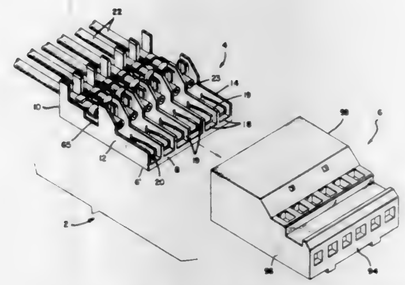
1. In an upright space divider panel adapted to be series-connected with similar such panels for forming a space-dividing wall, said panel having raceway means mounted thereon and extending longitudinally along the lower edge thereof for defining therein a longitudinally extending channel, said raceway means being defined by a pair of spaced and substantially parallel side covers disposed adjacent and approximately coextensive with the opposite side surfaces of the panel, at least one of said covers being movable relative to the panel to provide access to said channel from the side thereof, comprising the improvement wherein one of said side covers has a windowlike opening formed therein and extending therethrough for providing access into and out of said channel, a closure for closing said opening, said closure being positionable within and substantially totally occupying said opening and being substantially flush with said side cover when in the closed position, connecting means for permanently connecting said closure to said side cover while permitting movement of said closure into a storage position within the interior of said channel so as to uncover said opening, an end cover disposed adjacent one edge of said panel and extending transversely across the end of said channel for closing same, said end cover having an opening formed therein and extending therethrough for providing access into the adjacent end of said channel, a barrier for closing said last-mentioned opening, and means joining said barrier to said end cover for permanently connecting said barrier to said end cover while enabling said barrier to be movably displaced from a location within said last-mentioned opening for closing same into a storage position disposed within said channel for uncovering said last-mentioned opening.

4,277,124

CONNECTOR HAVING WIRE-IN-SLOT CONNECTING MEANS AND CRIMPED STRAIN RELIEF

Winfield W. Loose, Linglestown, and Alan R. MacDougall, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 1, 1979, Ser. No. 80,850
Int. Cl.³ H01R 4/24
U.S. Cl. 339—99 R 7 Claims



1. A preloaded multi-contact electrical connector of the type comprising an insulating housing having a mating face, a wire entry face, oppositely directed endwalls, and oppositely directed sides extending between said faces, a plurality of side-by-side cavities extending through said housing and between said faces, each of said cavities having opposed cavity sidewalls which extend normally of said sides of said housing and having a floor, each of said cavities having a wire-admitting portion which opens onto one of said sides and which extends from said wire entry face at least partially towards said mating face, an electrical contact terminal in each of said cavities, each of said terminals having a contact portion which is proximate to said mating face and a wire-rereceiving portion which is intermediate said faces and adjacent to said wire-admitting portion of its respective cavity, said wire-receiving portion having a free end which is adjacent to said one side of said housing and having wire-receiving slot means extending inwardly from said free end, said slot means having inner end portions dimensioned to penetrate the insulation of said wire and establish electrical contact with the conducting core thereof upon movement of said wire laterally of its axis and into said slot means, said connector being characterized in that:

each of said terminals, has a crimpable strain relief portion integral therewith proximate to said wire entry face, said strain relief portion having a web and terminal sidewall means extending from said web towards said one side of said housing, said terminal sidewall means having tool engageable free end portions which are spaced from said cavity sidewalls of the cavity in which said terminal is disposed thereby to permit engagement with a crimping tool and bending of said terminal sidewall means towards said web,

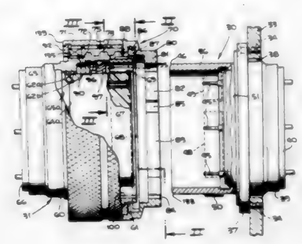
said cavity sidewalls having notches therein, said free end portions of said terminal sidewall means being received in said notches whereby, upon placement of a plurality of wires in side-by-side relationship and in alignment with said terminals, and upon movement of said wires of their axes and into said wire-receiving portions of said terminals, said wires will be located on said webs, and upon bending of said sidewall means towards said webs and against said wires, said crimpable portions will be crimped onto said wires and said wires will extend from said wire entry face of said housing.

4,277,125

ENHANCED DETENT GUIDE TRACK WITH DOG-LEG

David J. Ball, Pacific Palisades, Calif., assignor to Automation Industries, Inc., Greenwich, Conn.

Filed Jul. 12, 1979, Ser. No. 57,134
Int. Cl.³ H01R 13/639
U.S. Cl. 339—113 R 8 Claims



1. In an electrical connector having receptacle means including a receptacle shell; a plug means including a plug housing; a coupling nut threaded onto said plug housing; a coupling ring keyed to said coupling nut; electrical contact elements carried within said receptacle shell and said plug housing for electrical mating and unmating; lock means on said coupling ring and said receptacle shell for releasably holding said contact elements in mating relation; means for audibly indicating fully mated and locked relationship of said receptacle means and plug means, said indicating means including an annular groove in said coupling ring, a keyway on said plug housing, and an arcuate spring detent in said annular groove and having a key engaged in said keyway, said detent having radially outwardly directed end portions carried by resilient arcuate arms which are bent when the end portions thereof are between spaced sets of radially outwardly directed recesses in said annular groove during turning of said coupling housing, whereby said end portions snap into a set of recesses to produce an audible sound to indicate fully locked or unlocked position of the receptacle means and plug means, the improvement comprising: an enlarged portion defining a dog-leg in said keyway in the path of axial travel of said plug housing whereby said key makes audible contact with a terminating wall of said dog-leg so as to produce an intensified audible snap indicating attainment of the fully mated and locked position of the connector.

4,277,126

RELEASABLE KEY ARRANGEMENT FOR AN ELECTRICAL CONNECTOR

Thomas C. Lincoln, South Pasadena, Calif., assignor to Malco, South Pasadena, Calif.

Continuation-in-part of Ser. No. 5,907, Jan. 23, 1979, abandoned. This application Sep. 13, 1979, Ser. No. 75,219
Int. Cl.³ H01R 13/504
U.S. Cl. 339—186 M 14 Claims

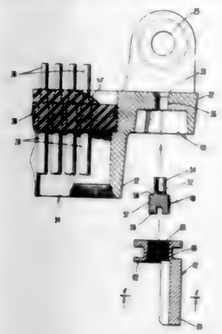
7. A releasable polarizing arrangement for a connector which carries a support member, said polarizing arrangement comprising:

a polarizing key adapted for securement to a side of said support member,

a retainer for releasably securing said key to said support member, said retainer including:

securing means for normally positively mounting said retainer to said support member for rotation relative thereto while being constrained against relative axial displacement, and for positively connecting said re-

tainer to said key in response to rotation of said retainer to secure said key to said support member,



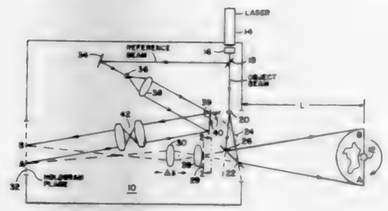
said retainer including means accessible from said side of said support member for rotating said retainer.

4,277,127

DOPLER EXTENDED DEPTH OF FIELD IMAGING SYSTEM WITH COHERENT OBJECT ILLUMINATION

James L. Smith, Grand Prairie, Tex., and Charles R. Christensen, Athens, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 3, 1979, Ser. No. 99,262
Int. Cl.³ G03H 1/14
U.S. Cl. 350—3.67 **2 Claims**



1. A holographic Doppler extended depth of field imaging system having coherent object illumination comprising:

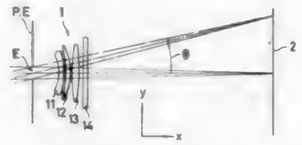
a. a laser disposed for generating a coherent light beam, said laser having shutter means for directing said light beam;
b. a rotating reflecting object to be recorded;
c. a first beam splitter means for splitting said light beam into reference and object beams;
d. a first beam expander for expanding said object beam;
e. a second beam splitter disposed between said rotating reflecting object and said first beam expander for directing said object beam to said rotating reflecting object;
f. a slit aperture lens for receiving the reflected object beam from said rotating reflecting object;
g. a focus lens disposed for receiving said reflected object beam;
h. a hologram plane for receiving said focused object beam;
i. a mirror for reflecting said reference beam;
j. a second beam expander for expanding said reflected reference beam;
k. a collimator for collimating said reference beam;
l. a rotating/oscillating mirror for receiving said collimated reference beam for Doppler encoding thereof; and,
m. a focus lens pair for receiving said collimated reference beam and for directing said reference beam to said hologram plane.

4,277,128

ANAMORPHIC Fθ LENS SYSTEM

Atsushi Kawamura, Yokosuka, Japan, assignor to Ricoh Company, Ltd., Japan

Filed Mar. 15, 1979, Ser. No. 20,711
Claims priority, application Japan, Mar. 23, 1978, 33917
Int. Cl.³ G02B 13/08, 27/17
U.S. Cl. 350—6.8 **7 Claims**



1. An optical scanning system comprising:

a scanning surface; cylindrical lens means; and

optical means establishing an optical axis that passes through said cylindrical lens means and intercepts said scanning surface, said optical means comprising an anarmorphic fθ lens system spaced on said optical axis between said cylindrical lens means and said scanning surface, and rotatable polyhedric means on said optical axis between said cylindrical lens and said anarmorphic fθ lens system and comprising a plurality of light-diverting surfaces equally angularly displaced from each other to form a closed polyhedron symmetrical about an axis of rotation and located so that said optical axis intercepts each of said light-diverting surfaces in turn at an interception location as said polyhedric means rotates on its axis of rotation, whereby the portion of said optical axis, between said interception location and through and beyond said cylindrical lens remains substantially stationary and the portion of said optical axis between said interception location and said scanning surface sweeps along a line on said scanning surface as a function of the instantaneous angular position of said rotatable polyhedric means, the focusing power of said cylindrical lens means, and the location thereof relative to said interception location being such that a beam of light rays centered on said optical axis and parallel to each other on the side of said cylindrical lens means facing away from said polyhedric means are substantially at a line focus at said interception location, and the focusing power of said anamorphic fθ lens system and location thereof relative to said scanning surface and to said cylindrical means is such that said beam which is substantially at a line focus at said interception location is substantially at a point focus at said scanning surface;

said anamorphic fθ lens system comprising, starting from a side thereof facing said polyhedric means, a negative meniscus lens, a positive meniscus lens spaced from said negative meniscus lens, a biconvex lens spaced from said positive meniscus lens, and a cylindrical lens spaced from said biconvex lens.

4,277,129

MULTIPLE STAGE OPTICAL SYSTEM FOR CREATING HIGH-INTENSITY SOLAR LIGHT BEAM

Kenneth F. Taucher, 7069 Hoover Dr., Mentor, Ohio 44060

Continuation-in-part of Ser. No. 880,764, Feb. 24, 1978, Pat. No. 4,183,612. This application Nov. 1, 1979, Ser. No. 90,302
Int. Cl.³ G02B 17/00
U.S. Cl. 350—27 **21 Claims**

1. A multiple stage optical concentrator, comprising: plural optically aligned concentrating stages, each including input means for delivering a plurality of relatively diverging collimated light bundles, and converging means for converging said plurality of diverging collimated light bundles and each of the same to an area of concentration; and

output means for substantially collimating light from said area of concentration at the last of said concentrating



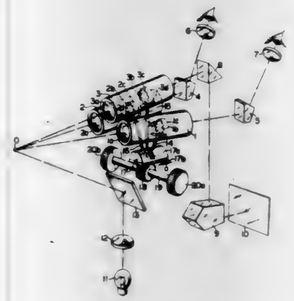
stages to form a relatively concentrated, substantially collimated output beam.

4,277,130

ZOOM STEREOMICROSCOPE WITH TAKING LENS BARREL

Naoyuki Takahashi, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 29, 1979, Ser. No. 7,552
Claims priority, application Japan, Feb. 18, 1978, 53-17131
Int. Cl.³ G02B 21/22
U.S. Cl. 350—36 **8 Claims**



1. A zoom stereomicroscope with taking lens barrel comprising a pair of binocular observation lens barrels each containing an observation optical subsystem including a zooming optical subsystem, an auxiliary lens barrel supporting another optical subsystem including a zooming optical subsystem which is focused in the same manner as the observation subsystems, each of said zooming optical subsystems including a movable lens, a plurality of drive members each extending through the individual lens barrels and connected with a movable lens of the associated zooming subsystem, and drive means for operating the drive members and moving said movable lenses in unitary fashion.

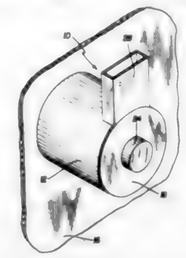
4,277,131

ANTIFOULING WINDOW ASSEMBLY

W. Howard Hart, Largo, Fla., and Helmut E. Weber, Valley Forge, Pa., assignors to The United States of America as represented by the Administrator of the United States Environmental Protection Agency, Washington, D.C.

Filed Jan. 29, 1980, Ser. No. 116,525
Int. Cl.³ G02B 7/00
U.S. Cl. 350—63 **5 Claims**

1. In a duct gas monitoring system including window means for viewing duct gases through a duct opening, wherein there is a tendency for the window means to become fouled by particulate matter in said gases, an antifouling window assembly comprising a housing having an open end mounted on said duct at the duct opening, said housing having a cross sectional area greater than the cross sectional area of said duct opening and defining a circulation chamber means; inlet means for supplying a purge gas into said housing at a flow velocity to provide substantially laminar gas flow along a surfact of said window means, said housing including a divider plate for dividing said chamber means into a first chamber adjacent said window means and a second chamber adjacent said duct opening, said divider plate containing an an orifice located on a



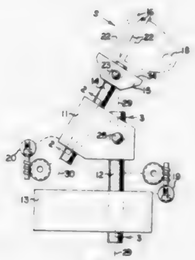
viewing axis, said purge gase circulating successively within said first and second chambers before passing into said duct through the duct opening to mix with the duct gases.

4,277,132

AUTOMATIC BIAXIAL SUN TRACKING MECHANISM FOR SUN RAY UTILIZATION DEVICES

Paul A. Hansen, 435 Dogwood Rd., West Columbia, S.C. 29169

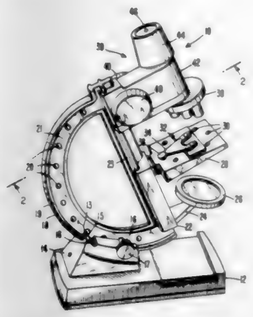
Filed May 2, 1979, Ser. No. 35,425
Int. Cl.³ G02B 7/18
U.S. Cl. 350—83 **8 Claims**



1. An automatic biaxial sun tracking mechanism for sun ray utilization devices comprising means for continuously orienting said devices relative to the sun, said means including:

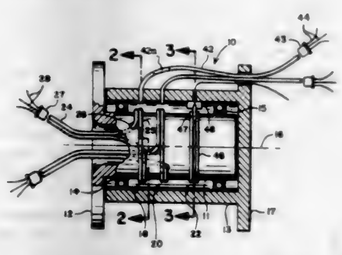
A. a shaft-connecting means to provide a fixed angular relationship of the longitudinal axes of a polar shaft and a declination shaft;
B. a polar shaft suitably supported so that its longitudinal axis is oriented parallel to the earth's axis of rotation, and said polar shaft having suitable means to rotate said shaft-connecting means about said longitudinal axis of said polar shaft;
C. a declination shaft rotatably connected to said shaft-connecting means, and having suitable means for rotation about its longitudinal axis, and having connected to it by suitable means a mount structure;
D. a mount structure for supporting and positioning said sun ray utilization devices, and said mount structure having suitable means for rotation about the longitudinal axis of said declination shaft.

4,277,133
MICROSCOPE
Dale O. Staehle, Racine, Wis., assignor to Western Publishing Company, Racine, Wis.
Filed Mar. 22, 1979, Ser. No. 23,058
Int. Cl.³ G02B 21/24
U.S. Cl. 350—90 11 Claims



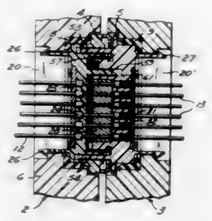
9. A microscope comprising:
a frame member;
a microscope lens assembly mounted on said frame member;
a viewing stage mounted on said frame member and having a viewing zone viewable through said lens assembly and a plurality of hole circumscribing said viewing zone;
a first swing slide member having a viewing area;
a second swing slide member having a viewing area; and
a first peg on said first swing slide member and positioned in one of the holes of said viewing stage and a second peg on said second swing slide member and positioned in another of the holes of said viewing stage for pivotably mounting said first and second swing slide members on said viewing stage for pivoting between a first position in which said viewing area of said first swing slide member is within said viewing zone while said viewing area of said second swing slide member is outside said viewing zone and a second position in which said viewing area of said second swing slide member is within said viewing zone while said viewing area of said first swing slide member is outside said viewing zone.

4,277,134
FIBER OPTIC LOOP SIGNAL COUPLER APPARATUS
Robert W. Upton, Jr., Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Jan. 19, 1978, Ser. No. 870,907
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 14 Claims



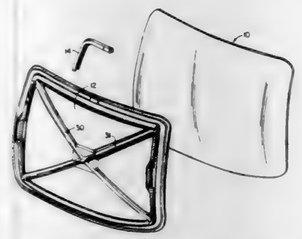
1. Fiber optic rotary coupler apparatus for transmitting light signals between first and second bodies, one of which is rotatable relative to the other about an axis of rotation, comprising:
a first light transmitting fiber of a type through which light is longitudinally transmitted by total internal reflection if said fiber is maintained at a radius no smaller than a predetermined critical radius, and from which light escapes transverse to the length of said fiber if said fiber is bent into a radius within a predetermined range of radii smaller than the critical radius;
a first member adapted to be fixed to the first body, and adapted to carry said light transmitting fiber so that it is maintained in at least one complete circular loop having a radius within the predetermined range, the loop being centered on the axis of rotation and generally lying in a first plane perpendicular thereto;
a first light source fixed relative to the first body and oriented to project a light signal into an end of said first light transmitting fiber;
first light detector means; and
a second member adapted to be fixed to the second body, and adapted to carry at least part of said first light detector means so that it is positioned to receive light signals which escape from said first light transmitting fiber.

4,277,135
FIBER OPTIC CONNECTOR
Werner G. Schrott, and Hans Wodok, both of Heilbronn, Fed. Rep. of Germany, assignors to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Oct. 17, 1979, Ser. No. 85,565
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1978, 2845420
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 9 Claims



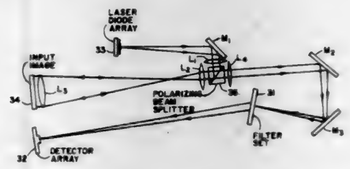
1. A fiber optic connector comprising: an optical fiber holder having an outer first face and a second face parallel to said first face and inwards thereof facing in the same direction as said first face, said holder including means for retaining at least one elongated optical fiber adjacent the end thereof in a fixed position within said holder perpendicular to and adjacent said second face, said holder further including at least one elongated recess in one of said first and second faces, said recess being generally parallel to the longitudinal axis of said optical fiber, said holder further including at least one wedge means projecting from the other of said first and second faces parallel to said recess, said recess and wedge means being adapted to fit a corresponding wedge means and recess, respectively, in a cooperating connector upon mating of said connector and said cooperating connector; and a cover attached to said holder, said cover including closure means slidable upon said first face from a normally closed position covering the end of said optical fiber to an open position exposing the end of said optical fiber, and biasing means maintaining said closure means in a closed position.

4,277,136
REFLECTOR CONSTRUCTION
Conrad R. Schadel, 6973 Consolidated Way, San Diego, Calif. 92121
Continuation of Ser. No. 856,435, Dec. 1, 1977, Pat. No. 4,155,625. This application May 15, 1979, Ser. No. 39,420
The portion of the term of this patent subsequent to May 22, 1996, has been disclaimed.
Int. Cl.³ G03B 21/56
U.S. Cl. 350—125 14 Claims



1. A reflector system such as a projection screen comprising:
a semi-rigid reflector having a curved configuration, said reflector including a front reflecting surface and an opposite back surface;
a semi-rigid backing having a peripheral margin substantially co-extensive with the periphery of the reflector, said peripheral margin projecting forwardly with respect to the remainder of the backing, said remainder having a curved configuration generally approximating the curved configuration of the reflector; and
means for attaching the peripheral margin of the backing to the periphery of the back surface of the reflector, the remainder of the backing being spaced from the reflector so that the reflector and the backing in combination provide a substantially rigid structure.

4,277,137
COHERENT OPTICAL CORRELATOR
Juris Upatnieks, Ann Arbor, Mich.; Charles R. Christensen, Athens, and Bobby D. Guenther, Huntsville, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 6, 1978, Ser. No. 949,325
Int. Cl.³ F41G 7/22; F42B 15/02
U.S. Cl. 350—162 SF 2 Claims



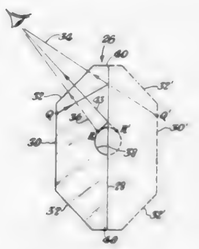
1. An optical correlator comprising an array of coherent light sources; an imaging device having an input image thereon; a filter set array having a plurality of filters therein; first means selectively directing one of said light sources through said imaging device so as to form a Fourier transform of the image at a corresponding location in said filter set array; a detector array having a plurality of detectors thereon; said filter set array having stored reference images thereon such that if the input image illuminated by the selected light source corresponds to the reference image, then a correlation spot will appear in a corresponding field of the detector array; said coherent light sources comprises a plurality of laser diodes; and a polarizing beam splitter connected between said laser diodes and said imaging device so as to reflect light from said laser diodes through said imaging devices and to pass reflected light from said imaging device through said beam splitter to said filter set array.

4,277,138
DIFFRACTION GRATING AND SYSTEM FOR THE FORMATION OF COLOR COMPONENTS
Hans Dammann, Tangstedt, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 838,632, Oct. 3, 1977, abandoned. This application Mar. 26, 1979, Ser. No. 24,285
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1976, 2645075
Int. Cl.³ G02B 27/44, 25/18
U.S. Cl. 350—162 R 11 Claims



1. A diffraction grating, for dividing multichromatic light passing through the grating into spacially separate spectral regions, comprising a substantially planar dielectric plate having a thickness which varies as a repetitive, stepped function of location on the plate, said function being chosen to produce optical path length differences, in said light, which are integral multiples of a selected wavelength.

4,277,139
SCULPTURED OPTICAL ART FORM
Michael Cox, 1311 Dixie Hwy. S., Pompano Beach, Fla. 33060
Filed Dec. 12, 1977, Ser. No. 859,384
Int. Cl.³ G02B 27/24, 5/04
U.S. Cl. 350—286 7 Claims



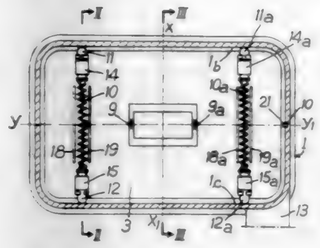
1. A method for optically producing a visual image of a three dimensionally complete object in a transparent medium comprising the steps of:
(a) selecting a transparent geometrical solid of a particular shape having at least one wall observable of internal light reflection; and
(b) forming a cavity in the wall having the observable internal reflection, said cavity being formed in the shape of a symmetrical one half of the three dimensional visual image displayed.

4,277,140

VEHICLE REARVIEW MIRRORS

Stephane Manzoni, 1, rue Pasteur, Saint Claude, France (39200)

Filed Mar. 13, 1980, Ser. No. 130,101
Claims priority, application France, Mar. 23, 1979, 79 07429
Int. Cl.³ G02B 5/08; B60R 1/02
U.S. Cl. 350—288 7 Claims



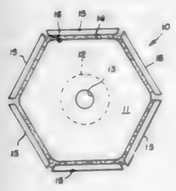
1. An improvement to vehicle rearview mirrors, comprising a mirror fitted on a support member pivotally mounted in the central part of the base of a casing, wherein at the back of the mirror-supporting member is mounted at least one resilient member whose axis is situated in a plane parallel to the plane of the mirror and whose two ends are resting against the opposed side faces of the casing, said resilient member being engaged in at least two guide members fast with the mirror-supporting member.

4,277,141

MULTIFACETED MIRROR AND ASSEMBLY FIXTURE AND METHOD OF MAKING SUCH MIRROR

Joseph P. Kleiber, Ontario, N.Y., assignor to Tropel, Inc., Fairport, N.Y.

Continuation-in-part of Ser. No. 24,656, Mar. 28, 1979, abandoned. This application Jan. 31, 1980, Ser. No. 117,046
Int. Cl.³ G02B 7/18; B29D 11/00
U.S. Cl. 350—299 26 Claims



1. A method of making a multifaceted mirror having a plurality of faces disposed in respective planes that are angled relative to each other, said method comprising:

a. making a plurality of individual mirrors sized to form the faces of said multifaceted mirror;

b. positioning each of said individual mirrors accurately in the planes of the respective faces of said multifaceted mirror and holding said individual mirrors securely in position;

c. locating a support element adjacent said positions of said individual mirrors;

d. filling gaps between said support element and said individual mirrors with a cement that bonds said individual mirrors securely to said support element while said individual mirrors are held in said positions, said individual mirrors bonded to said support element forming said multifaceted mirror; and

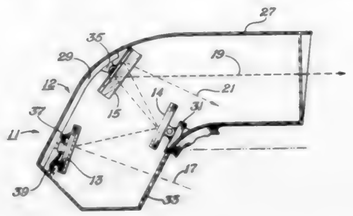
e. placing trim strips between each of said individual mirrors after said individual mirrors are bonded to said support element.

4,277,142

PERISCOPIC MIRROR

Billy R. Gardner, 3825 Wilshire, Abilene, Tex. 79603

Filed Apr. 10, 1980, Ser. No. 138,926
Int. Cl.³ G02B 7/18
U.S. Cl. 350—302 2 Claims



1. A periscopic mirror for excellent visibility of a driver of a vehicle both rearwardly and to the sides of the vehicle comprising:

a. a structure carrying a plurality of mirrors and affixed exteriorly of the vehicle; said structure including a housing with transparent rear and side sections for preventing getting said mirrors dirty without restricting visibility; said housing being mounted near the center of the roof of said vehicle and having a lower mirror below the top of a windshield of the vehicle so as to be visible to the driver;

b. said first lower, adjustable mirror being disposed interiorly of and carried by said structure and facing the driver and adjustable to reflect a second mirror; said lower, adjustable mirror being connected with the an elongate adjusting means for adjusting the mirror to the line of eyesight of the driver; said elongate adjusting means being disposed interiorly of the vehicle and accessible to the driver;

c. a second mirror disposed rearwardly of said structure and said first mirror; said mirror being mounted so as to reflect the line of sight of the driver from said first lower, adjustable mirror to a third set of mirrors; and

d. a third set of mirrors carried by said structure; said third set including a rearview mirror and respective right and left wing mirrors; said rearview mirror being positioned and adapted to reflect the view rearwardly of said vehicle to the driver via said second and first mirrors; said right wing mirror being adapted and positioned to reflect the view to the right and downward side of said vehicle to the driver via said second and first mirrors; said left wing mirror being adapted and positioned to reflect the view to the left and downward side of said vehicle to the driver via said second and first mirrors;

such that substantially one hundred and eighty degrees of visibility is assessible to the driver for an exceptionally high degree of safety.

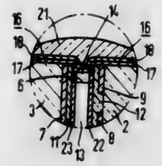
4,277,143

LIQUID CRYSTAL CELL HAVING ELECTRODES ON ADJACENT PLATES CONNECTED BY A CONTACT BRIDGE AND THE PROCESS OF PRODUCING SAME

Arthur G. Pauli; Reinhart Schade, and Karl Stiel, all of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 28, 1978, Ser. No. 928,824
Claims priority, application Fed. Rep. of Germany, Aug. 5, 1977, 2735493
Int. Cl.³ G02F 1/133
U.S. Cl. 350—334 7 Claims

1. A process of forming a liquid crystal cell having a pair of carrier plates spaced apart by a frame, each of said carrier plates being provided with electrically conductive coatings on an inner surface thereof with at least one electrical conductive coating on one plate forming an electrode connected to a terminal electrode on the other plate by a conductive bridge consisting of at least one metallized layer which engages only an edge surface of each of said electrodes which edge surface lies in the plane of the end surface of the carrier plate, said process including providing a first plate member having the first conductive coatings disposed thereon in a plurality of repeating patterns, providing a second plate member having the second conductive coatings provided thereon in a plurality of repeating patterns, covering the entire first conductive



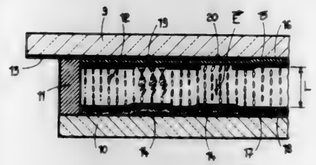
coatings of the first plate member with an insulating layer, covering the second conductive coatings of the second plate member with an insulating layer, subsequent to the steps of covering the plate members with insulating layers securing said plate members together with frames, subdividing each of said plate member into individual carrier plates of the cell with the step of subdividing providing the edge surface of each of the electrodes on the end surfaces of the carrier plate, and subsequent to the step of securing said plates with a frame applying at least one metallized layer on said edge surfaces of the electrodes and an end surface of the plates to form said conductive bridge engaging the electrodes only at said edge surfaces.

4,277,144

ELECTRO-OPTIC PASSIVE DISPLAY CELL

Eric Saurer, Bevaix; Fereydoun Gharadjedaghi, Neuchatel; Claude Laesser, La Chaux-de-fonds; Rene Viennet, Neuchatel, and Yves Ruedin, Saint-Blaise, all of Switzerland, assignors to Ebauches S.A., Neuchatel, Switzerland

Filed Mar. 20, 1979, Ser. No. 22,199
Claims priority, application Switzerland, Mar. 22, 1978, 3135/78
Int. Cl.³ G02F 1/13
U.S. Cl. 350—349 5 Claims



1. An electro-optic display cell comprising:

A. two plates arranged adjacent one another and providing a space therebetween, at least one of the plates being transparent and both plates having an inner surface arranged adjacent the other;

B. electrodes carried on the inner surfaces of the plates to form display zones, in which display zones, electric fields may be created;

C. a layer of a mixture of a nematic liquid crystal having a positive dielectric anisotropy, an optically active component and dichroic molecules, the mixture filling the space between the plates and having a median zone, the mixture having a critical thickness in the presence of a homeotropic alignment layer on each of the inner surfaces of the plates such that for a thickness of the mixture less than this critical thickness, the molecules of the mixture have a homeotropic structure through the whole structure of the mixture and for a thickness of the mixture greater than the critical thickness, the molecules of the mixture have a helicoidal structure in the median zone, and the mixture having a homeotropic structure in the presence of an electric field;

D. in the areas of the inner surface situated outside the display zones there is a homeotropic alignment layer on each of the inner surfaces of the plates and the thickness of the mixture is less than the critical thickness so that the molecules of the mixture have a homeotropic structure through the whole thickness of the mixture and the mixture is transparent; and

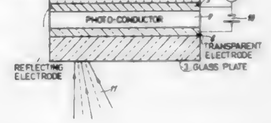
E. in the display zones, in the absence of any electric field, the molecules of the mixture have a helicoidal structure and are absorbent, while in the presence of an electric field, the molecules of the mixture have a homeotropic structure and are transparent so that the non-activated display zones are dark on a transparent background.

4,277,145

LIQUID-CRYSTAL DISPLAY DEVICE

Michel Hareng; Serge Le Berre, and Pierre Leclerc, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 17, 1979, Ser. No. 104,550
Claims priority, application France, Dec. 15, 1978, 78 35382
Int. Cl.³ G02F 1/135
U.S. Cl. 350—351 4 Claims



1. A liquid-crystal display device for visualizing information and comprising:

a first and a second transparent plates;

a smectic liquid-crystal layer inserted between said first and second transparent plates;

a layer of photoconductive materials inserted between said liquid-crystal layer and said second transparent plate;

a first electrode transparent to heat and inserted between said liquid-crystal layer and said layer of photoconductive material;

a second electrode transparent to light and inserted between said layer of photoconductive material and said second transparent plate;

means for temporarily illuminating said layer of photoconductive material at points representing said information to be visualized in order to cause said photoconductive material to conduct at said points;

means for supplying said first and second electrodes with a first voltage in order to heat said layer of photoconductive material at said points which have been made conductive by said illuminating means, thus causing transition of the liquid-crystal layer to the isotropic state at locations in which said layer is adjacent to said points and producing light-scattering action of the liquid-crystal layer when the

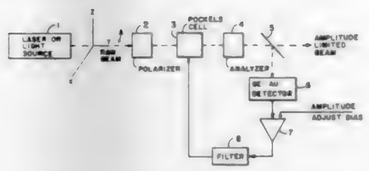
temporary illumination is stopped and said layer returns to the smectic state.

4,277,146

VISIBLE AND INFRARED INTENSITY LIMITER

Robert L. Morgan, Huntland, Tenn.; Larry T. Cupitt, Cary, N.C., and William L. Gamble, Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 19, 1979, Ser. No. 59,020
Int. Cl.³ G02F *1/03*
U.S. Cl. 350—356 **1 Claim**



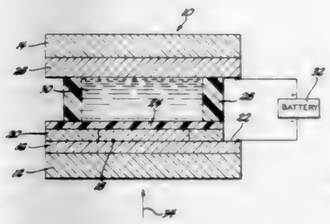
1. A system for controlling the amplitude of laser light from a laser comprising: a polarizer for polarizing said light in a predetermined direction; an electro-optic pockels cell having a control input terminal; an analyzer being polarized such that it will pass electromagnetic energy polarized in said predetermined direction and will cut off electromagnetic energy polarized 90° to said predetermined direction; said polarizer, cell and analyzer being positioned such that the light will pass through said polarizer, cell and analyzer in that order; a partial reflector being positioned to reflect a portion of the light output passing through said analyzer; a germanium detector positioned to receive light reflected from said reflector; said detector having an output terminal which will have a signal thereon which is representative of the amplitude level of said laser light; a high gain switchable amplifier connected to the output terminal of said detector so as to provide a control signal when said laser light reaches a preselected intensity amplitude level; said high gain switchable amplifier produces a control signal only when said detector measures an amplitude level greater than said preselected level; a high frequency filter connected between the amplifier and the control input of said pockels cell; and the control signal being connected through the filter to the control input terminal of said cell so as to cause the cell to rotate the polarization of said electromagnetic energy 90° with respect to said predetermined direction.

4,277,147

DISPLAY DEVICE HAVING REDUCED ELECTROCHROMIC FILM DISSOLUTION

Thomas C. Arnoldussen, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 15, 1979, Ser. No. 3,245
Int. Cl.³ G02F *1/17*
U.S. Cl. 350—357 **5 Claims**



1. An electrochromic device having an electrochromic transition metal oxide film whose electromagnetic radiation transmitting properties are alterable in response to an electric field, said device comprising

a supported transparent electrode,

an electrochromic transition metal oxide film in electrical contact with said electrode,

a proton-conductive, acid-resistant, nonporous polyhydroxyl polymer layer applied to said electrochromic film,

an acidic aqueous electrolyte in contact with said polymer layer and

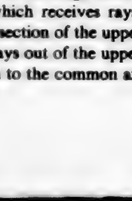
a suitable counterelectrode in contact with said electrolyte.

4,277,148

CONICAL SPLIT-IMAGE MICROSCOPIC LENS

John E. Clegg, 2320 Keystone Dr., Orlando, Fla. 32806

Filed Nov. 24, 1980, Ser. No. 209,865
Int. Cl.³ G02B *5/04*
U.S. Cl. 350—432 **1 Claim**



1. A microscopic lens comprising three component lenses, with each component lens having one or two conical sections with surfaces which refract light rays at prescribed angles, with all conical sections of the component lenses being aligned on a common axis which is parallel to the light rays entering and emanating from the component lenses, with all surfaces of the component lenses not used for the refraction and transmission of light rays being opaque,

(a) with a lower component lens being positioned above an object and having a concave conical section which receives parallel rays emanating from the object and refracts these rays outward from the common axis at a prescribed angle, and having a convex conical section which receives rays emanating from the concave conical section of the lower component lens and refracts these rays parallel to the common axis, thereby forming an annular image of the object,

(b) with a middle component lens being above and adjacent to the lower component lens and having a convex conical section which receives rays emanating from the convex conical section of the lower component lens and refracts these rays inward toward the common axis, and having a concave conical section which receives rays emanating from the convex conical section of the middle component lens and refracts these rays inward toward the common axis,

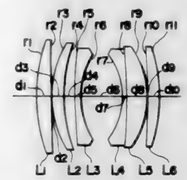
(c) and with an upper component lens being above and adjacent to the middle component lens and having a concave conical section which receives rays emanating from the concave conical section of the middle component lens and refracts these rays parallel to the common axis, forming an enlarged whole image of the object, and having a planar section which receives rays emanating from the concave conical section of the upper component lens and transmits these rays out of the upper component lens in a direction parallel to the common axis.

4,277,149

MODIFIED GAUSS TYPE LENS SYSTEM

Kunihiko Konoma, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Sep. 5, 1978, Ser. No. 939,381
Claims priority, application Japan, Sep. 7, 1977, 52/108249
Int. Cl.³ G02B *9/60*
U.S. Cl. 350—467 **21 Claims**



1. A modified Gauss type lens system of 5 groups and 6 lens elements comprising from the object to the image side:

a first group consisting of a first positive lens element, the absolute value of the radius of curvature of the object side surface of the first element being less than that of the image side surface;

a second group consisting of a second positive meniscus lens element convex to the object side;

a third group consisting of a third negative meniscus lens element convex to the object side;

a fourth group consisting of a meniscus-shaped negative doublet convex to the image side and constructed by a fourth negative lens element and a fifth positive lens element cemented thereto; and

a fifth group consisting of a sixth positive lens element, the absolute value of the radius of curvature of the object side surface of the sixth element being greater than that of the image side surface,

the lens system being further characterized by its relatively long back focal distance which is defined to be greater than 75 percent of the focal length of the whole lens system and the lens system further fulfills the following conditions:

$29 < \nu_3, \nu_4 < 40$

$1.72 < (N_1+N_2+N_5+N_6)/4 < 1.77$

wherein ν_3 and ν_4 represent the Abbe numbers of the glass materials for the third and fourth lens elements, and N_1, N_2, N_5 and N_6 represent refractive indexes of glass materials for the first, second, fifth and sixth lens elements, respectively.

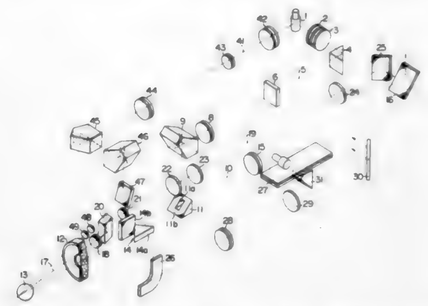
4,277,150

EYE REFRACTMETER

Shinzi Wada; Ikuo Kitao; Yasuo Kato, and Taketoshi Ishihara, all of Tokyo, Japan, assignors to Tokyo Kogaku Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 21, 1978, Ser. No. 935,608
Claims priority, application Japan, Aug. 24, 1977, 52-101239; Aug. 24, 1977, 52-101240; Feb. 3, 1978, 53-12192[U]; Feb. 4, 1978, 53-11610
Int. Cl.³ G03B *29/00*; A61B *3/14, 3/10*
U.S. Cl. 351—13 **13 Claims**

12. An eye refractmeter comprising a target projecting optical system for projecting an image of a target means through a pupil of a patient's eye to produce a target image on the retina of the eye, an observing optical system including objective lens means for observing the target image through the pupil, a sighting optical system for observing the cornea of the eye to determine that the objective lens means is appropriately spaced from the patient's eye, and an alignment mark projecting system having an alignment mark projecting axis lying in a first plane which is perpendicular to a second plane including the observing and sighting optical systems, said alignment mark projecting system including a first mark comprised of at least one line parallel to said first plane, said sighting optical system including a second mark comprised of at least one line parallel to said second plane.



4,277,151

METAL FRAME FOR EYEGLASSES

Kurt Schönhut, Schwäbisch Gmünd-Wetzgau, Fed. Rep. of Germany, assignor to Ferdinand Menrad, Schwäbisch Gmünd-Bettringen NW, Fed. Rep. of Germany

Filed Sep. 22, 1978, Ser. No. 944,671
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1977, 2749796
Int. Cl.³ G02C *13/00*
U.S. Cl. 351—41 **8 Claims**

1. A metal frame for eyeglasses comprising:

a pair of rims, each of which is configured to surround and support an eyeglass lens;

a locking bar having a bore extending therethrough secured to each of said rims, said locking bar and said rim to which it is secured being separated by a V-shaped separation slot so as to divide said rim and said bar into first and second rim segments and first and second locking bar segments respectively, said second locking bar segment having an abutment adjacent to an end thereof distal from said first locking bar segment;

a jacket having an internally threaded bore which is, in turn, received in at least said bore of said locking bar encompassed by said first locking bar segment thereof and which is coupled to said first locking bar segment to prevent movement thereof, relative to said first locking bar segment, towards said second locking bar segment; and

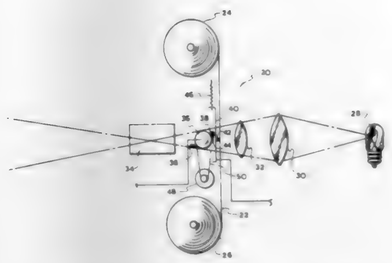
a locking bar screw having a head portion and a threaded shaft, the former of which is in abutting engagement with said abutment of said second locking bar segment and the latter of which is inserted through said distal end of said second locking bar segment so as to be in threaded engagement with said bore of said jacket and so as to thereby detachably secure said first and second locking bar segments together.

4,277,152

CONTROLS FOR SYNCHRONIZING AUDIO SIGNALS WITH FILM ADVANCEMENT IN A PROJECTOR

Stanford E. Taylor, Lloyd Harbor, N.Y., assignor to Instructional/Communications Technology, Inc., Huntington Station, N.Y.

Filed Nov. 30, 1979, Ser. No. 98,758
Int. Cl.³ B03B 31/00; G03B 1/22
U.S. Cl. 352—17 11 Claims



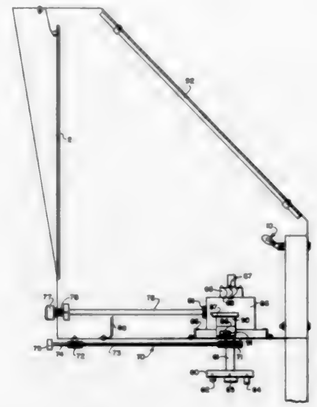
1. In a synchronized audio visual system including an audio program source capable of producing a film advance signal at predetermined intervals, a projector having a source of light for passing light through an aperture in the projector and means for directing film along a pathway into and out of alignment with the aperture for projection of individual frames in sequence, drive means for initiating advance of the film in response to advance signals from the audio source in a predetermined sequence, advance means responsive to the drive means to advance the film, the advance means including a rotating member with a drive projection extending therefrom for rotation into and out of engagement with film support and drive structure for the film, the improvement comprising; limit means for controlling the time period of advancement of film as a function of each stroke of the rotating member and in relationship of this to a film advance signal from the audio source, the limit means including the rotating member forming a switch connected to the drive means and closing a circuit when in contact with the drive structure for the film and opening the circuit otherwise thereby controlling the period of film advance and synchronizing the film advance with the audio program source, the drive means including a motor, the rotating member and the drive structure being electrically isolated from ground, the rotating member being connected to the motor and the drive structure being grounded thereby providing a closed circuit when the rotating member contacts the drive structure and opening the circuit when the rotating member is out of contact with the drive structure, the length of time when the circuit is closed depending upon the relative positioning of the rotating member and the drive structure and the length of time the rotating member is in contact with the drive structure, the drive structure for the film including a pawl mechanism including spring means adjacent the aperture and normally in a retracted position in alignment with a slot adjacent to the aperture, the rotating member in position to bias the spring to direct the pawl mechanism through the slot into engagement with a perforation in the film and then along the slot a predetermined distance to advance the film and then release the pawl mechanism permitting the spring to return the pawl to the retracted position out of the slot, the pawl mechanism including an elongated leaf with the pawl extending downwardly therefrom intermediate its ends, a drive projection extending from the side of the elongated leaf spring opposite to the pawl in position to be engaged by the rotating member, the elongated leaf spring being slidably positioned so that engagement of the rotating member with the drive projection and application of a force thereto will bias the leaf spring until the pawl extends through the slot into engagement with a perforation in the film and then the leaf spring will be slidably moved by the rotating member and the film accordingly advanced and when the rotating member disengages from the leaf spring the leaf spring will return to its initial configuration with the pawl disengaged from the film and withdrawn through the slot whereupon return means can return the leaf spring to the normal retracted position.

4,277,153

X-RAY MICROFILM READER

Alexander J. Zabik, West Park, and Stephen G. Fisher, Rhinebeck, both of N.Y., assignors to Medrex Ltd., West Park, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,678
Int. Cl.³ G03B 23/08, 21/10, 21/28
U.S. Cl. 353—27 R 8 Claims



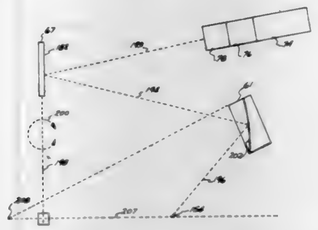
1. An X-ray microfilm reader comprising:
means receptive of the microfilm medium for holding same in a working position;
a light source disposed below the working position;
a dichroic mirror receptive of the light from the light source for reflecting same towards the microfilm medium in the working position;
condensor means receptive of the reflected light from the mirror for condensing same prior to passage through the microfilm medium in the working position;
a screen;
optical means disposed above the working position and receptive of the condensed light passing through the microfilm medium for effecting the display of the image carried therewith on the screen, wherein the optical means comprises a lens turret having a plurality of projection lenses thereon, means mounting the lens turret for rotation to successively position each of the lenses over the working position of the microfilm medium comprising a hollow cylindrical member, a shaft rotatably received in the hollow member and fixed to the turret, a first gear wheel on the shaft, a second rotatably mounted gear wheel spaced from the first gear wheel and having a rod connected thereto for selectively manually rotating the second gear wheel, a gear belt connecting the two gear wheels to impart rotation to the turret in response to movement of the rod, detents on the top end of the hollow cylindrical member and projecting pins at the top end of the shaft engageable with the detents to define operational positions for each projection lens and means for focusing the selected projection lens comprising a rack gear along the longitudinal length of the hollow cylindrical member, a focusing block having a third gear wheel and slidably receptive of the hollow cylindrical member therein for vertical movement with the third gear wheel in engagement with the rack gear and a manually rotatable focusing rod connected to the third gear wheel and rotatable therewith to effect focusing the projection lenses; and
an image mirror disposed above the optical means for receiving the image passing through the optical means for reflecting same onto the screen.

4,277,154

OPTICAL SYSTEM FOR ELECTRO-OPTICAL SCANNER

Steven Sakshinos, Cos Cob, Conn., assignor to Eltra Corporation, Toledo, Ohio

Filed Nov. 19, 1979, Ser. No. 95,895
Int. Cl.³ B41B 21/08; G02B 27/17
U.S. Cl. 354—5 23 Claims



1. An electrophotographic typesetting system having a scanning means for scanning a light sensitive image support surface with an information containing light beam and for imaging said information on said surface, said system having means for driving the light beam through a curvilinear light path, means for converting said curvilinear light path to a straight line scanning locus at said surface, means supporting said surface and moving said image support surface, means providing information in digitized format including means for providing first digital data defining the identity and location of characters, font storage means providing second digital data defining the contour of a plurality of characters with respect to a normalized encoded set of first and second coordinates, digital processing means connected to said first and second digital data for producing third digital data defining said characters, means for modulating the light beam responsive to said third digital information, said system including an optical assembly, said optical assembly having surfaces referenced to each other for mounting said means for scanning, said means to convert said curvilinear light path and said means for supporting and moving said image support surface, whereby said scanning means, said means for converting said curvilinear light path and said means for supporting and moving said image support surface are referenced to said referenced surfaces and to each other.

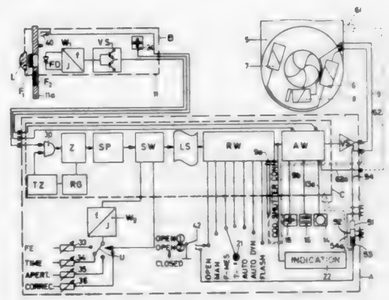
4,277,155

CONTROL DEVICE FOR PHOTOGRAPHIC CAMERAS

Waldemar Rentschler; Franz Starp, and Winfried Espig, all of Wildbad, Fed. Rep. of Germany, assignors to Prontor-Werk Alfred Gauthier GmbH, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,756
Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840185
Int. Cl.³ G03B 7/097, 15/03
U.S. Cl. 354—23 D 31 Claims

1. Separate control device for photographic cameras such as professional cameras, compriaing
a circuit device for setting, measuring and controlling shutter exposure values, to which an independent electromagnetically drivable shutter assembly for such a camera is adapted to be exchangeably connected for energized operation thereby, and
an independent light meter probe detachably connectable to the circuit device and which contains a photoelectric transformer, a probe current to frequency converter and an amplifier for providing a brightness signal to the circuit device,
wherein the circuit device includes an energizable electronic control circuit arrangement in which a gate is provided to which the corresponding brightness signal of the light meter probe and the signal of a periodically operating gate time pulse generator are supplied, such that the output signal of the gate time pulse generator is supplied to a counter the resultant output brightness signal of which is stored in a first storage system, a control circuit current to frequency converter is provided which transforms selectively the analog values for film sensitivity, time, aperture and correction factor, supplied by means of potentiometers, into suitable frequencies, a second storage system is provided into which the stored brightness signal is fed and via a change-over arrangement one or more values selectively for film sensitivity, time, aperture and correction factor are supplied, a listing storage system in turn is provided in which the arriving pulse series are stored, a mode selector device connected with a computer are provided by means of which at least the following operating modes are selectable:



(a) operation with manual setting of both of the exposure parameters time and aperture,
(b) operation with automatic control of one of the two exposure parameters time or aperture, in dependence upon lighting intensity, after manual presetting of the value of the other of such exposure parameters and of the film sensitivity,
(c) operation with the taking of measurements enabling the determination of one of the two exposure parameters time or aperture, by means of the light meter probe, taking into account the film sensitivity and light intensity, or
(d) operation with settings for opening and retaining in open position the electromagnetically drivable shutter assembly over a selective optional length of time,
whereby the values stored in the listing storage system are processed, in accordance with the setting of the selector device, in the computer to ascertain the corresponding processed values, an indicator display arrangement is provided which indicates the computer ascertained values, and an operating mechanism circuit is provided by means of which the values ascertained in the computer may be controlled.

4,277,156

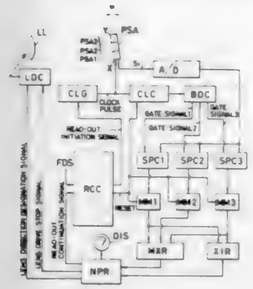
FOCUSING POSITION DETECTION APPARATUS

Yoshio Fukushima, Machida, and Yoshiaki Kanmoto, Tokyo, both of Japan, assignors to Ricoh Company, Ltd., Japan

Filed Jun. 6, 1979, Ser. No. 45,937
Claims priority, application Japan, Jun. 10, 1978, 53/69990
Int. Cl.³ G03B 3/10
U.S. Cl. 354—25 11 Claims

1. In a focusing position detection apparatus for focusing an image on an image formation surface with an optical focusing system having means for changing the focusing position thereof, an improvement comprising: a single photoelectric

conversion element adjacent the image formation surface having three signal forming portions each with a light receiving surface disposed at a different optical distance from the optical focusing system, the effective optical distances of said respective signal forming portions increasing from one end of said photoelectric conversion element to an opposite end thereof, measuring means connected to said signal forming portions for measuring respective signals produced thereby, and analyzing means connected to said measuring means for evaluating the respective signals from said measuring means, said analyzing means connected to said means for changing the focusing position of said optical focusing system in accordance with said evaluation to focus an image on the image formation surface



with the optical focusing system, and indicating in which direction the focusing position is to be changed to focus the image, each of said receiving surfaces of said signal forming portions lie in a common plane and extend one after the other across said photoelectric conversion element, said common plane being inclined at an angle to said image formation surface whereby said light receiving surface of one of said signal forming portions at one end of said photoelectric conversion element is closer to the optical system than said light receiving surface of one of said signal forming portions on an opposite end of said photoelectric conversion element whereby the differences in said effective optical distances comprises physical differences in distance.

4,277,157

LENS TUBE RETRACTION MECHANISM FOR CAMERA HAVING RETRACTABLE LENS TUBE

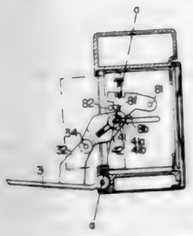
Fumihiro Miyagawa, and Kousaku Sawabe, both of Yokohama, Japan, assignors to Ricoh Company, Ltd., Japan

Filed May 30, 1979, Ser. No. 43,665

Claims priority, application Japan, Jun. 6, 1978, 53/68059; Jun. 15, 1978, 53/72832

Int. Cl.³ G03B *17/04*

U.S. Cl. 354—187 **3 Claims**



1. In a camera of the type having a retractable lens tube, the invention comprising:

a lens tube movable between a photographing location and a retracted location in the camera;

a roller with a shaft engaged with part of said lens tube;

an intermediate lever for moving said roller between a first position for placing said lens tube at said photographic location and a second position for placing said lens tube at said retracted location, said intermediate lever having a slot for receiving and permitting movement of said roller shaft therein;

an operation member pivotally connected at a link to said intermediate lever for moving said lens tube;

a pusher lever to hold said lens tube at photographing location movably mounted to the camera and having a surface engageable with said roller to push said roller when said lens tube is in and near said photographing location; and

biasing means connected to said pusher lever to bias said pusher lever toward said roller;

said pusher lever having a free end portion, and a projected portion formed at said free end portion of said pusher lever, said intermediate lever engageable with said projected portion of said pusher lever to move said pusher lever against the bias of said biasing means before said roller moves said pusher lever to move said lens tube out of said photographing location, said roller shaft moving in said slot of said intermediate lever to an end thereof toward said link before said roller moves said pusher lever.

4,277,158

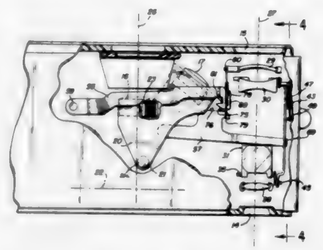
CAMERA

Arthur Zawodny, Budd Lake, N.J., assignor to Keystone Camera Corporation, Clifton, N.J.

Continuation of Ser. No. 856,841, Dec. 2, 1977. This application Dec. 10, 1979, Ser. No. 101,409

Int. Cl.³ G03B *3/00, 13/10*

U.S. Cl. 354—197 **14 Claims**



1. A photographic camera having an objective optical axis and a viewfinder optical axis comprising: a first and a second objective lens; corresponding first and second viewfinder lenses; each objective lens and each viewfinder lens being selectively movable to or from a stored position out of alignment with an optical axis and an operating position in alignment with an optical axis whereby only one of said objective lenses and one of said viewfinder lenses is operative at any particular moment; each of said viewfinder lenses being rotatable about an axis substantially along one edge thereof betwen said stored position and said operative position; connecting means for moving said first viewfinder lens to its operating position and said second viewfinder lens to its stored position upon movement of said first objective lens to its operating position and alternatively to move said second viewfinder lens to its operating position and said first viewfinder lens to its stored position upon movement of said second objective lens to its operating position; said connecting means comprising an elongated actuator slide in operable engagement with each of said viewfinder lenses and being positioned and movable parallel to said viewfinder optical axis.

4,277,159

PHOTO-PROCESSING DRUM WITH NON-REUSABLE CHEMICALS, FOR USE IN DAYLIGHT CONDITIONS, FOR PROCESSING PHOTO-SENSITIVE SURFACES WITH FLEXIBLE SUPPORTS

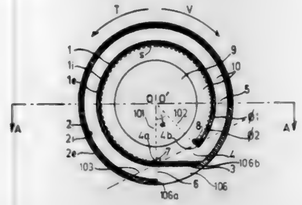
Maurice J. Descotes, L'Amenokal Rte. de Nages, Langlade, France (30980)

Filed Sep. 17, 1979, Ser. No. 76,153

Claims priority, application France, Sep. 18, 1978, 78 26649

Int. Cl.³ G03D *13/04*

U.S. Cl. 354—312 **12 Claims**



1. A photo-processing drum with non-reusable chemicals for use in daylight conditions for processing photographic sensitive surfaces, of the type moving in rotation about its horizontal longitudinal axis in a first direction for recurringly dipping the sensitive surface in a processing solution, and in a second reverse direction for draining off the said processing solution from the said drum, and comprising:

an inner cylinder having two ends, a longitudinal axis, and a wall of circular cross-section,

a slot provided in the wall of said inner cylinder and having longitudinal edges defining with the axis of said inner cylinder two radial planes oriented at an angle of about 45° with respect to each other,

an outer cylinder having two ends and a diameter greater than the one of said inner cylinder and being disposed concentrically around said inner cylinder,

a built-in bottom wall tightly sealing one of the ends of said inner and outer cylinders,

a removable cover adapted to tightly seal off the end of said inner and outer cylinders,

a removable cover adapted to tightly seal off the end of said inner cylinder opposite to its bottom wall,

a longitudinal slot cut in the wall of said outer cylinder, having two longitudinal edges and being positioned with respect to the slot of said inner cylinder so that the slot of said outer cylinder is situated at least approximately between the said two radial planes,

a joining wall connecting one of said longitudinal edges of the slot of said inner cylinder to the opposite far edge of the slot of said outer cylinder, and

an annular draining passage delimited by said two concentric inner and outer cylinders, by said joining wall, by said bottom wall and by a built-in flange tightly sealing the end of said annular draining passage which faces said removable cover, the slot of the said outer cylinder forming an outlet for said draining passage.

4,277,160

ELECTROSTATIC PRINTER

Yoshihiro Yamada, Chiba, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 6, 1979, Ser. No. 72,842

Claims priority, application Japan, Sep. 13, 1978, 53-125620[U]; Sep. 13, 1978, 53-125621[U]; Sep. 13, 1978, 53-125622[U]; Sep. 13, 1978, 53-125623[U]; Dec. 16, 1978, 53-172720[U]

Int. Cl.³ G03G *15/00, 21/00*; G03B *27/00*

U.S. Cl. 355—3 R **6 Claims**

1. An electrostatic printer comprising:

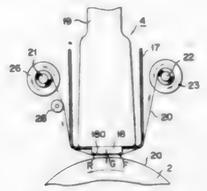
(1) a movable photosensitive body;

(2) means having a cathode ray tube and adapted to transmit a light image to the photosensitive body through an optical fiber plate located near the photosensitive body to form an electrostatic image on the photosensitive body;

(3) means for developing the electrostatic image;

(4) means for fixing a developed image to a paper;

(5) a transparent film provided between the photosensitive



body and the optical fiber plate such that it covers and contacts with the optical fiber plate, said transparent film being moved in a direction opposite to that in which the photosensitive body is moved; and

(6) urging means provided in pressure contact with the transparent film to impart a tension to the latter so that said film contacts said plate without slack.

4,277,161

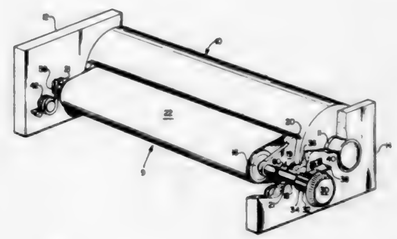
CLEANER FOR PRESSURE FIXING ROLLER

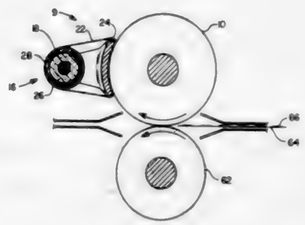
Richard A. Calabrese, Newtown, Conn., assignor to Pitney Bowes, Inc., Stamford, Conn.

Filed Dec. 10, 1979, Ser. No. 102,217

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 FU **8 Claims**





1. A cleaning device for a fixing roller in an electrostatic copying machine, comprising:

a cleaner support mountable adjacent said fixing roller;

a porous, oil-impregnated roller rotatably mounted adjacent said cleaner support;

a continuous cleaning endless felt member adjustably secured around said cleaner support and said oil-impregnated roller;

means for urging said endless felt member into wiping contact with said fixing roller; and

means for incrementally advancing said endless felt member past the fixing roller, whereby the portion of the felt in wiping contact with the fixing roller can be maintained clean.

4,277,162

ELECTROPHOTOGRAPHIC APPARATUS COMPRISING DENSITY SENSOR MEANS

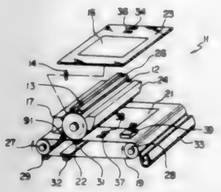
Nobuo Kasahara, and Kouji Yamanobe, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jul. 12, 1979, Ser. No. 57,142

Claims priority, application Japan, Jul. 13, 1978, 53-85307; Jul. 19, 1978, 53-88775

Int. Cl.³ G03G 15/00

U.S. Cl. 355—14 R 15 Claims



1. An electrophotographic apparatus having a platen for supporting an original document on an image area of the platen, a photoconductive member, imaging means for forming an electrostatic image of the original document on an image area of the photoconductive member, developing means for developing the electrostatic image to form a toner image, transfer means including a transfer member for supporting a copy sheet on an image area of the transfer member and moving the copy sheet into engagement with the photoconductive member for transferring the toner image to the copy sheet, characterized by comprising:

mark means of predetermined optical density provided on a non-image area of the platen, the imaging means forming an electrostatic image of the mark means on a non-image area of the photoconductive member, the developing means developing the electrostatic image of the mark means to form a toner image thereof, the transfer means transferring the toner image of the mark means onto a non-image area of the transfer member;

sensor means for sensing an optical density of the toner image of the mark means on the transfer member; and

auxiliary sensor means for sensing an optical density of the toner image of the mark means on the photoconductive member before transfer to the transfer member and computing means for producing an output corresponding to a predetermined function of a difference between outputs of the sensor means and the auxiliary sensor means.

4,277,163

VARIABLE MAGNIFICATION ELECTROSTATIC COPYING MACHINE

Masumi Ikeme; Takashi Yano; Susumu Tatsumi; Hiroyuki Idenawa; Isao Nakamura, and Tatsuo Tani, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jul. 19, 1979, Ser. No. 59,082

Claims priority, application Japan, Jul. 21, 1978, 53-89093; Aug. 2, 1978, 53-93692

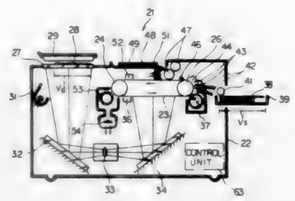
Int. Cl.³ G03G 15/00; G03B 27/34, 27/40

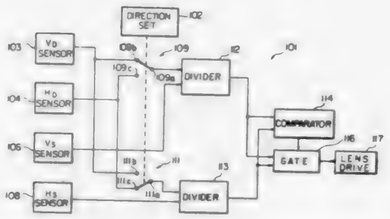
U.S. Cl. 355—14 R 12 Claims

1. An electrostatic copying machine including a platen for supporting an original document, a photoconductive member, a variable magnification optical means for focussing a light image of the document onto the photoconductive member to form an electrostatic image, developing means for developing the electrostatic image to form a toner image, support means for supporting a copy sheet and transfer means for moving the copy sheet from the support means into toner image transferring engagement with the photoconductive member, characterized by comprising:

sensor means for sensing a vertical length and a horizontal length of the document on the platen; and

computing means for comparing the vertical and horizontal lengths of the document with vertical and horizontal lengths of the copy sheet and adjusting a reduction ratio of the optical means to a value such that a maximum length





of the light image of the document is substantially equal to a corresponding one of the vertical and horizontal lengths of the copy sheet;

the computing means comprising means for dividing the vertical length of the document by the vertical length of the copy sheet to obtain a first ratio, dividing the horizontal length of the document by the horizontal length of the copy sheet to obtain a second ratio, comparing the first ratio with the second ratio and adjusting the reduction ratio of the optical means to be substantially equal to a largest one of the first and second ratios.

4,277,164

PHOTOCOPIER PHOTOCONDUCTIVE SHEET HOLDING DEVICE

Hermann Fortmann, Bremen, Fed. Rep. of Germany, assignor to Olympia Werke AG, Wilhelmshaven, Fed. Rep. of Germany

Filed Jul. 16, 1979, Ser. No. 57,995

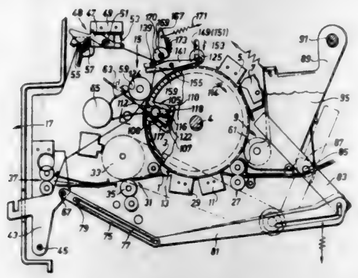
Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2830955

Int. Cl.³ G03G 15/00

U.S. Cl. 355—16 4 Claims

1. In an electrophotographic copier including a replaceable photoconductive sheet having a leading edge portion and a trailing edge portion which sheet is composed of a conductive layer and a nonconductive coating on the layer; a guide drum rotatably supported by a drum shaft and having a circumferential surface for supporting the sheet and a holding device for securing the leading sheet edge portion to the guide drum; a charging station, an illuminating station, a developing station, a transfer station and a conductive sheet cleaning station arranged in a circumferential distribution about the guide drum, the improvement wherein said holding device comprises: means defining a wedge-shaped slot disposed alongside the circumferential surface of said drum and delimited by a pair of

faces which converge toward the circumferential surface where they form an insertion opening for a photoconductive sheet; a wedge in the form of an electrically conductive circular rod loosely disposed in said wedge-shaped slot, said circular rod being provided with radially projecting conductive prongs capable of penetrating the nonconductive coating of the sheet



in order to contact the conductive layer when the photoconductive sheet is fastened to said guide drum by means of said holding device so as to ground the photoconductive sheet; and means urging said wedge toward said insertion opening for clamping a photoconductive sheet leading edge portion inserted in said slot between said wedge and one of said faces.

4,277,165

PHOTOCOPYING MACHINE EQUIPPED WITH VARIABLE MAGNIFICATION ARRANGEMENT

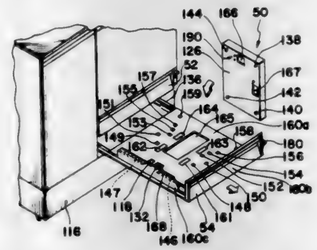
Kenichi Wada; Hiroshi Murasaki, both of Sakai; Yuji Enoguchi, Higashi Osaka, and Takao Fujiwara, Toyakawa, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 885,015, Mar. 9, 1978, abandoned. This application Feb. 1, 1979, Ser. No. 8,565

Claims priority, application Japan, Mar. 16, 1977, 52/29495

Int. Cl.³ G03B 27/52

U.S. Cl. 355—55 6 Claims



1. A photocopying machine equipped with a variable magnification arrangement for effecting production of photocopies on copy paper sheets of rectangular configuration at magnification equal to the size of an original document to be copied at magnification on a reduced scale from the original document, said photocopying machine comprising at least one cassette holding member provided on the main body side of said photocopying machine, said cassette holding member being adapted to receive thereon a first cassette lengthways and to receive thereon a second cassette selectively lengthways and sideways with respect to the direction of the transportation of the copy paper sheets, said first cassette accommodating therein the copy paper sheets of first size which is equivalent to the maximum reproducible size, said second cassette accommodating therein the copy paper sheet of second size the long side of which is shorter than the short side of the copy paper sheet of the first size, so that said second cassette is placed on said cassette holding member sideways for the copying at the equal size magnification and lengthways at the reduced size magnification with respect to the direction of transportation of the copy paper sheets.

4,277,166

EXPOSURE DEVICE

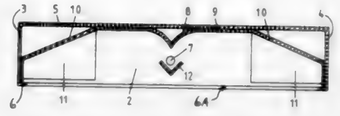
Petrus L. M. van Boven, Velden, and Leon M. W. Winthagen, Maasbree, both of Netherlands, assignors to Oce-Nederland B.V., Venlo, Netherlands

Filed Aug. 30, 1979, Ser. No. 71,016

Claims priority, application Netherlands, Sep. 1, 1978, 7808977

Int. Cl.³ G03G 15/00; G03B 27/54

U.S. Cl. 355—67 9 Claims



1. An exposure device for discharging limited transverse areas of a moving photoconductive element, comprising an elongate light reflecting housing adapted to be positioned transverse and close to said element and a light source in said housing, said housing comprising an elongate rear wall, two oppositely disposed elongate side walls and a fixed limited elongate opening at the housing front to overlie said element, said light source comprising a flash lamp disposed between said side walls substantially perpendicularly thereto, cover means between said lamp and said opening for preventing direct light radiation from said lamp to said element, and means disposed in said housing opposite to said opening and along said rear wall for reflecting light from said lamp through said opening.

4,277,167

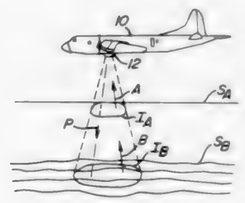
DEPTH MAPPING SYSTEM

Joseph C. Eppel, Wayne, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 25, 1976, Ser. No. 721,630

Int. Cl.³ G01C 3/08; H04N 7/00

U.S. Cl. 356—5 8 Claims



1. A depth mapping system for a selected body of water, comprising, in combination:

light means formed to direct a pulsed light beam onto the water surface and submerged bodies therebeneath;

receiving means having an array of light receptors each formed to receive reflections of the beam from discrete and separate areas of the water surface and the submerged bodies for producing a first signal when the water surface reflection is received, and a second signal when each submerged body reflection is received from its respective area; and

signal processing means connected to receive said first and second signals for producing a display corresponding to

said array indicative of the depth of respective surface areas of said submerged bodies.

4,277,168

ENDOSCOPE WITH MEANS FOR DETECTING ROTATION OF A DISTAL EXAMINING END

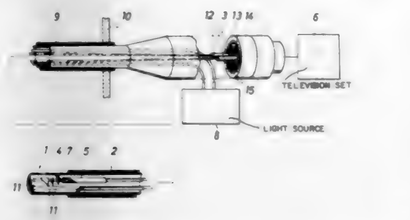
Toshio Oku, Tokyo, Japan, assignor to Machida Endoscope Co., Ltd., Tokyo, Japan

Filed Apr. 6, 1979, Ser. No. 27,946

Claims priority, application Japan, Apr. 20, 1978, 53/51483[U]

Int. Cl.³ A61B 1/00

U.S. Cl. 356—138 **8 Claims**



1. An endoscope having a grip end and a distal examining end and means for observing what is viewed at said distal examining end,

said distal examining end being capable of being rotated under control from said grip end, an improvement comprising

a guide tube extending along said endoscope through which said endoscope passes,

said guide tube having a distal end proximately located to said distal examining end,

said guide tube being fixed and having no rotation imparted thereto, and

optical measuring means integrally formed at said distal end of said guide tube for optically measuring the amount of rotation imparted to the distal examining end of said endoscope.

4,277,169

DEVICE FOR SIMULTANEOUSLY PERFORMING ALIGNMENT AND SIGHTING OPERATIONS

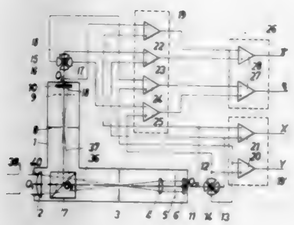
Werner Krieg, 14, Strasse der Kosmonauten, Jena, District of Gera, German Democratic Rep.

Filed Nov. 27, 1978, Ser. No. 960,716

Claims priority, application German Democratic Rep., Nov. 24, 1977, 202225

Int. Cl.³ G01B 11/26

U.S. Cl. 356—152 **2 Claims**



1. Device for simultaneously performing alignment and sighting operations, comprising

a light source for emitting a bundle of parallel light being focused for infinity,

a measuring device, said light source and said measuring device being located remote from each other,

said measuring device located in an elongated housing having a light entrance opening in the front face comprising,

a first optical axis being at right angles to the light entrance opening, a second optical axis being at right angles to said first optical axis adjacent said light entrance opening, a beam splitter being arranged about said first and said second optical axis, said light entrance opening being for directing said bundle of parallel light into said housing, said beam splitter splitting said bundle of parallel light into a first light beam and into a second light beam, said second light beam being at right angles to said first light beam, a first photo electric transducer unit being arranged in a plane at right angles to the first optical axis, remote from said light entrance opening, said first photoelectric transducer unit being for alignment measurements, a second photoelectric transducer unit being arranged in a plane at right angles to said second optical axis, said first and said second photoelectric transducer units being identically constituted of four photocells each in a quadrant array, an optical system arranged about the first optical axis for imaging the entrance opening onto the first photo electric transducer unit,

electronic evaluation unit comprising

first, second, and third difference amplifiers, said first, second and third difference amplifiers being provided with first and second inputs each, and with one output each, said first inputs of said first difference amplifiers and said second inputs of said first difference amplifiers being connected to said first and said second photo electric transducer units in such a manner that those photocells being arranged at the place of departure of the first and second light beam from said first, respectively, second optical axis are connected to a common one of said first difference amplifiers, said second inputs of said first difference amplifiers being further connected to said first and said second inputs, respectively, of said second difference amplifiers, the first and second inputs, respectively, of said third difference amplifiers being connected to the outputs of said first difference amplifiers in such a manner that the photocells of said second photoelectric transducer unit, being in diametrical opposition, are connected for direction evaluation, said first and said second inputs, respectively, of said second difference amplifiers and said second inputs of said first difference amplifiers being connected in such a manner to the photocells of said first photoelectric transducer unit that the photocells in diametrical opposition are connected for alignment evaluation.

4,277,170

LASER BEACON AND OPTICAL DETECTOR SYSTEM FOR AIRCRAFT COLLISION HAZARD DETERMINATION

Richard B. Miles, D-16 Millstone River Apts., Princeton, N.J. 08540

Filed Nov. 1, 1979, Ser. No. 90,497

Int. Cl.³ G01B 11/26; G01C 3/00, 5/00

U.S. Cl. 356—152 **8 Claims**



1. An aircraft collision hazard determination system comprising:

laser beacon means mountable on a first aircraft including a laser light source which emits a polarized beam of light,

expanding means for optically expanding said beam into a vertically diverging and horizontally collimated fan-shaped beam, means for sweeping said fan-shaped beam 360° in azimuth while simultaneously rotating said beam 360° in polarization; and,

a pair of optical detection means mountable on a second aircraft for detecting light from said laser beacon means including means for detecting different polarized components of the light and converting said components into electronic signals proportional thereto, means for electronically processing said polarized components to produce a signal indicative of the polarization of the light, and means for comparing the detected polarization from each of said optical detection means to verify the consistency of the polarization of the light thereby reducing false signals.

4,277,171

BASE BOARD DEVICE FOR MEASURING INSTRUMENTS

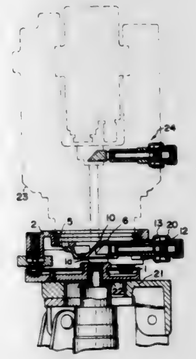
Yasuo Iwafune, and Hideo Iwai, both of Tokyo, Japan, assignors to Tokyo Kogaku Kikai Kabushiki Kaisha, Tokyo, Japan

Filed May 29, 1979, Ser. No. 43,039

Claims priority, application Japan, May 31, 1978, 53-65187

Int. Cl.³ G01B 11/27; G02B 27/32

U.S. Cl. 356—153 **5 Claims**



1. A combination of a measuring instrument having a first centering telescope and a base board device for mounting the measuring instrument, said measuring instrument having a body rotatable about an axis perpendicular to the base board, said base board device comprising a base board having a center, a second centering telescope having a viewing axis directed substantially toward the center of the base board, means for removably mounting a measuring instrument at a predetermined position, reflector means provided substantially at the center of the base board for refelecting the viewing axis of the second centering telescope perpendicularly downwardly with respect to the base board, aperture means formed in said base board at the center thereof, said reflector means being such that it permits observing a vertically downward position of said center of the base board through said first centering telescope and said aperture means.

4,277,172

SOFT CONTACT LENS APPARATUS

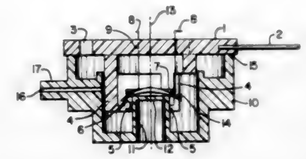
William D. Richards, Medway, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Nov. 5, 1979, Ser. No. 91,317

Int. Cl.³ G01N 21/13

U.S. Cl. 356—244 **8 Claims**

1. Apparatus for transporting a soft contact lens and positioning the lens in a liquid for inspection which, comprises a main body member, a plurality of depending fingers extending from said member, each of said fingers having a lens supporting surface, said plurality of fingers defining a discontinuous recepticle for receiving the lens with clearance therearound,



and weight means being adapted to rest on a lens positioned in the recepticle for reducing unintentional mvoement when immersed in the liquid.

4,277,173

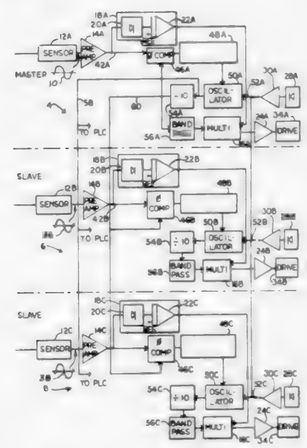
RING LASER GYROSCOPE DITHER DRIVE CIRCUIT

Bo H. G. Ljung, Wayne, and Lincoln S. Ferriss, Lincoln Park, both of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed Aug. 31, 1979, Ser. No. 71,611

Int. Cl.³ G01C 19/64

U.S. Cl. 356—350 **10 Claims**



1. In a gyroscope system having a multiplicity of ring laser gyroscopes, wherein one of the ring laser gyroscopes is selected to act as the master unit and the remaining ring laser gyroscopes are selected to act as slave units, circuitry for providing phase lock between the dither drive motion of the master unit and the slave units comprising:

a multiplicity of circuits, one each for use with one each ring laser gyroscope, each of said circuits comprising:

means for sensing the dither motion of its respective ring laser gyroscope and for providing an electrical dither signal representative of said dither motion,

phase detection means having a dither signal input port for receiving said dither signal and a reference signal input port for receiving a reference signal, said phase detection means also having a phase difference output port for providing a phase difference signal representative of the phase difference between said dither signal and said reference signal,

a variable frequency oscillator having a drive signal output port for providing a drive signal, said oscillator having a phase difference signal input port for receiving said phase

difference signal and a random signal input port for receiving a random input signal, the frequency of said output drive signal varying in response to changes in said phase difference signal and said random input signal,

drive means for receiving said drive signal and for imparting dither motion to said respective ring laser gyroscope in response to said drive signal,

means for providing said random input signal to each of said master and slave units;

means for connecting the drive signal output port of said ring laser gyroscope selected as said master unit with the reference signal input port of said master unit such that said drive signal of said master unit is said reference signal; and

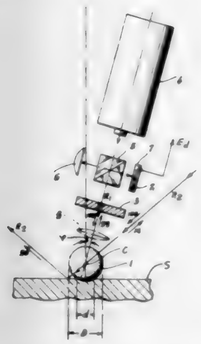
means for connecting said drive signal output port of said master unit to the reference signal input port of each of the ring laser gyroscopes selected to be slaves such that the drive signal of said master unit is said reference signal applied to each of said slave units whereby the signals at each dither signal port are in phase with the said reference signal and hence are in phase with themselves.

4,277,174

METHOD AND APPARATUS FOR THE MEASUREMENT OF HARDNESS TESTING INDENTATIONS

Claus Kleesattel, Apartado 4969, San Jose, Costa Rica

Filed Jan. 9, 1980, Ser. No. 110,779
Int. Cl.³ G01B *11/00, 11/08*
U.S. Cl. 356—372 **14 Claims**



1. The method of measuring the magnitude of spherical hardness testing indentations in testpiece surfaces utilizing a beam from a radiation source which is passed through a transparent indenter of at least partially spherical shape, the beam at the point of incidence being small with respect to the size of the indentation comprising the steps of:

passing said beam through the center of curvature of an at least partially spherical indenter,

tilting said beam about an axis parallel to the testpiece surface and coinciding with the center of curvature in the scanning plane, said tilting motion effected in at least one plane perpendicular to said testpiece surface,

measuring the intensity of the radiation reflected from the indentation in the direction of incidence, and

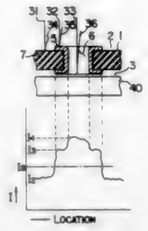
measuring the scanning angle between two intensity variations for determining the size of the indentation.

4,277,175

METHOD AND APPARATUS FOR INSPECTING PRINTED WIRING BOARDS

Koichi Karasaki, Hadano, and Yasuhiko Hara, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 11, 1979, Ser. No. 74,473
Claims priority, application Japan, Apr. 25, 1979, 54-50306
Int. Cl.³ G01B *11/00*
U.S. Cl. 356—378 **9 Claims**



1. A method of inspecting a printed wiring board including and insulating substrate having a wiring surface on which a wiring pattern is provided and including at least one plated through hole being in electrical connection with said wiring pattern and passing through said wiring board, the method comprising the steps of:

illuminating said wiring surface of said printed wiring board with light to obtain an optical image of said wiring surface at least by the use of reflected light from said wiring surface;

recognizing the light intensity of the optical images of said wiring pattern and that of the plated through hole as being at an identical first level of two digitized levels in said optical image of said wiring surface without distinguishing therebetween; and

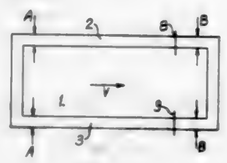
recognizing the light intensity of the optical image of said insulating substrate as being at a second level of said two digitized levels different from that of said light intensity of said wiring pattern and said plated through hole to distinguish said optical image of said insulating substrate from said images of said wiring pattern and said plated through hole.

4,277,176

METHOD AND APPARATUS FOR CHECKING THE WIDTH AND PARALLELISM OF MARGINS FOLLOWING THE CENTERING OF A PRINT WITH RESPECT TO A SUPPORT

Claude-Arnold Groseurier, Hauterive, Switzerland, assignor to Compagnie Industrielle Radioelectrique, Gals, Switzerland

Filed Nov. 3, 1978, Ser. No. 957,345
Claims priority, application Switzerland, Nov. 4, 1977, 13418/77
Int. Cl.³ G01B *11/00, 11/14*
U.S. Cl. 356—394 **7 Claims**



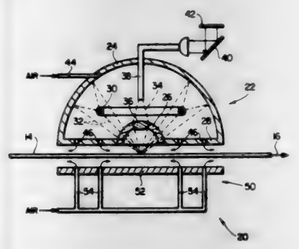
1. In a method of checking the width and parallelism of margins following the centering of a print on a support, the steps of moving the support in front of an opto-electronic reading device in a direction parallel to the margins while illuminating said support and print, said reading device being positioned to view a margin of said support and said print by reflected light and comprising an array of photo-sensitive elements distributed in a linear manner transversely with respect to the direction of movement of said support and a camera for focusing on said array of photo-sensitive elements an image of a marginal portion of said support and said print, activating first counting means to make a first count of the number of said photo-sensitive elements of said reading device producing a signal greater than a threshold level as a first portion of said support passes said reading devices, comparing the number of said elements counted with a first reference value, subsequently making a second count of the number of said elements of said reading device producing a signal greater than said threshold level as a second portion of said support passes said reading device, comparing the number of elements counted in said second count with said reference value and comparing the difference between the number of elements counted in said first and second counts respectively with a second reference value, triggering second counting means by said first counting means, when said first counting means has counted a predetermined number of photosensitive elements producing a signal greater than said threshold level, to make a count of photosensitive elements producing signals less than said threshold level, and inhibiting said first counting means when said second counting means has counted a predetermined number of photo-sensitive elements in order to prevent a black point in the margin from being interpreted as the margin of the print.

4,277,177

APPARATUS TO MEASURE SELECT PROPERTIES OF A MOVING SHEET

Tor G. Larsen, Saratoga, and John J. Howarth, Monte Sereno, both of Calif., assignors to Measurex Corporation, Cupertino, Calif.

Filed Dec. 5, 1979, Ser. No. 100,416
Int. Cl.³ G01N *21/47*
U.S. Cl. 356—431 **6 Claims**



1. An apparatus to measure select properties of a moving sheet, said apparatus, insensitive to the flutter of said sheet, comprising:

a source to one side of said sheet capable of emitting a beam of electromagnetic radiation;

said beam aligned to impinge said sheet;

said radiation selected such that said beam is capable of being absorbed and being reflected by said sheet;

a collector to one side of said sheet capable of receiving a portion of said beam reflected from said sheet;

a detector capable of measuring said select properties of said sheet based upon said radiation received by said collector;

first means for spacing said source and said collector a constant distance from said sheet;

a standardization member to the side of said sheet opposite said collector; and

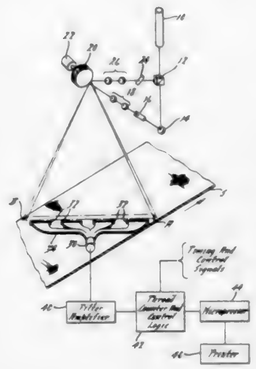
second means for spacing said standardization member a constant distance from said sheet, said second means including a source of fluid to direct a stream of fluid from said standardization member to impinge the moving sheet.

4,277,178

WEB ELEMENT CONCENTRATION DETECTION SYSTEM

Charles J. Cushing; Clifton W. Phillips, and Richard D. VanderNeut, all of Charlotte, N.C., assignors to Ford Aerospace & Communications Corp., Detroit, Mich.

Filed Jan. 15, 1980, Ser. No. 112,381
Int. Cl.³ G01N *21/86*
U.S. Cl. 356—431 **10 Claims**



1. A system for detecting variations in the concentration of elements in a web material comprising:

means for generating plural beams of electromagnetic radiation having a predetermined cross-sectional width;

means for scanning said beams across a portion of said web material; and

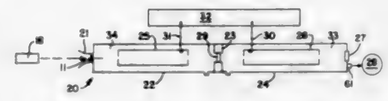
means for detecting said radiation reflected from said scan portion of said web material by said elements of said web material.

4,277,179

RESONANT SUBCAVITY DIFFERENTIAL SPECTROPHONE

Charles W. Bruce, Las Cruces, N. Mex., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 12, 1979, Ser. No. 19,688
Int. Cl.³ G01N *21/59*
U.S. Cl. 356—433 **1 Claim**



1. A spectrophone instrument for the in situ measurement of particulate matter and gaseous energy absorption in an atmospheric medium as an indication of pollution content and the like on a continuous basis, comprising a first and a second spectrophone assembly secured to one another along a common axial line, separated by an optical window, a light path disposed about said common axial line for the travel of a light beam from a laser source through each of said spectrophone assemblies, a first subcavity in said first spectrophone assembly and a second subcavity in said second spectrophone assembly, each of said spectrophone assemblies having an outer chamber which extends substantially beyond the subcavity axially at each end, each of said outer chambers having a window of

barium flouride placed at an angle for maximum transmission, acoustic dampening discs within each outer chamber clustered about said light path, each of said subcavities having a microphone comprising a cylindrical diaphragm of aluminized mylar axially aligned therein with spacers for sensing energy absorption means including pump means to provide an air flow path generally about said light path for the flow of said atmospheric medium including filter means encircling said optical window between said first spectrophone assembly and said second spectrophone assembly for removal of the particulate matter, so that the atmospheric medium flow includes said particulate and gaseous matter into said first spectrophone assembly and said first subcavity and gaseous matter only entering said second spectrophone assembly and said second subcavity, whereby said light beam interacts with said particulate and gaseous matter for the absorption of energy, each of said microphones sensing the absorption of energy and transmitting a signal from each subcavity to a differential input of a phase lock amplifier for combining and comparing said signals for an indication of the concentration of particulate matter in said atmosphere, there being included equalization means to effectively equalize the gain factors for the microphones, and by grouding the signal from the microphone in said first subcavity, obtaining an indication of the concentration of gaseous matter in said atmospheric medium;

wherein said equalization means includes a pre-amplifier for at least one of the microphones which is calibrated by disengaging and reattaching said pump means to parts of the first and second spectrophone assemblies located adjacent their function to modify the flow of said atmospheric medium to be from the outer ends of both the first and the second spectrophone assemblies and symmetrically through toward the center without using said filter means, and then setting the gain of the preamplifier such that the output of the phase lock amplifier is null.

4,277,180

METHOD AND APPARATUS FOR MAKING BITUMINOUS MIXTURES

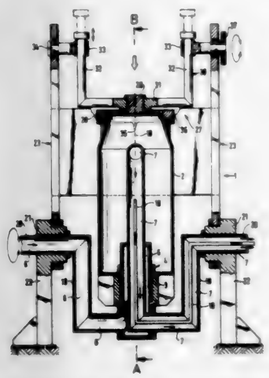
Paul Munderich, Frankfurter Strasse 84, 6466 Gruendau-Rothenbergen, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,767

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1978, 2848145

Int. Cl.³ B28C *5/46*

U.S. Cl. 366—7 **20 Claims**



1. A method for preparing a mixture of aggregate and a bituminous binder component, comprising the following steps: supplying a batch of moist aggregate into a pressurizable mixing container, supplying a respective quantity of the bituminous binder component into said pressurizable mixing container, starting a mixing motion of the aggregate and the bituminous binder component in the mixing container, closing the mixing container, heating the content of the mixing container to a mixture temperature and increasing the pressure in the mixing container to a value corresponding at least to the saturation pressure of the water adhering to said moist aggregate at said mixture temperature, maintaining the mixing motion and the mixture temperature at said increased pressure until the mixing is complete, and then discharging the mixture while depressurizing the mixing container.

4,277,181

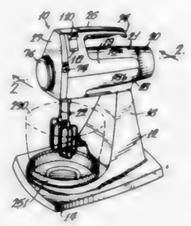
FOOD MIXER

Daniel C. Stahly, Elmhurst; William H. Scott, Lombard, and Mohamed K. Wagdy, DesPlaines, all of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Apr. 26, 1979, Ser. No. 33,584

Int. Cl.³ B01F *7/32, 13/00*

U.S. Cl. 366—69 **42 Claims**



1. A food mixer comprising a stand having a base with a hollow upstanding pedestal portion, a rotatable turntable seated on a peripheral thrust bearing in a rotational mounting attitude with the base, said rotatable turntable having a circular floor and an upstanding side wall adapted to engage snugly a mixing bowl removably seated therein, a mixer head supported on said pedestal for movement between a lowered operative position in which mixing elements driven by said head are received in said mixing bowl and a retracted position in which said mixing elements are raised above said bowl, a latch mounted in an upper portion of the hollow pedestal portion and including a latch lever pivotally connected to said pedestal, means cooperating with said latch lever to lock said mixer head against pivotal movement in either said retracted or operative position.

4,277,182

EXTRUDER WITH SHORT CYCLE MULTICHANNEL WAVE SCREW

George A. Kruder, Marion, Ohio, assignor to HPM Corporation, Mount Gilead, Ohio

Continuation-in-part of Ser. No. 917,204, Jun. 20, 1978, Pat. No. 4,173,417, which is a continuation-in-part of Ser. No. 788,028, Apr. 15, 1977, abandoned. This application Apr. 5, 1979, Ser. No. 27,468

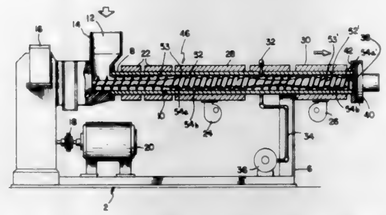
Claims priority, application United Kingdom, May 31, 1978, 26000/78

The portion of the term of this patent subsequent to Nov. 6, 1996, has been disclaimed.

Int. Cl.³ B29B *1/06*

U.S. Cl. 366—89 **19 Claims**

1. A plasticating apparatus of the type including a rotating screw disposed within a barrel having inlet and outlet openings and cooperating with the inner wall of the barrel to convey synthetic resinous material introduced through the inlet opening through the barrel; said screw including a section comprising a helical conveying flight having an effective outer width and cooperating with the inner wall of said barrel to form a helical passage, a helical outwardly extending barrier flight disposed axially between adjacent turns of the conveying flight and dividing the helical passage into two flow channels extending side by side, each of the flow channels having a depth which varies generally cyclically through a plurality of cycles along the helical length of the flow channel, the minimum depth portions of the flow channels on opposite sides of said barrier flight defining wave crests which are displaced helically from each other, the barrier flight being undercut along its length to provide sufficient clearance between its outermost surface and the inner wall of the barrel to permit the flow thereover of the molten resinous material from an area of decreasing depth in one channel to an adjacent area of the



other flow channel, the effective outer width of said barrier flight being thinner than that of said conveying flight and less than eight percent of the screw pitch so that the shear energy imparted to molten material flowing over said barrier flight is low; the improvement wherein said screw section is a mixing section including at least two turns of the conveying flight, and each wave cycle having a helical length which extends less than 360 degrees about the axis of the screw whereby pumping of molten material back and forth across said barrier flight in rapid succession occurs.

4,277,183

MIXING MACHINE

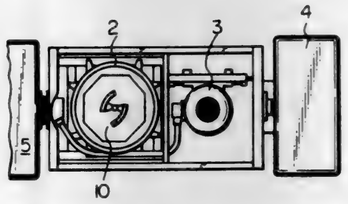
Tatsuo Shinriki, Chiba, Japan, assignor to Height Inc., Chiba, Japan

Filed May 18, 1979, Ser. No. 40,392

Claims priority, application Japan, May 31, 1978, 53/65491

Int. Cl.³ B01F *7/24;* **A21C** *1/02*

U.S. Cl. 366—98 **8 Claims**



1. A mixing machine characterized by the provision of a mixing tub; a temperature regulating jacket surrounding the outer circumferential surface of said mixing tub; mixing vane members each composed of an upper portion being a leading end, the upper portion being fixed to a vertical rotary shaft and pointed in the forward direction of rotation, and a lower portion being a trailing end, the lower portion being fixed to a vertical blade member which is pointed substantially in the direction of rotation; a center plate member to which are fixed the vertical rotary shaft and the lower end of the vertical blade member; and a plurality of scraping vane members in spaced-apart relationship fixed to the outer circumferential portion of said center plate member.

4,277,184

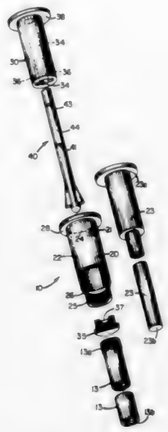
DISPOSABLE ORTHOPEDIC IMPLEMENT AND METHOD

Alan Solomon, 16 Fox Run Rd., Dover, Mass. 02030

Filed Aug. 14, 1979, Ser. No. 66,400

Int. Cl.³ B01F *15/02, 13/06;* **A61F** *5/04*

U.S. Cl. 366—150 **10 Claims**



1. A disposable orthopedic implement formed of a rigid polymer and designed to mix bone cement in and dispense from a closed system comprising:

(a) a chamber having a barrel portion and a neck portion;

(b) a member reciprocable within said barrel portion of said chamber;

(c) a mixing member operatively and axially receivable within said reciprocable member; and

(d) means for rotating said mixing member within said barrel portion of said chamber.

4,277,185

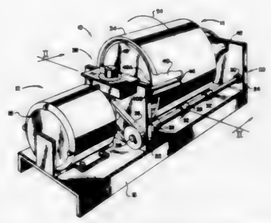
ROTARY GRAVITY MIXER

B. Gene Thompson, 9316 Hunters Creek, Dallas, Tex. 75243

Filed Oct. 9, 1979, Ser. No. 82,687

Int. Cl.³ B01F *9/02*

U.S. Cl. 366—213 **5 Claims**



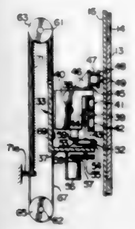
5. Apparatus for rotating a container comprising, in combination:

a cylindrical carrier having a longitudinal axis and an open end;

a clasp lodged within said carrier for holding the container in skewed relation to the longitudinal axis of said carrier, said clasp having a resilient sidewall section which is severed along its length to permit the clasp to be spread open to receive the container and to hold the container in resilient gripping engagement when released;

roller means defining a turn cradle for supporting said carrier for rotation about its longitudinal axis; and,
a drive motor coupled to said roller means.

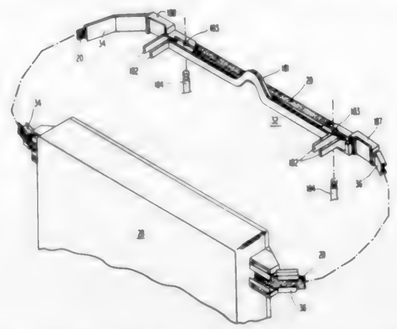
4,277,186
PRINTING AND DISPLAYING APPARATUS
Hiromichi Takahashi, Soka, Japan, assignor to Pentel Kabushiki Kaisha, Tokyo, Japan
Filed May 1, 1979, Ser. No. 35,078
Int. Cl.³ B41J *3/04*
U.S. Cl. 400—120 **4 Claims**



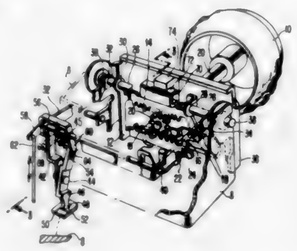
1. A printing and displaying apparatus comprising: a carriage carrying a thermal printing head; first supporting means for supporting said carriage so as to be movable in the row direction; second supporting means for supporting said first supporting means so that said carriage is movable in the column direction; a transparent platen having a surface area larger than the movable range of said carriage and disposed opposite to said printing head; feeding means for feeding a recording medium having a heat-sensitive surface between said printing head and said transparent platen such that said recording medium has its heat-sensitive surface directed toward said transparent platen; first driving means for driving said carriage in the row direction, said first driving means comprising a pair of row pulleys mounted rotatably on the opposite ends in the row direction of said first supporting means, first endless belt means trained around said row pulleys and fixed to said carriage to effect movement of said carriage in the row direction in response to movement of said first endless belt means, and a first stepping motor mounted on said first supporting means for rotatably driving one of said row pulleys to thereby effect movement of said first endless belt means; second driving means for driving said carriage in the column direction, said second driving means comprising at least one pair of column pulleys spaced apart from each other in the column direction, at least one second endless belt means trained around said column pulleys and fixed to said first supporting means to effect movement thereof in the column direction accompanied by corresponding movement of said carriage in response to movement of said second endless belt means, a second stepping motor for rotatably driving one of said column pulleys to thereby effect movement of said second endless belt means, resilient means for biasing said second supporting means toward one end position in the column direction, and ratchet means for releasably holding said second supporting means in any desired position against the biasing force of said resilient means; and control means for controlling said first and second stepping motors and said feeding means to enable printing of desired characters on said recording medium.

4,277,187
RIBBON LOCATING MEANS
Michael J. Rello, Willow Grove, Pa., assignor to Exxon Research & Engineering Co., Florham Park, N.J.
Filed Jul. 27, 1979, Ser. No. 61,454
Int. Cl.³ B41J *35/04, 32/00*
U.S. Cl. 400—248 **15 Claims**

1. In a ribbon supply assembly for supply of ribbon to a point of action comprising a housing for containing ribbon having opposing faces, ribbon locating means for supporting said ribbon while in the vicinity of said point of action and leader means connecting said locating means with said housing and for conveying ribbon therebetween, the improvement in said locating means comprising end portions adapted to detechably mate with mounting means, said end portions being formed of a resilient material and having finger-contacting means extending outwardly away from said ribbon faces on one side thereof and regions of flexure formed therein, whereby upon application of pressure to said finger-contacting means in a direction substantially parallel with the direction of ribbon conveyance through said locating means said end portions are resiliently flexed about said regions of flexure, permitting said end portions to be detached from said mounting means.

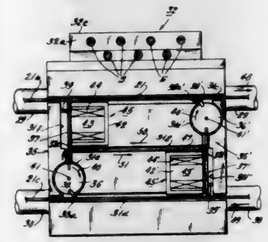


4,277,188
DIRECT KEYBOARD CONTROLLED RACK SHIFT DEVICE FOR A SINGLE ELEMENT TYPEWRITER
Robert F. McDaniel, Paris, Ky.; Mike Prewarski, El Paso, Tex., and Leonard D. Ramey, Versailles, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jul. 5, 1979, Ser. No. 54,760
Int. Cl.³ B41J *25/24*
U.S. Cl. 400—257 **4 Claims**



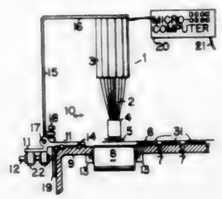
1. A typewriter comprising a platen, a selectable print element, means for rotating said selectable print element, means for controlling the direction of rotation of said print element, a keyboard comprising operator controlled means connected to said means for controlling the direction of rotation, said connection between said operator controlled means and said means for controlling the direction of rotation further comprising a force multiplying, displacement dividing means for converting an output of said operator control means into a mechanical displacement for operating said means for controlling the direction of rotation.

4,277,189
BIDIRECTIONAL CARRIAGE DRIVE EMPLOYING A CLOSED LOOP BELT DRIVE MEANS FOR PRINTERS AND THE LIKE
Robert Howard, Windham; Prentice Robinson, and Alexander F. Vitale, both of Pelham, all of N.H., assignors to Centronics Data Computer Corp., Hudson, N.H.
Continuation of Ser. No. 692,484, Jun. 3, 1976, abandoned. This application Apr. 9, 1979, Ser. No. 28,318
Int. Cl.³ B41J *19/00*
U.S. Cl. 400—320 **18 Claims**



1. Driving means for printers and the like comprising:
rotatably mounted drive and idler pulleys;
a closed loop belt entrained about said pulleys and defining first and second belt runs;
means for rotating said drive pulley and said belt;
a carriage assembly and means for slidably guiding said carriage assembly along a path arranged substantially parallel to at least one of said first and second belt runs;
said carriage assembly including first and second guideway passages for receiving said first and second belt runs, respectively;
first movable means pivotally mounted in said carriage assembly and including first wedge means movable into said first guideway passage for engaging and gripping said first belt run, said first wedge means being pivotally mounted to increase the wedging action as said first wedge means pivots, whereby the movement of said first belt run contributes to said wedging action;
second movable means pivotally mounted in said carriage assembly and including second wedge means movable into said second guideway passage for engaging and gripping said second belt run, said second wedge means being pivotally mounted to increase the wedging action as said second wedge means pivots, whereby the movement of said second belt run contributes to said wedging action;
means for normally biasing said first and second movable means to pivot in a direction to simultaneously move both said first and second wedge means away from said first and second guideway passages and out of engagement with said first and second belt runs;
first and second control means for urging said first and second movable means against the force of said biasing means and for moving one of said first and second wedge means in the direction of movement of an associated first and second belt run and into wedging engagement with said associated belt run whereby said carriage assembly is driven in a direction determined by the run of the belt engaged by said first or second wedge means.

4,277,190
INDICIA PRINTER
Michael W. Rady, Thousand Oaks; Thomas D. Horsing, Sepulveda, and Edward J. Kraemer, Canoga Park, all of Calif., assignors to Terminal Data Corporation, Woodland Hills, Calif.
Filed Aug. 21, 1979, Ser. No. 68,857
Int. Cl.³ B41J *11/42*; G03B *27/52*
U.S. Cl. 400—582 **18 Claims**



2. A programmable printer for printing upon moving documents prior to sequentially photographing said documents (6), comprising;
(a) transport means (31) to translate a first document rapidly for manipulation related to photographing, and to hold it stationary for photographing,
(b) logic means (44) to control said transport means, to reduce the rapidity of translation for a second document while said printing is occurring thereon,
(c) a stationary character-synthesizing printer (1), having elements (2) aligned transversely of the direction of motion of said documents,
(d) means to selectively electrically actuate (3,64,65) said elements, to linearly print characters upon said second document while it is slowly translating, and
(e) a programmable microcomputer (20) having a character lookup table (53), a time window circuit (50) and an input control circuit (51) to successively selectively synthesize the characters for the printer,
said microcomputer electrically connected to said printer and also to said logic means (44) and document actuated transport sensors
to synchronize the actuation of the printer with the movement and manipulation of said first and second documents, through said time window circuit and said input control circuit
for inhibiting printing upon said second document while photographing said first document.

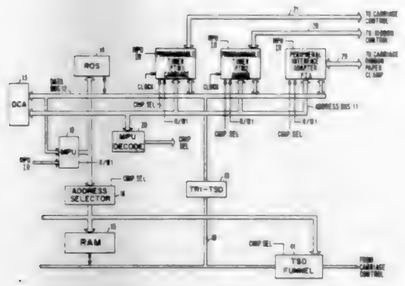
4,277,191
PRINTER SYSTEM HAVING MICROPROCESSOR CONTROL
Glenn W. Davis, Endicott, N.Y., and Arthur E. Fleek, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 28, 1980, Ser. No. 115,850
Int. Cl.³ B41J *11/42*
U.S. Cl. 400—582 **10 Claims**

1. In a printer system having a print mechanism comprising a plurality of non-printing units including a carriage drive for feeding a print medium in increments of one or more line spaces having a drive means and an emitter associated with said drive means for generating feedback pulses during operation of said drive means,
a control system for operating said carriage drive comprising in combination,
control means comprising a programmable interface to said drive means,
said interface including a control adapter programmable for generating various control signals to said drive means and

timing means programmable for timing various operations of said drive means for feeding said print medium,

said adapter and said timing means being operable for generating processor interrupt signals associated with said timing operations and said feedback pulses,

a microprocessor for programmably controlling said drive means through said adapter and said timing means in response to said interrupt signals from said timing means and said feedback pulses,



said microprocessor being responsive to other interrupt signals from other devices in said printer system during operation of said drive means including interrupt signals capable of preempting said microprocessor from control of said drive means,

and means for preventing the loss of control of said drive means by said microprocessor resulting from interrupt signals from said other devices.

4,277,192

END OF LINE LOCKING MECHANISM FOR POWER OPERATED TYPEWRITER

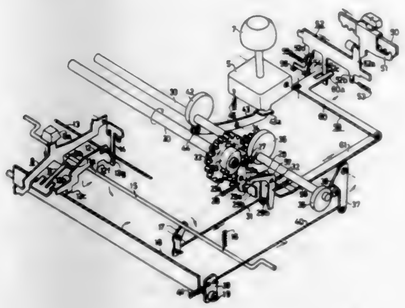
Toshio Nakai, Nagoya; Susumu Kazaya, Gifu; Hiroshi Onoda, Kariya; Takayuki Iwase, Chiryu, and Akira Asai, Nagoya, all of Japan, assignors to Brother Industries, Ltd., Nagoya, Japan

Filed Jan. 8, 1979, Ser. No. 1,587

Claims priority, application Japan, Feb. 1, 1978, 53-10729

Int. Cl.³ B41J *29/54*

U.S. Cl. 400—671 **9 Claims**



1. In a power operated typewriter having a frame, a driving motor, a keyboard, a printing mechanism operated upon depression of each key of the keyboard, an escapement mechanism actuated upon operation of the printing mechanism, a carriage which is moved step by step in a letter feed direction by the escapement mechanism;

a right-hand margin line lock mechanism, comprising in combination:

(a) a clutch (23) disposed between the motor and the printing mechanism;

(b) a control lever (25) normally held in a first position for keeping said clutch (23) in a disengaged condition;

(c) control means for moving said control lever from the first position to a second position allowing said clutch to come into an engaged condition in order to operate said printing mechanism upon depression of each key;

(d) a cam member (35) rotated upon engagement of said clutch for temporarily bringing said control lever from the second position to a third position passing over the first position for allowing said printing mechanism to come into a disengaged condition;

(e) first and second stoppers (51, 52) for defining a last printing position of a printing line, said first stopper supported by the carriage and said second stopper movably supported by said frame and normally held in an original position engaging with said first stopper when said carriage has been moved to a position one letter before the last printing position, and said second stopper being moved a predetermined distance from the original position when said carriage has been moved to the last printing position;

(f) a lock member (57) movably supported by the frame so as to move between an inoperative position and an operative position, said lock member (57) normally held in the inoperative position, and being lockable with said control lever in the third position so as to hold said clutch in the disengaged condition when said lock member moves to the operative position; and,

(g) an actuating member (59) normally held in an original position and actuated by the second stopper so as to move said lock member to the operative position when said second stopper moves the predetermined distance, whereby, said lock member in the operative position locks said control lever when said control lever has been brought to the third position by said cam member upon the printing operation of said printing mechanism at the last printing position.

4,277,193

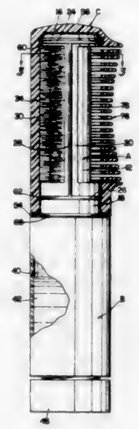
HAIR GROOMING DEVICE

Ray Knaus, 5565 Wilson Dr., Mentor, Ohio 44060

Continuation-in-part of Ser. No. 876,936, Feb. 10, 1978, abandoned. This application Jul. 18, 1979, Ser. No. 58,627

Int. Cl.³ A46B *11/00, 15/00*

U.S. Cl. 401—39 **12 Claims**



1. A brush including a handle having a brush head extending therefrom, bristles extending outwardly from said head, reservoir means on said handle for a liquid treating agent, passage means from said reservoir means to said bristles for supplying a liquid treating agent to said bristles, a rotatable cover member surrounding said head and having a lateral opening therein, said cover member being rotatable between a bristle exposed position and a bristle storage position, said lateral opening being aligned with said bristles in said bristle exposed position of said cover member, said bristles being out of alignment with said lateral opening and being completely concealed within said cover member in said bristle storage position of said cover member, comb teeth integral with said cover member and spanning said lateral opening generally circumferentially of the longitudinal rotational axis of said cover member, said teeth being spaced outwardly from said brush head to define a space between said teeth and head which is occupied by said bristles in said bristle exposed position of said cover member so that hair is subjected to combined combing and brushing action in said bristle exposed position of said cover member, and said teeth being spaced outwardly from said brush head in said bristle storage position of said cover member to define a free space between said teeth and head which is unoccupied by bristles so that hair is subjected only to combing action by passage of hair through said teeth and through said free space.

4,277,194

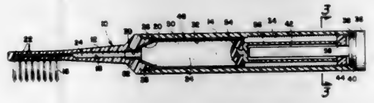
PASTE DISPENSING TOOTHBRUSH

Donald R. Smith, 1601 W. Knoxville, Broken Arrow, Okla. 74012

Filed Sep. 20, 1979, Ser. No. 77,342

Int. Cl.³ B46B *11/02*

U.S. Cl. 401—173 **5 Claims**



1. A paste feed toothbrush comprising an elongated shank member having bristles and a passageway extending from one end of the shank member into open communication with the bristles, an elongated hollow cylindrical handle member having the first end securable to the shank member, a paste compartment in the handle member in communication with the shank passageway when the handle is secured to the shank, a piston member slidably carried in the paste compartment, an elongated hollow piston rod carried by the piston and extending toward the second end of the handle member, a drive knob member rotatably carried by the second end of the handle member, an elongated rotary drive rod secured to the drive knob and having a polygonal shaped cross-section and extending toward the first end of the handle, said rod being loosely receivable within the hollow piston rod, a rotary drive disc having a polygonal shaped aperture therein for slidably receiving the drive rod therethrough and for rotating with said drive rod, said drive disc being threadably disposed within the handle member and engageable with the outer end of the piston rod whereby upon rotation of the drive knob and associated drive rod, the drive disc threadably moves along the interior of the handle toward the first end thereof thereby pushing the piston through the paste compartment forcing the paste into communication with the bristles.

4,277,195

WRITING UTENSIL WITH BUILT-IN STAMP AND STAMP PAD

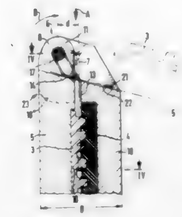
Winfried Huslik, Oberstdorfer Str. 4 1/2, Augsburg, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,353

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1978, 2827530

Int. Cl.³ B43K *29/00*

U.S. Cl. 401—195 **14 Claims**



1. In a writing utensil with a built-up stamp and stamp pad where a support on which the stamp is mounted can be swiveled around a swivel axis which is located on the end of the utensil opposite the writing end and transverse to the longitudinal axis of the utensil, said swiveling occurring between a retracted position which essentially is parallel with the longitudinal axis and in which the stamp is in contact with the stamp pad, and a swing-out position, the improvement comprising the swivel being formed by the end of a non-swiveling portion of the writing utensil, the stamp pad being arranged on the non-swiveling portion of the writing utensil adjacent the swivel, and the support with the stamp on its inside being pivotal by at least 180°.

4,277,196

FIXING DEVICE FOR SECURING ANY PART TO A HOLDING MEMBER SUCH AS A PANEL BY INSERTING SAID FIXING DEVICE INTO A HOLE OF STANDARD SHAPE FORMED IN SAID PANEL

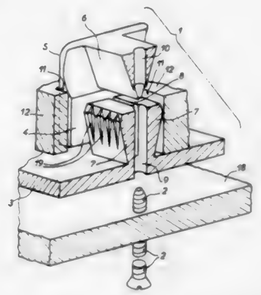
Henri Morel, Maule, France, assignor to ITW de France, Beauchamp, France

Filed Nov. 21, 1979, Ser. No. 96,592

Claims priority, application France, Nov. 30, 1978, 78 33799

Int. Cl.³ F16B *2/14*

U.S. Cl. 403—3 **6 Claims**



3. A one piece plastic fastener adapted to be secured in a complimentary apertured support including a head having a central bore therethrough, and engaging and overlying said apertured support, two leg means extending integrally from said head and separated by slot means including a continuation of said bore, rectilinear wedge means initially positioned in line

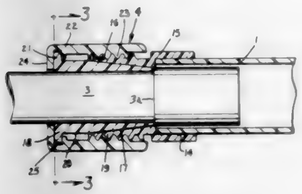
with but remote from said slot means at a position remote from said head, deformable means integrally interconnecting said wedge means to said head, actuation means extending through said head bore and said slot means to engage said wedge means and facilitate movement of said wedge means into said slot means by bending said deformable means and thereby spread said leg means into engagement with the walls of said support aperture.

4,277,197

TELESCOPING TOOL AND COUPLING MEANS THEREFOR

Allen H. Bingham, Lithonia, Ga., assignor to Kearney-National, Inc., Atlanta, Ga.

Filed Jan. 14, 1980, Ser. No. 111,658
Int. Cl.³ F16B 7/10
U.S. Cl. 403—104 2 Claims



1. A coupling for frictionally connecting a pair of telescopically related tubes said coupling comprising an externally threaded sleeve secured to and forming an extension of one end of the outer one of said telescopically related tubes and having an outwardly tapered interior surface of the configuration of a truncated cone, a tubular wedge disposed about the inner one of said telescopically related tubes and within a part of said sleeve, said wedge having an outer surface at least a part of which is tapered and of complementary configuration to said interior surface of said sleeve and having an outwardly projecting coupling element, an internally threaded cap sleeve in threaded engagement with said sleeve and having a part in engagement with one end of said wedge for urging said wedge into tight frictional contact between the inner one of said telescopically related tubes and said sleeve so as effectively to interlock said telescopically related tubes in coordination with tightening of said cap sleeve, a recess formed in said cap sleeve and receiving said outwardly projecting coupling element whereby said wedge is moved out of tight frictional contact with said sleeve and with the inner one of said telescopically related tubes in coordination with loosening of said cap sleeve, and a closure cap secured to the outer one of said telescopically related tubes at the other end thereof, the inner one of said telescopically related tubes being somewhat longer than the outer one of said telescopically related tubes so that the inner end of the externally threaded sleeve which is secured to the inner longer one of said telescopically related tubes is spaced somewhat from the outer end of the internally threaded cap sleeve which is associated with the outer larger one of said telescopically related tubes so as to prevent pinching the finger or hand of the operator during a collapsing operation of said tubes.

4,277,198

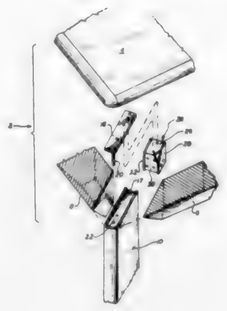
FURNITURE JOINT CONSTRUCTION

Robert P. Beckman, Burlington, Iowa, assignor to Litton Business Systems, Inc., Burlington, Iowa

Filed Jan. 7, 1979, Ser. No. 46,265
Int. Cl.³ F16B 12/46; F16D 1/00; F16M 11/16
U.S. Cl. 403—231 10 Claims

1. In an article of furniture comprising a table, desk, or the like, a furniture joint construction comprising a plurality of furniture members of said article of furniture adapted to be secured together and brace means for securing said members together:

said brace means comprising a base member and a plurality of plate-like members secured to and extending away from said base member;



said base member and said plate-like members each respectively being secured to a different one of said furniture members;

dowel means extending into one of said furniture members; and

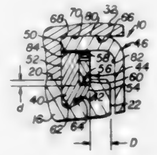
a plate securing said brace means and said dowel means together, with said dowel means mounted to said plate.

4,277,199

KEEPER ASSEMBLY

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00187, § 371 Date Mar. 23, 1979, § 102(e) Date Mar. 23, 1979, PCT Pub. No. WO80/02059, PCT Pub. Date Oct. 2, 1980
This PCT application filed Mar. 23, 1979, Ser. No. 83,998
Int. Cl.³ F16B 21/16
U.S. Cl. 403—317 8 Claims



1. In a keeper assembly (10) of the type including a first member (16) having a central axis (18) and an annular groove (42) opening on an outer cylindrical surface (20), and a second member (32) having a force transmitting surface (68), the improvement comprising:

a plurality of arcuate keeper segments (40) positionable in the groove (42) and being of a construction sufficient for transferring force from the force transmitting surface (68) of the second member (32) into the first member (16), each segment (40) having an axially outwardly opening side seat (56) having an axially outwardly facing surface (58) and an arcuate radially outwardly facing uninterrupted cylindrical surface (60); and

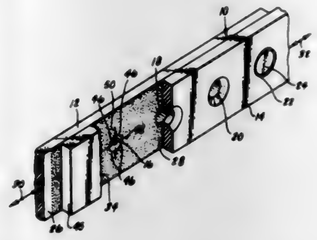
retaining means (44) releasably connected to the side seats (56) for holding the arcuate keeper segments (40) positively in the groove (42), the side seats (56) being of a construction sufficient for substantially solely axially receiving the retaining means (44).

4,277,200

STRUCTURE TO RETARD FRETTING AND METHOD OF MANUFACTURE

Eugene R. Speakman, Fullerton, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Sep. 13, 1979, Ser. No. 75,520
Int. Cl.³ B25G 3/00; F16D 1/00; F16G 11/00; B25G 3/36
U.S. Cl. 403—408 7 Claims



1. A structure constructed to reduce fretting fatigue including:

a first member being a shim having first and second opposite surfaces thereon, said first surface having a tetrafluoroethylene coating thereon;

a second member having a first surface thereon in contact with said tetrafluoroethylene coating of said first surface of said first member;

a third member having a first surface which faces toward said first surface of said second member and is held in contact with said second surface of said first member; and

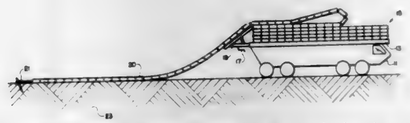
fastener means to hold said first, second, and third members in contact whereby loads are transmitted between said first and third members with reduced fretting levels at said first surfaces thereof.

4,277,201

TRANSPORTABLE ROADWAY AND MEANS FOR DEPLOYING THE SAME

William R. Abell, Annandale, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 25, 1980, Ser. No. 115,311
Int. Cl.³ E01C 9/08, 19/52
U.S. Cl. 404—35 11 Claims



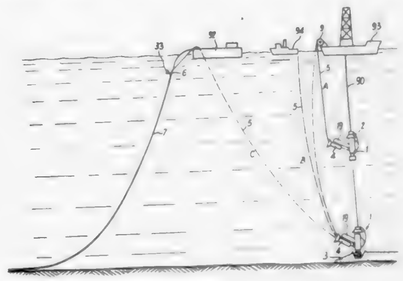
1. A transportable roadway comprising an articulated array of planks arranged edge to edge with the length of each plank comprising the width of the deployed roadway, each plank having a tongue on one edge thereof and a mating groove on the other edge thereof, said roadway comprising a plurality of sections, each section comprising a plurality of said edge to edge planks, each of said planks being attached or bonded on one broad side thereof to a flexible fabric or membrane with the tongues and grooves of each plank engaging the tongues and grooves of adjacent planks, adjacent sections of said roadway being connected to each other by means of hinges connecting the planks at each end of said sections to the corresponding planks at the end of each adjoining section, said hinges being on the side of said planks opposite from said flexible fabric, whereby said roadway may be folded layer upon layer on the bed of a transporter/launcher vehicle having a bed length equal to approximately one half of the length of each section of said roadway and whereby said roadway may be quickly and easily deployed either from the rear of said vehicle or from the front thereof over the cab of said vehicle.

4,277,202

POSITIONING OF THE END OF AN UNDERWATER FLOWLINE

Denis G. Archambaud, Paris, and Rene M. Dermy, Evry, both of France, assignors to Compagnie Francaise des Petroles, Paris, France

Filed May 2, 1979, Ser. No. 35,179
Claims priority, applications France, May 12, 1978, 78 14242
Int. Cl.³ E21B 43/01; F16L 1/00
U.S. Cl. 405—169 29 Claims



1. A process for positioning and locking the end of an underwater flow line bundle in a predetermined site on a seabed base, comprising the steps of:

(a) connecting one end of a hauling cable to the end of the flow line bundle,

(b) guiding the other end of the cable through a connecting sheath freely pivotally mounted in both azimuth and elevation to an apparatus releasably mounted on said base, and around a pulley mounted on said apparatus and freely pivotable in azimuth,

(c) drawing said other end of the cable toward the water surface to draw said end of the flow line bundle into the sheath, said sheath pivotally assuming an orientation during said drawing to minimize the bending deformation of the flow line bundle,

(d) locking the end of the bundle in the sheath,

(e) displacing said sheath into said site, and

(f) locking said sheath to the base at said site.

4,277,203

SOIL STABILIZATION MATERIALS AND METHODS

Russell Reed, Jr., Ridgecrest, Calif.; Kenneth L. Moore, Silver Springs, Md., and Gary W. Meyers, Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 10, 1980, Ser. No. 139,077
Int. Cl.³ E02D 3/12
U.S. Cl. 405—264 5 Claims

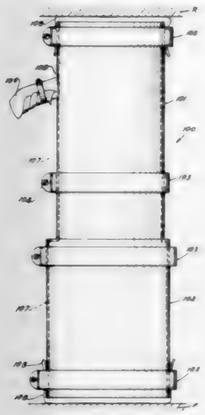
1. In a method for stabilizing soil wherein a liquid is applied to the soil surface and allowed to polymerize to form an elastomeric resin which bonds the soil particles together to form a composite structure the improvement residing in utilizing as said liquid a mixture of dimer diisocyanate and a derivative of dimer diamine wherein the amine groups have been reacted with a ketone to form ketimine groups.

4,277,204

EXCAVATION ROOF SUPPORT AND METHOD OF INSTALLING THE SAME

Manfred Koppers, Duisburg; Karlheinz Bohnes, Bochum, both of Fed. Rep. of Germany, and Harry J. Fitzgerald, Pittsburgh, Pa., assignors to Bochumer Eisenhütte Heintzmann GmbH & Co., Bochum, Fed. Rep. of Germany

Filed Sep. 13, 1979, Ser. No. 74,998
Int. Cl.³ E21D *15/00*
U.S. Cl. 405—288 **16 Claims**



1. A method of supporting an overburden, particularly a roof of an underground excavation such as a mine, comprising the steps of providing a hollow tubular prop casing having at least one section of self-supporting sheet material and which is circumferentially incomplete and has a longitudinally extending slit; overlapping marginal portions of said sheet material which bound said slit, to an extent requisite for obtaining a desired diameter of said section; arresting the overlapped portions in their overlapped condition; erecting the prop casing; installing in the prop casing a fabric bag extending lengthwise of the casing; and filling the fabric bag with a hardenable substance in flowable condition so that under the influence of the entering substance and shaped by the casing, the bag and its contents form a column which, upon hardening of the substance, is by itself able to support the roof.

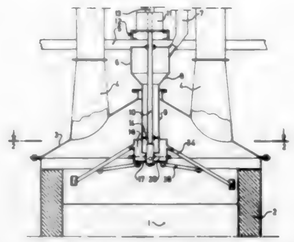
4,277,205

APPARATUS FOR DISTRIBUTION OF SOLID PARTICLES

Georges Meunier, Fontaines par Chagny, France, assignor to Saint Gobain Industries, Neuilly-sur-Seine, France

Filed Jun. 19, 1979, Ser. No. 50,053
Claims priority, application France, Jun. 19, 1978, 78 18291
Int. Cl.³ B65G *53/18*
U.S. Cl. 406—123 **28 Claims**

1. An apparatus for distributing solid particulate matter which comprises a generally vertical tubular conduit for receiving the particulate matter, rotary particulate matter distributing means positioned at the lower portion of said generally vertical tubular conduit and having a vat, said vat being open at the top and having at least one fluidization grate positioned in its lower portion, said generally vertical tubular conduit opening into said vat at a location above said fluidization grate so as to permit directing the particulate matter onto said fluidization grate, gas feed conduit means positioned generally coaxially of said rotary distributing means and opening at a location under said at least one fluidization grate to fluidize the particulate matter directed to said fluidization grate, and a plurality of distribution conduits connected to upper peripheral portions of said vat, each of said distribution conduits being connected thereto at substantially the same height, said generally vertical tubular conduit opening into said vat at a location below the locations of connection of said distribution conduits to said vat to thereby permit formation of a fluidized bed of said particulate matter above the level of the lower opening of said generally vertical tubular conduit thereby



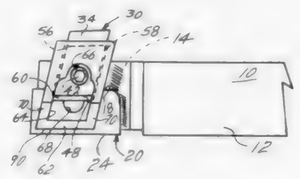
preventing gas exchanges above said fluidized bed between the atmospheres inside and outside of said generally vertical tubular conduit, said distribution conduits extending generally radially outwardly from said vat and being adapted to receive and distribute particulate matter overflowing from said fluidization grate as said rotary distributing means rotates.

4,277,206

ADJUSTABLE CHIP BREAKER FOR A CUTTING TOOL

Edward W. Hilton, 830 N., Centralia, Wash. 98531

Filed Nov. 29, 1979, Ser. No. 98,674
Int. Cl.³ B23B *27/22*
U.S. Cl. 407—3 **8 Claims**



1. A chip breaker for a cutting tool, said chip breaker comprising;
   a. a yoke having a base, a first arm and a second arm;
   b. in an end view said yoke presenting the configuration of a U-member;
   c. said first arm having a first adjusting means to assist in positioning said yoke;
   d. a breaking member;
   e. means to permit said breaking member and said first arm to move relative to each other;
   f. said second arm having a second adjusting means to assist in positioning said yoke.

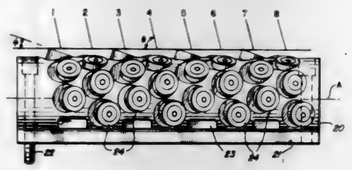
5. A combination of a cutting tool and a chip breaker:
   a. said cutting tool comprising:
      1. a shank;
      2. a head portion; and,
      3. a cutting bit positioned on said head portion;
   b. said chip breaker comprising:
      4. a yoke having a base, a first arm and a second arm;
      5. in an end view said yoke presenting the configuration of a U-member;
      6. said first arm having a first adjusting means to assist in positioning said yoke on said cutting tool juxtapositioned to said cutting bit;
      7. a breaking member;
      8. means to permit said breaking member and said first arm to move relative to each other;
      9. said second arm having a second adjusting means to assist in positioning said yoke on second cutting tool.

4,277,207

HELICAL BROACHING TOOL FOR CURVED SURFACES

Sylvester E. Proulx, Windsor, Canada, assignor to J.P. Tool Ltd., Ontario, Canada

Continuation-in-part of Ser. No. 867,292, Jan. 5, 1978. This application May 18, 1979, Ser. No. 40,377
Int. Cl.³ B26D *1/12*
U.S. Cl. 407—15 **14 Claims**



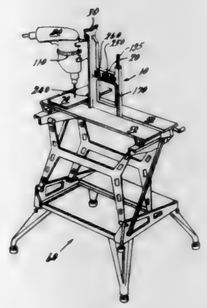
1. A broaching tool comprising an elongated tool body having an arcuate face of at least 45°, a plurality of recesses formed in said arcuate face, each said recess having a flat bottom face inclined inwardly and rearwardly within 1°–15° of coincidence with the longitudinal axis of the body and an arcuate abutment wall perpendicular to and rearwardly surrounding said flat bottom face, said recesses being arranged in a helical path of generally increasing diameter in a rearward direction about said tool body arcuate face from the front end of said body to the rear end thereof to form a series of spaced helical rows with the recesses of each row being staggered circumferentially with respect to the recesses of the next adjacent row whereby the paths of successive recesses partially overlap, cylindrical cutter discs mounted in said recesses whereby the plane of said cutter discs lies parallel to the flat bottom face of said recesses, each disc having an end face providing a cutting edge disposed about the periphery of the end face and being rotatably indexable about its longitudinal axis to bring successive cutting portions into cutting position and said helical paths arranged such that the spacing between adjacent recesses within said helical paths is less than the spacing between adjacent helical paths.

4,277,208

TOOL GUIDE

Ronald A. Jackson, Brockville, and John Maruscak, Athens, both of Canada, assignors to Black & Decker Inc., Newark, Del.

Filed Aug. 6, 1979, Ser. No. 64,016
Int. Cl.³ B23B *45/14, 49/00*
U.S. Cl. 408—14 **12 Claims**



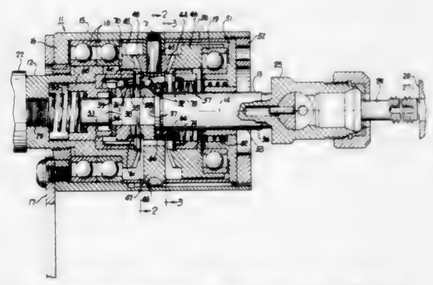
1. In a tool guide for supporting a portable power tool having a longitudinal slideway and a tool holder slidably engaged with slideway for securing a portable power tool to said tool guide; the improvement comprising a depth stop slidably engageable with said slideway and comprising first and second flexible leg portions having formed at the free-ends thereof a plurality of teeth adapted to engage complementary teeth formed along said slideway and disengagement means connected to said first and second leg portions for disengaging the teeth on said leg portions from the teeth in said slideway, said first and second leg portions projecting inwardly toward each other in a first longitudinal direction relative to said slideway such that said depth stop can be moved along said slideway in said first direction without utilizing said disengagement means but cannot be moved in the opposite direction along said slideway without utilizing said disengagement means.

4,277,209

THREADING ATTACHMENT

Milton L. Benjamin, Moreland Hills, and Wilbur N. Miles, Chagrin Falls, both of Ohio, assignors to Erickson Tool Company, Solon, Ohio

Filed Dec. 3, 1979, Ser. No. 99,936
Int. Cl.³ B23Q *5/22*; F16D *11/04*; B21K *1/56*
U.S. Cl. 408—139 **12 Claims**



1. A threading attachment, comprising in combination,
   an outer case,
   input and output members coaxially journalled relative to each other in said case,
   a clutch having drive and driven clutch elements and connected between said input and output members,
   one of said clutch elements having a plurality of substantially axially parallel abutment shoulders,
   the other of said clutch elements having substantially hemispherical non-rotating lateral projections adapted to rotationally engage said shoulders for a dog clutch engaged condition,
   said clutch elements being relatively longitudinally movable apart to establish a clutch disengaged condition, and
   spring means relatively urging said clutch elements longitudinally toward engagement, whereby a threading tool rotated by said output member will thread a workpiece until the clutch is disengaged.

4,277,210

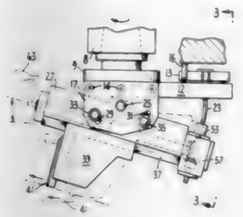
ADJUSTABLE ANGLE STAR FEED MACHINING SLIDE

John T. Murray, San Jose, Calif., assignor to United Centrifugal Pumps, San Jose, Calif.

Filed Oct. 12, 1979, Ser. No. 84,090
Int. Cl.³ B23C *3/02*; B23B *3/00, 51/00*
U.S. Cl. 409—191 **2 Claims**

1. In a metal cutting machine, said machine having a rotating spindle supporting a tool holding slide wherein a star wheel contacts a trip pin on said machine tool on each rotation of said spindle and advances a cutting tool along said slide, the improvement comprising:

a. a pair of downwardly extending parallel spaced plates attached to said spindle,
b. a slide assembly, mounted between said plates, said slide assembly being pivitably mounted on said plates,



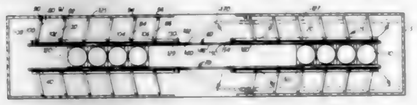
c. a plurality of arcuate slots in said plates with machine screws extending through said slots and into said slots whereby said machine screws can be tightened to hold said slide assembly at a desired angle.

4,277,211

MANUALLY OPERATED ADJUSTABLE RETAINER

James J. Van Gompel, Fremont, Ind., assignor to Brammall, Inc., Angola, Ind.

Filed May 3, 1979, Ser. No. 35,701
Int. Cl.³ B61D *45/00*
U.S. Cl. 410—47 **10 Claims**



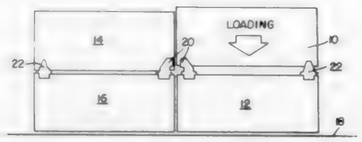
4. A retaining mechanism suited to simultaneously retain cargo of two different widths within a cargo carrying vehicle comprising:
a first, second, third and fourth means for retaining;
a first and a second means for linking;
each of said means for retaining includes a plurality of elongated retaining members each member of which has a first and a second end, and an elongated connecting member with a means for locking affixed thereto;
each said retaining member is pivotably connected at a said first end to said elongated connecting member, and
said second end of each said retaining member is pivotably attachable to a selected surface of the cargo carrying vehicle such that each of said retaining members is oriented parallel to each of said other retaining member whereby said elongated connecting member may be moved laterally with respect to the cargo;
each of said first, second, third and fourth means for retaining is affixable to a selected surface of the cargo vehicle by pivotably attaching each of said second ends to said members of said plurality to the selected surface of the cargo vehicle with said first and second means for retaining being positioned adjacent one another on a first side of the cargo and said third and fourth means for retaining being positioned adjacent one another on a second side of the cargo;
first and second linking means each having a first and a second end with a first and a second pivot point spaced therebetween such that said first and said second ends of said first linking means are receivable by said elongated connecting member of said first and second means for retaining and lockable thereto; and,
said first and said second ends of said second linking means are receivable by said elongated connecting member of said third and fourth means for retaining and lockable thereto.

4,277,212

CONNECTOR INTERCONNECTING FREIGHT DEVICES

Albert H. Rosaia, North Patchogue, N.Y., assignor to Peck & Hale, Inc., West Sayville, N.Y.

Filed Mar. 16, 1979, Ser. No. 21,424
Int. Cl.³ B65D *21/02, 25/20*; B65J *1/22*
U.S. Cl. 410—78 **29 Claims**



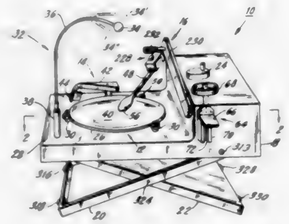
1. A connector to secure a member to a base support disposed vertically therebelow, said member having at least one web portion defining an opening which communicates with an inner recess, comprising:
(a) a base;
(b) a post extending from said base and being dimensioned and configured for removable entry into said opening;
(c) means carried by said post to provide vertical restraint to said when said post is positioned to extend into the opening of the web portion and the member is restrained from movement in at least one horizontal direction, and for removal of said vertical restraint when said horizontal restraint is eliminated; and
(d) means on said base for attaching said base to said base support.

4,277,213

SELF-FEEDING DEVICE FOR HANDICAPPED PERSONS

William H. Morewood, Pennington, N.J., assignor to Winsford Products, Inc., Pennington, N.J.

Filed Jul. 18, 1979, Ser. No. 58,724
Int. Cl.³ A47G *21/08*
U.S. Cl. 414—9 **21 Claims**



1. A self-feeding device for automatically lifting food off the eating surface of a plate to an eating position located above said plate, said device comprising:
(A) means for supporting a plate having an eating surface;
(B) pusher means including a food pushing surface, said pusher means being capable of moving said food pushing surface along a predetermined path which traverses a portion of said eating surface of said plate in such a manner that food located on said eating surface of said plate along said predetermined path is moved by said pushing surface, said path being generally arcuate as viewed in a first plane parallel to said eating surface and generally polygonal as viewed in a second plane orthogonal to said first plane;

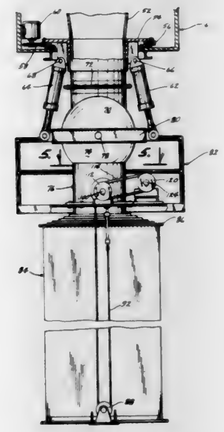
(C) spoon support means capable of moving a spoon between a lower position in which food moved by said pushing surface is moved onto said spoon and an upper position in which food moved on said spoon by said pushing surface is located at said eating position; and
(D) human actuable control means operable in a first mode wherein said control means causes said pusher means to move said pusher surface along said predetermined path such that food located on eating surface is moved on to said spoon and causes said spoon support means to move said spoon from said lower to said upper position after said food is moved on to said spoon responsive to the selective actuation of said control means by an operator of said self-feeding device.

4,277,214

BARGE LOADING DEVICE

Howard C. Mahle, Minnetonka, and Kenneth L. Wesenberg, Roseville, both of Minn., assignors to Nott Company, Minneapolis, Minn.

Filed Dec. 11, 1979, Ser. No. 102,404
Int. Cl.³ B65G *67/60*
U.S. Cl. 414—139 **12 Claims**



1. A barge loading device comprising,
a support tower,
a boom means rotatably mounted on said support tower, about a vertical axis, and extending outwardly therefrom,
a vertically disposed spout extending downwardly from the outer end of said boom means,
conveyor means on said support tower and said boom means for conveying material to the upper end of said spout,
first means for rotatably moving said boom means relative to said support tower,
second means for tilting said spout to either side of its normally disposed vertical position,
and third means for rotating said spout about its longitudinal axis.

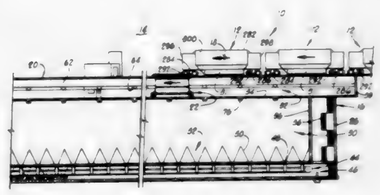
4,277,215

ARTICULATE MATERIAL TRANSFER SYSTEM

Weldon K. Johnson, Boise, Id., assignor to Kerr-McGee Coal Corporation, Oklahoma City, Okla.

Filed Oct. 4, 1979, Ser. No. 81,887
Int. Cl.³ B65G *65/32*; B61D *7/30*
U.S. Cl. 414—292 **39 Claims**

1. An unloading system for transferring particulate material from a moving vehicle having a storage bin to an underground storage assembly while substantially protecting the particulate material from the surrounding outside environment, said apparatus comprising:
an underground storage assembly having at least a first chamber and an upper second chamber, the first and upper second chambers being separated by a first partition wall, the first partition wall having at least one opening therein providing communication between the first and upper second chambers;
sealing means operatively disposed in the opening of the partition wall, the sealing means having a closed first position to substantially close the opening in the partition wall and an open second position to allow communication between the upper second chamber and the first chamber;
traversing means having a flow channel therein, the traversing means being movably disposed within the upper second chamber, the traversing means being operatively engagable with the vehicle to establish communication between the vehicle storage bin and the flow channel, and



the traversing means being operatively engagable with portions of the sealing means to position the sealing means in the open second position to establish communication between the first chamber and the flow channel, and the traversing means being operatively engagable with portions of the sealing means to position the sealing means in the closed first position to interrupt communication between the flow channel and the first chamber, the traversing means being engagable with the vehicle and being movable with the vehicle and the traversing means engaging portions of the sealing means to position the engaged portions of the sealing means in the second open position to establish communication between the vehicle storage bin and the first chamber via the flow channel while the traversing means is moving with the vehicle, the traversing means engaging portions of the sealing means to position the engaged portions of the sealing means in the closed first position after the traversing means has moved over such portions of the sealing means.

4,277,216

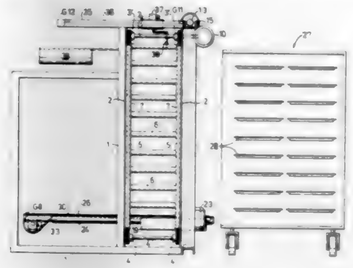
TRANSPORT ARRANGEMENT FOR TRAYS AND THE LIKE

Gunnar V. Lindberg, Box 137, 162 12 Vällingby, Sweden

Filed Mar. 28, 1979, Ser. No. 24,687
Claims priority, application Sweden, Apr. 3, 1978, 7803738
Int. Cl.³ B65G *1/00, 65/00*
U.S. Cl. 414—331 **3 Claims**

1. An arrangement for transferring trays and the like in one direction or the other between a trolley and a conveying path via a vertical conveyor located in a stand, the vertical conveyor comprising two pairs of endless vertical transport means, such as chains, with equally spaced horizontal carrying strips, the pairs of endless vertical transport means, between themselves defining a space, in which trays or the like can be supported by the carrying strips, a horizontal conveyor with a mechanically driven conveying belt and made with its length sufficient to carry two of the trays or the like along the conveying belt, means carrying said horizontal conveyor and enabling it to be shifted horizontally as well as vertically within said space, and a displacement member being located at the upper portion of the vertical conveyor, said horizontal conveyor carrying means being characterized in that: two

laterally spaced apart vertical beams are secured on said stand, exterior of the vertical conveyor, with the spaced apart distance between beams being greater than the width of the horizontal conveyor; a cross-beam mounted horizontally between and with its ends engaging and guided for vertical movement in associated said vertical beams; a pair of vertical screw spindles engaging and in threaded drive engagement with said cross beam, each screw spindle secured to an associated said



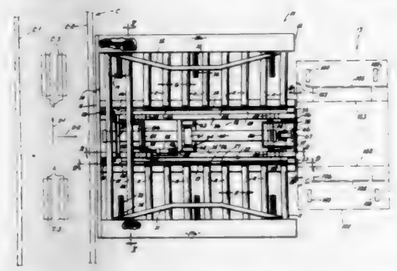
vertical beam; means to concurrently rotatably drive said screw spindles to vertically move said cross-beam; two horizontal carrying bars rigid on and disposed transversely of said cross-beam providing support means for the horizontal conveyor; an electric drive motor supported on said cross-beam; and drive means mounted on said carrying bars driven by said electric drive motor, engaging said horizontal conveyor and adapted to move said horizontal conveyor along its horizontal shift path.

4,277,217

LOAD TRANSFER APPARATUS

James S. Miller; Frank M. Lauyans, and Edwin T. Hilger, all of Louisville, Ky., assignors to A-T-O Inc., Willoughby, Ohio

Filed Jun. 7, 1979, Ser. No. 46,938
Int. Cl.³ B65G *25/08*
U.S. Cl. 414—395 **32 Claims**



1. Transfer apparatus for transferring loads in a direction between a load conveyor and a load transporting cart, said load conveyor including means for moving said load toward said transfer apparatus, and said load having a predetermined dimension parallel to said direction, said transfer apparatus including:

an elongated frame and conveying means supported therein for receiving loads at least from said conveyor, and for conveying loads between said conveyor and said cart,

said cart being movable into a position adjacent said elongated frame,

said conveying means defining two separate, spaced apart, conveying paths extending in substantially the same said direction, loads on said transfer apparatus spanning portions of said two paths, and

load shifting means disposed between said conveying paths and having forward and rearward rotatable dogs thereon, said rearward dog being selectively engageable with loads for shifting loads from said transfer apparatus off said conveying means in said same direction onto said cart, said forward dog being extensible outwardly from said elongated frame a distance at least equal to said predetermined dimension and into an area coincidental with that occupied by said cart for selectively and positively pushing loads onto said cart and pulling loads from said cart.

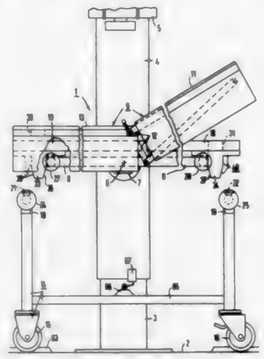
32. Apparatus as in claim 1 further including means independent of said loads for selectively and positively engaging said dogs and rotating them beneath said conveying path.

4,277,218

EXAMINATION INSTALLATION

Gerd Schweichler, Dormitz, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,382
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812074
Int. Cl.³ G01N *23/00*
U.S. Cl. 414—401 **10 Claims**



1. An examination installation comprising a table support, a transport carrier, a patient positioning table that can be transferred from the transport carrier onto the table support, couplings for the connection of the patient positioning table with the transport carrier and with the table support that adjust themselves upon the relative approach of the patient positioning table to the transport carrier and to the table support, each of the couplings (30, 31, 32, 85) comprising at least two latches (45 through 48, 68, 69) movable into a respective latching position, means whereby one of said latches in its latching position couples the patient positioning table (9, 70) to the transport carrier (14, 71) and can be pressed out of the latching position and into a non-engaged position by means of the table support (4, 7, 8, 72), and means whereby the other of said latches in its latching position couples the patient positining table to the table support and can be pressed out of its latching position into a non-engaged position by means of the transport carrier.

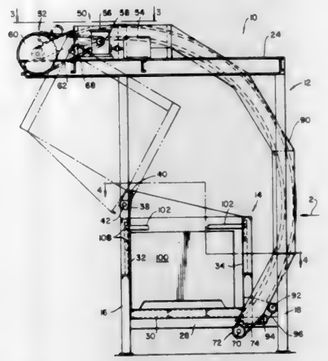
4,277,219

FRONT LOADING, SIDE UNLOADING DUMPER

Charles F. Rivers, 15318 Warwick, Detroit, Mich. 48223

Filed Aug. 15, 1978, Ser. No. 933,713
Int. Cl.³ B65G *65/34*
U.S. Cl. 414—421 **4 Claims**

1. A dumper comprising a support frame, a cradle, generally horizontal pivot means mounting said cradle on said frame for movement from a loading position to an unloading position, drive means for moving said cradle from said loading position to said unloading position, said drive means comprising a flexible chain, and means connecting the ends of said chain to said cradle comprising a pair of sprockets being rigidly secured to said cradle and each having teeth around its periphery, the axis of each of said pair of sprockets being parallel to the axis of said pivot means, one end portion of said chain being en-



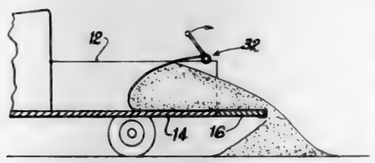
gaged with the teeth at least part way around one of said pair of sprockets and rigidly secured thereto, the other end portion of said chain being engaged with the teeth at least part way around the other of said pair of sprockets and rigidly secured thereto.

4,277,220

COMBINED LOAD COVER AND UNLOADER

Frederick R. Wiley, 343 E. Lexington Ave. Suite 108, El Cajon, Calif. 92020

Filed Jan. 31, 1980, Ser. No. 117,099
Int. Cl.³ B60P *1/00, 7/04*
U.S. Cl. 414—539 **4 Claims**



1. A combined load cover and unloader for use in handling amorphous material and the like in a hauling vehicle having a box opening to the rear of the vehicle, said combined load cover and unloader comprising:

a. an elongated apron of flexible, thin gauge material, with high tensile strength and of a width approximating the width of the box, one end of said apron having means for securement across the rear end portion of the box, and said apron having a length greater than twice that of said box to extend underneath a load of material in said box, around the forward end of such load and back over the load as a cover therefor;

b. a winch roller of a length substantially equal to the width of said apron, removably and operably mountable across the upper rear end portion of the box; and

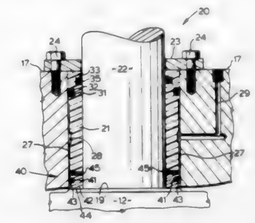
c. said winch roller having means for manual operation thereof and having means for easily removably attaching a second end of the apron to said winch roller.

4,277,221

WICKET GATE BEARING SEAL

Feodor Kanger, Montreal, Canada, assignor to Dominion Engineering Works Limited, Lachine, Canada

Continuation-in-part of Ser. No. 785,504, Apr. 7, 1977, abandoned. This application Aug. 21, 1978, Ser. No. 934,708
Claims priority, application Canada, Apr. 22, 1976, 250770
Int. Cl.³ F03B *3/18*
U.S. Cl. 415—160 **8 Claims**



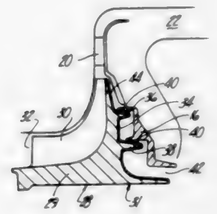
1. In a turbo-hydraulic machine having a plurality of wicket gates, each pivotally mounted on a top stem extending from a recess in a headcover of the machine and a bottom stem extending into a recess within a bottom ring of the machine, each stem having bearing bushing means thereon positioning said stem in centred relation in a said recess, a stem seal located at least partially within said recess interposed between the bushing means and extending outwardly from the recess in sealing relation with an end surface of the gate, said seal having an O-ring seal extending thereabout in sealing relation with the recess; seal means at the end of said bushing means remote from said gate to provide a sealing between the stem and the bushing and between the bushing and the wall of the recess; and liquid supply passage means adjacent said bushing means to provide flushing liquid to the recess for passage between said stem and said stem seal, to flow outwardly therefrom between said stem seal and said gate end surface, to substantially preclude the ingress of working fluid from within the machine into said recess.

4,277,222

TURBINE ENGINE COMPRESSOR

Dennis E. Barbeau, Temperance, Mich., assignor to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Jan. 11, 1979, Ser. No. 2,659
Int. Cl.³ F01D *5/08*
U.S. Cl. 415—177 **6 Claims**



1. In a turbine engine having a support housing and a shaft means rotatably mounted within the support housing, an air compressor means connected to the shaft means for axially compressing air from an inlet end to an outlet end, said compressor means including an impeller at its outlet end for directing the compressed air through a passageway and into a combustion chamber, said impeller having an annular and substan-

tially radially extending back face at the outlet end of the compressor, the improvement which comprises:

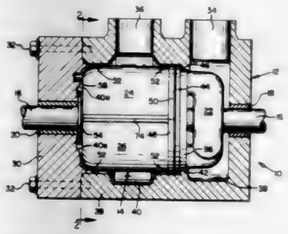
a coating of thermal insulating material on the back face of the impeller whereby said thermal insulating coating thermally insulates the impeller from hot leakage gases along the back face of the impeller.

4,277,223

CASE CONSTRUCTION FOR MULTI-STAGE PUMP

Richard M. Nelson, Portland, Oreg., assignor to Guy F. Atkinson Company, Portland, Oreg.

Filed Nov. 29, 1979, Ser. No. 98,473
Int. Cl.³ F04D 29/42
U.S. Cl. 415—199.1 7 Claims



1. A pump apparatus comprising:

an outer case assembly having an inlet port leading to a suction chamber at a forward end of the pump and an outlet port leading to a discharge chamber at a rearward end of the pump;

a shaft sealably extending through walls of the outer case assembly;

an inner case assembly disposed within the outer case assembly and having a plurality of pump stages which are axially spaced along the shaft to povide fluid communication between the suction chamber and the discharge chamber, the pump stages including a first stage and one or more booster stages, each pump stage being characterized by an impeller secured for rotation with the shaft, the inner case assembly having an interior network of hydraulic passages for fluid communication between successive pump stages, the inner case assembly being characterized by a forward case section of a unitary annular construction housing the first pump stage and two rearward case sections housing the booster pump stages, an axial joint being defined between adjacent surfaces of the rearward case sections, a radial joint being defined between a surface of the forward case section and adjacent surfaces of the assembled rearward case sections, the forward case section being surrounded at least in part by the suction chamber, the rearward case sections being surrounded at least in part by the discharge chamber; and

locating means provided on an interior wall of the outer case assembly for preventing the forward movement of the forward case section beyond a predetermined position within the outer case;

whereby the fluid pressure within the discharge chamber during operation of the pump applies a radially acting force to the rearward case sections to form a fluid-tight seal at the axial joint and applies an axial force acting in the forward direction against the rearward case sections to form a fluid-tight seal at the radial joint.

4,277,224

FAN ATTACHMENT FOR ROCKING CHAIRS

Roy L. Lundgren, 1360 NE. 48th Ct., Fort Lauderdale, Fla. 33334

Filed Dec. 10, 1979, Ser. No. 102,133
Int. Cl.³ A47C 7/74
U.S. Cl. 416—58 13 Claims



1. A fan drive by the oscillatory motion of a rocking chair comprising:

a means for attaching the fan to a moving part of the rocking chair,

a vertical rod hingedly connected to the attaching means,

an endless belt connected to the top of the vertical rod at a point along the belt,

means for holding the belt in a vertically elongated loop, the belt being free to move in response to oscillatory motion of the vertical rod,

a horizontal shaft located near the upper end of the belt loop,

a set of gears in engagement with the belt and the horizontal shaft, and arranged to transform oscillatory motion of the belt into continuous rotation of the shaft,

fan blades mounted on the shaft,

a tube covering the rod and toothed belt,

a supporting base at the lower end of the tube, whereby the fan can stand vertically upright, and

a casing covering the gear set.

4,277,225

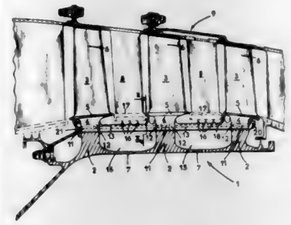
ROTOR FOR JET ENGINES

Claude Dubois, Vert St Denis, and Jean M. Surdi, Melun, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Sep. 20, 1978, Ser. No. 944,205
Claims priority, application France, Sep. 23, 1977, 77 29240
Int. Cl.³ F01D 5/06
U.S. Cl. 416—198 A 7 Claims

1. An axial type rotor for jet engines, particularly for compressors, having an alternating stack of disks and of annular elements having external diameters smaller than those of said disks so as to provide spaces for stationary blades, each stage of said rotor comprising a number of identical blades, characterized in that in each disk two series, each comprising uniformly distributed axial grooves equal in number to that of the blades, are arranged, the grooves of a first series being aligned from one end of the rotor to the other, with the grooves of said first series having a configuration adapted to receive a root of a blade, the grooves of the second series, interspaced between those of said first series and having a configuration adapted to receive identical projections of braces equal in number to that of the blades, said projections insuring the axial immobilization

of the blades by means of a platform carried by said braces and abutting said blades, the configuration of the grooves of the first and second series being such that said grooves cooperate



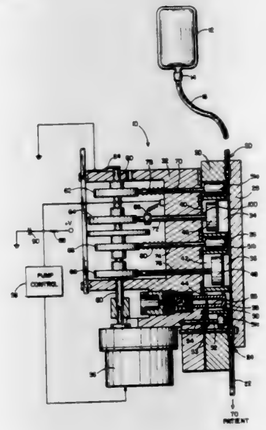
respectively with the roots of the blades and the projections of the braces, to assure a joint impeding of all radial motion with respect to the rotor of the blades and of the braces.

4,277,226

IV PUMP WITH EMPTY SUPPLY RESERVOIR AND OCCLUSION DETECTOR

G. Kent Archibald, White Bear Lake, Minn., assignor to Avi, Inc., St. Paul, Minn.

Continuation-in-part of Ser. No. 19,223, Mar. 9, 1979, Pat. No. 4,236,880. This application Sep. 21, 1979, Ser. No. 77,677
Int. Cl.³ A61M 5/14; F04B 49/02
U.S. Cl. 417—38 13 Claims



1. A volumetric infusion pump for pumping fluid from a reservoir to a patient, the volumetric infusion pump comprising:

a pump inlet for connection to the reservoir;

a pump outlet for connection to the patient;

a first pumping chamber connected between the pump inlet and the pump outlet, the first pumping chamber having a first cylinder, a first piston reciprocally movable in the first cylinder, and first flexible rolling diaphragm means between the first cylinder and the first piston, the first pumping chamber having a variable volume depending upon the position of the first piston in the first cylinder;

first cam means;

first cam follower means connected to the first piston and positioned to follow the first cam means;

first valve means between the pump inlet and the first pumping chamber for permitting fluid flow from the pump inlet to the first pumping chamber during a fill portion of each pumping cycle in which the first cam means permits movement of the first piston in a direction which increases the volume of the first pumping chamber;

second valve means between the first pumping chamber and the pump outlet for preventing fluid flow from the first pumping chamber to the pump outlet during the fill portion of each pumping cycle; and

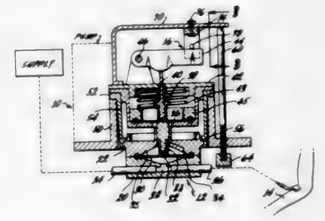
means for sensing contact between the first cam means and the first cam follower means and providing a signal indicative of whether the first cam follower means is in contact with the first cam means during the fill portion of each pumping cycle, a failure of the first cam follower means to maintain contact with the first cam means during the fill portion being indicative of a lack of fluid being supplied from the reservoir to the pump inlet.

4,277,227

APPARATUS FOR CONVERTING A PUMP TO A CONTROLLER

Jon A. Jenkins, Rancho Santa Fe, Calif., assignor to Imed Corporation, San Diego, Calif.

Filed Jul. 2, 1979, Ser. No. 53,981
Int. Cl.³ B04B 21/00; A61M 5/20
U.S. Cl. 417—63 40 Claims



1. In combination for use with a pump for introducing fluid to a receiver and for controlling the pressure of the fluid introduced by the pump to the receiver, the pump having detent means,

an output line for passing the fluid from the pump to the receiver,

a resilient diaphragm connected in the output line for constraint in accordance with the pressure of the fluid in the line,

means movable with the diaphragm for obtaining the production of an output indication when the pressure of the fluid in the output line has reached a particular level,

a housing holding the output line, the diaphragm and the movable means, and

detent means on the housing for co-operating with the detent means on the pump for releasably holding the housing in a particular fixed relationship with the pump.

4,277,228

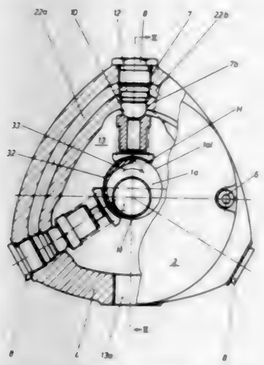
RADIAL PISTON PUMP

Jörg Dantlgraber, Lohr/Main, Fed. Rep. of Germany, assignor to G. L. Rexroth GmbH, Lohr/Main, Fed. Rep. of Germany

Filed May 16, 1977, Ser. No. 796,879
Claims priority, application Fed. Rep. of Germany, May 18, 1976, 2622010
Int. Cl.³ F04B 1/04
U.S. Cl. 417—273 9 Claims

1. A radial piston pump, comprising a housing bounding a suction chamber therein; at least one valve piston unit mounted in said housing, said unit including pressure valve means defining together with said housing a pressure chamber, a movable piston provided with a radial inner passage which operatively communicates said suction chamber with said pressure chamber, said piston having a head section located adjacent to said pressure valve means and bounding a first radial portion of said

passage and a bottom section spaced from said head section and bounding a second radial portion of said passage, and suction valve means located in said first radial portion of said passage which is bounded by said head section of said piston and operative for opening and closing said passage so as to respectively establish and interrupt said communication between said suction chamber and said pressure chamber; and a rotatable eccentric in said housing having an axis of rotation and a contact surface which is in surface contact with said bottom section of said piston so as to displace the latter relative to said axis of said eccentric and to tilt said piston around a further axis which is spaced from said axis of said eccentric, said contact surface of said eccentric being provided with a circumferential groove operatively communicating said second radial portion of said radial passage of said piston with said suction chamber so that a working fluid flows from said cir-



cumferential groove of said eccentric radially directed into said radial inner passage of said piston, first into said second radial section of said radial passage which is bounded by said bottom portion of said piston, and then into said first radial section of said radial passage which is bounded by said head portion of said piston and thereby to said suction valve means, said contact surface of said eccentric having upper and lower reversal points and being rotatable in a predetermined direction so that a suction stroke of said piston is performed when the latter moves in contact with said contact surface of said eccentric between said upper and said lower reversal points thereof, said groove extending in a circumferential direction of said eccentric to a length equal to half of the length of said contact surface in said circumferential direction and between said upper and said lower reversal points so that said passage of said piston communicates with said groove of said eccentric during said suction stroke of the latter.

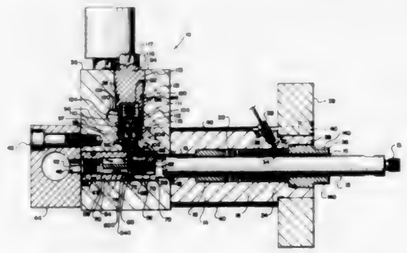
4,277,229

HIGH PRESSURE FLUID DELIVERY SYSTEM

Amos Pacht, Houston, Tex., assignor to Partek Corporation of Houston, Houston, Tex.

Filed Nov. 21, 1977, Ser. No. 853,113
Int. Cl.³ F04B *39/14, 21/02*
U.S. Cl. 417—454 **17 Claims**

1. A reciprocating pump capable of delivering fluid at relatively high pressures in excess of 5000 psi, comprising:
a fluid cylinder block having formed therein:
at least one bore extending through the block from a first side thereof to a second side of the fluid cylinder block; and
including a valve chamber therein;
a stuffing box with a bore therethrough, mounted against said first side of the fluid cylinder block;
a plunger, for reciprocation in the bore in said stuffing box to a position adjacent said interior end of the passage, the bore and the passage each having a cross section only sufficiently larger than that of the plunger to allow said reciprocation;
a first sealing ring assembly for sealing between the stuffing box and the fluid cylinder block and having an inner diameter only sufficiently larger than that of the plunger to allow said reciprocation through the ring assembly, whereby the area sealed by said first ring assembly is minimized with respect to the plunger size;
suction valve means, seated in the cylindrical chamber against the wall thereof and extending the length thereof, for permitting fluid to flow through said valve means, when open, from said second side of the fluid cylinder block to an outlet portion of the valve means located toward said passage, said valve means and said chamber having conforming cross sections slightly larger than the cross section of the passage, whereby the valve means can seat against the interior end of the chamber;
a second sealing ring assembly around the outer surface of the suction valve means for sealing between the valve means and the wall of the chamber, whereby the cross section of the valve means sealed by said second assembly is relatively small, being no greater than said conforming cross section of the valve means;
a suction manifold mounted against said second side of the fluid cylinder block, engaging the suction valve means and in fluid communication therewith;
said fluid cylinder block further having formed therein:
a generally cylindrical opening extending from an outer wall of the fluid cylinder block and forming a perpen-



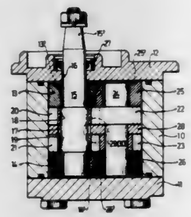
dicular junction with the cylindrical chamber, said opening having a first portion near said chamber and a second portion farther from the chamber than said first portion and adjacent thereto, and
a discharge port adjacent said cylindrical opening and communicating therewith;
a discharge valve means seated in said cylindrical opening against the wall thereof, at least partly in the second section thereof, and having an intake immediately adjacent said outlet portion of the suction valve means, for permitting, when open, fluid to flow from the suction valve means into said intake and through the discharge valve means toward said discharge port, the cross section of said first portion of the cylindrical opening being smaller than the cross sections of said second portion and of the discharge valve means conforming thereto, whereby the discharge valve means seats against the end of said second portion nearest said chamber, said discharge valve means and said second portion having relatively small, conforming cross sections, no greater than the cross section of the cylindrical chamber, but not so small as to present to the plunger a substantial fluid resistance in said discharge valve means;
a third sealing ring assembly around the outer surface of the discharge valve means for sealing between the discharge valve means and the wall of the cylindrical opening, whereby the cross section of the discharge valve means sealed by said third assembly is relatively small, being no greater than said conforming cross section of said discharge valve means in said portion;
a generally cylindrical discharge valve cover, fastened into said cylindrical opening and bearing against the discharge valve means and having a cavity therein providing fluid communication between the discharge valve means and said discharge port, said cover and the cylindrical opening having conforming cross sections slightly larger, at most, than said cross section of the discharge valve means in said second portion of the cylindrical opening;
a fourth sealing ring assembly around the outer surface of the valve cover for sealing between said cover and the wall of the cylindrical opening, whereby the cross section of the valve cover sealed by said fourth assembly is relatively small, being no greater than said conforming cross section of the valve cover,
whereby, in operation, the reciprocation of said plunger draws fluid from the suction manifold through the suction valve means and drives the fluid through the discharge valve means and said cover cavity into the discharge port at relatively high pressures, with resulting high fluid pressures inside the pump being applied, over the cross sections of said sealing assemblies, to elements of the pump associated therewith, said relatively small sizes of the sealed cross sections causing the forces applied to said elements to be comparatively small, and
whereby the close arrangement of the plunger and said valve means, along with the relatively small sizes of the valve means cause a comparatively small amount of fluid to be enclosed by the valve means and plunger, providing thereby improved efficiency of the pump.

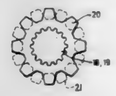
4,277,230

GEAR MACHINE OPERABLE AS PUMP OR MOTOR WITH AXIALLY SPACED AND CIRCUMFERENTIALLY OFFSET PAIR OF GEARS

Karl-Heinz Müller, Vaihingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 863,301, Dec. 22, 1977, abandoned. This application Nov. 15, 1979, Ser. No. 94,661
Claims priority, application Fed. Rep. of Germany, Feb. 9, 1977, 2705249
Int. Cl.³ F04C *2/18, 11/00, 15/04;* **F16D** *1/06*
U.S. Cl. 418—131 **9 Claims**





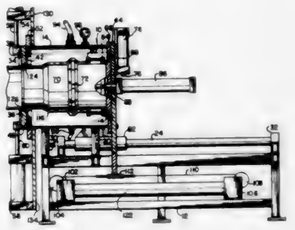
1. In a gear machine operable as pump or motor, a combination comprising housing means including a central portion having an inner surface and opposite open ends and a pair of covers closing said opposite ends and defining with said inner surface of said central portion a chamber; a first shaft mounted for rotation about its axis in said chamber and projecting with an end portion thereof through an opening in one of said covers to the outside of said housing means; a pair of first external gears arranged spaced from each other in axial direction and offset in circumferential direction from each other about portions of said first shaft, each of said first gears being provided with an internal gearing having uniformly spaced teeth and said portions of said first shaft being provided with an external gearing meshing with said internal gearing of said pair of first gears to connect said pair of first gears to said shaft for rotation therewith, the number of gear teeth of said internal gearings on said first pair of gears being an even multiple of the number of external gear teeth thereon, the number of teeth of the internal gearings enabling the offset to be one half or other than one half the pitch of the external gear teeth; a second shaft arranged parallel to said first shaft in said housing means; and a pair of second external gears on said second shaft respectively in direct driving engagement with said first pair of external gears.

4,277,231

METHOD AND APPARATUS FOR PRESSURE FORMING PIPE BELLS

John H. Gordon, 855 Brandywine Rd., Downingtown, Pa. 19335

Filed Sep. 21, 1979, Ser. No. 77,657
Int. Cl.³ B29D *23/00*
U.S. Cl. 425—387.1 **16 Claims**



1. In a pipe belling apparatus, the combination of
a pressure chamber means comprising enclosing sidewalls, a front and a back to define an enclosed pressure chamber;
a bell shaping mandrel means mounted in the back and positioned in the pressure chamber to form a bell shape upon one end of a length of pipe;
a front opening in the pressure chamber means front of size suitable to receive the said pipe end therein;
separable front plate means movable relative to the front from an open position to receive the pipe end to a closed position to close the front opening about the end of the pipe;
pressure inlet means in the pressure chamber means to pressurize the pressure chamber whereby the end of the pipe is pressed against the mandrel means; and
sealing means about the front opening to seal the front opening against the loss of pressure about the pipe end during the pipe belling operation.

4,277,232

APPARATUS FOR FORMING A MOLDED SQUEEZE TOY INCLUDING WHISTLE

Anthony P. Taluba, Lebanon, N.J., and Paul A. Taluba, Morrisville, N.Y.

Division of Ser. No. 727,473, Sep. 28, 1976, abandoned. This application Jul. 10, 1978, Ser. No. 923,446
Int. Cl.³ B29C *17/07*
U.S. Cl. 425—525 **1 Claim**

1. In combination with a molding system for blow-molding an air-filled squeeze body, wherein said system comprises means for producing a parison of thermoplastic material, a pair of primary molds shaped to clutch said parison between them to impose thereon a preselected shape, and means comprising a blow-pin operative in synchronism with the closing of said primary molds for inflating said parison, and upon the opening

of said primary molds for blowing the molded squeeze body free from said molds and said blow-pin; the improvement comprising:

means for forming a whistle cavity which is integral with said squeeze body simultaneously with the formation of said squeeze body, said means comprising a pair of insert halves interposed into said primary molds;

each of said insert-halves comprising a semi-annular protuberance substantially closed at one end by a semi-annular closure disposed substantially concentric with the principal axis between said insert-halves for forming said whistle cavity;



said semi-annular closures constructed to form between them in closed position of said primary molds a central blow-hole to accommodate the incursion of said blow-pin into a position coinciding with the center of said whistle cavity, and said blow-pin constructed to form at least one whistle hole in said position upon the freeing of said squeeze body from said blow-pin;

wherein each of said protuberances is semi-cylindrical in form and substantially closed at its inner end by a semi-annular disk, said protuberances being constructed to form between them a cylindrical whistle cavity directed inwardly from the external surface of said body, the blow-hole formed by said insert means being disposed in axial relation to said cylindrical whistle cavity.

4,277,233

TURNTABLE APPARATUS FOR MOLDING TIRES

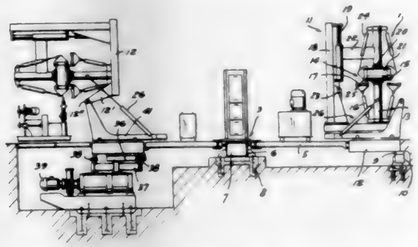
Erich Grünner, Voltagasse 43/23/1, 1210 Wien, Austria

Filed Jul. 17, 1978, Ser. No. 925,462

Claims priority, application Austria, Jul. 15, 1977, 5149/77

Int. Cl.³ B29F 1/00; B29C 6/00; B29H 5/02

U.S. Cl. 425—588 **8 Claims**



1. In an apparatus for molding tires, a combination comprising a plurality of multi-part molds each comprising an inner split core configurated in accordance with the inner surface of the tire to be molded and a plurality of outer mold parts arranged about the core and configurated in accordance with the outer surface of the tire; a plurality of mold carriers, one for each of said multi-part molds; a first turntable having a vertical axis and carrying on an upper surface thereof said plurality of mold carriers circumferentially displaced from each other; a second turntable adjacent said first turntable and having an axis parallel to that of said first turntable and being provided at its upper surface with a first plurality of depositing stations circumferentially displaced from each other and equal in number to the plurality of multi-part molds for receiving said cores and a second plurality of depositing stations circumferentially displaced from each other and equal in number to said first plurality of depositing stations for receiving finished tires with the cores retained therein; and means for turning said first and said second turntables synchronously and stepwise about their axes.

4,277,234

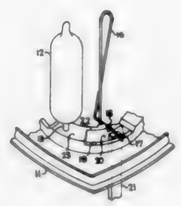
PERCUSSIVE FLASHCUBE ARRANGEMENT

Norman C. Fulmer, South Euclid, and Norman E. Kewley, Pepper Pike, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 700,139, Jun. 28, 1976, abandoned. This application Aug. 17, 1979, Ser. No. 67,266

Int. Cl.³ F21K 5/00

U.S. Cl. 431—361 **9 Claims**



1. A photoflash unit comprising a base member having a top surface lying substantially in a horizontal plane, a flash lamp having a percussive-type ignition member extending above said top surface of the base member, a striker member for striking said ignition member, a cocking member extending above said top surface a given distance and normally holding said striker member in a cocked position on said top surface and away from said ignition member, and a trigger opening through said base member beneath said cocked position of the striker member and comprising a side toward said ignition member and a pair of opposed sides extending away from said ignition member, said cocking member being at or near a first side of said pair of sides of the trigger opening, wherein the improvement comprises a rib extending above said top surface of the base member and partly along the second one of said pair of sides of the trigger opening, said rib having a substantially flat upper surface substantially the same height as said cocking member and extending between said ignition member and a point at or near said second side of the trigger opening which point is substantially laterally across said trigger opening from said cocking member, said striker member extending substantially laterally across and beyond said trigger opening so that when said striker member is released over the top of the said cocking member it will be guided by said rib in a substantially straight path to a point on said ignition member that is higher than said cocked position of the striker member and substantially the same height as that of said cocking member, said base member being devoid of a striker member guiding rib along said first of the pair of sides.

4,277,235

PROCESS OF PRODUCING COOL AGGLOMERATED SOLIDS

Johann Hasimayr, Linz, Austria, assignor to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Jan. 11, 1980, Ser. No. 111,213

Claims priority, application Austria, Jan. 30, 1979, 660/79

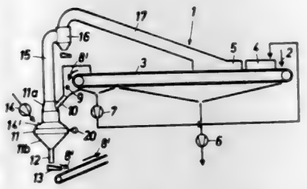
Int. Cl.³ F26B 9/12; F27D 15/02

U.S. Cl. 432—18 **26 Claims**

26. Dividing means for dividing pieces of agglomerated solids having first and second thickness portions which have different properties, comprising

a wedge-shaped hammer having a transverse striking edge and longitudinally reciprocable to move said striking edge in a predetermined plane, and

guide means for presenting said pieces and for presenting them to said striking edges to be struck thereby with such an orientation that said first thickness portion is on one predetermined side and said second thickness portion is on the other side of said plane.



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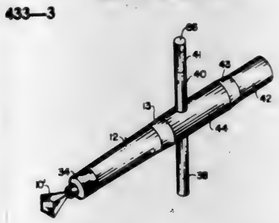
ORTHODONTIC INSTRUMENT FOR APPLYING ELASTIC LIGATURES

Craven H. Kurz, 10921 Wilshire Blvd., Suite 512, Los Angeles, Calif. 90024

Filed Mar. 31, 1980, Ser. No. 135,976

Int. Cl.³ A61C 3/00

U.S. Cl. 433—3 **3 Claims**



1. An orthodontic instrument for applying annular elastic ligatures to brackets on the teeth of a patient for retaining the arch wire on the brackets, said instrument comprising: an elongated housing having a forward end and a rear end; an elongated dispenser member received in said housing for reciprocal movement therein along the longitudinal axis thereof, said dispenser member having an enlarged end at the forward end of the housing; a plurality of annular elastic ligatures stacked adjacent to one another on said dispenser member in coaxial relationship therewith, a pusher member slidably mounted in said housing in coaxial relationship with said dispenser member and in position to engage the rear ligature of the stack on said dispenser member; resilient means biasing the pusher member toward the forward end of the housing to move the forward ligature of the stack partially along the enlarged end of the dispenser member; manually operable release means engaging the forward ligature to force the forward ligature along the enlarged end of the dispenser member and over the extremity thereof, said release means comprising a plurality of push rods extending axially along the dispenser member under the ligature therein toward said enlarged end of said dispenser member, and manually operable means for moving said dispenser member axially with respect to the housing towards the rear end of the housing to cause said push rods to move forward relative to said dispenser member so as to move the forward ligature along the enlarged end of the dispenser and over the extremity thereof.

4,277,237

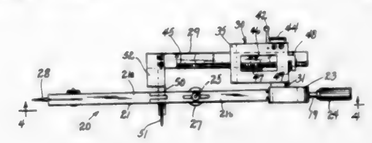
JAW IMPLANT MEASURING INSTRUMENT

Saul R. Derner, 3226 College Dr., Columbus, Ga. 31907

Filed Apr. 21, 1980, Ser. No. 141,765

Int. Cl.³ A61C 19/04

U.S. Cl. 433—72 **10 Claims**



1. A dental instrument for measuring a patient's jaw to determine the size, configuration and implantation locations of an implantable denture-supporting frame of the type comprising a generally U-shaped body with a pair of rear end tips and a depending front support lug, said instrument comprising a pair of main legs, pivot joint-defining means pivotally connecting the front ends of the main legs, means for adjusting the angle between said main legs, said main legs having pointed marking elements on their free ends, guide sleeve means having an elongated guide channel, means rigidly supportingly connecting said guide sleeve means to said joint-defining means with said guide channel extending substantially in the median plane perpendicular to the plane of the main legs and extending in an axial direction parallel to the plane of the main legs, a longitudinally adjustable slide bar mounted in said guide channel, a depending arm secured to said slide bar and extending between said main legs substantially in said median plane, and marking point means on the bottom end of said depending arm.

4,277,238

ARTIFICIAL BONELIKE GRAFT AND METHOD FOR PRODUCING THE SAME

Masataka Katagiri, 2398-2 Sakai, Niigata-shi, Niigata, Japan

Filed Mar. 30, 1979, Ser. No. 25,730

Claims priority, application Japan, Sep. 28, 1978, 53/120618

Int. Cl.³ A01N 35/02

U.S. Cl. 433—201 **13 Claims**



1. A method for producing an artificial bonelike graft comprising the steps of:

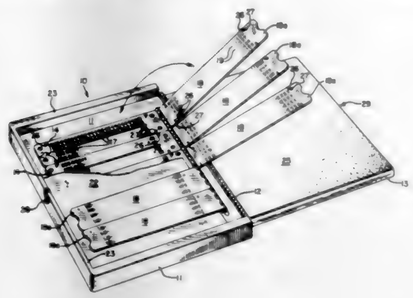
(a) fixing a bonelike piece taken from a mammal with a fixing agent selected from the group consisting of formalin, alcohol and paraformaldehyde,

(b) decalcifying said piece with a decalcifying agent comprising an acid selected from the group consisting of formic acid, hydrochloric acid, nitric acid, oxalic acid and citric acid,

(c) defatting said piece with alcohol, and

(d) freeze drying said piece.

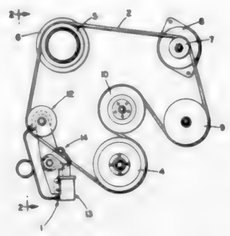
4,277,239
SLATE FOR WRITING BRAILLE
Mariano R. Genis, 7a. Calle 3-37 Zona 1, Guatemala City, Guatemala
Filed May 14, 1979, Ser. No. 38,487
Int. Cl.³ G09B 21/02
U.S. Cl. 434—115 5 Claims



1. A slate for writing Braille comprising:
a frame forming a generally rectangular opening;
a cell plate affixed to the frame extending across the opening and having a plurality of rows of cell openings for forming Braille characters with a stylus;
a receiving plate having indentations therein and hinged to one end of the cell plate such that a sheet of Braille writing paper can be interposed between the cell plate and the receiving plate, said cell plate and receiving plate having aligned pins and holes for piercing and locking the paper in place when the receiving plate is closed against the cell plate;
said frame having an upstanding wall means extending about three sides and forming a paper locating and confining space closely fitted to the size of the paper so that the operator can by touch easily insert the paper properly within the confining space against the edges formed by the wall means then close the receiving plate over the paper to lock it in place; and
a back plate movably attached to the frame and sized to fit against the receiving plate within the space formed by the wall means, and having a thickness greater than the height of the wall means sufficient to extend outwardly beyond said wall means when the receiving plate is pressed firmly against the paper when the writing slate is placed on a table with the back plate at the bottom.

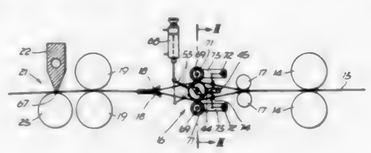
4,277,240
HYDRAULIC BELT TENSIONER CONSTRUCTION
Derald H. Kraft, Canton, Ohio, assignor to Dyneer Corporation, Canton, Ohio
Filed Aug. 6, 1979, Ser. No. 63,828
Int. Cl.³ F16H 7/12
U.S. Cl. 474—110 18 Claims

1. A hydraulic belt tensioner construction for automatically tensioning an endless belt of the drive system for vehicle accessories, said tensioner construction including:
(a) piston means adapted to be mounted in a fixed position with respect to the endless drive belt;
(b) lever means operatively engaged and moved by the piston means toward the drive belt;
(c) tensioning assembly means mounted on the lever means and adapted to be moved into engagement with the drive belt upon movement of the lever means by the piston means; and
(d) the tensioning assembly means including pump means, reservoir means for containing a supply of hydraulic fluid, and pulley means drivingly engaged with the pump



means, said pulley means being adapted to be engaged with and driven by the drive belt for actuating the pump means to supply hdyraulic fluid from the reservoir means under pressure to the piston means to actuate the piston means and move the lever means to bring the tensioning assembly means into engagement with the drive belt.

4,277,241
APPARATUS FOR FORMING BAGS OF THERMOPLASTIC MATERIAL
Ehrhart Schulze, Fellbach, Fed. Rep. of Germany, assignor to Karl Heinz Stiegler, Stuttgart, Fed. Rep. of Germany
Filed May 24, 1979, Ser. No. 42,160
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824989
Int. Cl.³ B31B 1/14
U.S. Cl. 493—196 10 Claims



1. An apparatus for the manufacture of plastic bags from half-tubes of at least one double-ply thermoplastic sheeting the two plies of which bear closure strips on facing inner edges thereof, to form a snap-fastener-like closure of the bag openings comprising:
a welding station having a welding ledge which extends transversely to the direction of conveyance separating the individual bags from the sheeting by separation-welding;
conveying means for feeding said sheeting to said welding station;
a milling device upstream of said welding station;
means for intermittently engaging said milling device with said closure strips whereby facing portions of said closure strips are milled off; and
means for aligning said thermoplastic sheeting with said welding ledge at the location where said closure strips have been milled off.

4,277,242
IONIZING RADIATION TREATMENT OF WOOL TEXTILES WITH RESIN FOR SHRINK RESISTANCE
Keith G. McLaren, Beverly Hills, Australia, assignor to Australian Atomic Energy Commision, Coogee, Australia
Filed Jan. 18, 1978, Ser. No. 870,299
Claims priority, application Australia, Feb. 7, 1977, PC8975
Int. Cl.³ D06M 3/02, 13/00
U.S. Cl. 8—128 A 10 Claims

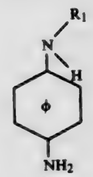
1. A method of treating a wool textile for imparting shrink-resistant properties which comprises applying to the textile a dose of up to 10 megarads of ionizing radiation and a thin application of a textile polymer resin, said textile polymer resin being a resin which in vitro is not cured by said dose of up to 10 megarads of ionizing radiation but is cured by said ionizing radiation in the presence of the wool fibers of the wool textile whereby a shrink-resistant property is imparted to the wool textile, the process being carried out substantially at ambient temperature.

4,277,243
PROCESS FOR PRODUCING DURABLE-PRESS COTTON FABRICS WITH IMPROVED BALANCES OF TEXTILE PROPERTIES
Stanley P. Rowland, New Orleans, La., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Filed Jan. 31, 1979, Ser. No. 8,130
Int. Cl.³ D06M 13/38, 13/40
U.S. Cl. 8—183 6 Claims

1. A process for imparting to cotton and other cellulosic fabrics an improved balance in physical porperties in the production of durable-press fabrics, the process comprising:
(a) impregnating the cellulosic textile with an aqueous solution containing a difunctional or polyfunctional N-methylol reagent, a Bronstead acid or acid-generating catalyst, and a phosphate salt or mixture of salts, and
(b) drying and curing the impregnated textile to obtain a suitable reaction.

4,277,244
DYE COMPOSITIONS FOR KERATINIC FIBERS CONTAINING PARAPHENYLENEDIAMINES
Andree Bugaut, Boulogne, and Patrick Andrillon, Aulnay, both of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France
Continuation of Ser. No. 722,818, Sep. 13, 1976, abandoned. This application Feb. 6, 1979, Ser. No. 9,943
Claims priority, application France, Aug. 20, 1976, 76 25386
Int. Cl.³ C07C 91/06; A61K 7/12
U.S. Cl. 8—410 19 Claims

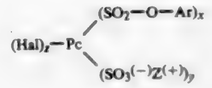
1. A dyeing composition for keratinic fibers comprising an aqueous solution containing a dyeing amount of at least one dye compound having the formula:



in which R_1 is $-(CH_2)_n-OR$, R is methyl or ethyl, n is 2 or 3, or one of the corresponding acid salts.

4,277,245
PROCESS FOR DYEING AND PRINTING CELLULOSE FIBRES
Manfred Groll, Cologne; Werner Kühnel, Leverkusen, and Robert Kuth, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Feb. 22, 1980, Ser. No. 123,866
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909012
Int. Cl.³ D06P 1/14, 3/60
U.S. Cl. 8—532 3 Claims

1. In the dyeing and printing of cellulose fibers alone or admixed with other fibers by swelling said fibers with a water-miscible swelling agent, treating the swollen fibers with a dyestuff, and fixing the dyestuff by heat treatment, the improvement which comprises employing as said dyestuff a compound of the formula



wherein
Pc is the radical of a Cu phthalocyanine, Ni phthalocyanine or Co phthalocyanine molecule,
Ar is a phenyl or naphthyl radical which can be substituted by halogen, C_1–C_{12}-alkyl or C_1–C_4-alkoxy, which can in turn be further substituted by halogen, hydroxyl or C_1–C_4-alkoxy, nitro, acetyl, propionyl, benzoyl, carboxylic acid C_1–C_8-alkyl ester, carboxylic acid phenyl ester, carboxylic acid benzyl ester, C_1–C_4-alkylmercapto, C_1–C_4-alkylsulphinyl, C_1–C_4-alkylsulphonyl, amino-carbonyl or -sulphonyl, mono- or di-alkylamino-carbonyl or -sulphonyl with a total of 1–4 carbon atoms, urea, cyclohexyl or phenyl, it being possible for the last 3 substituents to be in turn substituted by the above-mentioned radicals,
$Z^{(+)}$ is a hydrogen ion, an alkali metal ion or an ammonium ion,
Hal is chlorine or bromine,
x is 2, 3 or 4,
y is 0 or 1,
$x+y \leqq 4$, and
z is 0, 1, 2, 3 or 4.

4,277,246
PROCESS FOR THE DYEING OF CELLULOSE FIBERS WITH REACTIVE DYES ACCORDING TO THE BATCHWISE EXHAUSTION METHOD
Armand Lehnaut, Offenbach am Main; Joachim W. Lehmann, Kelkheim, and Hans-Peter Maier, Sulzbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Continuation of Ser. No. 64,778, Aug. 8, 1979, abandoned. This application Jun. 25, 1980, Ser. No. 163,202
Claims priority, application Fed. Rep. of Germany, Aug. 10, 1978, 2835035
Int. Cl.³ D06P 3/66
U.S. Cl. 8—532 6 Claims

1. In a process for the dyeing of a textile consisting of or containing cellulose fibers, with one or more reactive dyes according to the batchwise exhaustion method, the improvement which comprises dyeing with an aqueous dye liquor containing one or more reactive dyes and at least one neutral electrolyte, the initial pH value of said dye liquor being in the slightly acid range, at a temperature in the range of from 110° to 140° C., without the addition of an alkali or alkali-yielding agent.

4,277,247

PROCESS FOR DYEING PRE-CLEANED CELLULOSE FIBER MATERIAL

Karlheinz Keller, Bettingen, and Lotti Furer, Biel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,270
Claims priority, application Switzerland, Jan. 10, 1979, 217/79
Int. Cl.³ C09B 67/00
U.S. Cl. 8—557 15 Claims

1. A process for dyeing pre-cleaned cellulose fibre material with vat dyes or anionic dyes, which comprises dyeing the cellulose material in the presence of a polypropylene oxide adduct, or a salt thereof, which adduct contains carboxyl groups and has been prepared from a mol ratio of

(a) about 1 mol of an aliphatic diol which has an average molecular weight of not more than 2,600;

(b) about 2 mols of an aliphatic dicarboxylic acid, or its anhydride, having 4 to 10 carbon atoms;

(c) about 1 mol of an adduct of propylene oxide with an aliphatic alcohol which is at least trihydric and has 3 to 10 carbon atoms; and

(d) about 1 to 2 mols of a fatty acid having 8 to 22 carbon atoms.

4,277,248

METHODS FOR THE DETECTION OF LOW LEVEL CONCENTRATIONS OF SULFONAMIDES

Modest Osadca, Passaic, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 22, 1979, Ser. No. 68,820
Int. Cl.³ G01N 33/02, 31/22
U.S. Cl. 23—230 M 6 Claims

1. A method for the determination of low levels of sulfonamides in poultry feeds which comprises.

(a) forming a thin layer of the feed on a filter paper substrate,

(b) placing a filter paper cover over the feed layer,

(c) uniformly wetting the resulting filter paper/feed unit with a spray of a chromogen solution comprising p-dimethylaminocinnamaldehyde in acidified methanol,

(d) applying a uniform pressure to the entire unit surface and

(e) visually observing any wine-red spots which develop on the filter paper cover to determine the presence of a sulfonamide in the poultry feed.

4,277,249

MAMMALIAN SOMATOMEDIN MEASUREMENT

Alan Broughton, Laguna Niguel, Calif., assignor to Nichols Institute, San Pedro, Calif.

Filed Oct. 15, 1979, Ser. No. 84,800
Int. Cl.³ G01N 33/74
U.S. Cl. 23—230 B 7 Claims

1. A method for determining levels of Somatomedin-C in biological fluid which comprises the steps of:

(a) collecting a specimen of biological fluid having an unknown content of Somatomedin-C by absorption on an absorbent medium;

(b) drying the absorbent medium;

(c) eluting the Somatomedin-C activity from the absorbent medium; and

(d) determining the Somatomedin-C activity of the eluate.

3. A method for suppressing exogenous generation of Somatomedin-C in biological fluid specimens, which comprises the steps of:

(a) collecting a fluid specimen having an unknown content of Somatomedin-C;

(b) absorbing the fluid on an absorbent medium;

(c) drying the medium.

4,277,250

METHODS FOR DETECTING AND QUANTIFYING OCCULT BLOOD

Joseph L. Melnick, and Craig Wallis, both of Houston, Tex., assignors to Baylor College of Medicine, Houston, Tex.

Filed Dec. 10, 1979, Ser. No. 101,722
Int. Cl.³ G01N 33/72
U.S. Cl. 23—230 B 19 Claims

1. A method for detecting occult blood in a human specimen which comprises:

(a) acidifying a liquid test sample of the specimen with an organic acid;

(b) separating the test sample into a liquid portion and a solid portion;

(c) passing the acidified liquid portion through an electronegatively charged membrane capable of adsorbing hemoglobin;

(d) thereafter, washing the membrane surface to remove residual test sample liquids;

(e) treating the washed surface with a peroxidase indicator composition suitable for detecting hemoglobin; and

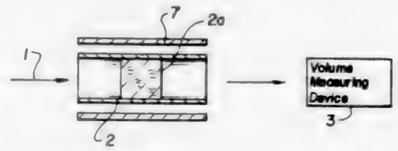
(f) observing the color on the treated membrane surface.

4,277,251

METHOD AND DEVICE FOR DETERMINING THE ALCOHOL CONTENT OF A PERSON'S BREATHING

Kurt Leichnitz, Gross Gronau, Fed. Rep. of Germany, assignor to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 121,888
Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910778
Int. Cl.³ G01N 27/62, 1/22
U.S. Cl. 23—232 R 1 Claim



1. A method of determining the alcohol content of air, exhaled by a person, of the type in which a flow of the exhaled air is passed through a sample tube which has a silica gel therein for retaining the alcohol in the air, comprising cooling the sample tube and silica gel to a temperature of 0° to 5° C., directing exhaled air through the cooled tube and the alcohol retaining silica gel while measuring the air which passes through the sample tube to obtain a predetermined volume, and subsequently heating the sample tube and silica gel to a temperature of 150° to 200° C., and then directing a flushing air therethrough at a temperature of 150° to 200° C.

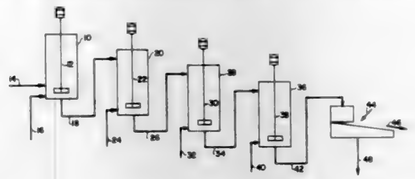
4,277,252

METHOD FOR PRODUCING AGGLOMERATES FROM FINELY DIVIDED CARBONACEOUS SOLIDS

Philip J. Dudt, Scenery Hill, Pa., assignor to Conoco, Inc., Stamford, Conn.

Continuation of Ser. No. 832,259, Sep. 12, 1977, abandoned. This application Apr. 11, 1979, Ser. No. 29,241
Int. Cl.³ B01D 21/01
U.S. Cl. 23—313 R 10 Claims

1. In a method for producing agglomerate particles from an aqueous feed slurry containing from about 10 to about 40 weight percent solids, said solids comprising finely divided carbonaceous solids, clays and gangues by mixing said aqueous slurry containing said solids and oil in a first mixing zone to form a mixture and thereafter further mixing said mixture in at least one other mixing zone thereby forming said agglomerate particles containing said carbonaceous solids and said oil which are thereafter separated from said clays and gangues,



the improvement consisting essentially of admixing an additional quantity of aqueous feed slurry containing said solids with said mixture in at least one of said other mixing zones.

4,277,253

GRANULATING AN AQUEOUS DISPERSION OF AMMONIUM AND POTASSIUM SALTS

Karl H. Walter, Henley South; John D. Johnston, Elizabeth Park, and Dennis Wetherley, Salisbury Park, all of Australia, assignors to Adelaide & Wallaroo Fertilizers Ltd., Adelaide, Australia

Filed Dec. 17, 1979, Ser. No. 104,068
Claims priority, application Australia, Dec. 22, 1978, PD7189
Int. Cl.³ C05G 3/00; C05C 7/02; C05D 11/00
U.S. Cl. 23—313 R 17 Claims

1. A process for the preparation of dry, stable granular material from a salt selected from the group consisting of water-soluble potassium and ammonium salts selected from the group consisting of potassium sulfate, potassium chloride, ammonium sulfate and mixtures thereof, said process comprising the steps of:

(1) crushing the salt, dispersing said crushed salt in an aqueous liquid to produce a dispersion of salt crystals,

(2) subjecting said dispersion of crystals of at least one said salt in an aqueous liquid to the action of a granulating device in the presence of 0.5 to 10% w/w of calcium sulfate hemihydrate and 0.1 to 5% w/w of a hydrophilic surface active agent to effect agglomeration of said crystals, and

(3) drying the resultant agglomerated crystals to produce the dry, stable granular material, said percentages being with respect to said salt.

4,277,254

CONTROL SYSTEM AND APPARATUS FOR PRODUCING COMPATIBLE MIXTURES OF FUEL GASES

Robert C. Hanson, Excelsior, Minn., assignor to Energy Systems, Incorporated, Eden Prairie, Minn.

Filed Feb. 15, 1980, Ser. No. 121,796
Int. Cl.³ F17D 3/01; C10K 3/06
U.S. Cl. 48—180 R 3 Claims

1. An apparatus for mixing at least one stream of fuel gas under pressure in a first conduit with another stream of gas under pressure in a second conduit to create a resulting fuel gas mixture under pressure in a third conduit connected to said first and second conduits, said resulting mixture having a particular desired heating value equivalency, wherein said heating value equivalency is defined as the heating value of a gas divided by the square root of the specific gravity of that gas and where said heating value can be expressed as a function of the specifc gravity plus a constant; said apparatus including a control system comprising, in combination:

A. a first flow-varying means operatively connected to said first conduit for controlling the flow of gas through said first conduit;

B. a second flow-varying means operatively connected to said second conduit for controlling the flow of gas through said second conduit;

C. pressure sensing means operatively connected to said first conduit for developing a first signal representative of the pressure in said first conduit upstream of said first flow-varying means;

D. pressure sensing means operatively connected to said second conduit for developing a second signal representative of the pressure in said second conduit upstream of said second flow-varying means;

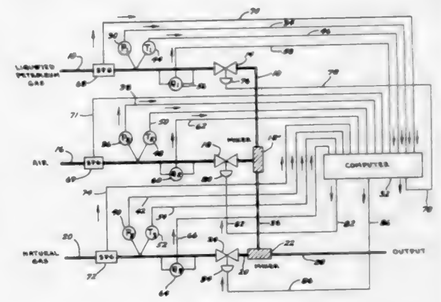
E. temperature sensing means operatively connected to said first conduit for developing a third signal representative of the temperature in said first conduit upstream of said first flow-varying means;

F. temperature sensing means operatively connected to said second conduit for developing a fourth signal representative of the temperature in said second conduit upstream of said second flow-varying means;

G. first fluid flow sensing means operatively connected to said first conduit for developing a fifth signal representative of the rate of flow of gas through said first conduit;

H. second fluid flow sensing means operatively connected to said second conduit for developing a sixth signal representative of the rate of flow of gas through said second conduit;

I. specific gravity sensing means operatively connected to said first conduit for developing a seventh signal representative of the specific gravity of the gas in said first conduit;



J. specific gravity sensing means operatively connected to said second conduit for developing an eighth signal representative of the specific gravity of the gas in said second conduit;

K. first signal computing means for developing a ninth signal representative of a particular desired heating value equivalency;

L. second signal computing means operatively connected for receiving said first, second, third, fourth, fifth, sixth, seventh and eighth signals, said second signal computing means developing a tenth signal representative of the heating value equivalency of the fuel gas mixture flowing in said third conduit;

M. comparator means, operatively connected for receiving said ninth and tenth signals, which compares the particular desired heating value equivalency represented by said ninth signal with the heating value equivalency of the gas flowing in said third conduit as represented by said tenth signal and generates first and second output signals; and

N. a first signal receiving means operatively connected to said comparator means to which said first output signal is transmitted from said comparator means and a second signal receiving means operatively connected to said comparator means to which said second output signal is transmitted from said comparator means, said first signal receiving means connected to said first flow varying means for controlling said first flow-varying means and said second signal receiving means connected to said

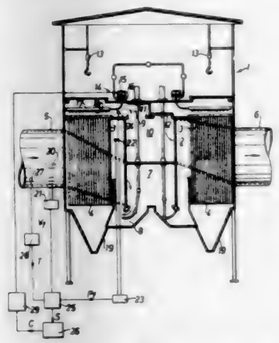
second flow varying means for controlling said second flow-varying means, whereby gas flow in said first and second conduits is varied to maintain the tenth signal equal to the ninth signal.

4,277,255

CLEANING PROCESS CONTROL METHOD FOR TEXTILE BARRIER FILTER MATERIAL

Roland G. Apelgren, Växjö, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

Filed Jan. 23, 1980, Ser. No. 114,951
Claims priority, application Sweden, Dec. 2, 1979, 7901881
Int. Cl.³ B01D 46/04
U.S. Cl. 55—20 8 Claims



1. A method of controlling the cleaning process for the cleaning of the filter material in textile barrier filters where the polluted gas is supplied to a filter chamber via a crude gas inlet and passes through the filter material mounted in the filter chamber and precipitates dust thereon, and is discharged from the filter chamber via a clean gas outlet, and the cleaning process is effected by exposing the filter material to compressed air pulses from a cleaning system controlled by a control system, comprising the steps of measuring the pressure drop p_f over the filter material, measuring the gas flow to determine the filter load v_f, which is the ratio between the gas flow and the filter area, computing the filter resistance S, which is the ratio between p_f and v_f, and comparing S with a nominal value So of filter resistance, and in response to deviation of S from So, emitting a control signal for controlling the operation of the cleaning system on the filter material.

4,277,256

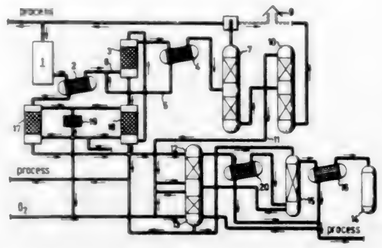
PROCESS FOR THE PURIFICATION OF GASES CONTAINING RADIOACTIVE SUBSTANCES

Hans Healy, Runkel, and Armin Wunderer, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 886,519, Mar. 14, 1978, abandoned. This application Jul. 20, 1979, Ser. No. 59,132
Claims priority, application Fed. Rep. of Germany, Mar. 16, 1977, 2711374
Int. Cl.³ B01D 59/50
U.S. Cl. 55—66 8 Claims

1. A process for purifying radioactive-substance-containing gases obtained in the processing of spent nuclear fuel, said gases comprising water vapor, nitrogen, nitric oxide, a higher nitrogen oxide, and vaporous nitric acid, which comprises

(a) washing said radioactive-substance-containing gases with nitric acid,



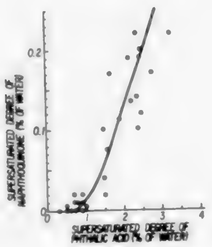
(b) separating the gas mixture obtained by the washing into a fraction containing radioactive substances and nitric oxide and a fraction free thereof, and
(c) separating nitric oxide from the radioactive substances.

4,277,257

PROCESS FOR PREVENTING SCALE DEPOSITION

Ryo Matsuura, Yamato; Katsumi Matsuzaki, and Masao Narita, both of Yokohama, all of Japan, assignors to Kawasaki Kasei Chemicals Ltd., Tokyo, Japan

Filed Nov. 19, 1979, Ser. No. 95,522
Claims priority, application Japan, Feb. 16, 1979, 54-17545
Int. Cl.³ B01D 47/00
U.S. Cl. 55—85 5 Claims



1. In a process for preventing scale deposition in a water washing type collector and pipe line instruments thereof for collecting naphthoquinone and phthalic anhydride in an aqueous slurry from a gas obtained by a catalytic gas phase oxidation of naphthalene, the improvement characterized by adding fine crystals of phthalic acid to the aqueous slurry to decrease supersaturated degrees of phthalic acid and naphthoquinone in the liquid phase.

4,277,258

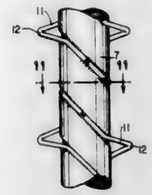
ELECTROSTATIC PRECIPITATOR AND DISCHARGE ELECTRODE THEREFOR

Erik M. Bojsen, Copenhagen, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.

Filed Dec. 7, 1978, Ser. No. 967,513
Claims priority, application United Kingdom, Dec. 9, 1977, 51322/77; Nov. 28, 1978, 42246/78
Int. Cl.³ B03C 3/41
U.S. Cl. 55—152 19 Claims

1. A discharge electrode for ion emission in an electrostatic precipitator which comprises a generally rigid tubular member including at least one channel along the surface thereof, at least one wire member disposed within said at least one channel, said at least one wire member being selectively folded at spaced portions along said generally tubular member to form a

plurality of spaced apart, generally elongated protrusions having blunt ended portions, said protrusions extending outwardly therefrom and generally transverse to the axis of said member, at least one of said protrusions having a free end portion having



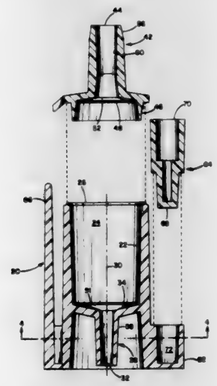
a generally rounded configuration, said protrusions being configured and spaced such that the dispersion of the electrostatic ion emission provided by said member is substantially uniform and substantially from the blunt ended portions of said protrusions.

4,277,259

AIR-SAMPLING CARTRIDGE

David P. Rounbehler, Concord, and Robert S. Potts, Sherborn, both of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Filed Feb. 11, 1980, Ser. No. 120,401
Int. Cl.³ G01N 31/06; B01D 47/00, 53/30
U.S. Cl. 55—270 4 Claims



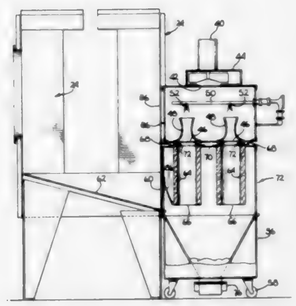
1. Apparatus for carrying an air-pervious packing of adsorbent material, and useful in combination therewith for collecting compounds from an air sample, comprising:
- a cartridge body including a thin, nearly cylindrical wall defining a cavity for receiving a packing of adsorbent material, said body having a first end open for admitting said packing and a hollow elongated outlet opposite said first end and having an outlet port therein;
- a cartridge cap having a hollow elongated inlet at one end thereof with an inlet port therein, said cap being sealably attachable to the first end of said cartridge body to form a cartridge;
- said inlet having an inner surface of a shape similar to the outer surface of said outlet to permit series connection of said cartridge to a second cartridge identical thereto by insertion of the outlet of one of said cartridges into the inlet of the other of said cartridges;
- retainer means in said cartridge body and said cartridge cap for, upon receipt of adsorbent material in said cavity, preventing the passage of adsorbent material through the outlet of said body and, after attachment of said cartridge cap to the body, through the inlet of said cap, said retainer means being porous to the flow of air and selected solvents therethrough; and
- a pair of shipping caps removably attachable to said inlet and said outlet for blocking the inlet port and outlet port at selected times, said caps being storable in a pair of wells formed in said cartridge body outside said nearly cylindrical wall;
- said outlet having an outer diameter appreciably smaller than the outer diameter of said inlet to avoid inadvertent connection of said outlet to a pump for air sampling.

4,277,260

POWDER COLLECTORS

Jesse H. Browning, 4217 Via Pinzon, Palos Verdes Estates, Calif. 90274

Filed Aug. 14, 1979, Ser. No. 66,412
Int. Cl.³ B01D 46/04; B05B 15/04
U.S. Cl. 55—273 27 Claims

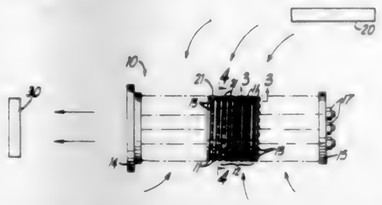


1. A collector comprising:
- a housing defining a first chamber having means for coupling to an exhaust duct, said housing including support structure and having therein at least one velocity stack means disposed adjacent a first chamber intake opening in said housing, said housing also having high pressure means for controllably directing a blast of air through said at least one velocity stack means and out said first chamber intake opening;
- a collector assembly structurally independent of said housing and defining a second chamber having disposed therein at least one filter element which is structurally supported entirely by said collector assembly, said second chamber having a first opening for cooperating with a mating opening in a housing structure containing particulate laden air to be filtered, and at least one second opening adjacent said at least one filter element and cooperatively disposed with respect to said first chamber intake opening, so that air must pass through said at least one filter element to pass through said at least one second opening, said second chamber being mobile so as to be readily moveable with respect to said first chamber; and
- a manually operable means for coupling said collector assembly to said first chamber and simultaneously therewith sealingly engaging said at least one filter element with said at least one first chamber intake opening for communication with said at least one velocity stack means.

4,277,261
REUSABLE HELICAL FILTER FOR HIGH TEMPERATURE GASES

Richard J. Miko, Paramus, N.J., and Daniel H. Shapiro, Roslyn Heights, N.Y., assignors to Edo Corporation, College Point, N.Y.

Filed Mar. 14, 1979, Ser. No. 20,483
Int. Cl.³ B01D 46/24, 46/40
U.S. Cl. 55—278 **8 Claims**

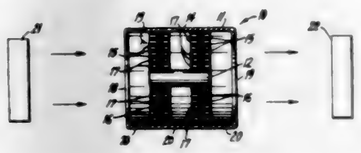


1. A hot gas filter to remove contaminants from a gas stream generated by a burning propellant and having a gas temperature in excess of 4500° F., the filter to be capable of surviving numerous exposures to the hot gas without damage and to be used in a system between the burning propellant and a movable member downstream of the filter to reliably prevent fouling of the downstream member after numerous exposures to the hot gas, said filter comprising: a metal strip wound into a helix with a plurality of turns; a cap at one end of the helix; a flange with a plurality of openings at the other end of the helix; axially extending stud means attached to the cap and flange to axially position and restrain the helix; one side of the helical metal strip having spaced protuberances to establish a spacing between adjacent turns of the helix to define filter gaps; a support structure having walls internal to the helix in contact with the helix at a plurality of portions to maintain the cross-sectional configuration of the helix, said support structure extending the length of the filter and defining a plurality of axial flow passages between the support structure walls and the helix, said flow passages being in communication with the said filter gaps; each flange opening overlapping at least a portion of at least one of the plurality of axial flow passages; and the strip and support structure being comprised of a metal capable of withstanding the high temperature gas without melting.

4,277,262
REUSABLE AXIAL FILTER FOR HIGH TEMPERATURE GASES

Richard J. Miko, Paramus, N.J., and Daniel H. Shapiro, Roslyn Heights, N.Y., assignors to Edo Corporation, College Point, N.Y.

Filed Mar. 14, 1979, Ser. No. 20,484
Int. Cl.³ B01D 46/40
U.S. Cl. 55—278 **7 Claims**

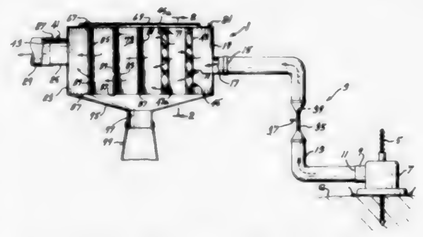


1. A hot gas filter to remove contaminants from a gas stream generated by a burning propellant and having a gas temperature in excess of 4500° F., the filter to be capable of surviving numerous exposures to the hot gas without damage and to be used in a system between the burning propellant and a movable member downstream of the filter to reliably prevent fouling of the downstream member after numerous exposures to the hot gas, said filter comprising: an essentially cylindrical metal casing with entrance and exit ends; a centrally-located metal plug within the casing; at least one flat spiral element formed by a flat metal strip wound about the plug to form a plurality of turns in the spiral, the outer circumference of said spiral being radially positioned and restrained by said casing; one side of the spiral metal strip having spaced protuberances to establish a spacing between adjacent turns of the spiral to define filter gaps; a plurality of metal spacing supports extending axially and across the casing at positions within the casing not occupied by the spiral element, to axially position the spiral element within the casing and support the peripheral shape of the casing; each spacing support being a convoluted strip which contacts the interior surface of the casing at a number of points along the convoluted strip; and the strip and spacing supports being comprised of a metal capable of withstanding the high temperature gas without melting.

4,277,263
AIR AND ROCK PARTICLE SEPARATOR WITH SPIRAL DEFLECTORS

Willard Bergeron, 478 Surprenant St., Drummondville, Quebec, Canada (J2C 4J3)

Filed Mar. 26, 1979, Ser. No. 23,738
Int. Cl.³ B01D 39/10
U.S. Cl. 55—282 **6 Claims**



1. An air borne rock separator for use in separating the heavier rock material from an air stream carrying heavy and light rock material, the separator having a housing defining a generally straight air stream path, an inlet at one end of the housing, an outlet at the other end of the housing, at least one set of spirally twisted deflector bands extending across the air stream path in a plane generally perpendicular to the air stream path, the bands made of material strong enough to normally intercept and deflect the heavier rock material, at least the outer portion of the bands composed of resilient material of sufficient thickness to allow the bands to give slightly when struck by heavier rock material so as to increase their operational life, and including at least one screen mounted in the housing extending across said air stream path downstream from said deflector bands.

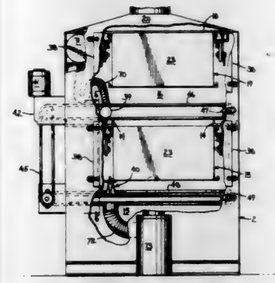
4,277,264
FILTER CLEANING ARRANGEMENT

Kenneth M. Buchholz, Shorewood, Wis., and Henry T. Le Maire, Prairie View, Ill., assignors to Schomann, Inc., Milwaukee, Wis.

Filed Dec. 26, 1979, Ser. No. 107,343
Int. Cl.³ B01D 46/04
U.S. Cl. 55—294 **1 Claim**

1. For a filter comprising a lengthwise series of transverse pleats and disposed in a housing to divide the housing into an inlet dust chamber and an outlet clean air chamber,

a cleaning arrangement comprising: a blower; a blower head that is disposed in the outlet clean air chamber, said blower head defining a substantially continuous blower slot that faces and extends substantially entirely across the filter parallel to the pleats and that has a width substantially equal to the width of one pleat; a single suction source; a suction head disposed in the inlet dust chamber, said suction head defining a pair of axially aligned suction slots that face and together extend substantially entirely across the filter, and that are parallel to and in alignment with the blower slot, each suction slot extending substantially halfway across the filter and having a width substantially equal to the width of one pleat; means to move the

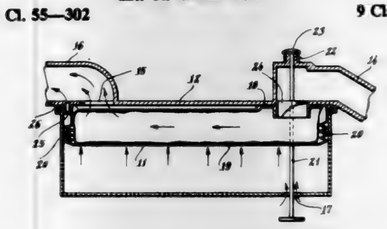


blower and suction heads back and forth in tandem along the length of the filter; means to connect the blower to the blower slot so that the blower slot is operative as the heads move in both directions; and means to alternately connect the separate suction slots to the suction source so that one suction slot is operative when the heads move in one direction and the other suction slot is operative when the heads move in the other direction.

4,277,265
COMPRESSING ARRANGEMENT FOR A DUST CONTAINER

Karl E. Leinfelt, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Oct. 19, 1979, Ser. No. 86,353
Claims priority, application Sweden, Oct. 19, 1978, 7810881
Int. Cl.³ B01D 46/04
U.S. Cl. 55—302 **9 Claims**



1. A compressing arrangement for a flexible filter-type dust container of the type used with a vacuum cleaner, a motor-fan assembly, a hand-held working implement and suction hose comprising: a chamber having an inlet for dust and dirt laden air, said filter dust container positioned in said chamber and connected to said inlet, an outlet for air substantially devoid of dirt and dust, said motor-fan assembly transporting said air from said work implement through said suction hose inlet, and said dust container whereby said dust and dirt are separated in said container and cleaned air leaves said chamber through said outlet, a substantially flexible body at least partially surrounding said container, and means selectively and operatively connected to said chamber for permitting the introduction of atmospheric pressure conditions between the interior of said chamber and the outside of said dust container to thereby compress said container with the aid of said air-impermeable body whereby the inner volume of the dust container during a certain period of time becomes smaller than the original volume of said container and alternately to maintain suction conditions within said container.

4,277,266
ULTRA FILTRATION UNIT COMPRISING A TUBULAR FILTER ELEMENT

Gordon A. Dick, Bethany, Canada, assignor to Wheelabrator Corporation of Canada Limited, Ontario, Canada

Filed Feb. 27, 1980, Ser. No. 125,113
Int. Cl.³ B01D 46/04, 50/00
U.S. Cl. 55—381 **13 Claims**

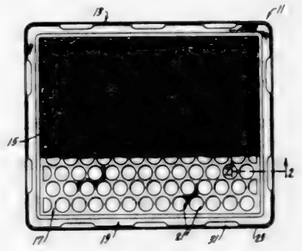


1. In an ultra filtration unit comprising an inlet and an outlet for the flow of gas therethrough, a filter element comprising a tubular wall of cloth napped on its internal surface and having a layer of filter aid material deposited thereon so as to penetrate the nap, said filter element having a hollow interior in communication with said inlet and an exterior in communication with said outlet such that said gas flowing through said ultra filtration unit passes through said cloth wall and said layer of filter aid material to be filtered thereby.

4,277,267
AIR FILTER ASSEMBLY

Howard L. Posner, Highland Park, Ill., assignor to Perfect Filter Corporation, Northbrook, Ill., a part interest

Filed Dec. 17, 1979, Ser. No. 104,543
Int. Cl.³ B01D 46/10
U.S. Cl. 55—494 **4 Claims**



1. An air filter assembly including,

a molded rectangular frame having a filter element supporting and backing portion and an integral peripheral flange portion,

the filter element supporting and backing portion being generally planar and having a plurality of discrete apertures formed therein in a pattern to permit air flow therethrough,

the flange portion having a channel shaped cross-section defined by an inner, an outer and connecting walls with the inner wall attached to the filter element supporting and backing portion,

the inner and outer walls of the flange portion sloping towards each other in the direction away from the filter element supporting and backing portion so that one frame can be nested in another, and

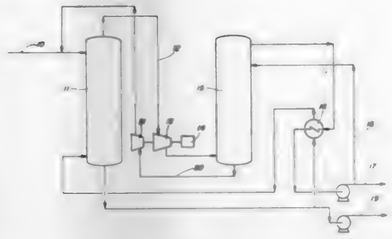
a filter element mounted on and attached to the filter element supporting and backing portion on the flange portion side of the frame.

4,277,268

HEAT PUMP FRACTIONATION PROCESS

Carl D. Spangler, Jr., Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Oct. 17, 1979, Ser. No. 85,825
Int. Cl.³ B01D 3/14
U.S. Cl. 62—26 **4 Claims**



4. A process for separating chemical compounds having different boiling points in a fractionating unit including a stripping section below the feed point and a rectifying section above the feed point which comprises the steps of:
(a) passing a feed stream comprising a first and a second chemical compound into the fractionating unit;
(b) maintaining the stripping section at a first temperature and pressure;
(c) withdrawing an overhead vapor stream from the stripping section;
(d) compressing only said overhead vapor stream to increase its pressure and temperature in a single heat pump compressor;
(e) passing the compressed stream directly to the rectifying section;
(f) maintaining the rectifying section at a higher temperature and pressure than the stripping section;
(g) withdrawing a liquid stream from the bottom of the rectifying section and returning it to the stripping section;
(h) withdrawing an overhead vapor stream rich in said second compound from the rectifying section;
(i) withdrawing a liquid stream rich in said first compound from the bottom of the stripping section;
(j) passing a portion of the liquid stream from the bottom of the stripping section in heat exchange relationship with at least a portion of the overhead vapor stream from the rectifying section whereby the liquid is heated and at least part of the vapor is condensed;
(k) returning the heated liquid stream to the bottom of the stripping section to provide reboiler heat;
(l) recovering the remainder of the liquid stream from the bottom of the stripping section as product;
(m) returning a portion of the condensed vapor from step (j) to the top of the rectifying section as reflux; and
(n) recovering the remainder of the condensed vapor from step (j) as product.

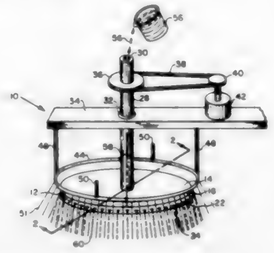
4,277,269

PROCESS FOR THE MANUFACTURE OF CERAMIC OXIDE FIBERS FROM SOLVENT SOLUTION

Truett B. Sweeting, Youngstown, N.Y., assignor to Kennecott Corporation, Stamford, Conn.

Filed Dec. 19, 1979, Ser. No. 105,319
Int. Cl.³ C03B 37/02, 37/04
U.S. Cl. 65—2 **20 Claims**

1. A process for manufacturing ceramic oxide fibers having an average diameter of less than 5 microns from a solvent solution of an oxide precursor soluble in the solvent, said solution having a viscosity of from about 100 to 450 poises which process comprises:
(a) introducing said solution into a spinning device comprising a hollow rotatable disc having a circumferential edge providing with a series of openings having a diameter of from about 0.3 to about 1.5 millimeters;
(b) rotating said hollow disc at a sufficient angular velocity to provide sufficient pressure of said solution against the interior of said edge to force said solution through said openings in a fiber form;



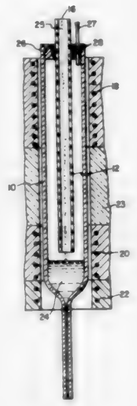
(c) attenuating said fibers to a diameter of less than 10 microns with a continuous stream of air; and
(d) heating the fibers in an oxygen atmosphere to a sufficient temperature to form ceramic oxide fibers having a diameter of less than 5 microns.

4,277,270

METHOD OF MANUFACTURE OF OPTICAL FIBER

David A. Krohn, Hamden, Conn., assignor to Eotec Corporation, West Haven, Conn.

Continuation-in-part of Ser. No. 898,840, Apr. 21, 1978, abandoned. This application Jul. 2, 1979, Ser. No. 53,764
Int. Cl.³ C03C 25/02
U.S. Cl. 65—3 A **5 Claims**



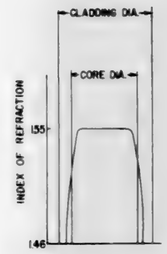
1. A process for making a low loss optical fiber having a numerical aperture in excess of about 0.4 and comprising a multi-component glass core within a cladding material, including the steps of:
melting a glass core composition with a tube made of a high-purity fused silica, said core glass composition comprising by weight 27% to 42% silicon dioxide, 7% to 50% boron oxide, 5% to 51% of an oxide selected from the group consisting of lead oxide and barium oxide, and 5% to 30% of an alkali oxide selected from the group consisting of lithium oxide, sodium oxide and potassium oxide;
fining the melted core glass within said glass tube at a temperature substantially in excess of the melting temperature of said glass core composition to enable uniform mixing of said core glass and silica; and
drawing said tube and core glass into said optical fiber.

4,277,271

METHOD OF MANUFACTURING GRADED INDEX OPTICAL FIBERS

David A. Krohn, Hamden, Conn., assignor to Eotec Corporation, West Haven, Conn.

Continuation-in-part of Ser. No. 898,840, Apr. 12, 1978, abandoned. This application Jul. 2, 1979, Ser. No. 53,765
Int. Cl.³ C03C 25/02
U.S. Cl. 65—3 A **10 Claims**



1. A process for making graded optical fibers, comprising
providing a glass tube made of a cladding material closed at one end and having a first index of refraction;
inserting into said glass tube a material from which a core glass having a second index of refraction higher than said first index is to be formed, said material being capable of reacting with said cladding material above a predetermined temperature substantially higher than the melting temperature of said material;
melting said material to form a glassy liquid at the closed end of said tube;
maintaining the temperature of said glassy liquid at the closed end of said tube;
maintaining the temperature of said glassy liquid above said predetermined temperature until a substantial portion of the inner wall of said tube has mixed with said glassy liquid; and
drawing said glassy liquid into said optical fiber comprising a cladding made of said glass tube and a core made of said glassy liquid with an index of refraction in the portion of the fiber which includes the cladding material mixed with the core glass intermediate said first and second indices.

4,277,272

METHOD FOR THE MANUFACTURE OF A MULTI-CHANNEL FIBER OPTICAL WAVEGUIDE

Hartmut Schneider, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,609
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909390
Int. Cl.³ C03B 37/075
U.S. Cl. 65—3 A **6 Claims**

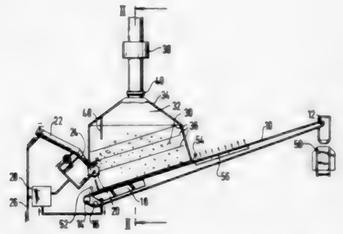
1. A method for the manufacture of a multi-channel fiber optical wave guide having several fiber optical wave guide cores embedded in a fiber optical wave guide cladding material, the method comprising providing a quartz glass tube having an interior surface, providing a cladding layer on the interior surface of the glass tube, applying a core glass layer on the cladding layer, removing a number of strips of the core glass layer to form a plurality of strips of the core glass, each of the strips of the core glass being distributed symmetrically on the circumference of the layer of cladding material and extending parallel to the axis of the glass tube, and then heating the glass tube to such an extent that it collapses into a rod shaped preform with each of the strips of the core material forming core preforms surrounded with cladding material, and then subsequently drawing the preform into a said fiber.
3. A method according to claim 1, wherein the steps of removing strips of the core glass layer comprises removing the strips by means of a gas phase etching process.

4,277,273

TREATMENT AND HANDLING OF METALLURGICAL SLAG

Edouard Legille, 165, rte de Treves, Luxembourg, and Carlo Heinz, rue du Bois, Niederanven, both of Luxembourg

Continuation of Ser. No. 840,219, Oct. 7, 1977, abandoned. This application Jun. 22, 1979, Ser. No. 51,456
Claims priority, application Luxembourg, Oct. 12, 1976, 75978; Sep. 26, 1977, 78184
Int. Cl.³ C03B 37/00
U.S. Cl. 65—19 **17 Claims**



1. An installation for the treatment and handling of metallurgical slag to produce, either separately or simultaneously, granulated slag, expanded slag and/or mineral wool and automatically collecting said products, and having means for the disintegration by mechanical impacts of a flow of pyroplastic slag and cooling means for the cooling of the particles of slag formed by the disintegation, said installation comprising at least one perforated endless band positioned in the path of fall of the particles of slag which are projected by said disintegration means and rotating substantially in a direction parallel to the path of projection of said particles and the particles are cooled by said cooling means, an insulating enclosure positioned immediately above said perforated band, a section of the lower part of said enclosure being trapezoidal in shape, decreasing in size in the direction of said perforated band, and having one or more air admission slits, said insulating enclosure containing said disintegration and cooling means and means for trapping the ascending gaseous and/or solid by-product of the slag, said means for trapping said solid being mounted in the upper portion of said enclosure and comprising an endless rotary filter rotating about two cylinders positioned outside the enclosure, a scraper to detach said solid from said filter and a reservoir to collect said detached solid.

4,277,274

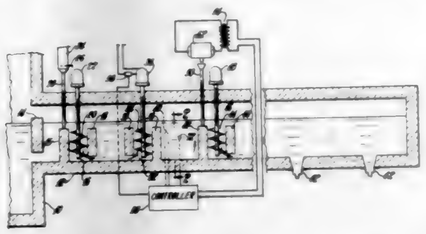
PROCESS FOR CONTROLLING MOLTEN GLASS VARIABLES

Max G. Chrisman, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 27, 1977, Ser. No. 864,559
Int. Cl.³ C03B 5/24
U.S. Cl. 65—29 **6 Claims**

1. An accurate method of making a desired glass composition comprising: preparing a molten host glass that is purposefully deficient in one or more elements by a generally predetermined amount; preparing an additive that contains the deficient amount of said element; adding a first stream comprising a major amount of the additive at a predetermined rate to a

stream of the molten host glass; mixing the additive and host glass to form an intermediate glass; sensing the temperature and the viscosity or resistivity of the intermediate glass; adding a second stream comprising the balance of the aditive to the



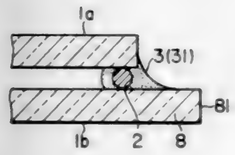
intermediate glass; mixing the second stream of additive and intermediate glass to form a finished glass; and controlling the flow of the second stream of additive in response to said sensed viscosity or resistivity at said sensed temperature to accurately control the composition of the finished glass.

4,277,275

METHOD FOR FABRICATING LIQUID CRYSTAL DISPLAY ELEMENT

Hiromitsu Kawamura; Tokuyoshi Nakajima, and Yoshimichi Shibuya, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 10, 1979, Ser. No. 74,148
Claims priority, application Japan, Sep. 8, 1978, 53-109640
Int. Cl.³ C03C *27/00*
U.S. Cl. 65—43 **17 Claims**



1. A method for fabricating a liquid crystal display element having a first substrate, a second substrate arranged facing the first substrate, and a sealing material disposed at peripheral portions of the substrates with at least a part thereof being interposed between the substrates, for maintaining a predetermined spacing between the substrates and forming a hermetically sealed envelope together with the substrates, said method comprising the steps of:

preparing said first and second substrates, each having a plan surface of a predetermined shape with a peripheral edge, and at least one of said substrates having at least one specific portion extending outwardly beyond the peripheral edge of the other substrate when the substrates are assembled, said specific portion having a peripheral edge with a substantial length;

forming an electrode having a predetermined pattern on the surface of each of the substrate;

forming, on at least one of the surfaces provided with the electrodes of the substrates, a sealing material layer having a predetermined width and height and extending along the peripheral edges of the substrates, said sealing material layer including a specific section extending along the peripheral edge of said specific portion, said specific section being formed on the substrate having said specific portion;

disposing the substrates one above the other through the sealing material layer in a predetermined relative position, with the surfaces provided with the electrodes facing each other, and with the peripheral edge of one of the substrates corresponding to the peripheral edge of the specific portion of the other substrate being positioned within the range of said predetermined width of said specific section of the sealing material layer, to form a substrate assembly;

heating said substrate assembly to cause the sealing material layer to extend over a portion of the peripheral edge of the other substrate and to extend to a position not beyond the peripheral edge of the one substrate; and

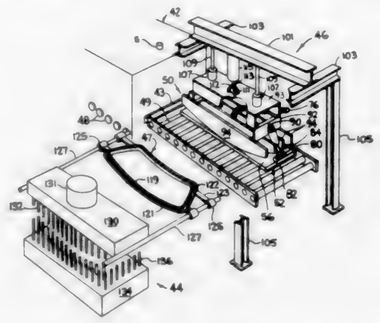
injecting liquid crystal into a space defined by the substrates and the sealing material layer.

4,277,276

METHOD AND APPARATUS FOR SHAPING GLASS SHEETS USING DEFORMABLE VACUUM MOLD

John D. Kellar, Postypool, and Gordon F. Pereman, Columbus, both of Canada, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 17, 1980, Ser. No. 130,783
Int. Cl.³ C03B *21/00*
U.S. Cl. 65—106 **9 Claims**



1. A method of shaping a glass sheet comprising:

(a) delivering a heat-softened flat glass sheet to a shaping station into a position of alignment beneath a deformable vacuum mold having a downwardly facing, apertured, shaping surface capable of defining a flat configuration or a selected curved configuration and of deforming between said flat configuration and said curved configuration,

(b) engaging said flat glass sheet while the latter is heat-softened with said deformable vacuum mold by applying vacuum therethrough while said apertured shaping surface defines said flat configuration, and

(c) continuing to engage said heat softened glass sheet and to apply vacuum while deforming said shaping surface from said flat configuration to said curved configuration until said glass sheet changes shape to become a bent glass sheet whose shape conforms approximately to said curved configuration.

6. Apparatus for shaping a flat glass sheet comprising:

(a) means to heat said glass sheet to the glass deformation temperature,

(b) means to deliver said flat glass sheet in a heat-softened state to a predetermined position at a shaping station,

(c) a deformable vacuum mold comprising a deformable box having a downwardly facing, apertured shaping surface capable of deforming between a flat configuration and a curved configuration,

(d) means for applying vacuum to said box, and

(e) means operatively connected to said box to deform said downwardly facing, apertured shaping surface,

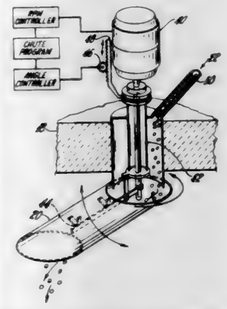
whereby on arrival of a glass sheet at said shaping station, said deformable vacuum mold is closely adjacent to the upper surface of said flat glass sheet with said apertured shaping surface defining said flat configuration, said means for applying vacuum applies a vacuum to said box to engage said flat glass sheet against said downwardly facing shaping surface while the latter is in said flat configuration and said means to deform said downwardly facing shaping surface deforms said box to said curved configuration while said vacuum applying means continues to apply vacuum to said box, thereby shaping said flat glass sheet to a bent glass sheet having a curved configuration conforming to said curved configuration.

4,277,277

FEEDING AGGLOMERATES TO A GLASS MELTING FURNACE

Mark A. Propster, Gahanna, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Nov. 29, 1979, Ser. No. 98,571
Int. Cl.³ C03B *5/18*
U.S. Cl. 65—134 **18 Claims**



1. A furnace for the continuous production of molten glass comprising:

an enclosure for holding a volume of molten glass provided with an inlet opening at a crown wall through which glass batch agglomerates or raw glass batch may be introduced onto the molten glass and a longitudinally displaced outlet opening through which molten glass may be withdrawn;

means for supplying heat to said enclosure for melting the agglomerates or raw batch;

a rotary chute wherein the rotary chute extends through said inlet opening through which the agglomerates or raw batch may be introduced onto the molten glass;

means for varying the angle of the chute; and

means for rotating the chute at varying speeds.

4,277,278

HERBICIDAL AGENTS BASED ON ACETANILIDES

Karl Eicken, Wachenheim, and Bruno Wuerzer, Limburgerhof, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 56,146
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832046
Int. Cl.³ A01N *43/56*
U.S. Cl. 71—92 **3 Claims**

1. A herbicidal agent which comprises a mixture of I 2-chloro-2',6'-dimethyl-N-(pyrazol-1-yl-methyl)acetanilide and II 2-chloro-2',6'-diethyl-N-methoxymethylacetanilide and wherein the ratio of I to II is from 1:1 to 1:6.

2. A herbicidal agent which comprises a mixture of I 2-chloro-2',6'-dimethyl-N-(pyrazol-1-yl-methyl)acetanilide and II 2-chloro-2'-ethyl-6'-methyl-N-(1'-methoxyprop-2'-yl)acetanilide and wherein the ratio of I to II is from 1:1 to 1:8.

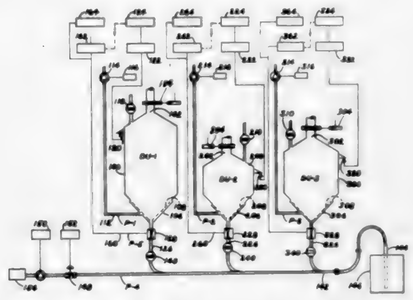
3. A herbicidal agent which comprises a mixture of I 2-chloro-2',6'-dimethyl-N-(pyrazol-1-yl-methyl)acetanilide and II 2-chloro-N-isopropylacetanilide and wherein the ratio of I to II is from 1:4 to 1:8.

4,277,279

METHOD AND APPARATUS FOR DISPENSING A FLUIDIZED STREAM OF PARTICULATE MATERIAL

Richard G. Kerlin, Aliquippa; Henry T. Kossler; Peter J. Koros, both of Pittsburgh, all of Pa., and Robert G. Petrushka, Parma, Ohio, assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

Filed Mar. 24, 1980, Ser. No. 132,968
Int. Cl.³ C21C *7/02*
U.S. Cl. 75—58 **20 Claims**



1. The method of dispensing fluidized particulate materials from a plurality of holding vessels, which comprises:

(1) dispensing a first fluidized material from a first vessel through a first passage from said first vessel to a transport line;

(2) dispensing a second fluidized material from a second vessel through a second passage from said second vessel to said transport line for blending with said first material; and

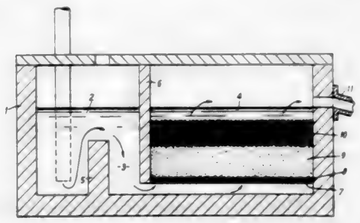
(3) controlling the flow rates of each said materials by selectively varying a portion of the cross-sectional area of the respective one of said first and second passages through which the material flows, the flow rate through each said passage being controllable independently of the flow rate through the other of said passages.

4,277,280

APPARATUS AND METHOD FOR REMOVAL OF ALKALI AND ALKALINE EARTH METALS FROM MOLTEN ALUMINIUM

Luc Montgrain, Arvida, Canada, assignor to Alcan Research and Development Limited, Montreal, Canada

Filed Aug. 14, 1979, Ser. No. 66,379
Claims priority, application United Kingdom, Aug. 23, 1978, 34381/78
Int. Cl.³ C22B *9/02*
U.S. Cl. 75—68 R **19 Claims**



1. A method for treating molten Al metal to reduce its con-

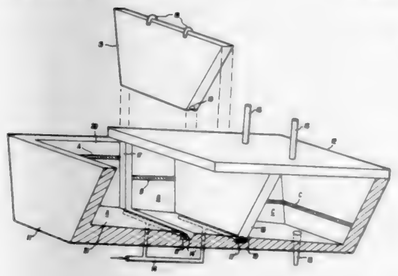
tents of alkali metal and alkaline earth metal impurities which comprises maintaining a bed of reactive particulate aluminium fluoride-containing material submerged in a body of molten aluminium, said aluminium fluoride-containing material having a melting point above the temperature of said molten aluminium and being maintained submerged irrespective of positive flow or zero flow of molten aluminium through said bed of particulate material, passing a stream of molten aluminium upwardly through said bed for reaction of its alkali metal and alkaline earth metal content with said reactive aluminium fluoride-containing material and passing the stream of molten aluminium, emerging from said bed, through a downstream layer of particulate refractory filter material, said layer of particulate refractory material being inert to molten aluminium and wettable by fluoaluminates formed by reaction of alkali metal and alkaline earth metal impurities in said molten aluminium with said reactive aluminium fluoride-containing material.

4,277,281

CONTINUOUS FILTER FOR MOLTEN COPPER

John G. Weber, and E. Henry Chin, both of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.

Filed Aug. 16, 1979, Ser. No. 67,079
Int. Cl.³ C22B 9/02
U.S. Cl. 75—93 R **5 Claims**



1. A method for purificatory filtration of molten copper, comprising:

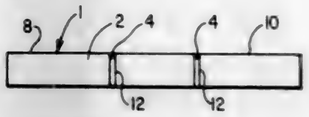
flowing a stream of molten copper through a ceramic foam filter initially comprising aluminum oxide and phosphate and being adsorptive of iron and calcium in the presence of molten copper, to substantially remove entrained inclusions and to substantially reduce the concentration of dissolved iron and calcium impurities.

4,277,282

METHOD OF MELT DISPERSING A FLOATABLE SOLID ADDITIVE IN MOLTEN METAL AND A MELT DISPERSIBLE, FLOATABLE, SOLID ADDITIVE THEREFOR

Roderick I. L. Guthrie, 35 Windsor Ave., Westmount, Quebec, and Frank Mucciardi, Montreal, both of Canada, assignors to Roderick I. L. Guthrie, Westmount, Canada

Filed Mar. 24, 1980, Ser. No. 132,972
Int. Cl.³ C22B 9/10; C21C 7/00
U.S. Cl. 75—53 **12 Claims**



1. A melt dispersible, floatable solid additive projectile for molten metal, comprising:

a solid elongated body of the additive having a resist on a minor portion of a surface of the solid body with the remaining surface area of the solid body exposed for direct contact with the molten metal, the resist providing insulation between said body and said molten metal whereby a shell frozen from molten metal onto said body includes a region of retarded shell development corresponding to said resist.

9. A method of melt dispersing a floatable, solid additive projectile in a molten metal ball, comprising:

(a) providing a resist on a surface of projectile to form local insulation between said projectile and said body, with the remaining surface area of the projectile exposed for direct contact with the molten metal,

(b) projecting said projectile with said resist below the surface of molten metal ball,

(c) permitting the formation of a frozen ball material shell to encase said projectile, the formation of said shell being retarded in the region of said resist,

(d) melting at least a portion of the additive encased within the shell thereby forming an outlet from said shell in the region of said resist,

(e) employing molten additive from said outlet, and

(f) remelting the shell

4,277,283

SINTERED HARD METAL AND THE METHOD FOR PRODUCING THE SAME

Masaaki Tobioka; Mitsuo Kodama; Tsuyoshi Asai, and Takaharu Yamamoto, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Dec. 19, 1978, Ser. No. 971,829
Claims priority, application Japan, Dec. 23, 1977, 52-156303
Int. Cl.³ B22F 3/00; C22C 29/00
U.S. Cl. 75—238 **12 Claims**



1. A sintered hard metal which comprises:

a core portion having a phase represented by the molecular formula $(M_A, M'_B, M''_C)(C_U, N_V)_X$ and having a B-1 type crystal structure containing W as one of the constituent elements thereof, and a WC phase in an amount of at least 50% by weight of the total sintered hard metal content, for hardness, and iron group metals for bonding, and

a surface portion of 5 to 200μ thickness wherein the proportion of the phases having the aforesaid B-1 type crystal structure is lower than that in the core portion in which:

M consists of Group IVa metallic elements, M′ consists of Group Va metallic elements, M″ consists of Group VIa metallic elements, C represents carbon, N represents nitrogen, the suffixes A, B, C, U and V represent the atomic ratios respectively, X represents the ratio of non-metallic constituent elements to the metallic constituent elements and said metal having the following relationships:

$$A + B + C = 1 \quad 1 \geq A \geq 0, \; 1 \geq B \geq 0, \; 1 \geq C \geq 0 \quad U + V = 1$$
$$10.0 \geq 4A + 5B + 6C + X(4U + 5V) \geq 8.4$$

7. A method for producing a sintered hard metal wherein a composite carbonitride represented by the molecular formula $(M_A, M'_B, M''_C)(C_U, N_V)_X$ and having B-1 type crystal structure containing W as one of the constituent elements thereof, WC in an amount of above 50% by weight of the total amount of the sintered hard metal, and iron group metals, are mixed and then are pressed into a predetermined shape to form a green compact which is then sintered in a vacuum of less than 1 Torr at a temperature 1300° C. 1500° C.

4,277,284

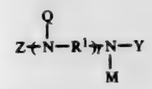
SINGLE-PACKAGE ZINC-RICH COATINGS

Thomas Ginsberg, Piscataway, and Lawrence G. Kaufman, Somerville, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

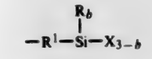
Continuation-in-part of Ser. No. 900,884, Apr. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 796,710, May 13, 1977, abandoned. This application Jun. 4, 1980, Ser. No. 153,731
Int. Cl.³ C09D 5/10
U.S. Cl. 106—1.05 **15 Claims**

1. A stable single-package composition for protecting ferrous metals from corrosion consisting essentially of particulate zinc, an unhydrolyzed organic silicate or an organic silicate hydrolyzed up to 40% and a hardening amount of about 5 to about 50% based on the weight of organic silicate of hydrolyzable silicon compound selected from the class consisting of

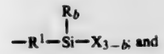
(a) amino silanes of the formula



wherein:
t is an integer having values of 0 to 10;
each of M, Y, Q and Z are R or



R is H, alkyl having 1 to 4 carbon atoms or hydroxyalkyl having 2 to 3 carbon atoms;
R^1 is $-C_2H_4-$, $-C_3H_6-$ or $-R^2-O-R^2-$ and
R^2 is an alkylene radical having about 1 to 8 carbon atoms;
b is an integer having values of 0 to 2; with the proviso that at least one of M, Q, Y or Z is



X is a hydrolyzable organic group;

(b) quaternary ammonium salts of the amino silanes in (a); and

(c) the hydrolyzates and condensates of the amino silanes in (a).

4,277,285

SEALING GLASS WITH HIGH COEFFICIENT OF ABSORPTION FOR INFRA-RED RAYS

Jean E. Boudot; Francoise M. M. Roger, both of Avon, and Michel P. H. Jeanmaire, Souppes-sur-Loing, all of France, assignors to Corning Glass Works, Corning, N.Y.

Filed Jan. 7, 1980, Ser. No. 109,972
Claims priority, application France, Jan. 12, 1979, 79 00747
Int. Cl.³ C03C 3/04, 3/10
U.S. Cl. 106—52 **1 Claim**

1. A sealing glass exhibiting a coefficient of absorption of infra-red rays within the range 0.7–4 microns of at least 98%, a viscosity at the liquidus temperature greater than 30,000 poises, an average coefficient of thermal expansion between 20°–300° C. of 91.1×10^{-7}/°C., and a volatilization of 95 ppm at the sealing temperature, said glass being essentially free from K_2O and B_2O_3 and consisting essentially, in weight percent on the oxide basis as calculated from the batch, of:

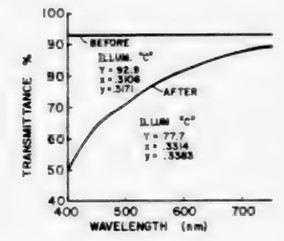
SiO_2	71.02
Al_2O_3	4.45
F	0.14
Li_2O	2.41
Na_2O	13.01
BaO	3.8
Fe_2O_3	3.47
TiO_2	1.00
ZrO_2	0.70

4,277,286

LEAD-FREE GLASSES OF HIGH X-RAY ABSORPTION FOR CATHODE RAY TUBES

David C. Boyd, Corning, and David A. Thompson, Horseheads, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,505
Int. Cl.³ C03C 3/10, 3/24
U.S. Cl. 106—52 **3 Claims**



1. A glass for the faceplate of a television picture tube essentially free from PbO and other readily-reducible metal oxides exhibiting an electrical resistivity, when measured at 350° C., of at least 10^7 ohm-cm, a coefficient of thermal expansion (0°–300° C.) not in excess of 102×10^{-7}/°C., an internal liquidus under 900° C., a strain point not over 500° C., a softening point not over 690° C., a linear X-ray absorption coefficient at 0.6 Å of at least 35 cm^{-1} such that X-ray transmittance therethrough will be less than 0.5 mr/hr when measured at a distance of 5 cm from a faceplate of conventional thickness, and strong resistance of discoloration from X-ray and electron bombardment consisting essentially, expressed in weight percent on the oxide basis as calculated from the batch, of:

	SiO_2	43–55
	Al_2O_3	0–4
	ZnO	5–12
	Li_2O	0.5–3
	Na_2O	4–8
	K_2O	3–8
$Li_2O + Na_2O +$	K_2O	10–18
	CaO	0–5
	SrO	2–14
	BaO	10–20
$CaO + SrO +$	BaO	16–30
	CeO_2	0.3–1
	ZrO_2	2–8

4,277,287

SILICONE RESIN COATING COMPOSITION

Robert B. Frye, Menands, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Nov. 30, 1978, Ser. No. 964,911
Int. Cl.³ C08K 3/36, 5/54; C08L 83/12, 83/06
U.S. Cl. 106—287.12 17 Claims

1. In an aqueous coating composition comprising a dispersion of colloidal silica in an aliphatic alcohol-water solution of the partial condensate of a silanol of the formula $RSi(OH)_3$, wherein R is selected from the group consisting of alkyl having from 1 to 3 carbon atoms and aryl, at least 70 weight percent of the silanol being $CH_3Si(OH)_3$, said composition containing 10 to 50 weight percent solids, said solids consisting essentially of 10 to 70 weight percent colloidal silica and 30 to 90 weight percent of the partial condensate, said composition having a pH of from 7.1 to about 7.8, the improvement comprising the intimate admixture of a small amount effective to control flow of a polysiloxane polyether copolymer with said composition.

4,277,288

FLUIDIZED GRANULATION OF PIGMENTS USING ORGANIC GRANULATING ASSISTANT

Simon G. Lawrence, Paisley, and James Hossack, Glasgow, both of Scotland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 2, 1979, Ser. No. 81,235
Claims priority, application United Kingdom, Oct. 6, 1978, 39682/78
Int. Cl.³ C09C 3/08, 3/10
U.S. Cl. 106—309 18 Claims

1. An improved process for producing a substantially dry, low-dusting, free-flowing granular pigment product by treating a pigment in a fluidized bed with a granulating assistant wherein the improvement comprises the steps of

(a) forming a fluidized bed consisting essentially of pigment powder by blowing a stream of gas through the pigment powder;

(b) dispensing onto the fluidized bed of pigment a nonaqueous granulating assistant selected from the group consisting of:

(i) a high boiling organic liquid;

(ii) a mixture of a high boiling organic liquid and a resin;

(iii) a mixture of a high boiling organic liquid and a wax;

(iv) a mixture of a high boiling organic liquid, a resin and a wax; and

(v) a molten wax;

said assistant being one which:

(α) wets out the pigment powder surface sufficiently to allow agglomeration of pigment particles so wetted out;

(β) binds the granules so formed sufficiently strongly to enable them to resist breakdown during the process of the invention, and during subsequent handling and storage, but without adversely affecting dispersibility of the pigment product in any final application medium into which the pigment is to be incorporated; and

(γ) is compatible with the final application medium;

(c) contacting the granules formed in step (b) with a surfactant; and

(d) removing the granular pigment so formed, which still contains the granulating assistant uniformly incorporated therein, from the fluidized bed.

4,277,289

PROCESS FOR REMOVING TITANIFEROUS AND SILICO-ALUMINOUS INCRUSTATIONS FROM SURFACES

Alain Lectard, Aix-en-Provence, and Robert Magrone, Gardanne, both of France, assignors to Aluminum Pechiney, Lyons, France

Filed Jul. 6, 1979, Ser. No. 55,685
Claims priority, application France, Jul. 19, 1978, 78 22523; May 23, 1979, 79 13925
Int. Cl.³ B08B 3/08
U.S. Cl. 134—3 8 Claims

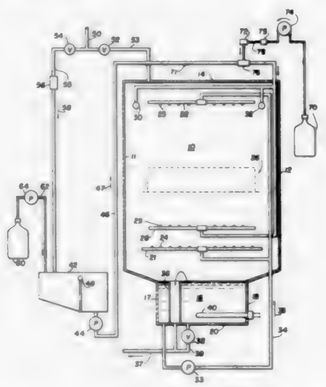
1. In a process for removing titaniferous incrustations and silico-aluminous incrustations from the walls of heat exchangers and reactors on which such incrustations form during the treatment of ores, the improvement comprising contacting the incrustations with an aqueous liquor containing from 3 to 30% by weight of hexafluosilicic acid and hydrofluoric acid present in an amount within the range of 1–10% by weight.

4,277,290

LOW TEMPERATURE WASHING AND CHEMICAL SANITIZING OF FOODWARE

James P. Andrews, Kernersville; Arthur C. Callahan, and Moheb M. Gendy, both of Winston-Salem, all of N.C., assignors to American Sterilizer Company, Erie, Pa.

Filed Jan. 25, 1980, Ser. No. 115,183
Int. Cl.³ B08B 3/02
U.S. Cl. 134—10 22 Claims



1. Method for operating a batch-type machine providing washing of soiled foodwares and chemical sanitizing rinsing of washed foodwares to maximize productivity while minimizing energy demand rate at an installation site, comprising

providing a foodware cleansing machine having a single wash and rinse chamber with a wash water sump which, after an initial filling with wash water, is maintained at a desired wash water level and a desired wash water temperature by drainage of water into such wash water sump after wash and rinse spraying of foodware items,

such foodware cleansing machine including a separate fresh water accumulation tank capable of holding a volume of fresh water preselected to be at least one-third to about one-half the capacity of the wash sump at such desired wash water level,

inserting a load of foodware items into such foodware cleansing machine chamber,

establishing a preselected wash phase time,

establishing a preselected rinse phase time,

such rinse phase time being preselected to be between about one-tenth and about one-half the wash phase time,

washing the load of soiled foodware items by pumping wash water from the wash sump to provide pressurized discharge of such wash water for wash spraying of such foodware item load,

controlling pumping of such wash water such that such pressurized wash spraying extends over such preselected wash phase time,

controlling supply of preheated fresh water to such fresh water accumulation tank including control of flow rate of such fresh water,

such control causing flow of fresh water from the installation site into such accumulation tank to start substantially simultaneously with initiation of pumping of washing water from the wash sump and to extend over substantially the entire preselected wash phase time,

terminating pumping of wash water from such wash sump at expiration of such predetermined wash phase time, then

pumping such accumulated fresh water at a predetermined pressure to provide uniform flow of such accumulated fresh water within a rinse line to provide pressurized discharge for rinse spraying on such washed load,

controlling pumping of the accumulated fresh water such that pressurized rinse spraying extends over such preselected rinse phase time,

introducing a liquid chemical sanitizing agent into such flow of fresh water in the rinse line,

such introduction of liquid chemical sanitizing agent into such rinse line taking place shortly prior to such rinse spraying on such washed load,

controlling introduction of liquid chemical sanitizing agent to take place over at least a predetermined major portion of the preselected rinse phase time,

terminating introduction of liquid chemical sanitizing agent, and, with expiration of such preselected rinse phase time,

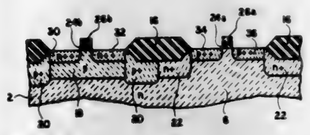
terminating pressurized pumping of fresh water in the rinse line to complete a cycle prior to unloading of such washed and rinsed foodware item load.

4,277,291

PROCESS FOR MAKING CMOS FIELD-EFFECT TRANSISTORS

Gianfranco Cerofolini, and Giuseppe Ferla, both of Milan, Italy, assignors to SGS-ATES Componenti Elettronici S.p.A., Agrate Brianza, Italy

Filed Jan. 21, 1980, Ser. No. 113,594
Claims priority, application Italy, Jan. 22, 1979, 19484 A/79
Int. Cl.³ C22B 21/26
U.S. Cl. 148—1.5 4 Claims



1. A process for making complementary MOS field-effect transistors with contiguous channel stops in a silicon substrate of one conductivity type overlain by an oxide layer, comprising the steps of:

(a) forming a first and second patch of shielding material on said oxide layer above spaced-apart first and second regions of said substrate;

(b) injecting impurities of said one conductivity type through said oxide layer into zones of said substrate immediately adjoining said first and second regions, including an intermediate section separating said first and second regions;

(c) covering said first patch and at least one immediately adjoining first zone of said oxide layer, including a portion thereof overlying part of said intermediate section, with a masking layer while leaving uncovered said second patch and at least one immediately adjoining second zone of said oxide layer, including a portion thereof overlying another part of said intermediate section;

(d) injecting impurities of the opposite conductivity type into said substrate through said second patch and through said second zone in a quantity sufficient to overcompensate the effect of the impurities of said one conductivity type injected into said second zone in step (b) and to implant said impurities of the opposite conductivity type with a relatively high concentration in said uncovered second zone and with a lower concentration in said second region shielded by said second patch;

(e) removing said masking layer;

(f) subjecting said substrate to a heat treatment with growth of said oxide layer predominantly in areas free from said patches;

(g) removing said patches together with underlying portions of said oxide layer, thereby exposing said first and second regions except for a residue of said oxide layer extending across each of said regions and dividing same into source and drain areas while forming an insulating gate support; and

(h) introducing impurities of said one conductivity type and of said opposite conductivity type into the source and drain areas of said second and said first region, respectively.

4,277,292

TERNARY CORROSION RESISTANT COATINGS

George L. Tupper, Gurnee, Ill., assignor to Coral Chemical Company, Waukegan, Ill.

Filed Mar. 26, 1980, Ser. No. 134,220
Int. Cl.³ C23F 7/00
U.S. Cl. 148—6.27 18 Claims

1. An acidic aqueous coating solution for forming a corrosion resistant coating on aluminum consisting essentially of a ternary composition of zirconium, a soluble vegetable tannin, and a fluoride, wherein the concentration of the zirconium ion is 0.014 to 0.096 grams/liter, the vegetable tannin concentration is 0.060 to 0.024 grams/liter, and the fluoride concentration is 0.020 to 0.140 grams/liter, and excluding phosphate ion and a source of hydrogen ion to adjust the pH of the coating solution between 2.3 and 2.95.

4,277,293

GROWTH OF SYNTHETIC DIAMONDS HAVING ALTERED ELECTRICAL CONDUCTIVITY

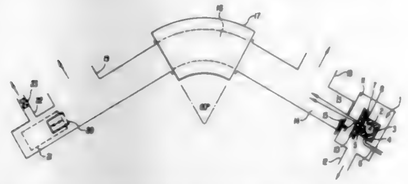
Richard S. Nelson, 5 Whitehills Green, Goring-on-Thames, Reading, Berkshire; John A. Hudson, 7 Little Howe Close, Radley, Oxfordshire, and David J. Mazey, 63 Hendred Way, Abingdon, Oxfordshire, all of England

Division of Ser. No. 878,862, Feb. 17, 1978, Pat. No. 4,191,735, which is a continuation-in-part of Ser. No. 711,578, Aug. 4, 1976, abandoned, which is a continuation-in-part of Ser. No. 477,280, Jun. 7, 1974, abandoned. This application Aug. 20, 1979, Ser. No. 68,068
Claims priority, application United Kingdom, Jun. 2, 1977, 23468/77
The portion of the term of this patent subsequent to Mar. 4, 1997, has been disclaimed.
Int. Cl.³ H01L 21/20, 21/26
U.S. Cl. 148—175 12 Claims

1. A method of producing a diamond crystal of altered electrical conductivity which comprises bombarding the diamond with a flux of carbon ions containing an ionic impurity whereby the crystal is doped with an impurity which alters the electrical conductivity thereof, said flux being of sufficient energy to penetrate the diamond crystal and cause crystal growth which is at least predominantly internal, the temperature of the crystal being at least 400° C. and less than the graphitisation temperature, such that the diamond crystal structure is maintained during growth.

7. A method according to claim 1, in which the carbon ion

flux contains an ionic impurity which gives rise to either P- or N-type conductivity in the crystal following which the crystal



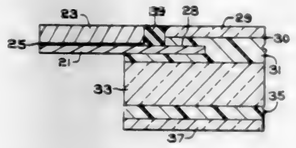
is doped with a different ionic impurity which gives rise to the other type of conductivity so as to produce an P N junction in the crystal.

4,277,294

METHOD OF FABRICATING WINDOW PANELS, PARTICULARLY CURVED PANELS

Dee R. Orcutt, Huntsville, Ala., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 6, 1979, Ser. No. 46,150
Int. Cl.³ B32B *17/10, 31/20;* **C03C** *27/04*
U.S. Cl. 156—102 **8 Claims**



1. A method of fabricating a curved, laminated transparency panel having a curved, rigid mounting frame surrounding a curved, laminated transparency provided with transparent elements and also including a curved, metal reinforcing insert having an inner portion embedded therein and an outer portion bonded to said frame comprising first applying bonding means to an interfacial surface between said frame and said insert, then assembling said frame and said insert on opposite sides of said bonding means to bond the outer portion of said insert to said frame to form a curved sub-assembly with the inner portion of said curved insert extending inwardly of said curved frame, thereby enabling the bond between said curved frame and said outer portion of said curved insert to reinforce the inner portion of said insert, then assembling the elements of said curved, laminated transparency to the inner portion of said curved insert, and laminating said curved assembly so formed with minimum movement of said inner portion relative to the thickness of said transparency elements during said latter laminating step.

5. A method as in claim 1, comprising applying said bonding means in the form of a bonding tape to an interfacial surface between said rigid mounting frame and said outer portion of said insert to form said sub-assembly and subjecting the sub-assembly so formed to elevated heat and pressure to effect said bonding step.

7. A method as in claim 5, wherein said bonding tape applied is a thermosetting tape.

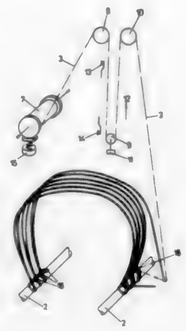
8. A method as in claim 7, wherein said tape is applied to the interfacial portion between the outer portion of said curved metal reinforcing insert and said curved mounting frame.

4,277,295

PROCESS OF MANUFACTURING PNEUMATIC TIRES AND APPARATUS FOR CARRYING OUT THE PROCESS

Oskar Schmidt, Kittsee, and Wladyslaw Kubica, Vienna, both of Austria, assignors to Polyair Maschinenbau G.m.b.H., Kittsee, Austria

Filed Sep. 10, 1979, Ser. No. 73,782
Claims priority, application Austria, Sep. 8, 1978, 6520/78; May 25, 1979, 3843/79
Int. Cl.³ B29H *17/12*
U.S. Cl. 156—117 **13 Claims**



1. A process of manufacturing pneumatic tires made of synthetic elastomers, particularly of polyurethane, and comprising an inner tire layer, a tire body, which is anchored in the inner tire layer by means of bead cores, a belt, and an outer tire layer provided with a tread portion, said process being characterized in that the tire body is made in that a cord or cable is wound radially from one bead core to the other bead core over the periphery of a forming core but spaced from the surface of said forming core while being anchored in alternation on at least one of the two bead cores provided on both sides of the tire by being completely slung around each bead core, that a peripherally extending belt is applied, and that finally the outer tire layer and the tread portion are applied.

4,277,296

PNEUMATIC TIRE AND METHOD OF MAKING SAME

Frank O. Skidmore, 2513 Third St., Cuyahoga Falls, Ohio 44221

Continuation-in-part of Ser. No. 834,246, Sep. 19, 1977, Pat. No. 4,196,764. This application Sep. 28, 1979, Ser. No. 80,114
Int. Cl.³ B29H *17/20*
U.S. Cl. 156—128 R **4 Claims**



1. A method of preparing a pneumatic tire having a tread, a carcass, sidewalls, at least one belt, and a strip of scrim material positioned between the base of the tread and carcass over the full circumference thereof and across a substantial width of the tread which is characterized by the scrim material, including perpendicularly related warp and weft cords with respective cords extending in substantially parallel straight relationship to each other in an open weave spaced between warp and weft to form a belt around the full circumference of the tire, said cords having great tensile strength and being subject to minimal elongation within their designed tensile strength, said cords acting to reduce radial force variations and reduce squirm and friction between tread and carcass in the tire under operating conditions, and said cords being joined and interlocked at their intersection which comprises the steps of:

(a) providing the scrim material fully embedded in at least one layer of uncured rubber material to achieve an intimate matrix relationship,

(b) applying the scrim and uncured rubber material layer at the desired position on the carcass over the full circumference thereof and width beyond the lateral edges of the belt while stretching it to achieve a snug positioning and intimate contact of the uncured rubber material to the carcass, and

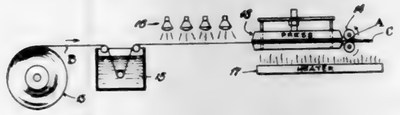
(c) applying the tread material over the scrim material and curing the tire to effect vulcanization and a bonded relationship between the tread, the uncured layer intimately combined with the cords, and the carcass.

4,277,297

METHOD OF FORMING DENTAL FLOSS WITH STRING AND BRUSH PORTIONS

Thomas F. Thornton, New Canaan, Conn., assignor to Educational Health Products, Inc., New Canaan, Conn.

Division of Ser. No. 599,485, Jul. 28, 1975, abandoned, which is a continuation-in-part of Ser. No. 138,501, Aug. 27, 1971, abandoned, and Ser. No. 361,237, May 17, 1973, Pat. No. 3,896,824. This application Dec. 12, 1979, Ser. No. 102,797
Int. Cl.³ D02G *3/34;* **A61C** *15/00*
U.S. Cl. 156—161 **5 Claims**



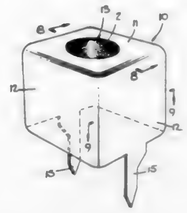
1. Method of producing a continuous length of multi-diameter, multi-filament yarn having alternate string portions comprising straight, parallel, closely packed filaments and compressible, spongy brush portions comprising crinkled filaments which are stiffened to render them more resistant to compression, comprising the steps of producing a continuous length of yarn comprising a plurality of textured, commingled filaments that have been permanently crinkled, coating said yarn with a hardenable resin coating, stretching said coated alternate string portions to straighten the filaments therein and render them parallel to each other and closely packed while retaining said brush portions in a relaxed, crimped condition, heating said coated yarn to harden said resinous coating and render the filaments in said alternate string lengths essentially straight and crinkle resistant and to render the filaments in said brush portions stiffened and more resistant to compression, and relaxing said stretch on said string portions to form said continuous length comprising said alternate straight string portions and said stiffened, crinkled brush portions, said brush portions comprising lengths of said yarn which have not been rendered straight and crinkle resistant and in which the filaments are crinkled, to render the diameter of said brush portions larger than the diameter of said string portions, and are coated with resin and stiffened to render them more resistant to compression.

4,277,298

METHOD OF MAKING A HOLLOW ARTICLE

Charles C. L'Allemand, Murray Hill, N.J., assignor to The Cly-Del Manufacturing Company, Waterbury, Conn.

Continuation of Ser. No. 372,917, Jun. 25, 1973, abandoned, which is a continuation-in-part of Ser. No. 350,775, Apr. 13, 1973, abandoned. This application Oct. 24, 1975, Ser. No. 625,472
Int. Cl.³ B21D *22/00, 39/00*
U.S. Cl. 156—199 **13 Claims**



1. A method of making a housing for electronic components comprising the steps of:

providing a stock of first material;

applying a layer of second material to said stock of first material to form a composite structure, the layer of second material being applied so that said composite structure is devoid of said second material at a predetermined zone thereof; and

forming a housing having at least one anchoring member and a cup-like body from said composite structure, the forming step being controlled to locate said at least one anchoring member of said housing in the portion of said composite structure which includes said predetermined zone devoid of said second material and to locate said cup-like body of said housing in the portion of said composite structure having said layer of second material applied to said stock of said first material so that said at least one anchoring member remains free of said second material.

4,277,299

RELEASE MOLDS FOR LAMINATING BILAYER SAFETY GLASS

Joseph Cherenko, Valencia; William I. Frey, Curtisville; Joseph D. Kelly, Cherwick, all of Pa., and Larry S. Sokol, West Palm Beach, Fla., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 836,178, Sep. 23, 1977, abandoned. This application Jun. 18, 1979, Ser. No. 49,673
Int. Cl.³ B32B *17/10, 31/04;* **C04B** *35/68*
U.S. Cl. 156—242 **1 Claim**

1. In a method for making a transparent safety glass laminate having an exposed plastic surface comprising the steps of:

a. assembling between a glass sheet to be laminated and a glass mold coated with a release agent, a polymer selected from the group consisting of polyvinyl acetals and polyurethanes;

b. bonding said polymer to said glass sheet; and

c. separating the glass mold from the polymer layer of the laminate, the improvement which comprises coating the glass mold on the surface which contacts the polymer layer with a composition comprising a release agent which contains

1. from 80 to 98 percent by weight phenyl methyl polysiloxane resin with from 1.0 to 1.7 hydrocarbon radicals per silicon atom;

2. from 1 to 10 percent by weight of a phenyl methyl siloxane fluid which has from 1.99 to 2.00 hydrocarbon radicals per silicon atom and which contains at least 1 percent by weight of silicon-bonded hydroxyl groups;

3. from 1 to 10 percent by weight of a nonhydroxylated methyl siloxane fluid which has at least 2.0 monovalent hydrocarbon radicals per silicon atom;

and a low molecular weight, hydroxy-functional silicone compound of the formula $R_nSi(OR')_mO_{4-n-m/2}$ wherein R is a monovalent hydrocarbon radical, R' is selected from the group consisting of hydrogen and alkyl radicals containing from 1 to 6 carbon atoms, n has an average value from 0.9 to 1.9 and m has an average value from 0.1 to 1.5, and the compound having about four hydroxyl groups per molecular formula unit.

4,277,300

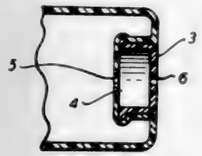
METHOD FOR FORMING A MOLDED SQUEEZE TOY INCLUDING WHISTLE

Anthony P. Taluba, Box 245, R.D. 3, Lebanon, N.J. 08833, and Paul A. Taluba, 319A Rte. 1, Morrisville, N.Y. 12962

Division of Ser. No. 727,473, Sep. 28, 1976, abandoned. This application Jul. 10, 1978, Ser. No. 923,462

Int. Cl.³ B32B *1/10*; **B29C** *17/07*; **A63H** *5/00*

U.S. Cl. 156—244.14 **6 Claims**



1. The method of forming, by blow molding in a blow molding machine, a hollow air-filled squeeze body including a whistle which comprises the steps of:

providing a mass of molten thermoplastic rubber;

extruding rubber from said molten mass to form a parison which passes between a pair of mold-halves shaped to form between them said squeeze body, said mold-halves including means for forming an annular whistle cavity site adjacent to or in a wall of said body and including a blow pin opening centered in said site;

interposing a blow pin of substantially uniform cross-section into said parison;

closing said mold-halves to clamp said parison so that said blow pin is enclosed in said blow pin opening;

causing a first blast of gas to blow through said blow pin for shaping said parison against the interior of said mold-halves including said means for forming an annular whistle cavity;

opening said mold-halves;

retracting said blow pin through said blow pin opening in said hollow squeeze body;

subsequently removing said hollow squeeze body from said blow molding machine by a second blast of gas;

forming and securing a closure on said whistle cavity to form therewith a resonant chamber for sounds of a preselected frequency, said closure having an opening which is axially aligned with said blow pin opening, wherein both of said openings act as venturi constrictions for a stream of air passing therethrough when said hollow body is squeezed.

4,277,301

WIDE-BAND AND CONTINUOUS LINE ADHESIVE APPLICATOR FOR CIGARETTE FILTER ATTACHMENT AND THE LIKE

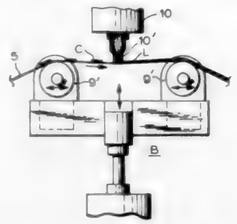
Donald B. McIntyre, and Frederic S. McIntyre, both of Wellesley Hills, Mass., assignors to Acumeter Laboratories, Inc., Newton Lower Falls, Mass.

Filed Aug. 27, 1979, Ser. No. 69,973

Int. Cl.³ B65C *3/12*; **B05B** *1/14, 9/12*

U.S. Cl. 156—446 **9 Claims**

1. A fluid adhesive applicator having, a plurality of fine-orifice spaced nozzles disposed in a plane and extending transversely of a predetermined region; means for drawing a web of material-to-be-coated longitudinally through said predetermined region in juxtaposition to the orifices of said nozzles; pumping means for extruding fluid adhesive simultaneously through said nozzles onto the web as a corresponding plurality of closely spaced beads of adhesive extending transversely across said web; shear edge means disposed a short distance



longitudinally beyond said orifices; the web carrying said beads from said nozzles to said shear edge means; and periodically activated bumper means disposed on the opposite side of the web from the edge means for bumping said plurality of adhesive beads carried by the web against said edge means to cause spreading of the beads into longitudinally intermittent bands of adhesive having a width in the range extending from bands of parallel stripes corresponding to the width of said beads to a merged-uniform continuous coating band.

4,277,302

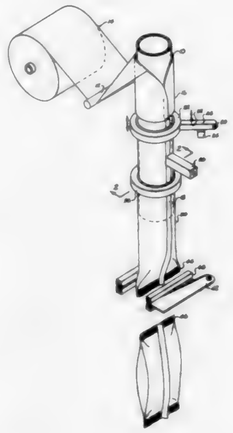
APPARATUS FOR ADVANCING SHEET MATERIAL

Philip Reid, Rte. 2, Box 422, Duncan, S.C. 29334

Filed Sep. 7, 1979, Ser. No. 74,140

Int. Cl.³ B29D *23/10*

U.S. Cl. 156—466 **6 Claims**



1. An apparatus for advancing thin flexible sheet material over a cylindrical mandrel, comprising:

means for feeding said sheet material in a tubular configuration longitudinally over said mandrel;

a collar concentrically carried on said mandrel with said sheet material passing between said collar and said mandrel;

a unidirectional driving means carried by said collar engaging said sheet material passing between said collar and said mandrel;

means for reciprocally moving said unidirectional driving means to and fro longitudinally relative to said mandrel advancing said sheet material over said mandrel; and

said unidirectional driving means comprises a flange member inclined towards the mandrel in the desired direction of advancement of said sheet material engaging said sheet material and advancing sheet material when moved forward over said mandrel and said flange member sliding over said sheet material when moved backward over said mandrel.

4,277,303

GETTER FOR MELT-GROWN SCINTILLATOR INGOT AND METHOD FOR GROWING THE INGOT

Carl F. Swinehart, University Heights, Ohio, assignor to The Harshaw Chemical Company, Cleveland, Ohio

Filed Aug. 7, 1978, Ser. No. 931,323

Int. Cl.³ C30B *11/06, 29/12*

U.S. Cl. 156—616 R **8 Claims**

1. In a Stockbarger or Kyropoulos process for growing an alkali metal halide scintillator ingot from a melt in a furnace, the improvement comprising distributing in said melt from about 5 to about 1000 parts per million parts (ppm) by weight of said melt, of each component of a combination getter consisting essentially of at least a slightly melt-soluble reactive oxide of boron as one component, and an insoluble but active silicon dioxide as the other component, and superheating said melt for a period of time sufficient to react at least some of each component with trace impurities present in said melt.

4,277,304

ION SOURCE AND ION ETCHING PROCESS

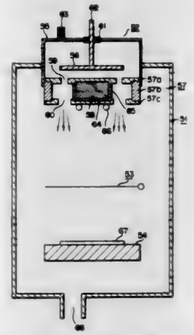
Yasuhiro Horiike, Tokyo; Haruo Okano, Yokohama; Masahiro Shibagaki, Hiratsuka, and Katsuo Kadono, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 22, 1979, Ser. No. 87,041

Claims priority, application Japan, Nov. 1, 1978, 53-133718

Int. Cl.³ H01L *21/306*; **H01J** *17/04*

U.S. Cl. 156—643 **9 Claims**



9. An ion etching process, comprising steps of introducing a gas into a vacuum container; applying a voltage between an anode and a cathode with a looped slit which are disposed opposite to each other in said vacuum container, so that an orthogonal electromagnetic field may be formed in the vicinity of said looped slit as a combination of an electric field created by said impression of the voltage and a magnetic field created by a permanent magnet which is disposed in a position corresponding to a portion of said cathode that is surrounded by said looped slit; generating gas plasma from said gas by means of said orthogonal electromagnetic field; taking out positive ions in said gas plasma through said looped slit; and applying said extracted positive ions to a workpiece to be etched.

4,277,305

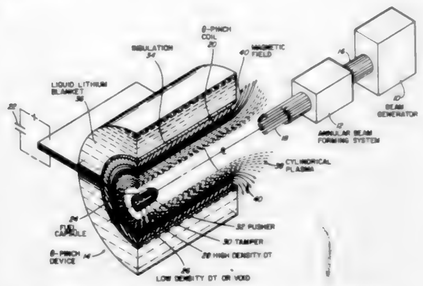
BEAM HEATED LINEAR THETA-PINCH DEVICE FOR PRODUCING HOT PLASMAS

Ihor O. Bohachevsky, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 13, 1978, Ser. No. 960,410

Int. Cl.³ G21B *1/00*

U.S. Cl. 176—1 **5 Claims**



1. A device for generating a hot plasma comprising:

a cylindrically shaped fuel element concentrically aligned with a predetermined axis;

a linear theta pinch device concentrically aligned with said predetermined axis;

a working gas contained within said linear theta pinch device;

cylindrical plasma sheath means generated by said linear theta pinch device from said working gas for producing a theta pinch compression wave in said fuel element;

a concentric fuel element plasma layer formed by vaporization and ionization of an outer portion of said fuel element by the application of said cylindrical plasma sheath to said fuel element;

annular beam means concentrically aligned with said concentric fuel element plasma layer to dispose energy in said concentric fuel element plasma layer sufficient to ablatively drive said fuel element to produce a beam generated compression wave in said fuel element;

whereby said theta pinch compression wave and said beam generated compression wave arrive at the center of said fuel element nearly simultaneously to enhance generation of said hot plasma.

4,277,306

COIL-LESS DIVERTORS FOR TOROIDAL PLASMA SYSTEMS

Tihiro Ohkawa, LaJolla, Calif., assignor to General Atomic Company, San Diego, Calif.

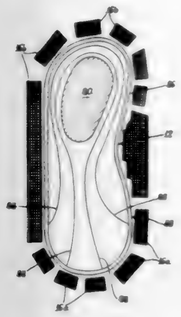
Filed Dec. 22, 1977, Ser. No. 863,521

Int. Cl.² G21B *1/00*

U.S. Cl. 176—9 **4 Claims**

1. In a toroidal plasma confinement method including the steps of providing a toroidal vacuum chamber zone, providing a high temperature hydrogen plasma in the vacuum chamber zone and a toroidal magnetic field in which the plasma is embedded, and providing a poloidal magnetic field in which the plasma is embedded, the improvement comprising controlling plasma impurities by generating a magnetic plasma confining field for confining a high temperature plasma having continuous inner flux lines in a high temperature plasma zone in a plasma vacuum chamber without internal divertor coils, which chamber is elongated in a direction along the major toroidal axis, generating a region of lower magnetic field strength in said elongated vacuum chamber for confining a plasma of lower temperature than said high temperature plasma to provide said poloidal field with a field configuration in which the radially outer flux lines of said poloidal magnetic field about

the high temperature plasma are axisymmetrically bound to terminate at the vacuum chamber wall about said region of lower magnetic field strength adjacent the high temperature plasma in a direction along the major toroidal axis opposite the



direction of positive ion toroidal drift, providing a source of pure hydrogen at the high temperature plasma zone, evacuating the low temperature plasma zone, and maintaining a low temperature plasma adjacent the high temperature plasma.

4,277,307

METHOD OF RESTORING SI CRYSTAL LATTICE ORDER AFTER NEUTRON IRRADIATION

Peter Voss, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 842,606, Oct. 17, 1977, abandoned. This application Mar. 19, 1979, Ser. No. 21,912

Int. Cl.³ G21G *1/06*

U.S. Cl. 176—10 **1 Claim**

1. In a method of restoring crystal lattice order in a carbon containing Si monocrystal by annealing this crystal at a minimum temperature, wherein such Si monocrystal is doped by neutron irradiation within a nuclear reactor and is then annealed as a function of irradiation conditions (ratio of thermal to fast neutrons) therein and as a function of the amount of carbon within such irradiated Si monocrystal, the improvement comprising:

determining the amount of carbon within the Si crystal; and

adjusting the annealing temperature so that:

(a) when the ratio of the thermal to fast neutrons within such nuclear reactor is in the range of 1:1 to less than 10:1 and

(a_1) the amount of carbon within said irradiated Si monocrystal is greater than $3 \cdot 10^{16}$ atoms/cm^3, the annealing temperature is adjusted to a value greater than 1100° C., and

(a_2) the amount of carbon within said irradiated Si monocrystal is less than $3 \cdot 10^{16}$ atoms/cm^3, the annealing temperature is adjusted to a value in the range of 750° to 1000° C.; and

(b) when the ratio of thermal to fast neutrons within said nuclear reactor is in the range of 10:1 to less than 100:1 and

(b_1) the amount of carbon within said irradiated Si monocrystal is greater than $3 \cdot 10^{16}$ atoms/cm^3, the annealing temperature is adjusted to a value greater than 1000° C., and

(b_2) the amount of carbon within said irradiated Si monocrystal is less than $3 \cdot 10^{16}$ atoms/cm^3, the annealing temperature is adjusted to a value of at least 750° C.

4,277,308

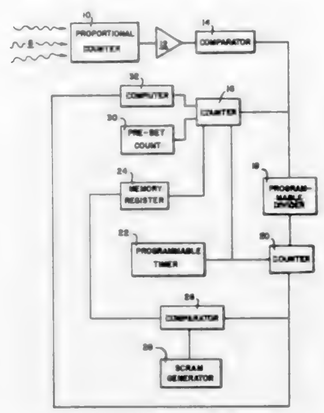
COUNT-DOUBLING TIME SAFETY CIRCUIT

Gordon K. Rusch, Downers Grove; Donald J. Keefe, Lemont, and William P. McDowell, Downers Grove, all of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 23, 1978, Ser. No. 918,259

Int. Cl.³ G21C *17/00*; G01T *3/00*

U.S. Cl. 176—19 EC **5 Claims**



1. A rate of change of reactor power level count-factor-increase time monitor for developing a scram signal with the count-factor-increase time less than or equal to a particular value corresponding to an asymptotic period T, comprising a pulse-type neutron detector having a pulsed output developing pulses corresponding to the incidence of a neutron thereon, means coupled to said detector for counting the number of pulses N_1 therefrom during a first time period Δt, means coupled to said detector for counting the number of pulses N_2 therefrom during a next time period Δt divided by n, said next time period Δt beginning at the end of said first time period Δt, where n is greater than 1 and $\Delta t = T(\ln n)$, and comparator means coupled to both said means for counting and being responsive to the values counted thereof to develop a scram signal with $N_2 \geqq 1.1N_1$ during said next time period.

4,277,309

NUCLEAR REACTOR INSTALLATION

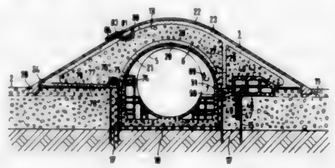
Hans-Peter Schabert, Erlangen, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Jul. 29, 1977, Ser. No. 820,257

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1976, 2634294

Int. Cl.² G21C *19/20*

U.S. Cl. 176—37 **14 Claims**



1. Nuclear reactor installation having a tight concrete tank sunk at least in part into earth formed with a groundwater-permeable layer and a largely impermeable layer providing a lower boundary for the groundwater-permeable layer, comprising a ring wall disposed in the earth and surrounding the concrete tank, said wall extending down through the groundwater-permeable layer at least to the impermeable layer, means for connecting groundwater in the part of the groundwater-permeable layer enclosed by said wall with groundwater in the part of the groundwater-permeable layer located outside said wall, said connecting means including a pump for maintaining a negative pressure in the groundwater in the permeable layer part enclosed by said wall and a filter for separating activity carriers from the groundwater in the permeable layer part enclosed by said wall, and a hill of fill-earth directly covering the top of the concrete tank, said hill being formed of strata of material of varying permeability including an impermeable stratum forming an outer surface of said hill and extending beyond said wall.

4,277,310

WATER-COOLED NUCLEAR REACTOR

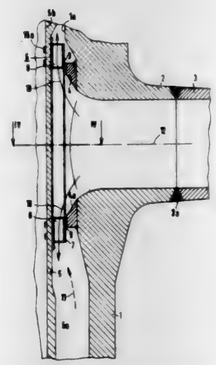
Wolfgang Braun, Buckenhof, and Leonhard Irion, Rückersdorf, both of Fed. Rep. of Germany, assignors to Kraftwerk Union Ag, Mulheim an der Ruhr, Fed. Rep. of Germany

Filed May 15, 1975, Ser. No. 577,874

Claims priority, application Fed. Rep. of Germany, May 20, 1974, 2424427

Int. Cl.³ G21C *9/00, 15/00*

U.S. Cl. 176—50 **6 Claims**



1. A water-cooled nuclear reactor including a pressure vessel having a wall with an inside and an outside and provided with a water-coolant inlet nozzle having inner and outer ends with insides, a pipe on the outside of the vessel and connected with the outer end of the nozzle and normally providing a flow of water coolant entering the vessel through the inner end of the nozzle, and a check valve assembly for the inner end of the nozzle and enclosed within the inside of the nozzle and vessel, the assembly comprising a plurality of individually swinging flap valves and means for mounting the flap valves so that they operate in parallel and are interposed in said flow and so that they are swung open by said flow and closed by a reverse flow; said reactor having a core barrel within the said vessel, the barrel having an outside, the barrel's outside and the vessel's inside forming a space into which the inner end of the nozzle opens, said means comprising an annular frame surrounding the nozzle's inner end and substantially closing off said space, the frame forming radial passages and the flap valves being positioned to open and close these passages.

4,277,311

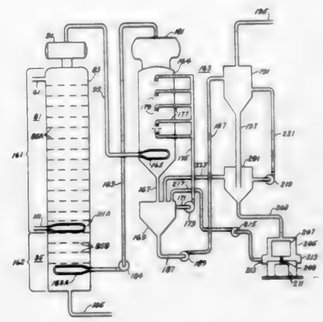
APPARATUS FOR DISTILLATION

Daniel Kwasnoski, Hellertown, and Charles J. Sterner, Bethlehem, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Division of Ser. No. 695,625, Jun. 14, 1976, Pat. No. 4,140,586. This application Nov. 27, 1978, Ser. No. 963,869

Int. Cl.³ B01D *3/38*

U.S. Cl. 202—183 **9 Claims**



1. A regenerative vapor stripping apparatus for removing volatile components from a liquid comprising:

(a) a stripping column containing mass transfer contact means,

(b) a direct contact regenerative, countercurrent heat exchanger adjacent to the stripping column and containing heat exchange means comprised of mass transfer contact means arranged and constructed to provide a countercurrent flow heat recovery zone in the heat exchanger,

(c) conduit means operatively connected with the upper portion of the stripping column to conduct a liquid containing volatilizable components into said upper portion of the stripping column,

(d) conduit means operatively connected with the lower portion of the stripping column to conduct a primary heating and stripping gas into said lower portion of the stripping column separate from any heat exchange apparatus,

(e) liquid passage means operatively connecting the lower portion of the stripping column with the upper portion of the direct contact heat exchanger to conduct hot stripped liquid from said lower portion of the stripping column to said upper portion of the direct contact heat exchanger,

(f) conduit means operatively connected with the lower portion of the direct contact heat exchanger to conduct cooled stripped liquid from said lower portion of the direct contact heat exchanger,

(g) conduit means operatively connected with the lower portion of the direct contact heat exchanger to conduct a cool inert noncondensable gas into the lower portion of said direct contact heat exchanger,

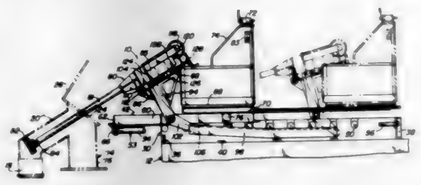
(h) gas passage means operatively connecting the upper portion of the direct contact heat exchanger to the lower portion of the stripping column to conduct hot inert noncondensable gas from said upper portion of the direct contact heat exchanger to said lower portion of the stripping column,

(i) conduit means operatively connected with the upper portion of the stripping column to conduct volatile components from the upper portion of the stripping column.

4,277,312
ASCENSION PIPE CLEANING APPARATUS

James F. McKenna, and Douglas O. Anderson, both of Pittsburgh, Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Sep. 15, 1980, Ser. No. 187,301
Int. Cl.³ C10B 43/08
U.S. Cl. 202—241 6 Claims

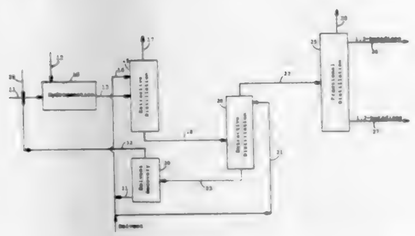


1. Apparatus for cleaning the interior of coke oven ascension pipe elbows comprising:
(a) a support base having oppositely spaced, longitudinal beams;
(b) a plurality of rollers journaled for rotation at longitudinally spaced locations along each of said beams;
(c) a carriage supported by said rollers for translational movement along said base;
(d) means for reciprocably moving said carriage along said base;
(e) a cleaning tool pivotally secured to said carriage;
(f) a cam mounted in fixed relation to said base; and
(g) a cam follower connected between said cleaning tool and said cam, whereby the cleaning tool is imparted with a compound movement in response to the action of said cam and said reciprocating means to guidingly manipulate said cleaning tool within said ascension pipe elbow.

4,277,313
RECOVERY OF 1,3-BUTADIENE

Yuv R. Mehra, Odessa, and Ralph E. Clark, Corpus Christi, both of Tex., assignors to El Paso Products Company, Odessa, Tex.

Filed Mar. 27, 1980, Ser. No. 134,687
Int. Cl.³ B01D 3/34
U.S. Cl. 203—32 18 Claims

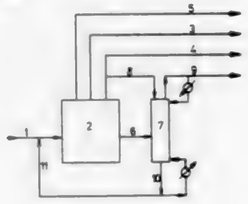


9. In a process for recovering 1,3-butadiene from a hydrocarbon mixture containing C_4-alkanes, C_4-alkenes, C_4-alkadienes and C_4-alkynes the improvement which comprises (1) providing a crude hydrocarbon mixture containing butanes, butenes, 1,3-butadiene, 1,2-butadiene pentanes, pentenes and between about 0.2–30 percent of C_4-alkynes comprising methylacetylene, vinylacetylene and ethylacetylene; (2) directly introducing said crude mixture into a hydrogenation zone and selectively hydrogenating the alkynes in the mixture whereby the alkyne content of the mixture is substantially reduced, thereby eliminating the need for secondary processing steps to separate alkyne components from butadiene components; (3) introducing the hydrogenated hydrocarbon mixture into an intermediate zone of a first extractive distillation unit, and contacting the said hydrocarbon mixture with a selective solvent in the extractive distillation unit and which solvent dissolves 1,3-butadiene more readily than the butanes and butenes; (4) recovering from the extractive distillation unit an overhead distillate fraction containing butanes and butenes, and recovering a bottom solution phase containing 1,3-butadiene; and (5) introducing the said solution phase into an intermediate zone of a second extractive distillation unit, and contacting the solution phase with additional selective solvent in the second extractive distillation unit under conditions which provide for the recovery of an overhead distillate fraction containing 1,3-butadiene, and the recovery of a solvent phase which contains residual acetylenes.

4,277,314
ISOLATION OF 1,3-BUTADIENE FROM A C4-HYDROCARBON MIXTURE

Alfred Lindner, Bobenheim-Roxheim; Klaus Volkamer, Frankenthal, and Ulrich Wagner, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,283
Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2823983
Int. Cl.³ B01D 3/40
U.S. Cl. 203—50 4 Claims



1. A process for isolating 1,3-butadiene by means of a selective solvent from a C_4-hydrocarbon mixture which contains 1,3-butadiene, propyne, hydrocarbons which are more soluble than 1,3-butadiene in the selective solvent and hydrocarbons which are less soluble than 1,3-butadiene in the selective solvent, which process comprises:
a. subjecting the C_4-hydrocarbon mixture to extractive distillation in a butadiene isolation plant, wherein the C_4-hydrocarbon mixture is separated into a distillate containing the hydrocarbons less soluble than 1,3-butadiene, a stream containing 1,3-butadiene and propyne, and a stream containing the hydrocarbons more soluble than 1,3-butadiene,
b. distilling the stream containing 1,3-butadiene and propyne in a distillation zone downstream of the extractive distillation in the butadiene isolation plant to obtain a stream of 1,3-butadiene which is recovered and as a distillate a hydrocarbon mixture containing 1,3-butadiene and the propyne,
c. subjecting the distillate from the downstream distillation zone to distillation in an additional distillation zone, said distillate being fed into the additional distillation zone in a middle region, extending from the middle of the additional distillation zone to the extent of about 80% into both the upper and lower half of the additional distillation zone,
d. feeding at the same time a second stream of liquid or gaseous hydrocarbons to the additional distillation zone at or above the feed point of the distillate from the downstream distillation zone, obtaining as overhead from the additional distillation zone a propyne-containing hydrocarbon mixture having a 1,3-butadiene content of not more than 10% by weight, and
e. recycling the 1,3-butadiene-containing bottom product only from the additional distillation zone to the extractive distillation zone solely within said butadiene isolation plant.

4,277,315
ISOLATION OF A CONJUGATED DIOLEFIN FROM A C4- OR C5-HYDROCARBON MIXTURE

Klaus Volkamer, Frankenthal; Klaus Broelios, Seeheim; Alfred Lindner, Bobenheim-Roxheim; Ulrich Wagner, Limburgerhof; Hans-Martin Weitz, Bad Duerkheim, and Klaus-Juergen Schneider, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

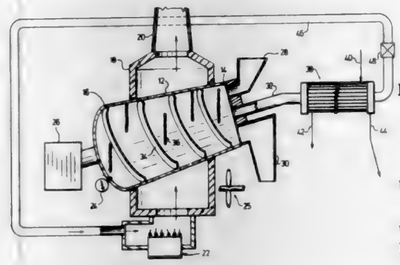
Filed Mar. 3, 1980, Ser. No. 126,897
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911394
Int. Cl.³ B01D 3/40; C07C 7/08
U.S. Cl. 203—51 3 Claims

1. A process for isolating a conjugated diolefin from a C_4- or C_5-hydrocarbon mixture containing the diolefin, by extractive distillation using a selective solvent, wherein the selective solvent is a solvent mixture which comprises
(a) from 50 to 98 percent by weight of a N-alkyl-substituted lower aliphatic acid amide or of a N-alkyl-substituted alicyclic acid amide having 5 ring members and
(b) from 2 to 50 percent by weight of a lower aliphatic carboxylic acid ester or carbonic acid ester boiling at from 30° C. to 200° C.

4,277,316
SOLVENT EXTRACTION PROCESS

Robert A. Taylor, 368 Ferry Point Rd., Pasadena, Md. 21122

Filed Dec. 4, 1979, Ser. No. 100,132
Int. Cl.³ B01D 3/08
U.S. Cl. 203—99 4 Claims

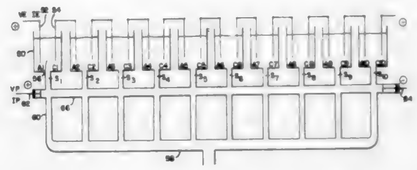


1. A process for separating solvents from solvent bearing material, comprising providing a reactor vessel rotatable about a substantially horizontal axis and having internal vanes operable to move the material from one end towards the other end of the vessel when the vessel is rotated in one direction and to move the material towards said one end when the vessel is rotated in the opposite direction, feeding said material to said one end of the realtor vessel, heating the reactor vessel to a predetermined temperature while rotating the vessel in said one direction to cause solvent to be distilled from the material, collecting distilled gases from said one end of the vessel and subsequently cooling said gases to condense the distillate,, continuing the heating of the vessel to a temperature high enough to produce a free-flowing residue when the reactor vessel is cooled, cooling the vessel, and rotating the vessel in said opposite direction to cause the residue to be discharged from said one end of the vessel.

4,277,317
SHUNT CURRENT ELIMINATION AND DEVICE EMPLOYING TUNNELED PROTECTIVE CURRENT

Patrick G. Grimes, Westfield, N.J., and Markus Zahn, Gainesville, Fla., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 26, 1979, Ser. No. 97,194
Int. Cl.³ C25B 9/04, 15/06; H01M 8/04, 2/38
U.S. Cl. 204—1 R 42 Claims



1. A method of minimizing shunt currents in an electrochemical device having a plurality of cells, said cells being connected, at least in part, in series, said device having an electrolyte which is fed to at least two of said cells as a shared electrolyte from a common manifold via individual inlet channels, whereby an electrical electrolytic conductive bypass path is created around these cells and through said shared electrolyte, which otherwise results in undesirable shunt currents, said method comprising providing electrolyte tunnels which connect the individual inlet channels and applying a protective current through said electrolyte tunnels and thus through said shared electrolyte, the protective current being of a magnitude which effectively at least reduces said shunt currents.

4,277,318
ELECTROCHEMICAL BENZYLIC OXIDATIONS

Paul L. Matlock, White Plains, and Michael R. Sandner, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Apr. 15, 1980, Ser. No. 140,610
Int. Cl.³ C25B 3/02
U.S. Cl. 204—78 12 Claims

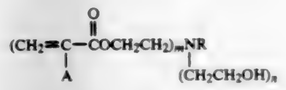
1. Method of oxidizing benzylic methylene groups to ketones which comprises in a membrane divided electrolytic cell having an anolyte compartment and a catholyte compartment each fitted with an anode and cathode respectively in a closed circuit connected to a d.c. power source,
(a) charging said anolyte compartment with a biphasic aqueous-organic solvent system comprising a hydrocarbon having about 7 to about 30 carbon atoms and at least one benzylic methylene group, about 0.01 to about 10,000 moles of 0.001 to 30 N aqueous mineral acid per mole of hydrocarbon, about 1×10^{-6} to about 100 moles of a manganese compound per mole of hydrocarbon, and a catalytic amount of a phase transfer catalyst in one phase, together with about 0.1 to about 10,000 moles of an alkylene halide having 2 to about 6 carbon atoms per mole of hydrocarbon in a second phase;
(b) charging 0.01 to about 10,000 moles of 0.01 to 30 N aqueous mineral acid per mole of hydrocarbon to the catholyte compartment; and
(c) passing sufficient direct current through said electrolytic cell to convert the hydrocarbon benzylic methylene groups to ketone groups.

4,277,319
RADIATION CURABLE COMPOSITIONS

Kayson Nyi, Sellersville, and Sandra I. Graham, North Wales, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 466,353, May 2, 1974, Pat. No. 4,001,304. This application Apr. 22, 1976, Ser. No. 679,254
Int. Cl.³ C08J 3/28
U.S. Cl. 204—159.23 4 Claims

1. A radiation curable composition containing (1) from about 5 to 80% by weight of the formula:



wherein A is hydrogen or methyl; R is a radical of the formula $-CH_2CH_2X$ wherein X is nitro; m is a number having a value in the range of 1 to 2; and n is a number having a value in the range of 0 to 1, (2) from about 20 to about 95% of another photopolymerizable polyfunctional ethylenically unsaturated compound and (3) an effective amount of a photoinitiator.

4,277,320
PROCESS FOR DIRECT THERMAL NITRIDATION OF SILICON SEMICONDUCTOR DEVICES

Moiz M. E. Begwala, Placentia, and Francis M. Erdmann, Anaheim, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Oct. 1, 1979, Ser. No. 80,859
Int. Cl.³ C01B 21/068; B05D 3/06; H01L 7/00
U.S. Cl. 204—164 8 Claims

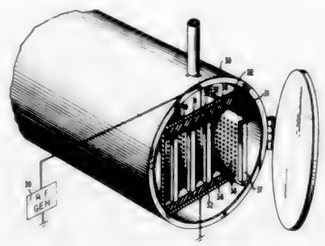


1. A method of forming a high purity silicon nitride layer on a major surface of a silicon semiconductor body comprising the steps of:
removing the native oxide from the surface of the silicon semiconductor body by subjecting the body to a hydrogen atmosphere;
subjecting said silicon semiconductor body to an atmosphere entirely comprising substantially pure N_2;
ionizing said atmosphere for a predetermined period of time so that the nitrogen is ionized;
chemically reacting the nitrogen ions with silicon on the surface of said silicon semiconductor body so that the nitrogen ions and the silicon combine to form a layer of silicon nitride on the body; and
removing said silicon semiconductor body from said nitrogen atmosphere.

4,277,321
TREATING MULTILAYER PRINTED WIRING BOARDS

Charles J. Bartlett, Madison; Ronald J. Rhodes, South Plainfield, and Ray D. Rust, Berkeley Heights, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation-in-part of Ser. No. 32,339, Apr. 23, 1979, Pat. No. 4,230,553. This application Jan. 17, 1980, Ser. No. 113,117
The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.
Int. Cl.³ C23C 15/00
U.S. Cl. 204—192 E 4 Claims

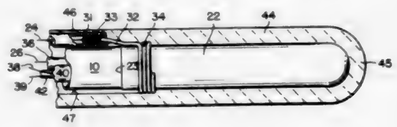


1. A process for treating a laminated structure having metal layers separated by an insulating layer, and holes therethrough, comprising the steps of placing the structure in a partially evacuated chamber containing a gas comprising oxygen, making electrical contact to at least some of the metal layers, and applying an electric field to the contacts so as to create a gas plasma that extends into the holes.

4,277,322
OXYGEN SENSOR

William T. Kane, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,480
Int. Cl.³ G01N 27/58
U.S. Cl. 204—195 S 10 Claims

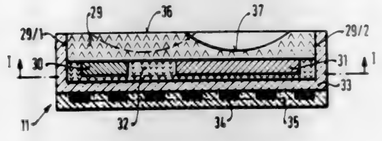


1. An oxygen sensor comprising
a tubular body having a closed end and an opposite open end,
an electroded portion of the body including the closed end and comprising a solid oxygen-ion-conducting electrolyte with metal film electrodes attached on the outer and inner surfaces of the electrolyte,
a compressible, porous, ceramic boot firmly press-fit onto and over the electroded portion in slidable and frictional engagement with the electrode on the outer surface of the electrolyte so as to maintain contact between the electrolyte and the electrode on the outer surface of the electrolyte and to maintain the electrical conducting function of that electrode, and
the ceramic of the boot being nonreactive with the metal electrode in contact with the boot.

4,277,323
ELECTROCHEMICAL OXYGEN SENSOR, PARTICULARLY FOR USE IN THE EXHAUST SYSTEM OF AUTOMOTIVE-TYPE INTERNAL COMBUSTION ENGINES

Klaus Muller, Tamm; Helmut Maurer, Schwieberdingen; Ernst Linder, Mühlacker; Franz Rieger, Aalen, and Bodo Ziegler, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,600
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909201
Int. Cl.³ G01N 27/58
U.S. Cl. 204—195 S 11 Claims

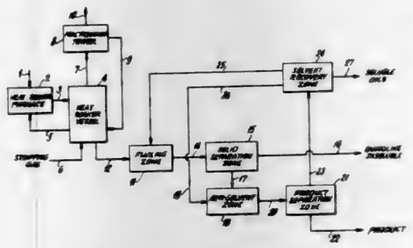


1. Electrochemical oxygen sensor, and particularly to determine the oxygen content in the exhaust gases in a combustion process, for example from an internal combustion engine comprising
an electrically insulated elongated carrier plate (29) having one end portion exposed to the gases, said carrier plate being of a material pervious to oxygen molecules;
a layer of solid electrolyte material (32) secured to the carrier plate on one major surface thereof, said carrier plate providing both a support substrate and a path for oxygen molecules to said layer electrolyte material;
layer-like electrodes embedded in the solid electrolyte material and located on one major surface of the insulating carrier plate;
insulating connecting paths (30/1, 31/1) connected to said electrodes and extending to the other end portion of the carrier plate to permit electrical connection thereto;
and a gas-impervious insulating cover (33), applied to the major side of the solid electrolyte body remote from its side which is secured to the carrier plate, and entirely covering the surfaces of the solid electrolyte body not facing said carrier plate.

4,277,324
TREATMENT OF PITCHES IN CARBON ARTIFACT MANUFACTURE

Sydney H. Greenwood, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 13, 1979, Ser. No. 29,760
Int. Cl.³ C10C 1/18, 3/08
U.S. Cl. 208—45 16 Claims



1. A process for treating carbonaceous graphitizable pitches comprising:
adding an organic fluxing liquid to a carbonaceous graphitizable pitch to provide a fluid pitch containing insoluble solids suspended therein, said solids including substantially all the quinoline insoluble solids present in the pitch, said organic fluxing liquid being added in an amount sufficient to lower to viscosity of the pitch whereby the fluid pitch is capable of flowing through a 0.5 micron filter with suction filtration;
separating said fluid pitch from said solids;
treating said separated fluid pitch with an organic liquid to precipitate at least a substantial portion of said pitch; and,
separating the precipitated pitch from said organic liquid whereby a pitch free of quinoline insoluble solids is obtained.

10. A process for treating a thermal or cracked residuum of a petroleum origin capable of being thermally converted to an optically anisotropic phase comprising:
heating said residuum at temperatures in the range of from about 350° C. to about 450° C. at least until polarized light microscopic examination of samples of said heated residuum indicate the formation of optically anisotropic spherules therein;
terminating said heating and adding an organic fluxing liquid to said heated residuum to provide a fluid pitch containing insoluble solids suspended therein, said solids including substantially all the quinoline insoluble solids present in said heated residuum;
separating said solids from said fluid pitch;
treating said separated fluid pitch with an organic solvent system having a solubility parameter at 25° C. of between about 8.0 and about 9.5, said treating being at a temperature and with an amount of organic solvent system sufficient to provide a solvent insoluble fraction which is thermally convertible into a deformable pitch containing greater than 75% of an optically anisotropic phase; and,
separating said solvent insoluble fraction from said solvent system.

4,277,325
TREATMENT OF PITCHES IN CARBON ARTIFACT MANUFACTURE

Sydney H. J. Greenwood, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 29,760, Apr. 13, 1979. This application May 2, 1980, Ser. No. 146,157
Int. Cl.³ C10C 3/16
U.S. Cl. 208—45 7 Claims

6. In the process of preparing a pitch suitable for carbon artifact manufacture wherein a carbonaceous isotropic graphitizable pitch is fluxed with an organic fluxing liquid to provide a fluid pitch having insoluble solids suspended therein and wherein said solvent insolubles are separated from said fluid pitch and said fluid pitch is thereafter treated with an organic solvent system having a solubility parameter at 25° of between about 8.0 and 9.5 in an amount sufficient to provide a solvent insoluble fraction thermally convertible into a deformable pitch containing greater than 75% of an optically anisotropic phase, the improvement comprising treating said fluid pitch with from 5% to 15% of said solvent system in a first stage, separating the solid formed in said first stage, and thereafter treating the remainder of the fluid pitch in a second stage with from about 85% to 95% of the organic solvent system to provide a solvent insoluble fraction, and thereafter separating said solvent insoluble fraction.

4,277,326

OXYGEN ALKYLATION OF PHENOL-CONTAINING HYDROCARBONACEOUS STREAMS

Richard H. Schlosberg, New Providence, and Charles G. Scouten, Westfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 19, 1979, Ser. No. 95,641
Int. Cl.³ C10G 19/08; C07C 41/00
U.S. Cl. 208—263 **28 Claims**

1. A process for improving the properties of phenol-containing coal liquids by oxygen-alkylation which process comprises contacting the coal liquid with:

(a) a multivalent metal composition selected from the group consisting of oxides and/or hydroxides of one or more multivalent metals capable of forming hydroxy metal phenates with phenols of the coal liquid, wherein said contacting is performed at temperatures lower than the decomposition temperature of the hydroxy metal phenates; and

(b) one or more alkylating agents represented by the formula RX where R is a C_1 to about C_{18} group selected from the group consisting of alkyl, allyl, cycloalkyl, haloalkyl, benzyl and arylalkyl, provided X is located on the alkyl portion of the alkylating agent and X is sulfate or a halide selected from the group consisting of chlorine, bromine and iodine.

4,277,327

TREATMENT OF PHENOL-CONTAINING FEED STREAMS

Richard H. Schlosberg, New Providence, and Martin L. Gorbaty, Westfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 19, 1979, Ser. No. 95,642
Int. Cl.³ C10G 19/08; C07C 41/00
U.S. Cl. 208—263 **13 Claims**

1. A process for improving the properties of coal liquids by oxygen-alkylation comprising contacting the coal liquid at a temperature less than about 100° C. with:

(a) an aqueous base solution comprised of an alkali or alkaline-earth metal oxide or hydroxide or mixtures thereof, wherein the base solution is capable of removing the acidic protons of the phenolic and carboxylic functionality of the coal liquid and forming the corresponding metal phenate salt; and

(b) one or more alkylating agents represented by the formula RX where R is a C_1 to about C_{18} group selected from the group consisting of alkyl, allyl, cycloalkyl, haloalkyl, benzyl and arylalkyl, provided X is located on the alkyl portion of the alkylating agent and X is sulfate or a halide selected from the group consisting of chlorine, bromine and iodine.

4,277,328

FLOTATION APPARATUS FOR SEPARATING IMPURITIES FROM A FIBER SUSPENSION

Lothar Pfalzer, and Siegbert Fischer, both of Heidenheim, Fed. Rep. of Germany, assignors to J.M. Voith GmbH, Fed. Rep. of Germany

Filed Feb. 20, 1980, Ser. No. 123,013
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1979, 2906599
Int. Cl.³ B03D 1/20
U.S. Cl. 209—169 **24 Claims**

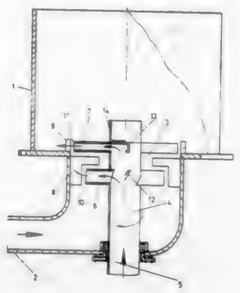
1. Flotation apparatus for removing ink, or the like, from a fiber suspension formed from waste paper, the apparatus comprising:

a container in which the fiber suspension is to be floated; the container having a lower region;

a drive shaft; a pump impeller on the drive shaft for pumping suspension from the lower region of the container;

a feed opening for the suspension located in the lower regin of the container and discharging from the lower region of the container into the region of the pump impeller in the container;

an air feed conduit into the container; the air feed conduit having an outlet therefrom;



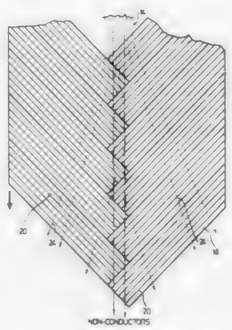
a rotor on the drive shaft for dispersing the air introduced into the container by the air feed conduit; the rotor being located downstream of the impeller along the drive shaft in the direction of flow of suspension into the container; the air feed conduit outlet being in the region of the rotor.

4,277,329

INDUCTION BELT SEPARATION

Patrick E. Cavanagh, Toronto, Canada, assignor to Magnemite Inc., Mississauga, Canada

Filed Aug. 10, 1979, Ser. No. 65,460
Claims priority, application United Kingdom, Oct. 3, 1978, 39108/78
Int. Cl.³ B03C 1/22
U.S. Cl. 209—212 **10 Claims**



1. A method of separating electrically-conducting mineral particles from non-electrically-conducting mineral particles, said particles having a particle size of about −8 to about +325 mesh, which comprises:

conveying a dry mixture of said conducting and non-conducting particles along a substantially rectilinear path, said mixture being of uniparticular thickness,

subjecting said mixture to alternate north and south magnetic poles spaced apart about 1/32 to about 1 inch and arranged at an acute angle to said rectilinear path in the conveying direction to exert a magnetic field of strength of about 100 to about 800 gauss on said mixture and to cause said electrically-conducting particles to rotate towards the next successive magnetic pole and assume a path of movement out of said rectilinear path and towards said angle while said non-conducting particles remain undeflected in said rectilinear path, said rectilinear path being about 5 to about 10 percent of the width of the magnetic field,

said deflected particles having a diameter which is less than or equal to about 0.637 times the magnetic pole spacing and said deflected particles of greater particle size being deflected from said rectilinear path to a greater extent than said deflected particles of smaller particle size, and

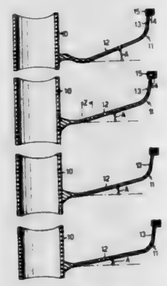
separately collecting at least one stream of deflected particles and at least one stream of undeflected particles.

4,277,330

SPIRAL SEPARATORS

Douglas C. Wright, Terranora, and Sidney N. Roberts, Banora Point, both of Australia, assignors to Inbeed Pty. Ltd., New South Wales, Australia

Filed Jan. 29, 1980, Ser. No. 116,629
Claims priority, application Australia, Feb. 5, 1979, PD7563; Mar. 15, 1979, PD8074; Aug. 7, 1979, PD9920
Int. Cl.³ B03B 5/52
U.S. Cl. 209—459 **6 Claims**



1. A spiral separator supported with its axis substantially vertical which is adapted to receive at an upper end thereof a pulp of water and minerals to be separated, said spiral separator including:

a plurality of helical turns wherein the bottom of each turn in cross section includes a substantially straight or flat portion and an outer portion, said straight portion being inclined at an angle to horizontal and said outer portion being inclined upwardly relative to the straight portion, characterized in that the angle to horizontal of the straight portion of each or adjacent groups of turns progressively decreases from top to bottom throughout at least a major part of the length of the spiral separator to thereby develop a braking effect on the flow of pulp which comprises heavy particles, light particles and intermediate size particles, whereby the flow of light particles throughout the said substantial part of the spiral separator is gradually shifted outwardly from the flow of heavy particles and intermediate size particles to facilitate subsequent separation of the light particles from said heavy and intermediate size particles; and

dividing means for dividing said light particles from said heavy particles and intermediate particles and means for withdrawing said light particles from said heavy and intermediate size particles separately.

4,277,331

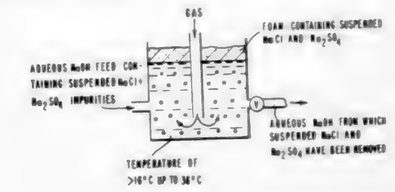
ONE-STAGE FLOTATION PURIFICATION OF NAOH

Raymond H. Conageski, Montague, Mich., assignor to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Jun. 14, 1979, Ser. No. 48,590
Int. Cl.³ B03D 1/02
U.S. Cl. 23—293 R **7 Claims**

1. A process for purifying an aqueous solution containing less than 52 weight percent of NaOH by removing suspended NaCl and Na_2SO_4 impurities, comprising:

(i) bubbling a gas into the impurity-containing NaOH solution at a temperature above 16° C. up to about 36° C., to



transport suspended impurities to the surface of the NaOH solution and form a surface foam layer on the NaOH solution; and

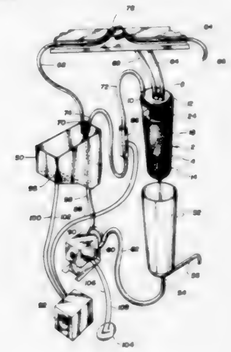
(ii) separating the surface foam layer of impurities from the NaOH solution.

4,277,332

WATER PURIFIER

John W. Baughn, Saline, Mich., assignor to Gelman Sciences, Inc., Ann Arbor, Mich.

Filed Mar. 10, 1980, Ser. No. 128,596
Int. Cl.³ B01D 15/04, 23/14, 31/00
U.S. Cl. 210—96.2 **10 Claims**



6. A water purification device comprising:

an elongated cylindrical housing having an entrance opening at the bottom end thereof for entrance into said housing of the water to be purified and having an upper wall at the top end thereof; a water-permeable layer of particulate charcoal in said housing; a water-permeable layer of particulate ion-exchange resin in said housing above said layer of particulate charcoal; a cylindrical water-permeable filter membrane having a pore size of less than 0.5 microns secured and sealed at its upper end to said upper wall of said housing and sealed at its lower end by a round impermeable plate, said cylindrical filter membrane and round plate having a diameter less than that of said housing thereby providing a space exterior of said cylindrical membrane, between said housing and said cylindrical membrane, separated by said membrane from the space interior of said cylindrical membrane whereby water in said housing exterior of said cylindrical membrane can reach the space interior of said membrane only by passage through said membrane; said upper wall of said housing having a pair of openings therethrough adjacent the center thereof communicating with the space interior of said cylindrical membrane for exit from said housing of water

which has passed through both of said layers and through said membrane, and said upper wall having a third opening therethrough adjacent the periphery thereof which communicates with said space between said membrane and said housing for exit from said housing of water which has passed through both of said layers but not through said membrane, said third opening being smaller than either of said pair of openings;

a water reservoir;

a first conduit extending from one of said pair of openings to said reservoir;

a second conduit extending from the other of said pair of openings to a water outlet;

a third conduit extending from said third opening to said reservoir;

conduit means extending from said reservoir to the entrance opening on the bottom end of said housing;

a pump for pumping water from said reservoir into and through said housing;

valve means operatively associated with said first and second conduits for closing one of said first and second conduits and opening the other of said first and second conduits; and

an electrical conductivity cell in one of said conduits extending from said housing to said reservoir to measure the electrical resistivity of the water flowing therethrough.

4,277,333

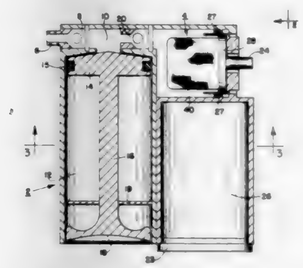
PORTABLE WATER FILTRATION SYSTEM

Peter J. Coppola, Two Garrity Rd., Burlington, Mass. 01803

Filed Sep. 18, 1979, Ser. No. 76,572

Int. Cl.³ B01A *27/08*

U.S. Cl. 210—136 **1 Claim**



1. A portable water filtration system comprising

a pump having a cylinder, a piston and an actuating handle, an inlet port communicating with said cylinder,

a first check-valve means positioned between said inlet port and said cylinder and arranged to permit the unidirectional flow of water into said cylinder,

removable filter means positioned adjacent to and laterally displaced from the longitudinal axis of said cylinder,

an outlet duct communicating with said cylinder and said filter means,

a second check-valve means positioned in said outlet duct and arranged to permit the unidirectional flow of water from said cylinder,

a storage chamber having rigid walls and being positioned adjacent and rigidly secured to said cylinder with its longitudinal axis extending substantially parallel with the longitudinal axis of said cylinder, whereby the storage chamber mechanically reinforces said pump, and

an integral unitary body having a first cavity joining said cylinder, a second cavity forming said storage chamber, and a third cavity adapted to removably retain said filter means, said filter means being positioned substantially along a common axis displaced laterally from the longitudinal axis of said cylinder.

4,277,334

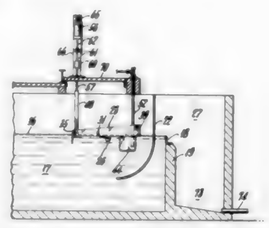
OIL AND DEBRIS SKIMMER

Louis E. Ruidisch, Fishkill, and Sterling O. Van Wagenen, Wappingers Falls, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,583

Int. Cl.³ B01D *35/08*

U.S. Cl. 210—154 **1 Claim**



1. An automatic oil and debris skimmer, comprising in combination

a rectangular channel for directing the flow of contaminated water for separation of said floating oil and debris,

a weir at the downstream end of said channel for maintaining a predetermined depth therein,

a tray pivotally supported transversely relative to said channel and located adjacent to but upstream from said weir,

said tray having an open end at the upstream side and said pivotal support being centrally located between said open end and the opposite end thereof,

said tray also having a well adjacent to said opposite end for receiving said floating oil and debris when tipped about said pivotal support,

means for mounting said tray in a normal attitude parallel to and beneath the surface of said contaminated water in said channel for skimming said floating oil and debris as said water flows toward said weir,

a yoke pivotally attached to said tray adjacent to said open end,

a reciprocating piston mounted above said channel and attached to said yoke for periodically raising said yoke to tip said tray about its pivotal support to wash said skimmed oil and debris into said well,

a suction pipe extending into said well for removing said oil and debris, and

a baffle between said tray and said weir for retaining any debris which may pass downstream of said tray.

4,277,335

EXPANSION AND CONTRACTION DRIVE APPARATUS

Mitutaka Hori, 3128-5, Koizumi-cho, Yamatokohriyama-shi, Nara-ken, Japan

Filed May 8, 1979, Ser. No. 37,093

Claims priority, application Japan, Aug. 11, 1978, 53-111413[U]

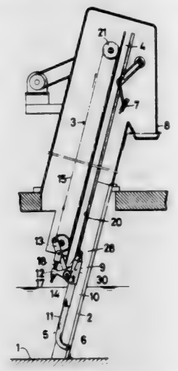
Int. Cl.³ E02B *5/08*

U.S. Cl. 210—159 **2 Claims**

1. In an elongated dirt remover for submerging in an effluent, said dirt remover having upper and lower ends, a bar screen (2) extending between said ends, a rake claw (6) normally held at said dirt remover lower end, disposed for longitudinal movement between said dirt remover upper and lower ends along said screen to remove unwanted dirt deposited thereon, an elongated endless first moving means (15) including a drive therefor, said first moving means being disposed for connection to said rake claw (6) for moving said rake claw, and telescoping means with upper and lower ends coupling said rake claw (6) and said first moving means (15), in combination:

link means (12, 13, 17) including a driver (14) connecting said first moving means lower end to said telescoping

means upper end; at least upper and lower telescoping pipes extending between said first moving means lower end and said rake claw, the outer periphery of one pipe being sized to just fit and slide within the inner periphery of the other pipe, and, cascaded second moving means with upper and lower ends disposed in at least two of said pipes, said second moving means (22, 23) each consisting of an endless tension member (27) extended between upper and lower guide wheels (26) one of the cascaded second moving means being longitudinally disposed in



each pipe, the lower guide wheel of the upper of said cascaded second moving means being disposed adjacent to the second moving means of said lower telescoping pipes said lower guide wheel having a spindle fixed to a part of said endless tension member of said lower pipe, the guide wheel of the uppermost pipe having a spingle (28) coupled to said driver (14), by tranmission means (30), and, rack and pinion means (20, 19) operatively coupled to driver (14), spindle (28) and the transmission means (30) so as to telescope the pipes.

4,277,336

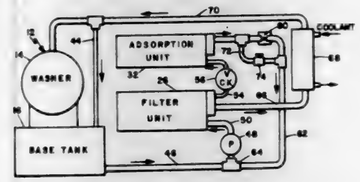
MULTIPLE BY-PASS FILTER SYSTEM

Arthur O. Henschel, Jr., 1031 Roosevelt, National City, Calif. 92050

Continuation of Ser. No. 921,819, Jul. 17, 1978, abandoned. This application Jan. 11, 1980, Ser. No. 111,332

Int. Cl.³ B01D *27/04, 37/02*

U.S. Cl. 210—167 **5 Claims**



1. A continuous flow multiple pass filtering system for filtering dry cleaning fluid from a dry cleaning washer comprising in combination:

a mechanical filter including a chamber having an inlet and an outlet and at least one filter element between said inlet and said outlet,

a pump for supplying fluid directly to the inlet of said mechanical filter,

an adsorption filter including a chamber having an inlet communicating with the outlet of said mechanical filter, an outlet and at least one filter element between said inlet and said outlet, and

first conduit means for diverting at least a portion of fluid from the outlet of said mechanical filter to the inlet of said adsorption filter chamber,

second conduit means for communicating the outlet from said adsorption filter directly to the inlet to said pump for recirculating the fluid from the adsorption filter through the mechanical filter, and

fixed restricting means in said second conduit means for maintaining a predetermined minimum flow rate through said adsorption filter by controlling the fluid flow between the outlet of said adsorption filter and the inlet to said pump.

4,277,337

DEPOSIT FILTERING APPARATUS FOR FILTERING TURBID LIQUIDS

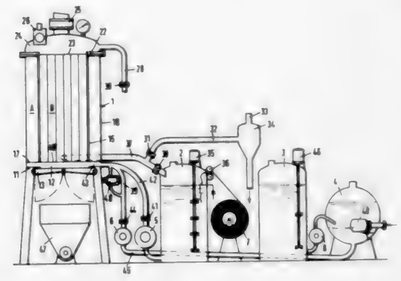
Ewald Zdansky, Vaduz, Liechtenstein, assignor to Hoval Interliz AG, Vaduz-Neugut, Liechtenstein

Filed Jun. 9, 1980, Ser. No. 157,436

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923010

Int. Cl.³ B01D *37/02*

U.S. Cl. 210—173 **9 Claims**



1. A deposit filtering apparatus for filtering turbid liquids, said apparatus comprising:

an essentially cylindrical, vertical filter container which includes turbid-liquid chambers and a filtrate chamber;

a first conduit for supplying turbid liquid to said turbid-liquid chambers;

a second conduit for discharge of filtered liquid from said filtrate chamber;

a packet of vertically arranged sieve-like, plate-shaped filter elements arranged as a removable unit in said filter container between said turbid-liquid chambers and said filtrate chamber, with said filtrate chamber surrounding the sides of said packet, said packet being closed on its four vertical sides and being tightly connected with said filter container on its upper and lower edges by means of an intermediate cover and intermediate bottom respectively, so that between said cover and bottom said filtrate chamber is separated from said turbid-liquid chambers, said filter elements being plane parallel to, and spaced from, one another to form said turbid-liquid chambers, said last mentioned chambers being open toward the top and bottom, and being tightly closed relative to said filtrate chamber by vertical spacer strips located between the vertical edges of said filter elements, with the upper and lower horizontal faces of said filter elements being tightly closed, while the vertical faces thereof are opened to said filtrate chamber between said spacer strips, that side of said filter elements facing the pertaining turbid-liquid chamber being provided with a detachable filter membrane covering formed by deposit on said element of a suspension agent which aids filtering, said filter container having a substantially flat bottom below said filter element packet, said bottom being provided with a closable qua-

dratic opening to allow removal of filter cakes which comprise filter aiding agent and impurities and which were built up and separated from said filter elements, the cross section of said quadratic bottom opening corresponding to the entire horizontal cross section of said filter element packet; and

a bottom flap connected to said filter container for tightly closing said quadratic bottom opening.

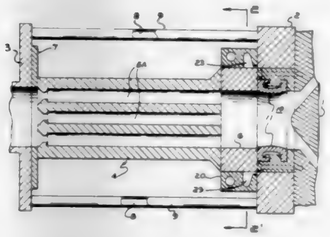
9. An apparatus according to claim 1, which includes: a preparation container for a fiber suspension, said last mentioned container being connected to a paper supply roll and being provided with a stirring mechanism having knife-like sharp blades for tearing up a paper web introduced into said preparation container; and a fourth conduit connecting said turbid-liquid chambers with said preparation container.

4,277,338

FILTER ASSEMBLY

John C. Hoegland, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 6, 1979, Ser. No. 101,023
Int. Cl.³ B01D *27/08, 29/02, 35/18;* **F16L** *17/00*
U.S. Cl. 210—186 **5 Claims**



1. A filter assembly which comprises

(A) a housing interposed between opposed, aligned end surfaces of a polymer melt inlet manifold and a polymer melt outlet manifold;

(B) at least two filter pods, each containing a plurality of filter elements, the pods being retained within said housing in side-by-side relationship, and adapted to be moved successively into tight register with inlet and outlet manifolds to define alternate polymer melt flow paths and a plurality of intermediate polymer melt flow paths in which varying proportions of adjacent pods are utilized;

(C) a primary seal device, located in a rabbet at at least one of the interfaces of the inlet and outlet manifolds with the housing, and having a cross-section the outer surface of which is generally U-shaped, the dimensions of the device being such that

(i) the convex surface of the device defines part of the polymer melt path,

(ii) one outer surface of the member providing one leg of the U-shape bears against the wall of the rabbet, and

(iii) the surface providing the other leg of the U-shape provides a sealing surface which bears against an opposed wall to form a seal between the housing and the manifold, the tightness of which is determined in part by the pressure exerted in use by the melt flow on the convex surface of the device,

(D) means for achieving a controlled movement of the filter pods into successive exclusive register with the inlet and outlet manifolds; and

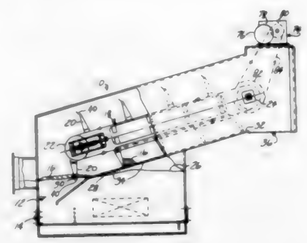
(E) means connecting inlet and outlet manifolds adapted to urge the manifolds axially towards and away from each other so as to tighten the seal at the interfaces of the manifolds and the interposed housing.

4,277,339

PAINT PIGMENT SKIMMER

Michael J. Quin, 12667 Farley, Detroit, Mich. 48239

Filed Nov. 26, 1979, Ser. No. 97,484
Int. Cl.³ B01D *29/04, 29/38*
U.S. Cl. 210—413 **7 Claims**



1. An apparatus for separating pigment containing cake from a vehicle comprising:

a reservoir for holding the cake containing vehicle;

a continuous conveyor belt supported within the reservoir inclined upward from a surface of the cake containing vehicle;

at least one outward extending wall attached the belt including a pair of opposed ends and an outer edge, said outward extending wall engaging the cake containing vehicle at a lower end of the belt;

an inclined wall supported within the reservoir disposed parallel to and spaced below the belt slidingly engaging the outer edge;

a discharge opening formed at an upper end of the inclined wall;

a pair of opposed vertical walls affixed the inclined wall;

a pair of opposed vertical resilient walls attached the opposed ends slidingly engaging the opposed vertical walls; and

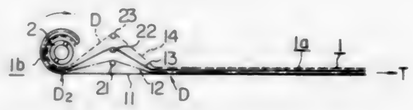
wherein cake is collected from the vehicle at a lower end of the belt and moved along the inclined wall by the outward extending wall and discharged through the discharge opening.

4,277,340

MEMBRANE SEPARATION MODULE AND APPARATUS FOR ITS PRODUCTION

Naokatu Kanamaru, Kyoto; Kazuo Imai, Moriyama, and Hisaaki Fujino, Hikone, all of Japan, assignors to Toray Industries, Inc., Japan

Division of Ser. No. 815,284, Jul. 13, 1977, Pat. No. 4,132,113.
This application Aug. 9, 1978, Ser. No. 932,399
Claims priority, application Japan, Jul. 13, 1976, 51-82486; Mar. 29, 1977, 52-34930
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—433.2 **11 Claims**



10. In a spiral-type liquid separation module for use in semipermeable membrane separation apparatus, comprising a hollow mandrel having at least one hole in its outer circumference, and a sheet layer arrangement which, viewed in transverse cross section, comprises a plurality of pairs of semipermeable membrane sheets and a plurality of first and second spacing layers forming first passages for carrying a permeated solution and second passages for carrying a feed solution, said first spacing layers being disposed between said membrane sheets and said second spacing layers being disposed between the outer surfaces of said respective membrane sheets, wherein said layer arrangement is spirally and tightly wound about said mandrel to form said first and second passages in spiral form, said first passages being closed at their respective radially outermost ends and open at their respective radially innermost ends to communicate with the interior of said mandrel through said hole, and said second passages being closed at their respective radially innermost ends and open at their respective radially outermost ends,

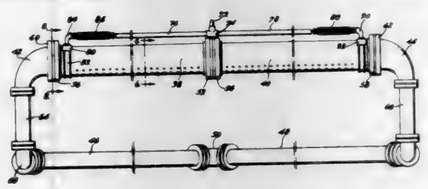
the improvement characterized in that a single semipermeable membrane sheet having a plurality of folds extending parallel and adjacent to the axis of said mandrel is provided, wherein each of said folds forms one of said pairs of membrane sheets, and wherein the axially extending ends of said single membrane sheet are joined to form said sheet into a continuous loop, when viewed in transverse cross section, with said second spacing layers being located outside the loop and said first spacing layers and said mandrel being located inside the loop.

4,277,341

WATER TREATMENT DISCHARGE MEANS

William F. Wise, Weyers Cave, and Jesse E. Snyder, Jr., Staunton, both of Va., assignors to Schramm, Inc., West Chester, Pa.

Filed Sep. 6, 1979, Ser. No. 73,029
Int. Cl.³ C02F *3/10*
U.S. Cl. 210—602 **18 Claims**



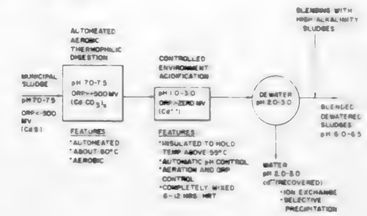
17. A method of water treatment comprising directing water into an open body of water, maintaining a substantially uniform water level therein, establishing a substantially quiescent zone in said body extending from the floor to the surface thereof, and discharging water from said body through a collector located in said quiescent zone, said collector comprising at least one elongated, substantially horizontal tube, each tube having an array of openings providing communication between its exterior and its interior, substantially all of said openings in each tube being confined to the underside of the tube and being of substantially uniform cross-sectional area, the cross-sectional area of each opening and the total cross-sectional area of all of the openings being such that, at the rate of flow of water through said collector, the velocity gradient at each opening is less than approximately 200 sec^{-1}, and the openings being distributed over an area on each tube such that the total area is substantially greater than the cross-sectional area of the discharge conduit, each tube being located with its entire array of openings submerged to a depth below the algal zone in said body and within said quiescent zone, and each tube having packing material within its interior providing labyrinthine passages adjacent substantially all of its openings for promoting uniformity of flow of water through the openings into the interior of the tube.

4,277,342

COMBINED BIOLOGICAL-CHEMICAL DETOXIFICATION OF ORGANICS

Thomas D. Hayes, Trumansburg, and William J. Jewell, Ithaca, both of N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,558
Int. Cl.³ C02F *11/02, 11/12*
U.S. Cl. 210—609 **11 Claims**



1. A combined biological-chemical method for detoxifying a slurry of sludge of the municipal sewage or industrial organic type, which sludge contains excess-waste thermophilic bacteria, biodegradable organic material, sulfur, and toxic heavy metals in insoluble form, which comprises the sequential steps of:

(a) introducing a sufficient quantity of the sludge slurry into an enclosed insulated reactor vessel to fill the same to about one-half of its volume;

(b) aerating the slurry with ambient air by means of a self-aspirating aerator, and simultaneously cutting foam produced thereby, thereby to effect autoheating of the slurry by the thermophilic bacteria to a temperature maintained in the thermophilic range of from about 43° C. to about 70° C., said autoheating being achieved by conservation of the metabolic heat of oxidation of the biodegradable organic material in said insulated reactor vessel;

(c) retaining said autoheated slurry in said reactor for a hydraulic retention time of 3 to 8 days sufficient to destroy the pathogenic bacteria and increase the oxidation reduction potential to a level greater than +500 mv, whereby the sulfur and heavy metals are converted to a desired higher oxidation state;

(d) adding to said autoheated slurry a quantity of concentrated acid in an amount sufficient to acidify said slurry to a pH value ranging from 1.0 to 3.0 for an acidification period of 6 to 12 hours sufficient to solubilize the heavy metals while maintaining said oxidation reduction potential at a level greater than zero mv, and the temperature in the thermophilic range; and

(e) dewatering the acidified slurry to remove the solubilized heavy metals therefrom, thereby to produce dewatered, detoxified acidic sludge and acidic, heavy-metal-containing water.

4,277,343

METHOD FOR CONTINUOUSLY MONITORING AND CONTROLLING ALKALINITY FOR ENVIRONMENTAL PURPOSES USING A pCO_2 PROBE

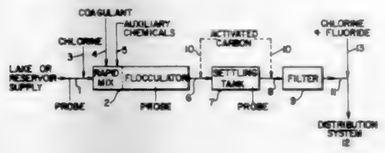
Jacob D. Paz, 33 Riverside Dr., New York, N.Y. 10023

Continuation-in-part of Ser. No. 20,032, Mar. 13, 1979, abandoned. This application Sep. 7, 1979, Ser. No. 73,432
Int. Cl.³ C02F *5/06, 3/02, 1/52*
U.S. Cl. 210—614 **16 Claims**

1. A method for continuously monitoring and controlling the total alkalinity attributable to carbon dioxide, bicarbonate ion and carbonate ion in an aqueous solution in which it is desirable to maintain alkalinity near a value customary for drinking water for environmental purposes,

said method comprising the steps of

(a) sampling the aqueous solution,
(b) in a closed system automatically adjusting the pH of the sample to a value of about 3.5,
(c) in a closed system detecting with a pCO_2 probe the total carbon dioxide of the pH-adjusted sample, the sample having been adjusted to and being maintained at a selected temperature value, and



(d) adding a sufficient amount of an alkalinity-controlling chemical to said solution to maintain alkalinity near a value customary for drinking water.

2. The method of claim 1 wherein the aqueous solution is in a water treatment system.

8. The method of claim 2 wherein the water treatment system is a waste water treatment system.

12. The method of claim 8 wherein said waste water treatment system is a biological nitrification system.

4,277,344

INTERFACIALLY SYNTHESIZED REVERSE OSMOSIS MEMBRANE

John E. Cadotte, Minnetonka, Minn., assignor to FilmTec Corporation, Minetonka, Minn.

Filed Feb. 22, 1979, Ser. No. 14,164
Int. Cl.³ B01D *13/00, 31/00*; B32B *27/34, 33/00*
U.S. Cl. 210—654 **21 Claims**

1. A sheet-like composite material comprising a microporous support layer and, supported thereon, a crosslinked, water permeable, interfacially polymerized, ultrathin polyamide desalinizing layer, said desalinizing layer comprising the interfacial condensation reaction product of the components comprising:

(a) an essentially monomeric, aromatic, amine-reactive reactant comprising a polyfunctional acyl halide, the amine-reactive acyl halide groups of said polyfunctional acyl halide being capable of condensing with primary amine functional groups to form amide linkages in less than 60 seconds under normal ambient temperature and pressure; said polyfunctional acyl halide having at least three of said acyl halide groups substituted on an aromatic nucleus comprising less than 3 aromatic rings; said amine-reactive reactant being at least 0.01 weight percent soluble in liquid aliphatic or liquid halogenated aliphatic solvents; said aromatic nucleus being free of substituents capable of chemical interference with inter-molecular amide-forming condensation reactions;

(b) an essentially monomeric, aromatic, polyamine reactant having at least two primary-amine substituents substituted on an aromatic nucleus comprising less than 3 aromatic rings; the primary amine functionality of said aromatic polyamine reactant being no more than the carboxylic acid equivalent functionality of said polyfunctional acyl halide; said aromatic polyamine reactant having a solubility in water of at least 0.01% by weight and being free of substituents capable of chemical interference with inter-molecular amide-forming condensation reactions;

said polyamide layer having a lower percent elongation than the corresponding linear polymer; a molecular weight in excess of 100,000; a crosslink density of at least 1 per 100,000; a solubility in liquid organic amide, sulfoxide, and pyrrolidone solvents or solvent blends which is less than 10% by weight; a salt rejection capability, tested with simulated sea water under 40 to 70 atmospheres pressure and 25° C., of at least 85% at a flux of at least about 400 l/m^2d;

said polyamide layer including a plurality of sites having the formula $Ar(CONH-)_2COOH$, wherein Ar represents the aromatic nucleus residue of the polyfunctional acyl halide.

9. In a process for removing solute from solute-containing water in a single pass through a desalinizing layer, the step comprising passing said water through the sheet-like composite material of claim 1 to remove at least 65% of the solute therefrom.

10. A process for the preparation of a composite reverse osmosis membrane comprising the steps of:

(a) coating a porous support with a liquid layer comprising an aqueous solution containing, dissolved therein, an essentially monomeric, aromatic polyamine reactant having at least two primary amine substituents substituted on an aromatic nucleus comprising less than 3 aromatic rings; said aromatic polyamine reactant having a solubility in water of at least 0.01% by weight and being free of substituents capable of chemical interference with amide-forming reactions;

(b) contacting the said liquid layer with an essentially monomeric, armoatic, amine-reactive reactant comprising a volatilizable polyfunctional acyl halide, said polyfunctional acyl halide being selected such that the primary amine functionality of said aromatic polyamine reactant is no more than the carboxylic acid equivalent functionality of said polyfunctional acyl halide; the amine-reactive acyl halide groups of said polyfunctional acyl halide being capable of condensing with primary amine functional groups to form amide linkages in less than 60 seconds under normal ambient temperature and pressure; the aromatic nucleus of said acyl halide comprising less than 3 aromatic rings; said amine-reactive reactant being at least 0.01 weight percent soluble in liquid aliphatic or liquid halogenated aliphatic solvents; said aromatic nucleus of said polyfunctional acyl halide being free of substituents capable of chemical interference with intermolecular amide-forming condensation reactions; thereby interfacially condensing said amine-reactive reactant with said polyamine reactant, for an effective amount of interfacial condensation reaction time ranging up to about 60 seconds, until a crosslinked, interfacial polyamide layer has been formed, said polyamide having a plurality of sites having the formula $Ar(CONH—)_2COOH$, wherein Ar represents the aromatic nucleus of the polyfunctional acyl halide; and said polyamide having a solubility of less than 10% by weight in liquid organic amide, sulfoxide, and pyrrolidone solvents or solvent blends; and

(c) drying the product of step (b) to form a composite reverse osmosis membrane having a salt rejection capability, tested with simulated sea water under 40 to 70 atmospheres pressure and 25° C., of at least 85% at a flux of at least about 400 l/m^2d.

21. A composite reverse osmosis membrane made according to claim 10.

4,277,345

METHOD FOR THE RECOVERY OF URANIUM DISSOLVED IN SEA WATER

Dieter Heitkamp, and Klaus Wagener, both of Jülich, Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Continuation of Ser. No. 887,297, Mar. 16, 1978, abandoned. This application Dec. 4, 1979, Ser. No. 100,191
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1977, 2711587
Int. Cl.³ C22B *60/02*; C02F *1/42*
U.S. Cl. 210—679 **1 Claim**

1. A method of concentrating uranium ions naturally occurring in sea water having a pH of 8.3, the method comprising the steps of:

suspending in the sea water an adsorbent matrix of humic acids and carrier material, said matrix being in the form of natural, biologically recent, chemically untreated black peat granules ranging in diameter from 0.1 mm to 10 mm said matrix being contained by a structure which admits sea water but retains the granules, the matrix having a degree of decomposition in the range of thirty-five percent to fifty-five percent, and the carrier material comprising up to ninety-nine percent of the matrix by weight;

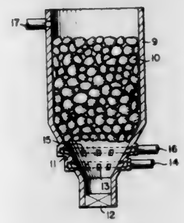
providing relative motion between the matrix and sea water to adsorb the uranium ions onto the matrix and to thereby concentrate the uranium ions for subsequent removal.

4,277,346

TREATING AGENTS FOR WASTE WATER CONTAINING DYES AND/OR OTHER ORGANIC SUBSTANCES, A PROCESS FOR TREATING SAID WASTE WATER BY USING THE SAME

Akio Sakotani, and Tohru Gomi, both of Shizuoka, Japan, assignors to Heitaro Katsukawa, Tokyo, Japan

Filed Jun. 27, 1979, Ser. No. 52,642
Claims priority, application Japan, Jun. 27, 1978, 53/77045; Mar. 3, 1979, 54/26349[U]
Int. Cl.³ C02F *1/28*
U.S. Cl. 210—691 **8 Claims**



1. A treating agent for waste water containing dyes and/or other organic substances, which is a solid solution prepared by mixing as solids component A comprising a water-insoluble calcium salt and component B consisting mainly of aluminum hydroxide, aluminum oxide or a mixture thereof at a molar ratio of about 3:1 to 1:3 and heat-treating said mixture of components A and B at a temperature between 100° C. and 450° C.

5. A process for treating waste water containing dyes and/or other organic substances, comprising bringing said waste water into contact with a treating agent prepared by mixing component A comprising a water-insoluble calcium salts and component B consisting mainly of aluminum hydroxide, aluminum oxide or a mixture thereof at a molar ratio of 3:1 to 1:3 and heat-treating said mixture of components A and B at a temperature between 100° C. and 450° C.

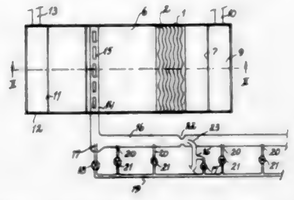
4,277,347

METHOD FOR MAKING FLOTABLE, PARTICLES SUSPENDED IN A LIQUID BY MEANS OF GAS BUBBLES

Jacob Pielkearood, Kroonmeale, Netherlands, assignor to Pielkenrood-Vinitex B.V., Netherlands

Filed Jun. 27, 1979, Ser. No. 52,556
Claims priority, application Netherlands, Jun. 30, 1978, 7807081
Int. Cl.³ C02F *1/24*
U.S. Cl. 210—704 **2 Claims**

1. A flotation method for separating particles suspended in a first carrier liquid to be treated by adhesion of gas bubbles to said particles in which said first liquid to be treated is conveyed along a first flow path towards an outlet in a flotation chamber and a second liquid which is saturated at an elevated pressure with a gas is conveyed along a second flow path, and is introduced after being depressurized to the pressure of the first liquid into said first liquid at a first inlet near said outlet, the abrupt pressure reduction causing the formation of small gas bubbles in said first liquid for flotating suspended particles by adherence to gas bubbles; the method comprising the steps of introducing the second liquid into the first flow path after



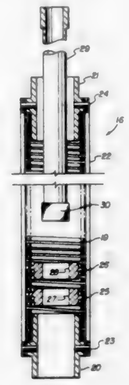
depressurization to the pressure of the first liquid at a plurality of additional inlets spaced along the length of the first flow path upstream of said first inlet to produce gas bubbles in said first liquid to ensure that the first liquid is sufficiently saturated with gas before the second liquid is introduced into the first liquid at said first inlet, thereby prolonging the life of the small bubbles to increase flotation of the particles.

4,277,348

METHODS FOR CLEANING A HELICAL SPRING FILTER

Reynaldo Calderon, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 944,952, Sep. 22, 1978, Pat. No. 4,180,463. This application Jun. 4, 1979, Ser. No. 44,897
Int. Cl.³ B01S *35/02*
U.S. Cl. 210—791 **7 Claims**



1. A method for cleaning a helical spring filter having its convolutions spaced apart a predetermined distance for the passage of filtrate therebetween comprising,

(a) rotating an annular cleaning ring means between the adjacent helical spring convolutions from one end of the helical spring filter to the filter's other end for scraping off foreign material from between the spaced apart spring convolutions, and

(b) passing the filtrate axially through the middle of the annular ring means for continued filtering between the spring convolutions after being cleaned.

4,277,349

METHOD OF CLEANING PLATE-TYPE FILTER ELEMENTS LOCATED IN A TANK FILTER

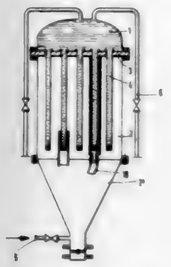
Günther Schwinghammer, Dortmund, Fed. Rep. of Germany, assignor to Holstein und Kappert GmbH, Dortmund, Fed. Rep. of Germany

Division of Ser. No. 963,752, Nov. 27, 1978, Pat. No. 4,201,674. This application Aug. 27, 1979, Ser. No. 69,996

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1977, 2752906

Int. Cl.³ B01D 23/06

U.S. Cl. 210—797 **2 Claims**



1. Method of cleaning plate-type filter elements in a tank filter where the tank filter comprises an upper chamber for filtrate, a lower chamber for unfiltered liquid, a sheet separating the upper chamber from the lower chamber and a plurality of plate-type filter elements depending downwardly from the upper chamber through the sheet into the lower chamber with the filter elements made up of a plurality of discs stacked one on top of the other and forming microfine slots therebetween when the discs are pressed together, wherein the method comprises the steps of placing a tubular member around and laterally enclosing at least an axially extending portion of a plate-type element from the end of the element spaced downwardly from the sheet and forming an annular chamber about the exterior of the element with the inner surface of the annular chamber being defined by the exterior surface of the plate-type element and the outer surface being defined by the inner surface of the tubular member, sealing the upper end of the annular chamber between the exterior surface of the filter element and the laterally enclosing tubular member, and introducing a pressurized cleaning fluid directly into the lower end of the annular chamber for providing a body of the pressurized cleaning fluid in the annular chamber for flow directly inwardly from the annular chamber over the full annular and axial extent of the element within the laterally enclosed chamber so that the full pressure of the pressurized cleaning fluid within the annular chamber acts over the entire surface of the laterally enclosed portion of the element with the pressurized cleaning fluid flowing inwardly between the plates of the filter element in the same direction as normal filtering flow for dislodging any contamination between the plates.

4,277,350

TEXTILE SOFTENING AGENT

Yutaka Minegishi, Miyashiro, and Toshiro Nishimura, Wakayama, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

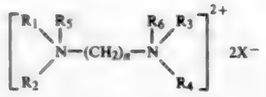
Filed Nov. 29, 1979, Ser. No. 98,685

Claims priority, application Japan, Dec. 5, 1978, 53-150290

Int. Cl.³ D06M 13/46, 13/38

U.S. Cl. 252—8.8 **4 Claims**

1. A softening agent for textile finishing comprising as an essential component 3–20% by weight of a quaternary ammonium salt represented by the formula,



wherein R_1, R_2, R_3 and R_4 each represent an alkyl group having 12 to 22 atoms, R_5 and R_6 each represent an alkyl group having 1 to 3 carbon atoms, X represents a halogen atom or a monoalkyl sulfate group containing an alkyl group having 1 to 3 carbon atoms, and n is an integer of 4 to 8.

4,277,351

METHOD FOR IMPROVING SULFONATE SURFACTANTS USED IN ENHANCED RECOVERY PROCESSING IN SUBTERRANEAN OIL-BEARING FORMATIONS

George W. Powers, Jr., Crown Point, Ind.; H. Robert Froning, and Davis L. Taggart, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation of Ser. No. 858,658, Dec. 8, 1977, abandoned. This application Dec. 20, 1979, Ser. No. 105,492

Int. Cl.³ C09K 3/00

U.S. Cl. 252—8.55 D **7 Claims**

1. A process for preventing formation of sulfite impurities which impede the flow of sulfonated surfactants through subterranean formations which comprises contacting a sulfonate surfactant containing sulfite impurities with an aldehyde having from about one to about eighteen carbon atoms to complex said sulfite impurities wherein said aldehyde is present at a concentration of at least the stoichiometric amount necessary to complex the sulfite in the surfactant.

4,277,352

DEMULSIFICATION OF EMULSIONS PRODUCED FROM SURFACTANT RECOVERY OPERATIONS AND RECOVERY OF SURFACTANTS THEREFROM

Jean B. Allison; Mohan V. Kudchadker, both of Houston, and Lawrence E. Whittington, Katy, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Mar. 26, 1979, Ser. No. 24,000

Int. Cl.³ E21B 43/22

U.S. Cl. 252—8.55 D **4 Claims**

1. In an enhanced recovery process for the recovery of oil from a subterranean oil-bearing formation employing the injection of an aqueous slug comprising a petroleum sulfonate surfactant whereby an emulsion of oil and water is produced containing said surfactant in the oil phase from said formation, the method of treating said produced emulsion with a water soluble solubilizing agent selected from the group consisting of water-soluble alcohols or polyhydric alcohols, alkoxylated phenols, alkoxylated alkyl phenols, alkoxylated alcohols, polyoxyalkylated mercaptans, sulfated or sulfonated derivatives of alkoxylated phenols, the sulfated or sulfonated derivatives of the alkoxylated alcohols and mixtures thereof, wherein said solubilizing agent is contained in an aqueous medium thereby extracting said surfactant from said emulsion and partitioning said surfactant into said aqueous medium, said aqueous medium being recycled to said oil-bearing formation to continue said enhanced recovery process.

4,277,353

OIL-SOLUBLE SUBSTITUTED MONO AND BICYCLIC OXAZOLIDINES, THEIR PREPARATION AND USE AS ADDITIVES FOR FUNCTIONAL FLUIDS

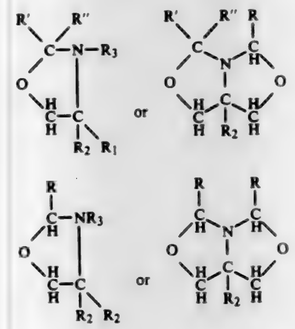
Harold E. Deen, Cranford; Rosemary O'Halloran, Union; Esther D. Winans, Colonia; Jack Ryer, East Brunswick, all of N.J., and Stanley J. Brois, Spring, Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jan. 7, 1980, Ser. No. 109,800

Int. Cl.³ C10M 1/32

U.S. Cl. 252—51.5 R **5 Claims**

1. A composition comprising a major amount of a functional fluid and a minor but at least a copper-corrosion inhibiting amount of an oil-soluble-4-alkyl mono- or 5-alkyl bicyclic oxazolidine characterized by the formulas:

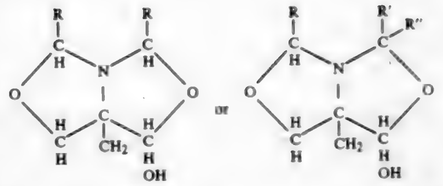


or

or

or

wherein: R is hydrogen or a C_1 to C_{30} hydrocarbyl substituent group; R′ and R″ may be the same or different and each is a C_1 to C_7 hydrocarbyl substituent group; R_1 is hydrogen, methylol, methyl or ethyl; R_2 is methyl or ethyl; and R_3 is hydrogen or methyl.



wherein R represents hydrogen and C_1 to C_{30} hydrocarbyl substituent and R′ and R″ may be same or different and are each a C_1 to C_7 hydrocarbyl group.

4,277,354

OIL-SOLUBLE HYDROCARBYL SUBSTITUTED 1-AZA-3,7-DIOXABICYCLO[3.3.0]OCT-5-YL METHYL ALCOHOLS, AS ADDITIVES FOR FUNCTIONAL FLUIDS

Stanley J. Brois, Spring, Tex.; Jack Ryer, East Brunswick, and Esther D. Winans, Colonia, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 962,977, Nov. 22, 1978, which is a continuation-in-part of Ser. No. 752,872, Dec. 20, 1976, abandoned, and Ser. No. 752,873, Dec. 20, 1976, Pat. No. 4,069,023, which is a division of Ser. No. 573,545, May 1, 1975, Pat. No. 4,017,406. This application Jan. 7, 1980, Ser. No. 109,597

Int. Cl.³ C10M 1/32

U.S. Cl. 252—51.5 R **6 Claims**

1. A composition comprising a major amount of a functional fluid being an oil of lubricating viscosity and a minor but at least a copper-corrosion inhibiting amount of an oil-soluble hydrocarbyl substituted bicyclic oxazolidine.

2. A composition according to claim 1 wherein said functional fluid is an automatic transmission fluid comprising a major amount of a mineral lubricating oil and said oxazolidine is characterized by the formulas:

wherein R represents hydrogen and C_1 to C_{30} hydrocarbyl substituent and R′ and R″ may be same or different and are each a C_1 to C_7 hydrocarbyl group.

4,277,355

INSULATIVE FIREPROOF TEXTURED COATING

Alexander Farcnik, 2237 Hurley Way, Apt. No. 76, Sacramento, Calif. 95825

Continuation-in-part of Ser. No. 79,957, Sep. 28, 1979, abandoned. This application Sep. 29, 1980, Ser. No. 192,073

Int. Cl.³ C04B 43/00, 43/08; C09D 7/12, 1/04

U.S. Cl. 252—62 **7 Claims**

1. An improved insulative fireproof liquid coating composition, said composition consisting essentially of:

a. 31 to about 34 volume percent of water as a vehicle;

b. granular, non-porous inorganic filler selected from the group consisting of silica-containing refractory material, calcium carbonate and mixtures thereof;

c. pollution-free water-soluble alkali metal silicate binder, the combined concentration of said water and said silicate being 41 to about 49 volume percent;

d. granular, porous thermoinsulating inorganic filler selected from the group consisting of lava rock, cinder slag and mixtures thereof; and

e. about 0.8–1.2 volume percent of liquid organic suspending agent comprising a vehicle having therein material selected from the group consisting of starch, paraffin, halogenated paraffin and mixtures thereof.

4,277,356

SOFT LITHIUM-TITANIUM-ZINC FERRITE

William Simonet, Paris, France, assignor to Thomson-CSF, Paris, France

Continuation-in-part of Ser. No. 859,714, Dec. 12, 1977, Pat. No. 4,155,863. This application Jan. 17, 1979, Ser. No. 4,199

Claims priority, application France, Dec. 14, 1976, 76 37624

The portion of the term of this patent subsequent to May 22, 1996, has been disclaimed.

Int. Cl.³ C04B 35/26

U.S. Cl. 252—62.59 **8 Claims**

1. A soft lithium-titanium-zinc ferrite having a resistivity of at least 10^7 ohm-cm measured at 20° C. and 100 volts, manufactured by forming a mixture of metal oxides and carbonates, crushing said formed mixture, calcining said crushed mixture in an air atmosphere at about 700° C. for about 2 hours, and sintering said calcined mixture in an oxygen-containing atmosphere at from 950° to 1100° C. for from 1 to 18 hours; wherein said mixture consists essentially of metal oxides and carbonates in proportions calculated as oxides which satisfy the formula

$$Li_aTi_tZn_zMn_mFe_\epsilon O_4+\beta Bi$$

wherein

$a=0.5(1+t-z)$

$b=0.5(5-3t-z-2m-5\epsilon)$

$0 \leqq t \leqq 0.08$

$0.50 \leqq z \leqq 0.60$

$0.005 \leqq m \leqq 0.035$

$0.02 \leqq \epsilon \leqq 0.06$

and β is from 0.0015 to 0.05 molar equivalent.

4,277,357

HEAT OR COLD STORAGE COMPOSITION CONTAINING A HYDRATED HYDRAULIC CEMENT

Bryan J. Boardman, Chadds Ford, Pa., assignor to Boardman Energy Systems Incorporated, Wilmington, Del.

Filed Jan. 31, 1980, Ser. No. 117,042
Int. Cl.³ C09K 5/06
U.S. Cl. 252—70 87 Claims

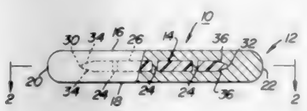
1. A polyphase latent heat storage composition useful for the storage of heat or cold, comprising a latent heat storage component with a heat of fusion greater than 16 gram calories per gram (67 joules per gram) wherein said latent heat storage component is intimately intermixed with a hydrated hydraulic cement component.

4,277,358

ENVIRONMENTALLY DEGRADABLE SOAP BAR SYSTEM

Lamar Hopkins, R.D. #1, Norristown, Pa. 19401

Continuation-in-part of Ser. No. 763,233, Jan. 27, 1977, abandoned. This application Sep. 19, 1979, Ser. No. 76,684
Int. Cl.³ C11D 9/26, 10/06, 17/04
U.S. Cl. 252—92 8 Claims



1. An environmentally degradable soap bar system comprising:
(a) a soap bar having a predetermined contour;
(b) an insert member formed of an environmentally degradable composition and positionally located internal said soap bar, said insert member being formed from a water soluble plastic composition selected from the group consisting of hydroxypropyl cellulose, and polyethylene oxide, said insert member being dissolved subsequent to said soap bar being worn away thereby exposing said insert member to the external environment; and,
(c) means for securing said insert member to said soap bar independent of wear orientation imposed on said soap bar during use.

4,277,359

WATER TREATMENT TO INHIBIT CORROSION AND SCALE AND PROCESS

Richard J. Lipinski, Aurora, Ohio, assignor to Mogul Corporation, Chagrin Falls, Ohio

Filed Apr. 4, 1979, Ser. No. 13,254
Int. Cl.³ C02B 5/06
U.S. Cl. 252—181 14 Claims

1. A water composition for treating water to inhibit scale and corrosion of metals exposed thereto which comprises a major amount of a water soluble polymer derived from acrylic acid characterized by having a molecular weight ranging up to about 2500 and having over 90% by weight of acrylic acid monomeric units; and an amount of phosphorous acid and the salts thereof effective to enhance said inhibition.

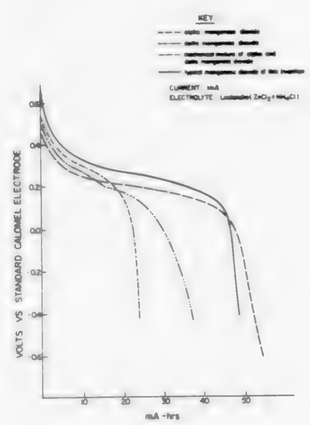
4,277,360

MANGANESE DIOXIDE

Geoffrey W. Mellors, North Royalton, and Glenn W. Sheffield, Strongsville, both of Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 28, 1979, Ser. No. 24,596
Int. Cl.³ H01M 4/88; C01G 45/02
U.S. Cl. 252—182.1 8 Claims

1. A method for producing a manganese dioxide composition for use as a battery cathode depolarizer comprising homogeneous manganese dioxide having domains of alpha and delta manganese dioxide as determined by X-ray diffraction patterns showing, at an intensity of I/I of 10 or more, "d" lines with at least the following values:
about 6.91 to about 7.27,
about 4.90 to about 4.98,
about 2.40 to about 2.46 and
about 1.41 to about 1.43, and
having a combined sodium content of about 0.1 to about 2.0% by weight on a dry basis; and having sufficient electrochemical activity as a battery depolarizer according to the Kozawa and Powers test procedure to exhibit a voltage against a standard calomel electrode of at least +0.2 volt after a 30 milliamperehour discharge comprising the steps of:
(a) reacting a sodium containing composition selected from the group consisting of sodium hydroxide, sodium carbonate, sodium oxide and mixtures thereof with a manganese-oxygen containing composition of a temperature in the range of from about 200° C. to about 600° C., in the mole ratio of sodium to manganese in the range of from about 0.3:1.0 to about 4.0:1.0; and



(b) treating the reaction product with an aqueous acid in a concentration and amount sufficient to decrease the sodium content of the final manganese dioxide composition to an amount in the range of from about 0.1 to about 2.0% by weight on a dry basis.

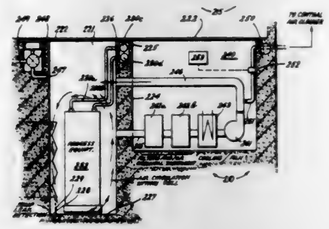
7. A manganese dioxide composition for use as a battery cathode depolarizer comprising homogeneous manganese dioxide having domains of alpha and delta manganese dioxide as determined by X-ray diffraction patterns showing, at an intensity of I/I. of 10 or more, "d" lines with at least the following values:
about 6.91 to about 7.27,
about 4.90 to about 4.98,
about 2.40 to about 2.46 and
about 1.41 to about 1.43, and
having a combined sodium content of about 0.1 to about 2.0% by weight on a dry basis; and having sufficient electrochemical activity as a battery depolarizer according to the Kozawa and Powers test procedure to exhibit a voltage against a standard calomel electrode of at least +0.2 volt after a 30 milliamperehour discharge.

4,277,361

VENTILATING SYSTEM FOR REPROCESSING OF NUCLEAR FUEL RODS

Milton J. Szulinski, Richland, Wash., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed May 4, 1977, Ser. No. 793,659
Int. Cl.² G21F 7/06; G21C 19/42
U.S. Cl. 422—120 5 Claims



1. In a reprocessing plant for depleted fuel rods, the combination of:
a plurality of quasi-hermetically sealed compartments in which appropriate steps of the reprocessing are conducted;
an air processing facility for each said quasi-hermetically sealed compartment;
at least one means for introducing air into the combination of said quasi-hermetically sealed compartment and its air processing facility;
an exhaust manifold system for withdrawing stale air from each of a plurality of said quasi-hermetically sealed compartments and directing such stale air to a central air cleaner;
a central air cleaner for the stale air collected by said exhaust manifold system;
turnover rate control means for each said quasi-hermetically sealed compartment maintaining the air inventory turnover rate in said combination of quasi-hermetically sealed compartment and its air processing facility at one turnover in a time interval greater than one day but less than one year, such turnover rate defining the quasi-hermetic sealing of the compartment; and
filtering means and cooling means in each said air processing facility adapted uniquely to deal with the air characteristics recirculated to its corresponding quasi-hermetically sealed compartment.

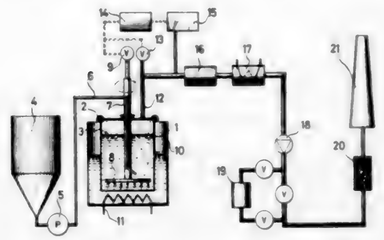
4,277,362

METHOD OF TREATING RADIOACTIVELY CONTAMINATED SOLVENT WASTE

Heinz Mallek; Werner Jablonski, both of Linnich-Tetz, and Willi Plum, Stolberg, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschrankter Haftung, Jülich, Fed. Rep. of Germany

Filed Jun. 27, 1978, Ser. No. 919,739
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1977, 2729325
Int. Cl.³ G21F 9/08, 9/14
U.S. Cl. 252—301.1 W 7 Claims

1. A method of treating radioactively contaminated solvent waste including foreign substances and solvent portions which are volatile, which includes the steps of:
supplying said solvent waste to a first absorbent material which effects dispersion of the solvent and absorption of the foreign substances found in said solvent waste;
passing a gas selected from the group consisting of air and inert gas through said first absorbent material to pick up solvent portions which are volatile as a consequence of their vapor pressure so as to form a gas mixture; and



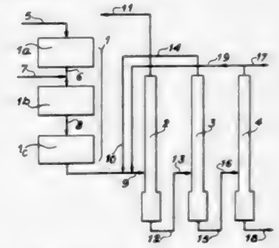
purifying said gas mixture by combustion of said solvent portions.

4,277,363

METHOD FOR PROCESSING A MIXTURE OF AIR AND RARE GASES, ESPECIALLY XENON AND KRYPTON

Jacques Duhayon, Gif-sur-Yvette; Jean-Pierre Goumondy, Vitry; Alain Leudet, Massy, and Jean-Claude Rousseau, Mainvilliers, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 13, 1979, Ser. No. 66,103
Claims priority, application France, Aug. 11, 1978, 78 23735
Int. Cl.³ G21F 9/02
U.S. Cl. 252—301.1 W 8 Claims



1. A method for processing a mixture of air and rare gases, at least some portion of which is radioactive, as gaseous effluents arising from the reprocessing of irradiated fuels, wherein said method comprises concentrating the rare gases in solution in liquid argon, as a liquefied mixture, by cryogenic distillation of light gases, a major portion of which is nitrogen, from the liquefied mixture.

4,277,364

ENCAPSULATION BY ENTRAPMENT

Baruch S. Shasha, Peoria; William M. Doane, Morton, and Charles R. Russell, Peoria, all of Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation-in-part of Ser. No. 642,836, Dec. 22, 1975, abandoned. This application Oct. 19, 1976, Ser. No. 733,968
Int. Cl.³ B01J 13/02; A01N 25/26
U.S. Cl. 252—316 30 Claims

1. A method of encapsulating a chemical biological agent comprising the steps of:
a. preparing a dispersion or solution of a suitable chemical biological agent in a first matrix-forming material comprising an aqueous solution of a polyhydroxy polymer xanthate (PPX) having a xanthate degree of substitution (D.S.) of from about 0.1 to 3, wherein said solution has a concentration of PPX of from about 5–70%, and wherein the relative amount of said PPX with respect to said biological agent is sufficient to entrap said agent within a matrix of said PPX;

b. reacting from a single phase said PPX with a coupling agent selected from the group consisting of sodium nitrite, nitrous acid, iodine, chlorine, sodium tetrathionate, cyanogen bromide, nitrosyl chloride, chloramine T, hydrogen peroxides, and water-soluble salts of polyvalent metal ions at a pH of from about 2 to about 7 to form a first insolubilized matrix thereby entrapping said agent; and

c. recovering said entrapped chemical biological agent.

23. A composition of matter produced by the process of claim 1.

4,277,365

PRODUCTION OF REDUCING GAS

Peter L. Paull, Weston, Conn., and Edward T. Child, Tarrytown, N.Y., assignors to Texaco Development Corporation, White Plains, N.Y.

Continuation of Ser. No. 950,636, Oct. 12, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,325

Int. Cl.³ C01B 3/34; C10J 3/46

U.S. Cl. 252—373 **8 Claims**

1. A process for the production of a reducing gas which comprises subjecting a carbonaceous feed consisting essentially of a mixture of a low grade hydrocarbon oil and 30–70 weight percent of a high ash solid fuel containing at least 30 weight percent ash in the presence of H_2O in an amount not greater than 0.19 pound per pound of gasifiable material in the feed to partial oxidation with an oxygen containing gas in the presence of a fluxing agent added in an amount between about 1 and 10 weight percent based on the feed at a temperature between about 2000° and 2800° F. using an O:C atomic ratio of less than 1.2 to produce a reducing gas having a reducing ratio of at least 10 and having a free carbon content of less than 2.0 percent based on the carbon content of the feed.

4,277,366

POLY(ALKYLENE OXIDE) COMPOSITION

Blake F. Mago, Pocono Pines, Pa., assignor to Union Carbide Corporation, New York, N.Y.

Filed Sep. 26, 1979, Ser. No. 79,202

Int. Cl.³ C23F 11/12, 11/14

U.S. Cl. 252—392 **10 Claims**

1. A poly(alkylene oxide) composition having incorporated therein an effective amount of a mononuclear aromatic compound having at least one substituent nitro group.

4,277,367

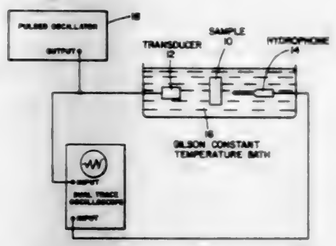
PHANTOM MATERIAL AND METHOD

Ernest L. Madsen; James A. Zagzebski; Richard A. Banjavic, and Michele M. Burlew, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Oct. 23, 1978, Ser. No. 953,761

Int. Cl.³ C09K 3/00; G01N 31/00, 33/00; A61B 10/00

U.S. Cl. 252—408 **26 Claims**



1. Tissue mimicking material comprised of a scatterer in finely divided form uniformly dispersed throughout a congealed gel matrix, having in the absence of particulate scatterers a speed of sound within the range of 1400–1650 m/s, and formed of a gel forming material, water and an organic hydroxy compound soluble in the water, with or without a preservative.

25. Tissue mimicking material comprised of a scatterer in finely divided form uniformly dispersed throughout a congealed gel matrix, having in the absence of particulate scatterers a speed of sound within the range of 1400–1650 m/s, and formed of a gel forming material, water and an organic hydroxy compound soluble in the water, with or without a preservative, in which the gel forming material is gelatin, in which the hydroxy compound is n-propanol present in an amount within the range of 5–25% by volume of the gel, and in which the scatterer is graphite present in the gel in an amount within the range of 0.01–0.2 gm/cm³.

4,277,368

SULFUR DIOXIDE DETECTOR

J. A. Amy, Bloomington, Ind., and Harvard C. Huber, Arlington, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 10, 1980, Ser. No. 129,061

Int. Cl.³ G01N 21/06, 21/12; C09K 3/00

U.S. Cl. 252—408 **4 Claims**

1. A method of preparing a composition for use in detecting the presence of sulfur dioxide comprising,

first soaking activated silica gel in an aqueous solution of potassium permanganate,

then drying said soaked silica gel,

then dissolving silicone rubber in n-hexane,

then mixing said dried soaked silica gel and silicone rubber solution in a ratio of about 1 part dried soaked silica gel to between about 2 and 3 parts of silicone rubber, and

then solidifying said mixture by curing at room temperature after solvent is removed by evaporation.

4,277,369

REGENERATION OF A CATALYST FOR AROMATIC HYDROCARBONS STEAM DEALKYLATION

Philippe Courty, Houilles; Jean Miquel, Paris; Germain Martino, Poissy, and Alain Convers, Rueil Malmaison, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Nov. 29, 1979, Ser. No. 98,453

Claims priority, application France, Nov. 29, 1978, 78 33910

Int. Cl.³ B01J 21/20, 23/96; C07C 4/18

U.S. Cl. 252—415 **16 Claims**

1. In a continuous process for steam dealkylation of aromatic hydrocarbons in the presence of a catalyst comprising a carrier and, by weight, from 0.1 to 1% of at least one noble metal of the platinum family, from 0.5 to 4% of halogen, a second metal or metal compound wherein the metal is selected from titanium, rhenium, copper, silver and gold, and a third metal or metal compound wherein the metal is selected from lithium, sodium, potassium, rubidium and cesium,

the improvement wherein said process is effected in at least two reaction zones, each of said zones being alternatively disconnected for regeneration of the catalyst contained therein and then reconnected to the reaction system; wherein said regeneration is effected by a process comprising the steps of:

(a) passing through the disconnected reaction zone and the catalyst contained therein a hydrogen stream at a space velocity of from 1 to 10,000 volumes per volume of catalyst per hour, a pressure of from about 1 to 25 bars and a temperature of from about 300° to 700° C.;

(b) scavenging the hydrogen-washed catalyst with an inert gas stream to remove any residual hydrogen;

(c) progresively replacing the inert gas with a gas containing molecular oxygen;

(d) burning off coke deposited on the catalyst contained in the disconnected reaction zone by passing therethrough a gas containing molecular oxygen at an oxygen partial

pressure of at least 0.005 bar and further containing from 0.01 to 10% by volume of steam, said gas being introduced into the disconnected reaction zone at a temperature between about 300° and 550° C., a pressure of from about 1 to 25 bars and a space velocity of from 1 to 500 volume per catalyst volume per hour, the oxygen content of the gas being so adjusted as to limit the temperature of the combustion front passing through the catalyst to a maximum of 650° C., the difference between the temperature of said front and the temperature of the gas supplied at the inlet of the catalyst bed being not greater than 150° C., calcination being continued, after the combustion front has passed through the catalyst bed, at a temperature of from about 300°–500° C. for a time sufficient to reduce the initial carbon content of the catalyst at the time of disconnecting the reaction zone by at least 90%;

(e) reactivating the catalyst by passing therethrough a stream of air or an equivalent gas containing at least one halogen or halogenated compound, at a space velocity of from about 1 to 10,000 volumes per volume of catalyst per hour, a temperature of from about 300° to 500° C., and a pressure of from about 1 to 25 bars, for a time sufficient to bring the halogen content of the catalyst to a value between 0.5 and 4% by weight;

(f) calcining the reactivated catalyst by passing therethrough a stream of air or an equivalent gas, at a temperature of from about 300° to 600° C. a space velocity of from about 1 to 10,000 volumes per volume of catalyst per hour and a pressure of from about 1 to 25 bars; and

(g) purging the disconnected reaction zone by passing therethrough an inert gas stream.

4. A process according to claim 1, wherein, during step (a), the hydrogen stream contains a halogen or a halogen compound in an amount such that, at the end of step (a), the catalyst contains, by weight, about 0.5 to 4% of halogen.

9. A process according to claim 1, wherein, after the purge of step (g), the catalyst, before being reused as dealkylation catalyst, is subjected to reduction by means of a hydrogen containing gas.

4,277,370

ALPHA-OLEFIN POLYMERIZATION CATALYST

Nicholas M. Karayannis, Naperville, and John S. Skryantz, Lisle, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 14,891, Feb. 15, 1979, abandoned. This application Jan. 21, 1980, Ser. No. 113,543

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B **79 Claims**

1. A catalyst for the polymerization of alpha-olefins of at least 3 carbon atoms comprising (A) an organoaluminum component, and (B) a solid component which is the reaction product of components comprising

(1) at least one titanium(IV) halide or haloalcoholate;

(2) at least one organic electron donor containing at least one of oxygen, nitrogen, sulfur and phosphorus; and

(3) at least one hydrocarbon-insoluble, magnesium-containing pretreatment product of components comprising

(a) at least one magnesium alcoholate; and

(b) at least one Group II or IIIA metal alkyl;

wherein the atomic ratio of metal in (3)(b) to metal in (3)(a) ranges from about 0.001:1 to about 1:1, the atomic ratio of titanium in (1) to metal in (3)(a) is at least about 0.5:1, and (2) is employed in an amount ranging from about 0.001 to about 1 mole per gram-atom of titanium contained in (1).

4,277,371

CATALYST-FORMING COMPONENTS, PROCESS FOR PREPARING SAME, AND CATALYSTS FOR STEREOSPECIFICALLY POLYMERIZING OLEFINS PREPARED THEREFROM

Cornelio Caldo, and Luigi Basili, both of Terni, Italy, assignors to Montedison S.p.A., Milan, Italy

Filed May 29, 1979, Ser. No. 43,038

Claims priority, application Italy, May 29, 1978, 23925 A/78; Nov. 13, 1978, 29708 A/78

Int. Cl.³ C08F 4/02, 4/64

U.S. Cl. 252—429 B **11 Claims**

1. Process for preparing a solid catalyst-forming component based on titanium trichloride, useful in the stereo-specific polymerization of olefins, characterized in that the catalyst component is obtained by:

(a) dispersing a siliceous material of the diatomite type having a silica content higher than 50% by weight in a mixture of an inert hydrocarbon solvent and $TiCl_4$, in an amount of from 2 to 100 g/gram mole of $TiCl_4$;

(b) reducing $TiCl_4$, in the presence of said siliceous material, to $TiCl_3$ by means of aluminum-organic compounds, at temperatures ranging from −20° C. to +20° C.; and

(c) washing with the hydrocarbon solvent, filtering, and drying the solid catalyst-forming component so obtained.

4,277,372

SOLID CATALYST COMPONENT FOR OLEFIN POLYMERIZATION

Albert S. Matlack, Hockessin, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Jan. 9, 1980, Ser. No. 110,563

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B **9 Claims**

1. A process for the preparation of a solid catalyst component for use in the polymerization of 1-olefins, which component is composed of a titanium halide deposited on an essentially anhydrous magnesium halide support, said process comprising the steps, carried out in an inert atmosphere, of (1) contacting a hydrocarbon solution of a magnesium salt of an aliphatic carboxylic acid containing at least six carbon atoms with a hydrocarbon solution of a C_2–C_{20} alkylaluminum dichloride, the amount of said dichloride relative to said salt being sufficient to provide a mole ratio of Al:Mg of at least 2:1, said solutions being contacted with each other at a temperature of from about 10° C. to about 100° C., thereby forming a hydrocarbon suspension of magnesium chloride particles, (2) isolating said particles from said suspension, (3) successively washing said particles with a hydrocarbon solvent until the particles are substantially free of chloride and unadsorbed aluminum compounds, (4) contacting the washed particles with an electron donor, (5) washing the donor-treated particles with a hydrocarbon solvent, and (6) contacting the washed particles with a titanium halide, thereby effecting deposition of said titanium halide on the magnesium chloride particles, said hydrocarbon solvent being any liquid hydrocarbon or mixtures thereof, and said electron donor being selected from the group consisting of C_4–C_{24} aliphatic ethers, C_3–C_4 cyclic ethers, C_7–C_{15} aromatic ethers, C_4–C_{24} alkyl esters of fatty acids, C_8–C_{24} alkyl esters of aromatic acids, C_1–C_{12} aliphatic amines, C_4–C_6 cyclic amines, C_6–C_{10} aromatic amines, C_1–C_{18} aliphatic alcohols, C_7–C_{15} aromatic alcohols, C_6–C_{10} phenols, C_6–C_{18} aliphatic or aromatic phosphines and C_6–C_{12} aliphatic sulfides.

4,277,373

ALUMINA-ALUMINUM FLUOROPHOSPHATE-CONTAINING CATALYSTS

Willard H. Sawyer, Baton Rouge, and Neville L. Cull, Baker, both of La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Aug. 16, 1979, Ser. No. 66,940
Int. Cl.³ B01J 27/14, 29/06
U.S. Cl. 252—437 8 Claims

1. A catalyst comprising a hydrogenation component selected from the group consisting of Group VIB metal component, Group VIII metal component and mixtures thereof of the Periodic Table of Elements, composited with an ultrastable Y-type crystalline aluminosilicate zeolite having a unit cell size less than 24.5 angstroms, and an alumina-aluminum fluorophosphate, said ultrastable Y-type crystalline aluminosilicate being substantially free of rare earth metals.

4,277,374

FERRITIC STAINLESS STEEL SUBSTRATE FOR CATALYTIC SYSTEM

Remus A. Lula, Natrona Heights, and George Aggen, Sarver, both of Pa., assignors to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Jan. 28, 1980, Ser. No. 115,816
Int. Cl.³ B01J 21/04, 21/06, 21/18, 23/86
U.S. Cl. 252—446 10 Claims

1. In a system comprising a ferritic stainless steel substrate having a tightly adherent oxide coating and a catalytic material thereupon, said ferritic stainless steel being of a chemistry which forms a tightly adherent non-spalling scale suitable for application of a catalytic bearing material; the improvement comprising a ferritic stainless steel substrate consisting essentially of, by weight, up to 26% chromium, from 1 to 8% aluminum, from 0.02 to 2% hafnium, up to 0.3% yttrium, up to 0.1% carbon, up to 2% silicon, balance essentially iron.

4,277,375

CATALYTIC OXIDE OF MOLYBDENUM, VANADIUM, TANTALUM AND OPTIONAL 4TH METAL

Harry J. Decker, and Erlind M. Thorsteinson, both of Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 505,783, Sep. 13, 1974, which is a continuation-in-part of Ser. No. 408,417, Oct. 23, 1973, abandoned. This application Oct. 11, 1977, Ser. No. 841,055
Int. Cl.³ B01J 23/20, 23/22, 23/28, 23/34
U.S. Cl. 252—455 R 9 Claims

1. A calcined oxidation catalyst consisting essentially of the elements Mo, V, Ta and X in the form of oxides, in the ratio

$$Mo_aV_bTa_cX_d$$

wherein

X is at least one element selected from the group consisting of Cu, Co, Cr, and Mn

a is 12,

b is 1 to 14,

c is 0.1 to 12, and

d is 0 to 3.0,

said catalyst being devoid of catalytically active forms of tellurium.

4,277,376

PROCESS FOR THE MANUFACTURE OF A MONOLITHIC SUPPORT FOR CATALYSTS SUITABLE FOR USE IN CONTROLLING CARBON MONOXIDE EMISSIONS

Sergio Paolasini, Turin, Italy, assignor to Centro Ricerche Fiat S.p.A., Orbassano, Italy

Filed Jul. 16, 1979, Ser. No. 57,856
Claims priority, application Italy, Jul. 26, 1978, 68778 A/78
Int. Cl.³ B01J 21/12
U.S. Cl. 252—455 R 22 Claims

1. A process for the manufacture of a monolithic support for a catalyst suitable for use in controlling carbon monoxide emissions, characterized by forming a homogeneous, fluid semi-solid mass by admixing a solid mixture comprising colloidal γ alumina having a grain size not exceeding 1 micron, α alumina monohydrate and ceramic fibres with one or more fluidising and binding agents for said mixture, water and a mineral acid, said αAl_2O_3 monohydrate being used in an amount of from 40 to 60% by weight with respect to the total weight of the α and γ aluminas and said acid being used in an amount sufficient to convert said αAl_2O_3 monohydrate into a gel, forming said mass into a body of the desired shape and provided with continuous channels, drying said body to substantially remove the added water, at least 10% of said added water being gradually removed at a temperature lower than 50° C., and heat-treating the dried body at a temperature of from 800° to 1000° C. to impart strength and porosity to the body.

7. The process of claim 1, wherein said fibres are aluminosilicate fibres.

9. The process of claim 1, wherein said fluidising and binding agents are selected from the group consisting of carboxymethyl cellulose, methyl cellulose, polyvinyl alcohol, glycols and alginates.

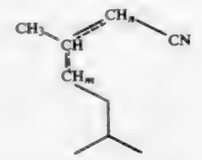
4,277,377

PERFUME COMPOSITIONS CONTAINING DIMETHYL HEPTENONITRILES

David Webb, Brentwood, and Anthony J. Mills, London, both of England, assignors to Bush Boake Allen Limited, London, England

Filed Mar. 19, 1980, Ser. No. 131,632
Claims priority, application United Kingdom, Mar. 22, 1979, 10195/79
Int. Cl.³ C07B 120/00; A61K 7/46
U.S. Cl. 252—522 R 5 Claims

1. A compounded perfumery composition which comprises a plurality of odiferous chemicals together with at least one compound having the formula I.



wherein n and m are integers having a value of 1 or 2, m+n=3 and the dashed line indicates alternative positions for a single unit of unsaturation.

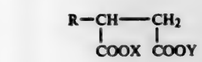
4,277,378

DETERGENT COMPOSITIONS CONTAINING PARTIALLY NEUTRALIZED ALKYL OR ALKENYL SUCCINIC ACID

Kaoru Tsujii, Utsunomiya; Naoyuki Saito, and Michio Kawai, both of Ichikaimachi, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Apr. 2, 1980, Ser. No. 136,621
Claims priority, application Japan, Apr. 20, 1979, 54-48835
Int. Cl.³ C11D 1/04
U.S. Cl. 252—546 7 Claims

1. A detergent composition containing from 3 to 95 wt. % of partially neutralized succinic acid derivative having the formula



(I)

wherein R is a saturated or unsaturated hydrocarbon group having from 8 to 18 carbon atoms, and X and Y are each hydrogen, an alkali metal, ammonium or an alkanolamine, with the proviso that from 0.2 to 0.9 equivalents of the groups COOX and COOY are alkali metal, ammonium or alkanolamine carboxylate groups and the remainder are carboxyl groups;

the balance of said detergent composition being conventional ingredients of liquid or granular detergents, said ingredients being different from said derivative, with the provisos that said detergent composition is free of alkaline builder and an aqueous solution of said detergent composition containing 0.5 wt. % of said derivative has a pH of 5.5 to 8.0.

4,277,379

FLAME RESISTING COMPOSITION

Gerson Hermann, Westfield; Babubhai C. Patel, and Sudhakerbhai B. Patel, both of Edison, all of N.J., assignors to Apex Chemical Company, Inc., Elizabethport, N.J.

Filed Nov. 23, 1979, Ser. No. 96,673
Int. Cl.³ C09K 3/28
U.S. Cl. 252—608 20 Claims

1. A composition of matter comprising an aqueous paste of a substantially monobasic tetrachloro or tetrabromophthalate salt in finely divided form as the dispersed phase and sufficient quantities of a dispersing agent and a thickener to prevent agglomeration and settling of the dispersed phase.

4,277,380

WATER-DISPERSIBLE URETHANE POLYMERS AND AQUEOUS POLYMER DISPERSIONS

Roy C. Williams, East Amherst, and David R. Rogemoser, Tonawanda, both of N.Y., assignors to Textron, Inc., Providence, R.I.

Filed Mar. 29, 1979, Ser. No. 25,050
Int. Cl.³ C08L 91/00; C08G 18/00
U.S. Cl. 260—18 TN 27 Claims

1. A carboxylic group-containing, oil-modified, urethane polymer composition comprising the reaction product of ethylenically-unsaturated fatty acid ester polyol of drying or semi-drying fatty acid having up to about 22 carbon atoms, and isocyanate-terminated, urethane prepolymer of hydrocarbon diisocyanate and dihydroxy alkanoic acid.

14. A stable, aqueous dispersion of an organic solvent solution of an oil-modified urethane polymer, said urethane polymer being an ammonia or amine salt of a carboxylic group-containing, oil-modified urethane polymer composition comprising the reaction product of ethylenically-unsaturated fatty acid ester polyol of drying or semi-drying fatty acid having up to about 22 carbon atoms, and isocyanate-terminated, urethane prepolymer of hydrocarbon diisocyanate and dihydroxy alkanoic acid.

4,277,381

PROCESS FOR THE FORMATION OF ELASTOMERIC BLENDS OF A SULFONATED ELASTOMERIC POLYMER

Jan Bock, Bridgewater; Henry S. Makowski, Scotch Plains, and Robert D. Lundberg, Bridgewater, all of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 855,726, Nov. 29, 1977, abandoned. This application Mar. 23, 1979, Ser. No. 22,977
Int. Cl.³ C08L 91/00
U.S. Cl. 260—23.5 A 25 Claims

1. An elastomeric blend composition consisting of:

(a) a neutralized sulfonated EPDM terpolymer having about 15 to about 50 meq. of neutralized sulfonate groups per 100 grams of said terpolymer, said neutralized groups having a metal or ammonium counterion, said neutralized sulfonated EPDM terpolymer being formed from an EPDM terpolymer having a Mooney viscosity (M.L. 1+8, 212° F.) of about 10 to about 50; and

(b) about 25 to about 150 parts by weight of a non-polar process oil per 100 parts of said neutralized sulfonated EPDM terpolymer, said non-polar process oil having less than 2 wt. % polar-type compounds and about 12.0 to less than 59.3 wt. % aromatic constituents.

4,277,382

STABLE AQUEOUS EMULSION OF REACTIVE POLYSILOXANE AND CURING AGENT

Kingso C. Lin, and Donald J. Hammond, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Oct. 9, 1979, Ser. No. 83,019
Int. Cl.³ C08L 83/06
U.S. Cl. 260—29.2 M 12 Claims

1. A method of producing a gelation resistant aqueous emulsion suitable for coating glass fibers and comprising a polysiloxane resin having at least two functional groups selected from silanol groups and groups readily hydrolyzable thereto, a non-resinous silane reactable with at least two of said functional groups for curing said polysiloxane resin and a catalyst, said method comprising:

(a) dispersing said polysiloxane resin, and optionally said silane, in a first aqueous medium with a nonionic or anionic first surfactant to form a polysiloxane resin emulsion;

(b) dispersing said catalyst, and optionally said silane, in a second aqueous medium with a second surfactant comprising a polycarbinolpolysiloxane substantially free of silanol groups or groups readily hydrolyzable to silanol groups, to form a catalyst emulsion; and

(c) mixing said polysiloxane resin emulsion and said catalyst emulsion together; where said silane is included in at least one of steps (a) and (b).

4,277,383

AQUEOUS CATIONIC THERMOSETTING URETHANE RESIN COATING COMPOSITIONS

Masaaki Hayashi, Tokyo; Koichi Nagami, Musashino; Kazuyoshi Tsuneta, Yokohama, and Nobuhiro Kenmotsu, Fujisawa, all of Japan, assignors to Dai Nippon Toryo Co., Ltd, Osaka, Japan

Filed Feb. 11, 1980, Ser. No. 120,050
Claims priority, application Japan, Feb. 15, 1979, 54-16441; Mar. 9, 1979, 54-27470
Int. Cl.³ C08L 61/10, 75/12
U.S. Cl. 260—29.3 7 Claims

1. An aqueous thermosetting resin coating composition comprising (A) a cationic thermosetting urethane resin, (B) a water-insoluble resol type phenolic resin, (C) an acid as a neutralizing agent and (D) water as a diluent, wherein the cationic thermosetting urethane resin (A) is a thermosetting resin formed by reaction between hydroxyl groups in a reaction product of a polyurethane prepolymer having a terminal

isocyanate group with a tertiary amine having at least 2 hydroxyl groups in the molecule and isocyanate groups in a reaction product of equimolar amounts of an organic diisocyanate and a monofunctional blocking agent, the water-insoluble resol type phenolic resin (B) is a thermosetting resin formed by reacting an aldehyde with a phenol at an aldehyde/phenol molar ratio of from 1.0 to 2.5 in the presence of an alkaline catalyst and the mixing weight ratio (based on the solids) of the cationic thermosetting urethane resin (A) to the water-insoluble resol type phenolic resin (B) is in the range of from 99/1 to 70.30.

4,277,384

HETEROPOLYMER ACRYLIC LATICES AND TEXTILES TREATED THEREWITH

Charles T. Arkens, Hatfield, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 25, 1978, Ser. No. 945,733
Int. Cl.[3] C08L 33/08
U.S. Cl. 260—29.6 RB **4 Claims**

1. As a textile treating composition, an acrylic latex, the particles of which comprise about 30–60% by weight of polymeric core and about 70–40% by weight of a polymeric shell, wherein said core is formed by emulsion polymerization of a first monomer composition consisting essentially of:

70–95% by weight of a C_1–C_8 alkyl acrylate,
0–15% by weight of a C_1–C_8 alkyl methacrylate,
4–10% by weight of acrylamide or methacrylamide,
0–0.3% by weight of allyl methacrylate, and
0–2% by weight of itaconic acid;

and wherein said shell is formed on said core by emulsion polymerization of a second monomer composition in the presence of said core, said second monomer composition consisting essentially of:

40–70% by weight of a C_1–C_8 alkyl acrylate,
20–50% by weight of a C_1–C_8 alkyl methacrylate,
2–10% by weight of N-methylolacrylamide,
N-methylol methacrylamide, or a mixture of methacrylamide and
N-methylolacrylamide, and
0–2% by weight of itaconic acid.

4,277,385

HIGH PVC LATEX PAINT

Howard E. Carroll, Grafton, and Gerald M. Sweitzer, North Ridgeville, both of Ohio, assignors to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 10,631, Feb. 9, 1979, abandoned. This application May 1, 1980, Ser. No. 145,612
Int. Cl.[3] C08L 33/02
U.S. Cl. 260—29.6 RW **4 Claims**

1. An aqueous latex dispersion paint composition which coalesces at an ambient coalescent temperature into a hardened paint film, said latex paint having about 30% to 70% by weight total solids, the improvement comprising on a dry solids volumn basis:

15% to 25% of a film-forming acrylic latex binder having an average polymer particle size between about 0.1 and 0.5 microns and a glass transition temperature at least about 5° C. below said coalescent temperature whereby said binder particles will coalesce into a binding matrix, said binder being an acrylic copolymer derived from copolymerization of at least 90% acrylic monomer and the remaining being ethylenically unsaturated monomers on a weight bam;

72% to 77% of solid, non-cellular, non-film-forming polymer particles having an average particle size diameter of between about 0.2 and 0.8 micron and having a glass transition temperature at least about 30° C. above the glass transition temperature of said acrylic binder, said non-film-forming particles being polymerized ethylenically unsaturated monomers having carbon-to-carbon unsaturation copolymerized with 0.2 to 2% by weight unsaturated acid selected from acrylic or methacrylic acid;

3% to 8% opacified pigment having refractive index of at least about 1.8;

said latex paint substantially free of inorganic non-opacifying pigment; and said latex paint having a pigment-volume-content (PVC) greater than 75% and less than 85% PVC.

4,277,386

ADHESIVE COMPOSITION

Michael E. Swanson, Granville, and Sanford K. Lauderback, Newark, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 79,398, Sep. 27, 1979, abandoned. This application Aug. 18, 1980, Ser. No. 179,333
Int. Cl.[3] C08K 3/28
U.S. Cl. 260—29.6 RW **8 Claims**

1. An adhesive composition comprising a carboxylated vinyl acetate-ethylene latex, a non-carboxylated vinyl acetate-ethylene latex and ammonium dichromate.

4,277,387

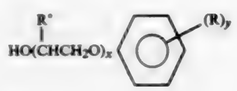
PLASTICIZER COMBINATION OF ALKYLENE OXIDE-ALKYL PHENOL ADDUCT AND CARBOXYLIC ACID ESTER, AND CAULKING COMPOSITION

Arthur D. Jordan, Jr., Philadelphia, and Joseph A. Lavelle, Bethlehem, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 88,200, Oct. 23, 1979, abandoned, which is a division of Ser. No. 917,436, Jun. 20, 1978, abandoned. This application May 27, 1980, Ser. No. 153,350
Int. Cl.[3] C08K 5/09, 5/10; C09J 3/14
U.S. Cl. 260—29.7H **17 Claims**

1. In a putty-like mastic, caulking, or sealant composition containing a binder consisting essentially of an elastomer in the form of a synthetic polymer and a water insoluble plasticizer, in the weight ratios of plasticizer:binder of from about 0.01:1 to about 5:1, and optionally containing one or more additives in the form of an emulsifier, a dispersant, an organic solvent, a base, a pigment, a filler, a dye, a defoamer, a thickener and an adhesion promoter, and the like, the improvement in which the plasticizer is a combination of (1) a water-immiscible adduct of ethylene oxide or propylene oxide and an alkyl phenol, said adduct having the formula

Formula I



in which
R° is H or CH^3,
x is from 1 to 7,
R is C_1 to C_{12} alkyl, and
y is 1 or 2, and

(2) a water insoluble plasticizer selected from at least one of a polyester of an alcohol and an aliphatic or aromatic carboxylic acid, the ratio of (1) to (2) on a weight basis being from about 10:90 to about 90:10, and in which the caulk consistency is between 5 seconds and 100 seconds.

4,277,388

THERMOPLASTIC RESIN OF HYDROLYZED PRODUCT OF VINYL CHLORIDE COPOLYMER FOR USE IN COATING RESIN AND PROCESS FOR PREPARING SUCH RESIN

Toshio Kagami; Yoshijiro Saito; Shigeru Matsushita, and Kunio Iriuchijima, all of Shibukawa, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Japan

Continuation-in-part of Ser. No. 24,764, Mar. 28, 1979, abandoned. This application Sep. 28, 1979, Ser. No. 79,862
Int. Cl.[3] C08F 8/12
U.S. Cl. 260—33.4 R **11 Claims**

1. A process for preparing a thermoplastic resin for use in a coating resin to be coated on a base film of a magnetic recording tape which comprises the steps of:

(a) copolymerizing 50 to 80% by weight of a vinyl chloride monomer, 20 to 40% by weight of a vinyl ester monomer and 0 to 15% by weight of a comonomer polymerizable with the vinyl chloride monomer to obtain a vinyl chloride copolymer having an average polymerization degree of 200 to 800;
(b) hydrolyzing said vinyl chloride copolymer dissolved in a solvent in the presence of an alcohol until the absorption ratio of OH/CH of the hydrolyzed product in the infrared absorption spectrum reaches 0.5 to 0.9;
(c) decoloring the hydrolyzed product;
(d) cooling and neutralizing with an organic oxide the solution containing the hydrolyzed product of said vinyl chloride copolymer, said organic oxide being selected from the group consisting of propylene oxide and butylene oxide; and
(e) removing the alcohol by distillation at a temperature of 40° C. to 70° C. under a reduced pressure of 50 to 200 Torr until the content of said alcohol in the solution reaches less than 1% by weight,

whereby to obtain the hydrolyzed product in the form of a solution.

4,277,389

X RAY SCATTERING DEVICE

Howard A. Scheetz, Lancaster, Pa., assignor to The Polymer Corporation, Reading, Pa.

Filed Nov. 5, 1979, Ser. No. 90,884
Int. Cl.[3] C08L 77/00
U.S. Cl. 260—37 N **4 Claims**

1. A method for the preparation of an X-ray scattering device comprising the steps of intimately blending at least 50 weight percent of finely divided barium titanate having a particle size less than about 44 microns with submicron nylon particles prepared by a dissolution and precipitation process and melting the mixture under intensive mixing to wet out and disperse the barium titanate particles in the molten nylon, and forming a shaped article.

4,277,390

POLYMERIC COMPOSITION

Aladdin M. O. Kuliev, ulitsa B. Sardarova, 8, kv. 21; Tokhrul A. O. Kadyrov, prospekt Lenina, 11, kv. 7; Gjulogian G. O. Gajbov, Zykhskoe shosse, 30, kv. 11, all of Baku; Anatoly G. Sinaisky, ulitsa Plekhanova, 41, kv.20, and Valentina N. Matiyasevich, ulitsa Krasnoputilovskaya, 59, kv.27, both of Leningrad, all of U.S.S.R.

Filed Feb. 12, 1980, Ser. No. 120,848
Claims priority, application U.S.S.R., Feb. 12, 1979, 2723462
Int. Cl.[3] C08L 63/02
U.S. Cl. 260—37 EP **9 Claims**

1. A polymeric composition comprising the following components, in parts by mass:

(polypropylene glycol)diurethanediepoxide	100
diglycidyl ether of bisphenol A	10 to 150
curing agent which is a mixture of m-phenylenediamine and aniline taken in the weight ratio of 0.9–1 to 1	13 to 40

4,277,391

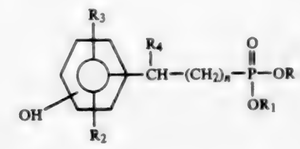
DURABLE POLYESTER MOLDING COMPOSITION AND PRODUCT

John J. Charles, Bloomingdale, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Dec. 27, 1979, Ser. No. 107,796
Int. Cl.[3] C08L 67/02; C08K 5/13, 5/18, 5/53
U.S. Cl. 260—40 R **14 Claims**

1. Polyester molding composition comprising:

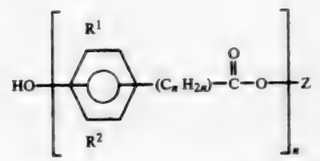
(a) at least about 40 wt% poly (C_2–C_4 alkylene terepthalate) based on total composition;
(b) between about 0.1 and about 5 wt% based on poly (C_2–C_4 alkylene terephthalate) of phosphonate of the formula:



wherein n is 0 or 1 and:

(i) when n is 1, each of R and R_1 is alkyl, having from 12 to 24 carbon atoms and R_2 and R_3 each independently represents alkyl having from 1 to 18 carbon atoms; and
(ii) when n is°, R_2, OH and R_3 are fixed, respectively, in the 3, 4 and 5 positions of the benzene ring portion of the benzyl phosphonate, each of R and R_1 is higher alkyl of from 14 to 30 carbon atoms, R_2 is alkyl of 1 to 6 carbon atoms, R_3 is tertiary butyl and R_4 is hydrogen or methyl;

(c) between about 0.1 and about 5 wt% based on poly (C_2–C_4 alkylene terephthalate) of compound of the formula:



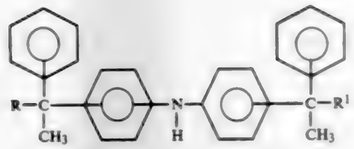
wherein:
R^1 is methyl, ethyl or an α-branched alkyl group of from 3 to 10 carbon atoms;
R^2 is hydrogen, methyl, ethyl or an α-branched alkyl group of from 3 to 10 carbon atoms;
x has a value of from 1 to 6;
n has a value of from 2 to 6; and
Z is an aliphatic hydrocarbon of the formula:

C_yH_{2y+2-n}

in which y has a value of from 2 to 18 when n is 2 and a value of from 3 to 6 when n is greater than 2, the value of y in all cases being equal to or greater than that of n; an d

(d) between about 0.1 and about 5 wt% based on poly (C_2–C_4 alkylene terepthalate) of diphenylamine derivative of the general formula:

Formula III



where R and R^1 are methyl or phenyl.

4,277,392

THICKENING AGENTS FOR UNSATURATED POLYESTER RESIN COMPOSITIONS

Martin L. Feldman, East Brunswick, and James T. De Groff, Oldwick, both of N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Division of Ser. No. 44,725, Jun. 1, 1979. This application Mar. 6, 1980, Ser. No. 129,550

Int. Cl.³ C08G 63/76; C08L 67/00

U.S. Cl. 260—40 R **6 Claims**

1. A thickening agent for unsaturated polyester resin compositions that comprises

(a) 25% to 70% by weight of a thickener that is a Group II-A metal oxide or hydroxide and

(b) 30% to 75% by weight of an unsaturated polyester vehicle comprising an unsaturated polyester that is the product of the reaction of a dicarboxylic acid component containing 80 to 90 mole % of at least one unsaturated aliphatic dicarboxylic acid having 4 to 8 carbon atoms and 10 to 20 mole % of at least one saturated aromatic dicarboxylic acid with an alcohol component containing 40 to 60 mole % of at least one glycol having 2 to 6 carbon atoms and 40 to 60 mole % of at least one monohydric alcohol having 6 to 12 carbon atoms, in the amount of 0.4 mole to 0.6 mole of the dicarboxylic acid component per mole of the alcohol component.

4,277,393

RADIOIMMUNOASSAY METHOD FOR DETERMINING CALCITONIN AND RADIOACTIVE TRACER FOR USE THEREIN

Shumpei Sakakibara, Suita; Yuichi Kumahara, Toyonaka; Yoshiaki Okada, Takatsuki; Hiroshi Ogawa, Kashiwa; Nobuhiko Nakazawa, Narita, and Shoichiro Tsushima, Ichikawa, all of Japan, assignors to Daiichi Radioisotope Laboratories, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 910,559, May 30, 1978, abandoned. This application Oct. 16, 1978, Ser. No. 951,813

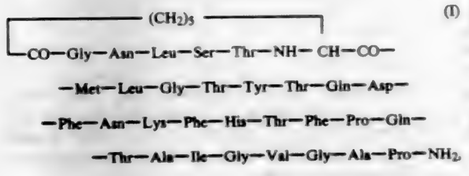
Claims priority, application Japan, Jun. 20, 1977, 52/73130

Int. Cl.³ C07C 103/52; G01N 33/00, 33/48

U.S. Cl. 260—112.5 R **1 Claim**

1. A radioactive iodine labeled hentriacontapeptide of the formula (I):

(I)



4,277,394

TETRAPEPTIDEHYDRAZIDE DERIVATIVES

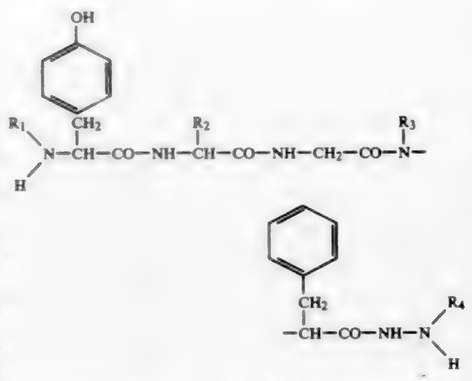
Masahiko Fujino, Hyogo; Susumu Shinagawa, Osaka, and Kiyohisa Kawai, Kyoto, all of Japan, assignors to Takeda Chemical Industries, Ltd, Osaka, Japan

Continuation-in-part of Ser. No. 32,503, Apr. 23, 1979, abandoned. This application Oct. 31, 1979, Ser. No. 90,021

Int. Cl.³ C07C 103/52; C07G 7/00; A61K 37/00

U.S. Cl. 260—112.5 R **90 Claims**

1. A tetrapeptidehydrazide derivative, inclusive of a pharmacologically acceptable acid addition salt thereof, which has the general formula:



[wherein R_1 is hydrogen or lower alkyl; R_2 is hydrogen or the side chain of a D-α-amino acid; R_3 is hydrogen or lower alkyl; R_4 is hydrogen, or a saturated or unsaturated and straight or branched lower aliphatic acyl group which may optionally be substituted by hydroxyl, amino, lower alkoxy, halogen, oxo, lower thioalkyl or lower thioalkyloxide].

4,277,395

NOVEL ENZYME INHIBITORS

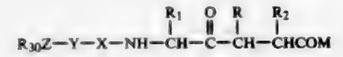
Philippe Bey, Strasbourg, France; Brian W. Metcalf, Mason, and Jeffrey S. Wiseman, Loveland, both of Ohio, assignors to Richardson-Merrell Inc., Wilton, Conn.

Filed Jun. 16, 1980, Ser. No. 160,111

Int. Cl.³ C07C 103/52; C07D 207/24

U.S. Cl. 260—112.5 R **6 Claims**

1. A compound of the formula



wherein R is CF_3, CHF_2 or CH_2F; R_1 is a straight or branched lower alkyl group having from 1 to 4 carbon atoms; R_2 is defined the same as R_1 or is benzyl; R_{30} is CHO, carbobenzoxy, tert-butoxycarbonyl, benzoyl or a lower alkanoyl group having from 2 to 5 carbon atoms; X is pro, ala or leu and Y and Z together form a single bond; or Y-X is ala-pro, ala-ala or ala-leu and Z is a single bond; or Z-Y-X is ala-ala-pro, ala-ala-ala or pro-ala-leu; and M is hydroxy, a straight or branched lower alkoxy group having from 1 to 4 carbon atoms, benzyloxy or NY_1Y_2 wherein each of Y_1 and Y_2 is hydrogen or a lower alkyl group having from 1 to 4 carbon atoms and can be the same or different; and pharmaceutically acceptable salts thereof.

4,277,396

THIAZOLEDIAZACYANINE DYESTUFFS

Hans-Lothar Dorsch, Cologne, and Karl H. Hermann, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

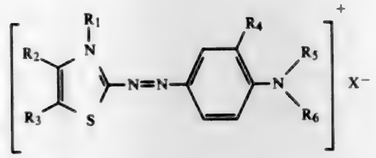
Filed Dec. 21, 1978, Ser. No. 971,719

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2758107

Int. Cl.³ C09B 45/00

U.S. Cl. 260—146 R **3 Claims**

1. Dyestuffs of the formula



wherein

R_1 represents a lower alkyl, alkenyl or hydroxylalkyl radical,

R_2, R_3, R_5 and R_6 represent hydrogen or a lower alkyl radical,

R_4 represents a lower alkyl, alkenyl or alkoxy radical and

X^- represents an anion,

4,277,397

MONOAZO COMPOUNDS DERIVING FROM 5-AMINO-BENZIMIDAZOLE-2-ONE-6-CARBOXYLIC ACID

Otto Fuchs, Frankfurt am Main, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

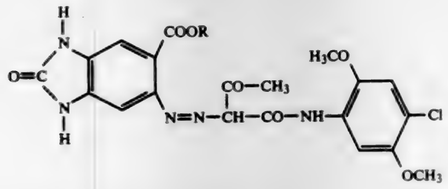
Filed Oct. 29, 1979, Ser. No. 88,851

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1978, 2847284

Int. Cl.³ C09B 29/033, 29/33; D06P 1/44, 1/46

U.S. Cl. 260—157 **4 Claims**

1. A compound of the formula



wherein R is hydrogen, methyl or ethyl.

4,277,398

MAGENTA-MASKED COLOR AZOPYRAZOLINONE COUPLERS

Brian R. D. Whitear, Hutton, England, assignor to Ciba-Geigy AG, Basel, Switzerland

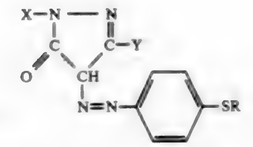
Continuation of Ser. No. 843,628, Oct. 19, 1977, abandoned. This application Aug. 8, 1979, Ser. No. 64,660

Claims priority, application United Kingdom, Nov. 15, 1976, 47423/76

Int. Cl.³ C09B 29/00, 29/46

U.S. Cl. 260—162 **6 Claims**

1. An orange-colored magenta color coupler of the pyrazolinone class of the formula



wherein R is alkyl of 1 to 4 carbon atoms, benzyl or phenylethyl optionally substituted by alkyl or alkoxy of 1 to 4 carbon atoms or by halogen, phenyl or phenyl substituted by alkyl of 1 to 4 carbon atoms or halogen, or 2-benzthiazolyl,

X is phenyl or phenyl substituted by halogen, cyano, alkyl, alkoxy, alkylthio, acyl, carboxylic acid-acylamino each up to 5 carbon atoms and sulphonylamino and

Y is a member selected from the group consisting of 2-chloro-5-[2-(4-tert.amylphenoxy)-(2-n-dodecylacetamido)]-anilino, 2-chloro-5-[2-(4-hydroxy-3-tert.butylphenoxy)]-[2-n-dodecylacetamido)]-anilino, 2-chloro-5-[2-(4-hydroxy-3-tert.butylphenoxy)-(2-dodecylacetamido)-anilino and 2-chloro-5-(3-octadecylsuccinimido)-anilino.

4,277,399

PROCESS FOR PREPARING PYRENZEPINE

Eugen Diethelm, Triesen, Liechtenstein, assignor to Grissman Chemicals Limited, London, England

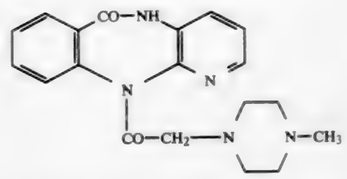
Filed Jun. 6, 1980, Ser. No. 157,099

Claims priority, application United Kingdom, Jul. 9, 1979, 23884/79

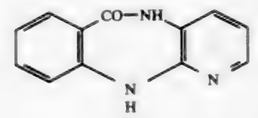
Int. Cl.³ C07D 487/04

U.S. Cl. 260—239.3 T **5 Claims**

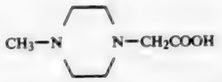
1. A process for the preparation of pyrenzepine having the formula:



or an acid addition salt thereof which comprises (1) reacting a lower alkyl ester of o-aminobenzoic acid with 3-aminopyridine in the presence of a base to produce a tricyclic compound of formula:



and (2) reacting the said tricyclic compound with a mixed anhydride of N-methyl-piperazine acetic acid of the formula:



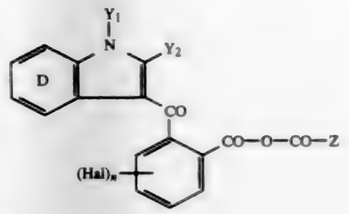
to produce pyrenzepine which is isolated as such or as an acid addition salt thereof.

4,277,400
2(INDOL-3'-OYL) 3,4,5,6-TETRAHALO BENZOIC ACID ANHYDRIDES

Robert Garner, Greenmount, and Michael J. Whitehead, Failsworth, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 10, 1979, Ser. No. 38,024
Claims priority, application United Kingdom, May 18, 1978, 20456/78; Apr. 3, 1979, 11660/79
Int. Cl.³ C07D *209/18*
U.S. Cl. 260—326.13 B 4 Claims

1. An anhydride compound of the formula



wherein

Hal is fluoro, bromo or chloro,

n is 1 to 4,

Z is alkyl of 1 to 4 carbon atoms, phenyl or phenyl substituted by fluoro, bromo, chloro, methyl, methoxy, ethoxy, alkylamino of 1 to 5 carbon atoms or dialkylamino with 1 to 5 carbon atoms in each alkyl group.

Y_1 is hydrogen, alkyl of 1 to 12 carbon atoms, phenyl or benzyl,

Y_2 is hydrogen, alkyl of 1 to 5 carbon atoms or phenyl,

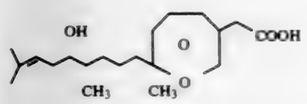
and the ring D is unsubstituted or substituted by fluoro, bromo, chloro, nitro, alkyl of 1 to 5 carbon atoms or alkoxy of 1 to 5 carbon atoms.

4,277,401
TOTAL SYNTHESIS OF 1RS,4SR,5RS-4-(4,8-DIMETHYL)-5-HYDROXY-7-NONEN-1-YL)-4-METHYL-3,8-DIOXABICYCLO[3.2.1]OCTANE-1-ACETIC ACID

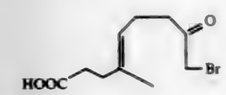
Zoltan G. Hajos, Princeton, and Seymour Levine, North Brunswick, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Aug. 25, 1980, Ser. No. 181,308
Int. Cl.³ C07D *319/10*
U.S. Cl. 260—340.6 9 Claims

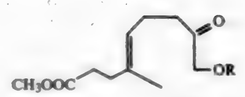
1. The process for the preparation of a compound of the formula



which comprises reacting a compound of the formula



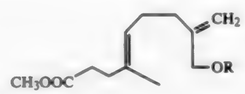
first with potassium acetate and then with diazomethane to form a compound of the formula



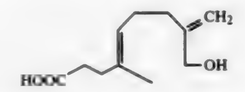
reacting the ketone with a compound of the formula

$(C_6H_5)_3P{=}CH_2$

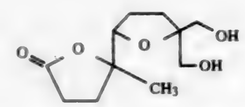
to form a compound of the formula



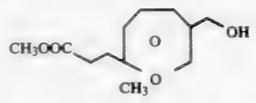
hydrolyzing the ester with a base to form a compound of the formula



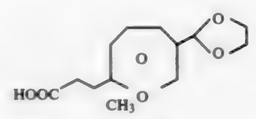
oxidizing the hydroxy acid with a first oxidizing agent and treating the resulting product with an alcohol in the presence of an acid to form a compound of the formula



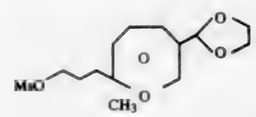
reacting the bis-hydroxymethyl compound with an alcohol in the presence of acid to form a compound of the formula



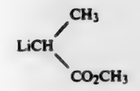
reacting the hydroxy ester with a second oxidizing agent, reacting the product formed with ethylene glycol and hydrolyzing the ester with a base to form a compound of the formula



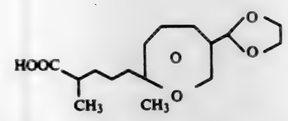
reacting the acid with borane-THF and the product formed with methanesulfonyl chloride to form a compound of the formula



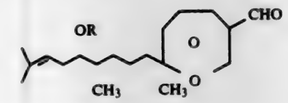
reacting the mesylate with a compound of the formula



and hydrolyzing the ester to form a compound of the formula



reacting the acid with 3-methyl-2-butenyl lithium, reacting the ketone formed with a reducing agent, hydrolyzing the hydroxy acetal with aqueous hydrochloric acid and esterifying the hydroxy compound with an esterifying agent to form a compound of the formula



reacting the aldehyde with a compound of the formula

$(C_6H_5)_3P{=}CH_2$

reacting the product formed first with borane-THF followed by treatment with an alkali metal hydroxide and hydrogen peroxide, oxidizing the product formed with a third oxidizing agent, hydrolyzing the ester with a base and treating the salt formed with a mineral acid, wherein R is a lower alkanoyl group having 2–6 carbon atoms, and Ms is a mesyl group.

4,277,402
SYNTHESIS OF POLYFORMALS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Algirdas C. Poshkus, Lancaster, Pa.

Filed Jul. 3, 1979, Ser. No. 54,501
Int. Cl.³ C07D *317/00*; C07C *43/30*
U.S. Cl. 260—340.9 R 7 Claims

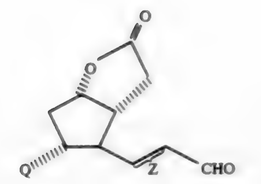
1. A process for the preparation of cyclic formals of polyhydroxy compounds of the formula $CH_2OH(CHOH)_nCH_2OH$ in which n ranges from about 2 to 4, which comprises heating a mixture consisting essentially of such polyhydroxy compound, a slight excess of paraformaldehyde and a catalytic quantity of an acid catalyst to a temperature within the range of about 105° to about 150° C. for a total period of about 10 minutes, such mixture being substantially devoid of water and refluxing agent.

4,277,403
PROSTAGLANDIN INTERMEDIATES

Jasjit S. Bindra, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 661,270, Feb. 25, 1976, Pat. No. 4,213,907. This application Dec. 10, 1979, Ser. No. 101,751
Int. Cl.³ C07D *307/93*
U.S. Cl. 260—343.3 P 5 Claims

1. A compound of the formula:



wherein

Z represents a single bond or a trans double bond;

and

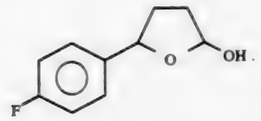
Q is selected from the group consisting of hydrogen, tetrahydropyran-2-yloxy and dimethyl-t-butylsilyloxy with the proviso that when Z is a trans double bond, Q is hydrogen.

4,277,404
5-(4-FLUOROPHENYL)TETRAHYDRO-2-FURANOL

Willard M. Welch, Jr., Mystic, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 5,698, Jan. 23, 1979, Pat. No. 4,224,329, which is a continuation-in-part of Ser. No. 799,392, May 23, 1977, abandoned. This application Jan. 16, 1980, Ser. No. 112,638
Int. Cl.³ C07D *307/02*
U.S. Cl. 260—347.8 1 Claim

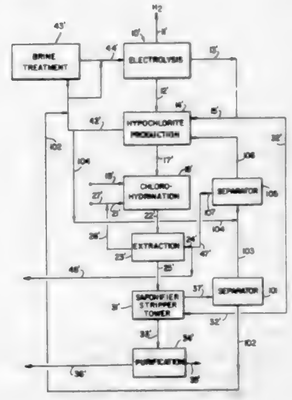
1. Enantiomeric and racemic compounds of the formula



4,277,405
PRODUCTION OF EPOXY COMPOUNDS FROM OLEFINIC COMPOUNDS

George J. Apanel, Bloomfield, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Filed May 3, 1979, Ser. No. 35,560
Int. Cl.³ C07D *301/26*; C25B *3/02, 3/06*
U.S. Cl. 260—348.21 13 Claims



1. In a process for producing an epoxy compound which is integrated with the electrolytic production of chlorine

wherein a tertiary alkanol is contacted with chlorine and aqueous electrolyte from the electrolytic cell, containing sodium hydroxide and sodium chloride to produce tertiary alkyl hypochlorite and aqueous brine for ultimate recycle to the cell, tertiary alkyl hypochlorite is contacted with olefinically unsaturated compound and water to produce the corresponding chlorohydrin and tertiary alkanol, and chlorohydrin is contacted with aqueous electrolyte from the electrolytic cell containing sodium chloride and sodium hydroxide to produce the corresponding epoxy compound and aqueous brine for ultimate recycle to the cell, the improvement comprising:

extracting organics from the chlorohydrin production with an organic extraction solvent to produce an organic extract containing chlorohydrin and tertiary alkanol; contacting organic extract with the aqueous electrolyte containing sodium chloride and sodium hydroxide to saponify chlorohydrin to the correspondin epoxy compound;

recovering epoxy compound;

separating from the saponification an organic solvent phase and an aqueous phase, said separation being effected with preferential extraction of the tertiary alkanol into the organic solvent phase;

extracting tertiary alkanol from the organic solvent phase with an aqueous phase derived from the hypochlorite production;

passing said aqueous phase derived from the hypochlorite production containing extracted tertiary alkanol to said hypochlorite production; and

recycling organic solvent to said extracting of organics.

7. In a process for producing an epoxy compound wherein a tertiary alkanol is chlorinated in the presence of an aqueous base to produce tertiary alkyl hypochlorite, the tertiary alkyl hypochlorite is contacted with an olefinically unsaturated compound and water to produce a reaction effluent containing water, tertiary alkanol and chlorohydrin, and the chlorohydrin is saponified with aqueous base to produce the corresponding epoxy compound, the improvement comprising:

extracting organics from the chlorohydrin production with an organic extraction solvent, said organics including the chlorohydrin and tertiary alkanol;

contacting organic extract containing chlorohydrin and tertiary alkanol, and an aqueous base to effect saponification of the chlorohydrin to the corresponding epoxy compound;

recovering the epoxy compound produced in the saponification;

separating from the saponification an organic solvent phase and an aqueous brine phase, said separating being effected with preferential extraction of the tertiary alkanol into the organic solvent phase;

extracting tertiary alkanol from the organic solvent phase with aqueous brine derived from the hypochlorite production;

passing aqueous brine containing extracted tertiary alkanol to the hypochlorite production; and

recycling organic solvent to said extracting of organics.

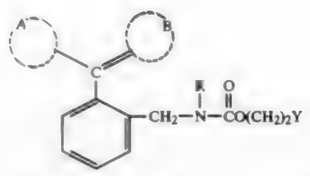
4,277,406

NOVEL TRIARYLMETHANE COMPOUNDS

James W. Foley, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 26, 1979, Ser. No. 106,899
Int. Cl.³ C09B *11/10*
U.S. Cl. 260—389 **9 Claims**

1. A compound of the formula



wherein A is a phenyl moiety or a naphthyl moiety; B is a 4'-oxo-1'-phenylidene moiety or a 4'-oxo-1'-naphthylidene moiety; R is alkyl, unsubstituted or substituted with a solubilizing group, and Y is an electron-withdrawing group.

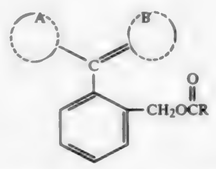
4,277,407

NOVEL TRIARYLMETHANE COMPOUNDS

James W. Foley, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 26, 1979, Ser. No. 106,900
Int. Cl.³ C09B *11/10*
U.S. Cl. 260—390 **15 Claims**

1. A compound of the formula



wherein A is a phenyl moiety or a naphthyl moiety; B is a 4'-oxo-1'-phenylidene moiety or a 4'-oxo-1'-naphthylidene moiety and R is selected from hydrogen; alkyl, unsubstituted or substituted with halo, alkoxy, carboxy-substituted alkoxy, phenoxy or phenyl; or phenyl, unsubstituted or substituted in the m- or p-position with halo, alkoxy, nitro, dimethylamino or alkyl.

4,277,408

NOVEL PURIFICATION PROCESS

Charles Pavan, Nogent-sur-Marne, and Jacques Bulidon, Paris, both of France, assignors to Roussel Uclaf, Paris, France

Filed Nov. 27, 1979, Ser. No. 97,710
Claims priority, application France, Dec. 11, 1978, 78 34767
Int. Cl.³ C07J *9/00*
U.S. Cl. 260—397.1 **8 Claims**

1. A process for the preparation of purified 3α,7α-dihydroxy-(5β)-cholanic acid comprising crystallizing chenodesoxycholic acid containing approximately 2% of other bile acids from a methylene chloride solvent system to obtain a purified chenodesoxycholic acid containing less than 1% of foreign bile acids of which is less than 0.1% lithocholic acid.

4,277,409

PREPARATION OF 9α-FLUORO-16α-METHYL-21-ACETOXY-$\Delta^{1,4}$-PREGNADIENE-11β-OL-3,20-DIONE

Julien Warnant, Neuilly-sur-Seine, and Jean Jolly, Fontenay-sous-Bois, both of France, assignors to Roussel Uclaf, Paris, France

Continuation of Ser. No. 886,122, Mar. 13, 1978, abandoned. This application Nov. 16, 1979, Ser. No. 94,772
Int. Cl.³ C07J *5/00*
U.S. Cl. 260—397.45 **13 Claims**

1. In the process for the preparation of pure 9α-fluoro-16α-methyl-21-acetoxy-$\Delta^{1,4}$-pregnadiene-11β-ol-3,20-dione com-

prising reacting 9α-fluoro-21-acetoxy-$\Delta^{1,4,16}$-pregnatriene-11β-ol-3,20-dione with a methyl magnesium halide in the presence of a catalytic amount of a cuprous halide effecting protonation of magnesium to form 9α-fluoro-16α-methyl-21-acetoxy-$\Delta^{1,4}$-pregnadiene-11β-ol-3,20-dione, treating the reaction mixture with methanol, reacting the raw product with an acetylation agent to acetylate the partially deacetylated product and purifying the reacetylated product with an organic solvent, the improvement comprising treating the solution with a peroxidation agent to epoxidize the impurity, and then removing the epoxidized impurity with an organic solvent.

4,277,410

PROCESS FOR THE PRODUCTION OF CARBOXYLIC AMIDES USING ALKYLTIN CATALYSTS

Thomas Z. Li, and James Lamont, both of Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio

Filed May 2, 1980, Ser. No. 145,925
Int. Cl.³ C09F *5/00*; C11C *3/00*
U.S. Cl. 260—404 **8 Claims**

1. An improved process for the preparation of amides which comprises reacting an aliphatic, cycloaliphatic or aromatic carboxylic acid containing from 6 to 24 carbon atoms, or ester or anhydride thereof, with ammonia at a temperature of 100° C. to 220° C. in the presence of 0.1 to 10 wt. percent, based on the carboxylic acid, of a alkyltin catalyst of the formula $RSnX_3$ or R_2SnX_2 where R is a hydrocarbon radical having from 1 to 12 carbon atoms and X is hydroxyl, halo or carboxylate having from 2 to 6 carbon atoms.

4,277,411

EXTRACTION OF OIL FROM VEGETABLE MATERIALS

Kenneth R. Yahl, Orland Park, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

Continuation of Ser. No. 945,268, Sep. 25, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,743
Int. Cl.³ C11B *1/00*
U.S. Cl. 260—412.4 **6 Claims**

1. A process for extracting oil from essentially whole corn germ obtained by the wet milling of corn consisting essentially of the steps of: shredding the germ, containing between about 25% and about 55% water by weight, by passing it between rolls under pressure; directly drying the shredded germ to a moisture content of less than about 15% by weight; and extracting said dried shredded germ with an oil solvent.

4,277,412

FRACTIONATION OF TRIGLYCERIDE MIXTURES

Ted J. Logan, Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio

Filed Jan. 2, 1980, Ser. No. 108,985
Int. Cl.³ C09F *5/10*
U.S. Cl. 260—428.5 **16 Claims**

1. A process for separating a mixture of triglycerides with different Iodine Values and having their carboxylic acid moieties containing from 6 to 26 carbon atoms, to produce fractions of higher Iodine Value and lower Iodine Value, said process comprising the steps of

(a) contacting a solution of said mixture in solvent with permutite absorbent to selectively adsorb triglyceride of higher Iodine Value and to leave in solution a fraction of said mixture enriched in content of triglyceride of lower Iodine Value,

(b) removing solution of fraction enriched in content of triglyceride of lower Iodine Value from contact with adsorbent which has selectively adsorbed triglyceride of higher Iodine Value,

(c) contacting adsorbent which has selectively adsorbed triglyceride of higher Iodine Value with solvent to cause desorption of adsorbed triglyceride and provide a solution in solvent of fraction enriched in content of triglyceride of higher Iodine Value,

(d) removing solution of fraction enriched in content of triglyceride of higher Iodine Value from contact with adsorbent;

said mixture of triglycerides being essentially free of impurities which can foul the adsorbent; the solvent in step (a) and the solvent in step (c) having the same composition or different compositions and being characterized by a solubility parameter (on a 25° C. basis) ranging from about 7.0 to about 15.0, a solubility parameter dispersion component (on a 25° C. basis) ranging from about 7.0 to about 9.0, a solubility parameter polar component (on a 25° C. basis) ranging from 0 to about 6.0 and a solubility parameter hydrogen bonding component (on a 25° C. basis) ranging from 0 to about 11.5; said adsorbent being characterized by a ratio of silicon atoms to aluminum atoms ranging from about 3:1 to about 20:1 and a surface area (on a 100% sodium substitution basis) of at least about 100 square meters per gram; said adsorbent having cation substituents selected from the group consisting of cation substituents capable of forming π complexes and cation substituents not capable of forming π complexes and combinations of these; said adsorbent being in the form of particles which (on a bulk water free and solvent free basis) are substantially completely permutite adsorbent and which have a size ranging from about 200 mesh to about 20 mesh and which have a water content less than about 10% by weight; the solvent in step (a) and the solvent in step (c) and the ratio of silicon atoms to aluminum atoms in the adsorbent and the level of cation substituents capable of forming π complexes being selected to provide selectivity in step (a) and desorption in step (c).

4,277,413

FRACTIONATION OF ALKYL CARBOXYLATE MIXTURES

Ted J. Logan, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jan. 2, 1980, Ser. No. 109,020
Int. Cl.³ C09F *5/10*
U.S. Cl. 260—428.5 **18 Claims**

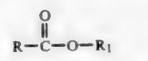
1. A process for separating an alkyl carboxylate mixture according to degree of unsaturation, said process comprising the steps of

(a) contacting a solution of said mixture in solvent with permutite adsorbent to selectively adsorb alkyl carboxylates of higher degree of unsaturation and to leave in solution in solvent a fraction of said mixture enriched in content of alkyl carboxylate of lesser degree of unsaturation,

(b) removing solution of fraction enriched in content of alkyl carboxylate of lesser degree of unsaturation from contact with adsorbent which has selectively adsorbed alkyl carboxylate of higher degree of unsaturation,

(c) contacting adsorbent which has selectively adsorbed alkyl carboxylate of higher degree of unsaturation with solvent to cause desorption of adsorbed alkyl carboxylate and provide a solution in solvent of fraction enriched in content of alkyl carboxylate of higher degree of unsaturation,

(d) removing solution of fraction enriched in content of alkyl carboxylate of higher degree of unsaturation from contact with adsorbent; the alkyl carboxylate in said mixture having the formula



in which R is aliphatic chain which contains from 5 to 25 carbon atoms and in which R_1 is alkyl chain containing from 1 to 4 carbon atoms; the solvent in step (a) and the solvent in step (c) having the same composition or different compositions and being characterized by a solubility parameter (on a 25° C. basis) ranging from about 7.0 to about 15.0, a solubility parameter dispersion component (on a 25° C. basis) ranging from about 7.0 to about 9.0, a

solubility parameter polar component (on a 25° C. basis) ranging from 0 to about 6.0 and a solubility parameter hydrogen bonding component (on a 25° C. basis) ranging from 0 to about 11.5; said adsorbent being characterized by a ratio of silicon atoms to aluminum atoms ranging from about 3:1 to about 20:1 and a surface area (on a 100% sodium substitution basis) of at least about 100 square meters per gram; said adsorbent having cation substituents selected from the group consisting of cation substituents capable of forming π complexes and cation substituents not capable of forming π complexes and combinations of these; said adsorbent being in the form of particles which (on a bulk water free and solvent free basis) are substantially completely permutite adsorbent and which have a size ranging from about 200 mesh to about 20 mesh and which have a water content less than about 10% by weight; the solvent in step (a) and the solvent in step (c) and the ratio of silicon atoms to aluminum atoms in the adsorbent and the level of cation substituents capable of forming π complexes being selected to provide selectively in step (a) and desorption in step (c).

4,277,414

PROCESS FOR PRODUCING GATALYST

Toshihiro Saito; Yukihiro Tsutsumi; Shoji Arai, and Hideaki Matsunaga, all of Shin-nanyo, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Shin-nanyo, Japan

Filed Jan. 2, 1980, Ser. No. 109,033
Claims priority, application Japan, Jan. 8, 1979, 54-000204
Int. Cl.³ C07F *15/00*
U.S. Cl. 260—429 R **4 Claims**

1. In a process for producing a trans-[hydridocarbonyl tris(-triorganic phosphine) rhodium (I)] by reducing a trans-[chlorocarbonyl bis(triorganic phosphine) rhodium (I)] with a tetrahydroborate in the presence of a triorganic phosphine in a solvent by heating, the improvement characterized in that the reduction is carried out in the presence of carbon monoxide or a mixture of more than 50 vol.% of carbon monoxide and an inert gas, and the reaction mixture is cooled to 0° to 30° C. in an atmosphere of carbon monoxide or a mixture of more than 50 vol.% of carbon monoxide and an inert gas and the crystal is separated.

4,277,415

PYROPHOSPHATO TITANATE ADDUCTS

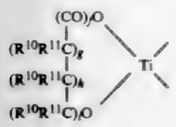
Gerald Sugerman, Allendale, N.J., and Salvatore J. Monte, Staten Island, N.Y., assignors to Kenrich Petrochemicals, Inc., Bayonne, N.J.

Filed Aug. 29, 1979, Ser. No. 70,907
Int. Cl.³ C07F *7/28*
U.S. Cl. 260—429.5 **12 Claims**

1. A compound having the formula

$$X_cTi[OP(O)(OR^1)OP(O)(OR^2)(OR^3)]_{4-c}(NR^4R^5R^6)_d[P(OR^7)(OR^8)(OR^9)]_e$$

wherein c is 1 or 2; d is 0, 1 or 2; e is 0, 1 or 2; with the proviso that d plus e must be 1 or 2; with the proviso that if c is 1, X must be RO-; and with the proviso that when c is 2, X is either RO- or a group which taken together with the Ti to which it is attached forms a ring having the formula



VI

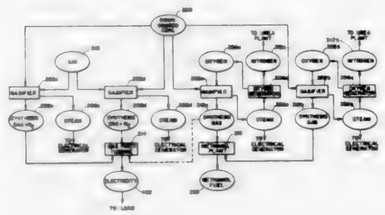
wherein each of f, g, h and i is 0 or 1, with the proviso that at least one of g, h, and i is 1 and that the sum of f, g, h and i is 2 or 3; and wherein each R is independently selected from C_1 to C_{10} alkyl, C_3 to C_{10} alkenyl, C_7 to C_{10} dioxyalkylene; R^1, R^2, R^4, R^7, each R^{10} and each R^{11} are independently selected from hydrogen, C_6 to C_{10} aryl, C_7 to C_{20} aralkyl, C_1 to C_{20} alkyl, C_3 to C_{20} alkenyl, C_2 to C_{20} oxyalkylene and C_3 to C_{20} oligooxyalkylene, with the proviso that one and only one of R^1 and R^2 is hydrogen; R^5, R^6, R^8 and R^9 are independently selected from the same groups as are R^1, R^2, R^4, R^7, each R^{10} and each R^{11}, except that R^5, R^6, R^8 and R^9 may not be hydrogen, and, in addition, R^5 and R^6 are independently selected from C_1 to C_{10} alkanol, C_2 to C_6 alkadiol, C_7 to C_{10} aralkanol, substituted and unsubstituted C_1 to C_{10} alkyl, substituted and unsubstituted C_3 to C_{10} aralkyl, these last four groups being optionally substituted with 1 to 3 carboxylate groups or from 1 to 3 carboxamide groups, each such carboxylate group and each such carboxamide group being saturated or unsaturated and having from 1 to 5 carbon atoms; with the proviso that when aromatic carbons are present in any one of R, R^2, R^4, R^7, R^{10} or R^{11}, each of said carbons is optionally substituted with 1 or 2 independently selected halogen atoms.

4,277,416

PROCESS FOR PRODUCING METHANOL

Norman A. Grant, Studio City, Calif., assignor to Aminoil, USA, Inc., Huntington Beach, Calif.

Filed Feb. 17, 1977, Ser. No. 769,608
Int. Cl.³ C07C *31/04*
U.S. Cl. 518—703 **9 Claims**



1. A process for converting coal to varying end products comprising:

gasifying coal in a plurality of gasifiers to produce a synthesis gas and heat;

converting at least part of said heat through a heat exchanger into steam;

directing during some time periods at least part of said synthesis gas to a methanol plant;

during the aforesaid time period inputting oxygen from an oxygen generator into at least some of the gasifiers;

inputting air during other time periods to said gasifiers;

directing at least part of the steam output from gasification to a steam turbine generator to produce electricity;

directing part of the steam from gasification to drive said oxygen generator during the first said time period when oxygen is used as a gasifier input; and

directing the entire steam output from gasification steam to said electric power generation during said other time period when air is used as the gasifier input.

4,277,417

HYDROCARBON SOLUBLE SULFONATED POLYOLS, ESTERS OF HYDROCARBON SUBSTITUTED C_4–C_{10} DICARBOXYLIC ACIDS WITH POLYOLS AND SULFONIC ACID, PROCESSES THEREFOR, AND LUBRICATING COMPOSITIONS THEREOF

Vijaya K. Varma, Belle Mead, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 385, Dec. 29, 1978, abandoned. This application Feb. 25, 1980, Ser. No. 124,085
Int. Cl.³ C10M *1/20, 1/40;* C07C *143/68*
U.S. Cl. 260—456 R **18 Claims**

1. A hydrocarbon soluble partial sulfonate of a polyol comprising the product obtained from heating together a mixture consisting essentially of a polyol having at least three and up to eight hydroxy groups and containing a total of 2 to 40 carbons and a hydrocarbon soluble C_{12}–C_{80} hydrocarbyl substituted sulfonic acid at a temperature of from 100°-240° C. until sulfonation is complete by infrared analysis and/or cessation of water evolution.

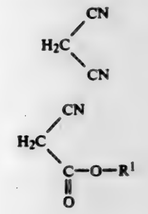
4,277,418

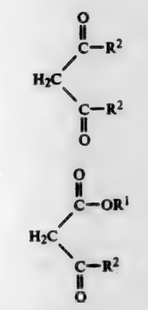
METHOD OF PREPARING ALKOXYMETHYLENE COMPOUNDS

Otto Ackermann, Troisdorf Siegiar; Dieter Bretzinger, Lohmer; Herbert Schneidewind, and Rudolf Stephan, both of Troisdorf, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 825,794, Aug. 9, 1977, abandoned. This application Feb. 26, 1979, Ser. No. 15,096
Claims priority, application Fed. Rep. of Germany, Aug. 10, 1976, 2635841
Int. Cl.³ C07C *120/00, 121/30, 121/453, 121/413*
U.S. Cl. 260—465.4 **13 Claims**

1. In a process for the preparation of an alkoxymethylene malonic acid derivative which comprises contacting a compound selected from the group consisting of





wherein

R^1 is C_1 to C_3 alkyl, and

R^2 is methyl or ethyl

with an orthoformic acid trialkyl ester in the presence of a catalyst at a temperature of 80° to 165° C., the improvement residing in employing at least 1.6 moles of orthoformic acid ester per mole of said compound and carrying out the process in the presence of Lewis acid free catalyst consisting essentially of an anhydride of an aliphatic carboxylic acid of 2 to 4 carbon atoms, said anhydride in an amount of up to 50% of the total amount of anhydride to be employed being added to the reaction mixture before commencement of the reaction and the balance of the anhydride being added during the reaction continuously or in several portions, the alcohol being formed being removed during the process.

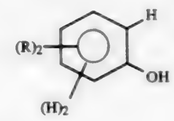
4,277,419

PREPARATION OF MUCONIC ACID MONONITRILES AND COPPER(II)-AMMONIA REAGENT THEREFOR

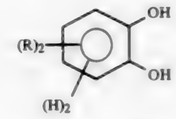
Timothy R. Demmin, Randolph, and Milorad M. Rogic, Whippany, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 942,507, Sep. 15, 1978, abandoned. This application Sep. 11, 1979, Ser. No. 74,442
Int. Cl.³ C07C *120/00, 121/413;* C07F *1/08*
U.S. Cl. 260—465.4 **23 Claims**

1. A process of reacting in the liquid phase a cyclic starting material selected from the group consisting of phenols of the formula:



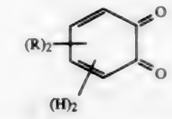
(1) catechols of the formula:



(2)

and orthobenzoquinones of the formula:

(3)



(4)

wherein R is independently at each occurrence H, alkyl, alkoxy, bromo, chloro, amino, phenyl or phenoxy, with a copper-(II)-ammonia reagent suspended in an organic solvent having a nitrogen with an unshared electron pair under reaction conditions forming a muconic acid mononitrile or copper salt thereof;

said copper(II)-ammonia reagent, when recovered from the organic solvent, having an empirical formula

$$(CuO)(CuX_2)_y(NH_3)_z$$

where X is a monovalent anion, y is between about 0.2 and about 1 and z is between about 2 and about 4.

20. A composition of matter selected from the group consisting of cis,cis-muconic acid mononitrile and its copper(II) salts.

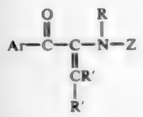
4,277,420

EPHEDRINE AND PSEUDOEPHEDRINE PRECURSORS

Karl E. Koenig, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Sep. 24, 1979, Ser. No. 78,111
Int. Cl.³ C07C *103/20, 103/75*
U.S. Cl. 560—24 **21 Claims**

1. As new compounds, the compounds represented by:



in which Ar represents substituted or unsubstituted phenyl. each R and R′ are independently selected from hydrogen, lower alkyl and aryl, and Z is selected from substituted or unsubstituted acyl.

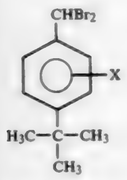
4,277,421

PROCESS FOR THE MANUFACTURE OF PARA-TERT.BUTYLBENZALDEHYDE AND ITS DERIVATIVES WHICH ARE HALOGEN-SUBSTITUTED AT THE NUCLEUS

Franz Landaser, Frankfurt am Main, and Georg Schaeffer, Hofheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 14, 1979, Ser. No. 94,058
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849692; Mar. 22, 1979, 2911237
Int. Cl.³ C07C *25/02, 45/43*
U.S. Cl. 570—185 **3 Claims**

1. A compound of the formula



wherein X is hydrogen, fluorine, chlorine, bromine or iodine.

4,277,422

VULCANIZATION ACTIVATOR

Herbert Mueller, Frankenthal; Gerhard Paulus; Hubert Schoeppl, both of Weinheim, and Emil Scharf, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 834,413, Sep. 19, 1977, abandoned. This application May 7, 1979, Ser. No. 36,861
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1976, 2645170
Int. Cl.³ C08C *19/20*
U.S. Cl. 260—791 **9 Claims**

1. A process for the manufacture of vulcanized rubber, comprising:

adding a vulcanizing agent and one or more vulcanizing activators, said activators containing the crystalline reaction product of formaldehyde and 1,3-propylene diamine, to the rubber, and

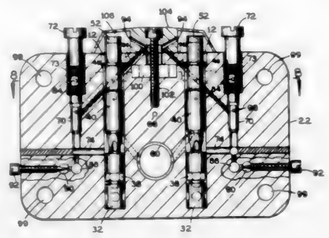
heating the mixture.

4,277,423

FUEL CALIBRATION DEVICE FOR CARBURETOR

Robert W. Noguez, 5660 NW. 78th Ave., Miami, Fla. 33166

Filed Feb. 13, 1980, Ser. No. 121,129
Int. Cl.³ F02M *19/06*
U.S. Cl. 261—34 R **8 Claims**



1. A fuel calibration device for use with a carburetor and fuel bowl of an internal combustion engine to calibrate fuel flow, comprising:

block means for receiving fuel metering systems;

means forming a main well in said block means;

main jet means received in said main well for metering main fuel flow;

emulsion tube means received in said main well above said jet means for emulsifying fuel with air;

air corrector means received in said main well above said emulsion tube means for introducing air into the fuel at said emulsion tube means;

said main jet means and said emulsion tube means and said air corrector means being united in a main assembly that is removable from said main well when said block means is attached to said carburetor to permit replacement with a like main assembly having different characteristics;

means forming an idle system well in said block means;

idle jet means received in said idle system well for metering idle fuel flow;

and holder means received in said idle system well above said idle jet means;

air bleed means for metering and introducing air into the idle fuel flow;

said idle jet means and said holder means being united in an idle assembly that is removable from said idle system well when said block means is attached to said carburetor to permit replacement with a like idle assembly having different characteristics;

supply means for supplying fuel to said wells;

and discharge means for discharging fuel and air from said wells to the carburetor.

4,277,424

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Charles B. Shivers, Jr., 8928 Valleybrook Rd., Birmingham, Ala. 35206

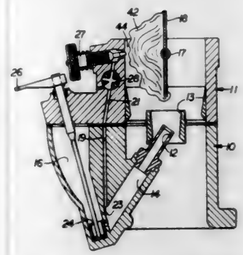
Filed Dec. 21, 1979, Ser. No. 105,919
Int. Cl.³ F02M *3/02*
U.S. Cl. 261—41 D **2 Claims**

1. In a carburetor for internal combustion engines of the kind having a main jet supplied by a fuel passage, and an idle jet having a fuel supply passage in communication with said main jet fuel supply passage, the improvement comprising,

(a) a vent from the idle jet passage to atmosphere,

(b) a valve controlling the idle jet passage ported so that in a first position the idle jet passage is connected to said vent and in a second position the idle jet passage is connected only to the idle jet, and

(c) means operatively connected to the valve to move the same from said second to said first position when the main



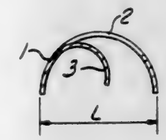
jet becomes the sole source of fuel flow through the carburetor.

4,277,425

TOWER PACKING ELEMENT

Max Leva, 2160 Greentree Rd., Pittsburgh, Pa. 15220

Division of Ser. No. 887,604, Mar. 17, 1978, Pat. No. 4,203,934, which is a continuation-in-part of Ser. No. 749,272, Dec. 10, 1976, abandoned, which is a continuation of Ser. No. 586,529, Jun. 13, 1975, abandoned. This application May 16, 1980, Ser. No. 150,437
Int. Cl.³ B01F *3/04*
U.S. Cl. 261—98 **12 Claims**



1. In a packing for a vapor- or gas-liquid contact tower and the like, a plurality of randomly packed, mutually interlocking packing elements providing a bed having substantial physical stability, each packing element comprising an open-ended curved strip being molded of plastic exhibiting curvature only in a single direction and the curvature extending through an angular range of about 90 to 180 degrees, said strip having a plurality of tongues, being molded of plastic, selected ones of which are different lengths and extending only inwardly of the curvature of said strip, at least one slot extending along said single direction in said curved strip, the surface of said strip and tongues being otherwise smooth and free of small perforations, at least one of said tongues extending for at least a distance equal to about one-fifth the distance from its base at the concave surface of said strip to the center between the ends of said strip, so as to permit interlocking with and prevent nesting with adjacent packing elements and provide a homogeneous packing.

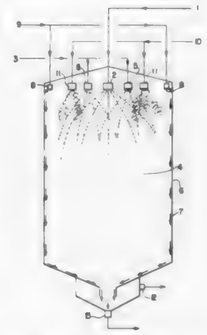
4,277,426

METHOD FOR PRODUCTION OF COAGULATED SYNTHETIC POLYMER LATEX

Shingi Kato, Takasago; Nobuo Ogawa; Norio Kawanami, both of Akashi, and Takashi Onda, Takasago, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Nov. 27, 1979, Ser. No. 97,895
Claims priority, application Japan, Aug. 20, 1979, 54/106278
Int. Cl.³ B01J *2/04*
U.S. Cl. 264—8 **6 Claims**

1. A method for coagulating a latex of a synthetic polymer at a coagulated latex particle formation temperature at which pluralities of polymer particles coagulate in droplets of the latex to form coagulated latex particles, without causing agglomeration of the coagulated latex particles to form substantially spherical particles, the method which comprises coagulating said latex by dispersing substantially spherical droplets of it, the droplets having a size distribution such that not more than 20% have a diameter smaller than 53 microns and the remainder have a diameter of 2 mm or less, into a coagulating atmosphere selected from the group consisting of: (i) a gaseous coagulant; and (ii) a liquid coagulant in the form of a mist comprising liquid drops having diameters such that the terminal settling velocity of the drops under free-falling conditions



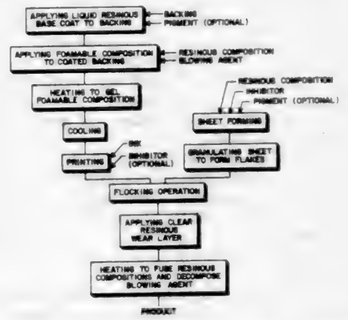
is in accordance with Stokes' Law, said coagulation atmosphere being maintained at the coagulated latex particle formation temperature and being contained in a vertically disposed coagulation chamber having side walls with inner surfaces, while causing water to flow downward over the inner surfaces as a liquid recovery medium, the water being maintained at the coagulated latex particle formation temperature to recover the coagulated latex particles having a substantially spherical shape, contact being maintained between the droplets of latex and the coagulating atmosphere for a period between 0.6 to 3 seconds effective to permit said droplets to absorb about 0.36 to 8% by weight of coagulant based on the weight of the polymer to stabilize said coagulated latex particles.

4,277,427

RANDOMLY EMBOSSED SURFACE COVERING

Stanley J. Kaminski, Trenton; Robert D. Mansolillo, Bloomfield, and Eugene A. Wilmer, Pennington, all of N.J., assignors to Congoleum Corporation, Kearny, N.J.

Filed Sep. 27, 1979, Ser. No. 79,296
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—45.5 **16 Claims**



1. In a process for producing a wear resistant, multilayered

resinous assembly on a base, said process comprising the steps of: forming into a layer a foamable resinous polymer composition containing a blowing agent; heating to gel said layer; printing a design on said layer with ink; applying a wear layer thereto, and; heating the resulting assembly to the decomposition temperature of said blowing agent; the improvement which comprises randomly distributing flakes of a resinous composition containing an inhibitor for said blowing agent onto the printed surface of the gelled foamable resinous polymer composition, applying a clear wear layer thereto, and heating the resulting assembly to effect the inhibition reaction and, thereafter, to decompose the blowing agent and fuse the resinous compositions so as to effect expansion at the sites of decomposition.

4,277,428

POST-PRESS MOLDING OF MAN-MADE BOARDS TO PRODUCE CONTOURED FURNITURE PARTS

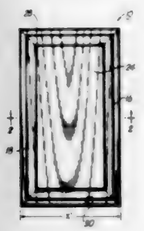
Allan J. Lack, Harvard; John T. Clarke, and Roger F. Sutton, both of St. Charles, all of Ill., assignors to Masonite Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 833,037, Sep. 14, 1977, Pat. No. 4,175,106. This application Nov. 19, 1979, Ser. No. 95,627

The portion of the term of this patent subsequent to Nov. 20, 1996, has been disclaimed.

Int. Cl.³ B29J *5/00*

U.S. Cl. 264—118 **16 Claims**



1. A method of molding a cellulosic fiber containing board to form a three dimensional contoured part comprising:

(a) compressing and heating a fibrous mass of cellulosic fibers to bond the fibers into a consolidated blank;

(b) cutting the consolidated blank to a size larger than the interior dimensions of said mold cavity in each of its three dimensions;

(c) inserting said cut blank in the open cavity of said contoured mold;

(d) closing said mold;

(e) hot-pressing said consolidated, cut blank in said mold at a temperature of 200° F. to 650° F. to form a contoured, molded product; and

(f) opening said mold and removing said molded, contoured part.

4,277,429

PRODUCTION OF ASYMMETRIC POROUS FILM MATERIALS

Koichi Okita, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 830,288, Sep. 2, 1977. This application Apr. 20, 1979, Ser. No. 31,804

Claims priority, application Japan, Sep. 3, 1976, 51-105912

Int. Cl.³ B29D *7/24;* **B29C** *17/02*

U.S. Cl. 264—127 **4 Claims**

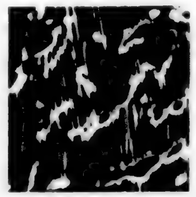
1. A process for producing asymmetric porous film materials which comprises

molding a polytetrafluoroethylene containing a liquid lubricating agent by a paste method to form a film,

removing the liquid lubricating agent, and

generating a temperature difference simultaneously with a compressive force in the thickness direction of the film during stretching the film at a temperature lower than the sintering temperature of the polytetrafluoroethylene using rolls

which have a different revolving ratio and



which have a temperature difference between each other, whereby tension is caused by the stretching direction of the film while a compressive force corresponding to the tension is caused in the thickness direction of the film.

4,277,430

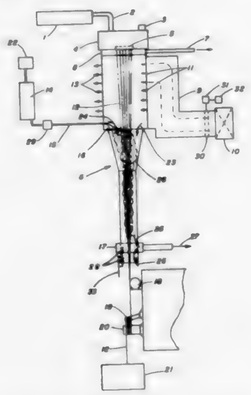
QUENCH PROCESS FOR SYNTHETIC FIBERS USING FOG AND FLOWING AIR

Frank L. Peckinpaugh, and Raymond J. Biron, both of Colonial Heights, Va., assignors to Allied Chemical Corporation, Morristown, N.J.

Division of Ser. No. 930,119, Aug. 1, 1978, Pat. No. 4,204,828. This application Dec. 6, 1979, Ser. No. 100,755

Int. Cl.³ B29H *21/04;* **B29C** *25/00*

U.S. Cl. 264—129 **4 Claims**



1. A method to quench freshly spun synthetic multifilament fibers in a quench stack using fog and air comprising

spinning synthetic multifilament fiber from its molten synthetic polymer through a spinnerette into a quench stack,

quenching the freshly spun fiber in the quench stack first with flowing air and then with a combination of flowing air and water in the form of a fog generated from an airless atomizer, and

taking up said fiber onto a wound package, while

controlling said air flow, and

controlling the rate of formation of said fog,

providing one nozzle for each two bundles of multifilament fiber per stack, controlling said air flow to a supply of from about 0.01 to 0.15 scfm per pound of polymer per minute, controlling said formation of fog by atomizing water at a rate of from 2 ounces of water per minute per pound of polymer per minute to about 4.5 ounces of water per minute per pound of polymer per minute at a pressure of about 400 to 720 at the nozzle of said atomizer, locating said nozzle at about 6 feet below said spinnerette, so that a spinning and quench system designed for high throughput feeder yarn for staple can produce high quality feeder yarn for continuous filament processing.

4,277,431

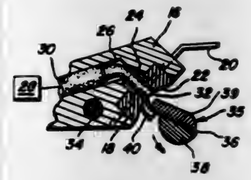
METHOD OF DISPENSING METERED CHARGES OF MATERIAL

William N. Peller, Crawfordsville, Ind., assignor to H-C Industries, Inc., Crawfordsville, Ind.

Continuation of Ser. No. 856,138, Nov. 30, 1977, abandoned, which is a division of Ser. No. 719,836, Sep. 2, 1976, Pat. No. 4,080,136. This application May 21, 1979, Ser. No. 41,097

Int. Cl.³ B29B *5/06;* **B29C** *17/14*

U.S. Cl. 264—148 **3 Claims**



1. A method of providing a metered charge of material to a receiving means each time the receiving means, which moves at a predetermined rate within a range of operable rates, is in a predetermined position, which comprises: extruding material through a feed orifice; rotating cutting means having a substantial flexible and resilient cutting blade with a distal end which is operably positioned with respect to said feed orifice so that said distal end travels at an average tangential velocity; severing the extruding portion of said extruded material by periodically contacting the extruded material with said cutting means; bending said cutting blade backwardly by providing a surface which said cutting blade contacts; and releasing said cutting blade from said surface so that said cutting blade snaps forwardly to impart a velocity to the severed portion which is greater than the average tangential velocity of the distal end of said cutting blade to direct to said severed portion to said receiving means.

4,277,432

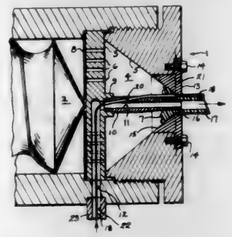
METHOD FOR EXTRUDING CATHETER TUBING

Willis E. Woinowski, Racine, Wis., assignor to Vesta, Inc., Milwaukee, Wis.

Filed Oct. 30, 1979, Ser. No. 89,506

Int. Cl.³ B29F *3/10*

U.S. Cl. 264—173 **5 Claims**



1. In a method of encapsulating a flexible preformed incompletely cured marking thread of X-ray opaque elastomeric material into the wall of tubing of elastomeric material during an extrusion operation which comprises, the steps of extruding the tubing elastomeric material through an opening between a pair of dies in a flow path initially varying in cross-section in a downward extent and then terminating into a flow path having a constant cross-section area, and introducing the thread of elastomeric material into the elastomeric material disposed to form the tube in the area of the dividing line wherein the flow path of the extruder tubing material changes from varying to constant to prevent blocking of the passage through which the thread is introduced into the extruded material with consequent stretching of the thread, or prevent entry of air into the extruded elastomeric material and the consequent forming of undesirable air passages adjacent to the thread in the final tubing and fully curing the tubing and thread to complete the tubing and the encapsulating of the marking thread in the wall of the tubing.

4,277,433

PROCESS FOR TERNARY POLYAMIDE FILAMENTS

Eduard Schmid, Bonaduz, and Wolfgang Griehl, Chur, both of Switzerland, assignors to Inventa AG für Forschung und Patentverwertung, Zurich, Switzerland

Division of Ser. No. 867,646, Jan. 6, 1978. This application Feb. 1, 1980, Ser. No. 117,520

Claims priority, application Switzerland, Oct. 1, 1977, 230/77

Int. Cl.³ B29G *7/00*

U.S. Cl. 264—289.3 **2 Claims**



1. A process for the production of oriented crystalline filaments comprising a copolyamide derived from at least three polyamide-forming, unbranched, saturated, randomly distributed monomer components, having an average amide group frequency of one —CONH— to 6.4–7.4 —CH_2—, and in which each of said monomer components is present in an amount of 10–60 mol %, based on the number of mols of all said components and the sum of the mol % amounts of all components is 100, said copolyamide having a melting point of less than 155° C., said process comprising spinning said components into filaments and stretching said filaments.

4,277,434

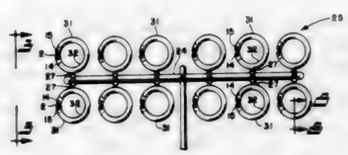
INJECTION MOLDING RESILIENT RING CLIP

Gerald A. Conway, 3570 Warrensville Center Rd., Shaker Heights, Ohio 44122

Filed Jan. 18, 1979, Ser. No. 4,453

Int. Cl.³ B29F *1/00*

U.S. Cl. 264—297 **4 Claims**



1. A method of producing resilient ring clips comprising the steps of: providing a two-part injection mold having therein, when closed, a substantially toroidal shape cavity for forming an open-ended ring clip that has a small gap between the ends

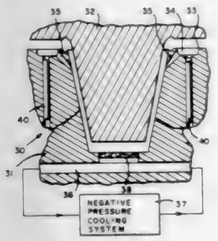
thereof resulting from incomplete revolution of the toroid-generating closed plane curve around the toroid-generating axis of rotation, such cavity further being shaped to provide a flattened area extending along a side of each of the ends of the ring clip for a short distance from the tip of each end which flattened areas are on axially opposite sides of the ring clip and approximately normal to the axis, a hole in the flattened area of one of the ends, and a pin projecting from and approximately normal to the flattened area of the other of the ends, which pin fits snugly into the hole when the two ends are brought into overlapping relationship and the two flattened areas into substantial, facing contact, and such cavity further being shaped such that the ring clip when thusly closed is of substantially uniform cross-sectional shape; assembling and closing the mold parts along a parting face lying in the plane of the ring clip shape cavity; injecting material into the cavity in the closed mold to form the ring clip; and then opening the mold and removing the ring clip therefrom.

4,277,435

PLASTIC TUMBLER AND METHOD AND APPARATUS FOR MAKING SAME

Paul E. Allen, Newtown, Conn., assignor to Logic Devices, Inc., Bethel, Conn.

Filed Mar. 28, 1979, Ser. No. 24,814
Int. Cl.³ B29F 1/00
U.S. Cl. 264—328.12 **5 Claims**



1. A method for molding a plastic container having a closed bottom, a circular wall extending upwardly therefrom and a top circular rim on said wall comprising the steps of forming a closed mold cavity defining the shape of said plastic container, injecting plastic material into said cavity in a common direction at a plurality of spaced points at least adjacent the rim-forming portion of the cavity and at an angle substantially tangential thereto to fill the rim-forming portion with a peripheral circular movement of said plastic material and cause said plastic material to swirl around and down into the side wall-forming portion of the cavity towards and into the bottom-forming portion of the cavity while evacuating at least some of the gas present in the cavity through the bottom-forming portion of the cavity, to form a plastic container having improved strength due to the plastic material in the rim and wall thereof having been introduced in a circular swirl pattern.

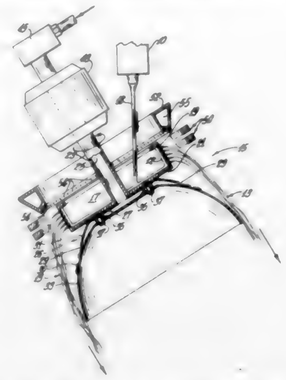
4,277,436

METHOD FOR FORMING FILAMENTS

Hashmuk G. Shah, Granville, and G. Richard Machlan, Newark, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation of Ser. No. 900,408, Apr. 26, 1978, abandoned. This application Jul. 12, 1979, Ser. No. 57,138
Int. Cl.³ D01D 5/12; B29C 6/00
U.S. Cl. 264—518 **8 Claims**

1. A method of forming filaments comprising:
forming a generally cylindrical rotating veil of interengaging primary fibers from a rotor containing filament forming material;
advancing said veil substantially along a path of advancement along the axis of rotation of said rotor;
supplying a fluid to the interior of the veil by a conduit having a discharge orifice within said veil;
providing a continuous surface of revolution within said veil along the path of advancement of said veil;



and moving the fluid over the exterior of said surface according to the Coanda effect along the axis of rotation into engagement with said veil to attenuate said primary fibers into filaments.

4,277,437

KIT FOR CARRYING OUT CHEMICALLY INDUCED FLUORESCENCE IMMUNOASSAY

Edward T. Maggio, Redwood City, Calif., assignor to Syva Company, Palo Alto, Calif.

Continuation of Ser. No. 893,910, Apr. 5, 1978, Pat. No. 4,220,450. This application Dec. 10, 1979, Ser. No. 101,935
The portion of the term of this patent subsequent to Sep. 2, 1997, has been disclaimed.
Int. Cl.³ G01N 33/54, 33/58
U.S. Cl. 422—61 **4 Claims**

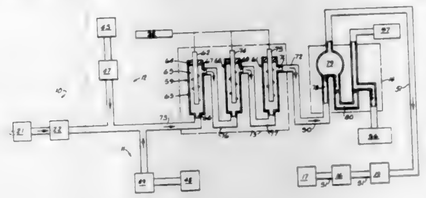
1. A diagnostic kit for use in a method for determining in an assay solution, the presence of an analyte in a sample suspected of containing said analyte, said analyte being a member of an immunological pair consisting of ligand and antiligand, said ligand having at least one epitopic site and said antiligand being capable of specifically binding to said epitopic site of said ligand; wherein a light emitting reciprocal pair are employed as labels, said light emitting reciprocal pair consisting of a chemiluminescence source having at least one component and a quencher capable of quenching the light emitted by said chemiluminescence source without collision, said labels being conjugated to members of said immunological pair to form a chemiluminescence label conjugate and a quencher label conjugate, and wherein in said assay solution the amount of quencher brought within quenching distance of said chemiluminescence source is related to the amount of analyte in said assay medium; said kit comprising in relative amount to substantially optimize said method, said chemiluminescence label conjugate and said quencher labeled conjugate.

4,277,438

METHOD AND APPARATUS FOR MEASURING THE AMOUNT OF CARBON AND OTHER ORGANICS IN AN AQUEOUS SOLUTION

Edward M. Ejzak, Friendswood, Tex., assignor to Astro Resources Corporation, League City, Tex.

Filed Sep. 4, 1979, Ser. No. 72,424
Int. Cl.³ G01N 31/12; B01J 19/08
U.S. Cl. 422—80 **7 Claims**



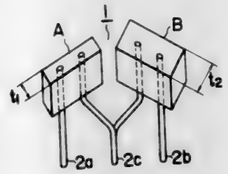
1. An apparatus for measuring the amount of oxidizable chemicals in a solution, comprising:
first means for supplying a test solution
second means connected to said first means for introducing an oxidizer into the test solution;
means defining a source of oxygen connected to and communicating with a third means, said third means introducing oxygen into the test solution, in said first means, prior to irradiation of the test solution;
a multistage reactor, said reactor having a plurality of individual, separated stages, each of said stages having an input aperture and an output aperture, each of said stages having an ultraviolet lamp at least partly internal to said stage, said lamp being adapted to directly contact the test solution, said input apertures being lower than said output apertures to permit oxygen introduced into the test solution to scrub off insoluble gases formed by oxidation of the test sample, said input aperture of the initial said stage being in fluid communication with said first, second and third means, conduit means being connected to said output aperture of each stage and being in fluid communication with said input aperture of the succeeding said stage, said output aperture of the final said stage being in fluid communication with a reactor output; and
detector means for detecting carbon dioxide, said detector means being in fluid communication with said reactor output.

4,277,439

GAS COMPONENT DETECTOR

Eturo Yasuda, Okazaki, and Minoru Ohta, Anjo, both of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Oct. 18, 1979, Ser. No. 86,039
Claims priority, application Japan, Oct. 25, 1978, 53/131230
Int. Cl.³ G01N 27/12
U.S. Cl. 422—94 **10 Claims**



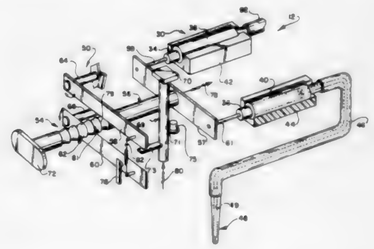
1. A gas component detector comprising a first gas component detecting element formed by a metal oxide having an electric resistance depending on the concentration of gas components and on the temperature of a detected gas and having a relatively fast response time in response to the variation of concentration of gas components; a second gas component detecting element formed by a metal oxide having the same temperature co-efficient of electric resistance as that of said first gas component detecting element and having an electric resistance variable to the same extent as that of said first detecting element depending on the concentration of gas components and on the temperature of the detected gas and having a slower detection response time against the concentration of gas components in the detected gas than that of said first gas component detecting element; electrodes provided in said first and second gas component detecting elements at positions capable of detecting an electric resistance depending on the concentration of gas components and on the temperature of the detected gas; and a catalyzer carried on said first and second detecting elements whereby a value of electric resistance corresponding to the concentration of gas components and the temperature of the detected gas is derived.

4,277,440

METERING APPARATUS

Thomas C. Jessop, Webster, and William L. Smith, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 2, 1979, Ser. No. 54,064
Int. Cl.³ G01N 35/00, 1/14
U.S. Cl. 422—100 **15 Claims**



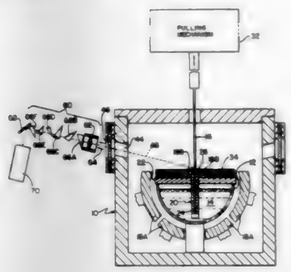
1. A metering device for use in apparatus for the analysis of biological fluids, said device being adapted to meter a predetermined quantity of fluid onto a test element containing reagents for the testing of a particular analyte, said analyzer being adapted to measure a change in said element which is indicative of the amount of analyte in said fluid, said device comprising:
a metering tip having a fluid chamber for receiving fluid aspirated into said tip through an aperture therein;
pump means in fluid communication with said metering tip, said pump means being adapted to draw fluid into said tip and to expel fluid therefrom in precise amounts; and
drive means operatively connected to said pump means, said drive means including an escapement mechanism which is adapted to advance said pump means through a plurality of steps to deliver said quantity of fluid to each of a plurality of test elements, each quantity of fluid being delivered by advancement of said pump means through a first step which expels a first portion of said quantity of fluid from said tip and advancement of the pump means through a second step which expels the remainder of said quantity from the tip.

4,277,441

APPARATUS FOR MONITORING CRYSTAL GROWTH

Emanuel M. Sachs, Watertown, Mass., assignor to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Division of Ser. No. 3,278, Jan. 15, 1979, Pat. No. 4,242,589. This application Mar. 17, 1980, Ser. No. 130,816
Int. Cl.³ G05D 5/00
U.S. Cl. 422—105 3 Claims



1. A system for controlling the growth of a crystalline body of selected material from a growth pool of melt so that said body has a selected cross-sectional shape for some predetermined distance along its length, said growth pool being characterized by a meniscus which joins said body at said growth pool to form a solid/liquid/vapor junction, said system comprising

(1) means, including a crucible for heating said material, for establishing said growth pool,

(2) optical means for forming an image of at least the entire width of said junction and the portions of the body and meniscus above and below said junction;

(3) video display means for displaying said image, said video display means comprising

(a) means for generating a video signal representative of said image;

(b) averaging means for averaging the amplitudes of portions of the video signal representative of at least one preselected portion of said image, and

(c) means for generating an electrical signal representative of the average of said amplitudes; and

(4) means responsive to said electrical signal for controlling the growth of said body.

4,277,442

CATALYTIC EXHAUST CLEANER

P. Anders Hergart, Malmö, Sweden, assignor to Unikat AB, Malmo, Sweden

Continuation of Ser. No. 758,437, Jan. 11, 1977, abandoned. This application Nov. 16, 1979, Ser. No. 95,588
Int. Cl.³ F01N 3/10, 3/28; B01D 53/34; B01J 8/02
U.S. Cl. 422—119 3 Claims

1. An exhaust cleaner for temporary use on a motorcar having an exhaust pipe, comprising:

(a) a container having an exhaust gas inlet and an exhaust gas outlet;

(b) a catalyst material having good heat accumulating capacity disposed within the interior of said container;

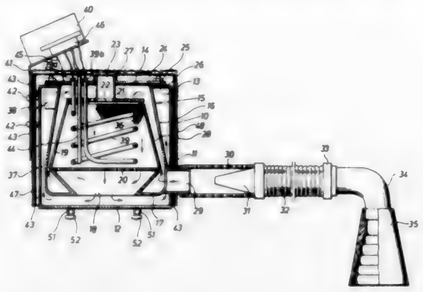
(c) electrical heating means disposed in said container in direct contact with said catalyst material;

(d) means for sensing and indicating the temperature of said catalyst material;

(e) a protective enclosure at least partially surrounding said container and insulatedly spaced therefrom comprising a shield of heat insulating material and a metallic shield arranged externally of said heat insulating material;

(f) frame means mounting said container for ready transportation comprising an upstanding substantially vertical frame and a bottom frame attached to said upstanding frame and extending substantially transversely thereto, a hook-like projection extending from said frame for temporarily attaching said exhaust cleaner to a motorcar in proximity to its exhaust pipe and a handle connected to said frame for manually transporting said exhaust cleaner;

(g) a flexible hose connected to said exhaust inlet at one end



and having means at the other end thereof for temporary connection to the outlet end of an exhaust pipe; and

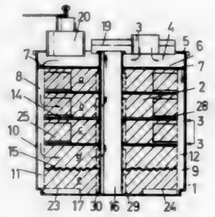
(h) means electrically connected to said heating coil for connecting the heating coil to a power supply external to a motorcar in order to pre-heat said catalyst material to a predetermined temperature, prior to attaching said exhaust cleaner to a motorcar.

4,277,443

AIR PURIFYING CARTRIDGES FOR RESPIRATORS

Carl-Ernst Van der Smissen, Lübeck, and Gerd Pantaleon-Stemberg, Mölln, both of Fed. Rep. of Germany, assignors to Dräger werk Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 30, 1979, Ser. No. 89,447
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852240
Int. Cl.³ A62B 7/08; F01N 3/15; B01J 8/02
U.S. Cl. 422—122 13 Claims



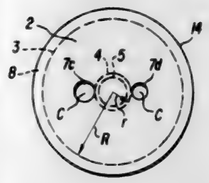
1. In combination with an expiratory air purifying cartridge for respirators of the type which contains a chemical, such as potassium peroxide, for releasing oxygen under the action of carbon dioxide and moisture, the chemical being arranged in layers separated by partitions, the layers being disposed between a perforated central tube and an air duct, so that the air traverses the layers, the improvement comprising, a basket of perforated sheet metal disposed over and spaced from the central tube adjacent at least one of the layers and a U-shaped guide element disposed on one of the partitions having a center piece spaced from the partition to define a passageway therebetween in communication with the air duct.

4,277,444

APPARATUS FOR CONVERTING HYDROCARBONS

Hugo Van Landeghem, Oytier Saint Oblas, France, assignor to Institut Francais du Petrole, Rueil-Malmaison, France

Filed May 29, 1979, Ser. No. 43,511
Claims priority, application France, May 29, 1978, 78 16372
Int. Cl.³ B01J 8/00, 8/12
U.S. Cl. 422—191 6 Claims



1. In an apparatus of the radial type for effecting hydrocarbon conversions in the presence of a catalyst, comprising at least one substantially vertical elongated chamber whose cross-section by a horizontal plane is circular, the elongated chamber including at least one annular enclosure provided for receiving a moving bed of catalyst and arranged substantially vertically in the elongated chamber, each annular enclosure being delimited by a permeable external cylindrical wall and a permeable internal cylindrical wall; an internal collector adjacent to each annular enclosure, formed by the internal space of each elongated chamber and delimited by the internal cylindrical wall of each annular enclosure; an external distributor adjacent to each annular enclosure and formed by the space which is delimited by the wall of each elongated chamber and by the external cylindrical wall of each annular enclosure; an inlet connected to the external distributor adjacent to each annular enclosure for feeding the reactants; an outlet connected to the internal collector adjacent to each annular enclosure for discharging the reactants; means for introducing the catalyst at the top of each annular enclosure; and at least one catalyst collector for continuously discharging catalyst from the bottom of each annular enclosure; wherein the internal wall of each annular enclosure is provided in its upper portion with a screen to impede discharge of reactants at the top of the internal collector, the screen having a height amounting to about 80–300% of the total width of each annular enclosure and being arranged as an inverted truncated cone of upwardly increasing cross-section and having the same axis as the internal cylindrical wall of each annular enclosure, the surface area of the smaller of the two bases of the truncated cone being substantially the same as that of the cross-section of the internal cylindrical wall of each annular enclosure, and the angle which the axis of the inverted truncated cone makes with one of its generators being from 10 to 40 degrees; and wherein the upper portion of the external wall of each annular enclosure amounting to about 10–40% of the height of the annular enclosure, has the shape of a truncated cone whose cross-section increases downwardly, the greater of the two bases of the truncated cone being substantially equal to the cross-section of the external cylindrical wall of the annular enclosure, and the angle which the axis of the truncated cone makes with one of its generators being from 10 to 40 degrees;

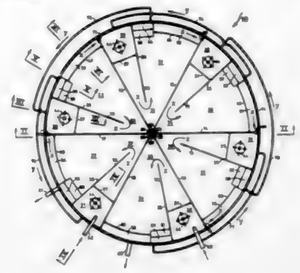
the improvement wherein each catalyst collector for continuously discharging the catalyst from the bottom of each annular enclosure is substantially cylindrical, the top of the catalyst collector being substantially flush with the bottom of the annular enclosure, and so arranged that the center of the circle that it cuts at the bottom of the annular enclosure is located at a distance less than $(R-r)/3$ from the internal wall of the annular enclosure, where R is the radius of the external wall of the annular enclosure and r is the radius of the internal wall of the annular enclosure.

4,277,445

APPARATUS FOR LIQUID-LIQUID EXTRACTION

Achille De Schepper, Lichtaart, and Antoine Van Peteghem, Olen, both of Belgium, assignors to Metallurgie Hoboken-Overpelt, Brussels, Belgium

Filed Jun. 6, 1978, Ser. No. 912,989
Claims priority, application Luxembourg, Jun. 7, 1977, 77498
Int. Cl.³ B01D 11/04
U.S. Cl. 422—259 11 Claims



1. A multi-stage liquid-liquid extraction apparatus of the mixer-settler type for carrying out extractions involving light and heavy phases accompanied by a solid phase settling comprising

(a) a vessel, the essentially vertical side-walls of which define a cylinder or a regular polygonal body and the bottom of which is inclined downwardly from the side wall towards the central axis of the vessel so that the bottom resembles a reversed cone or pyramid;

(b) a plurality of partitions dividing the vessel into a plurality of sectors, said partitions extending radially outwardly from the central axis of the vessel to said sidewall;

(c) a liquid mixing compartment located in each sector near the side-wall of the vessel, said compartment containing liquid inlet means for said light and heavy phases,

(d) an agitator in each mixing compartment in the form of a pumping turbine for mixing the phases,

(e) an outlet for each mixing compartment in the form of a weir that is located a spaced distance away from the side-wall of the vessel,

(f) a liquid outlet compartment in each sector located near the side-wall of the vessel, said compartment containing two separate outlet means for discharging two separate liquid phases from said compartment,

(g) guide means including a baffle wall in each sector extending from the outlet of the mixing chamber toward the central axis of the vessel for guiding the mixed phases from the weir of said mixing compartment towards a zone located near the central axis of the vessel and then in a nearly reverse direction outwardly towards said liquid outlet compartment, and

(h) an outlet for solids adjacent to the apex of said reversed cone or pyramid.

4,277,446

REMOVAL OF IRON AND TITANIUM MINERALS FROM ALUMINUM BEARING MATERIALS BY CHLORINATION AND BENEFICIATION

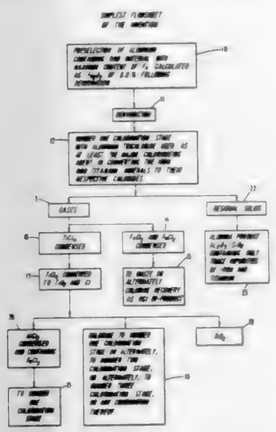
David Weston, Toronto, Canada, assignor to Reynolds Metals Company, Richmond, Va.

Continuation-in-part of Ser. No. 6,111, Jan. 24, 1979, abandoned. This application Jan. 25, 1980, Ser. No. 115,397
Int. Cl.³ C01F 7/56, 7/02
U.S. Cl. 423—136 27 Claims

1. A process for the production of an essentially iron-free alumina product from aluminum mineral bearing materials containing at least iron minerals comprising:

(a) selecting an aluminum bearing material containing a

maximum iron content calculated as Fe_2O_3 of 8.0% following dehydration as the feed to the chlorination stage;
(b) dehydrating the said aluminum bearing material by heating in the temperature range of about 625° C. to about 1050° C.;
(c) subjecting the said dehydrated material to chlorination to differentially chlorinate at least the said contained iron minerals by reaction with at least one chlorination agent at a temperature in the range of 550° C.–1050° C. and in which the chlorination agent comprises at least a 25% stoichiometric excess of aluminum chloride over the amount necessary to convert the iron materials to their



respective chlorides, said aluminum chloride including recycle impure $AlCl_3$ from the gaseous effluent of said chlorination reaction;
(d) recovering a solids product comprising an essentially iron-free alumina product, and a gaseous effluent;
(e) subjecting the gaseous effluent from the said chlorination stage to condensation and/or fractional distillation to recover chlorides of iron and other metals, and residual aluminum chloride containing residual amounts of other products of condensation; and
(f) recycling to the chlorination stage the said residual aluminum chloride as at least a portion of the said aluminum chloride chlorinating agent.

4,277,447

PROCESS FOR REDUCING CALCIUM ION CONCENTRATIONS IN ALKALINE ALKALI METAL CHLORIDE BRINES

Richard F. Chambers, Satsuma, Ala., and Nissim Rachima, Cleveland, Tenn., assignors to Olin Corporation, New Haven, Conn.

Filed Aug. 20, 1979, Ser. No. 67,972
Int. Cl.³ C01F *11/18*
U.S. Cl. 423—165 **6 Claims**

1. A process for reducing calcium ion concentration in alkaline alkali metal chloride brines containing from about 0.5 to about 4.0 grams per liter of an alkali metal hydroxide which comprises admixing an alkali metal bicarbonate with said alkaline alkali metal chloride brines to form an insoluble calcium salt, said alkali metal bicarbonate being admixed in an amount sufficient to provide said alkaline alkali metal chloride brines with an excess carbonate ion concentration of from about 0.3 to about 1.0 grams per liter after said formation of said insoluble calcium salt, removing said insoluble calcium salt from said brine, and recovering a purified alkali metal chloride brine having a calcium ion concentration from about 0.5 to about 2.0 parts per million and an alkali metal hydroxide concentration of from about 0.1 to about 2.0 grams per liter.

4,277,448

PHOSPHORIC ACID PROCESS WITH HIGH CIRCULATION RATES

Fernando Ore, Whittier; John D. Ellis, Huntington Beach, and James H. Moore, La Verne, all of Calif., assignors to Occidental Petroleum Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 865,557, Dec. 29, 1977, Pat. No. 4,196,172, and a continuation-in-part of Ser. No. 865,556, Dec. 29, 1977, and a continuation-in-part of Ser. No. 703,208, Jul. 7, 1976, Pat. No. 4,132,760, and a continuation-in-part of Ser. No. 703,138, Jul. 7, 1976, abandoned. This application May 26, 1978, Ser. No. 909,899
The portion of the term of this patent subsequent to Jan. 2, 1996, has been disclaimed.
Int. Cl.³ C01F *11/46*; C01B *25/22*
U.S. Cl. 423—167 **54 Claims**

1. A process for the preparation of phosphoric acid from phosphate rock and sulfuric acid comprising the steps of:
(a) adding phosphoric acid, soluble sulfate and phosphate rock to a dissolving slurry contained in a dissolving zone, the dissolving slurry comprising calcium sulfate dihydrate, monocalcium phosphate, and phosphoric acid to substantially convert the added phosphate rock to monocalcium phosphate, phosphoric acid, and calcium sulfate dihydrate, the dissolving slurry being maintained at a soluble sulfate concentration of about −1.0 to about +1%, wherein the negative soluble sulfate concentration indicates an excess of calcium ions in the slurry and the extent to which there is an insufficient concentration of sulfate, expressed as a negative weight percent, to combine with such excess calcium ions to form calcium sulfate, and at a temperature and P_2O_5 concentration in the liquid such that calcium sulfate dihydrate is formed rather than calcium sulfate anhydrite or calcium sulfate hemihydrate;
(b) continuously removing a first portion of the dissolving slurry from the dissolving zone and continuously introducing said first portion of the dissolving slurry into a crystallization slurry contained in a crystallization zone, the crystallization slurry comprising calcium sulfate dihydrate, monocalcium phosphate, phosphoric acid and sulfuric acid, the crystallization slurry being maintained under a reduced pressure;
(c) adding sulfuric acid to the crystallization slurry to react with at least the monocalcium phosphate to form calcium sulfate dihydrate and phosphoric acid, while maintaining the crystallization slurry at a soluble sulfate concentration of from about +0.5% to about +3.0%, the soluble sulfate concentration of the crystallization slurry being greater than the soluble sulfate concentration of the dissolving slurry;
(d) continuously removing a first portion of the crystallization slurry from the crystallization zone and continuously introducing said first portion of the crystallization slurry directly into the dissolving slurry to provide at least a portion of the phosphoric acid and soluble sulfate added to the dissolving slurry in the dissolving zone;
(e) internally circulating a second portion of the dissolving slurry within the dissolving zone at a rate at least equal to 50% of the volume of the dissolving slurry per minute to better mix the dissolving slurry;
(f) internally circulating a second portion of the crystallization slurry within the crystallization zone at a rate at least equal to 50% of the volume of the crystallization slurry per minute to better mix the crystallization slurry; and
(g) withdrawing a third portion of the crystallization slurry from the crystallization zone and separating the third portion into a liquid comprising phosphoric acid and a solid comprising calcium sulfate dihydrate.

33. A process for the preparation of phosphoric acid from phosphate rock and sulfuric acid comprising the steps of:
(a) adding phosphoric acid, soluble sulfate and phosphate rock to a dissolving slurry contained in a dissolving zone, the dissolving slurry comprising solid calcium sulfate, monocalcium phosphate, and phosphoric acid, to substantially convert the added phosphate rock into monocalcium phosphate, phosphoric acid and solid calcium sulfate;
(b) continuously removing a first portion of the dissolving slurry from the dissolving zone and continuously introducing said first portion of the dissolving slurry into a crystallization slurry contained in a crystallization zone, the crystallization slurry comprising calcium sulfate, monocalcium phosphate, phosphoric acid and sulfuric acid, the crystallization slurry being maintained at a temperature up to about 130° C.
(c) adding sulfuric acid to the crystallization slurry to react with at least the monocalcium phosphate to form solid calcium sulfate and phosphoric acid, the crystallization slurry being maintained at a soluble sulfate concentration greater than the soluble sulfate concentration of the dissolving slurry;
(d) continuously removing a first portion of the crystallization slurry from the crystallization zone and continuously introducing said first portion of the crystallization slurry directly into the dissolving slurry to provide at least a portion of the phosphoric acid and soluble sulfate added to the dissolving slurry in the dissolving zone;
(e) internally circulating a second portion of the dissolving slurry within the dissolving zone at a rate at least equal to 50% of the volume of the dissolving slurry per minute to better mix the dissolving slurry;
(f) internally circulating a second portion of the crystallization slurry within the crystallization zone at a rate at least equal to 50% of the volume of the crystallization slurry per minute to better mix the crystallization slurry; and
(g) withdrawing a third portion of the crystallization slurry from the crystallization zone and separating the withdrawn third portion of the crystallization slurry into a liquid comprising phosphoric acid and a solid comprising calcium sulfate.

34. The process according to claim 33 which includes the additional step of adding a defoamer to the dissolving slurry.

4,277,449

DRY REACTION PROCESS OF ASBESTOS TAILINGS AND AMMONIUM SULFATE

Jean-Marc Lalancette, Sherbrooke, Canada, assignor to Societe Nationale de l'Aminate, Quebec, Canada

Continuation-in-part of Ser. No. 15,435, Feb. 26, 1979, abandoned. This application May 1, 1979, Ser. No. 35,267
Int. Cl.³ C01F *5/40*
U.S. Cl. 423—167 **10 Claims**

1. In a dry process for forming magnesium sulfate by the reaction of asbestos tailings and ammonium sulfate, the improvement which comprises heating one surface only of a homogeneous dry mixture of asbestos tailings and ammonium sulfate from room temperature to a temperature within the range of 350° to 400° C., whereby until the temperature of the heated zone reaches about 250° C., the ammonium sulfate reacts with the asbestos tailings to form magnesium sulfate with evolution of gaseous ammonia, and when the temperature of the heated zone reaches at least 250° C., the ammonium sulfate decomposes to gaseous ammonia and sublimated ammonium bisulfate, allowing the latter two to progress to the intermediate zone which is at a temperature lower than 250° C., condensing the ammonium bisulfate and reacting it with the gaseous ammonia to form a new supply of ammonium sulfate which reacts with the asbestos tailings, and as the intermediate zone reaches a temperature above 250° C., the unreacted ammonium sulfate in this zone decomposes to ammonium bisulfate and ammonia, and as the latter two gases reach the outer zone of the reaction mixture condensing the ammonium bisulfate and reacting it with the ammonia to form a further supply of ammonium sulfate which reacts with the asbestos tailings, and continuing to heat the first heating zone until the temperature of the zone furthest away from the heating zone reaches a temperature of between 250° and 300° C., and recovering the magnesium sulfate from the reaction mixture.

4,277,450

REMOVAL OF SULFUR DIOXIDE FROM GAS

Louis R. Dilworth, Greendale, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Division of Ser. No. 21,026, Mar. 16, 1979, Pat. No. 4,226,831. This application Dec. 10, 1979, Ser. No. 101,479
Int. Cl.³ B01J *8/00*; C01B *17/00*
U.S. Cl. 423—244 **10 Claims**

1. A method of scrubbing a flowing emission gas to remove therefrom pollutant gaseous sulfur dioxide said method being characterized by:
(a) feeding (e.g. at 7) a fresh dry finely divided pollutant adsorbing medium (e.g. from 13) into a defined mixing zone (107);
(b) injecting the emission gas into said mixing zone (107) and producing turbulent flow of said gas through said zone (as by 6) to mix the emission gas (in 107) with the fresh medium (from 7);
(c) conducting said emission gas and admixed medium away from said mixing zone (107) along a defined first path (107, 5, 8) to a location at which said medium and pollutant adsorbed by said medium is separated from said emission gas (e.g. at 10);
(d) recirculating a major portion of the separated medium (from 10) along a second path (10, 16, 17) back to said mixing zone (107) to provide a closed loop recirculation path (107, 5, 8, 10, 16, 17, 107) for recirculating medium;
(e) removing a minor portion of said medium (e.g. at 34) from the recirculation path while continuing to circulate said major portion around the recirculation path (107, 5, 8, 10, 16, 17, 107);
(f) controlling the rate of removal of medium (as by 35) from the recirculation path (at 34) and the rate medium is injected (at 7) to said mixing zone (107) to remove and replace a minor portion of the circulating medium and to deliver medium to said mixing zone (107) comprising recircultated medium (from 17) plus fresh medium (from 13), in amounts that together total at least about nine times that required for stoichiometric adsorbtive chemical reaction between said medium and the pollutant present in the emission gas;
(g) heating said medium out of contact with the emission gas (at 12 or 15) prior to feeding said medium into said mixing zone (107); and
(h) controlling said heating of said medium (by e.g. 26, 28 at 12 and/or 35, 38 at 15) to admit said medium to mixing zone 107 at a temperature high enough for adsorbtive chemical reaction between said medium and said pollutant gas.

4,277,451

WET PROCESS FOR THE DESULFURIZATION OF EXHAUST GAS

Ataru Wakabayashi, Yokohama, and Isso Masuhara, Kawasaki, both of Japan, assignors to Chiyoda Chemical Engineering & Construction Co., Ltd., Yokohama, Japan

Filed Dec. 13, 1979, Ser. No. 103,175
Claims priority, application Japan, Dec. 20, 1978, 53-156255
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—243 **11 Claims**

1. A cyclic wet process for desulfurization of exhaust gas which contains sulfur dioxide, which comprises the following operation steps to remove and recover sulfur dioxide from said exhaust gas:
(A) contacting exhaust gas with an absorbent comprising potassium salts of tartaric acid having a pH of 4.5–6.5 to absorb sulfur dioxide from said exhaust gas at a temperature below about 80° C. at which potassium hydrogentartrate is formed and precipitates as a solid,

(B) removing a portion of the absorbent from step (A) which contains the absorbed sulfur dioxide and heating it to liberate and recover sulfur dioxide therefrom, and

(C) cooling the absorbent from the step (B) from which the sulfur dioxide has been removed to a temperature suitable for the absorption of sulfur dioxide from the exhaust gas and recycling it to the step (A).

4,277,452

CARBON MONOXIDE ABSORBING LIQUID

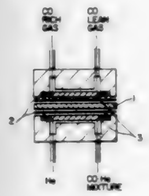
Keiichi Kanehori, Hachioji; Shinkichi Horigome, Tachikawa; Masayuki Katsumoto, Kodaira, and Yoshijiro Arikawa, Kure, all of Japan, assignors to Hitachi, Ltd. and Babcock-Hitachi Kabushiki Kaisha, both of Tokyo, Japan

Filed Jan. 8, 1980, Ser. No. 110,558

Claims priority, application Japan, Jan. 12, 1979, 54-1350

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—246 **6 Claims**



6. A method of removing carbon monoxide from a gaseous mixture containing carbon monoxide in a concentration of at least about 5% by volume which comprises treating said gaseous mixture with an absorbing liquid containing cuprous ions in a concentration of about 0.1 to 6 moles/l, hydrochloric acid in a concentration of about 0.5 to 7 moles/l, and titanium trichloride in a concentration of at least about 1/10 of the concentration of the cuprous ions.

4,277,453

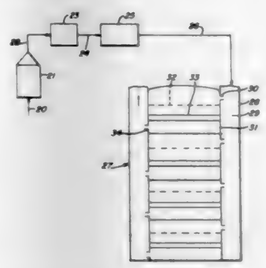
WASTE GAS PURIFICATION REACTOR AND METHOD

John E. Aiken, Monroeville Boro, and William J. Didycz, Whitehall Boro, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Jun. 4, 1979, Ser. No. 44,895

Int. Cl.³ B01D *53/36*

U.S. Cl. 423—247 **12 Claims**



1. Process for removing oxidizable pollutants from a waste gas stream comprising:

(1) removing dissolved organic acids from liquid droplets entrained in said waste gas stream by (a) heating said droplets to evaporate the liquid of said droplet and (b) contacting said waste gas stream with means for collecting said dissolved organic acids upon evaporation of the liquid of said droplets,

(2) introducing said waste gas stream having said dissolved organic acids removed, through an inlet into a chamber containing a catalyst bed for oxidizing said pollutants,

(3) passing said waste gas stream through a distributor plate containing a multiplicity of holes located between said inlet and said catalyst bed in a manner such that said waste gas is substantially uniformly distributed over said catalyst bed,

(4) passing said waste gas through said catalyst bed while maintaining said catalyst bed at a temperature sufficient to sustain catalytic oxidation of said oxidizable pollutants, and

(5) withdrawing through an outlet of said chamber said waste gas stream which has passed through said catalyst bed.

4,277,454

METHODS FOR THE CONTROL OF EXCESSIVE CORROSION IN PHOSPHORIC ACID CIRCUITS

Gary L. Long, and Roger B. Humberger, both of Pocatello, Id., assignors to J. R. Simplot Company, Pocatello, Id.

Filed Sep. 18, 1979, Ser. No. 76,574

Int. Cl.³ C01B *25/225, 25/226;* **C23F** *11/04*

U.S. Cl. 423—320 **17 Claims**

1. A method for control of excessive corrosion in phosphoric acid circuits by oxidation of reduced ion species in phosphoric acid, the method comprising the steps of:

(a) flowing phosphoric acid slurry to be treated in a phosphoric acid plant digestion system operating by a dihydrate process; said digestion system including at least one digester, at least one filter, and at least one evaporator;

(b) flowing and producing the phosphoric acid slurry in said primary digester of said dihydrate digestion system and maintaining said acid slurry in said digester at a temperature between about 165° F. to about 185° F. for a sufficient period of time to effect primary digestion of the phosphoric acid slurry;

(c) flowing said acid slurry from said digester to said filter of said digestion system and maintaining said acid slurry on said filter at a temperature of between about 165° F. to about 174° F. for a sufficient period of time to effect filtration of the phosphoric acid slurry;

(d) flowing said acid from said filter to said evaporator of said digestion system and maintaining said acid in said evaporator at a temperature between about 160° F. to about 185° F.; and

(e) maintaining the EMF of said acid slurry throughout the digestion system at a value of at least 190 millivolts (S.C.E.) by use of an oxidant.

10. A method for control of excessive corrosion in phosphoric acid circuits by oxidation of reduced ion species in phosphoric acid, the method comprising the steps of:

(a) flowing phosphoric acid slurry to be treated in a phosphoric acid plant digestion system operating by a hemihydrate process; said digestion system including at least one digester, at least one filter, and at least one evaporator;

(b) flowing and producing the phosphoric acid slurry to said primary digester of said hemihydrate digestion system and maintaining said acid slurry in said digester at a temperature between about 160° F. to about 205° F. for a sufficient period of time to effect primary digestion of the phosphoric acid slurry;

(c) flowing said acid slurry from said digester to said filter of said digestion system and maintaining said acid slurry on said filter at a temperature of between about 160° F. and about 180° F. for a sufficient period of time to effect filtration of the phosphoric acid slurry; and

(e) maintaining EMF of said acid slurry throughout the digestion system at a value of at least 190 millivolts (S.C.E.) by use of an oxidant.

4,277,455

PROCESS FOR PURIFYING PHOSPHORIC ACID

Thomas A. Williams, Beckermet, and Frank M. Cussons, Little Broughton, both of England, assignors to Albright & Wilson Limited, Warley, England

Filed Oct. 12, 1979, Ser. No. 84,188

Claims priority, application United Kingdom, Oct. 16, 1978, 40622/78

Int. Cl.³ C01B *25/16*

U.S. Cl. 423—321 S **15 Claims**

1. In a process for purifying feed wet process phosphoric acid prepared from contact of phosphate rock and sulphuric acid which comprises treating the feed wet process acid with a ketone solvent which is a dialkyl ketone of 5 or 6 carbon atoms to form a crude ketone extract containing at least some of the acid in the feed acid, purifying said crude ketone extract, and then releasing the acid in the purified extract to form aqeous purified phosphoric acid, the improvement which comprises scrubbing said crude ketone extract with water or purified phosphoric acid scrub liquor to produce a scrubbed purified extract, and a used aqueous acid scrub liquor which is all recycled to said contact of wet process phosphoric acid and a ketone, and then contacting said scrubbed purified extract with water or phosphoric acid in a single stage to give a first aqueous product purified phosphoric acid and an acid laden ketone layer which are separated, and then contacting said acid laden ketone layer with water in more than one countercurrent stage to form a second aqueous product purified phosphoric acid and a ketone layer, which are separated, each of the first and second product purified acids containing 35–65% of the phosphoric acid in the scrubbed, purified extract.

4,277,456

MINERAL SUBSTANCE BASED ON A REVERSIBLY SWELLABLE TRI-LAMINAR MINERAL DEVELOPED TO BE CRYSTALLINE OVER A LARGE AREA AND HAVING CRYSTAL LAYERS SEPARATED FROM ONE ANOTHER

Ralf Dabrowski, Hilden, Fed. Rep. of Germany, assignor to Firma Hans Kramer GmbH & Co. KG, Fed. Rep. of Germany

Filed Jul. 18, 1978, Ser. No. 925,780

Int. Cl.³ B32B *19/00;* **C01B** *33/22*

U.S. Cl. 423—328 **14 Claims**

1. A reversibly swellable tri-laminar mineral which is crystalline over a large area and in which the crystal layers are separated from one another, said tri-laminar mineral containing more than about 50 percent by weight of tabular particles, said particles having a thickness of from about 0.5 to about 10 microns, an equivalent diameter of from about 10 to about 200 microns, a ratio of particle thickness to equivalent diameter equal to or smaller than about 1:10, said particles possessing hydrophilic properties on the planar surfaces thereof permitting the particles to quickly take up or give off water, and upon taking up water, the particles swell, and upon giving off water, the particles shrink, in a single direction which is perpendicular to the tabular plane of the particles, it being further provided that said particles are disposed substantially side by side in flat layers and with extensive plasticity in the range of from about 35 to about 65 percent, said tri-laminar material having a plasticity factor h_1 of from about $65.4393 - 1.32126.W + 1.03456.10^{-2}W^2 - 2.80579.10^{-5}W^3$ in the limits of from about 60 to about 140 W with h_1 representing mm. on the Bowmaker scale and W representing g H_2O/100 g of dry substance.

4,277,457

ALKALI CALCIUM SILICATES AND PROCESS FOR PREPARATION THEREOF

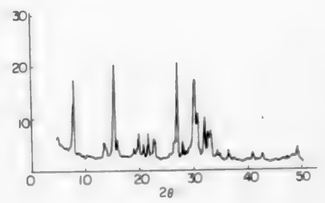
Genji Taga, Shinnanyo; Teruo Oikawa, Kudamatsu, and Yoshiaki Watanabe, Hikari, all of Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi, Japan

Filed Jul. 5, 1979, Ser. No. 54,810

Claims priority, application Japan, Jul. 7, 1978, 53/81935; Jul. 11, 1978, 53/83565; Aug. 7, 1978, 53/95397; Sep. 21, 1978, 53/115131; Dec. 5, 1978, 53/158639

Int. Cl.³ C01B *33/24*

U.S. Cl. 423—331 **29 Claims**



1. An alkali calcium silicate having an X-ray diffraction pattern having diffraction peaks at spacings (d) of 11.8–12.2 Å, 6 Å and 3 Å.

12. A process for the preparation of alkali calcium silicates according to claim **10**, wherein the silicon dioxide component is a hardly soluble silicon dioxide component and the hydrothermal reaction is carried out at a temperature of 150° to 250° C. under conditions satisfying any one of requirements defined by the following formula combinations (I), (J) and (K):

$$\left.\begin{array}{l} 1.2 \leqq T \leqq 0.006t + 0.15 \\ U \leqq 0.01 \end{array}\right\} \quad (I)$$

$$\left.\begin{array}{l} 0.006t + 0.15 < T \leqq 0.008t + 0.6 \\ 0.002 \leqq U \leqq 0.00008t - 0.008 \end{array}\right\} \quad (J)$$

$$\left.\begin{array}{l} 0.008t + 0.6 < T \leqq 3.0 \\ 0.002 \leqq U \leqq 0.04 \end{array}\right\} \quad (K)$$

wherein

T stands for said starting material charge coefficient, U stands for said alkalinity coefficient and t stands for the hydrothermal reaction temperature (° C.),

whereby an alkali calcium silicate of the type 12 A is formed.

4,277,458

PROCESS FOR OXIDIZING SULFUR AND SULFUR COMPOUNDS

Andre Sugier, Rueil; Philippe Courty, Houilles; Andre Deschamps, Noisy le Roi, and Henri Grubier, Chatillon, Bagneux, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jul. 13, 1979, Ser. No. 57,464

Claims priority, application France, Jul. 13, 1978, 78 21345

Int. Cl.³ C01B *31/20, 17/50;* **B01D** *53/34*

U.S. Cl. 423—437 **14 Claims**

1. A catalytic process for directly converting any carbon oxysulfide and carbon disulfide in a gas containing at least one of the same to carbon dioxide and sulfur dioxide in a single step, which process comprises contacting a gas containing oxygen and at least one of carbon oxysulfide and carbon disulfide with a substantially iron-free catalyst comprising a carrier, vanadium oxide and silver.

4,277,459

PROCESS FOR WORKING UP ORGANIC REACTION MIXTURES

Otto Berendes, Dormagen, Fed. Rep. of Germany, and Karl-Heinz Vopel, Leawood, Kans., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 3,432, Jan. 12, 1979, which is a continuation of Ser. No. 883,758, Mar. 6, 1977, abandoned, which is a continuation of Ser. No. 785,276, Apr. 6, 1977. This application Feb. 13, 1980, Ser. No. 121,210

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1976, 2617812

Int. Cl.³ C01B *17/033*

U.S. Cl. 423—567 A **5 Claims**

1. Process for working up an organic reaction mixture residue containing sulfur and organic phosphorus compounds, comprising the steps:

(a) mixing the residue with alkaline water and maintaining the mixture at a pH of at least 10 to form an alkaline liquid phase comprising water and organic phosphates, and a solid phase comprising sulfur;

(b) separating the alkaline liquid phase from the solid phase;

(c) heating the solid phase to about 60°–100° C. while stirring;

(d) Mixing the solid phase with the alkaline liquid phase and sufficient nitric acid to form an acidic reaction mixture with the pH maintained below 3;

(e) heating the acidic reaction mixture to form, simultaneously, purified crystalline sulfur and a liquid suitable as a fertilizer; and

(f) separating the purified crystalline sulfur from the liquid.

4. Process as claimed in claim 1 wherein the acidic reaction mixture is at a pH of about 1.

4,277,460

CORTISOL RADIOIMMUNOASSAY METHOD AND CORTISOL DERIVATIVES USEFUL THEREFOR

Masaharu Kojima; Hisao Sone, both of Fukuoka; Hiroshi Ogawa, Kashiwa; Nobuhiko Nakazawa, Urawa, and Seiji Tachibana, Tokyo, all of Japan, assignors to Daiichi Radioisotope Laboratories, Ltd., Tokyo, Japan

Division of Ser. No. 802,397, Jun. 1, 1977, Pat. No. 4,190,593. This application Aug. 22, 1979, Ser. No. 68,834

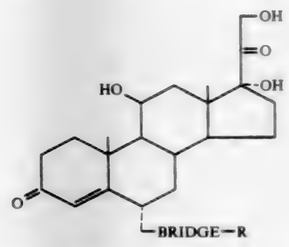
Claims priority, application Japan, Jun. 1, 1976, 51-63985

Int. Cl.³ G01N *33/48*; **A61K** *43/00*; **G01T** *1/00*

U.S. Cl. 424—1 **4 Claims**

1. A radioimmunoassay method for determining cortisol which comprises

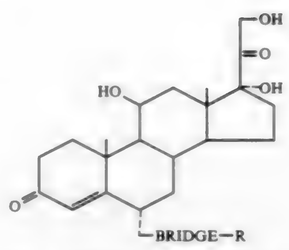
(a) immunologically producing an antibody to cortisol (C) by injecting a cortisol-carrier conjugate having the formula (C)



(C)

wherein R represents a protein or a polypeptide, and Bridge is —SCH_2CO— or —$OCOCH_2CH_2CO$—; into a host organism and producing said antibody;

(b) adding said antibody obtained in (a) and a radioactive cortisol tracer compound of the formula (D)



(D)

wherein R respresents a radioiodinated tyrosine lower alkyl ester residue, a radioiodinated tyramine residue, a radioiodinated histamine residue, or a radioiodinated 7-aminoheptanoyltyrosine lower alkyl residue, and Bridge is —SCH_2CO— or —$OCOCH_2CH_2CO$—; to a sample containing cortisol;

(c) incubating said mixture obtained in (b);

(d) separating antibody bound tracer compound formed in (c) from free tracer compound; and

(e) measuring the radioactivity of said antibody bound or free tracer compound; with the proviso that said Bridge in said cortisol-carrier conjugate is different from said Bridge in said radioactive cortisol tracer compound.

4,277,461

VAGINAL CONTRACEPTIVE

Peter W. Lücker, Am Rebstöckel 13, D-6719 Bobenheim am Berg, and Nikolaus Wetzelsberger, Dürerstrasse 12, D-6700 Ludwigshafen am Rhein, both of Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,622

Claims priority, application Switzerland, Dec. 22, 1978, 13146/78

Int. Cl.³ A61K *31/16*

U.S. Cl. 424—44 **14 Claims**

1. A contraceptive for vaginal use, consisting essentially of a spermicidal active substance of the formula

$$RCONH—(CH_2CH_2O)_n—H$$

in which R denotes an alkyl or alkenyl radical having from 5 to 19 carbon atoms and n has a value of from 3 to 20, in an amount which is adequate for reliable contraception, a foam generator consisting of a mixture of an alkali metal bicarbonate and a water-soluble, solid, anhydrous acid selected from the group consisting of mono- and poly-carboxylic acids having from 2 to 6 carbon atoms, in a stoichiometric ratio, in an amount which just suffices to produce foam, and a water-soluble excipient selected from the group consisting of polyethylene glycols and mixtures of polyethylene glycols, which melts at body temperature.

4,277,462

METHOD FOR TREATING DUTCH ELM DISEASE USING *P. SYRINGAE*

Gary A. Strobel, Bozeman, Mont., assignor to Endowment and Research Foundation at Montana State University, Bozeman, Mont.

Filed Nov. 19, 1979, Ser. No. 95,448

Int. Cl.³ A01N *63/00*, *63/02*

U.S. Cl. 424—93 **19 Claims**

1. A method of treating Dutch elm disease comprising applying a Dutch elm disease-controlling amount of *P. syringae* NRRL B-12050 to an elm tree.

12. A method of treating Dutch elm disease comprising applying an antimycotic substance-forming strain of *P. syringae* to an elm tree in a Dutch elm disease-controlling amount; said antimycotic substance being that produced by cultivating *P. syringae* NRRL B-12050 in suitable aqueous nutrient medium and isolating said antimycotic substance therefrom by extracting with n-butanol.

4,277,463

REMEDY PRODUCING HEMOSTATIC AND ANTIPHLOGISTIC EFFECTS

Dobrivoje Tomic, 64 McLean St., Wellesly Hills, Mass. 02181

Filed Aug. 1, 1979, Ser. No. 62,802

Claims priority, application Fed. Rep. of Germany, Aug. 4, 1978, 2834320

Int. Cl.³ A61K *33/42*

U.S. Cl. 424—128 **2 Claims**

1. A medicinal composition for use in the topical treatment of wounds and inflammation of the skin and mucous membrane, comprising a pharmaceutically effective mixture of the following ingredients in the following approximate percentage amounts for a 1000 ml preparation thereof,

NaCl: 0.7
KCl: 0.02
$Na_2HPO_4.12H_2O$: 0.6
$MgCL_2.6H_2O$: 0.02
$Ca_3(PO_4)2$: 6.0
Pectin: 6.0
Glycerin: 12.0
MgO: 0.2
H_2O: add 1000 ml

said composition adapted to produce hemostatic and antiphlogistic effects when applied to the treated area.

4,277,464

PREVENTING TOOTH DEMINERALIZATION USING ASPARTAME

George H. Reussner, and Reinhardt Thiessen, Jr, both of Pearl River, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Continuation of Ser. No. 614,995, Sep. 19, 1975, abandoned. This application Mar. 28, 1979, Ser. No. 24,810

Int. Cl.³ A61K *37/00*, *7/16*; **A23L** *1/236*; **A23J** *1/00*

U.S. Cl. 424—177 **7 Claims**

1. A method of reducing the demineralization of tooth enamel caused by contacting said enamel with an acid-containing food product which normally fosters tooth enamel demineralization comprising the step of adding to said food product, aspartame in an amount that produces excess sweetness and a sweetness modulating material.

4,277,465

ADJUVANT FOR PROMOTING ABSORPTION OF THERAPEUTICALLY ACTIVE SUBSTANCES THROUGH THE DIGESTIVE TRACT

Akira Kamada, Suita, Japan, assignor to Kyoto Yakuhin Kogyo Kabushiki Kaisha, Kyoto and Sawai Seiyaku Kabushiki Kaisha, Osaka, both of, Japan

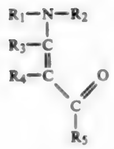
Filed Aug. 17, 1979, Ser. No. 67,451

Claims priority, application Japan, Aug. 26, 1978, 53-104130; Jul. 30, 1979, 54-97931

Int. Cl.³ A61K *37/26*

U.S. Cl. 424—178 **13 Claims**

1. A pharmaceutical composition for absorption through the digestive tract, which comprises a therapeutically effective amount of insulin and an absorption promoting amount of an enamine derivative of the formula



wherein



is the residue of an organic aminocarboxylic acid or organic aminosulfonic acid having a hydrogen atom removed from the amino group thereof, the carboxyl or sulfo group in said residue being optionally in the form of an alkali metal salt or ester; wherein one of R_1 and R_2 is a carboxy or sulfo substituted alkyl of 1 to 6 carbon atoms, cycloalkyl of 5 to 6 carbon atoms, phenyl or naphthyl group and the other of R_1 and R_2 is hydrogen, lower alkyl or phenyl, R_3 is a hydrogen atom, a lower group or a lower alkoxy group, R_4 is a hydrogen atom, a lower alkyl group or a lower alkoxycarbonyl group, R_5 is a lower alkyl group, a lower alkoxy group which may optionally be substituted by hydroxyl, carboxyl or lower alkoxycarbonyl, or a lower alkylamino group which is substituted by hydroxyl, carboxyl or lower alkoxycarbonyl.

4,277,466

COMPLEXES OF DNA AND ESTERS DERIVED FROM DAUNORUBICINE, THEIR PREPARATION AND USE

Andre Trouet, Winksele, Belgium, assignor to Institut International de Pathologie Cellulaire et Moleculaire, Brussels, Belgium

Filed Aug. 17, 1979, Ser. No. 67,511

Claims priority, application Belgium, Aug. 29, 1978, 870026

Int. Cl.³ A61K *31/71*; **C07H** *15/24*

U.S. Cl. 424—180 **5 Claims**

1. An antitumoral complex of DNA and 14-diethoxyacetoxy daunorubicin.

5. Pharmaceutical composition which contains a pharmaceutically effective amount of a complex as defined in claim 1 in lyophilized (freeze-dried) form or in solution in a pharmaceutically acceptable diluent or solute.

4,277,467

ENDOPARASITICIDAL PASTES FOR HORSES

Hubert Dorn, Wuppertal, and Herbert Voege, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 74,043

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1978, 2841882

Int. Cl.³ A61K *31/66*

U.S. Cl. 424—217 **8 Claims**

1. An endoparasiticidal paste for horses, which comprises a mixture of 2,2,2-trichloro-1-hydroxyethylphosphonic acid dimethyl ester and N-(2-methoxyacetamido-4-phenylthiophenyl)-N',N''-bis-methoxy-carbonylguanidine and a water content of less than one percent by weight, relative to the total composition of the endoparasiticidal paste.

4,277,468

11-METHYLENE STEROIDS, THEIR PREPARATION AND PHARMACEUTICAL PREPARATIONS CONTAINING THEM

Helmut Hofmeister; Rudolf Wiechert; Klaus Annen; Henry Laurent, and Hermann Steinbeck, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

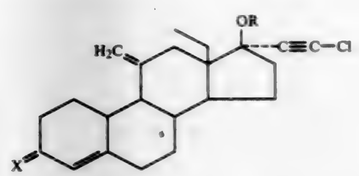
Filed Mar. 28, 1980, Ser. No. 135,066

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 2913381

Int. Cl.[3] **C07J** *1/00*

U.S. Cl. 424—243 **10 Claims**

1. An 11-methylene steroid of the formula



wherein

R is hydrogen or the acyl residue of a hydrocarbon C_{1-17} carboxylic or sulfonic acid, and

X is oxygen or two hydrogen atoms.

4,277,469

HETEROCYCLIC TRIAZOLE COMPOUNDS, PROCESSES FOR THEIR PREPARATION, PESTICIDAL COMPOSITIONS CONTAINING THEM, AND METHODS OF COMBATING PESTS

Paul A. Worthington, Maidenhead; William G. Rathmell, and Anthony M. Skidmore, both of Wokingham, all of England, assignors to Imperial Chemical Industries Limited, London, England

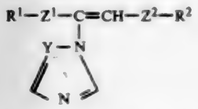
Filed Jul. 18, 1979, Ser. No. 58,445

Claims priority, application United Kingdom, Jul. 27, 1978, 31318/78

Int. Cl.[3] **A01N** *43/64*; **C07D** *233/58, 249/08, 233/60*

U.S. Cl. 424—245 **8 Claims**

1. A triazole compound having the formula



wherein each of R^1 and R^2, which may be the same or different, is straight or branched chain alkyl having from 1 to 5 carbon atoms optionally substituted with 1 to 3 halogen atoms; cycloalkyl having from 3 to 6 carbon atoms; or phenyl optionally substituted with one or more halogen atoms or C_{1-4} alkyl, halo C_{1-4} alkyl, hydroxy C_{1-4} alkyl, phenyl, halophenyl, nitro, cyano or C_{1-4} alkoxy,

Y is =N— and

one of Z^1 and Z^2 is —C=O and the other is —CH(OH)—; and the alkanoate esters, alkyl, aryl or aralkyl ethers, acid addition salts and copper, zinc, manganese or iron complexes thereof.

7. A composition for combating fungi comprising, as an active ingredient, an effective amount of a compound as claimed in claim 1; together with a carrier or diluent for the active ingredient.

4,277,470

HETEROCYCLIC SPIRO-LINKED AMIDINES, COMPOSITIONS AND USE THEREOF

Manfred Försch, Nauheim; Wolfgang Schaub, Kelkheim, and Hermann Gerhards, Hofheim am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

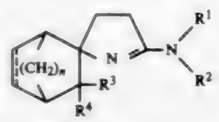
Filed Feb. 21, 1980, Ser. No. 123,200

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907070

Int. Cl.[3] **A61K** *31/40, 31/54*; **C07D** *207/22, 295/00*

U.S. Cl. 424—246 **10 Claims**

1. Heterocyclic, spiro-linked amidines of the formula I



I

in which (a) n is 1 or 2; (b) R^1 and R^2 are hydrogen or alkyl radicals which, together with the nitrogen atom, can form a 5-, 6- or 7-membered ring which can be substituted by C_1–C_3-alkyl, C_1–C_2-alkoxy, hydroxyl or C_1–C_4-alkoxycarbonyl groups and in which one of the carbon atoms can also be replaced by an oxygen, sulfur or nitrogen atom, it being possible for the nitrogen atom to be substituted by hydrogen, by the formyl group or by a phenyl radical, which can in turn be monosubstituted or polysubstituted by a C_1 to C_4-alkyl group or an alkoxy, methylenedioxy, hydroxyl, halogen, nitro or amino group, or it being possible for the nitrogen atom to be substituted by a C_1–C_4-alkyl group, or in which R^1 represents hydrogen and R^2 represents a C_5–C_8-cycloalkyl radical which can be substituted by C_1–C_4-dialkylamino groups; (c) R^3 is hydrogen or methyl and (d) R^4 denotes a phenyl radical which is optionally monosubstituted or polysubstituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, methylenedioxy, hydroxyl, halogen, cyano, nitro, trifluoromethyl, amino, C_2–C_5-acylamino or mono- or di-C_1–C_4-alkylamino groups, or a thiophene radical, and the physiologically acceptable salts of compounds of the formula I.

9. Antidepressant composition comprising an effective amount of a compound as defined in claim 1 and a physiologically acceptable auxiliary agent or carrier therefor.

4,277,471

1,1-BIPHENYL-2-YL ALKYLAMINES, FORMULATIONS AND ANTIARRHYTHMIC TREATMENT

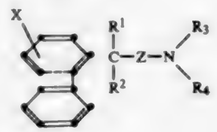
William B. Lacefield, Indianapolis, and Richard L. Simon, Greenwood, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 19,534, Mar. 12, 1979, abandoned. This application Feb. 22, 1980, Ser. No. 123,855

Int. Cl.[3] **A61K** *31/135, 31/275, 31/535*; **C07C** *87/28*

U.S. Cl. 424—248.4 **45 Claims**

1. A compound of the formula



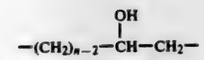
wherein:

X is hydrogen or halo;

R^1 is hydrogen, hydroxy, C≡N, $CONH_2$ or $COOR^5$, where R^5 is hydrogen or lower alkyl;

R^2 is hydrogen or C_1–C_3 alkyl;

Z is $—(CH_2)_n—$, or



where n is 2, 3 or 4;

R^3 and R^4 independently are hydrogen, lower alkyl, lower alkenyl, phenyl alkyl, or taken together with the nitrogen to which they are attached form a cyclic ring selected from pyrrolidino, piperidino, and morpholino, and the pharmaceutically acceptable acid addition salts and quaternary ammonium salts thereof.

41. A method of treating cardiac arrhythmias comprising administering an antiarrhythmically effective amount of a compound of claim 1 to a subject suffering from an arrhythmia and in need of treatment or to a subject suspected of developing an arrhythmia.

4,277,472

3,6-DISUBSTITUTED-5,7-(LOWER ALKANO)-5,6,7,8-TETRAHYDROPYRIDO(4,3-C)PYRIDAZINES; THEIR INTERMEDIATES, PREPARATION, ANTIHYPERTENSIVE USE AND COMPOSITIONS

Hermann Amschler, Radolfzell, Fed. Rep. of Germany, assignor to Byk Gulden Lomberg Chemische Fabrik GmbH, Konstanz, Fed. Rep. of Germany

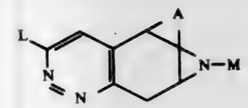
Filed Oct. 26, 1979, Ser. No. 88,469

Claims priority, application Switzerland, Nov. 10, 1978, 11585/78

Int. Cl.[3] **C07D** *451/14, 471/1*[?] **A61K** *31/50*

U.S. Cl. 424—248.5 **29 Claims**

1. A substituted pyridazine of the formula



(H)

wherein

A is lower alkylene;

L is —NH—R^1 or Z;

M is —H or —C(=X)R^2;

R^1 is —NHR^3, —$N(R^4)R^5$ or —N=$C(R^8)R^9$;

R^2 is lower alkyl, phen(lower)alkyl, lower alkoxy, lower alkylmercapto, optionally-substituted aryl, phen(lower)alkoxy or —$N(R^6)R^7$;

R^3 is —H, lower alkanoyl, lower alkoxycarbonyl, mono(lower alkyl)carbamoyl or di(lower alkyl)carbamoyl;

R^4 and R^5 are, independently, lower alkyl or phen(lower)alkyl;

R^6 and R^7 are, independently, —H, lower alkyl, phen(lower)alkyl, optionally-substituted aryl or, taken together and with the nitrogen atom to which both are bound, piperidino, morpholino, piperazino or 4-(lower alkyl)-piperazino;

R^8 is —H, lower alkyl, phen(lower)alkyl, optionally-substituted aryl or, together with R^9, alkylene having from 4 to 11 carbon atoms;

R^9 is lower alkyl, phen(lower)alkyl, lower alkenyl, optionally-substituted aryl or, together with R^8, alkylene having from 4 to 11 carbon atoms;

X is an oxygen atom or a sulfur atom, and

Z is halo, lower alkoxy or lower alkylmercapto; or an acid-addition salt thereof which is soluble in some solvent;

each aryl having from 6 to 10 ring-carbon atoms;

any substituted aryl being substituted with at most 2 substituents selected from the group consisting of halo, lower alkyl, phen(lower)alkyl, lower alkoxy, lower alkylmercapto, trifluoromethyl or nitro and

each "lower" meaning "with from 1 to 5 carbon atoms".

5. A substituted pyridazine according to claim 1 wherein L is —NH—R^1 and M is —C(=X)—R^2, or an acid-addition salt thereof.

28. An antihypertensive medicament composition comprising carrier and an effective amount of a physiologically-acceptable antihypertensive substituted pyridazine according to claim 5.

4,277,473

4-HOMOISOTWISTANE-AMINOACID AMIDES

Yoshiaki Inamoto, Utsunomiya; Motoyoshi Ougi, and Eiji Koshihara, both of Wakayama, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo and Sumitomo Chemical Industries Ltd., Osaka, both of, Japan

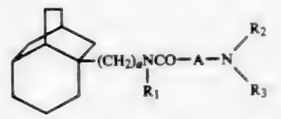
Filed Dec. 12, 1979, Ser. No. 102,702

Claims priority, application Japan, Dec. 21, 1978, 53-159540

Int. Cl.[3] **C07C** *103/50, 103/68*; **A61K** *31/16*

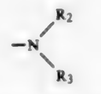
U.S. Cl. 424—248.54 **9 Claims**

1. A compound having the formula



(I)

wherein a is 0 or 1, R_1 is hydrogen or lower alkyl, A is lower alkylene or lower alkylidene, and R_2 and R_3, which can be the same or different, are hydrogen, lower alkyl, cycloalkyl, benzyl, benzyl substituted on the ring with alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 3 carbon atoms, chloro, bromo or nitro, or



forms a saturated heterocyclic ring selected from the group consisting of pyrrolidine, piperidine and morpholine, and pharmacologically acceptable acid addition salts thereof.

4,277,474

TREATMENT OF ALLERGIC SYMPTOMS WITH PROPANONE DERIVATIVES

Akihide Kohda, Gifu, and Teikichi Kurosaki, Osaka, both of Japan, assignors to Nippon Zoki Pharmaceutical Co., Ltd., Osaka, Japan

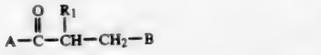
Continuation-in-part of Ser. No. 13,887, Feb. 22, 1979, abandoned. This application Sep. 27, 1979, Ser. No. 79,460

Claims priority, application Japan, Feb. 22, 1978, 53-19303

Int. Cl.[3] **A61K** *31/535, 31/445*

U.S. Cl. 424—248.57 **9 Claims**

1. A method for alleviating the appearance of various allergic symptoms in the human body which comprises administering to the human body an effective amount of a composition comprising a carrier and a compound of the formula:



in which:

(a) when R_1 is hydrogen;

A is β-naphthyl; naphthyl substituted by methoxy; or phenyl substituted by two to five alkyls having each one to four carbon atoms; and

B is piperidino;

(b) when R_1 is alkyl having one to two carbon atoms;

A is indanyl; tetrahydronaphthyl; naphthyl; naphthyl substi-

tuted by halogen, hydroxy, alkyl having one to four carbon atoms or alkoxy having one to four carbon atoms; phenyl substituted by alkyl having one to ten carbon atoms, alkoxy having one to four carbon atoms or phenyl; phenyl substituted by two to five alkyls having each one to four carbon atoms; phenyl substituted by two to five alkoxys having each one to four carbon atoms; phenyl substituted by alkoxy having one to four carbon atoms and halogen or hydroxy; or phenyl substituted by two halogens; and

B is dialkylamino having each one to four carbon atoms; pyrrolidino; morpholino; piperidino; piperidino substituted by alkyl having one to four carbon atoms or benzyl; or piperazino substituted by alkyl having one to four carbon atoms or benzyl

provided that;

when A is phenyl substituted by one alkyl having one to three carbon atoms or methoxy,

B is the said group other than piperidino; or a pharmaceutically acceptable salt thereof.

4,277,475

CONTRACEPTIVE METHODS EMPLOYING 1-SUBSTITUTED IMIDAZOLE DERIVATIVES

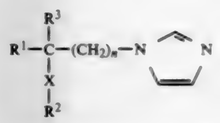
Brian H. Vickery, Cupertino, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jan. 11, 1979, Ser. No. 2,638

Int. Cl.³ A61K *31/415, 31/495*

U.S. Cl. 424—250 **19 Claims**

1. A method of contraception in a male mammal comprising administering to a subject clinically asymptomatic of microbial infection, prior to coitus, a spermatostatically effective amount of a 1-substituted imidazole of the formula



wherein R^1 and R^2 are each independently alkyl (1–12), alkenyl (1–12), substituted or unsubstituted phenyl, substituted or unsubstituted phenyl lower alkyl (1–4), or substituted or unsubstituted phenyl lower alkenyl (1–4), wherein substituted with reference to phenyl refers to phenyl substituted by one or more lower alkyl (1–4), halo, lower alkoxy (1–4), trifluoromethyl, nitro or cyano groups; R^3 is hydrogen or lower alkyl (1–4); X is oxygen or sulfur; n is an integer of from 1 to 4; or a pharmaceutically acceptable acid addition salt thereof.

16. A method of contraception in a male mammal comprising administering to a subject clinically asymptomatic of microbial, infection prior to coitus, a spermatostatically effective amount of 1-acetyl-4-[4-[2-(2,4-dichlorophenyl)-2-(1H-imidazol-1-ylmethyl)-1,3-dioxolan-4-ylmethyoxy]-phenyl]piperazine or a pharmaceutically acceptable acid addition salt thereof.

4,277,476

DERIVATIVES OF FLUORENES AND FLUORANTHENES AND PROCESS FOR THEIR PREPARATION

Regis DuPont, Paris; Patrick Lardenois, Bourg-la-Reine; Claude Morel, Massy; Jonathan Frost, Palaiseau, all of France, and Gabor I. Koletar, Berkeley Heights, N.J., assignors to Synthelabo, Paris, France

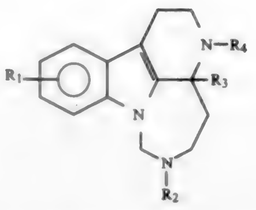
Filed Jul. 26, 1979, Ser. No. 60,857

Claims priority, application France, Jul. 28, 1978, 78 22352; Jul. 28, 1978, 78 22353

Int. Cl.³ A01N *43/48*; A61K *31/495*

U.S. Cl. 424—250 **8 Claims**

1. A compound of the formula:



wherein R_1 is hydrogen, halogen, alkyl or alkoxy; R_2 is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, benzyl, halogenobenzyl, alkylbenzyl, alkoxybenzyl, acyl, alkoxycarbonyl or alkylaminocarbonyl; R_3 is hydrogen or alkyl; and R_4 is hydrogen, alkyl, acyl or aroyl; each alkyl and alkoxy having from 1 to 4 carbon atoms; or a pharmaceutically acceptable acid addition salt thereof.

4,277,477

METHOD OF USING 1,2-BENZISOTHIAZOLES

Helmut Hagen, Frankenthal; Rolf-Dieter Kohler, Mannheim, and Juergen Markert, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

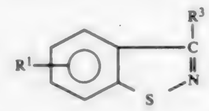
Division of Ser. No. 926,446, Jul. 26, 1978, abandoned. This application Oct. 2, 1979, Ser. No. 81,059

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1977, 2734866

Int. Cl.³ C07D *275/04*

U.S. Cl. 424—251 **1 Claim**

1. A method of treating cardiac arrhythmia in humans and animals, comprising the administration of an effective amount of a 1,2-benzisothiazole of the formula



I

where R^1 is hydrogen; alkyl of 1 to 6 carbon atoms; alkyl of 1 to 6 carbon atoms substituted by carboxamido; cycloalkyl of 5 to 12 carbon atoms; phenyl or naphthyl, either of which may be fused; fused naphthoquinon-1,4-ylene; halogen; alkoxy of 1 to 4 carbon atoms, nitro, or



where:

the radicals R^2 are identical or different and each is hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 3 to 6 carbon atoms, cycloalkyl of 5 to 8 carbon atoms, aralkyl of 7 to 12 carbon atoms or phenyl;

R^3 is chloromethylphenyl, phenyl or naphthyl; phenyl or naphthyl which is substituted by one or two alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, chlorine, bromine or dialkylamino of 1 to 4 carbon atoms in the alkyl; or R^3 is a 5-membered or 6-membered heterocyclic ring which contains either two nitrogen atoms, or one nitrogen atom, or one oxygen atom, or one sulfur atom, or one nitrogen atom along with one sulfur atom, or one nitrogen atom along with one oxygen atom, or one oxygen atom with one sulfur atom.

4,277,478

ANTIBIOTIC AND USE THEREOF

Hans Zähner; Hannelore Drautz, both of Tübingen, Fed. Rep. of Germany, and Walter Keller, Dübendorf, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

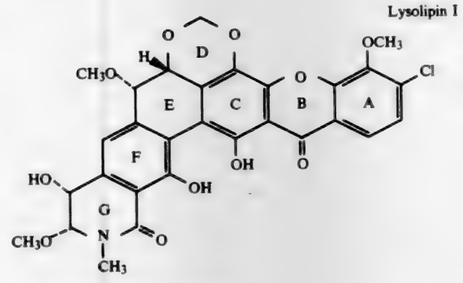
Continuation-in-part of Ser. No. 920,742, Jun. 26, 1978, abandoned, which is a continuation of Ser. No. 687,268, May 17, 1976, abandoned. This application May 21, 1979, Ser. No. 41,279

Claims priority, application Switzerland, May 20, 1975, 6477/75; Apr. 5, 1976, 4228/76; Fed. Rep. of Germany, May 15, 1976, 2621690; France, May 17, 1976, 76 14782; Israel, May 17, 1976, 49591; Canada, May 18, 1976, 252781; Czechoslovakia, May 18, 1976, 3305/76; Greece, May 18, 1976, 50739/205477; Hungary, May 18, 1976, CI 1665; Netherlands, May 18, 1976, 7605303; Spain, May 18, 1976, 448024; U.S.S.R., May 18, 1976, 2357857; Australia, May 19, 1976, 14080/76; Belgium, May 19, 1976, 167140; Denmark, May 19, 1976, 2214/76; New Zealand, May 19, 1976, 180898; South Africa, May 19, 1976, 76/2994; United Kingdom, May 19, 1976, 20649/76; Japan, May 20, 1976, 51-57357

Int. Cl.³ A61K *31/535*; C07D *491/153*

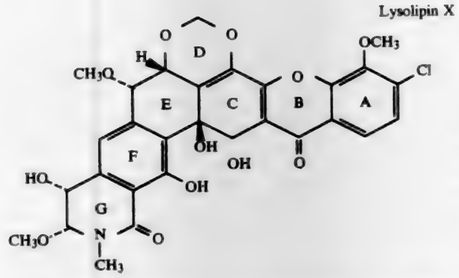
U.S. Cl. 424—258 **8 Claims**

1. Lysolipin I of the formula



Lysolipin I

2. Lysolipin X of the formula



Lysolipin X

7. An antibacterial pharmaceutical composition comprising an antibacterially effective amount of Lysolipin I or of one of its acylates derived from an alkanoic carboxylic acid having from 1–7 C-atoms together with a pharmaceutical carrier.

8. An antibacterial pharmaceutical composition comprising an antibacterially effective amount of Lysolipin X or of one of its acylates derived from an alkanoic carboxylic acid having from 1–7 C-atoms together with a pharmaceutical carrier.

4,277,479

TETRAZOLYLALKOXYCARBOSTYRIL DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Takao Nishi, and Kazuyuki Nakagawa, both of Tokushima, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

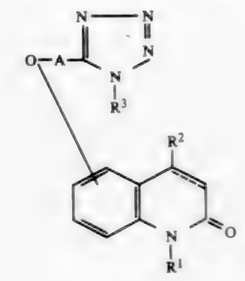
Filed Aug. 29, 1979, Ser. No. 70,710

Claims priority, application Japan, Sep. 1, 1978, 53/107869

Int. Cl.³ A61K *31/47*; C07D *401/12*

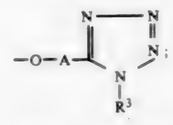
U.S. Cl. 424—258 **28 Claims**

1. A compound of the general formula,

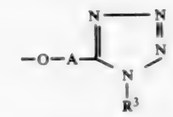


(I)

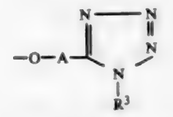
wherein R^1 is a hydrogen atom, a lower alkyl group, a lower alkenyl group, a lower alkanoyl group, a benzoyl group or a phenyl-C_{1-4} alkyl group; R^2 is a hydrogen atom, a lower alkyl group or a group of the formula



R^3 is a lower alkyl group, a C_{3-8} cycloalkyl group, a C_{3-8} cycloalkyl-C_{1-4} alkyl group, a phenyl group or a phenyl-C_{1-4} alkyl group; A is a lower alkylene group; the carbon-carbon bond between 3- and 4-positions in the carbostyril skeleton is either single or double bond; and the substituted position of the group represented by the formula,



in the carbostyril skeleton is either 4-, 5-, 6-, 7- or 8-position provided that only one such group of the formula can be substituted in the whole carbostyril skeleton, thus when R^2 in 4-position is



then 5-, 6-, 7- or 8-position will have no such substituted group; furthermore, the phenyl group in the above-mentioned benzoyl group, phenyl-C_{1-4} alkyl group or phenyl group may have substituted group(s) selected from the group consisting of

lower alkoxy, lower alkyl, halogen, di-lower alkylamino, nitro, and lower alkenedioxy.

25. A platelet aggregation inhibitor composition containing as an active ingredient a pharmacologically effective amount of a compound of the formula (I) of claim 1 and a pharmaceutically acceptable carrier.

26. A phosphodiesterase inhibitor composition containing as an active ingredient a pharmacologically effective amount of a compound of the formula (I) of claim 1 and a pharmaceutically acceptable carrier.

27. A cerebral blood flow improver composition containing as an active ingredient a pharmacologically effective amount of a compound of the formula (I) of claim 1 and a pharmaceutically acceptable carrier.

28. An anti-hypertensive agent composition containing as an active ingredient a pharmacologically effective amount of a compound of the formula (I) of claim 1 and a pharmaceutically acceptable carrier.

4,277,480

TETRAHYDROINDOLOISOQUINOLINES

David C. Horwell, Farnborough, and David E. Tupper, Bracknell, both of England, assignors to Lilly Industries Limited, London, England

Continuation of Ser. No. 39,076, May 14, 1979, abandoned. This application Apr. 18, 1980, Ser. No. 141,752

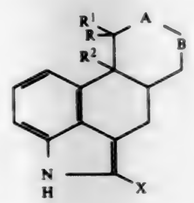
Claims priority, application United Kingdom, May 23, 1978, 21355/78; Apr. 12, 1979, 1200/79

Int. Cl.³ C07D *487/06;* A61K *31/475*

U.S. Cl. 424—258 **9 Claims**

1. An isoquinoline compound of formula (I)

(I)



wherein the moiety A-B represents a group of formula:

$-CH_2-NR^3-$ or $-NR^3-CH_2-$;

wherein R^3 represents hydrogen, C_{1-16} alkyl, C_{3-6} cycloalkyl, C_{3-6} cycloalkyl-C_{1-4} alkyl, benzyl, benzyl substituted with from 1-3 of the following substituents: halogen, methyl, methoxy, nitro; C_{3-6} alkenyl or C_{1-4} alkanoyl;

wherein R represents hydrogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, benzyl benzyl substituted with from 1-3 of the following substituents: halogen, methyl, methoxy, nitro;

wherein R^1 and R^2 each represent hydrogen or taken together represent a chemical bond only except that R^1 and R^2 represent hydrogen only when A-B is $-NR^3-CH_2-$; and wherein X is hydrogen or halogen; or an acid-addition salt thereof.

7. A pharmaceutical formulation adapted for the treatment of mild anxiety states, schizophrenia and acute mania in unit dosage form comprising from 1-200 mg. per dosage unit of a compound for formula I as claimed in claim 1 or a pharmaceutically-acceptable salt thereof, associated with a pharmaceutically-acceptable carrier therefor.

4,277,481

ORGANIC COMPOUNDS

Jean-Marie Vigouret, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Apr. 14, 1980, Ser. No. 140,187

Claims priority, application United Kingdom, Apr. 18, 1979, 13456/79; Jan. 11, 1980, 01020/80

Int. Cl.³ A61K *31/48, 31/475*

U.S. Cl. 424—261 **11 Claims**

1. A method of treating senile cerebral insufficiency, or treating bladder incontinence which comprises administering a therapeutically effective amount of the compound 6-methyl -8β-(2-pyridylthiomethyl)ergolene to a subject in need of such treatment.

4,277,482

3-SUBSTITUTED THIO-6-AMIDO-7-OXO-1-AZABICYCLO[3.2.0]-HEPT-2-ENE-2-CARBOXYLIC ACID S-OXIDES

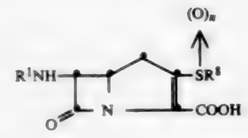
Burton G. Christensen, Scotch Plains; Ravindra N. Guthikonda, Perth Amboy; David B. R. Johnston, Warren, and Susan M. Schmitt, Scotch Plains, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Oct. 15, 1979, Ser. No. 84,934

Int. Cl.³ C07D *487/04;* A61K *31/40, 31/44*

U.S. Cl. 424—263 **3 Claims**

1. A compound having the structure:



and the pharmaceutically acceptable salts thereof; wherein: n is 1 or 2; R^8 is selected from the group consisting of substituted and unsubstituted: alkyl, alkenyl and alkynyl, having from 1-10 carbon atoms; cycloalkyl, cycloalkylalkyl and alkylcycloalkyl, having 3-6 carbon atoms in the cycloalkyl ring and 1-6 carbon atoms in the alkyl moieties; phenyl; aralkyl, aralkenyl, and aralkynyl wherein the aryl moiety is phenyl and the linear chain has 1-6 carbon atoms; wherein the substituent or substituents relative to the above-named radicals R^8 are selected from the group consisting of: amino, mono-, di- and trialkylamino, hydroxyl, alkoxyl, mercapto, alkylthio, phenylthio, sulfamoyl, amidino, guanidino, nitro, chloro, bromo, fluoro, cyano and carboxy; and wherein the alkyl moieties of the above-recited substituents have 16 carbon atoms; R^1 is selected from hydrogen, phenylacetyl, phenoxyacetyl, 3-bromophenylacetyl, p-aminomethylphenylacetyl, 4-carboxylmethylphenylacetyl, 4-carboxamidomethyl-phenylacetyl, 2-furylacetyl, 5-nitrofurylacetyl, 3-furylacetyl, 2-thienylacetyl, 5-chlorothienyl-acetyl, 5-methoxythienylacetyl, α-guanidino-2-thienylacetyl, 3-thienylacetyl, 4-methylthienylacetyl, 3-isothiazolylacetyl, 4-methoxyisothiazolyacetyl, 4-isothiazolylacetyl, 3-methylisothiazolylacetyl, 5-isothiazolylacetyl, 3-chloroisothiazolylacetyl, 3-methyl-1,2.5-oxadiazolylacetyl, 1,2,5-thiadiazolyl-4-acetyl, 3-methyl-1,2,5-thiadiazolyl-4-acetyl, 3-chloro-1,2,5-thiadiazolyl-4-acetyl, 3methoxy-1,2,5-thiadiazolyl-4-acetyl, phenylthioacetyl, 4-pyridylthioacetyl, cyanoacetyl, tetrazolylacetyl, α-fluorophenylacetyl, D-phenylglycyl, 3-hydroxy-D-phenylglycyl, 2-thienylglycyl, 3-thienylglycyl, phenylmalonyl, 3-chlorophenylmalonyl, 2-thienylmalonyl, 3-thienylmalonyl, α-phosphonophenylacetyl, α-sulfaminophenylacetyl, α-hydroxyphenylacetyl, α-tetrazolylphenylacetyl and α-sulfophenylacetyl.

3. An antibiotic composition comprising a therapeutically effective amount of a compound according to claims 1 or 2 and a pharmaceutical carrier therefor.

4,277,483

1,4-DIHYDROPYRIDINE-DERIVATIVES WITH ANTIHYPERTENSIVE ACTIVITY

Carsten Materne, Bonn-Bessel, and Hans Betzing, Kerpen-Horrem, both of Fed. Rep. of Germany, assignors to A. Nattermann & Cie. GmbH, Cologne, Fed. Rep. of Germany

Filed Apr. 14, 1980, Ser. No. 139,888

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915355

Int. Cl.³ C07D *211/82;* A61K *31/44*

U.S. Cl. 424—263 **6 Claims**

1. The 2.6-dimethyl-4-(3'-nitrophenyl)-1.4-dihydropyridine-3-carboxylic acid beta-trimethylsilylethyl ester-5-carboxylic acid lower alkyl esters wherein the lower alkyl group is a straight or branched alkyl group from 1 to 4 carbon atoms.

4,277,484

1-BENZOTHIEPIN-4-CARBOXAMIDES

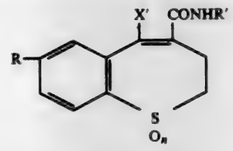
Melvin H. Rosen, Kendall, Fla., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 944,218, Sep. 20, 1978, Pat. No. 4,226,998, which is a division of Ser. No. 854,176, Nov. 23, 1977, Pat. No. 4,185,109, which is a continuation of Ser. No. 743,208, Nov. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 585,147, Jun. 9, 1975, abandoned, which is a continuation-in-part of Ser. No. 509,524, Sep. 26, 1974, abandoned. This application Feb. 8, 1980, Ser. No. 119,717

Int. Cl.³ A61K *31/445;* C07D *409/04*

U.S. Cl. 424—267 **5 Claims**

1. A compound having the formula



wherein R is chloro, X' is piperidino, R' is mono- or di-(fluoro or -chloro)-phenyl, and n is the integer 0 or 1.

4. An anti-inflammatory pharmaceutical composition comprising an anti-inflammatory effective amount of a compound as claimed in claim 1, together with a pharmaceutical excipient.

4,277,485

OXAZOLE OR ISOXAZOLE ALKYLAMINO ETHYLENE COMPOUNDS AS INHIBITORS OF H-2 HISTAMINE RECEPTORS

Graham J. Durant, Welwyn Garden City; John C. Emmett, Codicote; Charon F. Ganellin, Welwyn Garden City, and Hunter D. Prain, Welwyn, all of England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

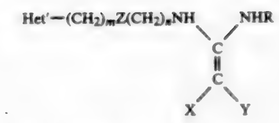
Division of Ser. No. 930,102, Aug. 1, 1978, Pat. No. 4,229,652, which is a division of Ser. No. 797,160, May 16, 1977, Pat. No. 4,124,717, which is a division of Ser. No. 629,174, Nov. 5, 1975, Pat. No. 4,046,907, which is a continuation-in-part of Ser. No. 468,617, May 9, 1974, Pat. No. 3,953,460. This application Feb. 4, 1980, Ser. No. 117,902

Claims priority, application United Kingdom, May 17, 1973, 23561/73

Int. Cl.³ A61K *31/42;* C07D *417/12*

U.S. Cl. 424—272 **6 Claims**

1. A compound of the formula:



wherein X and Y, which may be the same or different, are hydrogen, nitro, cyano or SO_2Ar but are not both hydrogen; Het' is an oxazole or isoxazole ring which ring is attached at a ring carbon and is unsubstituted or substituted by lower alkyl, hydroxyl, halogen or amino; R is hydrogen, lower alkyl or Het-$(CH_2)_mZ(CH_2)_n$; Z is sulphur or methylene; m is 0, 1 or 2 and n is 2 or 3 provided that the sum of m and n is 3 or 4; Het is an oxazole, isoxazole or triazole ring which ring is attached at a ring carbon and is unsubstituted or substituted by lower alkyl, hydroxyl, halogen or amino; and Ar is phenyl unsubstituted or substituted by halogen or methyl or a pharmaceutically acceptable acid addition salt thereof.

6. A method of inhibiting H-2 histamine receptors which comprises administering to an animal in need thereof in an effective amount to inhibit said receptors a compound of claim 1.

4,277,486

1-[(SUBSTITUTED-NAPHTHYL)ETHYL]-IMIDAZOLE DERIVATIVES

Keith A. M. Walker, Los Altos Hills, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Mar. 9, 1979, Ser. No. 19,202

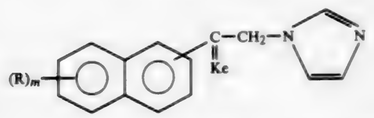
The portion of the term of this patent subsequent to Apr. 17, 1996, has been disclaimed.

Int. Cl.³ A61K *31/415;* C07D *233/60, 405/06*

U.S. Cl. 424—273 R **8 Claims**

1. A compound of the formula

(I)e



wherein m is an integer of 1, 2 or 3; R is independently selected from the group C_1 to C_6 alkyl, C_1 to C_6 alkoxy, halo, trifluoromethyl and hydroxy; Ke is selected from the group (i) a carbonyl group protected as an acyclic ketal derived from a monohydric straight chain alkanol having from one to four carbon atoms, (ii) a carbonyl group protected as a cyclic ketal wherein the cyclic ketal is selected from the group consisting of ethylenedioxy, 1,3-propylenedioxy, 1,2-propylenedioxy, 2,2-dimethyl-1,3-propylenedioxy, 1-methyl-1,3-propylenedioxy, 1,3-dimethyl-1,3-propylenedioxy and 2,3-butylenedioxy, (iii) a carbonyl group protected as an acyclic thioketal derived from a straight or branched chain alkylthio having from one to four carbon atoms or from thiophenol or benzylmercaptan, (iv) a carbonyl group protected as a cyclic thioketal derived from an alkylene dithio having two or three carbon atoms which may optionally be substituted by one or more methyl groups, or (v) a carbonyl group protected as a cyclic hemithioketal derived from 2-mercaptoethanol or 3-mercapto-1-propanol; and the pharmaceutically acceptable acid addition salts thereof.

7. A method of treating or preventing convulsions in a mammalian subject which comprises administering a therapeutically effective amount of a compound of claim 1 to a mammalian subject in need of such treatment.

8. A method of inhibiting gastric secretion in a mammalian subject which comprises administering a therapeutically effective amount of a compound of claim 1 to a mammalian subject in need of such treatment.

4,277,487

SUBSTITUTED 2-PHENYLAMINO-2-IMIDAZOLINES AS BRADYCARDIACS

Helmut Stahle; Herbert Köppe; Werner Kummer, all of Ingelheim am Rhein, Fed. Rep. of Germany; Walter Kobinger, Vienna, Austria; Christian Lillie, Vienna, Austria, and Ludwig Pichler, Vienna, Austria, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

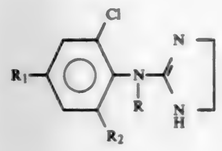
Filed Jul. 17, 1979, Ser. No. 58,165

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1978, 2831671

Int. Cl.³ A61K *31/415;* **C07D** *233/50*

U.S. Cl. 424—273 R **3 Claims**

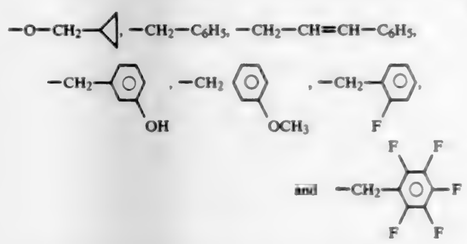
1. A compound of the formula



wherein

R_1 and R_2, which may be the same or different, represent a hydrogen atom, a chlorine atom, or a methyl group, with the proviso that not both R_1 and R_2 are hydrogen, and

R represents a radical selected from the group consisting of $-(CH_2)_2-C(CH_3)=CH_2$, $-(CH_2)_2-CH=CH_2$, $-O-CH_2-CH=CH_2$, $-O-(CH_2)_2-CH=CH_2$, $-O-CH_2-C(CH_3)=CH_2$, $-O-CH_2-CH=CH-CH_3$,



and

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

3. The method of slowing the heart rate of a warm-blooded animal in need thereof, which comprises perorally or parenterally administering to said animal an effective bradycardiac amount of a compound of claim 1.

4,277,488

WATER-SOLUBLE BIOTIN-CONTAINING PREPARATION

Takayoshi Mitsunaga, Ibaraki; Kiyoto Chinushi, Takatsuki, and Tadashi Umezu, Ibaraki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 2, 1980, Ser. No. 136,564

Int. Cl.³ A61K *31/415;* **C09K** *3/00*

U.S. Cl. 424—273 R **4 Claims**

1. A process for preparing a water-soluble biotin-containing preparation which comprises spray-drying an aqueous solution comprising biotin, lactose and ammonia to obtain dried particles containing biotin, wherein the weight proportion of biotin and lactose is from 1:40 to 1:100 and the amount of ammonia which is utilized is at least sufficient to dissolve the biotin in the solution.

4,277,489

1(P-CHLOROBENZOYL)-5-METHOXY-2-METHYL INDOLE-3-ACETIC ACID-3-OXO-ISOBENZOFURANYL ESTER AND PHARMACEUTICAL USE THEREOF

Guido Vandoni, Milan, Italy, assignor to Resfar S.r.l., Milan, Italy

Filed Feb. 7, 1980, Ser. No. 119,332

Claims priority, application Italy, Feb. 21, 1979, 20398 A/79

Int. Cl.³ A61K *31/40;* **C07D** *209/26*

U.S. Cl. 424—274 **3 Claims**

1. 1-(p-Chlorobenzoyl)-5-methoxy-2-methyl indole-3-acetic acid-3-oxo-1-isobenzofuranyl ester.

4,277,490

INSECTICIDAL 1-(2-NAPHTHYL)-CYCLOBUTANE CARBOXYLATE

George Holan, Brighton, and Reimund A. Waiser, Box Hill, both of Australia, assignors to Commonwealth Scientific and Industrial Research Organization, Australia

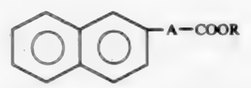
Filed Nov. 30, 1979, Ser. No. 98,715

Claims priority, application Australia, Dec. 4, 1978, PD6995

Int. Cl.³ A01N *43/30;* **C07C** *69/74, 121/75;* **C07D** *305/10*

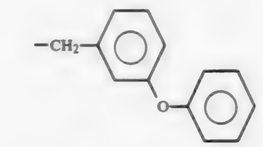
U.S. Cl. 424—282 **21 Claims**

1. The (+), (−), and (±) forms of the compounds of the general formula I

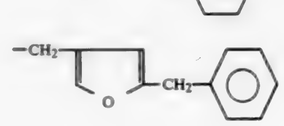


(I)

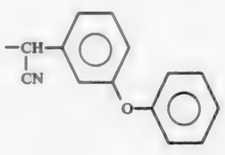
wherein R is one of the following groups (a) to (f):



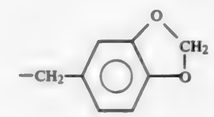
(a)



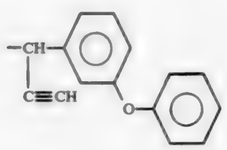
(b)



(c)



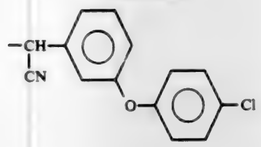
(d)



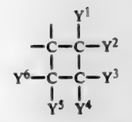
(e)

or a non-toxic, pharmacologically acceptable salt thereof.

-continued



and A is the group Y



(Y)

wherein Y^1, Y^2, Y^3, Y^4, Y^5, and Y^6 are the same or different groups and each is hydrogen or a fluoro, bromo, chloro, or methyl group.

20. A method of controlling insects comprising applying an insecticidally effective amount of a compound of the formula of claim 1 to an area requiring insect control.

4,277,491

BICYCLIC PROSTAGLANDINS

Carmelo Gandolfi, Milan; Carlo Passarotti, Gallarate; Alessandro Andreoni, Cologno Monzese; Angelo Fumagalli, Monza; Franco Faustini, Milan; Roberto Ceserani, Milan, and Maria M. Usardi, Milan, all of Italy, assignors to Farmitalia Carlo Erba, S.p.A., Milan, Italy

Division of Ser. No. 859,703, Dec. 12, 1977, abandoned. This application Dec. 1, 1978, Ser. No. 965,267

Claims priority, application Italy, Dec. 31, 1976, 31041 A/76; Jan. 14, 1977, 19283 A/77; Mar. 14, 1977, 21171 A/77; Mar. 21, 1977, 21412 A/77; Mar. 31, 1977, 21863 A/77

Int. Cl.³ A61K *31/557;* **C07D** *307/935*

U.S. Cl. 424—285 **20 Claims**

1. A compound selected from the group consisting of:

13t-6βH-6(9α)-oxide-15S-methoxy-16-methyl-16-butoxy-18,19,20-trinor-prostenoic acid, and the corresponding methyl ester, the 15R-epimer and the 6αH-diastereoisomers thereof;

13t-6αH-6(9α)-oxide-11α-hydroxy-15-oxo-16-methyl-16-butoxy-18,19,20-trinor-prost-13-enoic acid methyl ester and the corresponding free acid, as well as the 6βH-diastereoisomers thereof and the 5-chloro, 5-bromo and 5-iodo derivatives thereof;

13t-6 H-6(9α)-oxide-11α-hydroxy-15-oxo-16-methyl-16-butoxy-18,19,20-trinor-prost-13-enoic acid methyl ester and the corresponding free acid;

13t-6αH-6(9α)-oxide-11α,15R-dihydroxy-16-methyl-16-butoxy-18,19,20-trinor-prostenoic acid methyl ester and the corresponding free acid, the 15S-hydroxy-epimer and the 6βH-diastereosomers thereof;

13t-5-iodo-6βH-6(9α)-oxide-11α,15S-dihydroxy-16-methyl-16-butoxy-18,19,20-trinor-prost-13-enoic acid methyl ester and the corresponding free acid;

13t-5-iodo-6βH-6(9α)-oxide-11α,15S-dihydroxy-16-methyl-16-propoxy-18,19,20-trinor-prost-13-enoic acid methyl ester and the corresponding free acid;

13t-5-iodo-6βH-6(9α)-oxide-11α,15S-dihydroxy-16-methyl-16-amyloxy-18,19,20-trinor-prost-13-enoic acid methyl ester and the corresponding free acid.

and the pharmaceutically or veterinarily acceptable salts of the above mentioned acids.

10. 13t-5-iodo-6βH-6(9α)-oxide-11α,15S-dihydroxy-16-cyclohexyloxy-17,18,19,20-tetranor-13-prostenoic acid methyl ester as well as the 15R-hydroxy epimers, all the αH-diastereomers and free acids corresponding to said ester, and the pharmaceutically or veterinarily acceptable salts of said acids.

4,277,492

NOVEL 4-BIS((PHENYLMETHYL)AMINO)-BENZENESULFONIC ACIDS POSSESSING ANTIVIRAL ACTIVITY

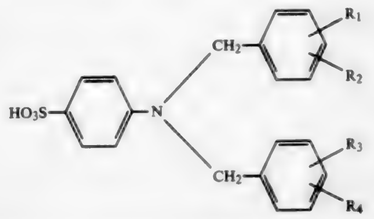
John K. Daniel, and Norton P. Peet, both of Indianapolis, Ind., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 21, 1980, Ser. No. 152,000

Int. Cl.³ C07C *143/58;* **A61K** *31/185;* **C07C** *121/00;* **A61K** *31/275*

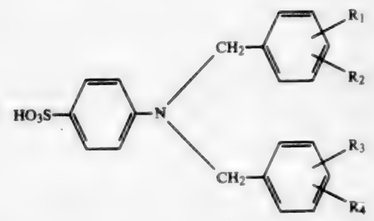
U.S. Cl. 424—304 **15 Claims**

1. A compound of the formula:



and the pharmaceutically-acceptable salts thereof wherein R_1 represents lower alkyl, lower alkoxy, nitro, amino, cyano, trifluoromethyl, acetyl, methylthio, methylsulfinyl, methylsulfonyl, aminosulfonyl or halogen; and R_2, R_3 and R_4 each independently represent hydrogen, lower alkyl, lower alkoxy, nitro, amino, cyano, trifluoromethyl, acetyl, methylthio, methylsulfinyl, methylsulfonyl, aminosulfonyl or halogen.

12. A method for inhibiting viruses which comprises contacting viruses or virus host cells with an effective virus inhibiting amount of a compound corresponding to the formula:



and the pharmaceutically-acceptable salts thereof wherein R_1 represents lower alkyl, lower alkoxy, nitro, amino, cyano, trifluoromethyl, acetyl, methylthio, methylsulfinyl, methylsulfonyl, aminosulfonyl or halogen; and R_2, R_3 and R_4 each independently represent hydrogen, lower alkyl, lower alkoxy, nitro, amino, cyano, trifluoromethyl, acetyl, methylthio, methylsulfinyl, methylsulfonyl, aminosulfonyl or halogen.

4,277,493

SUBSTITUTED N¹-VINYL-N¹-METHYL-N²-ARYL-FORMAMIDINES AND THEIR USE AS PESTICIDES

Akhileswar Sinharay; Gerhard Stähler, both of Frankfurt am Main, and Werner Bonin, Kelkheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

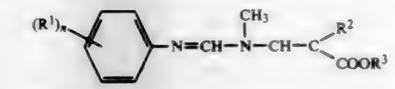
Filed Feb. 21, 1980, Ser. No. 123,279

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907090; Nov. 10, 1979, 2945460

Int. Cl.³ A01N *37/52;* **C07C** *121/84, 123/00*

U.S. Cl. 424—304 **15 Claims**

1. Substituted N¹-vinyl-N¹-methyl-N²-aryl-formamidines of the formula I



(I)

in which

n is zero or a number from 1 to 3,

R^1 is halogen, (C_1–C_4)-alkyl, (C_1–C_4)-alkoxy, (C_1–C_4)-alkylthio, trifluormethyl, nitro, cyano, phenoxy, halophenoxy, phenylthio, or halophenylthio, in the case of n being 2 or 3 the radicals

R^1 possibly being identical or different,

R^2 is —CN or —$COOR^3$ and

R^3 is (C_1–C_8)-alkyl, (C_1–C_8)-alkoxyalkyl or (C_3–C_6)-cycloalkyl.

4. Method of combating insects and acaridae, which comprises applying an effective amount of a compound as claimed in claim 1 to a locus infected with insects or acaridae.

4,277,494

NOVEL ESTERS

Saleem Farooq, Ettingen; Peter Ackermann, Reinach; Jozef Drabek, Oberwil; Laureaz Gsell, Basel; Odd Kristiansen, Möhlin, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

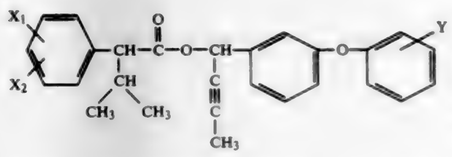
Filed Jan. 18, 1979, Ser. No. 49,362

Claims priority, application Switzerland, Jun. 27, 1978, 6991/78; Apr. 12, 1979, 3533/79

Int. Cl.³ A01K *31/215;* **C07C** *69/76*

U.S. Cl. 424—305 **8 Claims**

1. An acetate of the formula



wherein X_1 represents hydrogen, halogen or C_1–C_4 alkyl, X_2 represents hydrogen or halogen, and Y represents hydrogen, halogen or methyl.

4,277,495

TREATING CARDIAC ARRHYTHMIAS

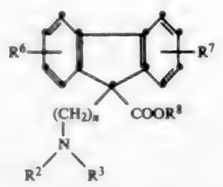
William B. Lacefield, Indianapolis, and Richard L. Simon, Greenwood, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 19,533, Mar. 12, 1979, abandoned. This application Apr. 17, 1980, Ser. No. 141,228

Int. Cl.³ A61K *31/195, 31/24, 31/445*

U.S. Cl. 424—309 **6 Claims**

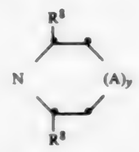
1. A method for treating cardiac arrhythmias comprising administering to a subject suffering from an arrhythmia and in need of treatment or to a subject suspected of being prone toward developing a cardiac arrhythmia and in need of prophylactic treatment an antiarrhythmic amount of a compound of the formula



wherein:

n is 3, 4 or 5;

R^2 and R^3 independently are hydrogen, C_1–C_6 alkyl, CH_2C_2–C_5 alkenyl, phenyl-C_1–C_3 alkyl, or taken together with the nitrogen to which they are attached are a cyclic group of the formula



in which

R^8 is hydrogen or C_1–C_4 alkyl; A is CH_2, O or NH; and y is zero or one;

R^6 and R^7 independently are hydrogen, C_1–C_4 alkyl or halogen;

and the pharmaceutically acceptable salts thereof.

4,277,496

METHODS OF TREATING MAMMALS SUFFERING FROM INFLAMMATION AND PAIN

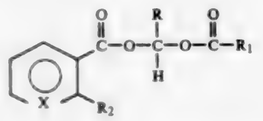
Mario A. Los, Capital Federal, Argentina, assignor to Laboratorios Bago S.A., Argentina

Division of Ser. No. 44,944, Jun. 4, 1979, abandoned, which is a continuation-in-part of Ser. No. 2,225, Jan. 9, 1979, abandoned. This application May 13, 1980, Ser. No. 149,442

Int. Cl.³ A61K *31/24, 31/235*

U.S. Cl. 424—309 **3 Claims**

1. A method of alleviating pain and inflammation in mammals, including humans, suffering from pain and inflammation, which comprises; administering to the mammal an effective amount of a compound selected from those of the formula:

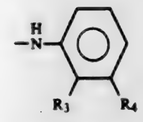


(I)

wherein X represents a moiety of formula:



R taken independently is hydrogen; R_1 taken independently is isobutyl; R_2 is a group of the formula:



wherein R_3 is selected from the group consisting of hydrogen and methyl, R_4 is selected from the group consisting of methyl and trifluoromethyl; and the pharmaceutically acceptable acid addition salts thereof.

4,277,497

ANALGESIC 2-(M-BENZOYLPHENOXY)-PROPIONIC ACID DERIVATIVES

Jean-Pierre M. J. Fromantin, Versailles, France, assignor to Unicler, Paris, France

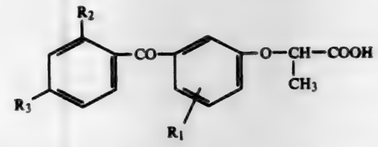
Filed Mar. 16, 1979, Ser. No. 21,311

Claims priority, application France, Mar. 20, 1978, 78 07962

Int. Cl.³ A01N *37/00;* **C07C** *63/37*

U.S. Cl. 424—316 **6 Claims**

1. A compound having the general formula (I)



wherein each of R_1, R_2 and R_3 is independently hydrogen or C_{1-4} alkyl, or a pharmaceutically acceptable amino acid salt thereof.

5. A pharmaceutical composition containing, as active substance, a compound according to claim 1 and a suitable carrier or diluent.

4,277,498

AMIDES

Frederick C. Copp; David Collard, both of Beckenham, and Clive V. Denyer, London, all of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Division of Ser. No. 810,610, Jun. 27, 1977, abandoned. This application Jul. 23, 1979, Ser. No. 59,955

Claims priority, application United Kingdom, Jun. 28, 1976, 26794/76; May 26, 1977, 22204/77

Int. Cl.³ A61K *31/16*

U.S. Cl. 424—320 **44 Claims**

1. A glycinamide of formula:

NH_2CH_2CONHE

wherein E has seven to nine carbon atoms and is a group:



in which R^1 is hydrogen or methyl; L and M together form an alkyl or a cycloalkylalkyl group or a pharmacologically and pharmaceutically acceptable salt thereof.

4,277,499

COMBATING INSECTS WITH N-(SUBSTITUTED-PHENYL)-N-(2-CHLORO-6-FLUORO-BENZOYL)-UREAS

Wilhelm Sirrenberg, Sprockhoevel; Erich Klauke, Odenthal; Albrecht Marhold, Leverkusen; Ingeborg Hammann, Cologne; Wilhelm Stendel, Wuppertal, and Ingomar Krehan, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 971,777, Dec. 21, 1978, abandoned. This application Feb. 1, 1980, Ser. No. 117,755

Claims priority, application Fed. Rep. of Germany, Jan. 13, 1978, 2801316

Int. Cl.³ C07C *127/22;* **A01N** *9/20*

U.S. Cl. 424—322 **6 Claims**

1. An N-(substituted-phenyl)-N'-(2-chloro-6-fluoro-benzoyl)-urea selected from the group consisting of

N-(4-trifluoromethylmercaptophenyl)-N'-(2-chloro-6-fluoro-benzoyl)-urea,

N-(4-trifluoromethoxyphenyl)-N'-(2-chloro-6-fluoro-benozyl)-urea, and

N-[3-chloro-4-(trifluoromethylmercapto)]-phenyl-N'-(2-chloro-6-fluoro-benzoyl)-urea.

6. A method of combating insects which comprises applying to the insects, or to a habitat thereof, an insecticidally effective amount of a compound according to claim 1.

4,277,500

CERTAIN 2-HYDROXY-1-NAPHTHALDEHYDE ACYLHYDRAZONES AND THEIR USE AS FUNGICIDES

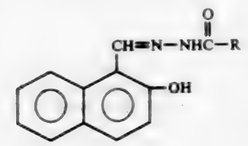
Ronald J. Ruay, Lafayette, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Mar. 24, 1980, Ser. No. 132,957

Int. Cl.³ A01N *37/18;* **C07C** *103/20, 103/56, 103/75*

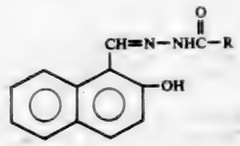
U.S. Cl. 424—324 **6 Claims**

1. Compounds having the following structural formula



where R is phenyl; alkyl C_1–C_4; benzyl or halophenyl.

5. A method of controlling fungi comprising applying thereto a fungicidally effective amount of a compound having the following structural formula



where R is phenyl; hydroxyphenyl; alkyl C_1–C_4; benzyl or halophenyl.

4,277,501

PARA-NITROPHENYLALKYLAMINES AND PHARMACEUTICAL COMPOSITIONS

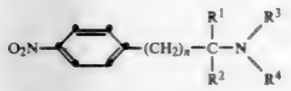
Bryan B. Molloy, North Salem, and Mitchell I. Steinberg, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 861,789, Dec. 19, 1977, abandoned. This application Dec. 10, 1979, Ser. No. 102,044

Int. Cl.³ A61K *31/135;* **C07C** *87/29*

U.S. Cl. 424—330 **14 Claims**

1. A compound of the formula



wherein:

n is 2–5;

R^1 is hydrogen or C_1–C_2 alkyl;

R^2 is hydrogen or C_1–C_3 alkyl;

R^3 is hydrogen or C_1–C_8 alkyl;

R^4 is C_5–C_{10} alkyl;

provided that when R^3 is hydrogen, R^4 is C_5–C_7 alkyl; and the pharmaceutically acceptable acid addition salts thereof.

4,277,502

PREPARING YEAST RAISED BAKERY PRODUCTS WITH GLANDLESS COTTON-SEED

Karl A. Kurzius, 4246 Eubank, NE., Albuquerque, N. Mex. 87111

Filed Dec. 6, 1979, Ser. No. 100,889

The portion of the term of this patent subsequent to Oct. 10, 1995, has been disclaimed.

Int. Cl.³ A21D *2/36*

U.S. Cl. 426—20 **10 Claims**

1. The process for making yeast raised bakery products comprising:

combining at least the following ingredients:

cracked, glandless cotton-seed, including both its meal and its oil factions, water, salt, yeast, sour-culture and flour;

mixing said ingredients for fermentation in straight or sponge dough;

dividing the mixed combined ingredients into portions for baking;

proofing said portions;

and baking said proofed portions.

4,277,503

ADDITION OF LECITHIN TO INCREASE YIELD OF CHEESE

Robert R. Bily, P.O. Box 3637, San Jose, Calif. 95156

Filed Oct. 19, 1979, Ser. No. 86,672

Int. Cl.³ A23C *19/02*

U.S. Cl. 426—40 **4 Claims**

1. A process for producing cheese from milk wherein increased yield of cheese is obtained comprising mixing lecithin with liquid milk in an amount of from 0.001 percent to 0.15 percent by weight of the liquid milk prior to any coagulation of the milk, coagulating said liquid milk containing lecithin admixed therein to form solid curd and liquid whey, separating the curd and whey, and reccovering the curd from the whey.

4,277,504

PREMIX PRODUCT FOR A DIETETIC CAKE MIX

Sol B. Radlove, Wheeling, Ill., assignor to Ledges Associates, Roscoe, Ill.

Continuation-in-part of Ser. No. 818,531, Jul. 25, 1977, Pat. No. 4,185,127. This application Sep. 6, 1979, Ser. No. 73,106

Int. Cl.³ A21D *13/08*

U.S. Cl. 426—62 **8 Claims**

1. A premix product for use with bulk ingredients to make a dietetic cake mix, free of artificial sweeteners, said bulk ingredients having

(1) a main portion comprising flour, skim milk solids and dried egg whites;

(2) a shortening portion comprising a shortening;

(3) a sweetener comprising high fructose corn syrup; said premix product having:

an emulsifier portion comprising propylene glycol monostearate, lactated monoglycerides; and

a baking powder portion comprising an alkaline bicarbonate component and an acidic component which includes glucono delta lactone and the ratio by weight of the acidic component to the alkaline component is greater than about 1.5:1.0;

wherein the ratio of the emulsifier portion to the baking powder portion, by weight, is greater than about 0.4; and

wherein the glucono delta lactone is present in such a portion that when the premix product is combined with the bulk ingredients, the ratio by weight of the fructose to the acidic component is between about 10 and about 30 so that the cake baked from batter formed when the bulk ingredients are combined with the premix product and water is acidic with a pH of between about 3.5 and about 5.5, has acceptable sweetness, good appearance, volume, moisture, texture and mouth-feel.

4,277,505

PROCESS FOR THE MALTING OF GRAIN

Simon B. Simpson, Berwick Upon Tweed, England, assignor to J. P. Simpson and Co. (ALNWICK) Limited, Berwick Upon Tweed, England

Filed Jan. 22, 1979, Ser. No. 5,606

Claims priority, application United Kingdom, Apr. 21, 1978, 15799/78

Int. Cl.³ C12C *1/04*

U.S. Cl. 426—64 **2 Claims**

1. A process for the germination of cereal grain in malting which comprises the steps of passing a quantity of steeped grain in succession to and through a series of six closed spaced discrete vessels, the grain, upon leaving each vessel, discharging along a lower conveyor to an elevator which raises the grain to an upper conveyor that discharges the grain down into the next vessel with the germinating grain remaining in each vessel for about a day before being transferred to the next vessel, subjecting the developing grain in each vessel to upward flow of humidified attemperated air until a desired point of modification of the grain is attained with the grain leaving at last vessel of the series as a green malt, turning the grain either in a respective vessel or through transference to the next vessel and finally passing the grain to a malt kiln where it is dried to a required moisture level.

4,277,506

SUPPORTIVE SIDEWALL CONTAINER FOR EXPANDABLE FOOD PACKAGES

John J. Austin, LaGrange, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Jan. 24, 1980, Ser. No. 115,026

Int. Cl.³ B65D *81/34;* **B65B** *29/08*

U.S. Cl. 426—111 **12 Claims**

1. A non-metallic container housing an expandable food bag in a non-expanded stored condition and in an expanded condition upon heating, having a substantially increased volume, said container comprising:

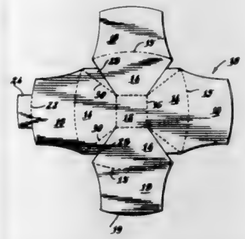
a base portion including

a bottom support panel of regular polygonal shape,

an upwardly and outwardly extending side panel connected to each edge of said polygonally shaped bottom support panel, with the distal edge of each said side panel being arcuate in configuration, with each one of said side panels being connected to the adjacent one thereof by overlapping V-shaped extension panels and being bowed radially inwardly in a concave configuration to form with said bottom support panel a bowl receiving said expandable food bag in stored condition, and

an integral cover enclosing and storing said expandable food bag in said bowl and providing additional side support for the bag when open and the bag is expanded, said cover including

a plurality of overlapped, separate top panels, each top panel having an edge, resiliently and foldably connected to one of said side panels, along the arcuate edge thereof, each top panel also having an arcuate top edge and side edges



to compliment the shape of the upper edge of an adjacent side panel

one of said top panels being removably connected to a seal-tab, and

said seal being releasably attached to at least one of said remaining top panels, such that when said seal is released enabling the top panels of said cover to be opened, said side panels are capable of expanding and bowing radially outwardly to define a convex configuration thereby providing increased volume for said expandable food bag while confining said food bag within said container.

4,277,507

METHOD FOR INHIBITING THE GROWTH OF CLOSTRIDIUM BOTULINUM AND THE FORMATION OF ENTEROTOXIN IN SMOKED FISH PRODUCTS

John S. Thompson, Wayne, Pa., and Joseph F. Jadlocki, Jr., Mount Holly, N.J., assignors to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 140,328, Apr. 14, 1980. This application Sep. 8, 1980, Ser. No. 184,689

Int. Cl.³ A23B *4/02;* **A23L** *1/31*

U.S. Cl. 426—264 **7 Claims**

1. A method of inhibiting the production of enterotoxin from *Clostridium botulinum* and, upon cooking, inhibiting formation of nitrosamines from nitrite salt in smoked fish products which comprises the step of incorporating into fish a compound selected from the group consisting of hypophosphorous acid, sodium hypophosphite, potassium hypophosphite, calcium hypophosphite and manganese hypophosphite in an amount effective to inhibit production of enterotoxin from *Clostridium botulinum*, and less than 120 ppm of an alkali metal nitrite salt.

4,277,508

CURED MEAT PRODUCT AND PROCESS FOR PREPARING THE SAME

Kunito Sato; Alfred F. Miller, and Leonard J. Zimont, all of Scottsdale, Ariz., assignors to Armour and Company, Phoenix, Ariz.

Filed Sep. 10, 1979, Ser. No. 73,729

Int. Cl.³ A23B *4/02, 4/14*

U.S. Cl. 426—266 **9 Claims**

1. In a process for enhancing and stabilizing the color of cured meat, the step of incorporating into the meat sodium nitrite in an amount of from 0.0020% to 0.0156%, and calcium sorbate in an amount of from 0.01% to 0.8%, said percentages being by weight based on the weight of the meat, whereby the characteristic color of the cured meat is stabilized and preserved.

4,277,509

PROCESS FOR EXTRACTING GROUND ROASTED COFFEE

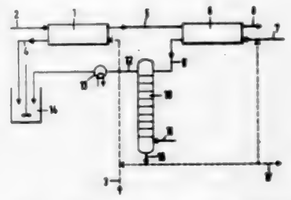
Hermanus A. J. Wouda, Utrecht, Netherlands, assignor to D.E.J. International Research Company B.V., Utrecht, Netherlands

Filed Oct. 2, 1978, Ser. No. 947,404

Claims priority, application United Kingdom, Oct. 6, 1977, 41570/77

Int. Cl.³ A23F *3/00*

U.S. Cl. 426—387 **9 Claims**



1. A multi-stage method for the primary extraction of ground roasted coffee, comprising the following two integrated steps:

(a) passing a stream of ground roasted coffee through a number of stages, at elevated temperatures between 60° and 120° at which substantially no hydrolysis of coffee solids occurs, countercurrently to a stream of aqueous extraction liquid to produce an extract of predetermined concentration, the ratio of liquid to coffee being in the range of 1.5:1 to 3:1, said aqueous extraction liquid extracting substantially all the soluble solids from said stream of ground roasted coffee to produce a concentrated liquid, which aqueous extraction liquid of itself would not be sufficient to extract all of the hydrophobic aroma components; and

(b) recovering substantially completely the hydrophobic aroma components from the extracted stream of ground roasted coffee without hydrolyzing said coffee by extraction with an aqueous extraction liquid at temperatures mentioned under (a) in combination with steam stripping of the extract produced by said hydrophobic aroma component extraction and recovering the aroma components as a concentrated aqueous aroma solution by condensation of the steam used for the stripping.

4,277,510

PROCESS OF MAKING POTATO CHIPS

Peter A. Wicklund, and John T. Ivers, both of Lewisville, Tex., assignors to Frito-Lay, Inc., Dallas, Tex.

Continuation of Ser. No. 114, Jan. 2, 1979, abandoned. This application Mar. 4, 1980, Ser. No. 127,040

Int. Cl.³ A23B *7/03;* **A23L** *1/216*

U.S. Cl. 426—441 **9 Claims**

1. A process for preparing potato chips of relatively low oil content which comprises peeling potatoes, contacting the potatoes with boiling water or steam to gelatinize surface starch to a width of at least about 1/32 inch on the periphery of said potatoes, forming said potatoes into slices having a moisture content above above 70% by weight and a thickness of about 0.03 to 0.1 inch, drying the slices by exposing the slices to contact with a heated air stream at a temperature of about 170° F. to 320° F. whereby the average moisture content of the slices is reduced to about 30 to 65 percent by weight, contacting the resultant dried potato slices with steam under conditions whereby any moisture content increase is less than about 10 percent based on the total moisture content of the

potato slices just prior to steam treatment, and frying the steam-treated potato slices to provide potato chips of relatively low oil content of up to about 30% by weight.

4,277,511

SWEETENER AND FLAVORING COMPOSITIONS AND METHOD OF PRODUCING SAME

John B. Blitznak, Lombard, and Rudolph E. Harcarufka, Deerfield, both of Ill., assignors to Alberto-Culver Company, Melrose Park, Ill.

Continuation-in-part of Ser. No. 789,097, Apr. 20, 1977, abandoned. This application Aug. 11, 1978, Ser. No. 932,782

Int. Cl.³ A23L *1/236, 1/226*

U.S. Cl. 426—548 **1 Claim**

1. A low caloire sweetener and flavor composition containing the following ingredients in substantially the following percentages by weight:

	%
Corn starch hydrolysate	90
Ammoniated glycyrrhizin	2.5
Monosodium phosphate, anhydrous	3.5
Ethyl maltol	1

4,277,512

FOOD ADDITIVE COMPOSITION AND PROCESS FOR PREPARATION THEREOF

Shigeo Inamine, Kobe; Toshio Matsuda, Itami, and Takeo Shimomura, Nishinomiya, all of Japan, assignors to Kabushiki Kaisha Veno Seiyaku Oyo Kenkyo, Osaka, Japan

Continuation of Ser. No. 2,318, Jan. 10, 1979, which is a continuation of Ser. No. 801,320, May 27, 1977, Pat. No. 4,168,323. This application May 20, 1980, Ser. No. 153,594

Claims priority, application Japan, Jun. 1, 1976, 51/62930; Apr. 22, 1977, 52/45917

Int. Cl.³ A21D *2/16*

U.S. Cl. 426—549 **12 Claims**

1. A process for improving the foaming properties of sponge cake dough which consists essentially of preparing a crystallized colloidally solidified, hydrophilic powder having a particle size of minus 20 mesh and comprising 60 to 99% of a dispersing medium which is a member selected from the group consisting of sugar alcohol, sugar and mixtures thereof, 30 to 0.5% of a food-grade surface-active agent and 30 to 0% of an edible oil or fat, by adding said food-grade surface-active agent and said edible oil or fat to said sugar alcohol, sugar and mixtures thereof in a heated liquid state so as to disperse said surface-active agent which is a member selected from the group consisting of glycerin fatty acid ester, propylene glycol fatty acid ester, sorbitan fatty acid ester, sucrose fatty acid ester, polyoxyethylene sorbitan fatty acid ester, lecithin and mixtures thereof, edible oil or fat therein, cooling and solidifying said dispersion to form a colloidal solid, said cooling also crystallizing said colloidal solid, pulverizing the crystallized colloidal solid and adding said pulverized solid to said sponge cake dough in an amount sufficient to improve the foaming properties of the sponge cake dough.

4,277,513

PROCESS FOR THE MANUFACTURE OF A FOODSTUFF HAVING A FIBROUS STRUCTURE SIMILAR TO THAT OF MEAT

Willy Rufer, Onex, and Robert Menzi, Geneva, both of Switzerland, assignors to Battelle Memorial Institute, Carouge, Switzerland

Continuation of Ser. No. 873,073, Jan. 27, 1978, abandoned. This application Dec. 5, 1979, Ser. No. 100,460

Claims priority, application Switzerland, Jan. 31, 1977, 1122/77

Int. Cl.³ A23J *3/00*

U.S. Cl. 426—656 **17 Claims**

1. A process for the manufacture of a protein foodstuff with a fibrous texture analogous to that of meat which comprises forming a wet mass of ground, non-structured protein material containing water into a layer, cooling said layer of material to a temperature below 0° C. until at least a portion but not all of the water contained therein solidifies to form a partially plasticized mass and, while in such condition, acting on the plasticized mass layer with means which applies a mechanical force at spaced locations along the mass layer and which does not carve or cut said mass layer but digs into said mass layer to a substantial depth beyond its surface, said mechanical force being sufficient to cause mechanical deformation of said plasticized mass layer and to cause the protein fibrils in the mass layer to rearrange and orient themselves in a manner and to an extent sufficient to impart to the whole body of the protein material a texture resembling that of meat.

4,277,514

FORGERY RESISTANT DOCUMENT WITH COLORED AREAS AND METHOD FOR THWARTING REPRODUCTION OF SAME

Takeo Sagiura, Tokorozawa; Keiji Miyajima, Chiba; Hideo Nagatomo, and Kiyoshi Mazui, both of Saitama, all of Japan, assignors to Toppan Printing Co., Ltd., Japan

Filed Mar. 2, 1979, Ser. No. 16,721

Claims priority, application Japan, Mar. 7, 1978, 53-25662; Dec. 18, 1978, 53-158227

Int. Cl.³ A61B *5/10*

U.S. Cl. 427—1 **7 Claims**

1. An object with a colored surface pattern provided with a material containing at least one kind of coloring matter having a spectral reflection factor characteristic which exhibits a high spectral reflection factor in at least one of the wavelength ranges below 450 nm and above 650 nm, whereby reproduction of said colored surface pattern by means of any of a photocolor-copier and color photography utilizing photosensitive materials having spectral sensitivity in at least one of the wavelength ranges consisting of the human visible range and the adjacent wavelength ranges thereto is avoided, said coloring matter also having at least one high spectral reflection factor characteristic within the range between 450 nm and 650 nm so that a human viewer sees a color of said matter different from the color reproduced.

4,277,515

TARGETS FOR USE IN PHOTOCONDUCTIVE IMAGE PICKUP TUBES

Yasuhiko Nonaka, Mobara; Naohiro Goto, Machida, and Keiichi Shidara, Tama, all of Japan, assignors to Hitachi, Ltd. and Nippon Hoso Kyokai, both of Tokyo, Japan

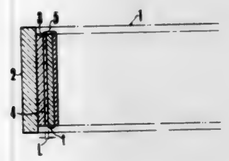
Division of Ser. No. 846,881, Oct. 31, 1977, Pat. No. 4,219,831. This application Oct. 11, 1979, Ser. No. 83,565

Claims priority, application Japan, Nov. 17, 1976, 51-137293

Int. Cl.³ B05D *1/36*

U.S. Cl. 427—76 **8 Claims**

1. A method for forming a P-type photoconductive film for a target for use in a photoconductive image pickup tube wherein said target comprises a transparent substrate, an N-type transparent conductive film deposited on said substrate, a P-type photoconductive film deposited on said N-type transparent conductive film, and a heterojunction formed at the interface between said N-type transparent conductive film and said P-type photoconductive film, said P-type photoconductive film containing selenium, tellurium and arsenic, said selenium and arsenic being distributed continuously from said heterojunction throughout the thickness of said P-type photoconductive film and the distribution of said tellurium being



spaced from said heterojunction and localized in the vicinity of said heterojunction, said method comprising individually vapor-depositing a single substance consisting of selenium, tellurium, arsenic, an alloy of tellurium or an alloy of arsenic, in a first layer having a thickness less than 100 Å onto the N-type transparent conductive film and vapor-depositing a second different substance consisting of selenium, tellurium, arsenic, an alloy of tellurium or an alloy of arsenic in a second layer having a thickness less than 100 Å onto the first layer.

4,277,516

METHOD FOR GENERATING LAYERS ON A CARRIER FOIL

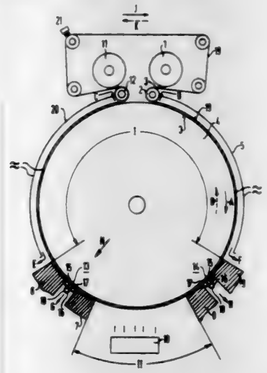
Reinhard Behn; Hermann Heywang, both of Munich, and Horst Pschonik, Unterhaching, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 28, 1979, Ser. No. 107,828

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900772

Int. Cl.³ B05D *5/12;* **H01G** *7/00*

U.S. Cl. 427—81 **3 Claims**



1. A method for generating layers on a carrier foil, particularly for the manufacture of electrical capacitors, in which the carrier foil is unwound from a supply roll and passed through a first vacuum chamber while lying against the cylinder jacket of a drum and then passes through a vacuum lock into a second vacuum chamber where it is coated with metal and is returned while still lying against the cylinder jacket of the drum through a second vacuum lock into the first vacuum chamber after which it is wound onto a second supply roll, and in which a metal layer is applied to the foil in the second vacuum chamber, characterized in that the carrier foil (3) engages the cylinder jacket of the drum (4) in the first vacuum chamber (I), and the carrier foil (3) while lying against the drum (4), is successively conducted through a glow polymerization segment (5) mounted in the first vacuum chamber (I), then through a first vacuum lock (8, 9) then through the second vacuum chamber (II) wherein the metallization device (10) is mounted and then through a second vacuum lock (6, 7) back into the first vacuum chamber (I), and through a second glow polymerization segment (20) in the first vacuum chamber; and wherein carrier foil (3) is only removed from the cylinder jacket of the drum (4) just before it is supplied to a second supply roll (11).

4,277,517

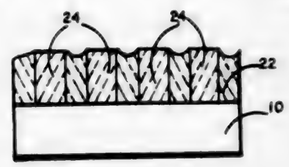
METHOD OF FORMING TRANSPARENT CONDUCTOR PATTERN

Elroy C. Smith, Jr., La Habra, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Division of Ser. No. 925,245, Jul. 17, 1978, abandoned. This application Oct. 1, 1979, Ser. No. 80,953

Int. Cl.³ B05D *5/12, 3/10, 1/36*

U.S. Cl. 427—96 **4 Claims**



1. A method of forming a desired pattern of transparent electrical conductors on a base, comprising the steps of:

selecting a first material oxidizable to form a transparent insulating material;

selecting a modifying material combinable with said first material to form a second material, wherein said second material is oxidizable to form a transparent electrical conductor material;

forming a layer of said modifying material on said base in a pattern conforming to said desired pattern of transparent electrical conductors;

forming a layer of said first material adjacent said layer of modifying material on said base;

diffusing said modifying material into said first material to form said second material; and

oxidizing said first and second materials to form a substantially continuous layer of oxidized material having a transparent conductor region conforming to said desired pattern and a transparent insulator region.

4,277,518

SOLDER-COATING METHOD

Peter Schillke, and Robert R. Walls, both of Santa Barbara, Calif., assignors to Gyrex Corp., Santa Barbara, Calif.

Filed Nov. 13, 1979, Ser. No. 93,215

Int. Cl.³ C23C *1/04*

U.S. Cl. 427—96 **15 Claims**

1. A continuous process for coating copper circuit tracks on a printed circuit board with solder to protect the copper track from oxidation and to facilitate subsequent soldering operations in which components are mounted on the circuit board, comprising:

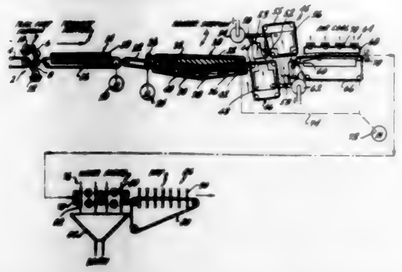
contacting a surface of a printed circuit board having a flux on the copper circuit tracks by a contact member positioned above the board so that one surface of the board is in facing contact with said contact member;

moving the contact member and the printed circuit board in contact therewith into a molten bath of solder;

displacing solder with the circuit board to produce a buoyant force pressing the board against the contact member

while the board remains immersed in the molten solder so that the molten solder contacts each surface of the board; and

moving the contact member through the molten bath at a speed which maintains contact between the circuit board and the contact member,



whereby the circuit board is immersed in the molten bath and is buoyantly supported by the molten bath as the circuit board is moved through the bath by the contact member.

4,277,519

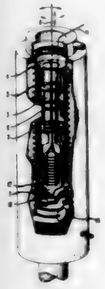
SIMULTANEOUS FORMATION OF GARNET EPILAYER ON A PLURALITY OF SUBSTRATES

Steven J. Licht, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 939,062, Sep. 1, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,597

Int. Cl.³ B05D *5/12*

U.S. Cl. 427—129 **9 Claims**



1. A process for the simultaneous production of garnet epilayers on a plurality of substrates in a growth apparatus, said growth apparatus comprising a melt body a means for heating said melt body, and a substrate holder means wherein said substrates are aligned by said holder means so that a non-planar configuration is obtained, comprising the steps of introducing and immersing said substrates in said melt body, growing the epilayers on said plurality of substrates and removing said plurality of substrates from said melt body so that the lower substrates in said holder emerge last from said melt CHARACTERIZED IN THAT said melt body is mixed before growth, that said lower substrates are shielded from heat radiation from said melt body upon removal from said melt body, and that the major surfaces of said substrates are parallel with the surface of said melt during growth of an epitaxial layer on said substrates in said melt body but leave said melt at an angle of 10 degrees or more to the surface of said melt.

4,277,520

FREEZE MODIFICATION AGENT

Clyde G. Inks; John W. Compton, both of Taylor, Mich.; Kathryn M. Ellerman, Lakewood, Ohio, and Lee H. Bergman, Baton Rouge, La., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed May 14, 1980, Ser. No. 149,863

Int. Cl.³ C10L *9/00*

U.S. Cl. 427—220 **7 Claims**

1. A method for treating particulate solids having surface moisture to reduce the cohesive strength of masses of said solids when frozen, said method consisting of coating such solids with an effective amount of a fluid composition comprising

(A) a water-soluble polyhydroxy compound or monoalkylether thereof and

(B) an alkali metal carbonate.

4,277,521

METHOD OF COATING THE INTERIOR SURFACES OF VEHICLES WITH POLYVINYL ACETATE

Robert F. June, Jr., 10286 W. Seven Mile, Northville, Mich. 48167

Filed May 31, 1977, Ser. No. 801,468

Int. Cl.³ B62D *33/00*

U.S. Cl. 427—236 **4 Claims**

1. In a method for thermally insulatively coating the interior surface of a vehicle, the improvement which comprises:

(a) spraying onto the interior a polyvinyl acetate composition consisting essentially of:

(1) an aqueous polyvinyl acetate emulsion,

(2) monomeric ethylene glycol,

(3) a compound selected from the group consisting of cork, asbestos fibers and mixtures thereof, and

(b) impinging the spray upon said interior surface of said vehicle to adhere said composition to said interior surface to provide a thermal insulative coating thereupon.

4,277,522

COATING GLASS-CERAMIC SURFACES

William G. Dorfeld, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Jan. 3, 1977, Ser. No. 756,154

Int. Cl.³ B05D *3/12*

U.S. Cl. 427—292 **6 Claims**

1. In the method of providing a coating on a surface of a glass-ceramic article formed by ceramming a green glass article comprising the steps of

roughening said surface, and thereafter

applying a coating to said roughened surface,

the improvement comprising:

roughening said green glass article prior to the time that ceramming is initiated, and thereafter

heating said article to an elevated temperature which is sufficiently high to ceram said article and to substantially heal mechanical damage in said article caused by said roughening step.

4,277,523

METHOD OF PREVENTING TARNISHING OF POLISHED GLASS ARTICLES

Tetsuro Izumitani, Hino, and Eimei Miyade, Niiza, both of Japan, assignors to Hoya Glass Works, Ltd., Tokyo, Japan

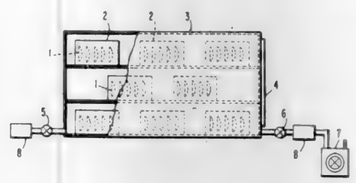
Continuation of Ser. No. 497,346, Aug. 13, 1974, abandoned. This application Jan. 10, 1977, Ser. No. 758,272

Claims priority, application Japan, Aug. 13, 1973, 48-90721

Int. Cl.³ B05D *3/00*; **B01J** *19/00*

U.S. Cl. 427—294 **8 Claims**

1. A method of preventing tarnishing of a polished glass article by corrosion of the polished glass surface due to moisture, which method comprises storing the polished glass article under a pressure of less than about 10^{-2} mm Hg Absolute and



maintaining said pressure level until said polished glass surface is to be further processed in a tarnish-free condition.

4,277,524

METHOD AND APPARATUS FOR FINISHING COATED PAPERS

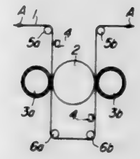
Hideiku Nakajima; Itsuji Koyama; You Kusama, and Yutaka Ashie, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 106,387

Claims priority, application Japan, Dec. 27, 1978, 53-162354

Int. Cl.³ B05D *3/00, 3/02, 3/12*; **B05C** *11/02*

U.S. Cl. 427—362 **16 Claims**



1. A method of finishing a coated paper web which is obtained by applying an aqueous coating composition containing thermoplastic synthetic resin emulsion to the surface of at least one side of a paper web to form a coating layer and drying the coating layer at a temperature to maintain said coating layer below the glass transition temperature of the thermoplastic synthetic resin emulsion, comprising:

a first finishing step of heating the surface of the coating layer of the coated paper web to a temperature above the glass transition temperature of the emulsion by passing the coated paper web on a finishing roll while bringing the surface of the coating layer into pressing contact with a mirror-like metal surface of the finishing roll heated to a temperature above the glass transition temperature of the emulsion;

a cooling step of reducing the temperature of the surface of the coating layer to a level not exceeding the glass transition temperature of the emulsion by 30° C.; and

a second finishing step of passing the coated paper web on one of said finishing roll and another finishing roll having a mirror-like metal surface heated to a temperature above the glass transition temperature of the emulsion, while bringing the surface of the coating layer into pressing contact with the mirror-like metal surface of said one finishing roll.

4,277,525

LIQUID COMPOSITIONS FOR FORMING SILICA COATING FILMS

Muneo Nakayama, Tokyo; Toshihiro Nishimura; Hisashi Nakane, both of Kawasaki; Shozo Toda, Fujisawa; Yoshio Hotta, Yamato, and Mitsuaki Minato, Kawasaki, all of Japan, assignors to Tokyo Ohka Kogyo Kabushiki Kaisha and Tokyo Denshi Kagaku Kabushiki Kaisha, both of Tokyo, Japan

Continuation of Ser. No. 1,681, Jan. 8, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,092

Claims priority, application Japan, Sep. 1, 1978, 53-107380

Int. Cl.³ B05D *3/02*

U.S. Cl. 427—387 **14 Claims**

1. A liquid coating composition for forming silica-based coating films which comprises a product obtained by the reaction of a reaction mixture composed of

(a) an alkoxysilane represented by the general formula

$$R^1_nSi(OR^2)_{4-n},$$

where R^1 and R^2 are each a hydrocarbon group selected from the class consisting of methyl, ethyl, propyl, butyl, vinyl and phenyl groups and n is zero or 1;

(b) from 2 to 5 moles per mole of the alkoxysilane of a lower carboxylic acid containing 2 to 7 carbon atoms and having a dissociation index pK_a larger than 4.0, or an anhydride thereof; and

(c) from 2 to 10 moles per mole of the alkoxysilane of an alcohol containing 1 to 4 carbon atoms;

in the presence of a reaction accelerator which is an organic acid having a dissociation index pK_a up to 4.0.

14. A method for forming a silica-based coating film on a substrate which comprises coating the substrate with a liquid coating composition of claim 1, drying the liquid coating composition and heating the thus dried coating composition at a temperature of at least 150° C.

4,277,526

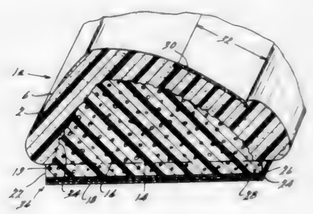
PROTECTIVE AND DECORATIVE MOLDING HAVING FOAM-FILLED CHANNEL

Norman C. Jackson, Livonia, Mich., assignor to The Standard Products Company, Dearborn, Mich.

Continuation of Ser. No. 870,027, Jan. 16, 1978, abandoned. This application Jan. 8, 1979, Ser. No. 46,906

Int. Cl.³ B32B *3/30, 5/18, 7/04*; **B60R** *13/04*; **E04F** *19/02*

U.S. Cl. 428—31 **10 Claims**



1. A protective and decorative molding including an elongated, channel-shaped member comprising a plastic semi-rigid elastic material and having an inwardly facing surface defining an inner space, said inwardly facing surface being an uneven and irregular surface; a light-weight flexible, pliant foam bonded by surface attachment to said inwardly facing surface, said foam completely filling and extending beyond the inner space of said channel-shaped member, said foam presenting a generally planar surface adapted for attachment to a structural surface and said foam being compressible to substantially evenly distribute pressure against said structural surface and to provide a cushion between said channel shaped member and

said structural surface; and means for attaching said generally planar surface of said foam to said structural surface.

4,277,527

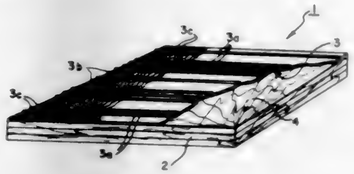
WALL CONSTRUCTION MATERIAL COMPRISING A RIGID SUPPORT WITH A TEXTILE MATERIAL FACING LAMINATED THERETO

Daniel Dubl, New York, N.Y., assignor to Polylok Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 838,889, Oct. 3, 1977, and Ser. No. 3,361, Jan. 15, 1979. This application Oct. 5, 1979, Ser. No. 82,324

Int. Cl.³ B32B *5/08, 5/12, 5/26, 13/14, 21/10*

U.S. Cl. 428—109 **20 Claims**



1. A laminated structure for use in wall construction comprising:

(a) a rigid support having a support surface; and

(b) an integrally self-lined textile material having a front surface and a rear surface, said material being adhesively bonded on its rear surface to the support surface and comprising:

(i) a nonwoven spun fibrous batting constituting the rear surface of the textile material;

(ii) a layer of filling disposed upon the batting;

(iii) one or more warp elements disposed upon the filling so as to constitute the front surface of the textile material; and

(iv) a single system of knitting thread wales, each wale comprising a multiplicity of warpwise looped stitch courses which engage and hold together the batting, filling and warp elements by loops of knitting thread on the rear surface of the textile material and by laps of the knitting thread courses on the front surface to bind together into an integrated unitary textile structure the batting, filling, and warp elements.

4,277,528

CERAMIC SUBSTRATE

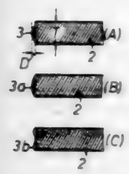
Takao Doi, and Satoshi Nomura, both of Shiga, Japan, assignors to Kyoto Ceramic Kabushiki Kaisha, Japan

Filed Nov. 20, 1979, Ser. No. 96,237

Claims priority, application Japan, Nov. 25, 1978, 53/145794

Int. Cl.³ B32B *3/02, 3/30*

U.S. Cl. 428—192 **8 Claims**



1. A ceramic substrate having an integral convex portion formed on the end faces of the outer circumference of the substrate, wherein said convex portion is disposed such that when said substrate comes into end face contact with a second substrate also having such a convex portion, the convex portions of each substrate will contact each other thereby reducing the likelihood of damage to said substrate

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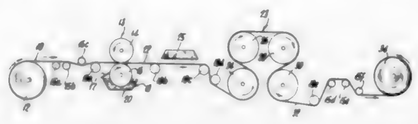
BONDING OF LIGHTWEIGHT TISSUE PAPER

Norman J. Friedman, Monmouth Junction, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Feb. 1, 1978, Ser. No. 874,166

Int. Cl.³ B05D *3/02, 5/00;* **B32B** *3/00, 7/00*

U.S. Cl. 428—211 **8 Claims**



1. Process for bonding lightweight, soft, and absorbent tissue paper to improve both wet and dry tensile strength while retaining softness and absorbency, which process comprises the steps of:

(a) applying an aqueous composition containing a curable resin binder to a dry web of lightweight, soft, and absorbent tissue paper; and

(b) subjecting the product of step (a) to elevated temperature to cure said resin binder and evaporate the water from said aqueous composition, wherein said aqueous composition contains:

(i) at least one polymer in latex form, said polymer being capable of self-crosslinking, or said polymer being capable of cross-linking by reacting with an aminoplast resin;

(ii) an aminoplast resin, said aminoplast resin being heat-curable, wherein the rate of cure of said aminoplast resin is

acceleratable in the presence of acid;

(iii) urea;

(iv) diammonium phosphate; and

(v) ammonium bromide.

5. The product produced by the process of claim 1.

4,277,530

ELECTRICAL STEEL LAMINATION

Robert F. Miller, New Kensington, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Sep. 10, 1979, Ser. No. 73,812

Int. Cl.³ B32B *15/18;* **H01F** *27/24*

U.S. Cl. 428—216 **17 Claims**

1. A laminated article for electrical applications comprising:

at least two sheets of electrical steel strip material, each having a thickness of less than 0.020 inch, each sheet being electrically isolated by a coating,

a thermoplastic adhesive layer having a thickness less than or equal to 0.001 inch between adjacent sheets, bonding the adjacent sheets to one another with a bond strength of at least 1,000 pounds per square inch as measured in uniaxial tension, without creating significant compressive stress in the plane of the sheets, said adhesive characterized by substantially instantaneous bonding at a temperature of less than 750° F.

16. A laminated article for electrical applications comprising:

at least two sheets of grain oriented silicon steel, each sheet having a thickness of less than 0.015 inch, each sheet being electrically isolated by a coating, and

a thermoplastic adhesive layer having a thickness less than or equal to 0.001 inch between adjacent sheets, bonding the adjacent sheets to one another with bond strength of at least 2,000 pounds per square inch as measured in uniaxial tension, without creating compressive stress in excess of

1,000 pounds per square inch in the plane of the sheets, and said adhesive characterized by substantially instantaneous bonding at a temperature of less than 750° F.

4,277,531

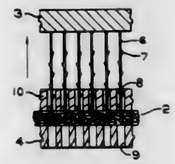
HIGH STRENGTH FIBER GLASS REINFORCED THERMOPLASTIC SHEETS AND METHOD OF MANUFACTURING SAME INVOLVING A REVERSE BARB NEEDLING PROCEDURE

Charles E. Picone, Shelby, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 6, 1979, Ser. No. 64,158

Int. Cl.³ B32B *5/06, 17/04;* **D04H** *3/10, 3/12*

U.S. Cl. 428—228 **8 Claims**



1. A fiber glass continuous strand mat suitable for reinforcing a resin matrix comprising a mat of continuous glass strands having at least two overlying layers of continuous glass strands and having continuous glass strands and/or filaments oriented in a direction transverse to the mat length, said continuous glass strands and/or filaments so oriented being entangled in the continuous glass strands forming the major portion of the mat and wherein one surface of the mat contains little or no glass filaments at that surface which are not in continuous form.

4. A fiber glass reinforced thermoplastic resin sheet having as primary reinforcement a fiber glass continuous strand mat in which a significant portion of the fiber glass continuous strand mat has fiber glass strands and filaments oriented in a direction transverse to the mat length and wherein the said fiber glass strands and filaments so disposed are entangled in the fiber glass continuous strands forming the major portion of the mat and wheren one surface of the mat contains little or no fiber glass fibers at the surface which are not in continuous strand form.

5. In the needling of a fiber glass continuous strand mat wherein a plurality of needles are passed through a mat surface as mat is advanced through a needling zone to thereby entangle glass strands in the continuous strand mat the improvement comprising:

penetrating the mat on the downward stroke of the needling machine with a needle that does not entangle any strands during said downward stroke but which penetrates the mat;

entangling strands of the mat in the needle during the upward stroke of the needling machine to move strands in the mat in contact with each needle vertically to orient such entangled strands in a direction vertical to the long axis of the mat and disengaging the strands so moved from the needle as it leaves the surface of the mat while providing for little or no fracturing of the strands so moved.

4,277,532

THERMALLY EXPANDABLE SEALANTS

Hubert Czepel, Linz; Franz Jilek, Gallneukirchen, and Heinz Zochbauer, Linz, all of Austria, assignors to Chemie Linz Aktiengesellschaft, Linz, Austria

Filed Aug. 27, 1979, Ser. No. 70,373

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1978, 2841907

Int. Cl.³ B65D *53/06;* **B32B** *5/16*

U.S. Cl. 428—244 **5 Claims**

1. A thermally expandable sealant having good flow and creep for the sealing of joints, cavities or holes, which comprises as a carrier a fleece or fabric, made of glass or plastics material, which is coated with a composition based upon expandable graphite and containing, per 100 parts by weight of expandable graphite, 10 to 30 parts by weight of polychlorobutadiene, 1 to 40 parts by weight of an alkylphenol/formaldehyde resin and 1 to 3 parts by weight of stabilizers known per se.

4,277,533

WATERPROOFING SHEET MATERIAL

Charles A. Kumins, Gates Mills, and Milan L. Warford, Shaker Heights, both of Ohio, assignors to Tremco, Inc., Cleveland, Ohio

Division of Ser. No. 887,292, Mar. 16, 1978, which is a continuation-in-part of Ser. No. 798,566, May 19, 1977, abandoned. This application Oct. 26, 1979, Ser. No. 88,401

Int. Cl.³ B32B *9/04, 27/32;* **C08L** *91/00*

U.S. Cl. 428—332 **6 Claims**

1. A self-supporting sheet material suitable for use as a waterproofing membrane in roofing and other structural applications, said sheet having a thickness within the range of about 20 to about 90 mils and being composed of from about 15 wt.% to about 80 wt.% of a homopolymer of an alkene or a substituted alkene selected from the group consisting of polyethylene, chlorosulfonated polyethylene and polyisobutylene, and from about 85 wt.% to about 20 wt.% of a plasticized polyvinyl butyral resin.

4,277,534

ELECTRICAL INSULATING COMPOSITION COMPRISING AN EPOXY RESIN, A PHENOLIC RESIN AND A POLYVINYL ACETAL RESIN IN COMBINATION

Ralph G. Flowers, Pittsfield, Mass., assignor to General Electric Company, New York, N.Y.

Filed Dec. 12, 1979, Ser. No. 103,080

Int. Cl.³ B32B *15/02, 15/08;* **H01B** *3/36, 3/40, 3/42*

U.S. Cl. 428—379 **8 Claims**



1. A transformer wire having an insulating coating thereon, said coating having the composition defined within the accompanying triaxial diagram of FIG. 2 with the proviso that the composition contains from 10 to up to but not inclusive of 30% by weight epoxy resin.

3. A method for preparing electrical insulating coatings for transformer wires comprising the steps of:

preparing a composition from 10 to up to but not inclusive of 30 percent by weight epoxy resin, 24–38 percent phenolic resin and 36 to 66 percent polyvinyl acetal resin;

applying the composition to the transformer wire;

heating the coated transformer wire to a first temperature to fuse the coating; and

heating the coated wire to a second temperature to cause the coating to react.

4,277,535

MODIFIED PHENOLIC ALDEHYDE RESIN TO PRODUCE AN IMPROVED ADHESIVE COATING AND METHOD OF MAKING SAME

Mikhail M. Girgis, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 956,455, Oct. 31, 1978. This application Jan. 8, 1979, Ser. No. 47,594

Int. Cl.³ D02G *3/00*

U.S. Cl. 428—389 **15 Claims**

1. A glass fiber cord having thereon the dried residue of an adhesive coating composition for binding glass fibers to rubber giving improved adhesion and decreasing the blowhole phenomenon, where the adhesive coating composition, comprises:

about 4 to about 20 weight percent of a resorcinol aldehyde resin modified with about 1 to about 10 weight percent of the resin of urea or thiourea or mixture thereof, and about 80 to about 90 weight percent of an elastomeric latex or mixture of latices wherein the adhesive coating composition is prepared by:

a. reacting resorcinol with an aldehyde selected from the group consisting of formaldehyde, paraformaldehyde, acetaldehyde, and mixture of one or more of these with hexamethoxymethylmelamine, or hexamethyltetramine and with urea or thiourea or mixture of urea and thiourea in an amount so that the ratio of said resorcinol to aldehyde is in the range of about 0.2 to about 2.0 and the ratio of said resorcinol to urea or thiourea or mixture thereof is in the range of about 0.2 to about 2.0 and the ratio of urea, thiourea or mixture thereof to the aldehyde is in the range of about 0.5 to about 5.0 in an acid or basic pH environment to produce a water-soluble, thermoplastic urea, thiourea, or mixture thereof modified resorcinol aldehyde resin,

b. combining the urea and/or thiourea modified resorcinol aldehyde resin produced in step "a" with an elastomeric latex or mixture of elastomeric latices.

2. A glass fiber cord having thereon the dried residue of an adhesive coating composition for binding glass fibers to rubber giving improved adhesion and decreasing the blowhole phenomenon, where the adhesive coating composition, comprises:

about 4 to about 20 weight percent of a phenolic aldehyde resin modified with about 1 to about 10 weight percent of the resin of thionamide having 1 to 6 carbon atoms or a mixture of thionamide and urea or thiourea, and about 80 to about 90 weight percent of an elastomeric latex or mixture of latices wherein the adhesive coating composition is prepared by:

a. reacting the phenolic compound with the aldehyde selected from the group consisting of formaldehyde, paraformaldehyde, acetaldehyde, and mixture of one or more of these with hexamethoxymethylmelamine or hexamethyltetramine and with thionamide having 1 to 6 carbon atoms or a mixture of the thionamide with urea or with thiourea or mixture thereof in an amount so that the ratio of the phenolic compound to aldehyde is in the range of about 0.2 to about 2.0 and the ratio of said phenolic compound to thionamide or mixture of thionamide and urea and/or thiourea is in the range of about 0.2 to about 2.0 and the ratio of thionamide or mixture of thionamide and urea and/or thiourea to the aldehyde is in the range of about 0.5 to about 5.0 in an acid or basic pH to produce a water soluble, thermoplastic thionamide or mixture of thionamide, urea and/or thiourea, modified phenolic aldehyde resin,

b. combining the modified phenolic aldehyde resin of step "a" with an elastomeric latex or a mixture of elastomeric latices.

4,277,536

BEAD POLYMERS OF VISCOUS DIMETHACRYLATES

Wolfgang Podszun, Cologne; Carlhans Süling, Odenthal; Michael Walkowiak, Leverkusen, and Hans H. Schulz, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,272

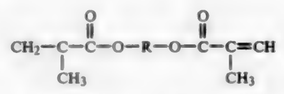
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849280

Int. Cl.³ B32B *27/28, 27/30;* C08F *20/20*

U.S. Cl. 428—402 **4 Claims**

1. A bead having a mean bead diameter of from 10 to 200 microns, said bead comprising

(a) 100 to 80% by weight of polymerized viscous dimethacrylate of the formula



wherein R is the residue of a diol, said viscous dimethylacrylate having a viscosity of from 0.5 to 500 Pa.s. measured at 25° C. using a rotary viscosimeter, and

(b) 0 to 20% by weight of at least one other copolymerized vinyl monomer.

4,277,537

PAINT COMPOSITION FOR THE SPECTRALLY SELECTIVE COATING OF METAL SURFACES, METHOD OF PRODUCING COATINGS THEREWITH AND AN ARTICLE PRODUCED THEREBY

Trevor P. Woodman, Im Breiteli 16, 8117 Fällanden, Switzerland

Filed Jan. 12, 1979, Ser. No. 3,127

Claims priority, application Switzerland, Feb. 18, 1978, 1734/78

Int. Cl.³ C08K *3/20*

U.S. Cl. 428—409 **14 Claims**

1. A paint composition for the spectrally selective coating of metal surfaces, comprising a pigment and a binder, said pigment comprising at least one metal oxide in powder form having a good transparency for heat radiation, said binder containing glycerol and said binder undergoes a physical or chemical change upon thermal conditioning thereof, the binder after conditioning, holding the pigment in place on a metal surface, such that a layer of the paint composition, after having been applied to the metal surface and conditioned, gives such metal surface at least a medium selectivity of between about 2.5 to 5.

11. A method for the fabrication of a body with a spectrally selective surface coating comprising the steps of:

providing a substrate having a metal surface which is to accept a paint composition;

coating a paint composition as an outer layer onto the metal surface of the substrate;

said paint composition comprising at least one metal oxide pigment in powder form having good transparency for heat radiation and a glycerol-containing binder which undergoes a physical or chemical change upon conditioning, holds the pigment in place on the metal surface; and

thermally conditioning the applied paint layers in a short period of time to thereby impart to the metal surface at least a medium selectivity of between about 2.5 to 5.

14. A body with spectrally selective surface coating made in accordance with claim 11.

4,277,538

METHOD OF MANUFACTURING LAMINATED SAFETY GLASS

Rolf Beckmann, Siegburg, and Wilhelm Knackstedt, Hennef, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Continuation of Ser. No. 738,402, Nov. 3, 1976, abandoned. This application Jan. 24, 1980, Ser. No. 114,801

Claims priority, application Fed. Rep. of Germany, Nov. 5, 1975, 2549474

Int. Cl.³ B32B *9/04, 17/06, 17/10*

U.S. Cl. 428—429 **35 Claims**

22. A laminate comprising a pair of silicate glass sheets bonded to a plasticized plastic sheet of a vinyl chloride containing polymer, said plasticized sheet containing a functional silane therein.

4,277,539

REFRACTORY ARTICLES AND COMPOSITE METAL-CERAMIC ARTICLES (CERMETS) PREPARED FROM A SILICATE-CONTAINING ALUMINUM TITANATE

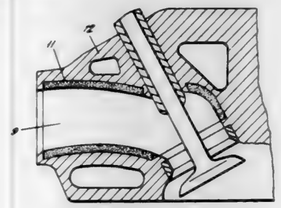
Hartmut Keller; Axel Krauth; Horst R. Maier; Horst Nink; Hans J. Pohlmann, all of Selb/Bayern; Horst Reddig, Marktredwitz, and Johann Siebels, Wolfsburg, all of Fed. Rep. of Germany, assignors to Rosenthal Technik AG, Fed. Rep. of Germany

Continuation of Ser. No. 957,917, Nov. 6, 1978, abandoned. This application May 2, 1980, Ser. No. 146,073

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1977, 2750290

Int. Cl.³ B32B *15/04;* C04B *35/44, 35/46*

U.S. Cl. 428—450 **6 Claims**



1. An article having a thermal shock coefficient R of 130 to 180 (W/cm), a heat insulation factor λ of 0.01 to 0.03 (W/cm K), a coefficient of expansion AK of $\pm 0.5 \times 10^{-6}$/°C., an elasticity modulus of approximately 1.4×10^3 (g/mm²) and a transverse strength δ_B of about 4.4 (g/mm²) and a crushing strength δ_D of about 77 (g/mm²), the article being non-wettable in respect to most NE metals and being alkali-resistant prepared from a silicate-containing aluminum titanate of raw ingredients having a grain size of below 0.6 μm and a chemical composition consisting essentially of from 50 to 60 weight % Al_2O_3, 40 to 45 weight % TiO_2, 2 to 5 weight % kaolinite and 0.1 to 1 weight % sepiolite.

4,277,540

THIN FILM MAGNETIC RECORDING MEDIUM

Harry E. Aine, 1804 Stierlin Rd., Mountain View, Calif. 94040

Continuation-in-part of Ser. No. 139,887, May 3, 1971, abandoned. This application Oct. 29, 1976, Ser. No. 736,814

Int. Cl.³ B32B *15/04*

U.S. Cl. 428—627 **1 Claim**

1. In a thin film magnetic recording medium, a substrate member, a film of magnetic recording material overlaying said substrate, and a protective film plating of material overlaying said film of magnetic recording material, such protective film plating material forming a non-particulate continuous plated film selected from the class consisting of tantalum, niobium, tungsten, refractory carbides and refractory nitrides.

4,277,541

PROTECTION OF ANHYDRIDE COPOLYMERS

Vincent A. Aliberti, Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 1, 1979, Ser. No. 80,849

Int. Cl.³ B32B *27/08;* B05D *3/02;* B28B *1/24;* B29F *1/00*

U.S. Cl. 428—518 **10 Claims**

1. A process for the protection of the surface of a polymer comprising a vinylaromatic monomer and from 5 to 40 percent by weight of units derived from maleic anhydride which comprises applying to said surface a coating composition comprising a polymer with pendant hydroxyl groups.

2. A process according to claim 1 which comprises applying an aqueous solution of a polyvinyl alcohol to the surface of a polymer comprising a rubber-modified copolymer of styrene and maleic anhydride and heating to remove the solvent and adhere the coating to the polymer surface.

9. A process according to claim 1 in which the polymer comprising pendant hydroxyl groups is applied as a solution to the surface of the maleic anhydride polymer.

10. An article wherein the surface is protected by a process according to any one of claims 1, 9 and 2.

4,277,542

RESISTANCE MATERIAL

Alexander H. Boonstra; Cornelis A. H. A. Mutsaers, and Franciscus N. G. R. van der Kruijs, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 12, 1979, Ser. No. 74,598

Claims priority, application Netherlands, Sep. 20, 1978, 7809554

Int. Cl.³ B32B *15/00*

U.S. Cl. 338—308 **5 Claims**

1. A resistance material consisting essentially of a mixture of at least one metal oxidic compound, a permanent binder and a temporary binder, at least one metal oxide and, as a resistance determining component, a barium-rhodate of the formula $BaRh_6O_{12}$.

5. A novel compound having the formula $BaRh_6O_{12}$.

4,277,543

ANODE FOR SOLID ELECTROLYTIC CAPACITOR AND METHOD FOR MAKING THE SAME

Koreaki Nakata, Takarazuka; Masahiro Oita, Kashiwara, and Hyogo Hirohata, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Nov. 26, 1979, Ser. No. 97,721

Claims priority, application Japan, Nov. 25, 1978, 53/145483; Apr. 10, 1979, 54/44068

Int. Cl.³ B22F *3/00, 5/00*

U.S. Cl. 428—546 **8 Claims**

1. An anode for a solid electrolytic capacitor consisting essentially of a porous sintered body made of tantalum powder particles, said particles having a layer of at least one metal selected from the group consisting of V, Mo and Pd thereon.

4. A method for making an anode for a solid electrolytic capacitor, comprising: coating the surface of a tantalum powder with at least one metal selected the group consisting of V, Mo and Pd; pressing the thus coated tantalum powder into a pressed body having a lead wire embedded therein; and sintering said pressed body in a vacuum or inert atmosphere.

4,277,544

POWDER METALLURGICAL ARTICLES AND METHOD OF BONDING THE ARTICLES TO FERROUS BASE MATERIALS

Thomas W. Pietrocini, Solon, Ohio, assignor to IPM Corporation, Columbus, Ohio

Filed Jan. 29, 1979, Ser. No. 7,067

Int. Cl.³ B22F *5/00*

U.S. Cl. 428—547 **12 Claims**

1. A ferrous base powder metallurgical article with an initial

part density of from about 5.8 to about 6.8 grams per cubic centimeter having a controlled area, including a contact area at which the part is adapted to be bonded to another material and at least a 0.025 inch margin of the surface of the article about the contact area surface, densified to at least 92% of full density to seal the interconnected porosity of the powder metallurgical material, with the increased densified area extending to a subsurface depth of at least 0.025 inch and less than 0.250 inch, while retaining the initial part density throughout the balance of the article.

5. A method of forming a powder metallurgical part having a controlled area, including a contact area at which the part is adapted to be welded to another ferrous base material and at least a 0.025 inch surface margin laterally continguous to the contact area, comprising:

compressing a ferrous base powder into a precision part having a density of at least 75% of theoretical full density,

heat treating the precision article, and

subsequently applying inwardly directed localized surface pressure against the controlled area to provide at least a 92% dense surface area at the controlled area to a subsurface depth of from about 0.025 to about 0.250 inch, while substantially retaining the initial part density throughout the balance of the article.

9. A method of welding a ferrous base powder metallurgical part to a second ferrous base material comprising:

compressing a ferrous base powder into a precision part having a density of at least approximately 75% of theoretical full density, said part having a controlled area including a contact area at which the powder metal part is adapted to be welded to another part, and at least a 0.025 inch margin about the contact area,

subsequently applying inwardly directed, localized surface pressure against the controlled area to provide at least 92% dense controlled area at and about the contact area to a subsurface depth of from at least 0.025 to about 0.250 inch, and

welding the powder metallurgical part to the ferrous base material at the contact area.

4,277,545

NONAQUEOUS CELL

Tibor Kalnoki-Kis, Westlake, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 52,467, Jun. 27, 1979. This application May 6, 1980, Ser. No. 147,218

Int. Cl.³ H01M 6/14

U.S. Cl. 429—48 **14 Claims**

1. A nonaqueous cell comprising an active metal anode; a cathode collector; an ionically conductive cathode-electrolyte solution comprising a solute dissolved in an active liquid cathode; and wherein a vinyl polymer is dissolved in the cathode-electrolyte.

4,277,546

SEALED LEAD-ACID STORAGE BATTERY

Vyacheslav Z. Barsukov, ulitsa Gogolya, 6, kv.34; Sergei A. Dunovsky, prospekt Gagarina, 92, kv. 16; Lenik N. Sagoian, ulitsa Chersynhevskogo, 15, kv. 44, all of Dnepropetrovsk; Anatoly I. Trepalin, ulitsa Novoslexeevskaya, 11, kv. 58, Moscow; Igor A. Agaf, prospekt Metallistov, 18, kv. 79, Leningrad, and Valentina S. Smolkova, Revprospekt,32/2, kv. 79, Podolsk Moskovskoi oblasti, all of U.S.S.R.

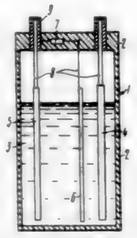
Filed Jan. 25, 1980, Ser. No. 115,372

Claims priority, application U.S.S.R., May 23, 1979, 2761312

Int. Cl.³ H01M 10/34

U.S. Cl. 429—59 **7 Claims**

1. A hermetically sealed lead-acid storage battery which evolves gas during charging, said battery comprising a hermetically sealed container, a lead dioxide cathode located in said container, a lead anode located in said container, a gas absorbing electrode located in said container, said gas absorbing electrode consisting essentially of 20–80% by weight of an electrically conductive carbonaceous material and 80–20% by weight of a slightly water soluble quinoid compound having a low oxidation potential, and a liquid acid electrolyte located in said container and partially filling the same so as to define a gas



space in said container, said cathode, anode and gas absorbing electrode being in contact with the electrolyte and with the gas space, whereby upon charging of the battery gas formed in the container is absorbed by said gas absorbing electrode.

4,277,547

ALKALINE BATTERY SPEARATOR

Scott A. Verzwyvelt, Newbury Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 10, 1980, Ser. No. 128,747

Int. Cl.³ H01M 2/16

U.S. Cl. 429—251 **7 Claims**

1. An alkaline storage cell separator that is gas permeable, structurally strong, chemically inert, with respect to aqueous alkaline electrolyte solutions, thermally stable and wettable in aqueous alkaline electrolyte solutions comprising a fabric felt of chemically inert organic fibers and porous inert inorganic metal oxide particles, wherein said fibers are characterized by non-wettable cutter surfaces which form intertestices at irregular intervals throughout said felt and wherein said oxide particles are sintered onto said surfaces to thereby form a wettable granular second surface which provides a means for retaining said electrolyte while allowing ions and gases to pass through said intertestices.

4,277,548

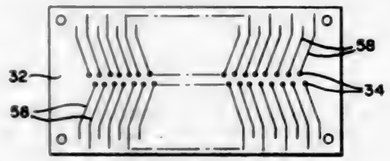
METHOD OF PRODUCING A CHARGE PLATE FOR USE IN AN INK RECORDER

James L. Vedder, Sunland, Calif., assignor to The Mead Corporation, Dayton, Ohio

Filed Dec. 31, 1979, Ser. No. 108,604

Int. Cl.³ G03F 7/22

U.S. Cl. 430—22 **3 Claims**



1. Method of producing a charge plate for an ink jet printer comprising the steps of:

(a) fabricating a master plate including a series of regularly spaced recesses,

(b) casting an elastomeric molding material against said master plate and into said recesses, thereby producing an elastomer mold comprising a base and a series of pins projecting outwardly from said base,

(c) separating said mold from said master,

(d) casting a curable, nonconductive plastic material against said mold,

(e) curing said plastic casting material to define a plastic charge plate structure having a series of regularly spaced charging tunnels,

(f) separating said charge plate structure from said mold,

(g) plating the surface of said charge plate structure with a layer of electrically conductive material,

(h) generating a positive working photographic master of the electrical lead artwork pattern for said charge plate utilizing said master plate, and

(i) forming an electrical lead extending from each of said charging tunnels by transferring said electrical lead artwork pattern to said charge plate structure and etching away said layer of electrically conductive material from the areas around said pattern.

4,277,549

COPY IMAGE ADJUSTMENT METHOD

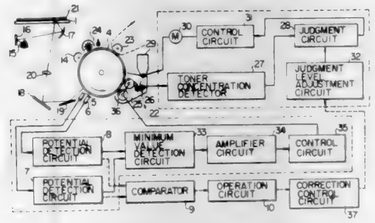
Susumu Tatsumi, Hino; Tadahiro Eda, Narashino, and Chikara Imai, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Japan

Filed Apr. 17, 1979, Ser. No. 30,896

Claims priority, application Japan, Apr. 26, 1978, 53-50323

Int. Cl.³ G03G 13/06

U.S. Cl. 430—30 **10 Claims**



1. A copy image adjustment method for correcting copy image development characteristics for use in electrophotography comprising:

making a first standard copy image by copying a standard original;

copying said first standard copy image to make a second image;

detecting the image density of said standard copy during the copying process thereof to produce a detecting signal corresponding to the image density; and

resetting the development characteristics according to the detecting signal which is produced when the image density of said standard copy is detected.

4,277,550

PHOTOSENSITIVE SCREEN FOR ELECTROGRAPHIC APPARATUS

Masaji Nishikawa, and Norio Amemiya, both of Hachioji, Japan, assignors to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 820,027, Jul. 28, 1977, abandoned. This application Mar. 30, 1979, Ser. No. 25,597

Claims priority, application Japan, Aug. 25, 1976, 51-100493

Int. Cl.³ G03G 15/00, 5/04

U.S. Cl. 430—68 **4 Claims**

1. In a photosensitive screen for an electrographic apparatus comprising an electrically conductive mesh coated on one side with an insulating layer and an electrically conductive layer superimposed one upon the other in the order as mentioned and coated on the other side with a photosensitive layer, the improvement comprising: further providing an insulating thin film layer having a thickness of less than 1μ and covering at least that surface of said electrically conductive layer which makes contact with surrounding atmosphere to protect it against the surrounding atmosphere and improve its durability.

4,277,551

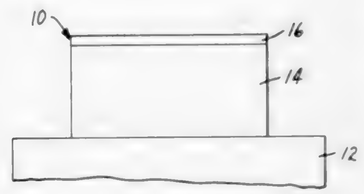
ELECTROPHOTOGRAPHIC PLATE HAVING CHARGE TRANSPORT OVERLAYER

Terry J. Sonnonstine, White Bear Lake, and Kenneth G. Kneipp, Maplewood, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 20, 1979, Ser. No. 67,883

Int. Cl.³ G03G 13/14, 5/04; G03B 21/00

U.S. Cl. 430—120 **14 Claims**



8. A method of imaging comprising

(a) providing an electrophotographic plate having a conductive substrate, a photoconductive-insulative layer overlying the substrate, and an electron transport layer overlying the photoconductive-insulative layer, the photoconductive-insulative layer comprising vitreous selenium and tellurium and alloys thereof, in which selenium is present in an amount within the range of 90 and 97.5 atomic percent and the electron transport layer comprising a coating of not greater than 35 weight percent of an aromatic or or heterocyclic organic electron acceptor dispersed in an organic binder, the photoconductive insulative layer having a thickness within the range of 40–100 μm and the electron transport layer having a thickness within the range of 1–5 μm such that the ratio of the thickness of the electron transport layer to that of the photoconductive-insulative layer is between 1:8 and 1:100,

(b) uniformly charging the plate to a predetermined positive potential, and

(c) exposing the plate to a source of radiation to which the transport layer is substantially transparent and to which the photoconductive-insulative layer is responsive to result in the photo-generation of electron-hole pairs such that said radiation passes through the transport layer and causes said electron-hole pairs to be generated, said electrons and holes then being transported to form a latent electrostatic charge image on the surface of the plate.

4,277,552

MAGNETIC DEVELOPING PROCESS AND TONER CONTAINING HIGH COERCIVE FORCE MAGNETIC POWDER

Masumi Asanae, and Kohji Noguchi, both of Kumagaya, Japan, assignors to Hitachi Metals, Ltd., Japan

Continuation-in-part of Ser. No. 23,000, Mar. 22, 1979, abandoned. This application Dec. 3, 1979, Ser. No. 99,853

Claims priority, application Japan, Mar. 23, 1978, 53-33530

Int. Cl.³ G03G 13/09

U.S. Cl. 430—122 **10 Claims**

1. In a process for developing latent electrostatic images with a single component toner consisting essentially of a resin which is solid at ambient temperature and rendered molten under heating, coloring material, and a ferromagnetic powder, the toner being used in a developing apparatus having a latent image-bearing material for carrying the latent images and a magnet roll which includes a cylindrical rotatable shell and a rotatable permanent magnet member positioned coaxially

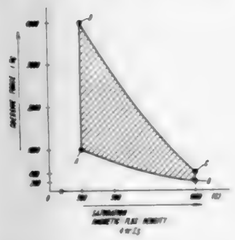
within the shell, the permanent magnet member having a plurality of adjacent axially extending magnetic poles, the process including the steps of

(a) attracting the toner to the surface of the magnet roll shell;

(b) conveying the single component magnetic toner on the shell surface to the latent image-bearing material having the electrostatic latent images previously disposed thereon by rotating at least one of the shell and the permanent magnet member to form a magnet brush of the single component magnetic toner;

(c) inducing an electric charge on the magnetic toner in the magnet brush on the shell surface adjacent the latent image-bearing material by subjecting the brush to the electric field due to the electric charge of the electrostatic latent images; and

(d) rubbing the image-bearing material by the magnet brush to adhere the charged magnetic toner onto the electrostatic latent images on the image-bearing material by the attraction force between the charge induced in the toner and that of the electrostatic latent images, the improvement comprising the initial step of selecting the magnetic toner and the permanent magnet member in respect to one another according to the following relation:



(i) the permanent magnet member to produce a magnetic field strength of at least about 400 gauss at its peak value on the shell surface;

(ii) the magnetic toner to comprise at most about 55%, by weight, of ferromagnetic powder; and

(iii) the magnetic toner to have saturated magnetic flux density $4\pi Is$ of a value between about 300 and 1,000 gauss and a magnetic property, in the relation between the saturated magnetic flux density $4\pi Is$ and the coercive force iHc of the magnetic toner, lying within the region on a graph of coercive force iHc, in oersteds, vs. saturation flux density $4\pi Is$, in gauss, above a line connecting a point where iHc is 1,000 oersted for $4\pi Is$ at 300 gauss and a point where iHc is 200 oersted for $4\pi Is$ at 300 gauss and below a line connecting a point where iHc is 400 oersted for $4\pi Is$ at 300 gauss and a point where iHc is 400 oersted for $4\pi Is$ at 1,000 gauss.

4,277,553

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL

Kaoru Onodera; Noboru Mizukura, and Ryuichiro Kobayashi, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

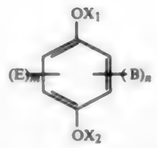
Filed Sep. 19, 1979, Ser. No. 76,543

Claims priority, application Japan, Sep. 20, 1978, 53-115454

Int. Cl.³ G03C *5/54, 1/10*

U.S. Cl. 430—216 **18 Claims**

1. A light sensitive color photographic material comprising a support and at least one hydrophilic colloid layer coated thereon which comprises a light-sensitive silver halide emulsion and an image dye-forming substance associated with said silver halide emulsion and, as a color fog inhibiting agent, a compound of the formula



wherein E is nitro, cyano, formyl, trihalogenomethyl, COR_7, or SO_2R_8, wherein R_7 is alkyl and R_8 is aryl, B is halogen, alkyl, aryl, alkoxy, alkenyl, cycloalkyl, aryloxy, carbamoyl, amido, or sulfamoyl, X_1 and X_2 are individually hydrogen or a group which is capable of being split off under alkaline conditions, m and n are 1–3, provided that at least one B is alkyl having 8–36 carbon atoms and m+n=2–4.

4,277,554

RESIN WITH A THIETANE RING, CROSSLINKABLE BY ELECTRON PHOTON IRRADIATION, AND PROCESS FOR USING SUCH A RESIN

Armand Eranian; Jean-Claude Dubois; André Couttet, and Evelyne Datamanti, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 14, 1979, Ser. No. 93,972

Claims priority, application France, Nov. 14, 1978, 78 32109

Int. Cl.³ B05D *3/06*

U.S. Cl. 430—270 **15 Claims**

1. A resin crosslinkable by electron or photon irradiation, comprising at least one substance the chemical formula of which contains a thietane ring:



13. Process for using a resin according to claim 1, for the purpose of forming a mask intended for the production of electronic components, comprising at least the following steps:

(a) dissolving the resin in a predetermined quantity of solvent;

(b) applying the solution thus obtained in a thin layer over a predetermined part of an electronic component substrate;

(c) treating predetermined portions of said substrate by irradiation.

4,277,555

ALUMINUM LITHOGRAPHIC PLATE WITH VISIBLE IMAGE AND PROCESS

Howard A. Fromson, 15 Rogues Ridge Rd., Weston, Conn. 06880, and Robert F. Gracia, Scituate, Mass., assignors to Howard A. Fromson, Weston, Conn.

Filed Oct. 12, 1979, Ser. No. 85,145

Int. Cl.³ G03C *1/94*; G03F *7/02*

U.S. Cl. 430—278 **5 Claims**

1. Lithographic substrate comprising an aluminum plate which has been treated with an alkali metal silicate to render the surface hydrophilic and negatively charged and thereafter ionically colored with a cationic dye.

4,277,556

PROCESS FOR TREATING LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Sigeharu Koboshi; Isamu Fushiki, both of Hino, and Kenro Sakamoto, Odawara, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Aug. 15, 1977, Ser. No. 824,817

Claims priority, application Japan, Aug. 18, 1976, 51-98367; Dec. 16, 1976, 51-151339; Jan. 3, 1977, 52-66125

Int. Cl.² G03C *5/32, 7/16*

U.S. Cl. 430—393 **17 Claims**

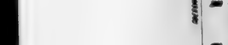
1. A method for processing a light-sensitive silver halide color photographic material which has been exposed to an image which comprises removing, after color development of said exposed light-sensitive silver halide color photographic material, the image silver with a bleach-fixing bath having a pH of between 2.0 and 5.5 and containing (i) hydrogen peroxide or sodium perborate in an amount of 0.05 mole to 3.0 moles/l and (ii) at least one organic acid or salt thereof selected from the group consisting of

lower aliphatic carboxylic acids having the general formula I or II and alkali metal salts, other than metal complex salts, of said carboxylic acids.

formula I

wherein R_1 is a hydrogen atom or an alkyl group having 1 to 3 carbon atoms which may may be substituted with one or more of hydroxyl, alkyl having 1 to 3 carbon atoms and amino radicals;

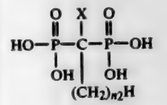
formula II



wherein R_2 is an alkylene or alkenylene group having 1 to 5 carbon atoms, each of which may be substituted with one or more of hydroxyl, alkyl having 1 to 3 carbon atoms, carboxyl and amino radicals, and n_1 is zero or 1; and

alkylidene diphosphonic acids having the general formula III and alkali metal salts thereof

formula III



wherein X is a hydrogen atom or hydroxyl, and n_2 is zero or an integer from 1 to 5.

the amounts of said aliphatic carboxylic acids of the formula I or II and said alkylidene diphosphonic acids of the formula III being 0.05 mole to 3.0 moles/l and 0.01 to 1.0 mole/l, respectively.

4,277,557

PHOTOGRAPHIC MATERIAL CONTAINING A STABILIZING AGENT

Gerhard Jäger, Wuppertal; Anita von König, Krefeld; Werner Liebe, Leverkusen, and Armin Voigt, Cologne, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

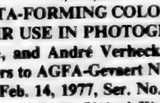
Filed Dec. 11, 1978, Ser. No. 968,269

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2756030

Int. Cl.³ G03C *1/34*

U.S. Cl. 430—446 **8 Claims**

8. In a process for the production of photographic images by imagewise exposure of photographic material which contains at least one silver halide emulsion layer, development and stabilization of the silver halide, the improvement according to which development is carried out with a composition containing in a stabilizing amount at least one compound corresponding to the following formula or a salt thereof:



in which

R^1 represents an alkyl, aralkyl or pyridyl group or aryl which may be substituted with halogen or with a nitro, phenyl, phenoxy, alkyl, CF_3O or CF_3 group;

R^2 represents a hydroxyl group or an imidazolyl group;

R^3 represents an aryl group, which may be substituted with an alkyl group having from 1–4 carbon atoms or with halogen or with a nitro group,

Hal represents halogen

or a salt thereof, in an amount effective for stabilization of the silver halide.

4,277,558

LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Shoji Kikuchi; Toshio Yajima; Kenichi Kishi; Takashi Sasaki, all of Hino; Keiichi Mori, and Haruhiko Sato, both of Odawara, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed May 21, 1980, Ser. No. 151,941

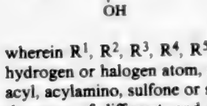
Claims priority, application Japan, Jun. 4, 1979, 54-69767

Int. Cl.³ G03C *1/02*

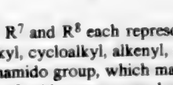
U.S. Cl. 430—542 **7 Claims**

1. A photographic material having a silver halide emulsion layer coated on a support, which contains a compound represented by the following general formula [I] and one represented by the following general formula [II]:

General formula [I]



General formula [II]



wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 each represent a hydrogen or halogen atom, an alkyl, cycloalkyl, alkenyl, aryl, acyl, acylamino, sulfone or sulfonamido group, which may be the same of different, and each of said groups may have a substituent which does not form a colored dye on reaction with an oxidation product of a developing agent.

4,277,559

NOVEL MAGENTA-FORMING COLOR COUPLERS AND THEIR USE IN PHOTOGRAPHY

Jan Jaeken, Hove, and André Verhecken, Mortsel, both of Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium

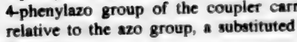
Filed Feb. 14, 1977, Ser. No. 768,192

Claims priority, application United Kingdom, Feb. 23, 1976, 7046/76

Int. Cl.³ G03C *1/40, 7/00*

U.S. Cl. 430—549 **5 Claims**

1. A photographic color element comprising a support and at least one silver halide emulsion layer comprising a colored 4-phenylazo-2-pyrazolin-5-one color coupler wherein the 4-phenylazo group of the coupler carries in the p-position relative to the azo group, a substituted alkoxy group of the formula:



wherein:

Alk represents a straight-chain or branched-chain alkylene group, which may carry an aryl substituent,

X represents a member of the group consisting of O, S, CO, SO_2, SO_2O, CONQ, NQCO, SO_2NQ, and $NQSO_2$, Q being hydrogen, alkyl or aryl, and

R represents an aryl group.

5. A photographic color element according to claim 1, wherein the emulsion layer comprises in addition to the 4- phenylazo-2-pyrazolin-5-one color coupler, a colorless 2-pyrazolin-5-one color coupler.

4,277,560

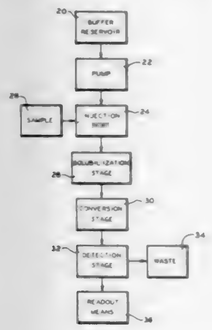
ENZYME IMMUNOASSAYS USING IMMOBILIZED REAGENTS IN A FLOWING STREAM

Don N. Gray, and Melvin H. Keyes, both of Sylvania, Ohio, assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Oct. 24, 1978, Ser. No. 954,269

Int. Cl.³ C12M *1/34;* **G01N** *33/54, 21/00*

U.S. Cl. 435—7 **24 Claims**



1. A method for quantitatively determining the amount of an antigen contained in a biochemical fluid comprising obtaining sample of said fluid and mixing it in a mixing zone with an aqueous solution, passing said sample-solution into a solubilization stage containing an immobilized antibody which is specific to said antigen, said immobilized antibody initially having an immunochemically equivalent amount of reversibly bound an antigen-enzyme complex wherein said antigen of said complex is the same as the antigen in the sample, maintaining said sample-solution in said solubilization stage for a period of time and under conditions sufficient for a competitive equilibrium reaction to take place between the said antigen and said bound antigen complex, thereby displacing a quantity of said bound antigen complex from said immobilized antibody into said sample-solution; passing said complex-containing sample-solution into a conversion stage containing a substrate capable of reacting with said enzyme of said complex to produce a measurable reaction product in said sample-solution; passing said measurable reaction product-containing sample-solution into a detection stage wherein said measurable reaction product is quantitatively measured to obtain a reading, and comparing said measured reading to the quantitative amount of antigen in said original sample.

16. An apparatus for the quantitative determination of an antigen contained in an aqueous biochemical sample, comprising in combination, a reservoir containing a buffer diluent solution, mixing means for said diluent solution and said sample after they are combined, solubilization means to receive the mixed diluent solution and sample containing immobilized antibody initially saturated with an immunochemically equivalent amount of antigen-enzyme complex reversibly bound thereon, conversion means to receive the stream from the solubilization means containing immobilized reagent capable of reacting with said complex to produce a measurable reaction product, detection means capable of monitoring said measurable reaction product to produce a reading relatable to the amount of said antigen.

23. A method for determining the presence of an antigen in a biochemical fluid, comprising:

a. contacting a sample of said fluid with an immobilized antibody specific to said antigen, said antibody initially having bound thereto an immunochemically equivalent amount of enzyme-antigen complex, the antigen of said complex corresponding to said antigen,

b. equilibrating said sample and said immobilized antibody under conditions sufficient to replace enzyme-antigen complex bound to said immobilized antibody with said antigen and thereby liberating a portion of said bound complexes

c. reacting said liberated enzyme-antigen complex with a reactive substrate to produce a detectable product, and

d. detecting the presence of said product.

4,277,561

SUPPORT FOR THE DETERMINATION OF ENZYME ACTIVITIES AND PROCESS

Daniel Monget, and Paul Nardon, both of Villeurbanne, France, assignors to Laboratoire de Recherche API, La Balme-les-Grottes, France

Filed Feb. 16, 1977, Ser. No. 769,277

Claims priority, application France, Feb. 19, 1976, 76 05165

Int. Cl.³ C12Q *1/54, 1/42, 1/00;* **C12M** *1/20*

U.S. Cl. 435—14 **16 Claims**

1. A support for the determination of enzyme activity in a biological extract comprising a fibrous material impregnated with a substrate labeled with a naphthol and a buffer solution selected from the group consisting of a first buffer solution suitable for a pH of enzyme activity over 7 and a second buffer solution suitable for a pH of enzyme activity of 7 or less and free from color developing agents; said fibrous material being loose in texture so as to be accessible both to products in solution and to said biological extract consisting of tissuey and cellular mash or whole cells and sufficiently fine to permit adsorption and uniform distribution of reagents over the area thereof; and said naphthol substrate originally being colorless or pale yellow so that any subsequent coloration of the substrate, which results from coupling of said naphthol released therefrom with a diazonium salt color-developing agent to indicate the presence of enzyme activity, is readily apparent.

5. An apparatus for determining enzyme activity in a biological extract comprising:

(a) a tray having a plurality of cups contained therein; and

(b) a plurality of discs located in the bottom of said cups, said discs being composed of a fibrous material impregnated with a substrate labeled with a naphthol and a buffer solution selected from the group consisting of a first buffer solution suitable for a pH of enzyme activity over 7 and a second buffer solution suitable for a pH of enzyme activity of 7 or less, and free from coloring agents; said fibrous material being loose in texture so as to be accessible both to products in solution and to biological samples of tissuey and cellular mash or whole cells and sufficiently fine to permit adsorption and uniform distribution of reagents over the area thereof and said naphthol substrate originally being colorless or pale yellow so that any subsequent coloration of the substrate, which results from coupling of the naphthol released therefrom with a diazonium salt color-developing agent to indicate the presence of enzyme activity, is readily apparent.

9. A method of determining enzyme activity comprising:

(a) preparing a biological extract of the enzyme whose activity is to be determined;

(b) depositing a sample of said extract on a support comprising a fibrous material impregnated with a substrate labeled with a naphthol and a buffer solution selected from the group consisting of a first buffer solution suitable for a pH of enzyme activity over 7 and a second buffer solution suitable for a pH of enzyme activity of 7 or less, and free from color-developing agents; said fibrous material being loose in texture so as to be accessible both to products in solution and to biological samples of tissuey and cellular mash or whole cells and sufficiently fine to permit adsorption and uniform distribution of reagents over the area thereof; said substrate originally being colorless or pale yellow so that any subsequent coloration of the substrate, which results from coupling of the naphthol released therefrom with a color-developing agent to indicate the presence of enzyme activity, is readily apparent;

(c) incubating said sample;

(d) depositing on said support a developing reagent comprising a wetting agent, a buffer suitable for use at the desired pH and a diazonium salt color-developing agent for coupling with said released naphthol whereby the reactions are brought to a pH optimal for the colorimetric reaction between said substrate and said color-developing agent;

(e) photochemically decomposing any unreacted color-developing agent; and

(f) comparing said color reactions to a color scale indicative of the activity of the enzyme.

4,277,562

STABILIZED LIQUID ENZYME AND COENZYME COMPOSITIONS

Ivan E. Modrovich, 1043 Mesa Dr., Camarillo, Calif. 93010

Continuation-in-part of Ser. No. 722,565, Sep. 13, 1976, abandoned. This application Dec. 20, 1977, Ser. No. 862,678

Int. Cl.³ C12Q *1/50;* **C12N** *9/96*

U.S. Cl. 435—17 **56 Claims**

1. A multi-reagent liquid enzyme and coenzyme composition used in biological diagnostic determinations of biological constituents and which enzymes and coenzymes are normally unstable in an aqueous medium, said composition comprising:

(a) a first liquid reagent comprised of:

(1) at least 35% V/V of a non-reactive aqueous vehicle,

(2) at least a sufficient amount of coenzyme to perform a determination dissolved in said aqueous vehicle and cooperating in a determination reaction, said coenzyme being normally unstable in the aqueous medium, and

(3) an aqueous miscible polyol organic solvent dissolved in said aqueous vehicle in an amount of about 35% to about 55%, and which is liquid at least at room temperature when dissolved in said vehicle,

(b) a second liquid reagent comprised of:

(1) at least 35% V/V of a non-reactive aqueous vehicle,

(2) an aqueous miscible polyol organic solvent dissolved in said aqueous vehicle in an amount of about 10% to about 50%, and which is liquid at least at room temperature when dissolved in said vehicle,

(3) at least 5000 I.U. per liter of enzyme dissolved in said aqueous vehicle and cooperating in a determination reaction, said enzyme being normally unstable in the aqueous medium and normally reactive in the presence of the coenzyme in the aqueous medium, and

(4) a labile substrate in said aqueous vehicle and cooperating in a determination reaction and which substrate is normally reactive with said enzyme in the aqueous medium in absence of being stabilized;

(c) a third liquid reagent comprised of:

(1) a non-reactive aqueous vehicle,

(2) a buffering agent capable of maintaining a pH in said aqueous vehicle in a range sufficient to prevent degradation of a labile component, and

(3) at least one additional labile component which is normally unstable in the aqueous media and capable of cooperating in and activating a determination reaction;

(d) whereby said first and second and third reagents may be combined in proper amounts to form a working composition for a biological diagnostic determination so that the resultant composition in liquid form can be used for such determination, said composition being stabilized for a substantial period of time without significant degradation of the labile component and enzyme and coenzyme and substrate.

4,277,563

PREPARATION OF FRUCTOSE

Pieter L. Kerkhoffs, Geleen, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands

Filed Nov. 19, 1979, Ser. No. 95,680

Claims priority, application Netherlands, Nov. 18, 1978, 7811389

Int. Cl.³ C12P *19/14*

U.S. Cl. 435—99 **9 Claims**

1. A process for preparing fructose from plant parts containing a fructose polymer, said process consisting essentially of:

(1) contacting minced plant parts containing a fructose polymer in an aqueous medium with an enzyme that hydrolyzes fructose polymers and hydrolyzing said polymers to produce fructose;

(2) removing plant parts from the aqueous reaction solution; and

(3) isolating the fructose so produced from the aqueous reaction solution.

4,277,564

PREPARING ENTOMOCIDAL PRODUCTS WITH OLIGOSPOROGENIC MUTANTS OF BACILLUS THURINGIENSIS

Donovan E. Johnson, Peoria, Ill., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 9, 1980, Ser. No. 110,864

Int. Cl.³ C12N *3/00*

U.S. Cl. 435—242 **9 Claims**

1. A method of producing a *Bacillus thuringiensis* parasporal product substantially free of contaminating spores comprising culturing an oligosporogenic mutant of *Bacillus thuringiensis* subspecies kurstaki having the identifying characteristics of a strain selected from the group consisting of NRRL B-4453, NRRL B-4454, NRRL B-4455, NRRL B-4456, NRRL B-4457, and NRRL B-4458 on a nutritionally sufficient medium whereby the vegetative cells of said mutant culture produce spores and parasporal crystals in a spore:crystal ratio of less than about 1:800, and recovering said substantially spore-free parasporal product.

4,277,565

MACROMOLECULAR ADSORBENT CONTAINING PENDANT DIFLUOROALKYL PHOSPHATE GROUPS FOR ADSORBING HEAVY METAL IONS

Yoshio Oda, Yokohama; Masaaki Yamabe, Machida, and Masao Kato, Yokohama, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Mar. 29, 1979, Ser. No. 25,102

Claims priority, application Japan, Apr. 12, 1978, 53/42150

Int. Cl.³ C08F *230/02, 8/40;* **C01G** *43/00*

U.S. Cl. 521—31 **13 Claims**

1. A macromolecular adsorbent capable of adsorbing heavy metal ions, which comprises:

a polymer having pendant groups of the formula:

$$-(R^1)_p-(R^2)_q-R_f-(R^3)_r-(O)_l-\overset{O}{\overset{\|}{P}}X^1X^2$$

wherein R′ is a C_1–C_8 divalent organic group; R^2 and R^3 are each a C_1–C_5 divalent organic group: p, q, r and l each are 0 or 1; R_f is a C_1–C_{10} divalent perfluoro group; and X^1 and X^2 each are hydroxyl or a substituent convertible to a hydroxy group.

4,277,566
CHELATE RESIN PREPARED BY AFTERTREATMENT OF AMINATED RESIN WITH POLYFUNCTIONAL COMPOUND AND AMINE

Yushin Katsuoka; Masaaki Matsuda, and Masaru Kamoda, all of Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Mar. 5, 1979, Ser. No. 17,324
Claims priority, application Japan, Mar. 24, 1978, 53-34567; Apr. 3, 1978, 53-39602
Int. Cl.³ C02F 1/62; B01J 39/18
U.S. Cl. 521—32 9 Claims

1. A process for producing a chelate resin which comprises reacting at a temperature of about 30° to 200° C.

(A) a resin having one or more primary and/or secondary amino groups in the molecule and being selected from the group consisting of polyethyleneimine, aniline resin, melamine resin, and resins aminated by reacting a resin with ammonia, aliphatic mono- or polyamines, aromatic mono- or polyamines or derivatives thereof, with

(B) a polyfunctional compound having at least two amine-reactive groups and

(C) an amino compound having one or more primary and/or secondary amino groups, the polyfunctional compound (B) and the amino compound (C) being used in an amount of 1/20 mole or more and 1/20 mole or more, respectively, per equivalent weight of the amino group in resin (A), or

a reaction product of the polyfunctional compound (B) and the amino compound (C), the reaction product being used in an amount of 1/20 mole or more per equivalent weight of the amino group in the resin (A).

4,277,567
FLAME-RETARDANT VINYL AROMATIC POLYMER COMPOSITIONS

Donald A. Keyworth, Houston, Tex., and David C. Purpi, Woodcliff Lake, N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Filed Dec. 10, 1973, Ser. No. 423,561
Int. Cl.³ C08K 5/02
U.S. Cl. 521—56 13 Claims

1. A flame-retardant resinous composition comprising a vinyl aromatic polymer and a flame-retarding amount of 1,1,2,3,4,4-hexabromobutene-2.

4,277,568
SEALANT MATERIAL

Joseph A. Davison; Graham W. Hall, both of Cheltenham; Newton J. Hodges, Charlton Kings, and David W. Price, Cheltenham, all of England, assignors to Coal Industry (Patents) Limited, London, England

Division of Ser. No. 109,023, Jan. 2, 1980, which is a continuation of Ser. No. 777,055, Mar. 14, 1977. This application Jul. 22, 1980, Ser. No. 171,229
Claims priority, application United Kingdom, Apr. 12, 1976, 13420/76
Int. Cl.³ C08J 9/30
U.S. Cl. 521—68 7 Claims

1. The sealant composition comprising a coke oven door sealant for coke oven doors and joints and like installations which coke oven doors sealant remains effective as a sealant to prevent gas leakage from coke oven doors and joints and the like at temperatures up to about 200° C., the coke oven door sealant having from about 25 to 55% polyvinyl acetate-based latex, said latex having a solids content of about 50% and having a pH of not less than about 4.5, the sealant having from about 10 to 25% water, and having from about 25 to 45% of a particulate filler, which is finer than 200 mesh British Standard, the coke oven door sealant having from about 5 to 15% of an inorganic fiber, at least about 40% of which fiber will pass through a 100 mesh British Standard sieve, the sealant composition further comprising from about 0.5 to about 5% of a blowing agent which decomposes in the temperature range from about 140° to 225° C. to give off a gas, the blowing agent tending to counteract any shrinkage tendency of the coke oven door sealant being effective as a sealant against gas leakage during a cycle of use, with any shrinkage tendency of the coke oven door sealant being counteracted by the blowing agent, for several hours at temperatures of up to about 200° C. and the coke oven door sealant being effective as a gas sealant and remaining flexible at temperatures of up to about 80° C. for several months.

4,277,569
FIRE-RETARDANT FOAM

Benjamin M. Walker, Madison, Conn., assignor to Sentinel Foam Products Incorporated, Hyannis, Mass.

Filed Mar. 10, 1980, Ser. No. 129,117
Int. Cl.³ C08J 9/14
U.S. Cl. 521—92 7 Claims

1. A low density fire-retardant foam comprising a foamed blend of a polyolefin polymer, an antimony oxide and a halogenated wax wherein the ratio of said halogenated wax to said antimony oxide is from about 7:1 to 9:1 by weight.

4,277,570
METHOD OF PRODUCING CROSS-LINKED, UNSATURATED POLYESTERS

Joseph P. Michel, Anglet, France, assignor to Martine Ancianx widow Wastesaeger, Anglet, France, a part interest

Division of Ser. No. 943,332, Sep. 18, 1978. This application Apr. 3, 1980, Ser. No. 136,993
Claims priority, application France, Sep. 28, 1977, 77 29123
Int. Cl.³ C08J 9/14
U.S. Cl. 521—106 7 Claims

1. A method of producing a cured foamed product from a solution of a linear unsaturated polyester in a cross-linking agent, said method comprising the step of contacting a reaction medium comprising said solution and a free radical initiator and containing free hydroxyl radicals at room temperature and under atmospheric pressure, with at least one foaming agent and with at least one totally hydrolyzable chlorine-containing derivative in an amount from 1 to 10% by weight, based on said solution, said chlorine-containing derivative comprising at least one member selected from the group consisting of phosphorous chloride, phosphorous oxychloride, silicon chloride, and an acid chloride selected from acetyl chloride and benzoyl chloride, whereby said method produces said cured foamed product in a one-stage process without the external application of heat.

4,277,571
URETHANE GROUP-CONTAINING POLYISOCYANURATE FOAM BASED ON NAPHTHENIC ACID-HYDROXYLAMINE ADDUCT

Georg Falkenstein, Neustadt, and Hansjuergen Kessler, Mannheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 21, 1980, Ser. No. 135,587
Claims priority, application Fed. Rep. of Germany, Apr. 17, 1979, 2915468
Int. Cl.³ C08G 18/14, 18/32
U.S. Cl. 521—164 10 Claims

1. A process of making a urethane-group containing polyisocyanurate foam from organic polyisocyanate, a polyhydroxy compound, a blowing agent, a catalyst, wherein the polyhydroxy compound is a reaction mixture of a hydroxyl group containing amine which is at least difunctional and is selected from the group consisting of a secondary amine, a tertiary amine and a mixture thereof, and a naphthenic acid, said reaction mixture brought to reaction at a temperature of 0° C. to 150° C. in such quantity that 0.3 equivalent to 50 equivalents of secondary and/or tertiary amino group from the hydroxyl group-containing amine is present per carboxylic equivalent of the naphthenic acid.

4,277,572
GALVANIC CELL SEPARATOR

Kunihiko Fujiwara; Kazuya Osawa, both of Yokohama; Yoshiteru Takeda, Tokyo, and Toshiaki Yabumoto, Yokohama, all of Japan, assignors to The Furukawa Electric Company, Ltd., Tokyo and The Furukawa Battery Co., Yokohama, both of, Japan

Division of Ser. No. 911,529, Jun. 1, 1978, abandoned. This application Aug. 13, 1979, Ser. No. 66,062
Claims priority, application Japan, Jun. 3, 1977, 52/65582; Feb. 24, 1978, 53/19746; Mar. 7, 1978, 53/24945
Int. Cl.³ C08F 8/06
U.S. Cl. 525—61 5 Claims

1. A method for manufacturing a galvanic cell separator which comprises the steps of

(a) heating a polyvinyl alcohol film until the polyvinyl alcohol has a crystallinity of at least 0.4 and subsequently

(b) contacting the surface of said polyvinyl alcohol film with an aqueous solution of permanganate.

4,277,573
VINYL CHLORIDE RESIN AND ALKYL METHACRYLATE RESIN PROCESSING AID COMPOSITION

Yo Iizaka, Iwaki, Japan; Susumu Midorikawa, deceased, late of Iwaki, Japan (by Taeko Midorikawa, heir); Kiyoshi Midorikawa, heir, and Yumi Midorikawa, heir, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaishi, Tokyo, Japan

Filed Oct. 17, 1979, Ser. No. 85,519
Claims priority, application Japan, Oct. 17, 1978, 53-127693
Int. Cl.³ C08L 27/06, 33/10, 33/12, 51/06
U.S. Cl. 525—85 10 Claims

1. A vinyl chloride resin composition comprising:

(1) 100 parts of a vinyl chloride polymer; and

(2) 0.1 to 30 parts of a polymer processing aid comprising:

(A) 40 to 90 parts of a copolymer comprising
80 to 100% of an alkyl methacrylate, and
0 to 20% of a monomer copolymerizable therewith; and

(B) 60 to 10 parts of a copolymer comprising
20 to 79% of an alkyl methacrylate,
20 to 79% of an aromatic vinyl monomer,
1 to 49% of a diolefin, and
0 to 20% of a monomer copolymerizable therewith,

100 parts of said polymer processing aid having been obtained by polymerizing 60 to 10 parts of the constituent monomers of the copolymer (B) in the presence of 40 to 90 parts of the copolymer (A), all quantities expressed in parts and percentages being by weight.

4,277,574
PROCESS FOR PREPARING ABS POLYBLENDS

Michael B. Jastrzebski, Ware, and Allen R. Padwa, Westfield, both of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 19, 1979, Ser. No. 95,708
Int. Cl.³ C08L 9/00, 147/00, 47/00
U.S. Cl. 525—86 19 Claims

1. A continuous mass polymerization process for preparing an ABS polyblend having a bimodal rubber particle size distribution, the steps comprising:

(A) continuously charging a monomer formulation of alkenyl aromatic and alkenyl nitrile monomers having a soluble diene rubber dissolved therein and first grafted diene rubber particles dispersed therein to a reaction zone, said grafted rubber having alkenyl aromatic and alkenyl nitrile grafts, said first grafted rubber particles having an average particle size of about 0.01 to 0.5 microns,

(B) continuously mass polymerizing said charged monomer formulation in said reaction zone, to a conversion of about 30 to 80%, while forming and dispersing said soluble diene rubber as second grafted diene rubber particles having present occluded and grafted polymers of said monomers in amount of about 0.5 to 5.0 parts per part of rubber, said second grafted diene rubber particles having an average particle size of about 0.7 to 10.0 microns, said monomers forming a copolymer of said monomers as a matrix phase polymer having said first and second rubber particles dispersed therein,

(C) continuously removing an effluent from said reaction zone at a rate essentially equal to that of said charged monomer formulation, and

(D) separating said matrix polymer having said first and second grafted rubber particles dispersed therein from said effluent as said ABS polyblend having a bimodal rubber particle size distribution,

wherein the weight ratio of alkenyl aromatic to alkenyl nitrile monomers in said monomer formulation is about 85:15 to 60:40; wherein said soluble rubber moiety and said first grafted rubber moiety are present in said monomer formulation in a total amount of about 2 to 40 percent by weight with said soluble rubber moiety being about 5 to 50 percent by weight of the total rubber moiety; wherein the polymerization of step (B) is conducted at temperatures of about 90° to 180° C. under a pressure of about 5 to 150 psia with shearing agitation; wherein said diene rubbers are polybutadiene based rubbers.

4,277,575
IMPACT MODIFIER FOR THERMOPLASTIC COMPOSITIONS

William R. Haaf, Voorheesville, and Charles P. Shank, Averill Park, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Oct. 2, 1979, Ser. No. 81,125
Int. Cl.³ C08L 53/00
U.S. Cl. 525—89 7 Claims

1. In a thermoplastic composition comprising polyphenylene oxide and styrene resin, the improvement which comprises an impact strength improving amount of an impact modifier consisting essentially of an admixture of a diblock copolymer of polystyrene/saturated rubber with a triblock copolymer of polystyrene/ethylene-butylene rubber/polystyrene, wherein the diblock and triblock copolymers are in a weight ratio of di- to tri- form 1:1 to 1:4 and diblock constitutes from 1 to 50% of the diblock-triblock mixture.

4,277,576
PREPARATION OF MODIFIED POLYMERS OF N-VINYLPYRROLID-2-ONE AND THEIR USE FOR THE PREPARATION OF POLYMERS INTERRUPTED BY BRIDGE MEMBERS

Ferdinand Straub, Hockenheim; Herbert Spoor, Limburgerhof, and Claus Cordes, Weisenheim am Berg, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 56,136, Jul. 9, 1979. This application Feb. 26, 1980, Ser. No. 124,708
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1978, 2831355
Int. Cl.³ C08F 8/04
U.S. Cl. 525—123 2 Claims

1. A process for the preparation of a linear N-vinylpyrrolid-2-one polymer of increased molecular weight and which contains ester groups or urethane groups as bridge members wherein (1) a poly-N-vinylpyrrolidone obtained by a process in which a polymer obtained by the free radical polymerization of N-vinylpyrrolid-2-one in the presence of hydrogen peroxide as the free radical initiator is treated with a complex hydride to form a polymer having two identical reactive end groups is cooled and then reacted with (2) a bifunctional compound which contains reactive groups and which is selected from the group consisting of phosgene, oxalyl chloride, malonyl chlo-

ride, succinyl chloride, glutaric acid dichloride, sebacic acid dichloride, phthalic acid dichloride, terephthalic acid dichloride, toluylene diisocyanate, hexamthylene diisocyanate and methylene-bis-cyclohexyl diisocyanate.

4,277,577

THERMOPLASTIC MOLDING COMPOSITIONS ON THE BASIS OF OXYMETHYLENE POLYMERS

Karlheinz Burg, Wiesbaden; Werner Schmieder, Kelkheim, and Ernst Wolters, Koenigstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,292

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 2818240

Int. Cl.³ C08L *59/02, 59/04*

U.S. Cl. 525—154 **6 Claims**

1. Molding composition consisting essentially of a mixture of
(A) from 99.89 to 60 weight % of an oxymethylene polymer;
(B) from 0.1 to 40 weight % of an elastomer having a softening temperature of below the crystallite melting point of the oxymethylene polymer according to (A) and a second order transition temperature of from −120° to +30° C.; and
(C) from 0.01 to 20 weight % of a segmented thermoplastic copolyester.

4,277,578

COMPOSITION FOR DRAWN FILM, COLD DRAWN FILM MADE OF SAID COMPOSITION AND PROCESS FOR MANUFACTURE OF SAID FILM

Isao Yoshimura; Hideo Hata, and Takashi Kaneko, all of Kawaski, Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed Oct. 6, 1978, Ser. No. 949,253

Claims priority, application Japan, Oct. 11, 1977, 52-120917; Nov. 22, 1977, 52-139431; May 30, 1978, 53-63870; May 30, 1978, 53-63872

Int. Cl.³ C08L *23/04, 23/06, 23/08, 23/16*

U.S. Cl. 525—211 **20 Claims**

1. A cold drawn film having a tensile strength of not less than 5.0 kg/mm² and a Haze of not more than 4.0%, which film comprises a homogeneous blend of the combination of components (A), (B) and (C), wherein
(A) is at least one selected from the group consisting of copolymers of ethylene with vinyl ester monomers, unsaturated aliphatic monocarboxylic acids and alkyl esters of said monocarboxylic acids which are all copolymerizable with ethylene,
(B) is an elastomer having a density of not more than 0.91 g/cm³ and made of an ethylene-α-olefin copolymer, and
(C) is at least one selected from the group consisting of crystalline polypropylene, high-density polyethylene and crystalline polybutene-1, wherein the components of the composition are in amounts such as to satisfy $0.90 \geqq B/(A+B) \geqq 0.05$ and $0.05 \leqq C/(A+B) \leqq 2.0$ in terms of weight ratio.

4,277,579

INCREASING THE MOLECULAR WEIGHT OF A CHLORINATED POLYMER OF ETHYLENE BY TREATMENT WITH A SULFUR COMPOUND EITHER BEFORE OR DURING CHLORINATION OF SAID POLYMER

Manfred Beck, Odenthal-Hahnenberg, and Wilhelm Göbel, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,383

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830556

Int. Cl.³ C08F *8/20*

U.S. Cl. 525—344 **5 Claims**

1. A process for increasing the molecular weight of a chlorinated elastomer obtained by the chlorination of a polymeric hydrocarbon with a chlorinating agent, said polymeric hydrocarbon being selected from the group consisting of low and high density homopolymers of ethylene, copolymers of ethylene and vinyl acetate having a vinyl acetate content of up to 80% by weight, copolymers of ethylene and propylene, copolymers of ethylene and butene and terpolymers of ethylene, propylene and an unconjugated diene and said process comprising adding at least one compound selected from the group consisting of disulphur dichloride, disulphur dibromide, sulphur dichloride, sulphur dibromide, thionyl chloride and thionyl bromide to said elastomer, either before or during chlorination, in a quantity of from 0.01 to 5 parts by weight per 100 parts by weight of elastomer.

4,277,580

TERPOLYMER OF N-VINYL PYRROLIDONE IN ALKOXYLATED FORM

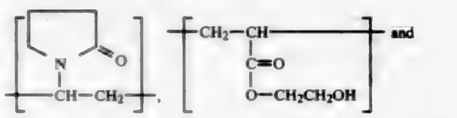
Joseph C. Allen, Bellaire, and Jack F. Tate, Houston, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Continuation-in-part of Ser. No. 908,174, May 22, 1978, Pat. No. 4,219,429. This application Oct. 15, 1979, Ser. No. 84,698

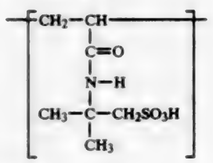
Int. Cl.³ C08F *8/00, 226/10*

U.S. Cl. 525—383 **2 Claims**

1. A water-soluble terpolymer consisting of repeating units of:



and



alkoxylated with about 2 to about 100 weight percent of a substance selected from the group consisting of ethylene oxide and a mixture of ethylene oxide and propylene oxide wherein in the said mixture the weight percent of ethylene oxide ranges from about 60 to about 95, wherein in the said terpolymer the weight percent of vinylpyrrolidone units is from about 65 to about 80, the weight percent of hydroxyethyl acrylate units is from about 8 to about 15 with the balance being 2-acrylamido-2-methylpropane sulfonic acid units and wherein the number average molecular weight of the said terpolymer is from about 10,000 to about 2,000,000.

4,277,581

POLYAMINO-POLYAMIDE CROSSLINKED WITH CROSSLINKING AGENT

Guy Vanlerberghe, Claye-Souilly; Henri Sebag, Paris; Jean-Francois Grollier, Paris, and Alexandre Zysman, Paris, all of France, assignors to L'Oreal, Paris, France

Division of Ser. No. 881,513, Feb. 2, 1978, Pat. No. 4,189,468, which is a continuation-in-part of Ser. No. 762,804, Jan. 26, 1977, Pat. No. 4,172,887, which is a continuation of Ser. No. 528,577, Nov. 29, 1974, abandoned. This application Jul. 16, 1979, Ser. No. 57,684

Claims priority, application Luxembourg, Nov. 30, 1973, 68901; France, Mar. 2, 1977, 77 06031

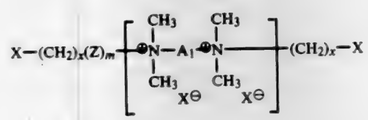
Int. Cl.³ C08G *69/48*

U.S. Cl. 525—420 **38 Claims**

1. A crosslinked polymer, which is soluble in water at 10 weight percent thereof without gel formation, obtained by

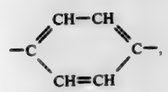
crosslinking a polyamino-polyamide with a crosslinking agent wherein said crosslinking agent is employed in an amount of 0.025 to 0.35 mole per amine group of said polyamino-polyamide, said polyamino-polyamide being prepared by the polycondensation of (a) an acidic compound selected from the group consisting of (i) an acid selected from the group consistintg of an organic saturated dicarboxylic acid having from 6 to 10 carbon atoms and terephthalic acid, (ii) the addition compound of one mole of an alkylenediamine with two moles of an unsaturated acid selected from the group consisting of acrylic acid, methacrylic acid and itaconic acid, (iii) an ester of said compounds of (i) and (ii) with a lower alkanol having 1–6 carbon atoms and (iv) mixtures of (i), (ii) and (iii) on (b) a polyamine selected from the group consisting of bis-primary mono-secondary polyalkylene polyamine and bis-primary bis-secondary polyalkylene polyamine, said polyamine (b) being replaceable by a member selected from the group consisting of (1) up to 20 mole percent hexamethylene diamine, (2) up to 40 mole percent bis-primary amine and (3) up to 40 mole percent bis-secondary amine, said crosslinking agent being selected from the group consisting of:

(I) simple bi-functional compounds selected from the group consisting of (1) bis-halohydrins resulting from the reaction of an epihalohydrin with a primary amine, a bis-secondary diamine, a bis-phenol or a bis-mercaptan, (2) a bis-azetidinium derived from N,N-dialkyl halogeno hydroxy propylamine by cyclization or from bis-halohydrin for which the halohydrin units are linked to the remainder of the molecule by tertiary nitrogen groups, and carry two azetidinium groups or one azetidinium group and one halohydrin group, (3) a bis-haloacyl diamine, and (4) an alkyl bis-halide of the formula



(F1)

wherein X=Cl or Br, Z represents



x=1 to 3, m=0 or 1, n=0 or 1, m and n do not represent 1 at the same time, with the proviso that when m=1, x=1, A_1 represents a saturated divalent hydrocarbon radical having 2,3,4 or 6 carbon atoms or 2-hydroxyl propylene;

(II) an oligomer obtained by the reaction of compound (a) selected from the group consisting of compounds (1), (2), (3) and (4), each defined above, (5) an epihalohydrin, (6) a bis-epoxide and (7) a bis-unsaturated derivative, with a compound (b) which is a bi-functional compound reactive with said compound (a), said compound (b) being selected from the group consisting of primary amine, a bis-secondary diamine, a bis-mercaptan and a bis-phenol, the molar ratio of (b):(a) being between 0.1 and 0.9;

(II-bis) an oligomer obtained by the reaction of compound (a_1) selected from the group consisting of compounds (1), (3), (4) and (6) each defined above, with a bis-tertiary diamine (b_1) which is a bi-functional compound reactive with said compound (a_1), the molar ratio of (b_1):(a_1) being between 0.1 and 0.9;

(III) the quaternization product of compound (a_2) selected from the group consisting of (1) a bis-halohydrin resulting from the reaction of an epihalohydrin with piperizine, a bis-phenol or a bis-mercaptan; (2) a bis-azetidinum, defined above in (I) (2), (3) a bis-haloacyl diamine, (4) an alkyl bis-halide of formula F_1 above, (6) a bis-epoxide, (7) a bis-unsaturated derivative, (8) an oligomer II obtained by the reaction of compound (a_3) selected from the group consisting of compounds (1), (2), (3), (4), (6) and (7) each defined above with a compound (b_3) which is a bi-functional compound reactive with said compound (a_3), said compound (b_3) being selected from the group consisting of a primary amine, a bis-secondary diamine, a bis-mercaptan and a bis-phenol, the molar ratio of (b_3):(a_3) being between 0.1 and 0.9; (9) an oligomer obtained by the reaction of an epihalohydrin (a_4) with a compound (b_4) which is a bi-functional compound reactive with said compound (a_4), said compound (b_4) being selected from the group consisting of piperazine, a bis-mercaptan, a bis-phenol and a bis-epoxide of piperazine, the molar ratio of (b_4):(a_4) being between 0.1 and 0.9, and (10) an oligomer obtained by the reaction of a compound (a_5) selected from the group consisting of (1) a bis-halohydrin resulting from the reaction of an epihalohydrin with piperazine, a bis-phenol or a bis-mercaptan, (2) a bis-halocyl diamine, (3) an alkyl bis-halide of formula F_1 above and (4) a bis-epoxide, with a compound (b_5), said compound (b_5) being a bis-tertiary diamine, the molar ratio (b_5):(a_5) being between 0.1 and 0.9; and

said product having a tertiary amine group alkylated with an alkylating agent (c) selected from the group consisting of methyl or ethyl chloride, bromide, iodide, sulfate, mesylate and tosylate, benzyl chloride or bromide, ethylene oxide, propylene oxide and glycidol.

4,277,582

WATER-INSOLUBLE HYDROPHILIC COPOLYMERS

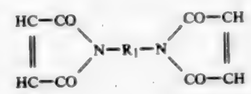
Karl F. Mueller, New York, and William R. Good, Yorktown Heights, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 883,022, Mar. 3, 1978, Pat. No. 4,192,827, which is a continuation of Ser. No. 581,065, May 27, 1975, abandoned, which is a continuation-in-part of Ser. No. 483,743, Jun. 27, 1974, abandoned. This application Jun. 22, 1979, Ser. No. 51,337

Int. Cl.³ F08G *73/12;* **C08L** *79/08*

U.S. Cl. 525—421 **16 Claims**

1. A water-insoluble hydrophilic gel comprising the crosslinked copolymerization product of
(A) about 30 to about 90% by weight of said gel of (a) a water-soluble monoolefinic monomer, or mixture of said monomers, or (b) a water-soluble monomer, or mixture of said monomers, with 1 to 50% by weight of total monomers of a water-insoluble monoolefinic monomer, or mixture of said water-insolulbe monomers, with
(B) about 10 to about 70% by weight of said gel of a terminal diolefinic hydrophilic macromer having a molecular weight from about 400 to about 8000, said monomer having the formula



wherein R_1 is a polycondensate chain having a molecular weight from about 200 to about 8000, which is the residue of a poly(propylene oxide) or poly(tetramethylene oxide) glycol having ether linkages.

4,277,583

OXIRANE POLYIMIDE COPOLYMERS

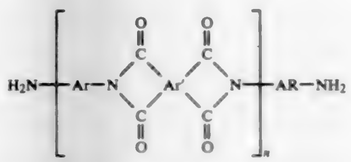
Phillip A. Waitkus, and Bohumir Lepeska, both of Sheboygan, Wis., assignors to Plastics Engineering Company, Sheboygan, Wis.

Filed Dec. 3, 1979, Ser. No. 99,426
Int. Cl.³ C08L 63/00, 77/06
U.S. Cl. 525—423 **29 Claims**

1. The process of copolymerizing a polyoxirane compound having at least two



moieties, wherein the unoccupied valencies are attached to carbon or hydrogen atoms and a m-cresol soluble amino-terminated polyimide having the formula:



wherein Ar' is a tetravalent aromatic organic radical in which the four carbonyl groups attached thereto are attached directly to separate carbon atoms and each pair of carbonyl groups are attached to adjacent carbon atoms in the Ar' radical except that when Ar' represents the naphthalene radical, one or both pairs of carbonyl groups may be attached to the peri carbon atoms; Ar is a divalent aromatic radical; and n is an integer of at least one; the proportions of said polyoxirane compound and said polyimide being such as to provide at least one oxirane group for each amine group; and said copolymerization being effected at a temperature in the range of 80°–380° C.

4,277,584

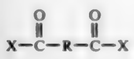
ANTISTATIC AGENTS, SYNTHESIS AND USE THEREOF

Sam Kwon Choi, and Kee Dong Lee, both of Seoul, Rep. of Korea, assignors to Sunkyong Fibers, Ltd., Rep. of Korea

Division of Ser. No. 957,213, Nov. 2, 1978, Pat. No. 4,211,859. This application Jan. 14, 1980, Ser. No. 112,064
Claims priority, application Rep. of Korea, Nov. 16, 1977, 77-2682[U]
Int. Cl.³ C08G 63/76; C08F 283/00; C08L 67/00
U.S. Cl. 525—437 **2 Claims**

1. A process for the manufacture of an antistatic agent useful for the manufacture of an antistatic polyester fiber which comprises:

(i) reacting about one mole of a dimetallic compound selected from the group consisting of compounds of Be, Mg, Ca, Sr, Ba, Zn and Cd and about two moles of same or different acyl compounds having the structural formula of:



wherein

(1) X's, which may be either identical or different, are selected from the group consisting of

(a) HO—,

(b) NH_2—,

(c) $OHSO_3$—and

(d) Cl—, Br—, or I—;

(2) R is selected from the group consisting of

(a)—$(CH_2)_n$—,

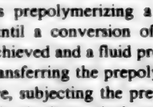
wherein n is an integer ranging from 1 to 8,

(b)—$(HC{=}CH)_k$—,

wherein k is either 1 or 2,

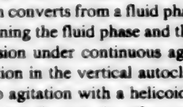
(c)—(C≡C)—,

(d)



and

(e)



; and thereafter,

(ii) reacting the product formed in step (i) above with a polyalkylene glycol having the structural formula of

$$HO{-}[(CH_2)_m{-}O]_p{-}(CH_2)_m{-}OH$$

where p is a number ranging from about 10 to about 1,500 and m is either 2 or 3.

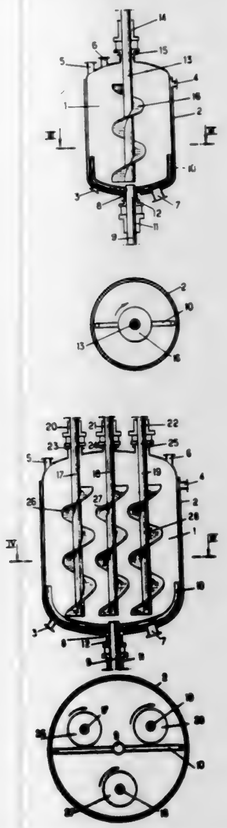
4,277,585

VERTICAL AUTOCLAVE FOR BULK POLYMERIZATION OF VINYL CHLORIDE

Francis Fournel, Chauny, and Salomon Soussan, St. Fons, both of France, assignors to Rhone-Progil, Courbevoie, France

Continuation of Ser. No. 823,338, Aug. 10, 1977, abandoned, which is a division of Ser. No. 442,372, Feb. 14, 1974, abandoned. This application Apr. 23, 1979, Ser. No. 32,543
Claims priority, application France, Feb. 16, 1973, 73.05537
Int. Cl.³ C08F 2/02, 14/06
U.S. Cl. 526—65 **4 Claims**

1. A process for bulk preparation of vinyl chloride polymers or copolymers insoluble in the initial monomeric composition which comprises prepolymerizing a composition based on vinyl chloride until a conversion of 7–15% of monomeric composition is achieved and a fluid prepolymerized medium is thus obtained, transferring the prepolymerized medium into a vertical autoclave, subjecting the prepolymerized medium to final polymerization in the vertical autoclave during which the medium converts from a fluid phase to a solid powdered phase, maintaining the fluid phase and the solid powdered phase upon conversion under continuous agitation during the final polymerization in the vertical autoclave by (a) subjecting the medium to agitation with a helicoidal ribbon that extends downwardly into the autoclave for rotation about a vertical axis, (b) concurrently subjecting the medium to agitation with at least one arm having a profile close to the base of the autoclave and which moves across the bottom portion of the autoclave below the helicoidal ribbon during rotational movement about a



vertical axis, and rotating the one agitator independently of the other.

4,277,586

PROCESS FOR PREPARING A PROPYLENE-TETRAFLUOROETHYLENE COPOLYMER

Hiroshi Ukihashi, Tokyo; Masaaki Yamabe, Machida, and Hiroaki Kojima, Yokohama, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 525,648, Nov. 20, 1974, abandoned. This application Jan. 27, 1977, Ser. No. 763,136
Int. Cl.³ C08F 2/26, 214/26
U.S. Cl. 526—93 **9 Claims**

1. In a process for the preparation of a stable dispersion of a propylene and tetrafluoroethylene copolymer of molecular weight 80,000–300,000 and a Mooney viscosity (ML_{1+10}, 100° C.) of 40–150 in which propylene and tetrafluoroethylene are copolymerized while dispersed in an aqueous medium, the improvement which comprises:

copolymerizing said propylene and tetrafluoroethylene at 10°–45° C. in the presence of a catalyst system comprising (1) a water soluble inorganic persulfate, (2) a water soluble thiosulfate or bisulfite and (3) a water soluble iron salt, the molar ratio of said water soluble inorganic persulfate/water soluble thiosulfate or bisulfite/water soluble iron salt being 0.1–2.0/1.0/0.005–0.5.

4,277,587

SULFIDING AND REOXIDATION OF CHROMIUM CATALYST

Max P. McDaniel, and Melvin B. Welch, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 857,556, Dec. 5, 1977, Pat. No. 4,177,162. This application Jul. 10, 1979, Ser. No. 56,378
Int. Cl.³ C08F 4/22, 10/02
U.S. Cl. 526—106 **37 Claims**

1. A polymerization process comprising contacting at least one mono-1-olefin having 2 to 8 carbon atoms per molecule under polymerization conditions with an oxidized chromium-containing catalyst prepared by a process comprising a first step wherein a composition comprising a chromium component on a silica-containing base is contacted with an organic sulfur-containing ambient at a temperature of at least 370° C., chromium of said chromium component being at least partially in the hexavalent state and a subsequent second step wherein the thus treated composition is contacted with an oxygen-containing oxidizing ambient at a temperature within the range of 350°–900° C. to produce said oxidized chromium-containing catalyst

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4,277,588

PREPARATION OF ACETYLENE COPOLYMERS

Herbert Naarmann, Wattenheim; Klaus Penzien, Frankenthal; Helmut Doerfel, Heidelberg, and Albrecht Eckell, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 13, 1980, Ser. No. 129,828
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1979, 2912572
Int. Cl.³ C08F 4/64, 4/68, 38/02, 38/04
U.S. Cl. 526—114 **4 Claims**

1. A process for the preparation of acetylene copolymers by the catalytic polymerization of a mixture of (a) acetylene and (b) dialkynes or polyalkynes with a Ziegler catalyst, wherein

(1) the Ziegler catalyst is prepared from an aluminum-trialkyl and a titanium tetraoxyalkyl in a molar ratio of from 0.5:1 to 1:0.5,

(2) the weight ratio of the mixture to be polymerized to the Ziegler catalyst is from 100:0.1 to 100:10,

(3) the polymerization is carried out at from −90° to +100° C. and from 0.1 to 500 bar,

(4) the dialkynes or polyalkynes are selected from the group consisting of butadiyne, hexadiyne, octadiyne, diethynylbenzene, 1,3,5-triethynylbenzene, 1,2,4-triethynylbenzene and 1,3,5-tris-propyn-1-yl-2,4,6-trimethylbenzene, and

(5) the mixture to be polymerized contains up to 50 mole% of dialkynes or polyalkynes.

4,277,589

COMPONENTS OF CATALYSTS USEFUL FOR THE POLYMERIZATION OF ALPHA-OLEFINS, AND CATALYSTS PREPARED THEREFROM

Umberto Giannini, Milan; Enrico Albizzati, Arona, and Sandro Parodi, Oleggio, all of Italy, assignors to Montedison S.p.A., Milan, Italy and Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Continuation of Ser. No. 5,501, Jan. 22, 1979, abandoned, which is a division of Ser. No. 882,547, Aug. 8, 1977, Pat. No. 4,149,990. This application Dec. 21, 1979, Ser. No. 105,912
Claims priority, application Italy, Aug. 9, 1976, 26148 A/76
Int. Cl.³ C08F 4/02, 10/06
U.S. Cl. 526—122 **1 Claim**

1. A process for polymerizing alpha-olefins containing at least three carbon atoms, mixtures of said alpha-olefins or mixtures thereof with ethylene, which process comprises conducting the polymerization in the presence of a catalyst comprising the product obtained by mixing the following components:

(A) an organometallic Al compound free of halogen atoms directly bound to Al and selected from the group consisting of Al-alkyl compounds, Al-alkyl-alkoxyl compounds and Al-alkyl hydrides;

(B) a hydrocarbyl eletron-donor in such amount that from 10% to 95% of the compound (a) is combined with the electron-donor compound; and

(C) a solid catalyst component obtained by reacting:

(a) a liquid Ti tetrahalide soluble in hydrocarbons;

(b) a product comprising a Mg dihalide obtained by decomposition of an adduct between a Mg dihalide and at least 0.5 moles per mole of Mg dihalide of an electron-donor compound selected from the group consisting of hydrocarbyl electron-donors, ammonia, $POCl_3$ and $PSCl_3$, the decomposition of the adduct being carried out with a substance capable of reacting with the electron-donor compound of the adduct and selected from the group consisting of organometallic compounds of metals of Groups I to III of the Mendelyeev Periodic Table, or of Si, and, when the electron-donor of the adduct contains active hydrogen atoms, also from the group consisting of halides of tetravalent Si, trihalides of Al and B and halides of Sn and Sb, said decomposition product being characterized in that, in its X-rays powder spectrum, instead of the maximum intenstiy line appearing in the normal Mg dihalide spectrum, a halo appears the intensity maximum of which is shifted with respect to said line; and

(c) a hydrocarbyl electron-donor free of active hydrogen atoms, which may also be reacted with (a) or combined with (b) before reacting (a) with (b), said solid catalyst component being further characterized in that not more than 20% by weight of the Ti compounds contained therein are soluble in $TiCl_4$ at 80° C.

4,277,590

POLYMERIZATION OF ALPHA-OLEFINS WITH NOVEL $T_nMR'_{3-n}$ COCATALYSTS

Arthur W. Langer, Jr., Watchung, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 49,086, Jun. 18, 1979, Pat. No. 4,215,014, which is a continuation-in-part of Ser. No. 890,324, Mar. 28, 1979, abandoned. This application Feb. 15, 1980, Ser. No. 122,233

Int. Cl.³ C08F 4/62, 10/06

U.S. Cl. 526—127 **1 Claim**

1. An improved process for the polymerization of C_2 to C_{20} monomers and mixtures thereof to solid homo-, co-, or terpolymers by contacting said monomers with a catalyst system including:

(a) a Group IVB to VIII transition metal halide;

(b) at least one alkyl metal cocatalyst having the formula $TnMR'_{3-n}$ wherein n=1 or 2, T is R_3DCH_2, D being selected from the group consisting of Si, Ge and Sn, M being selected from the group consisting of Al, Ga and In, R being a methyl or ethyl group and R′ is selected from the group consisting of C_1–C_8 primary alkyl or aralkyl groups including unhindered branched groups, a molar ratio of said alkyl metal cocatalyst to said transition metal halide being about 0.5:1 to about 50:1; and

(c) at least one Lewis base in sufficient amounts as long as said Lewis base does not cause excessive cleavage of metal-carbon bonds or loss of active sites.

4,277,591

PROCESS FOR PRODUCING RANDOM COPOLYMERS OF CONJUGATED DIENES AND ALPHA-METHYLSTYRENE TYPE MONOMERS

Floyd E. Naylor, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 20, 1979, Ser. No. 96,108

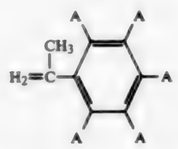
Int. Cl.³ C08F 4/56

U.S. Cl. 526—174 **26 Claims**

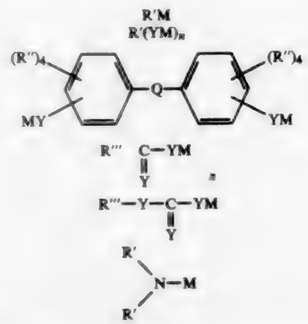
1. A process for producing a random copolymer comprising contacting under solution polymerization conditions in a polymerization zone (1) a mixture of monomers comprising

at least one conjugated diene having 4 to 12 carbon atoms per molecule and

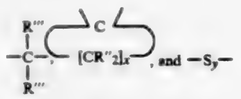
at least one alpha-methylstyrene type monomer having 9 to 24 carbon atoms and the formula



wherein each A is individually selected from the group consisting of hydrogen or alkyl, cycloalkyl, or aryl radicals having 1 to 8 carbon atoms, (2) an organolithium initiator, and (3) an effective amount of at least one alkali metal organic compound selected from those having the formulas:



wherein R′ is selected from the group consisting of aliphatic, cycloaliphatic, and aromatic radicals, M is an alkali metal selected from the group consisting of sodium, potassium, rubidium, and cesium, R″ is selected from the group consisting of aliphatic, cycloaliphatic, and aromatic radicals, Q is selected from the group consisting of



radicals wherein R″ is as defined before, x is 4 or 5, and y is 1, 2, or 3, R‴ is selected from the group consisting of aliphatic, cycloaliphatic, and aromatic radicals, Y is selected from the group consisting of oxygen and sulfur and n is 1, 2, or 3.

4,277,592

N-VINYLAMIDE POLYMERS AND PROCESS FOR THEIR MANUFACTURE USING TWO TYPES OF INITIATORS

Wilfried Eichhorn, Königstein, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 3, 1979, Ser. No. 54,487

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829652

Int. Cl.³ C08F 22/38

U.S. Cl. 526—227 **6 Claims**

1. In a process for the manufacture of an N-vinylamide polymer by polymerizing a tertiary N-vinyl-carboxylic acid amide, or a tertiary N-vinyl-carboxylic amide in combination with a copolymerizable olefinically unsaturated compound, in the presence of an inert aliphatic hydrocarbon at a temperature of from 0° to 150° C., the improvement which comprises polymerizing in the presence of an initiator which, under normal conditions, is soluble in the monomeric N-vinyl-carboxylic acid amide and insoluble in the hydrocarbon and which is present in an amount of from 0.1 to 4 weight percent, calculated on the total monomer amount, and an additional initiator which, under normal conditions, is soluble in the hydrocarbon and which is present in an amount of from 0.02 to 2 weight percent, calculated on the total monomer amount.

4,277,593

NOVEL POLYMERS BASED ON AZIDO AND SILANE MONOMERS

Bernard J. Scheve, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Dec. 10, 1979, Ser. No. 101,948

Int. Cl.³ C08F 226/02, 230/08

U.S. Cl. 526—279 **6 Claims**

1. A coupling polymer comprised of (a) 20–80% by weight of an ethylenically unsaturated monomer containing at least one azide group; (b) 20–80% by weight of an ethylenically unsaturated silane monomer wherein the silicon molecule is substituted with at least one hydrolyzable radical; (c) 0–60% by weight of an ethylenically jnsaturated monomer containing no azide or silane functional group; and (d) 0–10% by weight of an ethylenically unsaturated monomer which is capable of absorbing actinic radiation and containing no azide or silane functional group.

4,277,594

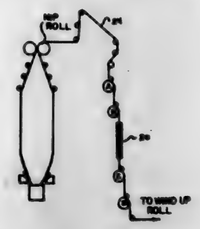
HEAT SHRINKABLE POLYETHYLENE FILM AND METHOD FOR ITS MANUFACTURE

Stephen B. Matthews; Tomas A. Loredo, both of Waynesboro; Walter H. Knox, III, and Herman F. Simmons, both of Harrisburg, all of Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed May 23, 1979, Ser. No. 41,621

Int. Cl.³ C08F 110/02; B29D 9/04, 7/24

U.S. Cl. 526—352 **4 Claims**



1. A mildly biaxially oriented, blown polyethylene film characterized by a cross directional shrink force in the range of about 60 to 300 psi, an average heat seal energy of at least about 2.0 in-lbs., an average internal tear resistance of at least about 30 gms/ply, and a minimum shrink temperature no higher than 200° F. and which is less than the crystalline melt point (or points) of the polyethylene.

3. A process for producing a heat shrinkable biaxially oriented polyethylene film having a CD shrink force between about 60 and 300 psi and a MD shrink force of 200–300 psi, in accordance with a blown bubble method which comprises the sequential steps of (1) extruding as a continuous tube, molten polyethylene which has a crystalline melt point (or points) between about 220° F. and 270° F., (2) expanding the polyethylene tube cross-directionally at a blow ratio between about 3:1 and 8:1, (3) drawing the polyethylene film machine-directionally at a draw ratio between about 1.2:1 and 2.8:1 at a temperature between about 160° F. and 230° F., (4) drawing the polyethylene film cross-directionally at a draw ratio between about 1.2:1 and 2.5:1 at a temperature between about 160° F. and 230° F. but without applying additional heat, (5) relaxing the film so as to allow an MD shrink back between about 0.7:1 and 1.0:1, (6) heating the polyethylene film to a temperature between about 120° F. and 230° F. and (7) then drawing the polyethylene film machine directionally at a ratio between about 1.1:1 and 1.4:1 to achieve the desired finished film properties.

4,277,595

WATER ABSORBING CONTACT LENSES MADE FROM POLYSILOXANE/ACRYLIC ACID POLYMER

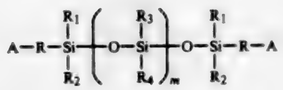
William G. Deichert, Macedon, N.Y.; Gregory C. Nin, Lexington, and Martin F. VanBuren, Chelmsford, both of Mass., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,944

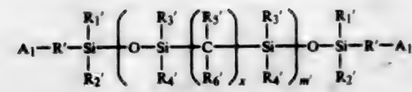
Int. Cl.³ C08G 77/14; C08F 220/06

U.S. Cl. 528—26 **24 Claims**

1. A soft, hydrophilic, water absorbing, flexible, fillerless, hydrolytically stable, biologically inert, transparent contact lens with the capability of transporting oxygen sufficiently to meet the requirements of the human cornea comprising a polysiloxane monomer α,ω terminally bonded through divalent hydrocarbon groups to polymerized, free radical, polymerizably activated, unsaturated groups copolymerized with acrylic acid forming a polymer in a crosslinked network capable upon saturation with water of retaining from about 1 percent to about 99 percent by weight, based on the total weight of the polymer, of water wherein the polysiloxane monomer is selected from the group consisting of a poly(organosiloxane) monomer having the formula

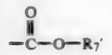


wherein A is an activated unsaturated group, R is a divalent hydrocarbon radical having from 1 to about 22 carbon atoms, R_1, R_2, R_3 and R_4 can be the same or different and are selected from the group consisting of a monovalent hydrocarbon radical or a halogen substituted monovalent hydrocarbon radical each having from 1 to 12 carbon atoms and m is from about 50 to about 800 and the polyparaffinsiloxane monomer having the formula

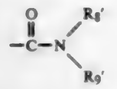


wherein A_1 is an activated unsaturated group; R′ is a divalent hydrocarbon radical having from 1 to about 22 carbon atoms; R'_1, R'_2, R'_3 and R'_4 can be the same or different and are selected from the group consisting of a monovalent hydrocar-

bon radical having from 1 to about 12 carbon atoms and a halogen substituted monovalent hydrocarbon radical having from 1 to about 12 carbon atoms; R'_5 and R'_6 can be the same or different and are selected from the group consisting of hydrogen, a hydrocarbon radical containing from 1 to about 12 carbon atoms, a carboxylic acid group, a carboxylic acid ester group represented by the formula



wherein R'_7 is selected from the group consisting of a hydrocarbon group containing from 1 to about 12 carbon atoms and a carboxylic acid amide represented by the formula



wherein R'_8 and R'_9 can be the same or different and each is selected from the group consisting of hydrogen and a hydrocarbon group containing from 1 to about 12 carbon atoms; x is 2 or greater and m' is from about 20 to about 500.

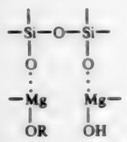
4,277,596

CALCINED POLYHYDROXYSILICATE POLYMER REACTION PRODUCT

Jean M. Lalancette, Sherbrooke, Canada, assignor to Societe Nationale de l'Amiante, Quebec, Canada

Filed Apr. 8, 1980, Ser. No. 138,451
Int. Cl.³ C08G 54/14, 8/28
U.S. Cl. 528—106 **9 Claims**

1. A shaped structure formed from the reaction of a non fibrous calcined residue of chrysotile asbestos derived from chrysotile asbestos tailings having a particle size extending from fibrous to −325 mesh and a hydroxy-containing polymer selected from the group consisting of a phenol-formaldehyde polymer, a resorcinol-formaldehyde polymer, a phenol-resorcinol-formaldehyde polymer and an epoxy resin, said shaped structure being characterized by the total absence of any fibrous material, the new product representing a characteristic repeating magnesium oxide-resin bond of the formula:



wherein in R is the residue of said hydroxy-containing polymer, the amount of calcined residue of chrysotile asbestos tailings being from 5 to 90% by weight and the amount of polymer being from 90 to 5% by weight.

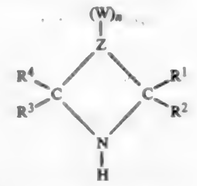
4,277,597

PROCESS FOR PREPARING POLYCARBONATES USING STERICALLY HINDERED HETEROCYCLOALIPHATIC SECONDARY AMINE CATALYSTS

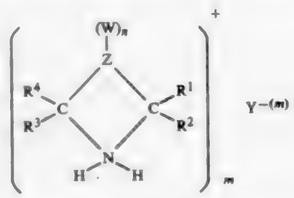
Victor Mark, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed Dec. 28, 1979, Ser. No. 107,722
Int. Cl.³ C08G 63/62
U.S. Cl. 528—199 **7 Claims**

1. An interfacial polymerization process for preparing high molecular weight polycarbonates which comprise reacting, under interfacial polycarbonate-forming conditions, a dihydric phenol and a carbonate precursor in the presence of a catalytic amount of a compound selected from the group consisting of a secondary amine of the formula



wherein R^1, R^2, R^3 and R^4 are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl, alkaryl and aralkyl radicals, with the proviso that not more than 2 of R^1–R^4 are hydrogen; Z represents a divalent organic radical completing a 4 to 8 membered heterocycloaliphatic ring and containing from (1 to 5)−X carbon atoms and 0 to 1 atom selected from the group consisting of oxygen, nitrogen, and sulfur, wherein X is 0 or 1 and represents the number of oxygen, nitrogen or sulfur atoms present in Z, with the proviso that Z contains at least one carbon atom; each W is independently selected from the group consisting of cycloalkyl, hydroxyl, alkoxy and lower alkyl radicals; and n is an integer having a value from 0 to a maximum value equal to the number of replaceable hydrogens present in Z and an acid addition salt of the formula



wherein R^1, R^2, R^3, R^4, Z and $(W)_n$ are as described above; Y is a m valent anion and m is an integer having a value from 1 to 3 inclusive.

4,277,598

PROCESS FOR PREPARING POLYCARBONATES USING CYCLIC AMIDINE CATALYSTS

Walter L. Hall, Mt. Vernon; Donald B. G. Jaquiss, New Harmony, and Victor Mark, Evansville, all of Ind., assignors to General Electric Company, Mt. Vernon, Ind.

Filed Dec. 28, 1979, Ser. No. 107,726
Int. Cl.³ C08G 63/62
U.S. Cl. 528—199 **16 Claims**

1. An interfacial polymerization process for preparing high molecular weight polycarbonates which comprises reacting, under interfacial polycarbonate-forming conditions, a dihydric phenol and a carbonate precursor in the presence of a catalytic amount of a cyclic amidine.

4,277,599

PROCESS FOR PREPARING POLYCARBONATES USING PYRROLE CATALYSTS

Victor Mark, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed Dec. 28, 1979, Ser. No. 107,728
Int. Cl.³ C08G 63/62
U.S. Cl. 528—199 **11 Claims**

1. An interfacial polymerization process for preparing a high molecular weight aromatic polycarbonate which comprises

reacting, under interfacial polycarbonate-forming conditions, a dihydric phenol and a carbonate precursor in the presence of a catalytic amount of a compound selected from the group consisting of pyrroles and pyrrole salts.

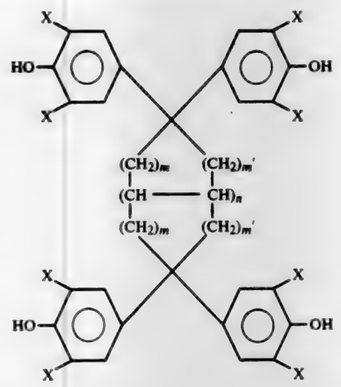
4,277,600

TETRAPHENOLIC COMPOUNDS AND POLYCARBONATES CONTAINING THE SAME

Victor Mark, Evansville, and Charles V. Hedges, Mt. Vernon, both of Ind., assignors to General Electric Company, Mt. Vernon, Ind.

Filed Sep. 20, 1979, Ser. No. 76,973
Int. Cl.³ C08G 63/62; C07C 39/15
U.S. Cl. 528—204 **9 Claims**

1. A tetraphenolic compound of the formula



wherein each X substituent is independently selected from phenyl, H, Cl, Br, and C_1 to C_5 alkyl; each m and m' are integers selected independently from 0, 1, 2 and 3; and n is an integer of either 0 or 1, with the proviso that the sum of all the m and m' integers and n is at least 2, and with the further proviso that at least one of the m integers is greater than 0 and at least one of the m' integers is greater than 0.

7. A high molecular weight, thermoplastic, randomly branched polycarbonate composition, said polycarbonate substantially free of crosslinking, based on a dihydric phenol, having an intrinsic viscosity of 0.40 to 1.00 dl/g in methylene chloride at 25° C., wherein the branching component is a compound of claim 1.

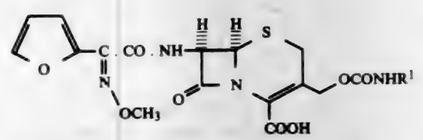
4,277,601

PREPARATION OF SODIUM CEFUROXIME

Eric Thompson, and Christopher J. Bealham, both of Ulverston, England, assignors to Glaxo Group Limited, England

Filed Feb. 14, 1980, Ser. No. 121,531
Claims priority, application United Kingdom, Feb. 15, 1979, 05456/79
Int. Cl.³ C07D 501/34
U.S. Cl. 544—22 **7 Claims**

1. In a process for the preparation of sodium cefuroxime or a solvate thereof, the improvement which comprises subjecting a compound of formula



(I)

wherein R^1 is a base-labile group, to alcoholysis with a C_{1-4} alkanol, a C_{2-6} alkane glycol or a glycol having recurring units of 2 to 4 carbon atoms in a substantially anhydrous organic solvent medium in the presence of a basic catalyst soluble in the said medium, which basic catalyst comprises the sodium salt of C_{2-10} alkanoic acid having a pK_a value not less than 3.5.

7. Sodium cefuroxime tetrahydrofuran solvate.

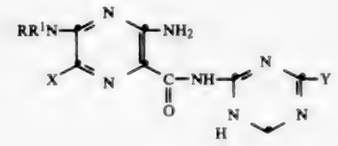
4,277,602

3-AMINO-5-SUBSTITUTED-6-HALO-N-(3,4-DIHYDRO-6-SUBSTITUTED-1,3,5-TRUAZIN-2-YL)2-PYRAZINECARBOXAMIDES

Otto W. Woltersdorf, Chalfont, and Edward J. Cragoe, Jr., Lansdale, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jul. 2, 1980, Ser. No. 165,312
Int. Cl.³ C07D 251/10
U.S. Cl. 544—207 **4 Claims**

1. A compound of the formula:



wherein
R is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;
R^1 is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;
X is halo;
Y is hydroxy
the pharmaceutically acceptable acid addition salts thereof and the tautomeric forms thereof

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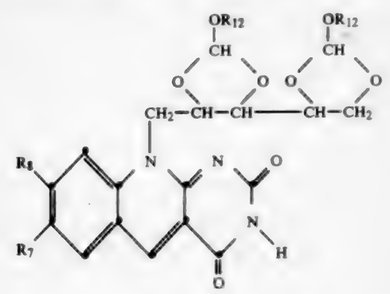
4,277,603

PREPARATION OF 5-DEAZARIBOFLAVINS

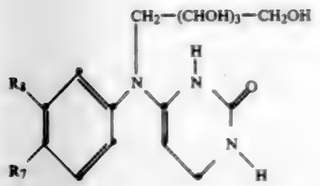
Richard L. Tolman, Warren; Wallace T. Ashton, Clark, and Ronald D. Brown, Cranford, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 960,341, Nov. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 894,299, Apr. 7, 1978, abandoned, which is a continuation of Ser. No. 753,664, Dec. 22, 1976, abandoned. This application Mar. 12, 1979, Ser. No. 19,986
Int. Cl.³ C07D 471/04
U.S. Cl. 544—250 **20 Claims**

1. The process for preparing di-O-alkoxymethylene-5-deazariboflavins having the structure:



wherein R_7 is H or methyl; R_8 is alkyl having 1 to 3 carbon atoms or hydroxy; R_{12} is alkyl having 1 to 2 carbon atoms which comprises cyclizing the uracil derivatives having the structure:



wherein R_7 and R_8 are as defined above, by treating said uracil derivatives with trialkylorthoformate having the structure:

$HC(OR_{12})_3$

wherein R_{12} is as defined above in the presence of a strong acid catalyst selected from the group consisting of strong mineral acids, selected from anhydrous hydrochloric acid, sulfuric acid, anhydrous phosphoric acid and anhydrous phosphorous acid, Lewis acids and organic-based acids selected from the group consisting of sulfonic acids selected from p-toluenesulfonic acid, benzenesulfonic acid, naphthalene sulfonic acid methane sulfonic acid and ethane sulfonic acid, and phosphonic acids selected from phenyl phosphonic acid, under anhydrous conditions.

4,277,604

FACILE SYNTHESIS OF CODEINE PRECURSORS FROM THEBAINE

William G. Dauben, Berkeley, Calif.; Craig P. Baskin, Avenel, N.J., and Herman C. H. A. vanRiel, Alphen aan den Rijn, Netherlands, assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Jan. 25, 1980, Ser. No. 115,411

Int. Cl.³ C07D *489/02*

U.S. Cl. 546—44 **7 Claims**

1. In a process for converting thebaine to a mixture of codeinone and neopinone in a solvent containing water and in the presence of a mercuric salt, the improvement wherein the solvent is up to about 5 N in formic acid and the amount of mercuric salt is 0.5–20 molar % with respect to thebaine.

4,277,605

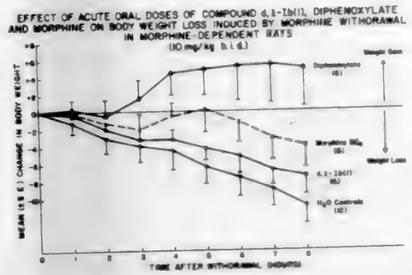
CHEMICAL COMPOUNDS

Joseph P. Buyniski, Syracuse, N.Y.; John W. Hooper, Pierrefonds, and Gary M. F. Lim, Candiac, both of Canada, assignors to Bristol-Myers Company, New York, N.Y.

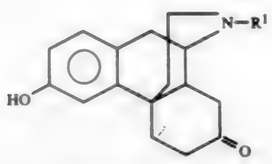
Filed Mar. 7, 1980, Ser. No. 128,329

Int. Cl.³ C07D *221/28*; A61K *31/485*

U.S. Cl. 546—74 **12 Claims**



1. A compound of the formula



I

wherein R^1 is hydrogen, (lower)alkyl, cyclopropylmethyl, cyclobutylmethyl, propargyl, allyl or 3,3-dimethylallyl, or a nontoxic pharmaceutically acceptable acid addition salt thereof.

4,277,606

8-OXO-5,6,7,8-TETRAHYDRO-2-QUINOLONE AND PROCESS FOR THE PREPARATION THEREOF

Helmut Meldert, Frankfurt am Main; Wilfried Preusler, Kelkheim, and Werner H. Müller, Eppstein, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

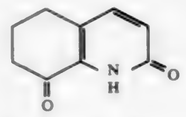
Filed Mar. 6, 1980, Ser. No. 127,566

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909035

Int. Cl.³ C07D *215/24*

U.S. Cl. 546—157 **6 Claims**

1. 8-Oxo-5,6,7,8-tetrahydro-2-quinolone of the formula



2. A process for the preparation of 8-oxo-5,6,7,8-tetrahydro-2-quinolone, which comprises hydrolyzing 8-chloro-5,6,7,8-tetrahydro-2-quinolone hydrochloride or 8-bromo-5,6,7,8-tetrahydro-2-quinolone hydrobromide with water at 50° to 100° C. to form the corresponding 8-hydroxy compound, subsequently neutralizing the aqueous solution, removing the water of crystallization from the 8-hydroxy-5,6,7,8-tetrahydro-2-quinolone trihydrate obtained, and dehydrogenating the anhydrous compound in a solvent with manganese dioxide to give 8-oxo-5,6,7,8-tetrahydro-2-quinolone.

4,277,607

PROCESS FOR THE PREPARATION OF 4-CHLOROQUINOLINES

Jacques Balidon, Paris, and Charles Pavan, Nogent-sur-Marne, both of France, assignors to Roussel Uclaf, Paris, France

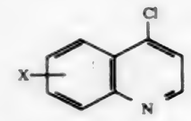
Filed Sep. 15, 1978, Ser. No. 942,652

Claims priority, application France, Oct. 7, 1977, 77 30249

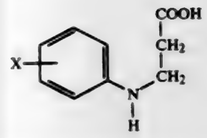
Int. Cl.³ C07D *215/18, 215/12, 215/20, 215/36*

U.S. Cl. 546—179 **7 Claims**

1. A process for the preparation of 4-chloro-quinolines of the formula



wherein X is in the 5,6,7 or 8-position and is selected from the group consisting of hydrogen, methyl, halogen, CF_3—, CF_3O— and CF_3S— consisting essentially of reacting an acid of the formula



with a chlorination agent selected from the group consisting of phosphorus oxychloride, phosphorus pentachloride and thionyl chloride in the presence of an oxidation agent selected from the group consisting of oxygen, iodine, cupric chloride and ferric chloride to form the desired compound.

4,277,608

METHOD OF PREPARING 4A-ARYLHEXAHYDRO-1H-2-PYRINDINES AND 4A-ARYLOCTAHYDROISOQUINOLINES

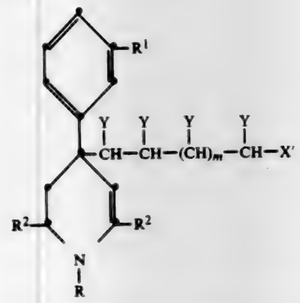
Dennis M. Zimmerman, Mooresville, and Roger L. Robey, Greenwood, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 50,940, Jun. 21, 1979, Pat. No. 4,236,009. This application Apr. 18, 1980, Ser. No. 141,753

Int. Cl.³ C07D *211/70*

U.S. Cl. 546—339 **1 Claim**

1. An intermediate of the formula



in which R is (C_1–C_3)alkyl, (C_3–C_4)cycloalkylmethyl, benzyl or phenethyl, R^1 is H or (C_1–C_3)alkyloxy, each R^2 and Y is independently H, CH_3 or C_2H_5, m is 0 or 1 and X' is Cl, Br or I.

4,277,609

SYDNONE IMINES

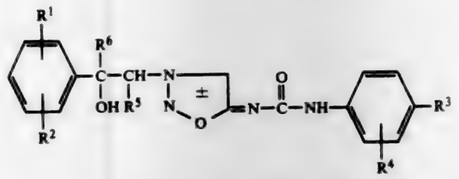
Reinhardt P. Stein, Audubon, Pa., assignor to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 71,606, Aug. 31, 1979, abandoned. This application Jul. 29, 1980, Ser. No. 171,423

Int. Cl.³ A61K *31/42*; C07D *271/04*

U.S. Cl. 548—125 **15 Claims**

1. A compound of the formula:



in which the enantiomeric form is d,l or l- when R^5 is hydrogen, and d,l or l-threo when R^5 is other than hydrogen;

R^1 and R^2 are, independently, hydrogen, alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, halo or trifluoromethyl;

R^3 is hydrogen, halo, nitro or alkanoyl of 2 to 4 carbon atoms;

R^4 is hydrogen or halo;

R^5 and R^6 are, independently, hydrogen or methyl; or a non-toxic acid addition salt thereof.

4,277,610

SYNTHESIS OF 2,6,10-TRIMETHYL-UNDECAN-1-OL

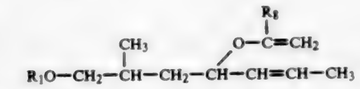
Noal Cohen, Montclair, and Gabriel Saucy, Essex Fells, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 796,929, May 16, 1977, Pat. No. 4,107,183, which is a division of Ser. No. 638,722, Dec. 8, 1975, Pat. No. 4,041,058, which is a continuation-in-part of Ser. No. 544,154, Jan. 27, 1975, abandoned. This application May 12, 1978, Ser. No. 905,259

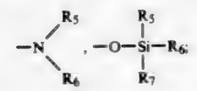
Int. Cl.³ C07F *7/08, 7/10, 7/18*

U.S. Cl. 556—446 **3 Claims**

1. A compound of the formula:



wherein R_1 taken together with its attached oxygen moiety forms an ether protecting group removable by acid catalyzed cleavage or hydrogenolysis; R_8 is hydrogen, lower alkoxy,



R_5, R_6 and R_7 are lower alkyl.

4,277,611

11-DEOXY-11-HYDROXYMETHYL-INTER-PHENYLENE-19-OXO-PGE$_1$ COMPOUNDS

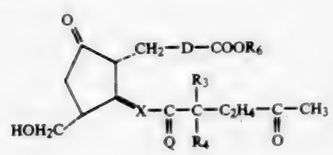
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 131,996

Int. Cl.³ C07C *177/00*

U.S. Cl. 560—53 **4 Claims**

1. A compound of the formula



wherein D is

(1) —(m-Ph)—$(CH_2)_2$—, or

(2) —(m-Ph)—O—CH_2—,

wherein —(m-Ph)— is inter-meta-phenylene;

wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;

wherein R_6 is

(a) hydrogen,

(b) alkyl of one to 12 carbon atoms, inclusive,

(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

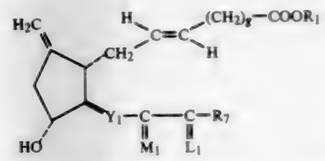
(d) aralkyl of 7 to 12 carbon atoms, inclusive,

(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CO_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

4,277,612
ω-ARYL-9-DEOXY-9-METHYLENE-5,6-DIDEHYDRO-PGF_1 COMPOUNDS
Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 35,144, May 1, 1979. This application Jan. 28, 1980, Ser. No. 116,080
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—55 **5 Claims**

1. A prostaglandin analog of formula VI

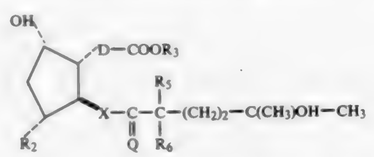


VI

wherein Y_1 is trans—CH=CH—, —C≡C—, —CH_2CH_2—, or cis—CH=CH—;
wherein M_1 is α-R_5:β-OH or α-OH:R_5, wherein R_5 is hydrogen or methyl;
wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of β-R_3:β-R_4 and α-R_4:β-R_3 wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein g is 3, 4, or 5;
wherein R_7 is
(1) phenoxy;
(2) phenoxy substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(3) phenyl;
(4) phenyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(5) phenylmethyl, phenylethyl, or phenylpropyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy only when R_3 and R_4 are hydrogen or methyl, being the same or different; and
wherein R_1 is
(a) hydrogen;
(b) alkyl of one to 12 carbon atoms, inclusive;
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive;
(d) aralkyl of 7 to 12 carbon atoms, inclusive;
(e) phenyl;
(f) phenyl substituted with one, 2, or 3 chloro or alkyl of one to 3 carbon atoms;
(g) phenyl substituted in the para position by
(i) —NH—CO—R_{25}
(ii) —CO—R_{26}
(iii) —O—CO—R_{27}
(iv) —CH=N—NH—CO—NH_2
wherein R_{25} is methyl, phenyl, acetamidophenyl, benzamidophenyl, or —NH_2; R_{26} is hydroxy, methyl, phenyl, —NH_2, or methoxy; and R_{27} is phenyl or acetamidophenyl; inclusive, or a pharmacologically acceptable salt thereof when R_1 is hydrogen.

4,277,613
19-HYDROXY-19-METHYL-6-OXO-PGF_1 INTERMEDIATES
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,504
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—121 **1 Claim**

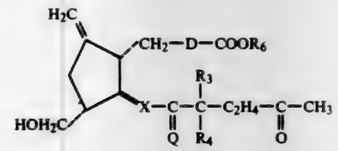
1. A prostacyclin-type compound of the formula



wherein D is —$(CH_2)_2$—CO—CH_2—L_2— or —CH=CH—CO—CH_2—L_3—;
wherein L_2 is
(1) —$(CH_2)_j$— wherein j is one to 4, inclusive,
(2) —$(CH_2)_q$—CF_2— wherein q is one, 2, or 3, or
(3) —CH=CH—,
wherein L_3 is
(1) —$(CH_2)_n$— wherein n is one to 5, inclusive,
(2) —$(CH_2)_p$—CF_2— wherein p is 2, 3, or 4, or
(3) —CH_2CH=CH—,
wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH, wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive;
wherein R_3 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) -(p-Ph)-CH=N-NH-CO-NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{16},
wherein —(Ph)— is inter-phenylene and —(p-Ph) is inter-para-phenylene orpara-phenyl;
wherein R_{16} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and wherein X is
(1) trans-CH=CH-,
(2) cis-CH=CH-,
(3) —C≡C—, or
(4) —CH_2CH_2—,
and wherein ~ indicates attachment in alpha or beta configuration.

4,277,614
11-DEOXY-11-HYDROXYMETHYL-9-DEOXY-9-METHYLENE-19-OXO-PGF_2 COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,206
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

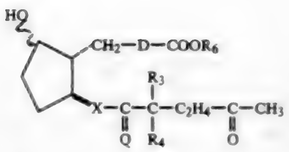
1. A compound of the formula



wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—, or
(4) trans—$(CH_2)_3$—CH=CH—;
wherein g is zero, one, two, or three;
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

4,277,615
11-DEOXY-19-OXO-PGF_2 COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,207
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

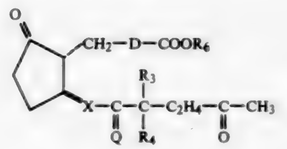
1. A compound of the formula



wherein D is
cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

4,277,616
11-DEOXY-19-OXO-PGE_2 COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,208
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—, or
(4) trans—$(CH_2)_3$—CH=CH—;
wherein g is zero, one, two, or three;
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

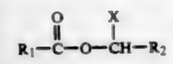
4,277,617

PROCESS FOR THE PREPARATION OF ESTERS

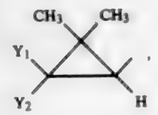
Jacques Martel, Bondy; Jean Tessier, Vincennes; Jean-Pierre Demoute, Montreuil-sous-Bois, and Andre Teche, Nanterre, all of France, assignors to Roussel Uclaf, Paris, France

Filed Oct. 13, 1978, Ser. No. 951,184
Claims priority, application France, Oct. 27, 1977, 77 32414; Oct. 27, 1977, 77 32415; Jul. 24, 1978, 78 21811; Jul. 24, 1978, 78 21812
Int. Cl.³ C07C *69/74, 69/743*
U.S. Cl. 560—124 **1 Claim**

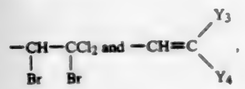
1. A process for the preparation of a compound of a stereoisomer of a compound of the formula



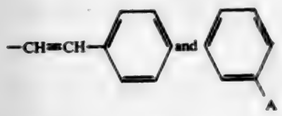
wherein R_1 is



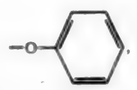
Y_1 and Y_2 are both methyl or Y_1 is hydrogen and Y_2 is selected from the group consisting of



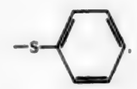
Y_3 and Y_4 are individually selected from the group consisting of fluorine, chlorine, bromine, hydrogen, and methyl, X is fluorine and R_2 is selected from the group consisting of



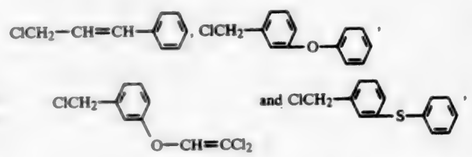
and A is selected from the group consisting of



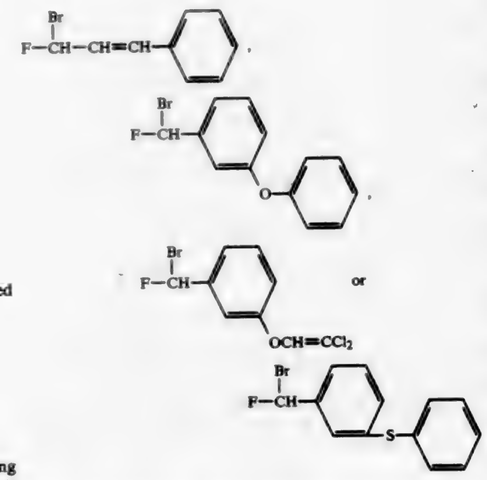
—OCH =CCl_2 and



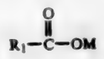
comprising reacting a quaternary ammonium fluoride fixed on a resin with a chloride having a formula selected from the group consisting of



subjecting the corresponding fluoride to the action of N-bromosuccinimide in the presence of azoiosbutyronitrile to obtain a mixed bromide and fluoride derivative of the formula



and reacting the latter with an alkali metal salt of the formula



wherein R_1 has the above definition and M is an alkali metal ion.

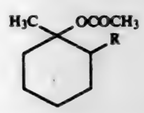
4,277,618

2-SUBSTITUTED-1-ACETOXY AND HYDROXY-1-METHYL-CYCLOHEXANES

Daniel Helmlinger, Dübendorf, and Peter Naegeli, Wettingen, both of Switzerland, assignors to Givaudan Corporation, Clifton, N.J.

Filed Dec. 4, 1978, Ser. No. 966,427
Claims priority, application Luxembourg, Dec. 12, 1977, 78670; Switzerland, Oct. 30, 1978, 11175/78
Int. Cl.³ C07C *69/14*
U.S. Cl. 560—231 **4 Claims**

1. Compounds having the formula:



(I)

wherein R represents sec. butyl, tert. butyl or cyclohexyl.

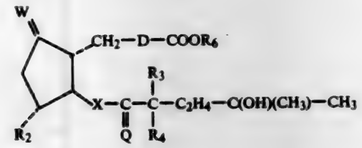
4,277,619

19-HYDROXY-19-METHYL-INTER-PHENYLENE-13,14-DIHYDRO-PG_1 COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,199
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—465 **2 Claims**

1. A compound of the formula



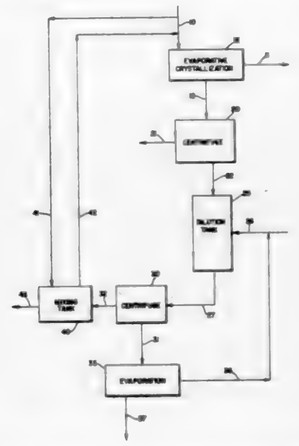
wherein D is
(1) —(m—Ph)—$(CH_2)_2$—, or
(2) —(m—Ph)—O—CH_2—,
wherein —(m—Ph)— is inter-meta-phenylene, and
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl or 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and
wherein X is —CH_2CH_2—.

4,277,620

BYPRODUCT RECOVERY FROM A PENTAERYTHRITOL WASTE STREAM

B. Frank Gupton, Virginia Beach, and Harry E. Ulmer, Chesapeake, both of Va., assignors to Virginia Chemicals Inc., Portsmouth, Va.

Filed Feb. 29, 1980, Ser. No. 126,174
Int. Cl.³ C07C *31/24*; C07B *53/02*; C10L *1/18*
U.S. Cl. 562—609 **11 Claims**



1. A process for recovery of metal formate and pentaerythritol from an aqueous waste stream, which aqueous waste stream is a primary byproduct stream derived from a reaction system in which pentaerythritol is produced by the reaction of formaldehyde with acetaldehyde in the presence of metal hydroxide catalyst and the pentaerythritol product is recovered from the aqueous reaction medium by crystallization, wherein the process comprises the steps of (1) concentrating the primary aqueous waste stream by water removal to precipitate metal formate, and separating the precipitated metal formate from the resultant secondary aqueous waste stream; (2) diluting the said secondary aqueous waste stream with methanol to precipitate a solid mixture comprising metal formate and pentaerythritol, and separating the solid mixture from the resultant tertiary aqueous waste stream; (3) contacting the said solid mixture with a quantity of primary aqueous waste stream to dissolve substantially the metal formate component of the solid mixture thereby forming a sodium formate-enriched aqueous phase and a solid comprising crystalline pentaerythritol; and (4) separating and recycling the said metal formate-enriched aqueous phase to step(1) of the process for blending with the primary aqueous waste stream feed.

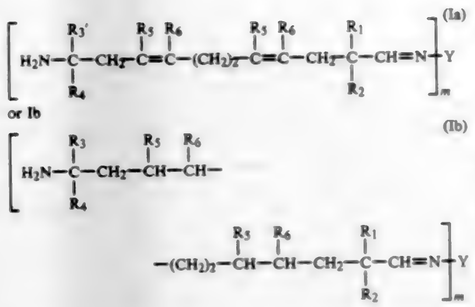
4,277,621

SUBSTITUTED 11-AMINO-UNDECA-4,8-DIENAL AND 11-AMINO-UNDECANAL DERIVATIVES AND PROCESSES FOR THEIR PREPARATION

Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Josef Pfeifer, Therwil, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 9, 1979, Ser. No. 83,140
Claims priority, application Switzerland, Oct. 18, 1978, 10769/78
Int. Cl.³ C07C *109/14, 109/16, 131/00*
U.S. Cl. 564—250 **9 Claims**

1. A compound of formula Ia



or Ib

in which m is the number 1, Y is OH or NH_2, R_1 is alkyl having 1–12 C atoms, R_2 is hydrogen or alkyl having 1–12 C atoms, R_3 is alkyl having 1–12 C atoms, cycloalkyl having 4–12 ring C atoms, aralkyl having 7 or 8 C atoms, phenyl, 1-naphthyl, 2-naphthyl, or said phenyl or said naphthyl substituted by alkyl having 1–4 C atoms, R_3' has the meaning defined for R_3 or, if R_4 is hydrogen, is also —C═CH-alkyl or —C(alkyl)═CH-alkyl, each having 1–4 C atoms in the alkyl moiety, and R_4 is hydrogen alkyl having 1–12 C atoms, cycloalkyl having 4–12 ring C atoms, aralkyl having 7 or 8 C atoms, phenyl, 1-naphthyl, 2-naphthyl, or said phenyl or said naphthyl substituted by alkyl having 1–4 C atoms, or R_1 and R_2, R_3 and R_4 or R_3' and R_4; or both R_1 and R_2; and R_3 and R_4; or both R_1 and R_2; and R_3' and R_4, together are alkylene having 3–11 C atoms, and R_5 and R_6 independently of one another are hydrogen or methyl.

4,277,622

PROCESS FOR PRODUCTION OF 1,17-DIAMINO-9-AZAHEPTADECANE

Touru Asada; Yasuhisa Miura, both of Hazaki, and Tsutomu Yoshino, Yachiyo, all of Japan, assignors to Dainippon Ink & Chemicals Inc., Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 106,735
Claims priority, application Japan, Jan. 6, 1979, 54-112
Int. Cl.³ C07C 85/00
U.S. Cl. 564—512 **5 Claims**

1. A process for producing 1,17-diamino-9-azaheptadecane which comprises adding nitric acid to octamethylenediamine, heating the mixture to eliminate ammonia therefrom, stopping the reaction when the conversion reaches 10 to 40%, and neutralizing the reaction product with an alkali.

4,277,623

CONVERSION OF ALKANE AND/OR CYCLOALKANE THIOLS TO DISULFIDE WITH CATALYST SYSTEM COMPRISED OF COBALT MOLYBDATE AND AN ALKALI- OR ALKALINE EARTH METAL HYDROXIDE

Donald H. Kubicek, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 17, 1979, Ser. No. 67,645
Int. Cl.³ C07C 149/10
U.S. Cl. 568—26 **7 Claims**

1. A process for the conversion of at least one of an alkane and a cycloalkane thiol to a corresponding disulfide in high yield and selectivity which consists essentially of subjecting the same to at least one of oxygen and air in the presence of a catalyst consisting essentially of a small amount of the order of 0.2 to 4 grams per mole of thiol of at least one of an alkali metal hydroxide and alkaline earth metal hydroxide together with a cobalt molybdate catalyst, the cobalt molybdate catalyst being on a suitable support and being substantially insoluble in the reaction medium, and the reaction being effected with the aid of a solvent which is at least one comprised of an alcohol in which the hydroxide is soluble and said alcohol and water.

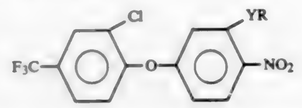
4,277,624

PROCESS FOR PREPARING DIPHENYL ETHERS

Takeo Yoshimoto, Yokohama; Keiichi Igarashi, Musashino; Kengo Oda; Masaaki Ura, both of Yokohama, and Naoki Sato, Kamakura, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 54,865
Claims priority, application Japan, Jul. 5, 1978, 53-80860
Int. Cl.³ C07C 41/00, 148/00
U.S. Cl. 568—44 **9 Claims**

1. A process for preparing a diphenyl ether compound expressed by the general formula:



wherein R represents a hydrogen atom, or substituted or unsubstituted alkyl group, alkenyl group or alkynyl group, and Y represents an oxygen atom or a sulfur atom, comprising reacting 2-chloro-4-trifluoromethylphenyl-3,4-dinitrophenyl ether:

(a) with an alkali metal hydroxide, or with an alcohol selected from the group consisting of substituted or unsubstituted alkyl alcohols, alkenyl alcohols and alkynyl alcohols in the presence of an alkali metal hydroxide, or with an alkali metal salt of an alcohol as defined above, when Y is oxygen, or

(b) with an alkali metal hydrosulfide, or with a thiol selected from the group consisting of substituted or unsubstituted alkyl thiols, alkenyl thiols and alkynyl thiols in the presence of an alkali metal hydroxide, or with an alkali metal salt of a thiol as defined above, when Y is sulfur.

4,277,625

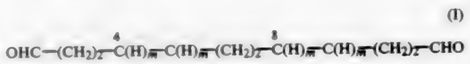
PROCESS FOR THE PREPARATION OF MUSCONE

Karl-Heinrich Schulte-Elte, Onex; Arnold Hauser, Petit-Lancy, and Günther Ohloff, Bernex, all of Switzerland, assignors to Firmenich SA, Geneva, Switzerland

Filed Nov. 20, 1979, Ser. No. 96,054
Claims priority, application Switzerland, Dec. 7, 1978, 12510/78
Int. Cl.³ C07C 45/60
U.S. Cl. 568—341 **4 Claims**

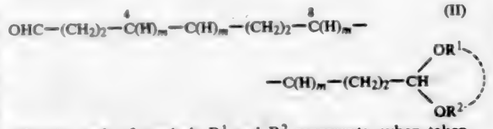
1. Process for the preparation of muscone which comprises

a. subjecting to acetalysation in the presence of an acid catalyst a dialdehyde of formula



(I)

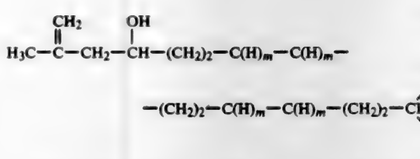
containing two single or two double bonds in positions 4 and 8 of the chain as indicated by the dotted lines and wherein index m stands for 1 or 2, to give a monoacetal of formula



(II)

wherein each of symbols R^1 and R^2 represents, when taken separately, a lower alkyl radical, or when taken together, a lower alkylene radical,

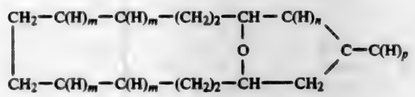
b. adding a methallyl-magnesium halide on the obtained mono-acetal and hydrolyzing the resulting adduct under Grignard reaction conditions to give a hydroxy derivative of formula



(III)

wherein symbols R^1 and R^2, index m and the dotted lines have the above given meaning,

c. cyclising in an inert organic solvent by means of an acidic cyclisation agent compound of formula (III) to yield a bicyclic oxygenated compound of formula



(IV)

wherein index m and the dotted lines have the above indicated meaning and

(a) n=1 and p=3 or

(b) n=2 and p=2, and

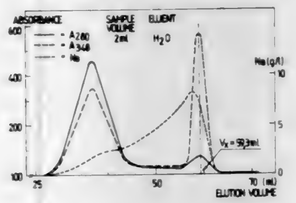
d. subjecting said compound (IV) to an isomerisation and a catalytic hydrogenation in the presence of a hydrogenation catalyst and in an inert organic solvent to yield muscone.

4,277,626

METHOD FOR THE ISOLATION OF VANILLIN FROM LIGNIN IN ALKALINE SOLUTIONS

Kaj G. Forss, Stahlbergintie 6 D, 00570 Helsinki 57; Esko T. Talka, Norotie 6 C, 01600 Vantaa 60, and Kaj-Erik Fremer, Pajalahdentie 6 A, 00200 Helsinki 20, all of Finland

Filed Jan. 24, 1980, Ser. No. 115,048
Int. Cl.³ B01D 15/04
U.S. Cl. 568—438 **6 Claims**



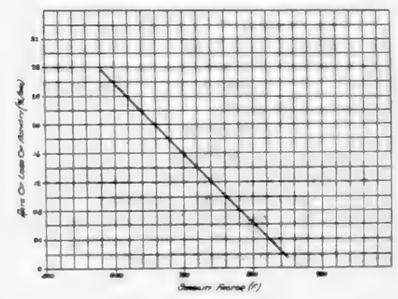
1. A method for the separation of sodium vanillate from lignin and alkali in alkaline aqueous solutions, comprising the steps of feeding an alkaline aqueous solution containing sodium vanillate and a material selected from the group of lignin and alkali into a bed of a cation exchange resin in its sodium salt form, said sodium vanillate and said material being adsorbed on the resin at different strength levels, and eluting the adsorbed sodium vanillate and said material from the resin by aqueous solution, said sodium vanillate being collected primarily in one elution volume and said material being collected primarily in a second elution volume.

4,277,627

HYDROFORMYLATION PROCESS

David R. Bryant, South Charleston, and Ernst Billig, Charleston, both of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 762,336, Jan. 25, 1977. This application May 19, 1980, Ser. No. 151,293
Int. Cl.³ C07C 45/50
U.S. Cl. 568—454 **17 Claims**



1. In a process for hydroformylating an alpha-olefin having from 2 to 20 carbon atoms to produce aldehydes having one more carbon atom than the alpha-olefin by reacting the alpha-olefin with hydrogen and carbon monoxide in the presence of a rhodium complex catalyst consisting essentially of rhodium complexed with carbon monoxide and a triphenylphosphine, and in the presence of free triphenylphosphine the improvement comprising

operating said process at a temperature of from about 90° to about 130° C., a partial pressure of carbon monoxide of less than about 55 pounds per square inch absolute, a partial pressure of hydrogen of less than about 200 pounds per square inch absolute, a total gas pressure of hydrogen, carbon monoxide and alpha-olefin of less than about 400 pounds per square inch absolute, and at least about 100 moles of free triphenylphosphine per mole of catalytically-active rhodium metal; and

minimizing or substantially preventing deactivation of said rhodium complex catalyst to a maximum determined rate of loss of activity by controlling and correlating the carbon monoxide partial pressure, the temperature and the free triphenylphospine:catalytically-active rhodium metal mole ratio within said values to provide the minimum stability factor F necessary to give essentially the minimum rate of loss of activity according to FIG. 1 of the drawings;

said stability factor F being defined by the equation:

$$F = \frac{1000}{1 + e^{y}}$$

where

F=stability factor,

e=Naperian log base (2.718281828),

$y = K_1 + K_2T + K_3P + K_4(L/Rh)$,

$K_1 = -8.1126$,

$K_2 = 0.07919$,

T=the reaction temperature (°C.),

$K_3 = 0.0278$,

P=the carbon monoxide partial pressure (psia),

$K_4 = -0.01155$, and

(L/Rh)=the free triphenylphosphine:catalytically-active rhodium metal mole ratio.

4,277,628

PHENOL RECOVERY FROM BISPHENOL-A WASTE STREAMS

James C. Carnahan, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 20, 1980, Ser. No. 151,664

Int. Cl.³ C07C *37/68, 37/74*

U.S. Cl. 568—749 **4 Claims**

1. The process for producing liberated phenol by cracking a tarry residue derived from the acid reaction of phenol and acetone thereby to make bisphenol-A, which process comprises heating the said residue with aluminum isopropoxide at a temperature in excess of 150° C., but below the decomposition point of any of the compounds in the residue in an amount of aluminum isopropoxide and for a time sufficient to cause distillation of liberated phenol from the residue, and thereafter collecting the distilled phenol.

4,277,629

PROCESSES FOR THE PREPARATION OF CHLORINATED PHENOLS

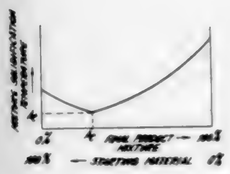
John S. Binns, Lymm; Malcolm J. Braithwaite, Sale, and George Digman, Northwich, all of England, assignors to Lankro Chemicals Limited, Manchester, England

Filed Jun. 7, 1977, Ser. No. 804,254

Claims priority, application United Kingdom, Jun. 18, 1976, 25321/76

Int. Cl.³ C07C *39/28*

U.S. Cl. 568—779 **10 Claims**



1. A process for the preparation of p-chloro-phenols comprising reacting a para-unsubstituted phenol selected from the group consisting of phenol, orthocresol, and metacresol in melt form with sulphuryl chloride in a plurality of discrete reaction stages, each comprising the steps of:

(a) supplying only a part of the sulphuryl chloride needed for total conversion of all of the para-unsubstituted phenol to the discrete reaction stage to form a reaction mixture, and subsequently,

(b) maintaining the reaction mixture at a temperature within 20° C. above the solidification temperature of the reaction mixture present at the end of the stage for such a period of time that the sulphuryl chloride supplied to the discrete reaction stage is at least substantially completely reacted in the stage,

from 40% to 85% of the total sulphuryl chloride being supplied in the first stage, the final reaction stage being effected at a temperature above that of a previous stage, and taking the reaction of said para-unsubstituted phenol substantially to completion.

4,277,630

CATALYST AND PROCESS FOR PRODUCING AROMATIC HYDROXY COMPOUNDS

Abraham P. Gelbein, Plainfield, and Ali M. Khosrari, Bloomfield, both of N.J., assignors to The Lummus Company, Bloomfield, N.J.

Continuation of Ser. No. 853,040, Nov. 21, 1977, abandoned. This application Feb. 26, 1979, Ser. No. 15,481

Int. Cl.³ C07C *37/00*

U.S. Cl. 568—801 **6 Claims**

1. A process for catalytically oxidizing an aromatic carboxylic acid selected from the group consisting of benzoic acid and alkyl substituted benzoic acid to the corresponding phenol at improved selectivity, comprising:

contacting said aromatic carboxylic acid with oxygen and steam in the presence of a catalyst at a temperature of from 200° C. to 400° C. and at a pressure of from 2 to 20 atmospheres, with an oxygen to carboxyl group mole ratio of from 0.2:1 to 10:1, and a steam to carboxyl group mole ratio of from 5:1 to 500:1, said catalyst being comprised of oxidized copper, zirconium and an alkali metal wherein the copper:zirconium:alkali metal atomic ratio is from 1:0.2 to 0.5:0.5 to 2.5.

4,277,631

PROCESS FOR MAKING NORPATCHOULENOL

Wolfgang Oppolzer, Vandoeuvres, Switzerland, assignor to Givaudan Corporation, Clifton, N.J.

Filed Aug. 6, 1979, Ser. No. 64,445

Claims priority, application Switzerland, Aug. 10, 1978, 8520/78

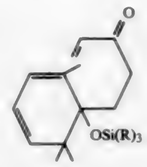
Int. Cl.³ C07C *35/37, 29/00*

U.S. Cl. 568—817 **12 Claims**

1. A process for the production of substituted 5,5,8a-trimeythyl-1,6-methanonaphthalenes, which compriaes:

(a) cyclising, via an intramolecular Diels Alder reaction, a compound of the formula

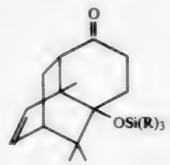
IV



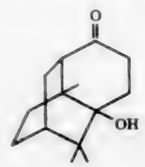
wherein R represents a lower alkyl, phenyl, lower alkylphenyl or phenyl lower alkyl group wherein the lower alkyl groups contain from 1 to 4 carbon atoms,

to give a compound of the formula

V



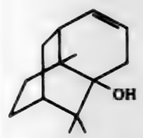
(b) Converting said compound of formula V to the corresponding saturated alcohol of the formula



by removing the trisubstituted silyl group using mild acid hydrolysis and selectively hydrogenating the 7,8 double bond to a single bond using a noble metal catalyst and

(c) converting said compound of formula VII to norpatchoulenol of the formula

VIII



by means of a Bamford-Stevens reaction.

4,277,632

PROCESS FOR THE PRODUCTION OF ALKYLENE GLYCOLS

Toshihiko Kumazawa, Yokohama; Takeshi Yamamoto, Tokyo, and Hiroshi Odanaka, Yokosuka, all of Japan, assignors to Nippon Shokubai Kaguku Kogyo Co., Ltd., Osaka, Japan

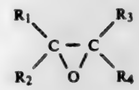
Filed Sep. 19, 1979, Ser. No. 76,842

Claims priority, application Japan, Jul. 9, 1979, 54-85935; Jul. 12, 1979, 54-87510; Jul. 20, 1979, 54-91695; Jul. 24, 1979, 54-93218; Jul. 30, 1979, 54-96155; Aug. 1, 1979, 54-97377; Aug. 6, 1979, 54-99471

Int. Cl.³ C07C *31/20, 33/035, 33/05, 33/30*

U.S. Cl. 568—867 **23 Claims**

1. A process for the production of substituted or unsubstituted ethylene glycols, which compriaes causing a corresponding ethylene oxide of the formula



wherein R_1, R_2, R_3, and R_4 each denote a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, an aryl group having 6 carbon atoms, an alkenyl group having 2 or 3 carbon atoms or a cycloalkyl group having 3 to 6 carbon atoms to react with water in the presence of a catalyst of at least one member selected from the group consisting of metallic molybdenum, metallic tungsten, molybdenum compounds and tungstic acid and the salts thereof in an atmosphere of nitrogen or carbon dioxide.

4,277,633

PALLADIUM COMPLEX, PROCESS FOR THE PREPARATION THEREOF AND CATALYST FOR PRODUCING 1,3-DIENE OLIGOMERS

Satoru Enomoto, Fujisawa; Hisayuki Wada, Tokyo; Sadao Nishita, Tokyo; Yutaka Maksida, Tokyo; Mikiro Yasaka, Matsudo, and Hitoshi Takita, Tokyo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

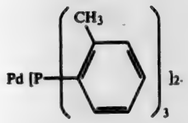
Division of Ser. No. 904,407, May 10, 1978, Pat. No. 4,196,135. This application Jul. 12, 1979, Ser. No. 57,030

Claims priority, application Japan, May 18, 1977, 52-56311

Int. Cl.³ C07C *33/02*

U.S. Cl. 568—879 **2 Claims**

1. In the method for producing a hydroxy containing 1,3-diene oligomer by reacting a 1,3-diene of the formula of $CH_2{=}CR^1{-}CR^2{=}CH_2$, wherein R^1 and R^2 are identical or different and are hydrogen or alkyl, with an aldehyde, the improvement compriaing using, as a catalyst, bis[tri(orthotolyl)phosphine] palladium having the formula



4,277,634

PROCESS FOR THE SELECTIVE HOMOLOGATION OF METHANOL TO ETHANOL

Wellington E. Walker, Sissonville, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Apr. 9, 1980, Ser. No. 138,688

Int. Cl.³ C07C *27/00, 29/36*

U.S. Cl. 568—902 **11 Claims**

1. In a process for selectively producing ethanol from the reaction of methanol, hydrogen and carbon monoxide at a pressure of from 1,000 psig to 10,000 psig and a H_2:CO mole ratio of from 1:10 to 10:1 and wherein the reaction is catalyzed by a catalyst system consisting essentially of cobalt and iodide ion, the improvement consisting of carrying out the reaction at a temperature of from greater than 180° C. to 220° C. in the presence of a substantially inert solvent from the group consisting of dioxane, toluene, tetrahydrofurane, the dimethyl ether of tetraethylene glycol and 1,2-dimethoxybenzene at an iodide to cobalt mole ratio of 0.1:1 to 4:1 and wherein the volume ratio concentration of said inert solvent to methanol is from 0.5:1 to 100:1.

4,277,635

PROCESS OF CONCENTRATING ETHANOL FROM DILUTE AQUEOUS SOLUTIONS THEREOF

Charles S. Oulman, Ames, and Colin D. Chriswell, Slater, both of Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Jun. 24, 1980, Ser. No. 162,524

Int. Cl.³ C07C *31/08, 29/76*

U.S. Cl. 568—916 **11 Claims**

1. The process of concentrating ethanol from an aqueous solution thereof, comprising:

(a) passing a relatively dilute liquid aqueous ethanol feed through a bed composed of graules of a crystalline silica polymorph capable of selectively adsorbing ethanol from an aqueous solution thereof, said feed having an ethanol concentration of less than 70% by weight.

(b) discontinuing the passing of said feed through said bed when said granules have become loaded with adsorbed ethanol, said bed containing residual dilute aqueous ethanol feed;

(c) passing a displacer liquid through said bed to displace said residual feed without displacing the adsorbed ethanol, said displacer liquid comprising aqueous ethanol containing at least 80% ethanol by weight;

(d) continuing said passing of said displacer liquid through said bed until substantially all of said dilute ethanol feed has been displaced from said bed so that it contains said adsorbed ethanol together with said displacer liquid; and

(e) thereafter removing said adsorbed ethanol from said bed together with at least a portion of displacer liquid and obtaining a concentrate product consisting of an admixture thereof which has an ethanol concentration of at least 80% by weight.

4,277,636

PROCESS FOR PREPARING HIGH DENSITY FUELS

Richard V. Norton, Dublin; Peter J. Frank; Dennis H. Fisher, both of Westerville, and Steven C. Howe, Columbus, all of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Aug. 11, 1980, Ser. No. 176,728

Int. Cl.³ C10L *1/04*

U.S. Cl. 585—14 **6 Claims**

1. In a method for the preparation of a trimerization product of cyclopentadiene and methylcyclopentadiene wherein a neat mixture of the dimers of said dienes is heated to effect the progressive partial dissociation thereof to the respective monomers and the reoligomerization of the resultant reaction mixture to provide the trimerization product; the improvement of effecting said dissociation and reoligomerization in the presence of an inert hydrocarbon solvent.

4,277,637

PROCESS FOR PURIFYING ARYL-SUBSTITUTED MONO-OLEFINS

Debra S. K. Kaimbach, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 9, 1978, Ser. No. 868,012
Int. Cl.³ C07C 7/12
U.S. Cl. 585—828 10 Claims

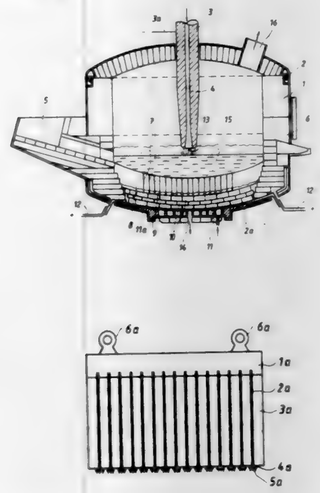
1. A process for removing α-alkylstyrene, impurities of the group consisting of α-alkylstyrene, nuclear alkyl derivatives of α-alkylstyrene, and nuclear alkenyl derivatives of α-alkylstyrene, from starting mixtures thereof with at least one styrenic monomer of the group consisting of styrene and nuclear alkyl derivatives of styrene, which comprises contacting the starting mixture of styrenic monomer containing α-alkylstyrene impurities with a macroporous, sulfonic acid, H^+ form cation exchange resin containing moisture in the range of from about 20 percent to about 30 percent weight of water based on the weight of the dry resin.

4,277,638

PREFABRICATED UNIT FOR A DC ARC FURNACE

Sven-Einar Stenkvist, Vesteras, Sweden, assignor to ASEA Aktiebolag, Vesteras, Sweden

Filed Dec. 28, 1979, Ser. No. 107,764
Claims priority, application Sweden, Dec. 29, 1978, 7813408
Int. Cl.³ F27D 1/00; H05B 7/00
U.S. Cl. 13—35 4 Claims



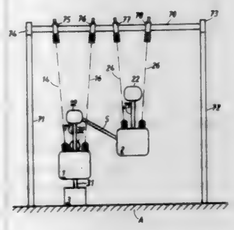
1. A prefabricated unit for a DC arc furnace having a hearth bottom made of electrically conductive bricks, said unit comprising a metal plate, a cluster of metal rods depending from said plate and which are fixed to the plate in electrically conductive connection with the plate, and an electrically non-conductive refractory compound rammed or cast around said rods and the bottom of said plate with the bottom ends of the bars exposed below the compound, said unit being adapted to be installed on said bricks with the bar's said bottom ends in electrical connection with the bricks so as to form an electrically conductive hearth for the furnace.

4,277,639

HIGH-VOLTAGE INSTALLATION INCLUDING HEAVY ELECTRICAL APPARATUS SUSPENDED BY INSULATOR MEANS

Karl E. Olsson, Ludvika, Sweden, assignor to ASEA Aktiebolag, Sweden

Filed Mar. 19, 1980, Ser. No. 131,345
Claims priority, application Sweden, Mar. 27, 1979, 7902707
Int. Cl.³ H01F 27/06; H02B 1/18, 5/04
U.S. Cl. 174—42 8 Claims



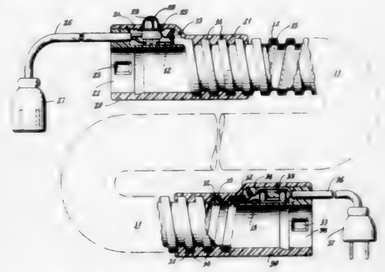
1. A high-voltage installation comprising an electrical high-voltage apparatus with a weight exceeding 10 tons and an operating voltage exceeding 100 kV, and a support structure including a supporting member from which said high-voltage apparatus is suspended by means of a plurality of elongated electrically insulating suspension members, each suspension member being attached to said supporting member through resilient means for allowing relative movement between said apparatus and said supporting member in the longitudinal direction of said suspension members.

4,277,640

ELECTRIC CURRENT-CARRYING HOSE ASSEMBLY HAVING END FITTINGS ENCLOSING AN ELECTRICAL SWITCH AND/OR A CIRCUIT-BREAKING DEVICE

Thomas A. Kutnyak, Greenwood; Marvin A. Koerber, Abbeville, and Henry K. Wills, Greenwood, all of S.C., assignors to Automation Industries, Inc., Greenwich, Conn.

Filed Apr. 26, 1979, Ser. No. 33,413
Int. Cl.³ A47L 9/24, 9/28; F16L 11/12
U.S. Cl. 174—47 6 Claims



1. A flexible, electric current-carrying hose assembly comprising:

(1) a flexible hose having a passageway therethrough and first and second current-carrying leads extending between first and second ends;

(2) first and second hose-coupling cuffs attached to said first and second ends, respectively, of said flexible hose, at least one of said cuffs having a sealed chamber formed therein with the seal between said chamber and said passageway being formed by intrusion of said hose into an opening between said chamber and said passageway;

(3) switch means mounted and sealed within said sealed chamber with an actuator extending from said chamber; and

(4) first and second electrical cords each terminated with a plug and connected to said first and second cuffs, respectively, said cords, said switch means and said leads being electrically connected to form a controllable electrical current path between said plugs.

4,277,641

ELECTRICAL OUTLET BOX AND CABLE CLAMP DEVICE

Claude J. Bauer, and Kenneth M. Moore, both of Parkersburg, W. Va., assignors to GTE Products Corporation, Stamford, Conn.

Filed Sep. 26, 1979, Ser. No. 78,998
Int. Cl.³ H02G 3/08
U.S. Cl. 174—65 R 17 Claims

1. An electrical wiring box arrangement of a wiring box and cable clamp device, including in combination:

a wiring box comprising:

a wall structure defining front to rear walls and a rear wall therebetween which in combination define a chamber within the box; said wall structure having a knock-out region for providing a knock-out opening for receiving non-metallic sheathed cable, and attachment receiving

means for mounting said cable clamp device interior to said box adjacent to said knock-out region; and

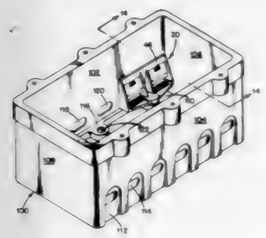
a cable clamp device for non-metallic sheathed cable comprising:

a base member having a first cable engaging means and attachment means receivable in said attachment receiving means of said box wall structure for mounting said cable clamp device in said box;

a first and a second support member, each having a first end thereof attached to said base member;

a connecting member disposed between said first and said second support members, said connecting member attached to a second end of each of said support members;

said first and second support members tapering from a first width at said first end of each thereof to a narrower



width at said second end of each thereof for maintaining said connecting member in a fixed position relative to said base member; and

a substantially planar depending flap member resiliently and hingedly attached at one end thereof to said connecting member, the other end of said depending flap member providing a second cable engaging means, said second cable engaging means being spaced apart from and opposing said first cable engaging means;

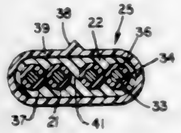
whereby a non-metallic sheathed cable passed through a knock-out opening of said wiring box having said cable clamp device attached thereto passes between said base member and said depending flap member of said clamp device and is gripped between said first cable engaging means and said second cable engaging means.

4,277,642

CORDAGE HAVING A PLURALITY OF CONDUCTORS IN A PARTITIONED JACKET

George F. Piper, Baltimore; William C. Vesperman, Bel Air, and Max K. Wilson, Cockeysville, all of Md., assignors to Western Electric Company, Inc., New York, N.Y.

Division of Ser. No. 943,425, Sep. 15, 1978, Pat. No. 4,221,756.
This application Jan. 9, 1980, Ser. No. 110,577
Int. Cl.³ H01B 7/08
U.S. Cl. 174—117 F 4 Claims



1. Telephone cordage, which includes:

at least two groups of relatively flexible, individually insulated conductors which are disposed in a planar array;

a plastic jacket which encloses said groups of conductors;

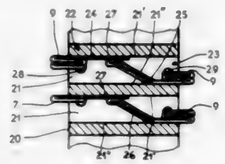
a web of plastic material which is integral with the jacket and which separates adjacent groups of conductors, said web having a thickness which varies along the cordage to compensate for conductor size variations and to cause the distance from an outwardly facing surface of each outermost conductor in the array to be spaced a substantially constant distance from the outwardly facing surface of the jacket along the length of the cordage.

4,277,643

CONNECTING MEMBER FOR TELEPHONE SYSTEMS

Yves Saligny, Cluses, France, assignor to Etablissements Carpano and Pons, France

Filed May 1, 1979, Ser. No. 35,079
Claims priority, application France, May 18, 1978, 78 15657
Int. Cl.³ H01R 31/08
U.S. Cl. 179—1 PC 12 Claims



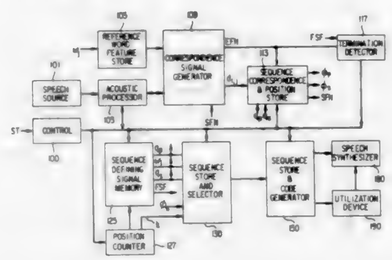
9. A distributing strip for telephone systems comprising an insulating case having a row of cavities each having two opposite walls, and at least one connecting member in each of said cavities, said connecting member consisting of a flat unitary conducting element of uniform thickness, a portion of said flat conducting element being bent over flat on itself at least once with the resulting superposed portions pressed flat against one another to form a thickner, rigid multi-ply terminal portion from one side of which at least one thinner portion of said connecting member extends, and means for securing said rigid terminal portion of said connecting member to a wall of the respective cavity of said insulating case.

4,277,644

SYNTACTIC CONTINUOUS SPEECH RECOGNIZER

Stephen E. Levinson, Westfield, and Frank C. Pirz, Madison, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 16, 1979, Ser. No. 57,749
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SD 15 Claims



1. Apparatus for recognizing an utterance as one of a plurality of reference word sequences comprising:

means (205) for storing a set of signals each representative of the acoustic features of a reference word;

means (203) responsive to said utterance for generating a signal representative of the acoustic features of the utterance;

means (411) for generating a set of first signals defining the plurality of sequences, each sequence being a series of reference words;

means (427) for generating a succession of second signals identifying the successive word positions of the plurality of sequences;

means (209, 425, 427) responsive to the set of first signals, the utterance feature signals and the reference word feature signals for producing a set of third signals each representative of the correspondence between said utterance and one of said sequences; and

means (430) responsive to said third signals for selecting the sequence having the closest correspondence to said utterance;

characterized in that

said third signal producing means comprises:

means (361) operative for each sequence in each word position identified by said second signals for storing a fourth signal representative of the word position utterance segment endpoint of said sequence;

means (351,383,411) operative for each sequence in each word position jointly responsive to said first signals and stored fourth signal of the preceding word position of the sequence for selecting the utterance feature signals beginning at the preceding word position utterance segment endpoint of the sequence and the current word position reference word feature signals of the sequence; and

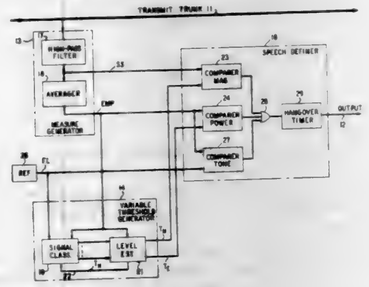
means (209) jointly responsive to said sequence selected utterance feature signals and the sequence selected reference word feature signals for concurrently generating a fourth signal representative of the endpoint of the current word position utterance segment corresponding to the selected reference word, and a signal representative of the correspondence between the selected utterance segment feature signals from the preceding word position utterance segment endpoint for the sequence and the current word position selected reference word feature signals for the sequence.

4,277,645

MULTIPLE VARIABLE THRESHOLD SPEECH DETECTOR

Carl J. May, Jr., Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 25, 1980, Ser. No. 115,185
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SC 9 Claims



1. Apparatus for indicating the occurrence of speech in a signal indicative of both speech and noise, the apparatus including:

means for generating (13) a representation of the average magnitude of the signal during a moving time interval;

the apparatus being characterized by classifying means (19) for receiving said representation and a noise level estimate, said classifying means generating a first output to indicate when said representation has prescribed attributes indicative of speech and a second output to indicate when said representation has prescribed attributes indicative of noise;

level estimator means (21) responsive to said first and second outputs and said representation, said level estimator means providing a noise level estimate using the portion of said representation identified by the occurrence of said second output, said level estimator means providing a first decision level output by combining said noise level estimate and the portion of said representation defined by the occurrence of said first output in excess of a prescribed amount of said first decision level output; and

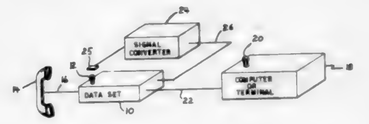
comparing means (16) for providing an output indicative of the occurrence of speech signal activity when said first decision level is exceeded by the signal.

4,277,646

APPARATUS AND METHOD FOR RESETTING DATA SETS

Terry L. Sams, Roswell, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,467
Int. Cl.³ H04M 11/00
U.S. Cl. 179—2 DP 2 Claims



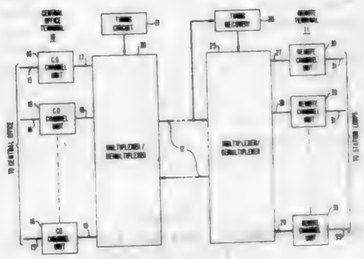
1. A method of resetting a data set coupling a telephone with a computer or with a data terminal of the type having light signaling means for signaling the completion of a communication and reset terminal means for receiving a data set reset signal upon completion of the communication, and with the reset method comprising the steps of generating an oscillatory electrical signal; monitoring the data set light signaling means; and applying the oscillatory electrical signal to the data set reset terminal means when the light signaling means signals the completion of a communication.

4,277,647

COIN SIGNALING SYSTEM

Stephen J. Brolin, Livingston, and Samuel Colodner, Succasunna, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 31, 1979, Ser. No. 71,713
Int. Cl.³ H04M 17/02
U.S. Cl. 179—6.3 R 10 Claims



1. A coin supervisory signal detector for central office wire pairs in a telephone system

characterized by

voltage detection means for detecting the magnitude and polarity of voltages appearing on said wire pairs,

a plurality of optical isolators for detecting the direction of current flow in each wire of said wire pairs, and

combinatorial logic circuit means for combining the outputs of said voltage detection means and the outputs of said isolators to provide separate indications of each of a plurality of unique coin supervisory signaling states to be transmitted to a remote location in said telephone system.

4,277,648

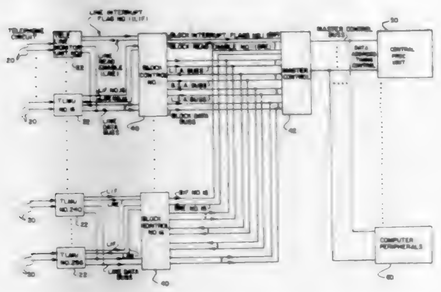
TELEPHONE MONITORING APPARATUS

David M. Glassman, 13 Gateway Clr., Rochester, N.Y. 14624

Continuation-in-part of Ser. No. 971,231, Dec. 20, 1978. This application Apr. 28, 1980, Ser. No. 144,200

Int. Cl.³ H04M *15/38*

U.S. Cl. 179—7.1 R **4 Claims**



1. In monitoring apparatus for monitoring a plurality of telephone lines, the apparatus including a central processing unit operative under an appropriate program including an interrupt service routine to process data presented thereto, the improvement comprising:

(a) a plurality of telephone monitor units each including (i) a detector means connected to a telephone line for sensing the status of said line and for producing signal pulses whenever changes in the status occur, (ii) storage means responsive to said signal pulses for temporarily storing binary data representative of the change of status information and for providing a first interrupt signal indicating that a change in status has occurred, and (iii) first transfer means for transferring the binary data from said storage means to the central processing unit; and

(b) at least one control unit, said control unit including (i) a priority encoder connected to said telephone monitor units, said priority encoder being activated upon receipt of said first interrupt signal to produce a binary value representative of that telephone monitor unit interrupting and to provide on an electrical connection to the central processing unit a CPU interrupt signal indicating that information from an individual telephone line is available, (ii) second transfer means for transferring the binary data from said priority encoder to the central processing unit and (iii) an address decoder responsive to a read command issued by the central processing unit in accordance with the interrupt service routine upon receipt of said CPU interrupt signal for enabling said first and second transfer means to transfer the binary data from said storage means and said priority encoder to the central processing unit.

4,277,649

METHOD AND APPARATUS FOR SCREENING TELEPHONE CALLS

Daniel Sheinbein, Elizabeth, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

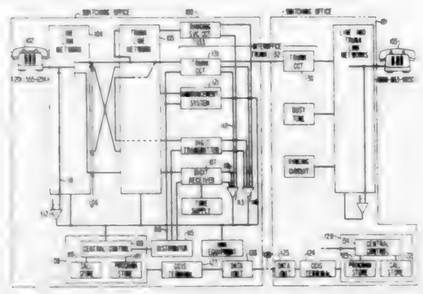
Filed Jan. 18, 1980, Ser. No. 113,384

Int. Cl.³ H04M *3/42*

U.S. Cl. 179—18 B **15 Claims**

1. A method of controlling the special service treatment of telephone calls destined for called stations from preselected calling stations comprising the steps of

entering into a memory associated with a particular called station the identity of a preselected calling station and an indication designated by the particular called station of the special service treatment to be given to calls subsequently received from said preselected calling station,



identifying each station originating a subsequent call to said particular called station,

reading the memory according to the identity of the station originating the call to ascertain the special service treatment indication for each call to the particular called station, and

disposing of the call according to said special service indication.

4,277,650

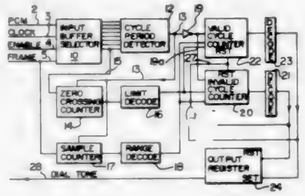
SINGLE FREQUENCY TONE RECEIVER

Inez F. Arend, Mountain View, and James S. Locke, Palo Alto, both of Calif., assignors to Northern Telecom Limited, Ottawa, Canada

Filed Jul. 2, 1979, Ser. No. 53,826

Int. Cl.³ H04M *1/50*

U.S. Cl. 179—84 VF **8 Claims**



1. A tone receiver including means for receiving pulse code modulated (PCM) signal samples from a PCM signal bit stream applied thereto, the tone receiver for indicating the presence of a predetermined PCM tone signal in the PCM bit stream, and comprising:

means for defining an interval in response to a predetermined characteristic in a consecutive series of the received PCM signal samples, the interval having a beginning in response to the predetermined characteristic including an occurrence of at least two consecutively received PCM signal samples of one polarity and at least meeting a predetermined magnitude threshold, and the interval having an ending in response to the predetermined characteristic including an occurrence of at least two consecutively received PCM signal samples of the other polarity and at least meeting a predetermined magnitude threshold; and

means for detecting the tone signal in response to a total number of the PCM signal samples received during the interval being within a predetermined range and in response to a total number of polarity changes in the PCM signal samples received during the defined interval being less than a predetermined limit.

4,277,651

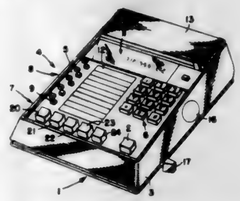
TELEPHONE DIALER

Theodore H. Fisher, II, Sparks, Nev., and Richard J. Cusimano, Jamestown, N.Y., assignors to Basic Incorporated, Cleveland, Ohio

Filed Sep. 13, 1978, Ser. No. 942,051

Int. Cl.³ H04M *1/274*

U.S. Cl. 179—90 B **23 Claims**



1. A microprocessor based automatic dialing system for telephone equipment, comprising first memory means for storing information at plural addressable locations representing plural respective telephone numbers, a central processor unit, second memory means for storing program control information for controlling said central processor unit to read out selected information from said first memory means, said central processor unit including command output means for periodically producing command signals commanding the input of information to said central processor unit, and decoding means coupled to said command output means for producing a dialing pulse in response to signals over said command output means.

4,277,652

FASTENING ARRANGEMENT IN A TELEPHONE INSTRUMENT

Leif Branden; Jan F. Bruun; Olle Holm, all of Tyresö; Ronnie E. Mellgren, Enskede; Karl A. Ryr, Tyresö; Carl-Axel Strömer, Bromma, and Erling Tronslien, Tyresö, all of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

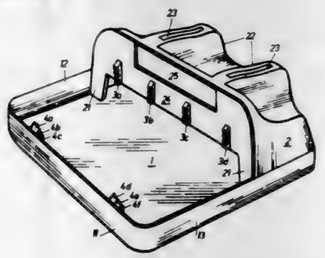
PCT No. PCT/SE78/00061, §371 Date Jun. 24, 1979, §102(e) Date May 31, 1979, PCT Pub. No. WO79/00227, PCT Pub. Date May 3, 1979

This PCT application filed Oct. 18, 1979, Ser. No. 50,171

Claims priority, application Sweden, Oct. 24, 1977, 7711945

Int. Cl.³ H04M *1/02*

U.S. Cl. 179—100 D **9 Claims**



1. A fastening arrangement for a number of circuit cards in a telephone instrument comprising a housing including a base plate provided with perimetral walls extending around the instrument substantially perpendicular to the base plate, a front casing, and a rear casing which has a planar side surface extending perpendicularly to the base plate, said planar side surface facing the front of the instrument and extending substantially along the entire width of said rear casing, supporting elements on said planar side surface for circuit cards, said supporting elements including projections extending parallel to said base plate, each of said projections being provided with a plurality of grooves extending at an angle towards the base plate, each groove having a width corresponding to the thickness of a circuit card, and combined abutment and supporting elements located on the wall of said base plate which is situated at the front of the instrument for supporting and holding circuit cards engaged in the grooves of said projections.

4,277,653

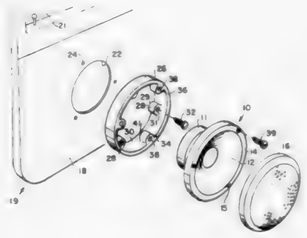
SPEAKER ADAPTER

George K. Pawelzick, 16362 Aztec Ridge Rd., Los Gatos, Calif. 95030

Filed Apr. 30, 1979, Ser. No. 34,248

Int. Cl.³ H04R *1/28*; H04M *1/04*

U.S. Cl. 179—146 E **4 Claims**



1. An adapter for mounting a speaker on a planar panel having an opening to receive the speaker and wherein the speaker comprises a coil assembly, a cone diaphragm and a mounting ring fixed to the outer periphery of the diaphragm and having an inside configuration equal to the cone outer configuration and an outer diameter, said mounting ring having a plurality of holes therethrough extending along the axis of rotation of said cone diaphragm and through which a screw will pass, said adapter comprising in combination:

a rigid adapter ring having an inside wall with a diameter slightly larger than the inside configuration of the mounting ring and an outer wall with a diameter approximately equal to the outer diameter of the mounting ring;

a plurality of first projections extending radially inward from the inside wall of the adapter ring and being positioned to align with the holes through the mounting ring, said projections each having a hole therethrough aligning with the holes in the mounting ring and sized for a screw to be threaded therein;

a plurality of second projections extending radially inward from the inside wall of the adapter ring and spaced between the first projections, each second projection having a hole therethrough extending parallel to the holes through the first projections whereby bolts can be inserted through the holes for attachment to the planar panel; and

the first projections including surfaces facing the speaker mounting ring which are flush with the speaker facing surface of the adapter ring and including opposite facing surfaces that are inset from the corresponding surface of the adapter ring facing the planar panel.

4,277,654

STETHOSCOPIC HEADPHONE SET

Cornelis Peuning, Breda, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 13, 1979, Ser. No. 30,059

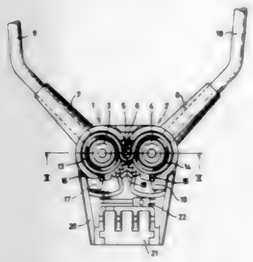
Claims priority, application Netherlands, Apr. 17, 1978, 7804041

Int. Cl.³ H04M *1/05*

U.S. Cl. 179—156 R **10 Claims**

1. A stethoscopic headphone set comprising, a pair of arms

which terminate in a hinged connecting apparatus including a wire spring arrangement comprising two helical springs which are mirror-symmetrical and with each arm provided with an earphone, the connecting apparatus comprising two identical disc-shaped coupling members arranged in mirror image and



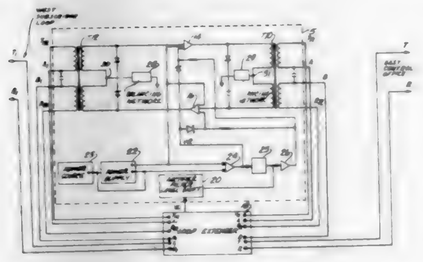
each provided with teeth along a part of its periphery so that said coupling members cooperate with each other via said teeth, and wherein each helical spring is located in a coupling member such that the axis of each spring coincides with the axis of a corresponding coupling member.

4,277,655

AUTOMATIC GAIN REPEATER

Ronald J. Surprenant, Anaheim, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Oct. 16, 1978, Ser. No. 951,335
Int. Cl.³ H04B 3/36
U.S. Cl. 179—170 R **13 Claims**



1. An automatic gain repeater system for use in a telephone transmission line subscriber loop having a subscriber to central office line and a central office to subscriber line, the automatic gain repeater system comprising:

means for connecting said automatic gain repeater system to a telephone central office;

means for connecting said automatic gain repeater system to a telephone subscriber loop;

a first variable controllable West-East amplifier means for amplifying telephone transmission in the subscriber to central office line;

a second variable controllable East-West amplifier means for amplifying telephone transmission in the central office to subscriber line;

means coupled to the central office line and to the subscriber line for delivering constant predetermined amount of power to the subscriber loop and producing thereby a signal in accordance with the subscriber loop impedance; and

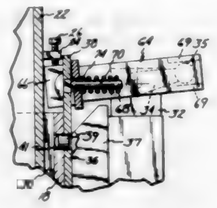
means for controlling the first and second amplifier means in accordance with the signal produced by the means for delivering constant predetermined amount of power to the subscriber loops such that the transmission loss in the subscriber loop is maintained at a predetermined level.

4,277,656

LIMIT SWITCH TRIPPING MECHANISM FOR LIFTING JACKS

Sylvan H. Sime, Walters, Minn., assignor to Simes Inc., Walters, Minn.

Filed Sep. 14, 1979, Ser. No. 75,652
Int. Cl.³ H01H 3/16
U.S. Cl. 200—47 **24 Claims**



1. A limit switch tripping mechanism comprising:

a stationary member;

a movable member movable with respect to the stationary member;

stop means on the movable member;

limit switch means mounted in a fixed position to the stationary member and having an actuating arm with a normal position and a first position on one side of the normal position;

guide means having a stop engaging member for engaging stop means and an arm guiding portion for guiding the actuating arm;

spring bias means for biasing the guide means to hold the actuating arm in the normal position; and

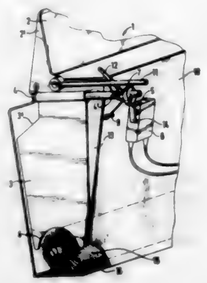
pivotal connecting means for pivotally attaching the guide means to the stationary member allowing the guide means to pivot at a point between the stop means and the guiding portion when engaging the stop means and cause the guiding portion to guide the actuating arm to the first position overcoming the bias means thereby changing the state of the limit switch means.

4,277,657

APPARATUS FOR DETERMINING THE QUANTITY OF PARTICLES PRESENT IN A CONTAINER

Willi Kleinschmidt, Frankfurt, and Hartmut Bock, Kelkheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,619
Claims priority, application Fed. Rep. of Germany, Jun. 21, 1978, 2827171
Int. Cl.³ H01H 35/00
U.S. Cl. 200—61.21 **13 Claims**



1. Apparatus for determining the quantity of particles present in a container, the container having a front wall, comprising:

sensor flap means comprising an axle mounted for rotation relative to the container, said axle extending within the container, a flap fixed for rotation with said axle within the container, and a cam fixed for rotation with said axle and said flap;

spring means operatively connected to said axle between said cam and an outer surface of the front container wall for biasing said sensor flap means toward an actuating position indicative of a low level of said particles in the container; and

electrical switch means mounted on the outer surface of the front container wall and actuated by said cam when the flap means is in said actuating position,

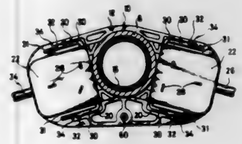
whereby said sensor flap means may be placed in a loaded position and said container filled with said particles, said sensor flap means being held in said loaded position by said particles and moving to said actuating position and causing said cam to actuate said electrical switch means when the quantity of said particles in the container falls below a predetermined value.

4,277,658

STEERING COLUMN SWITCH ASSEMBLY

Hermann Delp, Nauheim, and Norbert Muller, Bischofsheim, both of Fed. Rep. of Germany, assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 23, 1979, Ser. No. 14,320
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1978, 2810790
Int. Cl.³ H01H 9/02
U.S. Cl. 200—61.54 **4 Claims**



1. In a motor vehicle having a steering column comprising a casing tube surrounding a steering shaft carrying a steering wheel, a steering column switch assembly mounted at the end of the casing tube adjacent the steering wheel, comprising: a plurality of switches having different switching functions, each switch having a housing, electrical connections and an actuating member independent of the other switches, a carrier housing secured to the said end of the casing tube for supporting the switches and having for each switch outside the casing tube and extending parallel to the axis of the steering column a pair of parallel carrier faces disposed approximately tangentially to the casing tube for slidably receiving a switch therebetween, and means for releasably securing the switches to the carrier housing comprising stop portions on at least one face of each pair of carrier faces and the respective switch housings carrying resilient arms for latchingly engaging corresponding stop portions.

4,277,659

POWER INTERLOCK SWITCH FOR ELECTRICAL APPLIANCES

Harold A. DeRemer, Allentown, Pa., assignor to General Electric Company, New York, N.Y.

Filed Jan. 8, 1979, Ser. No. 1,452
Int. Cl.³ H01H 3/16
U.S. Cl. 200—61.62 **15 Claims**



1. A power interlock switch for an appliance having a removable panel, a nonconductive base mounted to and disposed inside the appliance, electrical components and a line cord for supplying electrical power to the appliance, the power interlock switch comprising:

(A) a first switch terminal mounted to the nonconductive base;

(B) a second switch terminal mounted to the nonconductive base and spaced apart from the first switch terminal;

(C) a leaf spring conductor mounted to the first switch terminal and extending therefrom to adjacent the second switch terminal, the leaf spring conductor being deflectable into contact with the second switch terminal to establish a conductive path between the first and second switch terminals;

(D) a lever pivotally mounted to the nonconductive base and rotatable to engage the leaf spring conductor and deflect it into contact with the second switch terminal, the lever positioned to be engaged and rotated by the removable panel when the removable panel is in position on the appliance;

wherein one conductor of the line cord is connected to the electrical components of the appliance and the other conductor of the line cord is connected to one of the switch terminals and the other switch terminal is connected to the electrical components of the appliance, whereby contact of the leaf spring conductor with the second switch terminal completes an electrical circuit through the electrical components of the appliance, and wherein removal of the removable panel disengages the removable panel from the lever and permits the leaf spring conductor to move out of contact with the second switch terminal, thereby breaking the electrical circuit through the electrical components of the appliance.

4,277,660

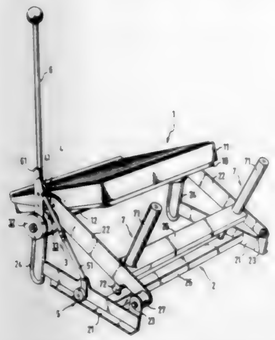
ADJUSTABLE FOOTREST

Alfred Lemmer, Machtlingerstrasse 24, D-8000 Munchen 70, Fed. Rep. of Germany

Filed Aug. 30, 1979, Ser. No. 71,264
Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838654
Int. Cl.³ H01H 19/16, 21/26
U.S. Cl. 200—86.5 **26 Claims**

1. An adjustable footrest comprising a footrest member, a supporting frame and a height adjustment arrangement interconnecting said footrest member and said supporting frame, said height adjustment arrangement comprising a support lever connected at one end with the footrest and pivoted at its other end to the supporting frame, a link attached to the supporting

frame, a rod connected with the footrest and guided for movement along the link, said footrest member being carried on said rod to pivot with respect to the frame, a height adjustment clamping arrangement on the rod for locking the rod to the link, a pivot adjustment clamping arrangement for clamping said footrest member to said frame and a locking lever con-



nected with both the clamping arrangements such that movement of the locking lever in one direction releases both said clamping arrangements to allow height and pivotal adjustment of said footrest member and movement of said locking lever in the opposite direction locks said footrest member against both height and pivotal movement.

4,277,661

BASIC ELECTRIC SWITCH WITH AN ADDITIONAL SWITCH PORTION

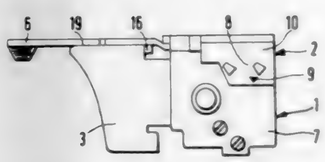
Axel Riess, Tuttlingen, Fed. Rep. of Germany, assignor to J. & J. Marquardt, Fed. Rep. of Germany

Filed Sep. 6, 1979, Ser. No. 73,114

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 7826545[U]

Int. Cl.³ H01H *13/08*; H02P *7/00*

U.S. Cl. 200—157 **4 Claims**



1. A switch construction comprising a first housing part, a first switch contact means mounted in said first housing part, first actuating means associated with said first switch contact means for actuating said first switch contact means, a second housing part, second switch contact means mounted in said second housing part, second actuator means associated with said second switch contact means for actuating said second switch contact means, snap connection means interconnecting said first and second housing parts, wherein said first actuator means comprises a pushbutton, said second actuator means comprises a pivotal lever mounted for pivotal movement on said second housing part adjacent said pushbutton and locking means associated with said lever and said pushbutton for locking said lever in respect to said pushbutton comprising detent locking means defined between said lever and said pushbutton comprising a projection on one of said lever and said pushbutton engageable into a recess portion of the other of said lever and pushbutton, a return spring connected to said lever for holding said lever in an end position and a plurality of connecting terminals engaged on respective portions of said first and second housing parts, said second housing part having spaced apart leg portions containing at least one of said connecting terminals.

4,277,662

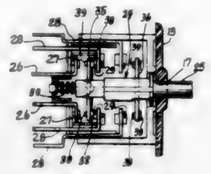
SWITCH BLADE WITH WIPING CONTACT ACTION

Raymond Lewandowski, Waukegan, Ill., assignor to Cherry Electrical Products Corp., Waukegan, Ill.

Filed Jan. 3, 1980, Ser. No. 155,946

Int. Cl.³ H01H *1/60, 1/20*

U.S. Cl. 200—242 **10 Claims**



1. An electrical switch having a housing for the switch components that include a plurality of fixed terminals wherein the improvement comprises

(a) an actuator reciprocally movable through the switch housing,

(b) an elongated switch blade carried by said actuator between at least two fixed terminals within the switch housing,

(c) said switch blade being a length greater than the width of said actuator so as to extend beyond the opposite sides thereof, said switch blade having a contact on both sides of said switch blade, said contact on one side of said switch blade engaging a first one of said fixed terminals after said contact on the other side of said switch blade is disengaged from a second one of said fixed terminals, and said contact on the other side of said switch blade engaging the second of said fixed terminals after said contact on the one side of said switch blade is disengaged from the first of said fixed terminals as said actuator reciprocally moves within the switch housing,

(b) means provided by said actuator for carrying said switch blade in an angular transverse relation to the longitudinal axis of said actuator, and

(e) means yieldably mounting said switch blade to said actuator so as to permit said switch blade to tilt about its longitudinal axis whereby a self-cleaning, wiping action is provided by said contact on one side of said switch blade upon engaging one of said fixed terminals.

4,277,663

ELECTRICAL SWITCH

Lucas Soes, Rosmalen, Netherlands, assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 3, 1980, Ser. No. 126,799

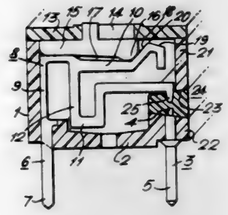
Claims priority, application United Kingdom, Mar. 10, 1979, 08507/79; Sep. 26, 1979, 33244/79

Int. Cl.³ H01H *15/24, 3/42*

U.S. Cl. 200—283 **10 Claims**

1. An electrical switch comprising a housing carrying a first, fixed contact and a second, movable contact in the form of a resilient contact arm secured to the housing at one end, and an actuator member mounted on the housing and operable to urge the resilient contact arm from a first position out of engagement with the fixed contact into a second position in engagement with the fixed contact, the actuator member being retained in the housing by a part of the second contact, in which the resilient contact arm extends from its end secured to the housing as a single inner limb and then divides into two outer limbs one of which is engaged by the actuator member and the other of which engages the fixed contact on operation of the

actuator member, the arrangement being such that on operation of the actuator member, initially the whole resilient contact arm deflects by bending of the single inner limb until



said other outer limb engages the fixed contact whereafter the two outer limbs of the resilient contact arm are deflected towards each other thereby to increase the contact force between said other outer limb and the fixed contact.

4,277,664

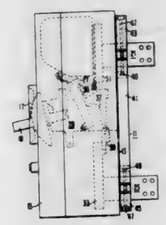
CIRCUIT BREAKER STRUCTURE

Alfred E. Maier, and Louis N. Ricci, both of Chipperva Township, Beaver County, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 24, 1979, Ser. No. 69,667

Int. Cl.³ H01H *9/02*

U.S. Cl. 200—293 **2 Claims**



1. A circuit breaker structure comprising a multi-pole circuit breaker having separable contacts for each pole, an insulating housing for said circuit breaker and comprising front and rear end walls, each pole for said circuit breaker comprising at least two vertically spaced incoming and outgoing terminals extending from the rear end wall, the incoming terminals for all poles being horizontally spaced and aligned on one horizontal axis, the outgoing terminals for all poles being horizontally spaced and aligned on another horizontal axis and vertically spaced from that of the incoming terminals, terminal reinforcement means for supporting the terminals against movement in response to magnetic forces when a short circuit occurs, said means extending between and around the terminals on the outer side of the rear end wall, and the means comprising a separable brace and cap assembly which brace extends along one side of at least one of first aligned terminals, the cap extending along the other side of the first aligned terminals, and attachment means for securing the brace and cap into clamping engagement with the aligned terminals.

4,277,665

ILLUMINATED PUSH-BUTTON ELECTRICAL SWITCH

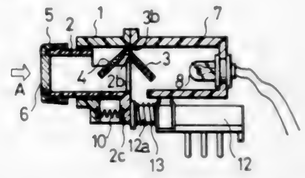
Shiro Kondo, and Michitada Akazawa, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jan. 7, 1980, Ser. No. 109,842

Claims priority, application Japan, Jan. 10, 1979, 54/2475[U]

Int. Cl.³ H01H *9/00*

U.S. Cl. 200—314 **1 Claim**



1. An illuminated assembly for indicating the operation status of a push button switch, comprising:

a casing having an operation member mounted slidably therein, said operation member having an arm portion adapted to engage an operation rod of a push-button switch for movement therewith;

an indicating plate mounted to an exterior end portion of said operation member, said indicating plate having two sets of graphic symbols each adapted to transmit light and corresponding to a respective status of said switch, said sets of graphic symbols each being formed of different but complementary colors;

a light source held to said casing for illuminating said indicating plate;

two filter members carried by said casing and being formed respectively of said complementary colors; and

means for positioning said filter members selectively within the light path to said indicating plate during operation of said switch, said filter members being mounted generally orthogonally to one another, said positioning means including tongue elements extending upwardly from said operation member and between said filter members.

4,277,666

SWITCH PUSH BUTTON LOCK

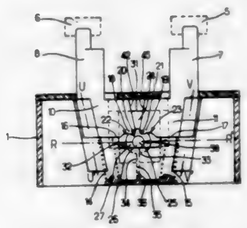
Jean C. Vignaud, Angouleme, France, assignor to La Telemecanique Electrique, France

Filed Apr. 11, 1980, Ser. No. 139,481

Claims priority, application France, Apr. 13, 1979, 79 09416

Int. Cl.³ H01H *9/20*

U.S. Cl. 200—328 **4 Claims**



1. A locking device for preventing the simultaneous displacement of two members said locking device comprising: a housing; first and second slides movable in a common plane of said housing between a first and a second position; first and second return springs located in said housing; first and second push buttons respectively associated to said first and second slides and adapted to bring said slides from said first position to said second position when actuated; the first and second slides being respectively associated with the first and second return

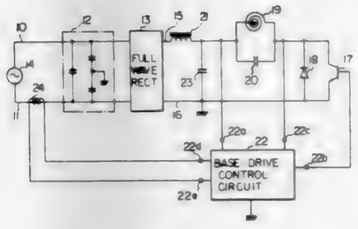
springs, each of said slides being provided with a ramp and with an adjoining notch; a bolt resiliently connected to said housing and having a central rest position, located between said ramp and notches at equal distance thereof when both of said slides are in their first position, said bolt further having two symetrical working positions, said ramps and said notches being so directed towards said bolt that, when a first slide is displaced from its first to its second position, said bolt is pushed by a corresponding ramp to a working position wherein a subsequent actuation of said second slide establishes a cooperation between said bolt and the notch belonging to said second slide, in which said bolt is maintained in position and in which any engagement between said first slide and said bolt preventing a return movement of said first slide to its second position, is avoided.

4,277,667

INDUCTION HEATING APPARATUS WITH NEGATIVE FEEDBACK CONTROLLED PULSE GENERATION

Mitsuyuki Kiuchi, Kadoma, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 21, 1979, Ser. No. 50,757
Claims priority, application Japan, Jun. 23, 1978, 53-76869; Jul. 10, 1978, 53-84472; Aug. 2, 1978, 53-94846
Int. Cl.³ H05B 6/06, 6/12; H02M 7/48
U.S. Cl. 219—10.49 R **11 Claims**



1. An induction heating apparatus comprising a full-wave rectifier for converting low frequency alternating current energy into full-wave rectified energy, a solid-state inverter including a switching transistor receiving energy from said full-wave rectifier, a diode connected inversely parallel with said transistor, a resonant circuit including an induction heating work coil and a capacitor tuned to a high frequency, a zero crossing detector for detecting a zero crossing point of a potential across said transistor, and a negative feedback-controlled pulse generator including means for generating a signal related to the input power supplied to said full-wave rectifier, a ramp generator responsive to the detected zero crossing point for generating a ramp signal, and a comparator for comparing said input power related signal with the instantaneous value of said ramp signal for generating a trigger pulse for application to said transistor, said trigger pulse having a duration which is a function of the difference between said compared signals.

4,277,668

HIGH-FREQUENCY POWER FEEDER CIRCUITRY AND SUPPLY METHOD FOR ELECTRICAL DISCHARGE MACHINING

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

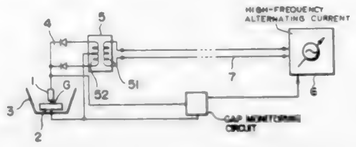
Filed Mar. 1, 1979, Ser. No. 16,423
Claims priority, application Japan, Mar. 7, 1978, 53-26332
Int. Cl.³ B23P 1/02
U.S. Cl. 219—69 M **17 Claims**

1. A method of supplying high-frequency electrical discharge machining pulses between a tool electrode and a workpiece across a machining gap flushed with a machining fluid, comprising the steps of:

generating a high-frequency alternating electric power in a high-frequency generator unit disposed remote from said machining gap;

transmitting said high-frequency alternating electric power to a region immediately proximal to said machining gap along a coaxial feeder cable having inlet terminals directly leading from said unit and outlet terminals having a primary winding of a transformer in said region;

transforming the transmitted high-frequency alternating electric power to produce a transformed high-frequency alternating electric power at a secondary winding of said transformer in said region;



rectifying directly said transformed high-frequency alternating electric power by a rectifier disposed in said region and connected directly to said electrode and said workpiece via respective conductors of a minimum length to form a succession of pulses of a given polarity relative to said tool electrode and said workpiece, constituting said electrical discharge machining pulses; and

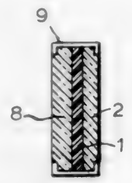
dimensioning said conductors and the distance of said region from said gap such that there is little loss of power due to stray resistance and inductance in said conductors and the pulse waveform across said gap is substantially free from distortion.

4,277,669

METHOD AND DEVICE FOR DETECTING THE THRESHOLD OF GENERATION OF A LASER BEAM

Robert R. Alfano, Riverdale, and Norman H. Schiller, Whitestone, both of N.Y., assignors to Hamamatsu T.V. Co, Ltd, Hamamatsu, Japan

Filed Jul. 6, 1979, Ser. No. 55,145
Int. Cl.³ B23K 27/00
U.S. Cl. 219—121 LK **12 Claims**



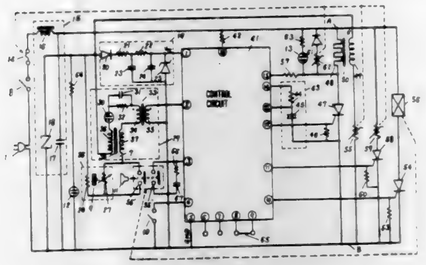
1. A laser threshold detecting device comprising a layer of burnable material held by a backing layer of non-burnable material, said burnable and non-burnable being by a laser beam generated by a laser, and covered by a transparent layer, said transparent layer and said layer of burnable material being larger in area than the cross section of said laser beam whose threshold of generation is being detected, and means for holding said transparent layer closely adjacent to said layer of burnable material, whereby said device is insertable into the beam path of a laser being tested, said beam upon generation then passing through said transparent layer and impinging upon the layer of burnable material to cause vaporization thereat to a depth of the entire burnable layer at points of contact and said transparent layer acting to prevent the vaporized material from escaping into the surrounding atmosphere.

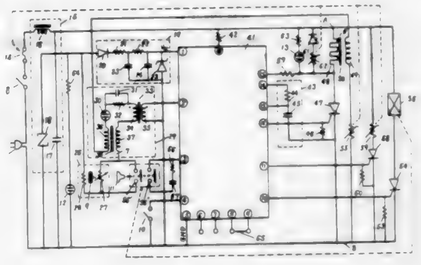
4,277,670

TEMPERATURE CONTROL SYSTEM FOR ELECTRIC HEATING APPARATUS

Shun'ichiro Mori, Koriyama; Kunio Kimata, Kyoto; Hirofumi Aoygi, Habikino; Hiroshi Horii, Kashihara, and Hidenobu Hasegawa, Kusatsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 18, 1979, Ser. No. 31,072
Claims priority, application Japan, Apr. 20, 1978, 53-47312
Int. Cl.³ H05B 1/02
U.S. Cl. 219—492 **9 Claims**





1. A temperature control system comprising a heat generating load for an article to be heated, a power control element for controlling power supply to the heat generating load, a temperature detecting circuit for producing an ON signal when the temperature detected by a temperature sensor for receiving the heat of the heat generating load is lower than a temperature set by a temperature setting unit and for producing an OFF signal when the detected temperature has reached the set temperature, and a control circuit for feeding an ON or OFF signal to the power control element in response to said ON or OFF signal from the temperature detecting circuit, the control circuit having a hysteresis control circuit which actuates a timer when the signal from the temperature detecting circuit has changed from an ON signal to an OFF signal or from an OFF signal to an ON signal to permit the power control element to receive OFF signals while the timer is in operation despite ON signals emitted from the temperature detecting circuit and to receive an ON signal in response to an ON signal from the temperature detecting circuit after lapse of the time set by the timer until the temperature detected by said temperature sensor has reached the set temperature, whereby to render the temperature of the article to be heated swingable over a predetermined range in repetitive cycles.

4,277,671

TEMPERATURE CONTROL SYSTEM FOR ELECTRIC HEATING APPLIANCE

Shunichiro Mori, Koriyama; Kunio Kimata, Kyoto; Hirofumi Aoyagi, Habikino; Hiroshi Horii, Kashihara, and Hidenobu Hasegawa, Kusatsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 18, 1979, Ser. No. 31,300
Claims priority, application Japan, Apr. 20, 1978, 53-47312
Int. Cl.³ H05B 1/00
U.S. Cl. 219—494 **4 Claims**

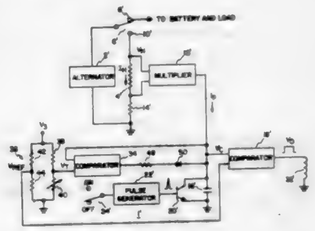
1. A temperature control system comprising a heat generating load, a power control element for directly or indirectly supplying current to the heat generating load, a temperature detecting circuit for emitting an ON signal when the temperature detected by a temperature sensor in thermally coupled relation with the heat generating load is lower than a set temperature and emitting an OFF signal when the detected temperature is higher than the set temperature, and a control circuit for feeding an ON or OFF signal to the power control element in response to said ON or OFF signal from the temperature detecting circuit, the control circuit having a failure detecting circuit for logically comparing the signal from the temperature detecting circuit with the terminal voltage across the power control element to produce output when the power control element is in conduction because of self-triggering although the signal from the temperature detecting circuit is an OFF signal, the control circuit further being provided with a safety circuit for stopping power supply to the heat generating load in response to the output from the failure detecting circuit, said failure detecting circuit including a wave form shaping unit for detecting the ON or OFF output of the temperature detecting circuit during a negative cycle of an a-c power supply of opposite polarity to the power control element to produce ON or OFF output during the following positive half cycle in accordance with the detected output, and a terminal voltage detecting unit for detecting the terminal voltage across the power control element to detect whether the power control element is in conduction or out of conduction during a first detecting period, the failure detecting circuit being adapted to compare the ON or OFF signal from the wave form shaping unit with the output from the terminal voltage detecting unit during a second detecting period of later phase than the first period.

4,277,672

CONTROL CIRCUIT FOR CONTROLLING QUANTITY OF HEAT TO ELECTRICALLY HEATABLE WINDSHIELD

Dwight V. Jones, Baldwinsville, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,218
Int. Cl.³ H05B 1/02
U.S. Cl. 219—497 **8 Claims**



1. A heater control circuit for an automotive electrical system that includes an electric alternator which supplies power to window heater means during controlled heating periods for window deicing purposes, said control circuit comprising:

(a) first means for generating a first output that is a function of the power supplied to said heater means by said alternator during said controlled heating periods,

(b) temperature sensor means for sensing the ambient temperature,

(c) second means, including said temperature sensor means,

for generating a second output that is a function of the temperature difference between said ambient temperature and a deicing temperature, and

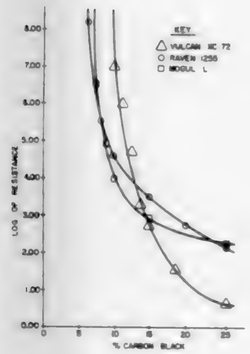
(d) third means, responsive to said first and second outputs and exhibiting an electrical response corresponding to the thermal response of the window, for generating a third output as a function of time for controlling the duration of said heating periods, whereby there is supplied to said heater means a quantity of heat sufficient to provide deicing of the window.

4,277,673

ELECTRICALLY CONDUCTIVE SELF-REGULATING ARTICLE

Cornelius J. N. Kelly, Simsbury, Conn., assignor to E-B Industries, Inc., Simsbury, Conn.

Filed Mar. 26, 1979, Ser. No. 24,063
Int. Cl.³ H05B 3/34
U.S. Cl. 219—528 **5 Claims**





1. An electrically conductive self-regulating in watts per unit length article comprised of at least two spaced elongated electrodes electrically inter-connected by and embedded in a self-regulating semi-conductive composition exhibiting a positive temperature coefficient of electrical resistance containing carbon black dispersed in a polymeric matrix having at least 20% crystallinity as determined by X-ray diffraction, the improvement wherein the carbon black comprises a high electrical resistivity carbon black which percentage by weight of the total weight of the semi-conductive composition is at least 6% which amount is sufficient to achieve the critical level for electrical conductivity.

4,277,674

TAPE RUNNING DIRECTION INDICATOR

Masanobu Sato; Ken Satoh; Toshihiro Nakao, and Kenzi Furuta, all of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 25, 1978, Ser. No. 936,689
Claims priority, application Japan, Sep. 30, 1977, 52-117560
Int. Cl.³ G06M 3/14; H03K 21/00
U.S. Cl. 235—92 EA **15 Claims**

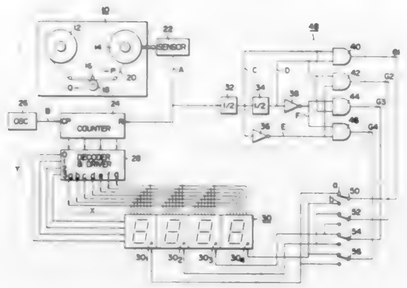
1. A tape running direction indicator comprising:

a tape transport; a display means in which a plurality of digit display sections including display elements are arranged side by side;

sensing means coupled to the tape transport for providing a sensing signal for making an indication corresponding to the tape running direction;

running indication signal generating means operatively connected to said sensing means for sequentially providing running indication signals corresponding to the tape running direction on the basis of the sensing signal; and

drive means for driving at least one display element included in each of the digit display sections in accordance with the running indication signals in order to make an indication



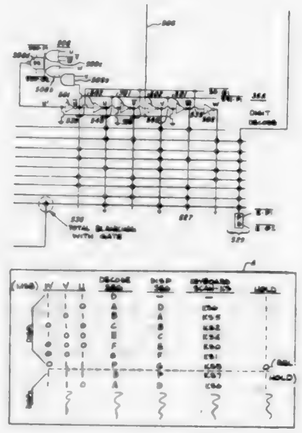
corresponding to the tape running direction in the tape transport, the respective display elements being sequentially energized in accordance with the running indication signals which are shifted one by one in order that the energization of the display element is progressively shifted in a direction corresponding to the tape running direction.

4,277,675

NON-SEQUENTIAL COUNTER

Clarence Y. Mar, and Michael J. Caruso, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 901,894, May 1, 1978, abandoned, which is a continuation of Ser. No. 735,917, Oct. 27, 1976, abandoned. This application Mar. 23, 1979, Ser. No. 23,369
Int. Cl.³ H03K 23/22
U.S. Cl. 235—92 MB **5 Claims**



1. A non-sequential counter having 2^N unique states, said counter being responsive to an incrementing signal for changing the state of said counter, said counter comprising:

(a) 2 N inverters

(b) gating means interconnecting said inverters in series to form an N-stage shift register for storing N bits of data, said gating means being responsive to said incrementing signal for causing the data stored in said shift register to shift; and

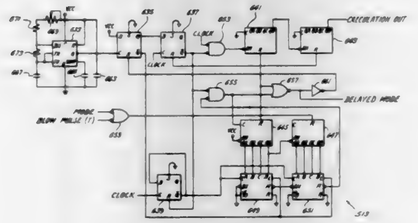
(c) feedback logic means responsive to the output of each of said inverters and to said incrementing signal for inserting into a first stage of the shift register a bit corresponding to the least significant bit of the next state to be generated by the counter, a logical one bit being inserted into said first stage in response to a first $2^N/2$ binary output states of said inverters and a logical zero being inserted into said first stage in response to a second $2^N/2$ binary output states of said inverters.

4,277,676

APPARATUS FOR MEASURING THE FALL HEIGHT OF A PILE DRIVER RAM

Otto W. Kammerer, Houston, Tex., assignor to Pileco, Inc., Houston, Tex.

Filed May 7, 1979, Ser. No. 36,546
Int. Cl.³ G06M 3/06
U.S. Cl. 235—92 PD **10 Claims**



1. An apparatus for metering the stroke of a pile driving hammer where each blow delivered by such hammer produces a discrete sound and where the stroke for a particular blow is a fixed function of the time differential between such blow and the immediately preceding blow, the apparatus comprising:

detection means for converting the sound produced by each blow of such hammer into an electrical pulse such that the time differential between consecutive electrical pulses is substantially equal to the time differential between the consecutive blows of such hammer corresponding to such electrical pulses, said detection means including an output at which such electrical pulses are provided; and

computing means for providing a digital indication having a magnitude, said magnitude being a fixed function of the time differential between one of the electrical pulses provided by said detection means and the immediately preceding electrical pulse provided by said detection means, the functional relationship of said magnitude to such electrical pulse time differential being the same as the functional relationship of the stroke of such hammer for a particular blow to the time differential between such blow and the immediately preceding blow.

4,277,677

MECHANICAL COUNTER

Hans Neher, Hansen am Taan, Fed. Rep. of Germany, assignor to J. Heugstler K.G., Aldingen, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,443
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828907
Int. Cl.³ G06C 27/00; G06F 15/18
U.S. Cl. 235—109 **14 Claims**

1. In a mechanical counter comprising a plurality of presettable digit wheels, each of which is rotatable on a first axis to a plurality of preset positions corresponding to respective values of an associated digit position of a preselected count, retaining means for retaining said presettable wheels in said preset positions during a counting operation of the counter, and a signal generator comprising axially movable cam follower means arranged to generate a signal when said counter has counted to said preselected count, the improvement which comprises

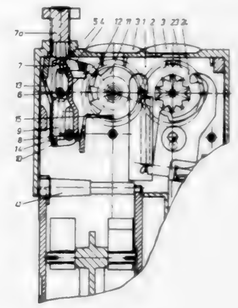
a plurality of presetting members, which are associated with respective ones of said presettable wheels,

a stationary pivot on which said presetting members are pivoted,

a guide member which engages said presetting members at portions thereof which are remote from said pivot and which is pivotally movable between first and second positions to move said presetting members about said pivot out of and into engagement with said presettable wheels,

first spring means adapted to urge said guide member to said first position,

said presetting members being displaceable relative to said pivot and said guide member to rotate said presettable



wheels when said presetting members are in engagement with said presettable wheels,

a plurality of indicating wheels are rotatably mounted on a second axis, which is parallel to and spaced from the first, and are associated with respective digit positions and rotatable to a plurality of count-indicating positions,

each of said presettable wheels having on one side a hub and an end face formed with a cam recess,

a set of first gears are arranged to rotate on said second axis in unison with respective ones of said indicating wheels, and

said signal generator comprises a set of second gears, which are associated with respective ones of said presettable wheels and rotatably mounted on the hubs thereof and in mesh with respective ones of said first gears, each of said second gears having a hub, which axially protrudes on the same side as the hub of the associated presettable wheel.

4,277,678

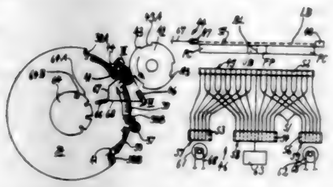
METHOD AND APPARATUS FOR TESTING CIGARETTES OR THE LIKE

Günter Wahle, Reinbek, and Uwe Heitmann, Schwarzenbek, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co Kg., Hamburg, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,330
Claims priority, application Fed. Rep. of Germany, Sep. 18, 1978, 2840617
Int. Cl.³ G01V 9/04
U.S. Cl. 250—223 R **18 Claims**

1. A method of testing successive rod-shaped articles which constitute or form part of smokers' products, comprising the steps of conveying the articles seriatim sideways along a prede-

termined path; decelerating successive articles in a predetermined portion of said path and rotating the decelerated articles



about their respective axes; and optoelectrically scanning each article in the course of the corresponding rotating step.

4,277,679

APPARATUS AND METHOD FOR CONTACT-FREE POTENTIAL MEASUREMENTS OF AN ELECTRONIC COMPOSITION

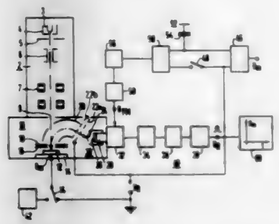
Hans P. Feuerbaum, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 21, 1979, Ser. No. 105,892

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2903077

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—310 **7 Claims**



1. A method for contact-free potential measurement of an electronic component with an electron microscope by means of measuring the energy of the secondary electrons with a spectrometer having a compensating circuit with a controlled-gain amplifier and to which a photomultiplier is connected, comprising the steps of connecting the measuring point of the component (12) to a pre-determined potential; and setting the output voltage (U_{R1}) of the controlled-gain amplifier (36) to a pre-determined index value (U_S) with the control of the photomultiplier voltage (U_{PM}); and holding the photomultiplier voltage (U_{PM}) constant and, subsequently applying an operating voltage to the component (12) and determining the measured voltage (U_m) from the difference ($U_R - U_S$) between the control unit output voltage (U_R) and the index value (U_S).

4,277,680

NEUTRON POISON TEST DEVICE FOR HIGH DENSITY SPENT FUEL STORAGE RACKS

Luis F. Rodrigues, 1019 N. 63rd St., Philadelphia, Pa. 19151, and Thomas J. Crawford, 430-B Whitman Dr., Haddonfield, N.J. 08033

Filed Apr. 9, 1979, Ser. No. 28,001

Int. Cl.³ G01N *23/00*; G21F *5/02*

U.S. Cl. 250—390 R **8 Claims**

1. A neutron poison-can test device for determining whether the storage cavities of highdensity spent nuclear fuel storage racks contain neutron poison, said test device comprising:

a. a neutron source can comprising;

a-1 a source can housing having a square cross-section and size corresponding to but sufficiently smaller than that of the storage cavities of said storage racks to permit insertion of said can into said cavities;

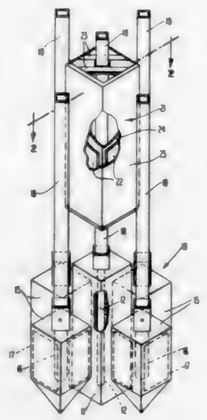
a-2 a source of neutrons contained within said source-can housing; and a sectioned and layered arrangement of neutron moderating material and borated neutron moderating material as required for moderation and shielding, forming four windows of limited size leading to the four sidewalls of the source can;

a-3 a cylindrical tube for containing the neutron source and facilitating rapid removal and insertion of the source in order to reduce doses that would be received from handling the bare source;

b. a shield slidable over said source can, said shield comprising:

b-1 a housing having a hollow square cross-section and having a size sufficiently larger than that of said source can to allow said shield to slide over said source can; and

b-2 four thermal neutron shielding plates, held in the hollow portion of said housing, one located against each of the four walls of said shield housing, thereby to inhibit penetration of neutrons through said shield housing;



c. four detector cans symmetrically disposed about said source can, each of said detector cans comprising;

c-1 a can housing having a square cross section and size corresponding to but sufficiently smaller than said cavities of said storage racks to permit insertion of said can into said cavities;

c-2 a thermal neutron detector contained in a tube mounted within said can; and

c-3 thermal neutron absorbing material at all sidewalls of the detector can except the sidewall facing said source can;

d. a plurality of five elongated tubes for individually supporting said source can and four detector cans at the lower ends of said tubes in such configuration that when said source can is inserted into the upper end of a storage cavity of said storage rack, the four detector cans enter the four cavities adjacent to said cavity, said slidable source-can shield being prevented from entering into said cavity because of its larger size, said slidable shield remaining on the upper surface of said storage rack as said test device is lowered through said cavity and the four cavities adjacent thereto.

4,277,681

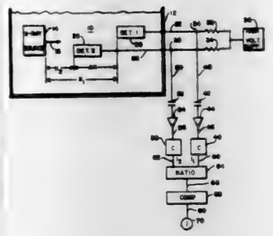
LOW RADIATION DENSITOMETER

Richard J. Borken, St. Louis Park, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 4, 1979, Ser. No. 81,962

Int. Cl.³ G01N *23/00, 21/01*

U.S. Cl. 250—358 R **13 Claims**



1. Apparatus for measuring fluid density comprising, in combination:

a source of radiation operable to emit radiation generally along a first path;

first and second radiation detectors each operable to produce an output signal indicative of the radiation received thereby;

means mounting the source and the radiation detectors in the fluid whose density is to be measured with the first detector in the first path at a first distance from the source and the second detector in the first path at a second distance from the source; and

ratio means connected to the radiation detectors to receive the output signals therefrom and to produce a ratio signal which varies with the density of the fluid.

4,277,682

DEVICE FOR ANALYZING THE ACTIVITY OF A RADIOACTIVE AEROSOL AS A FUNCTION OF THE GRAIN SIZE DISTRIBUTION OF ITS PARTICLES

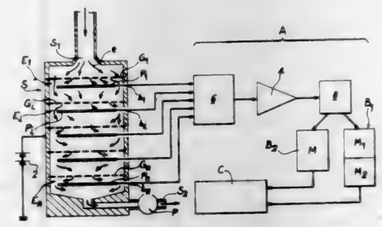
Guy Madelaine, Villebon sur Yvette, and Michel Pourprix, L'Ha les Roses, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 27, 1979, Ser. No. 61,174

Claims priority, application France, Aug. 29, 1978, 78 24885

Int. Cl.³ G01T *1/18*

U.S. Cl. 250—380 **4 Claims**



1. A device for analyzing the activity of a radioactive aerosol containing particles of different grain sizes, as a function of the grain size distribution of said particles, said device comprising a tight enclosure, means for circulating the aerosol through and within said enclosure, a plurality of stages defined within said enclosure, for collecting aerosol particles of varying grain size, each of said stages comprising an aerosol injection plate perforated by at least one opening calibrated to prevent passage of those of said particles having a grain size greater than a predetermined grain size and a collection plate for said particles, means for establishing an electric field between the injection and collection plates of each of said respective stages to establish an ionization current through each of said stages during the disintegration of the particles collected in a stage to be analyzed, and means for measuring the ionization current of each of said stages.

4,277,683

X-RAY DIAGNOSTIC GENERATOR WITH A MEASURING ARRANGEMENT FOR THE X-RAY TUBE CURRENT

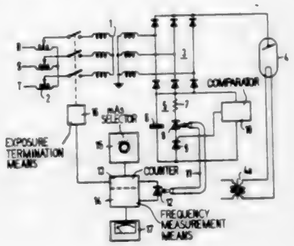
Herbert Schmitmann, Uttenreuth-Weiher, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 10, 1979, Ser. No. 83,300

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849979

Int. Cl.³ H05G *1/00, 1/30*

U.S. Cl. 250—402 **4 Claims**



1. An x-ray diagnostic generator with a measuring arrangement for the x-ray tube current in the high voltage circuit, characterized in that the measuring arrangement comprises a frequency converter (5) having a light source (8) that emits light pulses whose frequency corresponds to the x-ray tube current, and an opto-electric transducer (12); and in that a light conductor (11) leads from the light source (8) to the opto-electric transducer (12), frequency measurement means being coupled with the opto-electric transducer (12) for providing a measure of x-ray tube current.

4,277,684

X-RAY COLLIMATOR, PARTICULARLY FOR USE IN COMPUTERIZED AXIAL TOMOGRAPHY APPARATUS

Arthur N. Carson, West Hartford, Conn., assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 18, 1977, Ser. No. 825,590

Int. Cl.³ G01N *21/00*

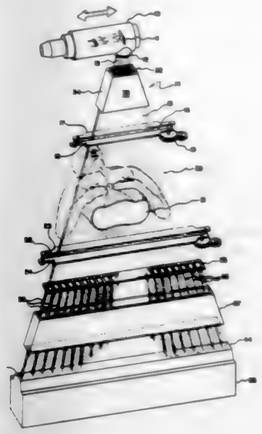
U.S. Cl. 250—445 T **21 Claims**

1. A collimator for accepting a divergent input beam from a radiation source and for producing therefrom a thick, substantially planar swath of radiation which impinges upon an array of radiation detectors; a central line connecting the center of the source to the center of the array and a beam path being defined by all points which lie on lines connecting points on said source to points on said array, comprising:

baffle means, surrounding a limited portion of said beam path and defining a central perforation on said path, which function to absorb radiation propagating outside of said path; and

a plurality of planar, radiation-absorbing laminae, disposed

within said perforation substantially parallel to the plane of said swath, the extent of ones of said laminae, measured



along lines which are parallel to said central ray, being different than the extent of others of said laminae.

4,277,685

ADJUSTABLE COLLIMATOR

John Covic, Wickliffe; Glen Leininger, Suffield, and Roland W. Carlson, Lyndhurst, all of Ohio, assignors to Ohio-Nuclear, Inc., Solon, Ohio

Filed Jun. 12, 1978, Ser. No. 914,361
Int. Cl.³ G03B 41/16; G21F 5/04
U.S. Cl. 250—445 T 28 Claims



1. An adjustable collimator for forming a fan beam of x or gamma radiation with an adjustable fan angle and thickness comprising:

(a) an inlet opening for receiving a beam of the radiation;

(b) a first generally cylindrical member having a first plurality of slots therein and first non-restrictive passages means, said first plurality of slots comprising slots of more than one length each shorter than the inlet opening and the first non-restrictive passage means, said first non-restrictive passage means being disposed generally 180° around the first cylindrical member from each of the first plurality of slots, said first cylindrical member being disposed adjacent said inlet opening and mounted for rotatinal movement to bring different ones of said first plurality of slots generally in line with the inlet opening, whereby aligning one of the first plurality of slots with the inlet opening selects the fan angle of the beam;

(c) a second generally cylindrical member having a second plurality of slots therein and second non-restrictive passage means, said second plurality of slots comprising slots of more than one width, each narrower than the inlet opening, the first plurality of slots and the first and second non-restrictive passage means, said second non-restrictive passage means being disposed generally 180° around the second cylindrical member from each of the second plurality of slots, said second cylindrical member being disposed concentric with said first cylindrical member and mounted for rotational movement to bring different ones of the second plurality of slots generally in line with the inlet opening, whereby aligning one of the second plurality of slots with the inlet opening selects the thickness of the fan beam; and

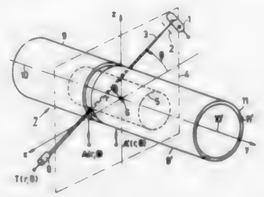
(d) control means for rotating said first and second cylindrical members to select the fan angle and thickness of the fan beam.

4,277,686

DEVICE FOR DETERMINING INTERNAL BODY STRUCTURES BY MEANS OF SCATTERED RADIATION

Geoffrey Harding, Rellingen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 11, 1979, Ser. No. 56,479
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1978, 2831311
Int. Cl.³ A61B 6/00
U.S. Cl. 250—445 T 5 Claims



1. A device for determining the internal structure of a flat examination zone of a body comprising radiation means for emitting a primary radiation beam in a plane of the examination zone, said beam having a small cross-section, said radiation means being displaceable in said plane in a direction transversely of the direction of said primary radiation beam, and being rotatable about an axis extending perpendicular to said plane; detector means for generating measuring signals by detection of radiation emerging from the body, said detector means being free of said primary radiation beam and situated at least on one side of said plane to detect scattered radiation generated by said primary radiation beam so that scatter signals are obtained which are associated with the beam path, said detector means at least partly enclosing said body; calculating means for calculating a distribution of scatter coefficients in said plane from said scatter signals; and display means for displaying the internal structure, CHARACTERIZED IN THAT said detector means comprises two identical, hollow-cylinder detectors which together substantially completely envelop said body and which are arranged at a distance from each other in a mirror-symmetrical image with respect to said plane, said cylinder detectors having coincident cylinder axes extending transversely of said plane.

4,277,687

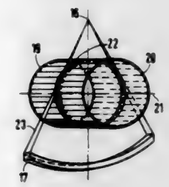
TOMOGRAPHIC APPARATUS FOR PRODUCING TRANSVERSE LAYER IMAGES

Klaus Killig, Hoechstadt; Wolfhart Lichtenberg, and Rudolf Schittenhelm, both of Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 18, 1979, Ser. No. 86,064
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850675
Int. Cl.³ G03B 41/16
U.S. Cl. 250—445 T 3 Claims

1. A tomographic apparatus for producing transverse layer images of a radiography subject, having a radiation measuring arrangement which contains both a radiation source producing a beam of rays which penetrates the radiography subject and whose cross sectional extent perpendicular to the layer plane is equal to the layer thickness, and a radiation receiver which determines the radiation intensity behind the subject, and also

having means for producing rotational displacement of the beam of rays for irradiating the radiography subject from different directions, and having a measured value converter for transforming the signals supplied by the radiation receiver into a layer image, characterized in that two hollow cylinders (19, 20) are disposed between the radiation source (16) and the



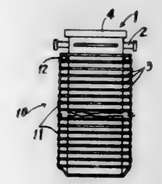
radiation receiver (17) and into which the radiography subject may be introduced, said cylinders (19, 20) having substantially the same diameter, having substantially a common axis (21) and being comprised of a radiation-absorbing material except at a gap (22) therebetween left free for the passage of the x-ray beam (23).

4,277,688

CASK BAGGING DEVICE

Masahiko Yamamoto, and Yoshinori Nishino, both of Osaka, Japan, assignors to Hitachi Shipbuilding & Engineering Company Limited, Osaka, Japan

Filed May 15, 1979, Ser. No. 39,152
Claims priority, application Japan, May 15, 1978, 53-65341[U]; Jan. 23, 1979, 54-06732; Jan. 29, 1979, 54-09331
Int. Cl.³ G21F 5/00
U.S. Cl. 250—506 14 Claims



1. In a cask bagging device including an open-ended bag for covering the outer surface of a cask to protect the same from contamination, the improvement comprising a flexible annular tube extending about the open end of the bag to hold said open end in sealed relation to the cask, means for feeding a gas pressure to the interior of said annular tube, and a system for controlling the gas pressure in accordance with external water pressure at a position close to said annular tube.

4,277,689

DOCUMENT READER

Robert J. Thoma, Spokane; Michael Piekarski, Otis Orchards; Gary B. Morgan, Spokane; John Rank, Spokane; William O. Thurman, Spokane, and Donald C. Lerch, Spokane, all of Wash., assignors to Key Tronic Corporation, Spokane, Wash.

Filed Dec. 12, 1979, Ser. No. 102,665
Int. Cl.³ G06K 9/00
U.S. Cl. 250—567 2 Claims

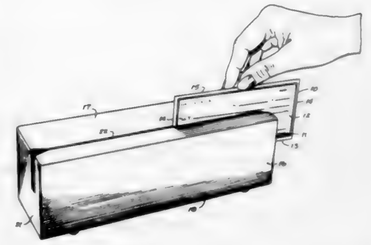
1. In an apparatus for reading a longitudinal strip of visual indicia containing discrete alpha-numeric characters located along the face of a document, wherein the document has a constant thickness and its face is bounded along one side by a planar longitudinal reference edge, the document having a predetermined width dimension perpendicular to the reference edge, the strip of visual indicia being located within transversely spaced boundaries parallel to one another and to the reference edge of the document;

a frame;

an elongated document slot formed through the length of the frame;

said document slot being bounded by a pair of opposed walls on said frame having opposed inner surfaces spaced apart to freely receive the thickness of a document between them, said walls having coplanar longitudinal edges and outer ends;

said document slot also being bounded by a base on said frame that extends between said pair of walls at a location spaced inwardly from the longitudinal edges of the walls a distance less than the document height;



whereby a document can be manually moved in a longitudinal direction within the document slot with respect to the frame, the document being hand-held and guided by sliding engagement of the base by the reference edge of the document;

viewing means mounted to one of the walls for reflecting light along a scan line intersecting the path of the strip of visual indicia on a document within the document slot;

optical character scanning means on said frame for electronically generating images of each alpha-numeric character as it traverses the scan line; and

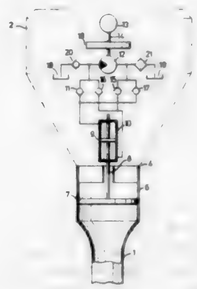
recognition processing means on said frame operatively connected to the character scanning means for analyzing the electronic images generated thereby and for encoding the images into a machine readable code.

4,277,690

PLANT FOR UTILIZING KINETIC ENERGY

Sven A. Noren, Klövervägen 3, Bromma, Sweden (S-161 36)

Filed Aug. 7, 1979, Ser. No. 64,351
Claims priority, application Sweden, Aug. 16, 1978, 7808679
Int. Cl.³ F03B 13/12
U.S. Cl. 290—53 5 Claims



1. Plant for utilizing kinetic energy inherent in the wave movement of water or heaving of the sea, comprising a float

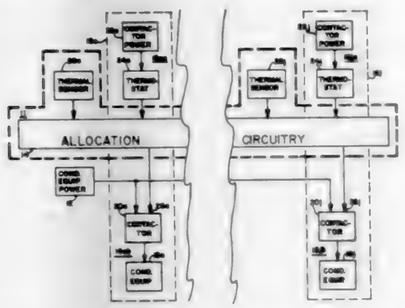
unit and a depending energy absorption apparatus connected to the float unit, characterized in that the energy absorption apparatus comprises an immersed piston built into an elongate, substantially vertical acceleration pipe, said pipe comprising a cylinder for said piston and being open at both ends and normally submerged beneath the float unit when in use, said pipe being connected to the float unit and accompanying the float unit in the wave movement of the water, said piston being reciprocable in said pipe in response to hydraulic pressure forces on its upper and lower faces, and being unrestrained exteriorly of the plant against movement with or relative to said pipe.

4,277,691

ENERGY ALLOCATOR

Lawrence M. Lunn, 6902 S. Meridian St., Indianapolis, Ind. 46217

Continuation-in-part of Ser. No. 841,840, Oct. 13, 1977. This application Jun. 14, 1979, Ser. No. 48,615
Int. Cl.³ H02J 3/00
U.S. Cl. 307—35 **28 Claims**



1. A system for allocating energy, adapted to be coupled to a plurality of conditioning equipment systems, each altering a corresponding one of a plurality of first conditions in response to a corresponding one of a plurality of first signals comprising:

first means for developing, in the absence of a second signal, a plurality of third signals in an order determined by the relative deviation of each of said plurality of corresponding first conditions from each of a plurality of corresponding predetermined second conditions; and for developing, in the absence of said second signal and in a controlled order, those of said plurality of third signals identifying those of said plurality of corresponding first conditions having substantially the same deviation from corresponding ones of said plurality of predetermined second conditions; and for developing a fourth signal in response to said second signal;

second means coupled to said first means for developing said second signal when a predetermined number of said third signals is developed by said first means; and

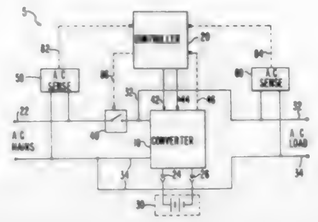
third means, coupled to said first means and adapted to be coupled to said plurality of conditioning equipment systems for developing, in response to said fourth signal, said plurality of first signals corresponding to said third signals developed, in the absence of said second signal, by said first means.

4,277,692

CONTINUOUS POWER SOURCE WITH BI-DIRECTIONAL CONVERTER

Kenneth T. Small, Cupertino, Calif., assignor to Tab Products Company, Palo Alto, Calif.

Filed Jun. 4, 1979, Ser. No. 45,573
Int. Cl.³ H02J 9/00
U.S. Cl. 307—66 **5 Claims**



1. An apparatus having first and second DC power terminals for use in transferring electric power between an AC power system and a DC power storage device, such as a battery, said apparatus comprising:

a push-pull transformer having a first winding for interfacing with said AC power system, and a second winding, said second winding having a first end tap, a second end tap and a center tap, said center tap being coupled to said first DC power terminal;

a flux storage transformer capable of storing flux for a period which is large compared to a switching frequency of current through said flux storage transformer comprising a third winding and a fourth winding, said third winding being in a first current path with third and fourth end taps and said fourth winding being in a second current path with fifth and sixth end taps, said third and fifth end taps having the same polarity, said third end tap being coupled in said first current path to said first end tap of said push-pull transformer and said sixth end tap being coupled in said second current path to said second end tap of said push-pull transformer, said fourth end tap being coupled in said first current path to said second DC power terminal and said fifth end tap being coupled in said second current path to said second DC power terminal;

first bi-directional switching means in said first current path;

second bi-directional switching means in said second current path;

means for pulse width modulating said first switching means and said second switching means on and off to direct current flow in said first and second current paths in a first direction to said first and second DC power terminals;

said first and second switching means each including a diode which is responsive to a forward bias in said first and second current paths, respectively, to permit current flow only in a second direction in said first and second current paths, respectively, through said first and second DC power terminals, said second direction being the reverse of said first direction;

said modulating means being constrained to modulate only said first switching means or only said second switching means so as to define a permissable current path alternately

(a) from said second DC power terminal in said first direction through said first current path into said third winding of said flux storage transformer in order to generate a flux, which, upon opening of said first switching means, induces a current in said fourth winding in said second direction through said second current path back to said second DC power terminal without reversing current flow polarity in said first winding of said push-pull transformer, or

(b) from said second DC power terminal in said first direction through said second current path to said fourth winding of said flux storage transformer in order to generate a flux, which, upon opening of said second switching means, induces a current in said third winding in said second direction through said first current path back to said second DC power terminal without reversing current flow polarity in said first winding of said push-pull transformer,

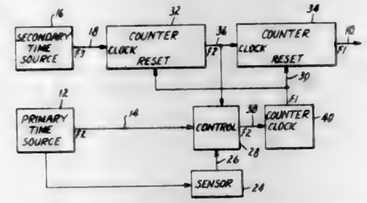
such that the duty cycles of said switching means determine whether net DC power flow is from or to said DC power terminals.

4,277,693

APPARATUS FOR PROVIDING A TIME CONTROLLED OUTPUT

Earl B. Hoekman, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 16, 1979, Ser. No. 94,925
Int. Cl.³ H01H 43/00
U.S. Cl. 307—141 **17 Claims**



1. An apparatus for providing a time controlled output at a first frequency based primarily upon a primary time source providing a primary time signal at a second frequency which is equal to or greater than said first frequency, comprising:

an oscillator producing an oscillator time digital signal at a third frequency which is equal to or greater than said second frequency;

a counter coupled to said oscillator time digital signal for counting a predetermined number of pulses of said oscillator time digital signal and producing as an output said time controlled output, said counter having a provision for being reset;

a primary time sensor coupled to said primary time source providing a primary time operative signal indicative of said primary time source being operative; and

a control circuit coupled to said time controlled output, coupled to said primary time signal and coupled to said primary time operative signal, said control circuit producing a reset signal responsive to said primary time signal when said primary operative time signal indicates said primary time source is operative and responsive to said time controlled signal when said primary time operative signal indicates said primary time source is not operative;

said reset signal being operatively coupled to said counter providing said provision for being reset;

whereby said time controlled output is synchronized by said primary time source when said primary time source is operative and is synchronized by said oscillator when said primary time source is not operative.

4,277,694

CHARGE COUPLED DEVICE VARIABLE DIVIDER WITH INTEGRATING WELL

William E. Jensen, San Pedro, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 1, 1979, Ser. No. 80,848
Int. Cl.³ G11C 19/28; H01L 29/78
U.S. Cl. 307—221 D **10 Claims**

1. A charge coupled device variable ratio divider formed on a semiconductive substrate and controlled by a clock signal means utilizing regenerative charge coupled feedback, comprising:

charge injection means for sequentially injecting charge packets of a preselected size into said charge coupled device in synchronism with said clock signal means;

means for varying said preselected size;

charge integration electrode means for accumulating a limited predetermined number of said injected charge packets in the surface of said substrate;

floating conductor means for sensing overflow of charge from said integration means upon accumulation of said predetermined number;

charge coupled regenerative feedback means for forcing said charge packets accumulated by said integration means to overflow from said integration means in response to said floating conductor means for sensing overflow; and

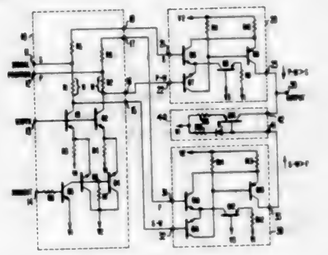
means responsive to said charge coupled regenerative feedback means for generating a frequency divided clock signal having a frequency divided down from the frequency of said clock signal means by a ratio determined by said preselected size varying means.

4,277,695

AMPLIFIER HAVING DEAD ZONE OF CONTROLLABLE WIDTH AND POSITION

James A. Wilber, Indianapolis, Ind., and Bernard J. Yorkanis, South Plainfield, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 16, 1979, Ser. No. 58,022
Int. Cl.³ H03K 5/08, 5/24
U.S. Cl. 307—542 **10 Claims**



1. A dead zone amplifier for supplying output current in a given sense to a load when an input signal is above a first level and for supplying output current in the opposite sense to said load when said input signal is below a second level, said levels defining a dead zone within which no output current flows in either sense to said load, said dead zone amplifier comprising:

an input circuit responsive to an input signal and a width control signal for providing a first composite output signal representative of the sum thereof, said input circuit being also responsive to said width control signal and a position

control signal for providing a second composite output signal representative of the sum thereof;
a first differential amplifier responsive to said input signal and said second composite output signal for producing a first output current of a given sense when said input signal and said second composite output signal are of first relative magnitudes, said first output current being zero otherwise;
a second differential amplifier responsive to said position signal and said first composite output signal for producing a second output current of said given sense when said position control signal and said first composite signal are of first relative magnitudes, said second output current being zero otherwise; and
an output circuit for subtracting one of said output currents from the other to produce a difference current for application to said load, whereby the position and width of said dead zone are independently and non-interactively controllable in response to changes in said position and width control signals.

4,277,696

SEMICONDUCTOR SWITCH CIRCUIT

Michio Tokunaga, Zenki, and Junjiro Kitano, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 6, 1979, Ser. No. 27,838
Claims priority, application Japan, Oct. 13, 1977, 52-122600
Int. Cl.³ H03K *17/60*
U.S. Cl. 307—255 **8 Claims**



1. A semiconductor switch circuit comprising:
an inverted Darlington circuit including at least a first and a second transistor which are complementary to each other, the emitter of said first transistor being connected to the collector of said second transistor and the base of said second transistor being connected to the collector of said first transistor in a manner so that the emitter of said first transistor and the collector of said second transistor comprises an equivalent emitter of said inverted Darlington circuit, and that the emitter of said second transistor comprises an equivalent collector of said inverted Darlington circuit, and that the base of the first transistor comprises an equivalent base of said inverted Darlington circuit;
a third transistor having a base and a collector connected to the equivalent collector and base of said inverted Darlington circuit, correspondingly and respectively, thereby to constitute a positive feedback circuit therebetween; and
means for executing on-off control of at least a selected one of said first and second transistors constituting said inverted Darlington circuit.

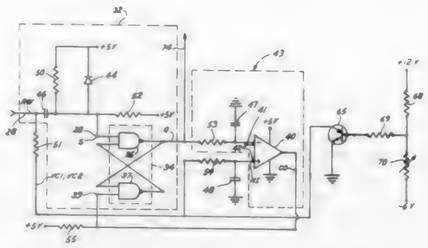
4,277,697

DUTY CYCLE CONTROL APPARATUS

George R. Hall, Sherman Oaks, and Robert J. Hall, Chatsworth, both of Calif., assignors to Norlin Industries, Inc., White Plains, N.Y.

Filed Jan. 15, 1979, Ser. No. 3,585
Int. Cl.³ H03K *5/26, 3/017*
U.S. Cl. 307—265 **11 Claims**

1. Apparatus for controlling the duty cycle of an input signal having a period, said apparatus comprising:
control means for controlling the amplitude of the input signal;
means responsive to the controlled input signal for generating a first reference signal having a first amplitude dependent on the period of the controlled input signal;
generator means for initiating in synchronism with the input signal an output signal having a pre-determined second amplitude; and



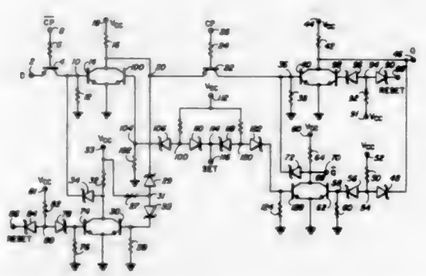
comparator means for enabling the generator means to terminate the output signal after a time period related to the relative amplitudes of the reference signal and the output signal, whereby the duty cycle of the output signal with respect to the input signal remains constant even though the frequency of the input signal changes.

4,277,698

DELAY TYPE FLIP-FLOP

Ray M. Vasquez, Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 1, 1979, Ser. No. 44,448
Int. Cl.³ H03K *3/289*
U.S. Cl. 307—272 A **4 Claims**



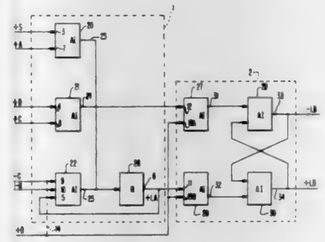
1. A master-slave delay type flip-flop having a first input, a first non-inverted output and a first inverted output for receiving logical data at said first input and transferring said logical data to said first inverted and non-inverted outputs, said flip-flop being responsive to a clock signal capable of assuming first and second voltage levels, comprising:
a first transistor having an emitter coupled to said first input and a base coupled to said clock signal for transferring said data to its collector when said clock signal assumes said first voltage level;
a second transistor having an emitter coupled to ground and a base coupled to the collector of said first transistor for inverting said data at its collector;
a third transistor having an emitter coupled to the collector of said second transistor and a base coupled to said clock signal for transferring the inverted data to its collector when said clock signal assumes said second voltage level;
a fourth transistor having a base coupled to the collector of said third transistor and an emitter coupled to ground for reinverting said data at its collector to form said first non-inverted output;
first feedback means coupled between the collector and base of said second transistor for latching the base voltage of said second transistor;
second feedback means coupled between the base and collector of said fourth transistor for latching the voltage at the base of said fourth transistor;
reset means coupled to said first feedback means and to said first transistor for forcing said first non-inverted output to a logical 0 and forcing the base of said second transistor to a logical 0; and
set means coupled to said second transistor and to said fourth transistor for forcing the base of said fourth transistor to a logical 0.

4,277,699

LATCH CIRCUIT OPERABLE AS A D-TYPE EDGE TRIGGER

David J. Brown, North Baddesley, England; Ronald G. Walther, Raleigh, N.C.; Thomas W. Williams, Longmont, Colo., and Michael D. Wrigglesworth, Pembroke Park, England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 26, 1979, Ser. No. 60,933
Claims priority, application United Kingdom, Oct. 2, 1978, 39000/78
Int. Cl.³ H03K *3/037*
U.S. Cl. 307—272 R **4 Claims**



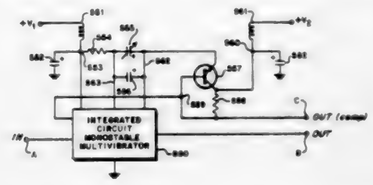
1. A shift register latch circuit for use in an integrated circuit conforming to Level Sensitive Scan Design (LSSD), said shift register latch circuit comprising:
a first AND/INVERT circuit having a first input for receiving a SCAN IN input, a second input for receiving a first clock pulse train, and an output;
a second AND/INVERT circuit having a first input for receiving a data input, a second input for receiving a second clock pulse train, and an output;
a third AND/INVERT circuit having a first input for receiving the complement of said second clock pulse train, a second input for receiving the complement of said first clock pulse train, a third input, and an output;
an Inverter circuit having an input and output;
a fourth AND/INVERT circuit having a first input connected in common to said output of said first AND/INVERT circuit, said output of said second AND/INVERT circuit, said output of said third AND/INVERT circuit and said input of said Inverter circuit, a second input, and an output;
a fifth AND/INVERT circuit having a first input connected in common to said output of said Inverter circuit and said third input of said third AND/INVERT circuit, a second input connected in common with said second input of said fourth AND INVERT circuit for receiving a third clock pulse train, and an output;
a sixth AND/INVERT circuit having a first input connected to said output of said fourth AND/INVERT circuit, a second input, and an output; and
a seventh AND/INVERT circuit having a first input connected to said output of said sixth AND/INVERT circuit, a second input connected to said output of said fifth AND-/INVERT circuit and an output connected to said second input of said sixth AND/INVERT.

4,277,700

OUTPUT ONE-SHOT

George J. Dusheck, Jr., Cinnaminson, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 3, 1969, Ser. No. 788,811
Int. Cl.³ H03K *3/033, 3/284*
U.S. Cl. 307—273 **7 Claims**



1. A logic circuit providing a digital output signal for selectable time periods comprising:
monostable multivibrator means for receiving a digital input signal and for providing an output pulse in response to said received digital signal;
first means operatively connected to said multivibrator means for controlling the duration of said pulse;
second means operatively connected to said first means and multivibrator means for providing changes in impedance in response to received signals;
a first positive voltage source;
a second positive voltage source;
a first decoupling network operatively connected to said first voltage source and said first means; and
a second decoupling network operatively connected to said second voltage source and said second means.

4,277,701

SEMICONDUCTOR INTEGRATED INJECTION LOGIC STRUCTURE CONTROLLED BY THE INJECTOR

Robert M. Horuang, Ris-Orangis, and Gerard M. Lebesnerais, St Fargeau-Pouthierry, both of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 13, 1978, Ser. No. 924,126
Claims priority, application France, Sep. 28, 1977, 77 29867
Int. Cl.³ H03K *19/091;* H01L *27/04;* G11C *11/40*
U.S. Cl. 307—291 **1 Claim**

1. A monolithic semiconductor bistable device having first and second stable states of conductivity, said bistable device comprising:
a first integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first and second collectors;
a second integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and a single collector;
a third integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first and second collectors;
a fourth integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first, second and third collectors;
a fifth integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first and second collectors;
a sixth integrated injection logic unit including a lateral PNP

transistor and a vertical NPN transistor having an emitter, base and first and second collectors;

a seventh integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first and second collectors;

an eighth integrated injection logic unit including a lateral PNP transistor and a vertical NPN transistor having an emitter, base and first and second collectors;

First connection means connecting in common said emitters of said NPN transistors of said first through eighth units and a source of reference potential;

second connection means connecting in common said first collector of said NPN transistor of said first unit, said second collector of said NPN transistor of said fourth unit, said first collector of said NPN transistor of said seventh unit and said base of said NPN transistor of said eighth unit;

third connection means connecting in common said first collector of said NPN transistor of said third unit, said collector of said NPN transistor of said second unit, and said base of said NPN transistor of said fourth unit;

fourth connection means connecting in common said second collector of said NPN transistor of said first unit, said first collector of said NPN transistor of said fourth unit, said base of said NPN transistor of said second unit, and said second collector of said NPN transistor of said fifth unit;

fifth connection means connecting in common said second collector of said NPN transistor of said third unit, said third collector of said NPN transistor of said fourth unit, said base of said NPN transistor of said sixth unit, and said first collector of said NPN transistor of said fifth unit;

sixth connection means connecting in common said second collector of said NPN transistor of said eighth unit, said base of said NPN transistor of said seventh unit and said first collector of said NPN transistor of said sixth unit;

seventh connection means connecting in common said second collector of said NPN transistor of said sixth unit and said base of said NPN transistor of said fifth unit;

first and second complementary output terminals (Q,Q), said first output terminal (Q) being connected to said second collector of said NPN transistor of said eighth unit, said second output terminal (Q) being connected to said second collector of said NPN transistor of said seventh unit;

a preset control input (PS) terminal connected to the base of said NPN transistor of said first unit;

a clock input (H) terminal connected to the base of said NPN transistor of said third unit;

a data input (D) terminal connected to the base of said NPN transistor of said fifth unit;

an injector and clearing input (INJ+C) terminal connected in common to the emitter of each of said lateral PNP transistors of said first through eighth Integrated Injection Logic units;

said bistable device being further characterized in that the base width of each of the PNP transistors of said second, sixth and eighth units are respectively equal one to another, that the base width of each of the PNP transistors of said first, third, fourth, fifth and seventh units are respectively equal one to another, and that the base width of each of the PNP transistors of said second, sixth and eighth units is less than the base width of each of the PNP transistors of said first, third, fourth, fifth and seventh units; and

said bistable device being still further characterized in that a positive pulse, applied to said preset control input terminal causes said monolithic semiconductor bistable device to assume said first stable state (Q=1) and a negative pulse applied to the injector and clearing input terminal causes said monolithic semiconductor bistable device to assume said second stable state (Q=0).

4,277,702

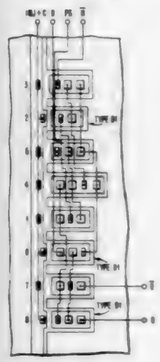
CHARGE COMPARATOR OUTPUT DRIVER

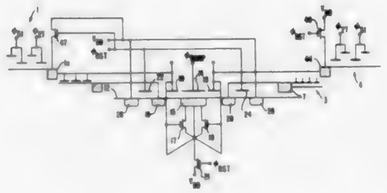
James M. Hamilton, Hawthorne, Calif., and Arthur J. Porter, Eugene, Oreg., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 21, 1979, Ser. No. 106,222

Int. Cl.³ H03K 3/353; G11C 19/28; H03K 5/153; H01L 29/78

U.S. Cl. 307—304 6 Claims





1. A charge transfer device comparator refresher formed on the surface of a semiconductor substrate having a surface potential, comprising:

an input source of charge packets to be refreshed;

an output charge flow channel;

a first voltage source;

means for storing charge in a first portion of said surface in an amount proportional to the voltage of said first voltage source;

means for forming a signal potential barrier having a height proportional to the size of charge packets to be refreshed from said input source;

means for forming a reference potential barrier of a selected reference barrier height in said substrate surface potential;

means for changing the voltage of said first voltage source to eject the charge stored by said charge storing means and overflow one of said signal and reference potential barriers whenever one of said signal and reference potential barrier heights is less than the other, respectively;

means for injecting charge into said output charge flow channel in response to charge overflowing one of said signal and reference barriers; and

latching means for setting one of said signal and reference barrier heights to be less than the other, said latching means having a feedback node isolated from said charge injecting means.

4,277,703

MONOSTABLE MULTIVIBRATOR CIRCUIT WITH CLAMPED NON-SATURATING COMMON EMITTER AMPLIFIER IN FEEDBACK PATH

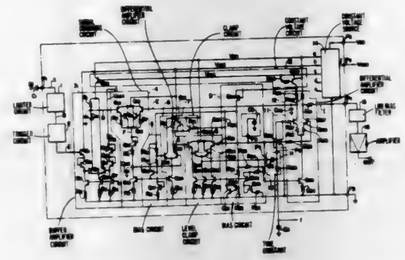
Takeshi Wada; Masanori Iizuka, both of Kodaira; Yukihiko Miyamoto, and Tsuneo Yamada, both of Tokyo, all of Japan, assignors to Hitachi, Ltd. and Trio Kabushiki Kaisha, both of Tokyo, Japan

Filed Jan. 9, 1979, Ser. No. 2,108

Claims priority, application Japan, Mar. 15, 1978, 53-28661

Int. Cl.³ H03K 5/08, 3/033

U.S. Cl. 307—553 3 Claims



1. A monostable multivibrator circuit including a time constant circuit which includes a capacitor, an amplifier circuit which receives an output signal of the time constant circuit, a positive feedback circuit which is connected between an output end of the amplifier circuit and an input end of the time constant circuit, and a trigger terminal which is disposed in a circuit loop constructed of the time constant circuit, the amplifier circuit and the positive feedback circuit, characterized in that said positive feedback circuit comprises a signal amplifying transistor which has a base receiving an output of said amplifier circuit, a collector supplying a signal to said time constant circuit and an emitter connected to an emitter of another transistor in common, to constitute a differential amplifier circuit, and a level clamp circuit which is coupled to said collector of said signal amplifying transistor in order to hold a collector output potential of said signal amplifying transistor higher than a base input potential thereof.

4,277,704

MOTOR FOR ELECTRONIC WATCH

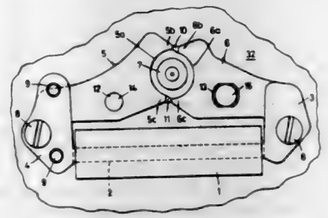
Urs Giger, Solothurn, and Norberto Perucchi, St. Blaise, both of Switzerland, assignors to Eta A.G. Ebauches-Fabrik, Grenchen, Switzerland

Filed Dec. 4, 1978, Ser. No. 966,219

Claims priority, application Switzerland, Dec. 13, 1977, 15316/77

Int. Cl.³ H02K 37/00

U.S. Cl. 310—49 R 8 Claims



1. A stepping motor for electronic watches comprising an elongated stator plate having two ends and a central opening, the latter having a closed edge, a supporting plate on which said stator plate is secured, an elongated core magnetically connected to both ends of said stator plate, a coil wound onto said core, and a rotor lodged in said opening, wherein said stator plate comprises two pole portions and two joining elements, each one of said pole portions comprises two nose portions and a concave edge portion each of which joins two corresponding ones of said nose portions and forms a portion of said closed edge of said opening, wherein said joining elements are integral with said stator plate and have the same thickness as said pole portions, each one of said joining elements extends between two nose portions not belonging to the same pole portion, and said pole portions are of a material having a high magnetic permeability whereas said joining elements are of a material having a low magnetic permeability.

4,277,705

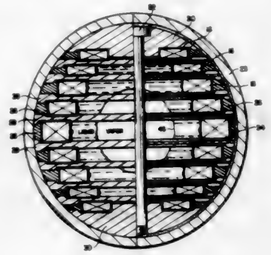
METHOD AND APPARATUS FOR COOLING A WINDING IN THE ROTOR OF AN ELECTRICAL MACHINE

Pedro A. Rios, Schenectady, N.Y., assignor to Electric Power Research Institute, Palo Alto, Calif.

Filed Sep. 2, 1977, Ser. No. 830,131

Int. Cl.³ H02K 3/24

U.S. Cl. 310—64 9 Claims



1. Apparatus for cooling a winding in a rotor of an electrical machine, comprising:

(a) a winding for carrying current in a rotor of an electrical machine, said winding cooled by a flow of liquefied gas through the rotor;

(b) a heat conductive mesh surrounding the winding and in thermal contact therewith for transferring heat developed in the winding to the liquefied gas, said mesh being perforated by a plurality of holes; and woven from both heat conductive filaments and electrically non-conductive filaments, the heat conductive filaments are woven into the mesh in a predetermined alignment so that heat developed in the winding is directed inward substantially toward the principal axis of the rotor and the electrically non-conductive filaments are woven into the mesh in a second predetermined alignment so that circulating currents are prevented from being conducted by the mesh in a direction parallel with the principal axis of the rotor; and

(c) an adhesive material serving to attach the mesh to the winding, said adhesive penetrates through the holes in the mesh to the surface of the winding.

4,277,706

ACTUATOR FOR HEART PUMP

Milton S. Isaacson, Dayton, Ohio, assignor to Nu-Tech Industries, Inc., Dayton, Ohio

Filed Apr. 16, 1979, Ser. No. 30,280

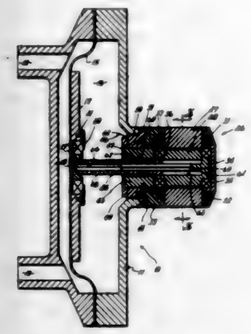
Int. Cl.³ H02K 7/06

U.S. Cl. 310—80 5 Claims

1. In a heart pump having a housing, inlet and outlet passageways in said housing, a diaphragm means for reciprocating said diaphragm comprising:

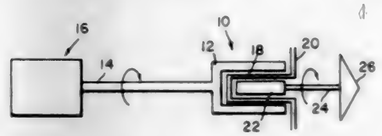
a brushless dc motor mounted on said housing, said motor

including a fixed stator and a rotor rotatably mounted in said stator,
a ball screw nut fixed to said stator,
a ball screw engageable with said diaphragm and threadedly connected by anti-friction balls to said nut,



said screw being axially slidable and fixed against rotation with respect to said rotor,
and means for periodically reversing said motor to cause said screw to reciprocate.

4,277,707
HIGH SPEED MAGNETIC COUPLING
Alexander Silver, Tarzana, and Kenneth L. Wuertz, Torrance, both of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Apr. 24, 1978, Ser. No. 899,669
Int. Cl.[3] H02K 5/10
U.S. Cl. 310—104 **32 Claims**



1. A magnetic coupling for coupling rotational motion through a sealed wall comprising rotatable driving means on one side of the sealed wall; first magnetic means having a longitudinal axis parallel with the axis of said driving means; first means for mounting said first magnetic means on said driving means and for maintaining the same under centrifugal compression along the entire axial length thereof upon rotation of said driving means; rotatable driven means axially aligned with said driving means on the opposite side of the sealed wall; second magnetic means having a longitudinal axis parallel with the axis of said driven means; and second means for mounting said second magnetic means on said driven means in magnetic coupling relation with said first magnetic means, and for maintaining said second magnetic means under centrifugal compression along the entire axial length thereof upon rotation of said driven means.

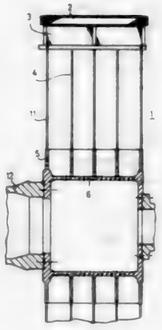
4,277,708
ENVIRONMENT AND BRUSHES FOR HIGH-CURRENT ROTATING ELECTRICAL MACHINERY
Ian R. McNab, Murrysville, and Philip Reichner, Plum Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jun. 25, 1979, Ser. No. 51,927
Int. Cl.[3] H02K 13/00
U.S. Cl. 310—226 **9 Claims**

1. A high-current electrical machine, comprising a stationary and a moving member and at least one fibrous current collector brush disposed between the members and in frictional contact with one member, the improvement comprising a current collector brush comprising a plurality of flexurally independent, electrically conducting, solid metal fibers where the mechanical fiber load of the brush at the area of frictional contact is between 1×10^{-6} lb./fiber and 1×10^{-2} lb./fiber,



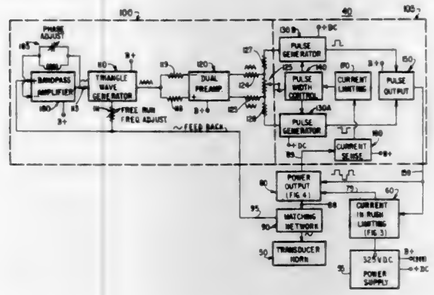
and shielding said area of frictional brush contact from air while providing to said area a non-oxidizing gaseous medium containing an amount of water vapor effective to form a lubricating film between the brush and the frictionally contacting member at their interface, to allow current transfer to the brush and yet provide a lubricating effect and minimize wear at the area of brush friction.

4,277,709
LARGE DIAMETER SYNCHRONOUS ELECTRIC MACHINE
Franz Spirk, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Jul. 6, 1979, Ser. No. 55,462
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2831123
Int. Cl.[3] H02K 1/22
U.S. Cl. 310—261 **3 Claims**



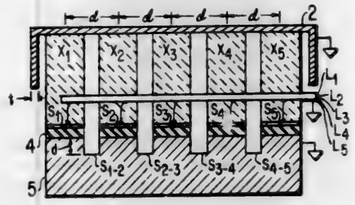
1. In a synchronous electric machine, especially a large diameter hydroelectric generator, having a rotor which has field poles supported on a ring built up of lamination segments, the ring being guided tangentially and shrink-fitted onto a hub carried on a hollow rotor shaft in such a way that the ring is lifted off only at speeds substantially above the nominal speed of rotation, the improvement comprising:
the dimensions for the seating surfaces of the shrink fit between the ring and the hub being so chosen that lifting of the ring below the nominal speed of rotation is provided in a portion of the axial length of the ring adjacent to the end face of the hub on the turbine side of the rotor and that lifting of the axial portion of the ring on the side of the hub facing away from the turbine can occur only at speeds substantially above the nominal speed.

4,277,710
CONTROL CIRCUIT FOR PIEZOELECTRIC ULTRASONIC GENERATORS
Philip C. Harwood, Elgin, and George H. Johnson, Dundee, both of Ill., assignors to Dukane Corporation, St. Charles, Ill.
Filed Apr. 30, 1979, Ser. No. 34,294
Int. Cl.[3] H01L 41/08
U.S. Cl. 310—316 **25 Claims**



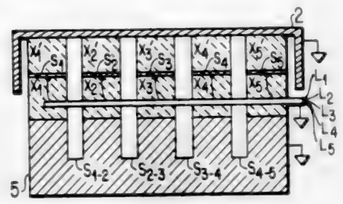
1. A generator for energizing an electro-acoustic transducer adapted to be coupled to a load for transferring acoustic energy thereto, said generator comprising a power output circuit coupled to the transducer and including switching means adapted to be connected to an associated source of direct current for producing an alternating current output, pulse generating means coupled to said switching means and providing thereto a series of pulses at an ultrasonic frequency, said switching means being responsive to each of said pulses for establishing a current flow to the transducer for a time period proportional to the duration of said pulse, and current control means coupled to said pulse generating means for varying the widths of said pulses thereby to vary the current flow to the transducer.

4,277,711
ACOUSTIC ELECTRIC TRANSDUCER WITH SHIELD OF CONTROLLED THICKNESS
Amin M. Hanafy, Andover, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 11, 1979, Ser. No. 83,692
Int. Cl.[3] H01L 41/08
U.S. Cl. 310—334 **1 Claim**



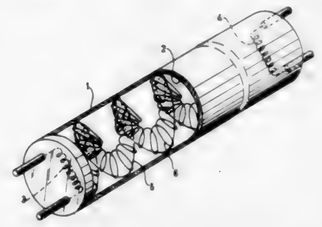
1. An acoustic electric transducer, comprising
a base,
a plurality of piezoelectric crystals mounted on said base in spaced parallel relationship with a given center-to-center spacing,
electrode means respectively in contact with each of said crystals so as to cause said crystals to have oscillatory changes in dimension at a frequency F_C in a direction perpendicular to the said base when driving voltage pulses are applied thereto, and
a metal shield mounted in electrical contact with the ends of said crystals that are opposite to said base, the thickness of said metal shield being such as to cause the asymmetric Lamb waves produced in said shield by said oscillatory changes in dimension of said crystals to have a wavelength in said shield that is twice the center-to-center spacing of said crystals.

4,277,712
ACOUSTIC ELECTRIC TRANSDUCER WITH SLOTTED BASE
Amin M. Hanafy, Andover, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 11, 1979, Ser. No. 83,693
Int. Cl.[3] H01L 41/08
U.S. Cl. 310—334 **4 Claims**



1. A transducer for translating electrical signals into acoustic signals and vice-versa, comprising
a base,
a plurality of rectilinear piezoelectric crystals mounted on said base in parallel, there being a space between each crystal and an adjacent one,
means for selectively applying electrical fields to said crystals so as to make them produce acoustic waves in a direction away from said base, and
means defining slots in the surface of said base on which the crystals are mounted, the said slots being respectively aligned with the spaces between said crystals so as to attenuate a Rayleigh wave emanating from each crystal along the surface of said base on which the crystals are mounted.

4,277,713
LOW-PRESSURE GAS DISCHARGE LAMP AND METHOD FOR MAKING
Jan Hasker; Johannes C. G. Verveer; Cornelis Peters, and Laurentius C. J. Vroomen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jun. 27, 1979, Ser. No. 52,374
Claims priority, application Netherlands, Jul. 4, 1978, 7807218
Int. Cl.[3] H01J 9/00, 61/04
U.S. Cl. 313—203 **2 Claims**



1. A low-pressure discharge lamp having an elongate discharge vessel which contains a thinly distributed filamentary body, permeable to the discharge, characterized in that said body comprises a helical support filament extending substan-

tially over the entire length of the discharge vessel at least partly adjacent the inner surface thereof and at least one further filament supported by the support filament and extending therefrom towards the axis of the discharge vessel, said one further filament being helically coiled around said support filament.

4,277,714

METAL HALIDE ARC DISCHARGE LAMP HAVING COILED COIL ELECTRODES

William M. Keeffe, Rockport; Frederic Koury, Bristol, and W. Calvin Gungle, Danvers, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jul. 2, 1979, Ser. No. 54,106
Int. Cl.[3] H01J 17/06, 61/073
U.S. Cl. 313—217 4 Claims



1. In a metal halide arc discharge lamp having a predetermined wattage and having an arc tube containing a fill including an inert gas and metal halide and having a main electrode at each end, the electrode comprising a coiled coil mounted on a rod, the coiled coil being made of a primary wire coiled on a mandrel wire and then coiled again, the improvement comprising the diameter of the rod in mils being equal to said wattage raised to the 0.56 power and then divided by 0.784, wherein the diameter of the primary wire in mils equals the rod diameter raised to the 1.8 power and then divided by 80.8.

4,277,715

ELECTRIC GAS DISCHARGE LAMP

Jacobus M. M. Claessens; Bart van der Leeuw, and Nicolaas F. van Elderen, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 846,220, Oct. 27, 1977, abandoned.
This application May 7, 1979, Ser. No. 36,618
Claims priority, application Netherlands, Nov. 2, 1976, 7612120
Int. Cl.[3] H01J 61/30, 61/36
U.S. Cl. 313—220 3 Claims



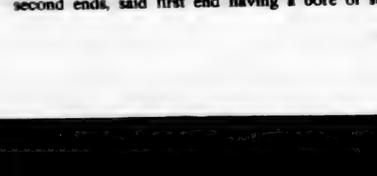
1. An electric gas discharge lamp which comprises: means for suspending a discharge vessel, a tubular ceramic discharge vessel including at least an end face having a generally axially aligned hole therein and a ceramic end plug which has a first portion having a circumferential surface having a gas tight seal with said hole and which extends axially within said one end face of said discharge vessel, said first portion cooperating directly or indirectly with said means for suspending, said lamp further including at least two electrodes and an ionizable medium in said discharge vessel, said end plug further including adjacent to said first portion an axially adjacent second portion extending away from said discharge vessel, said second portion having an outside diameter greater than said first portion, said second portion contacting said end face, said second portion of said end plug having an outside diameter not greater than 90% of the outside diameter of the discharge vessel, said means for suspending including an arcuate member formed from a strip of material which is disposed surrounding said second portion of said end plug, said arcuate member having a radius of curvature which is greater than one-half the outside diameter of said second portion of said end plug and less than one-half of the diameter of said discharge vessel, said arcuate member not conducting electricity to any of said electrodes.

4,277,716

GLASS-TO-METAL SEAL CONSTRUCTION

Neill K. Banks, Jr., 6 Arlington St., Gloucester, Mass. 01930

Filed Oct. 9, 1979, Ser. No. 82,919
Int. Cl.[3] H01J 17/16
U.S. Cl. 313—220 12 Claims



1. A glass-to-metal seal construction comprising:
(a) a first tubular glass element having first and second ends, said first end having sealingly embedded therein the sidewall of a first cup-shaped refractory metal seal element and said second end defining a free end adapted for fusion sealing thereof to another tubular glass ware;
(b) a second tubular glass element having first and second ends, said first end having a bore of sufficient diameter to receive said first tubular glass element of (a) and being sealingly fused thereto intermediate the first and second ends thereof, said second tubular glass element extending rearwardly and beyond said first end of said first tubular glass element, said second end of said second tubular glass element having sealingly embedded therein the sidewall of a second cup-shaped refractory metal seal element;
(c) a refractory metal electrode rod extending from the base of said second cup-shaped seal element through the base of said first cup-shaped seal element and being sealingly affixed to each said element;
(d) said first and second tubular glass elements, said first and second cup-shaped refractory metal seal elements and said electrode rod defining therebetween a hermetically sealed chamber, said chamber being at subatmospheric pressure.

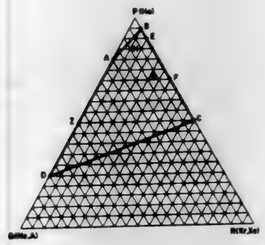
12. In a high temperature gas discharge illuminating device of the type comprising a fused quartz tubular envelope, refractory metal seals joined to said envelope and a refractory metal electrode rod sealingly affixed to each said refractory metal seal and extending into said envelope, the improvement which comprises each said refractory metal seal comprising the construction:
(a) a first tubular fused quartz element having first and second ends, said first end having sealingly embedded therein the sidewall of a first cup-shaped refractory metal seal element and said second end being sealingly fused to said fused quartz tubular envelope, thereby to establish hermetically sealed open communication with the interior thereof;
(b) a second tubular fused quartz element having first and second ends, said first end having a bore of sufficient diameter to receive said first tubular fused quartz element of (a) and being sealingly fused thereto intermediate the first and second ends thereof, said second tubular fused quartz element extending rearwardly and beyond said first end of said first tubular fused quartz element, said second end of said second tubular fused quartz element having sealingly embedded therein the sidewall of a second cup-shaped refractory metal seal element;
(c) a refractory metal electrode rod extending from the base of said second cup-shaped refractory metal seal element, through the base of said first cup-shaped refractory metal seal element and into said envelope, said electrode rod being sealingly affixed to said bases;
(d) said first and second tubular fused quartz elements, said first and second cup-shaped refractory metal seal elements and said electrode rod defining therebetween a hermetically sealed chamber, said chamber being at subatmospheric pressure.

4,277,717

LOW-PRESSURE SODIUM VAPOR DISCHARGE LAMP

Willem Van Beuthem, and Robertus L. C. De Vaan, both of, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 15, 1979, Ser. No. 95,129
Claims priority, application Netherlands, Nov. 17, 1978, 7811350
Int. Cl.[3] H01J 61/16, 61/22
U.S. Cl. 313—226 2 Claims



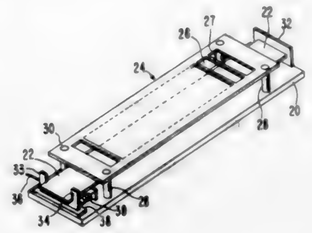
1. A low-pressure sodium vapor discharge lamp comprising a discharge tube, at the ends of which electrodes are present said tube having a length of not more than 40 cm and a diameter of not more than 20 mm and an outer bulb enveloping this discharge tube, a mixture of rare gases being present in the discharge tube besides an excess of sodium, characterized in that the rare gas mixture comprises helium and at least one of the elements neon, argon, krypton and xenon, the composition of the rare gas mixture being represented by means of points located on or within the rectangle ABCD in the ternary volume composition diagram PQR, P representing helium, Q neon and/or argon and R representing krypton and/or xenon, A denoting a mixture consisting of 80% by volume of helium with 20% by volume of neon and/or argon, B denoting a mixture consisting of 95% by volume of helium with 5% by volume of krypton and/or xenon, C denoting a mixture consisting of 50% by volume of helium with 50% by volume of krypton and/or xenon and D denoting a mixture consisting of 25% by volume of helium with 75% by volume of neon and/or argon.

4,277,718

MODULAR ELECTRON TUBE WITH CARBON GRID

Merrald B. Shrader, Los Altos, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Nov. 7, 1979, Ser. No. 92,124
Int. Cl.[3] H01J 1/46, 21/10
U.S. Cl. 313—304 12 Claims



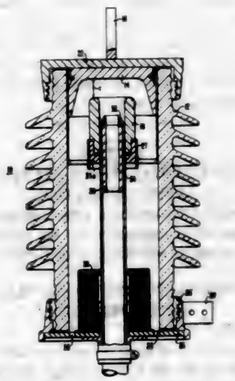
1. In an electron tube, an anode, and an electron source assembly comprising:
a common support member insulated from said anode,
a plurality of grid-cathode modules, each comprising at least one thermionic cathode having a substantially flat emissive surface, at least one grid formed of a substantially flat sheet of carbon with openings for passage of electrons, and mounting means for supporting said cathode and said grid in insulated spaced relationship to each other to form said module such that said sheet is positioned substantially parallel to said emissive surface, said mounting means of each module being independent of the mounting means of the other modules,
means for affixing said mounting means independently to said common support member such that said emissive surfaces face said anode, and said grids are between said emissive surfaces and said anode,
means for electrically connecting said cathodes to a common terminal, and
means for electrically connecting said grids to a common terminal.

4,277,719

POWER SPARK GAP FOR HIGH CURRENT CONDUCTION

Oral L. Riggins, Odon, Ind., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 20, 1979, Ser. No. 59,403
Int. Cl.[3] H01J 17/00, 21/00
U.S. Cl. 313—325 4 Claims



1. A power spark gap for conduction of high currents upon

occurrence of an overvoltage comprising: a pair of electrodes, one of said pair of electrodes comprising a cylindrical body of electrode material spaced a first distance from the other of said pair of elelctrodes and an inner sleeve of more highly conductive material located within said cylindrical body and spaced farther than said first distance from said other electrode, said inner sleeve having the capability of conducting higher currents than said cylindrical body and serving as means for receiving and substantially confining a high current arc that is initiated between said cylindrical body and said other electrode.

4,277,720

LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP

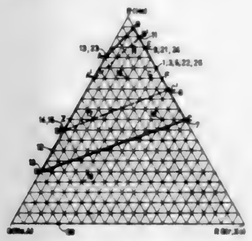
Winston D. Couwenberg; Albert Bouwknegt; Franciscus A. S. Ligthart, and Jean J. Heuvelmans, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 15, 1979, Ser. No. 95,128

Claims priority, application Netherlands, Nov. 17, 1978, 7811351

Int. Cl.³ H01J *61/16*

U.S. Cl. 313—485 **3 Claims**



1. A low-pressure mercury vapor discharge lamp having a tubular discharge vessel which is closed in a vacuum-tight manner and having electrodes which are less than 40 cm apart, the inside diameter of this discharge vessel being less than 26 mm and a luminescent layer provided on the inner wall surface of the discharge vessel, the discharge vessel containing mercury and a mixture of rare gasses, characterized in that the rare gas mixture comprises helium and at least one of the elements neon, argon, krypton and xenon, the composition of the rare gas mixture being represented by means of points located at or within a quadrilateral ABCD in a ternary composition diagram PQR in which P represents helium, Q neon and/or argon, and R krypton and/or xenon, and wherein A indicates a mixture consisting of 80% by volume of helium and 20% by volume of neon and/or argon, B indicates a mixture consisting of 95% by volume of helium and 5% by volume of crypton and/or xenon, C indicates a mixture consisting of 50% by volume of helium and 50% by volume of krypton and/or xenon, and D indicates a mixture consisting of 25% by volume of helium and 75% by volume of neon and/or argon.

4,277,721

MULTISTAGE DEPRESSED COLLECTOR FOR DUAL MODE OPERATION

Henry G. Kosmahl, Olmsted Falls, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sep. 7, 1979, Ser. No. 73,579

Int. Cl.³ H01J *23/02*

U.S. Cl. 315—5.38 **22 Claims**

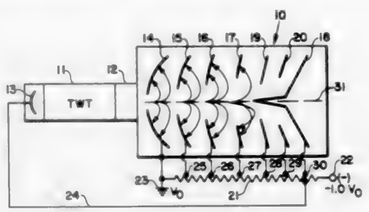
1. In a microwave traveling wave transmitting tube (TWT) of the type having an electron emitting cathode, a depressed collector and having high power and low power modes of operation, said TWT serving as a source providing a beam of spent electrons whose trajectories diverge from the beam axis in a downstream direction from said source;

a collector for said electrons, said collector comprising:

a first beam entrance electrode, said first electrode having a central aperture and being bowed toward said source of spent electrons;

a conical end electrode downstream from said first electrode having a spike extending from its apex toward said source of electrons, said spike lying on said beam axis;

at least one intermediate electrode positioned between said first electrode and said conical end electrode and having a central aperture, said aperture being of greater diameter



than the aperture of said first electrode, said intermediate electrode being bowed toward said source of spent electrons;

at least one low power mode electrode positioned between said intermediate electrode and said conical end electrode and having an aperture no larger than that of said intermediate electrode, and being axially positioned such that no more than about one-quarter of said spike extends through said aperture whereby most of said spent electrons pass between said spike and the edge of said aperture in said low power electrode when said tube is operated in said low power mode.

4,277,722

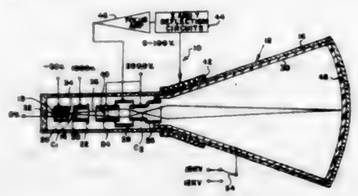
CATHODE RAY TUBE HAVING LOW VOLTAGE FOCUS AND DYNAMIC CORRECTION

Kenneth W. Hawken, Dundee, and Bozidar Janko, Portland, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 878,042, Feb. 15, 1978, abandoned. This application May 14, 1979, Ser. No. 38,606

Int. Cl.³ H01J *29/62*

U.S. Cl. 315—31 R **17 Claims**



1. An electron discharge device comprising:

beam-forming means including cathode means for emitting an electron beam, electrode means for forming said electron beam into a first crossover, first and second lens means along which said electron beam moves, said first lens means including focussing electrode means having a variable focussing voltage continuously applied thereto for dynamically controlling a second crossover of said electron beam relative to said second lens means for focussing said electron beam; and

screen means onto which the electron beam is focussed from said second crossover by said second lens means.

4,277,723

SYMMETRICAL MAGNETRON WITH OUTPUT MEANS ON CENTER AXIS

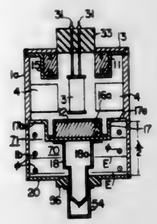
Kazuo Kaneko, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 26, 1979, Ser. No. 15,131

Claims priority, application Japan, Feb. 24, 1978, 53/19793

Int. Cl.³ H01J *25/50*

U.S. Cl. 315—39.77 **8 Claims**



1. A symmetrical magnetron comprising:

an anode cylinder provided with a plurality of vanes arrayed at the inner circumferential surface so as to form anode resonators positioned around a cathode;

a partition member having coupling openings formed therein and located in the vicinity of said vanes, each of said coupling openings being positioned in alignment with every other one of said vanes in said circumferential array;

a coaxial type cavity resonator provided in opposition to said vanes with said partition member being interposed therebetween and including a center conductor having a center axis substantially coinciding with the center axis of said anode cylinder, said coaxial type cavity resonator being adapted to be supplied with microwave energy through said coupling openings formed in said partition member;

means for radiating the microwave energy from the tip end of said center conductor of said coaxial type cavity resonator; and

means for insulating said radiating means from said cavity.

2. A symmetrical magnetron comprising:

an anode cylinder provided with a plurality of vanes arrayed at the inner circumferential surface so as to form anode resonators positioned around a cathode;

a partition plate having coupling openings formed therein and located in the vicinity of said array of vanes, each of said coupling openings being positioned in alignment with every other one of said vanes in said circumferential array;

permanent magnets positioned at a middle portion of said partition plate for producing a magnetic field running in a direction parallel to said vanes;

a coaxial type cavity resonator including an inner cylindrical conductor having one end connected to said partition plate at a middle portion thereof and extending in a direction opposite to said vanes, a portion of said anode cylinder extending in the direction opposite to said vanes from said partition plate and constituting an outer conductor and a conductor plate connected to the other end portion of said cylindrical conductor through an isolator and closing an end of said portion of said anode cylinder;

means for radiating microwave energy from the other end of said cylindrical conductor; and

means for insulating said radiating means from said cavity.

4,277,724

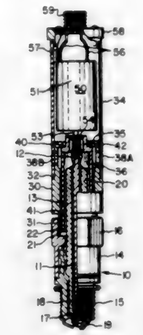
INTEGRAL SPARK PLUG COIL FOR AUTOMOTIVE-TYPE PLUG

Bruce R. Beeghly, Youngstown, Ohio, assignor to The Economy Engine Company, Youngstown, Ohio

Filed Oct. 18, 1979, Ser. No. 85,898

Int. Cl.³ H01J *7/44, 17/34, 19/78;* H01K *1/62*

U.S. Cl. 315—57 **4 Claims**



1. In an ignition device comprising a step-up coil unit to be associated with a spark plug, the improvement comprising said step-up coil unit comprising

an elongate tubular metal sleeve having means at one end for engaging the shell of the spark plug, said sleeve having at least one radial port through the side of the sleeve

an insulating bushing arranged substantially coaxial within the sleeve, and

a coil canister sealed to said sleeve having a coil therein,

the difference between the inner diameter of the metal sleeve and the outer diameter of the insulating bushing defining a narrow annular gap sized to quench a flame attempting to propagate therethrough,

whereby upon leakage of the seals in the spark plug the pressure does not build up in the coil canister but is released through the gap between the sleeve and the bushing and through the ports in the sleeve and whereby the condition of the spark plug can be checked by inserting a firing probe in the said at least one port.

4,277,725

GAS AND/OR VAPOR DISCHARGE LAMP

Andreas P. E. Sneijers, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,441

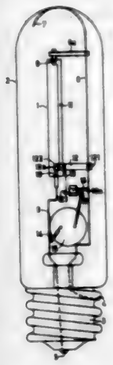
Claims priority, application Netherlands, Sep. 5, 1978, 7809055

Int. Cl.³ H01J *7/44, 17/34, 19/78;* H01K *1/62*

U.S. Cl. 315—73 **5 Claims**

1. A gas and/or vapor discharge lamp having a discharge tube with at least first and second main electrodes and an external ignition auxiliary means, and a bimetallic switch having a least three connection contacts, the first main electrode being connected to the first connection contact and the external ignition auxiliary means being connected to the second connection contact, all the connection contacts of the bimetallic switch in the inoperative condition of the lamp being mutually connected electrically, the mutual electric contact be-

tween each of the connection contacts being interrupted in the operating condition of the lamp, and said lamp further includ-



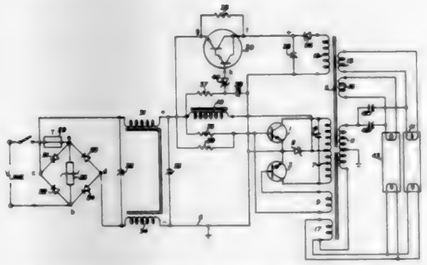
ing a glow starter which is connected between the third connection contract and the second main electrode.

4,277,726

SOLID-STATE BALLAST FOR RAPID-START TYPE FLUORESCENT LAMPS

Robert V. Burke, Ft. Wayne, Ind., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Aug. 28, 1978, Ser. No. 937,119
Int. Cl.³ H05B *39/00, 41/14*
U.S. Cl. 315—98 **21 Claims**



1. In an inverter-oscillator means for supplying AC voltage and current for starting and operating an electrical load of the type comprising a capacitor and a gaseous discharge lamp of the type requiring a high starting voltage and a lower operating voltage connected in electrical series circuit, whereby current through said circuit is dependent upon the AC voltage across said load and the frequency of said AC voltage, and inverter-oscillator means for generating high frequency AC voltage, including transistor means and transformer means, said transformer means responsive to current from said transistor means for producing an AC voltage proportional in level to said current and applying said voltage to said electrical load, and power supply means for supplying DC voltage and current to said inverter-oscillator means, the improvement comprising in combination therewith:

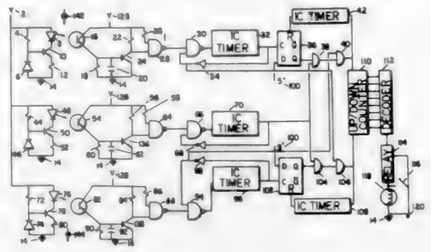
first means responsive to a change in level of said DC voltage for producing an inverse change in the frequency of oscillation of said inverter-oscillator means.

4,277,727

DIGITAL ROOM LIGHT CONTROLLER

Francis E. LeVert, 7233 S. Luella, Chicago, Ill. 60649

Filed Aug. 2, 1979, Ser. No. 63,359
Int. Cl.³ H05B *37/02*
U.S. Cl. 315—155 **4 Claims**



1. Apparatus for turning a light on when a person enters an unoccupied room and maintaining a net count equal to the difference between the number of persons entering and leaving the room so as to automatically maintain the room light in an on position when the total count is greater than zero or to maintain the room light in an off position when the total count is zero comprising: three emitters of invisible light adapted to emit three beams of said light in a horizontal plane across a doorway; three beam sensors positioned in said doorway so as to sense an interruption of one or more said invisible light beams transmitted thereto;

electronic means cooperating with each one of said sensors for emitting a pulse of electric current for each interruption of each said invisible light beam;

electronic means for generating an electrical signal of finite duration in response to each said pulse of electric current;

electronic means for processing said signals so as to produce a first output pulse only when said signals are generated in a first predetermined sequence and for producing a second output pulse only when said signals are generated in a second predetermined sequence;

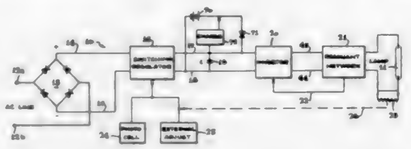
an up-down counter for counting said output pulses having the first output pulse applied to its UP input terminal and the second output pulse applied to its DOWN input terminal; and, electronic means for decoding the accumulated count stored in said counter and controlling the on/off state of the room lights in accordance therewith.

4,277,728

POWER SUPPLY FOR A HIGH INTENSITY DISCHARGE OR FLUORESCENT LAMP

Carlile R. Stevens, Danville, Calif., assignor to Stevens Luminoptics, San Ramon, Calif.

Filed May 8, 1978, Ser. No. 903,583
Int. Cl.³ G05F *1/00;* **H05B** *37/02, 39/04, 41/36*
U.S. Cl. 315—307 **33 Claims**



1. A power supply for a gas discharge lamp comprising:

a source of DC voltage;

an inverter connected to receive DC voltage from said source comprising a pair of switching transistors for alternately switching DC voltage from said source;

a resonant network whereby the output of the inverter as presented to the lamp will be sinusoidal in wave shape;

said inverter includes a transformer, the output of said transformer being connected to said resonant network which is in turn connected to the lamp;

an oscillator connected to control the switching rate of said pair of switching transitors to switch said transistors at such time as the current flowing in or out of said resonant circuit shall be at or near zero;

a feed-back means which determines that said resonant network is at resonance and that it presents a resistive load to said inverter;

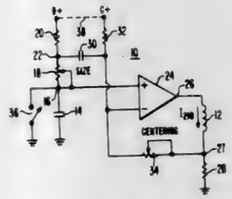
a frequency control means for said oscillator connected to the feedback means in such a manner as to control the frequency to maintain resonance in said resonant network.

4,277,729

SIMPLIFIED VERTICAL DEFLECTION CIRCUIT

Robert L. Rodgers, III, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 94,287
Int. Cl.³ H01J *29/54*
U.S. Cl. 315—398 **3 Claims**



1. An improved sawtooth generating circuit for driving a deflection winding, comprising:

a first capacitor having a first electrode coupled to a first point of reference potential and having a second electrode;

first and second resistance means serially coupled between a second point of reference potential and said second electrode for providing current for charging said first capacitor to form a voltage ramp;

a voltage amplifier including an inverting input terminal and also including a noninverting input terminal coupled to said second electrode for generating and applying an output signal to the deflection winding;

current sensing resistance means serially coupled with said winding for producing a feedback voltage signal representing the current through said deflection winding in response to said output signal;

coupling means coupling said current sensing resistance means with said inverting input terminal for closing a feedback loop about said amplifier for causing said current produced in response to said output signal to track said voltage ramp;

second capacitance means coupled to said inverting input terminal and to the juncture of said first and second resistance means for coupling said feedback voltage signal to said juncture for maintaining a relatively constant voltage across said second resistance means for maintaining a relatively constant current therethrough for linearizing said voltage ramp;

third resistance means coupled between a point of reference potential and said inverting input terminal;

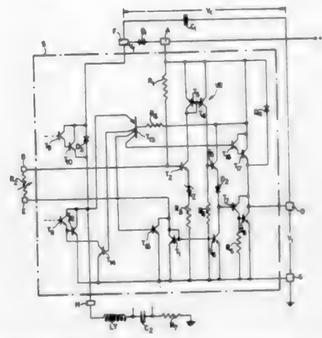
wherein the improvement lies in that said coupling means comprises variable resistance means for forming with said third resistance means a voltage divider for controlling the magnitude of said deflection current during those intervals in which said first capacitor is discharged for providing centering control of the raster.

4,277,730

VOLTAGE LIMITER FOR FLYBACK GENERATOR OF TELEVISION SWEEP SYSTEM

Antonio Colombo, Tradate, Italy, assignor to SGS-ATES Componenti Elettronici S.p.A, Agrate Brianza, Italy

Filed Jul. 25, 1979, Ser. No. 60,344
Claims priority, application Italy, Jul. 26, 1978, 26119 A/78
Int. Cl.³ H01J *29/70, 29/76*
U.S. Cl. 315—408 **5 Claims**



1. In a sweep system controlling the energization of a deflection coil of a cathode-ray tube during alternate scanning and flyback periods, including a storage capacitor, a charging transistor inserted between one side of said storage capacitor and a low-voltage terminal of a direct-current source, an isolating diode inserted between the other side of said storage capacitor and a high-voltage terminal of said source carrying a supply voltage V_s, said diode enabling said storage capacitor to charge to a voltage $V_c = V_s - V_f$ where V_f is a voltage drop across said charging transistor, periodically operating switch-over means for cutting off said charging transistor during each flyback period and simultaneously connecting said one side of said storage capacitor to said high-voltage terminal whereby said other side is carried to a potential $V_f = V_s + V_c$ and circuit means connecting said other side of said storage capacitor to said coil for applying said potential V_f thereto during each flyback period,

the combination therewith of voltage-regulating means connected across said source for controlling the construction of said charging transistor during said scanning periods in response to fluctuations of said supply voltage V_s to limit said potential V_f to a predetermined maximum, said voltage-regulating means comprising a current-amplifying network establishing a threshold voltage V_t and maintaining said charging transistor saturated during said scanning periods as long as $V_s \leqq V_t$, said network including impedance means dimensioned to make said voltage drop V_f substantially equal to $2(V_s - V_t)$ upon said supply voltage V_s exceeding said threshold voltage V_t, thereby preventing said potential V_f from exceeding a value of substantially 2 V_t.

4,277,731

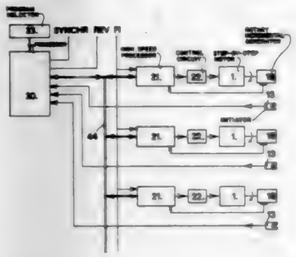
WRAPPING MACHINE

Eadre Pongracz, Ecublens, Switzerland, assignor to SAPAL Société Anonyme des Plieuses Automatiques, Switzerland

Filed Aug. 15, 1978, Ser. No. 933,913
Claims priority, application Switzerland, Sep. 7, 1977, 10976/77
Int. Cl.³ G05B *19/40*
U.S. Cl. 318—685 **12 Claims**

1. A wrapping machine comprising a plurality of movable elements and control means for controlling the positional movements and movement speed of said elements, wherein said control means comprise a first pulse generator for syn-

chronization, and a control circuit receiving pulses from said pulse generator, said control circuit including a computer, the store of which contains at least one working program, peripherals connected to the computer each comprising a processor



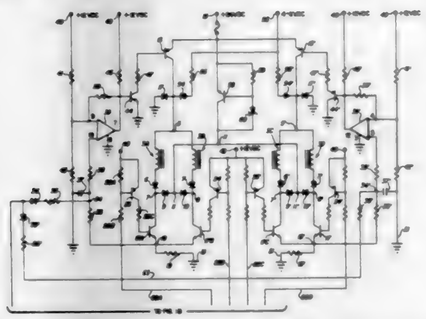
controlled by the computer, and step-by-step motor means controlled by the processor and operable to actuate each one of said elements to control both the positional movement and speed of movement of said elements.

4,277,732

LOW POWER STEPPING MOTOR DRIVER CIRCUIT AND METHOD

Lorenz A. Hittel, Paradise Valley, and Raymond H. Yurcik, Jr., Peoria, both of Ariz., assignors to Graphtek, Inc., Phoenix, Ariz.

Filed Aug. 3, 1979, Ser. No. 63,173
Int. Cl.[3] G05B 19/40
U.S. Cl. 318—696 16 Claims



1. A method of operating a stepping motor to advance the rotor of the stepping motor from a first step position to a second step position, said method comprising the steps of:

a. coupling a first terminal of a winding of the stepping motor to a first voltage supply conductor in response to a first control signal to cause a winding current to increase in the winding;

b. sensing said winding current by causing said winding current to flow through a resistor;

c. producing said first control signal and a second control signal in response to a voltage produced across said resistor by said winding current, said second control signal indicating when said winding current exceeds a first predetermined level, said first control signal indicating when said winding current is less than a second predetermined level;

d. uncoupling the first terminal from the first supply voltage conductor in response to said second control signal and maintaining the first terminal uncoupled from the first supply voltage conductor, causing said winding current to decrease until said winding current falls below said second predetermined level; and

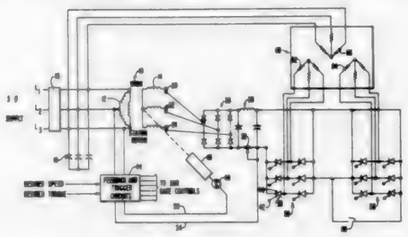
e. repeating steps (a) through (c) to produce a predetermined average current in the winding to effect moving of the rotor from said first step position toward said second step position.

4,277,733

SLIP RECOVERY SYSTEM FOR WOUND ROTOR MOTOR

William A. Munson, Amherst, N.Y., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 5, 1979, Ser. No. 17,666
Int. Cl.[3] H02P 7/36
U.S. Cl. 318—732 4 Claims



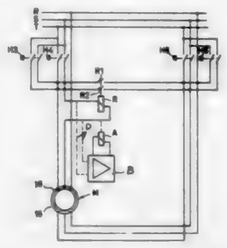
1. A slip recovery system for a wound rotor induction motor having a stator connected to a polyphase AC supply voltage, and a rotor coupled to a useful load comprising: a first inverter coupled to said rotor; a second inverter, in series with said first inverter, and coupled to said rotor; a feedback path coupling the outputs of said first and second inverters to said AC supply voltage; and means for switching connected in parallel with said second inverter, having open and closed positions, whereby said switching means is operated in the open position during starting and stopping said motor, and in said closed position during running operation.

4,277,734

ELECTRIC BRAKE MOTOR

Rudolf Uhrner, Kuenzelsau; Klaus Teuke, Doerzbach, and Wolfgang Schwarz, Uebrigshausen, all of Fed. Rep. of Germany, assignors to R. Stahl GmbH & Co., Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,506
Claims priority, application Fed. Rep. of Germany, May 6, 1978, 2819942
Int. Cl.[3] H02P 1/26, 3/18
U.S. Cl. 318—758 9 Claims



1. An electric brake motor having a casing, said motor comprising

(a) a stator winding supported within the motor casing;

(b) a rotor mounted for rotation relative to said stator winding;

(c) means supplying driving current to said motor;

(d) normally-activated brake means connected with the motor casing, said brake means being operable to a brake-released condition when the motor current reaches a given value; and

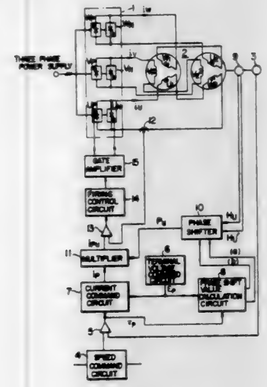
(e) means including electric switch means for briefly increasing said motor current to said given value during starting of the motor.

4,277,735

CONTROL APPARATUS FOR INDUCTION MOTOR

Toshiaki Okuyama; Yuzaru Kubota, and Hiroshi Nagase, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 11, 1979, Ser. No. 2,799
Claims priority, application Japan, Jan. 11, 1978, 53-112278
Int. Cl.[3] H02P 7/36
U.S. Cl. 318—766 5 Claims



1. A control apparatus for an induction motor comprising:

(a) the induction motor having multi-phase primary and secondary windings connected in opposite phase relation,

(b) a position sensor for producing a position signal indicative of a rotor position of said induction motor,

(c) a common frequency converter for supplying a variable frequency A.C. current to the windings of said induction motor,

(d) a speed control circuit for producing a torque command signal indicative of an error between a speed command signal and a speed feedback signal,

(e) a current command circuit for producing a current command signal in accordance with magnitudes of said torque command signal and a voltage command signal for determining a terminal voltage of said induction motor,

(f) phase command means for determining a phase of a motor current relative to an air gap flux in accordance with said torque command signal and said voltage command signal, and

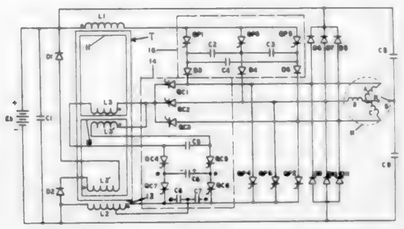
(g) frequency converter control means for controlling a phase of the output current of said frequency converter in accordance with the output of said phase command means and for controlling a magnitude of the output current of said frequency converter so as to be proportional to said current command signal.

4,277,736

ENERGY CONTROLLER FOR CONVERSION FROM A DIRECT CURRENT SOURCE TO A VARIABLE FREQUENCY LOAD

Jay Boyce, Anaheim, Calif., assignor to Jay Boyce & Associates, Anaheim, Calif.

Filed Nov. 30, 1979, Ser. No. 98,980
Int. Cl.[3] H02P 7/42, 7/64
U.S. Cl. 318—811 10 Claims



1. A turn off circuit for a multiphase motor, comprising:

i. a D.C. powered system, including a single, three element choke core having outer cores with loosely coupled outer windings to reduce rf transients, and a central core being closely coupled to each outer core to enhance pulse generation;

ii. a plurality of steering SCRs connected between the central core and an outer core for receiving pulse width modulation signals from a controller which provides the signals in response to motor load demand;

iii. one or more discharge capacitors for turning off the steering SCRs, the close coupling between the central and outer cores improving pulse generation characteristics of the discharge capacitors, inductance decay energy produced by the motor during free wheeling being fed to the steering SCRs and discharge capacitors to increase firing energy;

iv. an SCR ring counter for applying D.C. power to the motor to produce a three phase wave shape with less distortion and lower noise, pulse width modulation being supplied to the ring counter from the steering SCRs; and,

v. a plurality of regeneration diodes for recovery of excess energy from the discharge capacitors and return to the D.C. source.

4,277,737

METHOD OF AND MEANS FOR UTILIZING RECHARGEABLE BATTERIES IN THE OPERATION OF ELECTRIC VEHICLES

Bernd Müller-Werth, Hildegardstrasse 13, D-6670 St. Ingbert, Fed. Rep. of Germany

Filed Sep. 7, 1978, Ser. No. 940,162
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1977, 2740438
Int. Cl.[3] H02J 7/00; H01M 10/50; H02G 13/08
U.S. Cl. 320—2 7 Claims

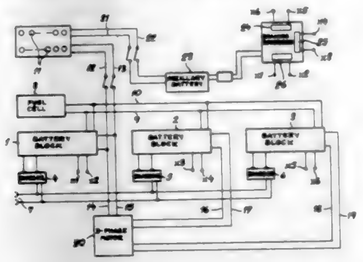
1. In an energizing circuit for an electric motor driving an automotive vehicle, in combination:

an assembly of rechargeable batteries;

an enclosure accommodating a block of said batteries and forming an injection channel above said block, said enclosure comprising a symthetic-resin-impregnated glass-fiber

mat, said channel being occupied by a mass of molded resin;

at least one cooling bar in said injection channel; and



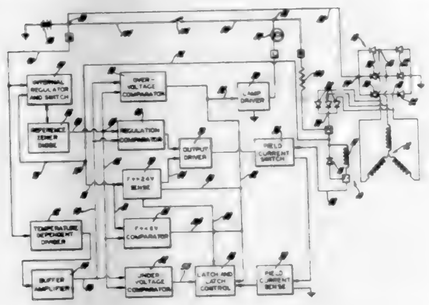
a heat-generating component mounted on said cooling bar within said mass, said cooling bar having significant surface portions projecting from said mass.

4,277,738

GENERATOR VOLTAGE REGULATOR

Richard J. Voss, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 18, 1979, Ser. No. 49,320
Int. Cl.[3] H02J 7/24
U.S. Cl. 322—28 6 Claims



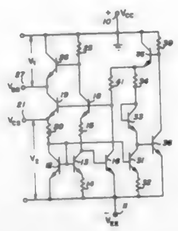
1. A motor vehicle electrical system having a fault indicating capability comprising, an alternating current generator having a field winding and an output winding, rectifier means having AC input terminals connected to said output winding and direct voltage output terminals, a battery, means connecting said battery across said direct voltage output terminals, means connected to said direct voltage output terminals for providing a first voltage that varies with the voltage across said battery, means coupled to said direct voltage output terminals for providing a substantially constant reference voltage, voltage regulating means comprising field current switching means connected in series with said field winding for controlling field current, means responsive to said first voltage and said reference voltage for controlling the operation of said field current switching means to thereby regulate the output voltage of said rectifier means, under-voltage comparator means for comparing said first and reference voltages operative to provide a control signal when said first voltage drops to a value indicative of low battery voltage, field current sensing means connected to said field winding for sensing generator field current, a signal lamp, means responsive to said field current sensing means and to said control signal for causing said lamp to be energized to indicate a fault condition when said first voltage is below said value and said field current is below a predetermined value.

4,277,739

FIXED VOLTAGE REFERENCE CIRCUIT

Ury Priel, Cupertino, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jun. 1, 1979, Ser. No. 44,833
Int. Cl.[3] G05F 1/58
U.S. Cl. 323—313 8 Claims



1. A circuit for developing a first output voltage referenced with respect to the positive terminal of a positive rail connectible to a power supply and a second output voltage referenced with respect to a negative rail connectible to the negative terminal of said power supply, said circuit comprising: means for developing a first ΔV_{BE} comprising a first pair of transistors, means for operating said first pair of transistors at different current densities, and means for subtracting the base to emitter voltage of the lower current density transistor of said first pair from the base to emitter voltage of the higher current density transistor of said first pair whereby said first ΔV_{BE} has a positive temperature coefficient of voltage;

means for developing a first multiple and a second multiple of said first ΔV_{BE};

means for developing a first negative temperature coefficient voltage and means for combining it with said first multiple to create said first voltage, said first multiple being selected so that said positive and negative temperature coefficients are nearly equal;

means for developing a second negative temperature coefficient voltage and means for combining it with said second multiple to create said second voltage, said second multiple being selected so that said positive and negative temperature coefficients are nearly equal; and

means for maintaining a constant current in said means for developing a first negative temperature coefficient voltage.

4,277,740

CABLE TESTER FOR MULTIPAIR CABLES

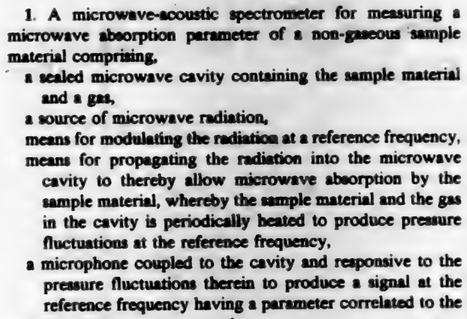
Kenneth B. Parks, Lilburn, Ga., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 22, 1979, Ser. No. 87,433
Int. Cl.[3] G01R 31/02
U.S. Cl. 324—51 9 Claims

9. A method for detecting transpositions of conductor pairs in a multiconductor cable

characterized by the steps of

synchronously removing a direct current voltage from said one end of each of said pairs while connecting the other end of the same pair to a voltmeter, and



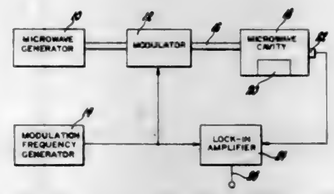
identifying transposed connected conductor pairs having a direct current voltage thereon.

4,277,741

MICROWAVE ACOUSTIC SPECTROMETER

Frederick R. Faxvog, Rochester, and Mark K. Krage, Royal Oak, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 25, 1979, Ser. No. 51,623
Int. Cl.[3] G01R 27/04
U.S. Cl. 324—58.5 C 3 Claims



1. A microwave-acoustic spectrometer for measuring a microwave absorption parameter of a non-gaseous sample material comprising,

a sealed microwave cavity containing the sample material and a gas,

a source of microwave radiation,

means for modulating the radiation at a reference frequency,

means for propagating the radiation into the microwave cavity to thereby allow microwave absorption by the sample material, whereby the sample material and the gas in the cavity is periodically heated to produce pressure fluctuations at the reference frequency,

a microphone coupled to the cavity and responsive to the pressure fluctuations therein to produce a signal at the reference frequency having a parameter correlated to the absorption parameter, and

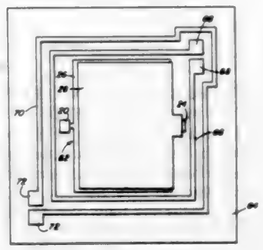
means for analyzing the microphone signal at the reference frequency to provide an output which is a measure of microwave absorption by the sample material.

4,277,742

ABSOLUTE HUMIDITY SENSORS AND METHODS OF MANUFACTURING HUMIDITY SENSORS

Michael G. Kovac, Sudbury; David J. Chleck, Brookline, and Philip Goodman, Lexington, all of Mass., assignors to Panametrics, Inc., Waltham, Mass.

Division of Ser. No. 764,394, Jan. 31, 1977, Pat. No. 4,143,177.
This application Nov. 24, 1978, Ser. No. 963,429
Int. Cl.[3] G01R 27/26
U.S. Cl. 324—61 R 16 Claims



1. An absolute humidity sensor comprising

a substrate having a microscopically smooth surface,

a planar, porous, dielectric first layer of material having a first face bonded to said substrate surface and a second face, said faces separated by a distance of the order of 1000 A,

means establishing electrical contact with said first face, and

means establishing electrical contact with said second face comprising

a second layer of moisture permeable electrically conductive material bonded to said second face, and

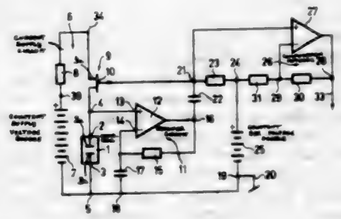
an electrically conductive strip in electrical contact with said second layer, and extending beyond the boundaries of said first layer, to a contact location formed on said substrate.

4,277,743

METHOD AND CIRCUIT FOR PRODUCING MEASURING PULSES IN A PARTICLE ANALYZER

Walter Guggenbühl, Stäfa, Switzerland, assignor to Contraves AG, Zürich, Switzerland

Filed Jul. 12, 1978, Ser. No. 923,915
Claims priority, application Switzerland, Aug. 25, 1977, 10390/77
Int. Cl.[3] G01N 27/00
U.S. Cl. 324—71 CP 7 Claims



1. In a method of producing measuring pulses in a particle analyzer for the analysis of particles suspended in a liquid, especially blood cells, employing a conductivity cell whose impedance between two terminals of the conductivity cell changes upon passage of a particle through the conductivity cell, a controlled-current source for supplying the conductivity cell with a current controlled by a control voltage, and a

receiver containing means structured as a high-pass filter and having high input impedance for the essentially currentless removal of a cell voltage between the terminals of the conductivity cell and for generating a received voltage which corresponds to such components of such cell voltage whose frequency is above a cut-off frequency of the high-pass filter, the improvement which comprises the steps of:

generating the control voltage from the sum of a predetermined reference voltage and the received voltage;

generating a measuring signal proportional to the difference of the control voltage and the reference voltage; and

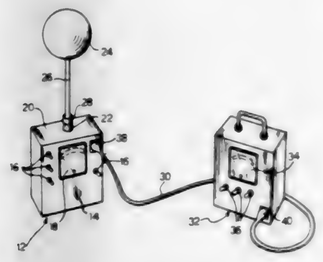
the changes as a function of time of the measuring signal constituting the measuring pulses.

4,277,744

APPARATUS FOR MEASURING ELECTRIC AND MAGNETIC FIELDS

Bruno Audone; Luciano Bolla, both of Turin, and Giuseppe Gerbi, Caselle Torinese, all of Italy, assignors to Aeritalia S.p.A. Settore Avionica, Caselle Torinese, Italy

Filed Dec. 26, 1978, Ser. No. 973,283
Claims priority, application Italy, Apr. 13, 1978, 67824 A/78
Int. Cl.³ G01N *31/02*
U.S. Cl. 324—72 **20 Claims**



1. Apparatus for the measurement of radio frequency electromagnetic radiation, including:

at least one isotropic, balanced electric field sensor sensitive to the electric field component of incident electromagnetic radiation and responsive thereto to generate an electrical signal dependent on the intensity of the electric field detected;

at least one isotropic, balanced magnetic field sensor sensitive to the magnetic field component of incident electromagnetic radiation and responsive thereto to generate an electrical signal dependent on the intensity of the magnetic field detected:

each of said at least one electric field sensor and magnetic field sensor having detector circuitry connected thereto, said detector circuitry including a detector diode of the zero bias type, said detector circuitry thereby providing electrical signals substantially independent of the frequency of the field detected;

a measuring device selectively connectable to one of said at least one electric field sensor and said at least one magnetic field sensor, said measuring device operating to process said electrical signals generated by whichever of said sensors is connected thereto, and to produce a processed signal representative of the value of one of the real electric field in terms of volts per meter and the real magnetic field in terms of magnetic potential per meter, depending on which of said sensors is connected thereto,

indicator means of said measuring device operating to indicate the value of said processed signal, which represents the value of whichever of the real electric field in terms of volts per meter and the real magnetic field in terms of magnetic potential per meter to which said one of said sensors connected to said measuring device is sensitive, and

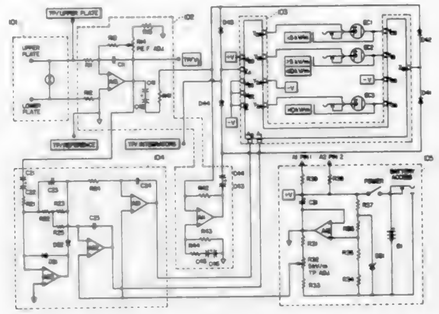
a repeater device selectively connectable to said measuring device and operating when so connected to provide a duplicate indication of the indication provided by said measuring device.

4,277,745

PERSONAL ELECTRIC FIELD EXPOSURE MONITOR

Don W. Deno, West Stockbridge, Mass., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Apr. 12, 1979, Ser. No. 29,330
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—72 **6 Claims**



1. A system for monitoring low frequency electric fields comprising:

a sensor for sensing an electric field at a selected location and generating an electrical signal indicative of the strength of the electric field;

a switching means to receive said electrical signal and to switch, as a function of the electric field intensity, said electrical signal to one of a plurality of output terminals, and

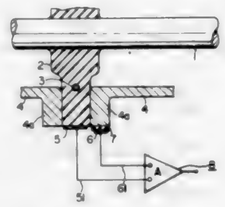
a plurality of integrating means, one each of said plurality of integrating means connected to receive the switched electrical signal from a corresponding one of said plurality of output terminals and each capable of storing an electrical signal representative of the time integral of the corresponding electric field intensity so as to measure electric field dosage.

4,277,746

GAS-INSULATED ELECTRIC APPARATUS AND METHOD OF DETECTING PARTIAL DISCHARGE THEREIN

Kozin Abe; Norihira Uozumi, and Kazuaki Oishi, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 2, 1979, Ser. No. 8,840
Claims priority, application Japan, Feb. 3, 1978, 53-10493
Int. Cl.³ G01R *31/00*; H02G *5/06*; H01B *9/06*
U.S. Cl. 324—72 **14 Claims**



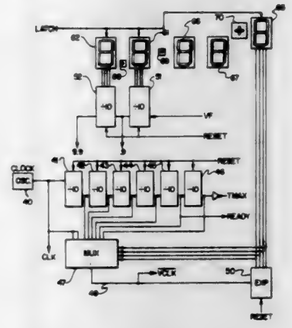
1. In a gas-insulated electric apparatus comprising an insulating-gas-filled metallic container within which a conductor carrying a high voltage current is supported by an insulating supporter, the improvement which comprises a first electrode disposed opposite to said conductor so as to form a first electrostatic capacity therebetween through at least a portion of said insulating supporter, a capacitor having a second electrostatic capacity and having one end connected to the outside of said metallic container, and a detecting device including a differential amplifier, said first electrode and the other end of said capacitor being connected to respective inputs of said differential amplifier.

4,277,747

WIDE RANGE DIGITAL METER

Philip C. Harvey, Bedford, Mass., assignor to MKS Instruments, Inc., Burlington, Mass.

Division of Ser. No. 794,218, May 5, 1977, which is a division of Ser. No. 645,789, Dec. 31, 1975, Pat. No. 4,035,720. This application Dec. 26, 1978, Ser. No. 972,948
Int. Cl.³ G01R *23/02*
U.S. Cl. 324—78 D **1 Claim**



1. A wide range digital event per unit time meter comprising:

a timing counter having a plurality of stages, successive ones of which are driven by the respective preceeding stages, each stage corresponding to a respective possible timing interval differing from the intervals of the adjacent stages by a predetermined factor;

a clock pulse source for driving said timing counter;

an event counter having a plurality of stages essentially corresponding in number to the number of significant digits desired in the final event count;

gating means for selectively initiating the event counting by said event counter after resetting of said event and timing counters and for stopping the event counting upon the completion of a selected timing interval; and

switching means, controlled by the timing counter and the event counter and operative at a predetermined point prior to the completion of each possible timing interval, for selecting the next longer timing interval if the event count has not reached a preselected level, the state of the switching means when the event count is completed being then indicative of the exponent of the radix by which the final event count should be multiplied.

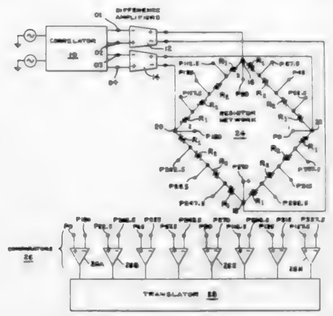
4,277,748

ANGLE DIGITIZER

Carl W. Gerst, Skaneateles, and Leonard J. Paciorek, North Syracuse, both of N.Y., assignors to Anaren Microwave, Incorporated, Syracuse, N.Y.

Filed Aug. 29, 1979, Ser. No. 70,687
Int. Cl.³ G01R *25/00*
U.S. Cl. 324—83 D **7 Claims**

1. Apparatus for converting a signal representing sin θ and a signal representing cos θ to a digital value representing the angle θ comprising: first and second input terminals across which is applied a signal proportional to sin θ; third and fourth input terminals across which is applied a signal proportional to cos θ; four sets of the same number of impedors, a first of said sets being connected between said first and third input terminals, a second of said sets being connected between said third and second input terminals, a third of said sets being connected between said second and fourth input terminals, a fourth of said sets being connected between said fourth and first input terminals; a plurality of output terminals, each of said output terminals being connected to the junction of each pair of adjacent impedors; and a plurality of two-input logic means for giving a first level signal at an output when the signal at one input is greater than the signal at the other input and for giving a second level signal at said output when the signal at said one input is less than the signal at said other input, the two inputs of each logic means being connected to a pair of said output terminals which have an antiphase relationship.

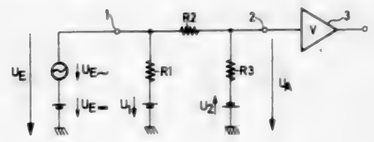


4,277,749

INPUT CIRCUIT FOR ELECTRONIC INSTRUMENTS

Stefan Traub, Böblingen, Fed. Rep. of Germany, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 21, 1979, Ser. No. 13,713
Int. Cl.³ G01R *15/00*
U.S. Cl. 324—126 **6 Claims**



1. An electrical circuit to compensate for the DC component of an input signal referenced to a signal ground, comprising:

first voltage supply means for supplying a first voltage referenced to the signal ground;

a first resistance connected at one end to the first voltage and connected at its other end to the input signal;

a second resistance connected at one end to the other end of the first resistance;

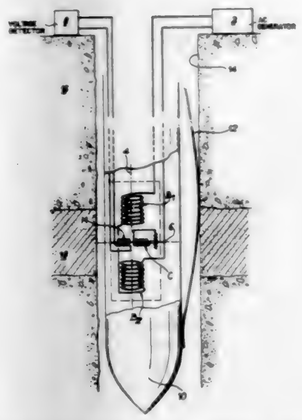
second voltage supply means for supplying a second voltage referenced to the signal ground and which is of the opposite polarity and the same magnitude as the first voltage; and

a third resistance connected at one end to the other end of the second resistance and at the other end to the second voltage, having a resistance equal to the first resistance minus the second resistance, whereby the DC component of the input signal is absent from the compensated signal present at the junction of the second and third resistances.

4,277,750
INDUCTION PROBE FOR THE MEASUREMENT OF MAGNETIC SUSCEPTIBILITY

Jean Bonnet, Chatillon, and Julien Fournet, Connaux, both of France, assignors to Compagnie Generale des Matieres Nucleaires (COGEMA Groupe C.E.A.), Paris, France

Filed Feb. 22, 1979, Ser. No. 14,100
Claims priority, application France, Feb. 24, 1978, 78 05330
Int. Cl.³ G01R *33/16*; G01V *3/28*
U.S. Cl. 324—201 **2 Claims**



1. A probe for the measurement of magnetic susceptibility of the type comprising an axis and two coaxial inductance windings for generating two magnetic inductions opposite in direction, said windings being mounted in opposition and having an axis parallel to the axis of the probe and being connected to a generator for producing alternating current at a predetermined frequency, and a measurement winding for measuring a magnetic induction between said two coaxial inductance windings, said measurement winding being placed between the two inductance windings and off-center with respect to said axis of said inductance windings, said measurement windings having an axis perpendicular to the axis of said two inductance windings, said measurement winding being connected to means for detecting a voltage at the frequency of said generator, wherein said measurement probe further comprises a compensation winding for reinforcing the induction produced in the measurement winding, said compensation winding being off-center with respect to the axis of said two coaxial inductance windings, said compensation winding being symmetrical with said measurement winding with respect to said axis of said two coaxial inductance windings.

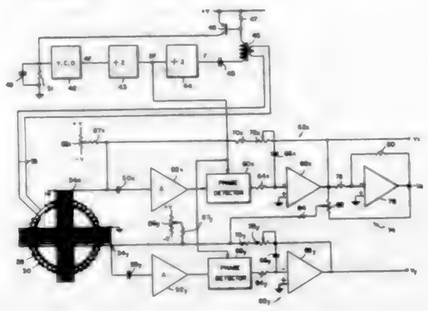
4,277,751
LOW-POWER MAGNETOMETER CIRCUIT WITH CONSTANT CURRENT DRIVE

Kenneth D. Lawson, Catasumdet, and Neil L. Brown, Falmouth, both of Mass., assignors to Neil Brown Instruments Systems, Inc., Catasumet, Mass.

Filed Sep. 29, 1978, Ser. No. 947,254
Int. Cl.³ G01R *33/04*; G01C *17/28*
U.S. Cl. 324—254 **19 Claims**

1. In a magnetometer of the type having a toroidal core, a drive winding wound around the core so as to create a circumferential field within the core, drive means for driving the drive winding with an A.C. signal so that the field from the drive winding causes the core to saturate during at least a part of each cycle of the A.C. signal, and at least one sense winding and an associated signal processing channel responsive to signals from the sense winding for detecting a component of a surrounding magnetic field, the improvement comprising:

means for sensing the current flowing in the drive winding and for producing an intermediate signal representative thereof; and

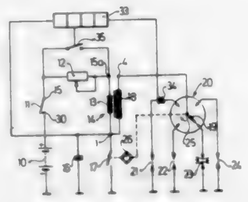


wherein the drive means includes means, responsive to the intermediate signal, for varying the frequency of the A.C. signal so as to tend to maintain a substantially constant average current flowing in the drive winding.

4,277,752
DEVICE FOR TESTING IGNITION SYSTEM OF A COMBUSTION ENGINE

Walter Dinkelacker, Stuttgart, and Jürgen Knöedler, Remshalden-Grunbach, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 5, 1979, Ser. No. 17,138
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1978, 2811573
Int. Cl.³ G01M *19/02*
U.S. Cl. 324—399 **5 Claims**

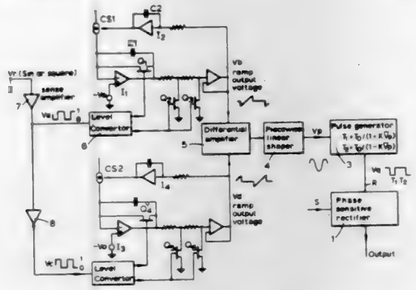


1. A device for testing an ignition system of a combustion engine having an electrical power source, an ignition coil connectable to said power source, a plurality of spark plugs each associated to a respective cylinder, a distributor for successively connecting respective plugs to said coil and means for variably reducing the energy of the ignition coil, comprising switching means for selectively testing the efficiency of each respective cylinder, said switching means including a scaler having a plurality of stages assigned respectively to corresponding cylinders of the engine, a synchronization input coupled to a preselected cylinder to set the scales to a starting condition when the ignition process in said preselected cylinder is about to be initiated, a counting input controlled by the pulses derived from the activation of respective cylinders of the engine, an output for delivering an output pulse when a predetermined number of input pulses has been attained, and a switching member controlled by said output pulse and controlling the energy reducing means.

4,277,753
RECTIFIER CIRCUITS

Eric A. Faulkner, Cookham, England, assignor to Brookdeal Electronics Limited, Bracknell, England

Continuation-in-part of Ser. No. 849,712, Nov. 8, 1977. This application Jun. 11, 1979, Ser. No. 47,565
Claims priority, application United Kingdom, Nov. 16, 1976, 47721/76
Int. Cl.³ H03Q *5/00*; H03K *5/00*
U.S. Cl. 328—26 **5 Claims**



1. A phase-sensitive rectifier including: a signal input terminal to which a signal to be rectified is applied; a reference input terminal to which a reference signal is applied; and means for deriving a switching signal from the reference signal for repetitively switching the signal to be rectified to obtain phase-sensitive rectification, said means comprising a control signal generator for generating a low-distortion sinusoidal control signal of frequency equal to the frequency of the reference signal, and a switching signal generator which utilizes the said control signal for generating a switching signal having spaces of interval T1 and marks of interval T2 given by

$$T1 = T0/(1+kVp)$$

$$T2 = T0/(1-kVp)$$

where Vp is the mean value of the control signal during the relevant interval and T0 and k are constants chosen so that the output of the rectifier is substantially insensitive to harmonic frequencies of the control signal.

4,277,754
DIGITAL FREQUENCY-PHASE COMPARATOR

Hiroshi Minakuchi, Kodoma, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 23, 1979, Ser. No. 87,370
Int. Cl.³ H03D *13/00*
U.S. Cl. 328—133 **36 Claims**

1. A frequency comparator having first and second input lines to which input pulses are supplied, comprising:

a first frequency detector for generating an output signal in response to there being two or more leading edge transitions of the input pulses supplied to said first input line during the interval between two leading edge transitions of the input pulses supplied to said second input line;

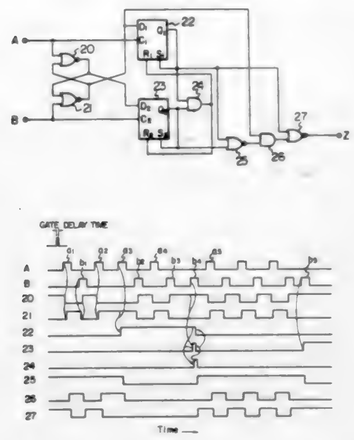
a second frequency detector for generating an output signal in response to there being two or more leading edge transitions of the input pulses supplied to said second input line during the interval between two leading edge transitions of the input pulses supplied to said first input line;

a first bistable element arranged to be set in response to the output signal of said first frequency detector;

a second bistable element arranged to be set in response to the output signal of said second frequency detector;

means for resetting said first and second bistable elements in response to both of said first and second bistable elements becoming a set condition; and

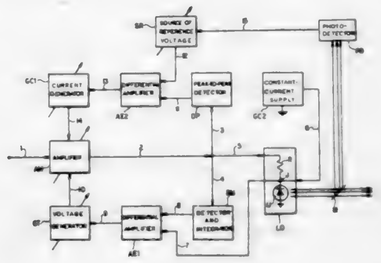
means connected to output terminals of said first and second bistable elements for generating an output signal representative of the difference in frequency between the input pulses supplied to said first and second input lines.



4,277,755
CIRCUIT ARRANGEMENT FOR DRIVING NONLINEAR THRESHOLD DEVICES

Alfredo Fausone, and Vittorio Sesso, both of Turin, Italy, assignors to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Oct. 4, 1979, Ser. No. 81,931
Claims priority, application Italy, Oct. 5, 1978, 69299 A/78
Int. Cl.³ H03D *3/04*
U.S. Cl. 330—128 **6 Claims**



1. A circuit arrangement for driving a nonlinear device, comprising:

adjustable amplifier means having an output connected via a series impedance to the nonlinear device to be driven;

a supply of biasing connected to said nonlinear device for establishing a predetermined operating point in the absence of an input signal fed to said amplifier means;

integrating means connected to said output for establishing a base-level voltage proportional to a no-signal value of a driving voltage appearing on said output;

comparison means with input connections to said integrating means and to said nonlinear device for receiving an instantaneous load voltage developed across the latter, together with said base-level voltage, and emitting an error signal proportional to the difference between said load and base-level voltages; and

control means connected between said comparison means and said amplifier means for modifying said driving voltage in response to said error signal so as substantially to eliminate current flow through said series impedance in the absence of said input signal.

4,277,756

AMPLIFIER CIRCUIT ARRANGEMENT FOR APERIODIC SIGNALS

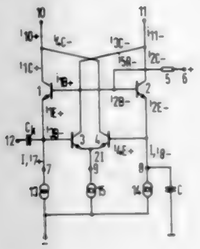
Hans Kriedt, Munich, and Josef Fenk, Guenzenhausen Ottenburg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 30, 1979, Ser. No. 7,780

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1978, 2804064

Int. Cl.³ H03F *3/45*

U.S. Cl. 330—261 **2 Claims**



1. Amplifier circuit arrangement for aperiodic signals with a base-coupled differential amplifier stage in which two transistors are directly coupled with their bases, in which the emitters of the transistors form two inputs, whereby a signal can be fed into one of the inputs and the respectively other input is capacitively applied to reference potential, and in which output signals can be topped at the collectors of the transistors, comprising a further emitter-coupled differential amplifier stage with two transistors whose emitters are directly coupled and lie at a third input, their bases being respectively coupled to an input at the emitters of the transistors of the base-coupled differential amplifier stage and their collectors being cross-coupled to the collectors of the transistors of the base-coupled differential amplifier stage, and comprising such an impression of quiescent direct currents into the inputs that a current of identical size flows in the inputs lying at the emitters of the transistors of the base-coupled differential amplifier stage and the bases of the transistors of the emitter-coupled differential amplifier stage and a current of twice this size flows across the third input at the emitters of the transistors of the emitter-coupled differential amplifier stage, characterized in that the directly coupled bases of the transistors of the base-coupled differential amplifier stage are coupled via a resistor to a post for a supply potential.

4,277,757

TWO STAGE RF AMPLIFIER

Richard A. Kennedy, Russiaville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 5, 1979, Ser. No. 100,470

Int. Cl.³ H03F *3/16*; F03F *3/193*

U.S. Cl. 330—300 **1 Claim**

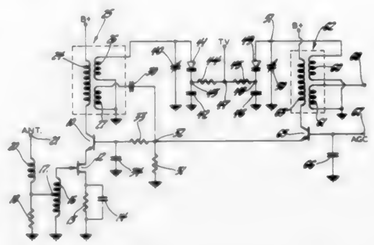
1. A radio frequency amplifier comprising, in combination:

a first stage comprising a common source JFET having source, gate and drain in cascade combination with a first common base bipolar transistor having emitter, base and collector, the JFET gate comprising an RF input to the amplifier;

a second stage comprising a second common base bipolar transistor having emitter, base and collector, the collector comprising an RF output for the amplifier;

a tuned circuit coupling the first and second stages at a predetermined RF frequency; whereby an RF signal path is provided between the amplifier input and output with gain in each stage;

means effective to establish an AGC voltage on the base of the second bipolar transistor, whereby the gain of the second stage is controlled in accordance with the AGC voltage;



means connecting the emitter of the second bipolar transistor in series with the base of the first bipolar transistor, whereby the second bipolar transistor is effective to provide amplified direct drive current for the first bipolar transistor and thus control the gain of the first stage in accordance with the AGC voltage, the second bipolar transistor thus providing amplification simultaneously for RF and AGC signals.

4,277,758

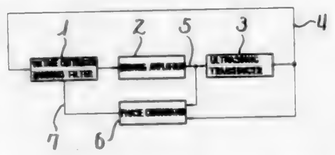
ULTRASONIC WAVE GENERATING APPARATUS WITH VOLTAGE-CONTROLLED FILTER

Shoji Mishiro, Kawasaki, Japan, assignor to Taga Electric Company, Limited, Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,161

Int. Cl.³ H03L *7/00*

U.S. Cl. 331—1 R **5 Claims**



1. An ultrasonic wave generating apparatus comprising:

ultrasonic transducer means for producing ultrasonic waves and a vibratory velocity signal;

driving amplifier means for driving said ultrasonic transducer means;

phase comparator means for comparing the output of said driving amplifier means with the said vibratory velocity signal for detecting a shifted value from a predetermined phase difference and producing a phase difference signal in response thereto;

a voltage controlled band-pass filter means, said phase difference signal controlling said voltage controlled band-pass filter means;

said voltage controlled band-pass filter means being directly connected to said vibratory velocity signal in a feedback loop.

4,277,759

SEMICONDUCTOR LASER DEVICE

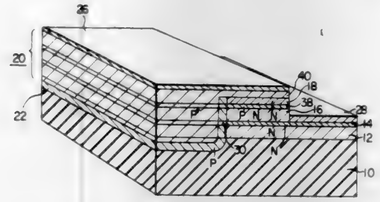
Toshio Tanaka; Hirofumi Namizaki; Saburo Takamiya, and Wataru Susaki, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1979, Ser. No. 40,085

Claims priority, application Japan, Jul. 10, 1978, 53-84408

Int. Cl.³ H01S *3/19*

U.S. Cl. 331—94.5 H **20 Claims**



1. In a semiconductor laser device, the combination comprising: a substrate of semiconductive material having a high resistivity and including one main face, a first semiconductor layer of a first type conductivity, a second semiconductor layer of said first type conductivity, a third semiconductor layer of said first type conductivity, a fourth semiconductor layer of a second type conductivity and a fifth semiconductor layer of said first type conductivity successively grown on said main face of said substrate to form a multi-layer structure thereon, said second layer being formed of a semiconductive material narrower in forbidden band-width than that of said first semiconductor layer, said third layer being formed of a semiconductive material broader in forbidden band-width than that of said second semiconductor layer, a semiconductor region of said second type conductivity disposed on the surface portion of said fifth semiconductor layer and in one lateral portion of said multi-layer structure to extend from the surface of said fifth semiconductor layer and reach said substrate thereby to form PN junctions in said first, second, third and fifth semiconductor layers respectively, said second semiconductor layer of said first type conductivity including an exposed surface portion on the other lateral portion of said multi-layer structure formed by removing those portions of said fifth, fourth and third semiconductor layers located in said other lateral portion of said multi-layer structure, a first electrode disposed in ohmic contact with said exposed surface portion of said second semiconductor layer, and a second electrode disposed in ohmic contact with the remaining portion of said surface of said fifth semiconductor layer.

4,277,760

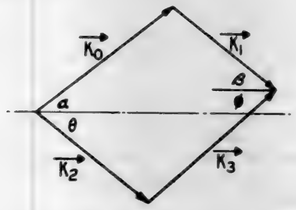
CROSSED-BEAM PHASE-MATCHED COHERENT ANTI-STOKES RAMAN SPECTROSCOPY

Alan C. Eckbreth, Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Mar. 30, 1979, Ser. No. 25,649

Int. Cl.³ H01S *3/30*

U.S. Cl. 331—94.5 N **4 Claims**



1. In a method of generating coherent anti-Stokes Raman radiation in a medium of interest disposed around a point along an axis, the steps of:

simultaneously directing a first pump beam of coherent radiation at a frequency ω_0 through said point along a path at an angle α with respect to said axis, directing a second pump beam of coherent radiation at a frequency ω_1 through said point along a path at an angle β with respect to said axis, and directing a Stokes beam of coherent radiation at a frequency ω_2 through said point along a path at an angle θ with respect to said axis;

focusing said beams so that each of said beams converges to its minimum beam cross-section area substantially at said point, the center of each beam crossing each other beam substantially at said point, whereby three wave mixing of said beams generates an anti-Stokes Raman beam of coherent radiation at a frequency ω_3 and along a line through said point at an angle Φ with respect to said axis, said angles being related to said frequencies by the relationship $n_0\omega_0 \cos\alpha + n_1\omega_1 \cos\beta = n_2\omega_2 \cos\theta + n_3\omega_3 \cos\Phi$, where n_0 is the index of refraction of said medium at frequency ω_0, n_1 is the index of refraction of said medium at frequency ω_1, n_2 is the index of refraction of said medium at frequency ω_2, and n_3 is the index of refraction of said medium at frequency ω_3, whereby the spatial resolution of said anti-Stokes Raman beam generation is limited to a volume of said medium along said axis within which all three of said directed beams coexist.

4,277,761

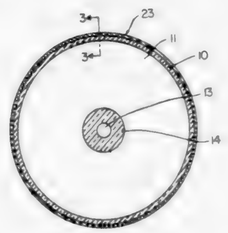
METHOD OF COATING METAL ON A GLASSY BODY SURFACE AND RESULTING ARTICLE

Robert M. Silva, Dayton, and Fred D. Orazio, Jr., Centerville, both of Ohio, assignors to VTI, Inc., Dayton, Ohio

Filed May 21, 1979, Ser. No. 40,655

Int. Cl.³ H01S *3/00*; B05D *3/14*

U.S. Cl. 331—94.5 T **15 Claims**



1. A method of adhering a metal coating to the surface of a body of glassy material adapted to be used as the body for a gas laser, comprising the steps of cleaning the surface to remove contaminents such as dust or grease, placing the body into a vacuum chamber, heating the body to remove water vapor, removing gas from the chamber to reduce the pressure within the chamber below atmospheric pressure, exposing the surface to oxygen ions while the pressure is reduced causing oxygen to adhere to the surface, coating the surface with a metal while the pressure is reduced within the chamber to form a chemical bond between the metal and the body, removing the body with the coated metal surface from the chamber while the body is hot, inserting the body into a second chamber filled with helium to saturate the body with helium, cooling the body while in the second chamber, and increasing the pressure within the second chamber.

2. The assembly comprising a gas laser body of glassy material having an outer surface and defining a lasing chamber, a gas containing helium within said chamber, means for exciting the gas, a coating of copper overlying said outer surface, and said copper coating being chemically bonded to said outer surface by oxygen.

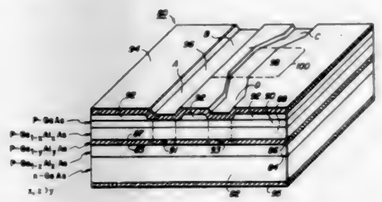
3. The assembly comprising a hollow body of glassy material having a surface and defining a chamber adapted to confine helium, a coating of copper overlying said surface, and said copper coating being chemically bonded to said surface by oxygen.

4,277,762

MODE CONTROL OF HETEROJUNCTION INJECTION LASERS AND METHOD OF FABRICATION

Donald R. Scifres, Los Altos; William Streifer, Palo Alto, and Robert D. Burnham, Los Altos Hills, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 869,190, Jan. 13, 1978, Pat. No. 4,185,256. This application Jul. 27, 1979, Ser. No. 61,539
Int. Cl.[3] H01S 3/19
U.S. Cl. 331—94.5 H 7 Claims



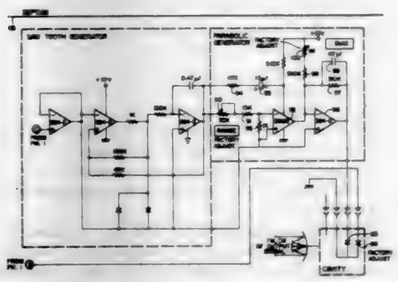
1. In a heterostructure injection laser including a semiconductor body having a light emitting active layer, at least two adjacently disposed elongated current confinement means associated with the upper surface of said body and extending the length thereof to form two current confinement channels in said active layer producing at least two optical paths for light wave propagation under lasing conditions, said current confinement means being sufficiently close to one another in one region of their length so that exponentially decaying light from one optical path can extend and couple into the other optical path, one of said current confinement means is substantially linear for the length of said body and the other said current confinement means is at least partly curved for a portion of the length of said body to form said one region along their optical paths.

4,277,763

NON-LINEAR PREDISTORTION LINEARIZING CIRCUIT FOR A VARACTOR DIODE TUNED OSCILLATOR

William H. Ward, Jr., 1561 Mesa Dr., Costa Mesa, Calif. 92626

Division of Ser. No. 879,464, Feb. 21, 1978. This application Dec. 8, 1978, Ser. No. 967,882
Int. Cl.[3] H03C 3/22
U.S. Cl. 331—96 4 Claims



3. In a linearizing circuit for an oscillator including an rf cavity, means for generating a non-linear predistortion factor to be applied to a signal supplied to a tuning means for said oscillator, said predistortion means, comprising:

an operational amplifier receiving a signal from a linear sweep signal generating means; and

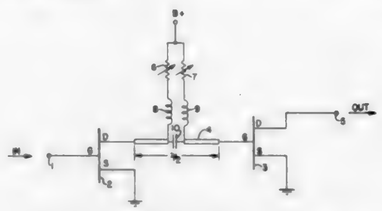
passive means connected to said amplifier bias input for causing a signal at the output of said amplifier that is the square of the input signal thereto.

4,277,764

MICROWAVE TRANSISTOR STABILIZATION CIRCUIT

Charles D. Rosier, Palm Bay; Jing-Jong Pan, and Donald K. Belcher, both of Melbourne, all of Fla., assignors to Harris Corporation, Cleveland, Ohio

Filed Aug. 9, 1978, Ser. No. 932,305
Int. Cl.[3] H03H 11/04; H03F 3/16, 3/191
U.S. Cl. 333—24 C 7 Claims



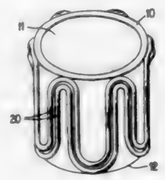
1. A microwave transistor circuit comprising a transmission line having a length equal to one-half of the wavelength of the center frequency of a selected microwave frequency band, and first and second transistors connected in cascade by said transmission line, said transmission line having a gap therein and further including a capacitor connected to said transmission line in said gap.

4,277,765

DEVICE FOR COOLING A SUPERCONDUCTIVE RESONATOR AND METHOD OF MAKING THE DEVICE

Laszlo Szecsi, Karlsruhe, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed Mar. 7, 1979, Ser. No. 18,425
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1978, 2809913
Int. Cl.[3] H01P 7/06, 11/00
U.S. Cl. 333—99 S 10 Claims



1. In a device for cooling a superconductive resonator with a liquid coolant; the resonator having a rotationally symmetrical cylindrical body closed off at opposite ends by respective end plates; the improvement comprising

(a) a first tube for containing liquid coolant arranged externally of said cylindrical body in heat-exchanging contact therewith; said first tube having a meandering course extending generally in the direction of the axis of said cylindrical body;

(b) second tubes for containing liquid coolant arranged externally of each said end plate in heat-exchanging contact therewith; each said second tube having a spiral course extending symmetrically with respect to said axis; and

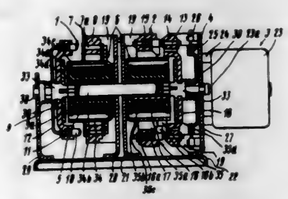
(c) diffusion welds connecting said first tube to said cylindrical body and said second tubes to the respective said end plates.

4,277,766

ELECTRIC CIRCUIT SWITCHING DEVICE

Vitaly I. Koshman, bulvar Shevchenko, 123, kv. 25; Vladimir F. Petrichenko, ulitsa Prozhektornaya, 6, kv. 44, and Pavel V. Kamshitsky, prospekt Mira, 53a, kv. 23, all of Donetsk, U.S.S.R.

Filed Apr. 20, 1979, Ser. No. 32,020
Int. Cl.[3] H01H 67/06
U.S. Cl. 335—122 4 Claims



1. An electric circuit switching device comprising:

a group of closing contact pairs having

an insulating panel,

stationary contacts arranged along the circumference of said insulating panel, and

a switching element;

a group of breaking contact pairs having

a main insulating panel,

stationary contacts arranged along the circumference of said insulating panel,

spring-loaded contacts forming with said stationary contacts breaking contact pairs, and

a switching element actuating said spring-loaded contacts while disconnecting said breaking contact pairs;

a unit for rotating said switching elements having

a rotary electromechanical drive provided with an output shaft, and

means for setting an angle of rotation of the output shaft of said rotary electromechanical drive depending on the position of said stationary contacts to be commutated on said insulating panels; and

an electromagnetic drive having

a first electromagnet providing translatory motion of said switching element of said group of the closing contact pairs,

a second electromagnet providing translatory motion of said switching element of said group of the breaking contact pairs,

each of said first and second electromagnets having a winding,

a hollow core supporting said winding and embracing the output shaft of said rotary electromechanical drive, and

an armature rigidly connected to a respective switching element and electrically insulated therefrom,

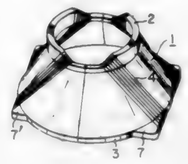
said armature being mounted for movement along the output shaft of said rotary electromechanical drive and having a recoil spring.

4,277,767

DEFLECTION YOKE

Mitsugu Ura, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 25, 1980, Ser. No. 115,407
Claims priority, application Japan, Jan. 26, 1979, 54-7733[U]
Int. Cl.[3] H01F 5/00
U.S. Cl. 335—210 2 Claims



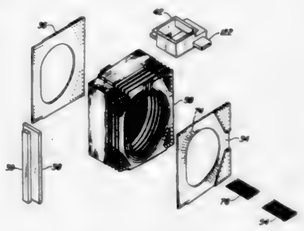
1. A deflection yoke comprising a core of magnetic material in the form of a truncated cone having a large-diameter end and a small-diameter end, said small-diameter end having two recesses each having sloping portions, located diametically opposite to each other; projections provided at said large-diameter end, located diametically opposite to each other and extending out perpendicular to the axis of said core, the straight line passing through the centers of said recesses being perpendicular to the straight line passing through the centers of said projections, and the outer end of each of said projections having a symmetrical V-shaped concavity; and a coil wound in a toroidal manner on said core, passing on the edges of said sloping portions of said recesses of the small-diameter end and the edges of said V-shaped concavities of said projections.

4,277,768

SUPERCONDUCTING MAGNETIC COIL

John E. Burgeson, and Dennis W. Liesurance, both of San Diego, Calif., assignors to General Dynamics Corporation, San Diego, Calif.

Filed Nov. 24, 1978, Ser. No. 963,556
Int. Cl.[3] H01F 7/22
U.S. Cl. 335—216 6 Claims



1. A superconducting coil comprising:

a structural helix having a plurality of substantially flat windings;

a plurality of electrical conductors disposed on a surface of said structural helix windings, each of said conductors shaped to provide a raceway;

a plurality of electrical superconductors, one of said superconductors disposed within each of said conductor raceways;

each of said superconductors comprising a substantially transposed multi-strand superconductor;

an insulator disposed between each winding of said structural helix;

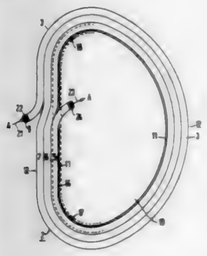
at least one radial slot in each of said structural helix windings;

a container surrounding said structural helix, said container adapted for the storage of a cryogenic fluid therein;
a plurality of insulation bushings disposed to pass through said structural helix; and
a plurality of bolts disposed to pass through opposite sides of said container and located within said insulation bushings to firmly compress said container sides and said helix windings into a rigid pack.

4,277,769
ARRANGEMENT FOR COOLING A SUPERCONDUCTION MAGNET COIL WINDING

Hans Hieronymus, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jan. 9, 1980, Ser. No. 110,105
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1979, 2901333
Int. Cl.³ H01F 7/22
U.S. Cl. 335—216 **5 Claims**



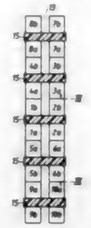
1. In an arrangement for cooling a magnet coil winding containing conductors of superconductive material which are cooled by means of a forced flow of a coolant which is fed into the winding at at least one coolant connecting point and is discharged again from the winding at at least one further coolant connecting point, the conductors being subdivided into conductor zones, the operating points of which, being fixed by the current density I, the field strength H and the temperature T, have a different deviations from the transition point of the superconductive material from the superconducting to the normally conducting state which is closest in the I-H-T space and is determined by the critical current density I_c, the critical field strength H_c and the critical temperature T_c, the improvement comprising, an outlet for the coolant from the winding disposed at the coolant connecting point with the comparatively shortest distance from that conductor zone of the winding, the operating point of which is comparatively closest to a transition point of the superconductive material in the I-H-T space.

4,277,770
REGULATING WINDING STRUCTURE FOR TRANSFORMER

Gunnar Jorendal, and Adrian von Reutein, both of Ludvika, Sweden, assignors to ASEA Aktiebolag, Vesteras, Sweden

Filed Sep. 28, 1979, Ser. No. 79,989
Claims priority, application Sweden, Oct. 2, 1978, 7810281
Int. Cl.³ H01F 27/08, 15/14
U.S. Cl. 336—60 **4 Claims**

1. A regulating winding for a transformer, comprising:
a substantially cylindrical winding body with two end portions;
a plurality of substantially helical conductors, each helical conductor extending between said end portions and including a plurality of turns and composed of at least two substantially helical conductor strands parallelly connected with each other;
said helical conductors being serially interconnected by means of transitions;
the conductor strands of each said helical conductor are mutually oppositely disposed such that a plurality of surfaces of said helical conductor strands form at least a portion of a plurality of cooling channels;

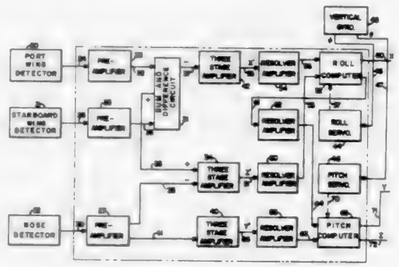


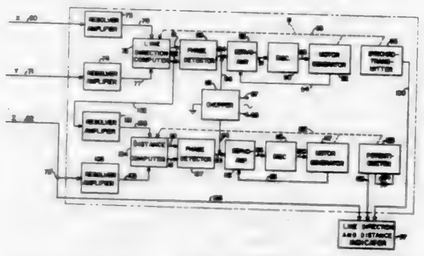
a plurality of interspaces being formed between said cooling channels, each including a pair of mutually adjacent helical conductor strands; and
the voltage between mutually opposed points of said mutually adjacent helical conductor strands is higher than twice the voltage across any of said helical conductors.

4,277,771
ELECTRIC INDUCTION FIELD NAVIGATION APPARATUS

Lawrey H. Chapin, Glendora, Calif., and Robert O. Maze, Minneapolis, Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation of Ser. No. 14,164, Mar. 4, 1960, abandoned. This application Nov. 9, 1964, Ser. No. 410,830
Int. Cl.³ G01S 3/78
U.S. Cl. 340—27 NA **15 Claims**





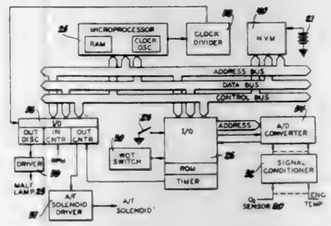
8. Apparatus usable by a dirigible craft having pitch, roll, and yaw axes for detecting an electric field about a transmission line, said apparatus comprising: first means responsive to the electric field about a transmission line of alternating current

to provide output signals indicative of the orthogonal components of said electric field; second means connected to said first means and responsive to said output signals from said first means for transforming said signals from a first coordinate system descriptive of said dirigible craft to a second coordinate system representative of the earth where the yaw axis of each coordinate system remains substantially the same; third means connected to said second means and responsive to said transformed signals from said second means for computing the relative bearing of said dirigible craft to said transmission line and producing output signals representative thereof; fourth means connected to said second and third means and responsive to output signals from said second and third means for computing a function of the distance of said dirigible craft from said transmission line and producing output signals representative thereof; and fifth means responsive to said output signals from said third and fourth means for displaying the quantities computed.

4,277,772
MOTOR VEHICLE DIAGNOSTIC AND MONITORING SYSTEM

John L. Kastura, and David O. Eayart, both of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 17, 1980, Ser. No. 160,152
Int. Cl.³ G08B 19/00
U.S. Cl. 340—52 F **3 Claims**

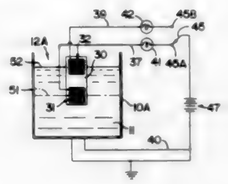


1. A diagnostic monitoring system for monitoring predetermined parameters in a motor vehicle comprising, in combination:
fault indicating means, the fault indicating means having a first state indicating a fault-free condition and a second state indicating a fault condition;
a temporary storage register for storing fault conditions;
counting means effective to store a count;
means effective to detect fault conditions in the predetermined parameters; and
means effective to (a) store detected fault conditions in the temporary storage register only when said temporary storage register is cleared of all stored fault conditions, (b) clear each terminated fault condition from the temporary storage register at the time said fault condition terminates, (c) recurrently increment the count in the counting means during the period that a malfunction is stored in the temporary storage register, (d) set the fault indicating means to the second state to provide an indication of a fault condition when the count in the counting means attains a first predetermined count, and (e) preset the count in the counting means to a second predetermined count that is less than the first predetermined count when the temporary storage register is cleared of all storage malfunctions when the count is intermediate the first and second counts, the difference between the first and second counts establishing a predetermined minimum time period required for a fault condition to exist before the fault indicating means is set to the second state to indicate a fault condition.

4,277,773
LIQUID LEVEL SENSOR

Edward F. Blatnik, P.O. Box 764, Riverview, Fla. 33569

Continuation-in-part of Ser. No. 742,777, Nov. 18, 1976, abandoned. This application Dec. 29, 1978, Ser. No. 663
Int. Cl.³ B60Q 1/00; G08B 21/00
U.S. Cl. 340—59 **9 Claims**

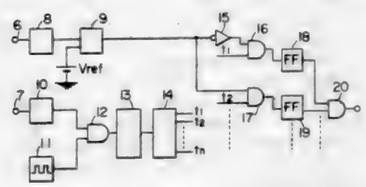


1. An apparatus for cooperation with an existing opening within a cooling radiator of a vehicle to determine the liquid level in the radiator, the radiator being connected to an electrical power source of the vehicle, comprising in combination:
insulator means established relative to the vehicle radiator in a substantially fixed relation;
sensor means mounted to said insulator means for extending into the liquid in the radiator when a sufficient quantity of liquid is contained therein;
said sensor means including a conductor having a plurality of curved portions interconnected by a plurality of linear portions;
said plurality of linear portions of said sensor means each extending parallel to the surface level of the liquid with substantially identical surface area regions of each of said plurality of linear portions being immersed in the liquid for a given liquid level;
said plurality of curved portions and said plurality of linear portions increasing the surface area of said sensor means to provide increased electrical contact with the liquid in the cooling radiator; and
an electro-optical indicator means interconnecting in series with said sensor means and the electrical power source of the vehicle for indicating the level of the liquid contained in the radiator by illuminating said electro-optical indicator means exclusively by the electrical conductivity through the liquid in contact with said sensor means.

4,277,774
BILL DISCRIMINATING APPARATUS

Kiyoshi Fujii; Keiji Tsuji, and Seiya Nishimoto, all of Tokyo, Japan, assignors to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1979, Ser. No. 69,768
Claims priority, application Japan, Aug. 28, 1978, 53-104752
Int. Cl.³ G06K 7/12; G01N 21/30
U.S. Cl. 340—146.3 Q **5 Claims**



1. A bill discriminating apparatus for discriminating genuine bills from counterfeit bills by irradiation of ultraviolet rays, said genuine bills having a printed zone containing a light emitting substance having patterns, said apparatus comprising:

an ultraviolet ray-emitting member for emitting an ultraviolet ray and directing it toward a bill to be discriminated,

an ultraviolet ray transmitting filter disposed between the ultraviolet ray emitting member and the bill to be discriminated for passing only the ultraviolet ray through the filter,

a visible ray transmitting filter for passing only the visible ray reflected from said light emitting substance in said printed zone of the bill when the light emitting substance is irradiated with ultraviolet radiation,

a photoelectric converter element for receiving the visible ray passed through the visible ray transmitting filter and for converting the visible ray into electric signals,

a slit disposed between the photoelectric converter element and the visible ray transmitting filter for limiting the visible ray passed through the visible ray transmitting filter, and

a discriminating circuit for checking said patterns of the light-emitting substance in response to the electric signals of said photoelectric converter element;

wherein said discriminating circuit comprises a first circuit for generating pattern signals from light rays received in said photoelectric converter element, a second circuit for generating a train of pulses corresponding to the pattern signals obtained from a genuine bill, and a third circuit for comparing said pattern signals with said train of pulses.

4,277,775

CHARACTER RECOGNITION SYSTEM

Robert B. Nally; James F. Akister, and George Trohatos, all of Waterloo, Canada, assignors to NCR Canada LTD - NCR Canada Ltee, Mississauga, Canada

Filed Oct. 1, 1979, Ser. No. 80,952
Int. Cl.³ G06K *9/68*
U.S. Cl. 340—146.3 Q **9 Claims**

1. In a character recognition system wherein feature characteristics of an analog waveform representing an unknown character are compared with the feature characteristics of a plurality of known characters, an apparatus for recognizing the unknown character, comprising:

(a) first and second storage unit for storing the feature characteristics of an unknown character and the feature characteristics of a plurality of known characters respectively;

(b) first comparison means coupled to said first and second storage unit for comparing the location of each feature characteristic of the unknown character with the location of the feature characteristics of the known characters to produce a first signal representing the difference therebetween;

(c) first counter means operable to output a count equal to the number of feature characteristics stored in said first storage unit, said first counter means coupled to said first storage unit and outputting a plurality of counts each of which enables each of said feature characteristics stored in said first storage unit to be outputted as an address to said second storage unit enabling said second storage unit to output the feature characteristics of a known character to said first comparison means;

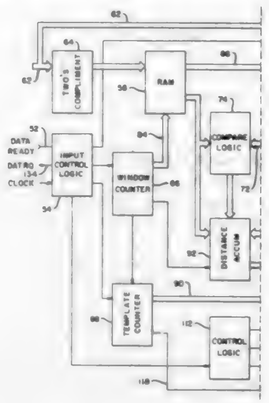
(d) means coupled to said first comparison means for accumulating the first signals for each known character;

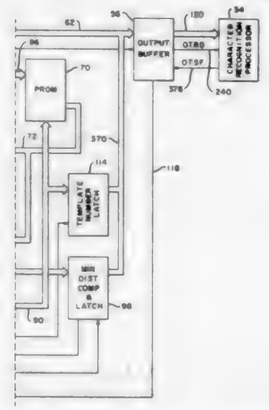
(e) second comparison means for comparing the accumulated differences of each of the known characters to provide a plurality of second signals representing two minimum differences;

(f) first means for storing said second signals;

(g) second means for storing the known characters associated with said second signals;

(h) and processing means coupled to said first and second storing means for applying a plurality of threshold values to the difference between said second signals to enable said processing means to identify the unknown character





in accordance with the second signal having the minimum difference.

4,277,776

MAGNETIC INK CHARACTER RECOGNITION APPARATUS

Robert B. Nally; James F. Akister, and David Hulford, all of Waterloo, Canada, assignors to NCR Canada Ltd - NCR Canada Ltee, Mississauga, Canada

Filed Oct. 1, 1979, Ser. No. 81,491
Int. Cl.³ G06K *9/20*; H03K *5/153*
U.S. Cl. 340—146.3 AG **18 Claims**

1. A method for establishing the start of an analog waveform having a sequence of varying peak voltage amplitudes and times of occurrence of same corresponding to the configuration of a symbol being recognized comprising the steps of:

sampling portions of the first peak of the analog waveform to generate values representing the voltage amplitude of each portion;

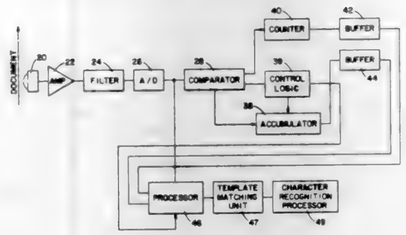
summing the voltage amplitudes of the samples taken;

counting the number of samples taken of the first peak;

dividing the sum of the voltage amplitudes by the number of samples taken to produce a threshold voltage amplitude;

comparing the voltage amplitude of each sample with the threshold voltage amplitude;

and outputting the voltage amplitude of those samples taken to a utilizing device whose voltage amplitude exceeds the



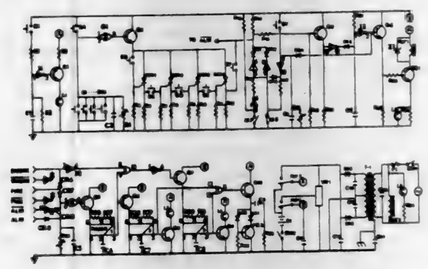
threshold voltage amplitude as representing the start of the symbol to be recognized.

4,277,777

ALARM COMBINATION LOCK

Friedemann J. Schulz, 11 Richard St., Touraine by Gatineau-Pointe, P. Quebec, Canada (J8T 1G3), assignor to Friedemann Joachim Schulz, Touraine, Canada

Filed Mar. 22, 1979, Ser. No. 22,921
Claims priority, application Canada, May 2, 1978, 302427
Int. Cl.³ G05B *1/00*
U.S. Cl. 340—147 MD **9 Claims**



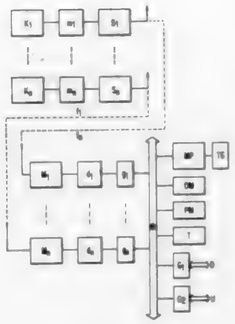
1. A code device for comparing the sequence and number of digits of a selected multi digit primary coded signal with a predetermined coded sequence and number of digits in said device, comprising a first coded selection means for initiating the operation of said device and for selecting the first digit of the code, time delay means responsive to said first selection means to provide a timed output signal of a predetermined duration, means to connect said timed signal as the operating potential to a plurality of thyristors, additional coded selection means disposed in the gate circuits of said thyristors adopted to trigger a thyristor into conduction and to deactivate the preceeding thyristor, a final coded section means for providing the output from the final thyristor to operate a controllable device, a plurality of additional selection means associated with said coded selection means, means responsive to the operation of one or more of said final additional selection means for terminating the timed output signal whereby an output is generated by said code device to operate the controllable means when all of the coded selection means are operated in the predetermined coded sequence and within the duration of said timed signal, and whereby the operation of the additional selection means or the termination of the timed signal inhibit the operational output from said device.

4,277,778

INFORMATION TRANSMITTING SYSTEM

Paul M. Persson, Flintvägen 20, S-175 61 Järfälla, Sweden

Continuation-in-part of Ser. No. 794,412, May 6, 1977, abandoned. This application Dec. 12, 1978, Ser. No. 968,855
Claims priority, application Sweden, May 10, 1976, 7605253
Int. Cl.³ H04B *1/00*; H04Q *1/45*
U.S. Cl. 340—171 A **6 Claims**



1. A system for transmission of reports, comprising:

a plurality of observation stations, each including coder means including a key set for selecting code signs corresponding to the observations, among a predetermined set of code signs, defining at least one of height, distance, type and result of fire, and character of target, each kind of observation concerning different occurrences or events comprising several of said signs, and transmitter means for transmitting the code signs in a wireless way from each observation station by way of mutually separated channels having different wavelengths; and

a central station including, for each channel, receiver means for receiving said transmitted code signs, demodulator means for generating pulse trains corresponding to the received code signs, bus means for receiving said pulse trains generated by said receiver means, and including a plurality of adapters of the asynchronous communications interference type for accomplishing a series-parallel transformation of said pulse trains at a given rate, a common adapter connected between the bus means and a presentation device, said common adapter performing parallel-series transformations at a considerably higher rate compared to said given rate of said series-parallel transformations of said plurality of adapters, clock means connected to said bus means for generating clock signals defining arrival times of said pulse trains after transformation, said common adapter transferring information completed with information about their origin derived from the plurality of adapters, and arrival times derived from the clock means, microprocessor means for controlling the transferring of the completed information to the presentation device, and two memories connected to the bus, one memory for holding a program which is permanent and indestructible, and the other memory comprising a temporary storage device for storing incoming data reports presented together to the presentation device.

4,277,779

TIME CODE GENERATOR

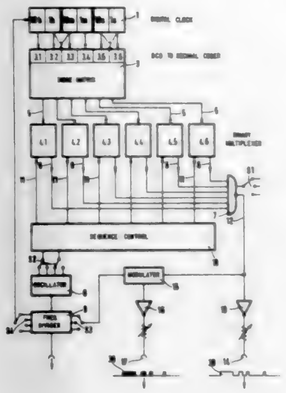
Hans-Adolf Rohrbecher, Karlsdorf, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed Dec. 6, 1979, Ser. No. 100,996

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853541

Int. Cl.³ G08C *19/28, 9/00*

U.S. Cl. 340—348 5 Claims



1. A time code generator for generating a time-coded pulse sequence comprising:

a digital clock for generating time information at six output terminals thereof in a BCD code;

six BCD-to-decimal coder stages, each stage having ten output terminals and an input coupled to a corresponding output terminal of said digital clock;

six binary multiplexer stages, each having a control input, four BCD inputs and sixteen data input terminals;

a diode matrix coupling the ten output terminals of each of said BCD-to-decimal coder stages to selected data input terminals of said binary multiplexer stages;

a clock pulse generator for generating clock pulses at a predetermined frequency, said clock pulse generator including:

a quartz crystal for generating time reference signals,

an addressing counter coupled to the BCD inputs of said binary multiplexer stages for generating the lower order addresses thereof, and

a reset stage coupled to said addressing counter for generating a reset signal after the one-hundredth clock pulse;

a decoder coupled to the control inputs of said binary multiplexer stages;

a follow-up counter coupled to said address counter and said decoder for serially energizing said binary multiplexer stages;

a frequency divider coupled to said clock pulse generator for generating pulses at predetermined submultiples of the frequency of said time reference signals, the pulses at the output of said frequency divider being coupled to and controlling said digital clock, address counter, follow-up counter, decoding and binary multiplexer stages;

a multiplexer NAND gate coupled to the outputs of said six binary multiplexer stages;

a mode switch connected to the output of said NAND gate;

first and second output signal amplifiers coupled to said mode switch;

a modulator having its output coupled to the input of said second output signal amplifier; and

a modulator switch for connecting the output of said frequency divider to said modulator, the output of said first signal amplifier being unmodulated and the output of said second signal amplifier being modulated by an output of said frequency divider.

4,277,780

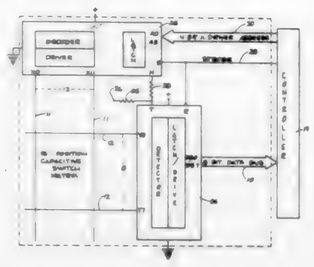
SCAN-CONTROLLED KEYBOARD

Ed L. Sonderman, and Walter Z. Davis, both of Spokane, Wash., assignors to Key Tronic Corporation, Spokane, Wash.

Filed Feb. 15, 1980, Ser. No. 121,902

Int. Cl.³ G06F *3/02*

U.S. Cl. 340—365 S 15 Claims



1. A keyboard having a plurality of analog keyswitches arranged in M columns and N rows adapted to be scan controlled by a digital controller directly connected thereto wherein both M and N are integers greater than one and the digital controller has a data bus with at least N lines, a keyboard scan set strobe and a reset strobe for generating strobe pulses, and address outputs for transmitting a selected bit code for interrogating at least M keyboard conductors, said keyboard comprising:

a keyboard matrix having a plurality of column conductors intersecting a plurality of row conductors;

a plurality of manually activated analog keyswitch means each physically arranged across a separate intersection of said column conductors and row conductors for selectively completing an electrical circuit across such intersection;

a single multi-terminal integrated circuit driver chip having M output terminals connected directly to M column conductors of the keyboard matrix, said driver chip also having a strobe terminal and a plurality of address terminals adapted to be connected to outputs of a digital controller;

said driver chip having internal decoding means for selecting a column conductor corresponding to an address code received at its address terminals and stored internally, causing a signal to be applied on each row conductor having a keyswitch means activated across an intersection with the selected column conductor on the keyboard matrix in a timed relation to a strobe pulse received at its strobe terminal;

and a single multi-terminal integrated circuit detector chip having N input terminals individually connected directly to N row conductors of the keyboard matrix and N output terminals adapted to be individually connected to N lines of the data bus of the digital controller, said detector chip also having a reset terminal adapted to be connected to an output of the digital controller;

said detector chip having internal individual current sensing means connected to each of its input terminals for detecting a signal applied on a row conductor of the keyboard matrix and generating a digital pulse in response thereto at its corresponding output terminal.

4,277,781

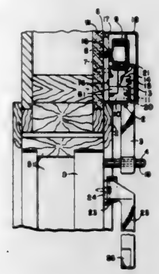
CLOSURE ALARM WITH THREE-WAY SWITCH

Steve Hunyadi, Pepper Pike, Ohio, assignor to Castle Keep, Inc., Wickliffe, Ohio

Filed Mar. 7, 1980, Ser. No. 127,934

Int. Cl.³ G08B *13/08*

U.S. Cl. 340—545 11 Claims



1. An alarm for detecting opening movement of a closure member for an opening in a building structure comprising an alarm unit adapted for fixed mounting adjacent said closure member; said unit having an electrically operated alarm signal means, a switch, and a battery electrically interconnected to energize and deenergize said signal means upon closing and opening of said switch; said switch comprising a pair of coaxial rounded-end contacts which are spring biased into end-to-end contact; said unit having a switch operating lever pivotally connected thereto about an axis parallel to that of said contacts; said lever having a thin blade-like insulated portion which in active position of said lever is wedged between said contacts to open said switch and which is withdrawn therefrom to close said switch upon swinging of said lever in response to opening movement of said closure member; said lever having another thin blade-like insulated portion which is interposed between said contacts in an inactive position of said lever whereat said lever clears the path of opening and closing movements of said closure member.

4,277,782

DETECTION CIRCUIT AND STRUCTURE THEREFOR

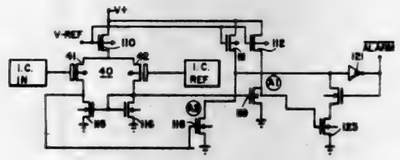
Robert L. Chao, Sunnyvale, Calif., assignor to Supertex, Inc., Sunnyvale, Calif.

Division of Ser. No. 880,035, Feb. 22, 1978, Pat. No. 4,215,281.

This application Nov. 13, 1979, Ser. No. 93,517

Int. Cl.³ G08B *21/00*

U.S. Cl. 340—661 3 Claims



1. An integrated circuit comparator circuit having a predetermined hysteresis of operation including in combination:

differential amplifier means having first and second input terminals and first and second output terminals;

first gating means having an input coupled to said first output terminal of said differential amplifier, an output terminal, and displaying a hysteresis of operation;

alarm means coupled to the output terminal of said first gating means and adapted to provide an alarm when said first gating means is operative to gate a differential signal from said first output terminal of said differential amplifier to said alarm means;

second gating means having an input coupled to said second output terminal of said differential amplifier, an output terminal, and displaying greater hysteresis of operation than said first gating means; and

alarm continuity means having an input connected to the output terminal of said second gating means, an output terminal coupled to said alarm means, and being adapted to cause said alarm means to continue to provide an alarm so long as said hysteresis of operation of said second gating means maintains said second gating means open.

4,277,783

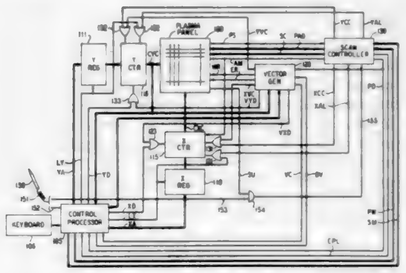
LIGHT PEN TRACKING METHOD AND APPARATUS

Eugene E. Sampieri, Freehold Township, Monmouth County, and Thomas P. Sosnowski, Colts Neck, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 2, 1979, Ser. No. 53,916

Int. Cl.³ G08B *5/36*

U.S. Cl. 340—708 32 Claims



1. A method for use in a display system which includes a display medium (100) comprised of a plurality of selectively energizable display sites, means (105, 110, 111, 115, 116, 130) for causing selected ones of said display sites to flash in a selected order, a light pen (150) adapted to be moved adjacent to said display medium, said light pen generating a signal when a display site adjacent thereto flashes, and means (105, 115, 116, 130, 154) responsive to said signal for identifying as the current location of said light pen the location of said adjacent display site, said method being comprised of the step of

selecting as said ones of said display sites the display sites in a region of said display medium which includes a predicted future location of said pen.

4,277,784

SWITCH SCANNING MEANS FOR USE WITH INTEGRATED CIRCUITS

Tom M. Hyltin, Dallas, Tex., assignor to Commodore Electronics Limited, Nassau, The Bahamas

Filed Jul. 13, 1979, Ser. No. 57,166

Int. Cl.³ G08B *5/36*

U.S. Cl. 340—711 13 Claims

1. In combination:

a data display device having liquid crystal display elements each characterized by a turn-on and turn-off transition interval;

a data logic circuit having output nodes for conducting actuating signals to said liquid crystal display elements and having a data input node;

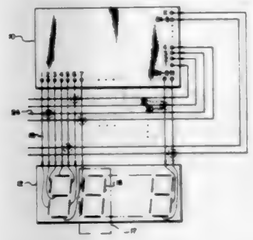
driver conductors connecting said data logic output nodes to said display elements;

a data input conductor connected to said data input node;

a switch assembly including a movable switch element for

electrically connecting the data input conductor to one of the driver conductors;

a control circuit coupled to the data logic circuit for applying the actuating signals during a load interval and interrupting the actuating signals during a sampling interval, the load interval being longer than the sampling interval and the sampling interval having a duration which is less than the turn-off time of the liquid crystal display elements; and,



sampling means coupled to said driver conductors and to said data input conductor for pulsing said driver conductors with an electrical strobe signal having a pulse duration less than the turn-on time of the liquid crystal display elements during said sampling interval and for counting a number of repetitive events occurring during the sampling interval commencing with the first application of a strobe pulse to a driver conductor and terminating with the application of a strobe pulse to the driver conductor engaged in electrical contact with the data input conductor through said movable switch element.

4,277,785

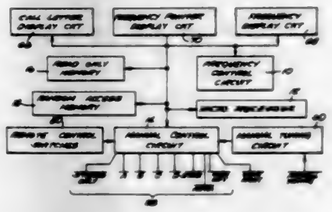
RADIO CONTROL CIRCUIT WITH MICROPROCESSOR

Larry A. Schotz, Glendale, and Thomas W. Wiesmann, Milwaukee, both of Wis., assignors to Draco Laboratories, Inc., Grafton, Wis.

Division of Ser. No. 780,391, Mar. 23, 1977, Pat. No. 4,122,395, which is a continuation-in-part of Ser. No. 684,523, May 10, 1976, abandoned. This application Jan. 16, 1978, Ser. No. 916,411

Int. Cl.³ G06F 3/14; H04B 1/26

U.S. Cl. 340—753 3 Claims



1. Means for use with a radio receiver for enabling display of characters representative of the call letters of a radio transmitting station to which said radio receiver is tuned, said means comprising:

memory means for storing a table of digital data corresponding with call letters of a plurality of radio transmitting stations and their frequencies,

means responding to said radio receiver being tuned to the frequency of a transmitting station by accessing from said memory means digital data representative of the characters which compose the call letters of said station,

character generator means having input and output means and responsive to input of digital data on its input means representative of a character to be generated by providing data on its ouput means for effecting the display of characters,

a plurality of character display units each comprising a matrix of light emitting diodes arranged in rows and columns,

a first group of semiconductor switch means for each of said display units connected respectively in circuit with a selected one of said diode rows and columns of each of said display units,

a second group of semiconductor switch means connected respectively in circuit with the other of the not previously selected diode rows and columns of each of said display units,

an electric supply line and a plurality of semiconductor switches each having a control element and operable to supply electric power to said first groups of switches, respectively, and to remove said power alternately for each of said groups in succession,

a digital counter having output means for supplying consecutive binary digital number signals at a predetermined clock frequency,

first selector means having input and ouput means and responsive to receiving signals on its input means from said digital counter by turning on one of said plurality of switches at a time to thereby supply electric power to a corresponding group of switches for supplying one of said columns and said rows of one display unit,

second selector means having input and ouput means and operable in response to signals from said digital counter means on its input means by consecutively turning on said switches in said second group to thereby enable supplying electric power to the other of said rows and said columns, and

means for supplying control signals from said character generator means consecutively to said control elements of said second group of switches synchronously with the output of said digital counter such that rows and columns corresponding with a character in only one of said display units at a time will be displayed.

4,277,786

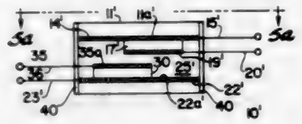
MULTI-ELECTRODE LIQUID CRYSTAL DISPLAYS

Wesley K. Waldron, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 19, 1979, Ser. No. 59,275

Int. Cl.³ G08B 5/36

U.S. Cl. 340—765 11 Claims



1. A visual information display comprising:

a layer of liquid crystal material having opposed first and second surfaces, said liquid crystal material layer characterized by absorption therein and transmission therethrough of light incident upon one of said layer surfaces responsive respectively to first and second magnitudes of an electric field formed through a portion of said layer;

four planes each having at least one substantially transparent electrode therein, each electrode being insulated from the remainder of said electrodes, each of said electrode planes being arranged substantially parallel to each other and to said surfaces of said liquid crystal layer, with first and second planes of electrodes being sequentially positioned outwardly adjacent to said first surface of said liquid crystal layer, with said second electrode plane between said first electrode plane and said first liquid crystal layer surface, and third and fourth planes of electrodes being sequentially positioned outwardly adjacent to the second liquid crystal layer surface, with said third electrode plane between said liquid crystal layer second surface and said fourth electrode plane;

a layer of insulating material positioned at least between the electrodes of each pair of electrode planes positioned outwardly adjacent to each of said first and second surfaces of said liquid crystal layer; and

means for independently coupling selected ones of a plurality of driving waveforms to each of the electrodes of said four electrode planes to cause a portion of said liquid crystal material layer between any electrode adjacent to said first liquid crystal layer surface and any electrode adjacent to said liquid crystal layer to be switchable between a light-absorptive and a light-transmissive condition.

4,277,787

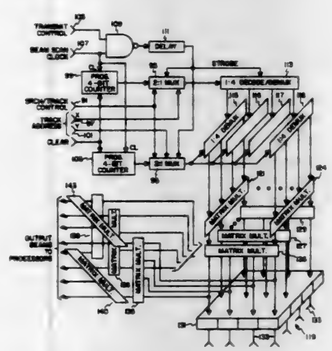
CHARGE TRANSFER DEVICE PHASED ARRAY BEAMSTEERING AND MULTIBEAM BEAMFORMER

Robert D. King, Clay, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Dec. 20, 1979, Ser. No. 105,578

Int. Cl.³ H04B 7/00

U.S. Cl. 343—100 SA 8 Claims



1. A radar system comprising:

(a) means for generating beamsteering phase weights comprising matrix multiplication means having a first plurality of real and imaginary signal inputs and a second plurality of real and imaginary signal outputs and operable to perform complex multiplication of signals applied to its real and imaginary signal inputs by a matrix of fixed coefficients to provide a plurality of summed product signals at its real and imaginary signal outputs, means for grounding said imaginary signal inputs, and means for selectively applying to at least one of said real signal inputs a sequence of pulses for matrix multiplication thereof such that for each input impulse there is developed a set of complex phase weights one pair of which appears at each pair of the real and imaginary outputs at a baseband frequency;

(b) a source of a radio frequency carrier wave and means for dividing said carrier wave into in-phase and quadrature components;

(c) a plurality of antenna elements disposed in an ordered array for generating one or more electromagnetic wave energy beams in directions determined by the wave energy phase gradient across the elements of the array;

(d) a like plurality of elemental transmitter means each connected to drive one of said antenna elements;

(e) modulator means including a first like plurality of means for modulating the in-phase components of said carrier wave by the baseband phase weights appearing at each of the real signal outputs of said phase weight generating means and a second plurality of means for modulating the quadrature components of said carrier wave by the baseband phase weights appearing at each of the imaginary signal outputs of said phase weight generating means, and

(f) means for combining the in-phase and quadrature signals thus modulated by each pair of signals from the real and imaginary signal outputs of the phase weight generating means to derive a set of phased transmitter excitation signals and for applying one thereof to each of said elemental transmitter means to thus produce across the antenna elements driven thereby a phase gradient such as to point the radiated beam in a desired direction.

4,277,788

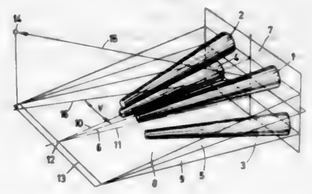
DIRECTION DETERMINING APPARATUS RESPONSIVE TO ELECTROMAGNETIC RADIATION

Arne Törby, Linköping, Sweden, assignor to Saab-Scania AB, Linkoping, Sweden

Continuation-in-part of Ser. No. 954,304, Oct. 24, 1978, abandoned. This application Jul. 30, 1979, Ser. No. 61,894

Int. Cl.³ G01S 3/48; H01Q 11/10

U.S. Cl. 343—113 R 11 Claims



1. Receiving apparatus responsive to electromagnetic radiations such as radar pulses, comprising an array of elongated end-firing log-periodic antenna elements defining a reference plane containing a sighting line, and signal processing apparatus connected with said array and comprising angle value indicating means, by which signals produced at the array by radiation emanating from a source that is forwardly remote from the array are processed to provide at said indicating means an indication of a directional angle between said sighting line and the projection upon said reference plane of a line through said array and said source, said receiving apparatus being characterized by:

A. said antenna array comprising two pairs of antenna elements,

(1) said pairs of antenna elements being disposed at opposite sides of the reference plane, in a substantially symmetrical relation thereto, and

(2)the two antenna elements of each pair being forwardly convergent relative to one another; and

B. said signal processing apparatus comprising

(1) first directional angle output producing means connected with two of said antenna elements for producing, in response to radiation that is intercepted by said two antenna elements, a first directional angle output having a magnitude which signifies any of one set of directional angles, of which only one corresponds to the true directional angle to the source of the intercepted radiation,

(2) second directional angle output producing means connected with the other two of said antenna elements for producing, in response to said radiation, a second directional angle output having a magnitude which signifies any of a second set of directional angles, of which only one corresponds to said true directional angle,

(3) third output producing means connected with said first and second directional angle output producing means for producing a third output having a magnitude corresponding to a function of a comparison relationship

between said first and said second directional angle outputs, and

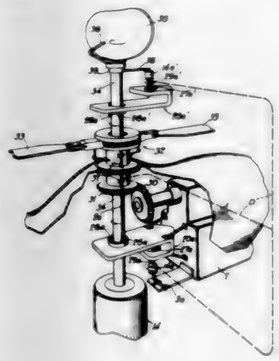
(4) comparison means connected with said first, said second and said third output producing means and comprising gating means, said comparison means being arranged to pass one of said directional angle outputs to said indicating means upon the condition that there is a predetermined relationship between said third output and at least the other of said directional angle outputs.

4,277,789

MICROWAVE ENERGY TRANSMISSION SYSTEM FOR AROUND-THE-MAST APPLICATIONS

Robert M. Goodman, Jr., and William J. Dittman, both of Marietta, Ga., assignors to Georgia Tech Research Institute, Atlanta, Ga.

Filed Jul. 27, 1979, Ser. No. 61,511
Int. Cl.[3] H01Q 1/28
U.S. Cl. 343—708 13 Claims



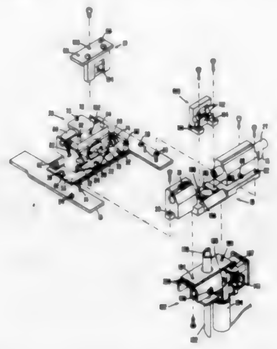
1. In a microwave energy transmission system including a member rotatable about a given axis and a first transmission line section carried by and rotatable with said member, and a further transmission line section which is stationary with respect to said member, the improvement comprising means for coupling said transmission line sections to transmit high power microwave energy without producing "wow"; said means comprising a first horn carried by said first section and having a flared aperture sweeping an arcuate path centered about said given axis, a second horn rotatably connected to said further section about a second axis non-coincident with said given axis and having a flared aperture adapted to sweep a sectored path centered about said second axis, and transition means for establishing a plurality of identical length transmission paths having opposite ends in spaced registry with corresponding equidistantly spaced circumferential points of said arcuate paths swept by said first and second horns; and means for causing said horns to sweep such corresponding points in synchronous fashion, the flared aperture of each horn being dimensioned to span a plurality of said points at any instant.

4,277,790

FIELD REPLACEABLE MODULES FOR INK JET HEAD ASSEMBLY

Harry P. Heibein, Longmont, Colo.; Richard G. Millington, Charlotte, N.C.; John M. Salvadore, Boulder, Colo.; Dean J. Scott, Longmont, Colo., and Michael L. Sendelweck, Lafayette, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,225
Int. Cl.[3] G01D 15/18, 15/00
U.S. Cl. 346—75 11 Claims



1. A modular ink jet head assembly having field replaceable modules, said assembly comprising:

a frame for holding the head assembly;

a nozzle module for projecting ink, said module having a nozzle, an ink cavity and a drop generating device;

a sensor mounted on said frame for sensing the ink stream, said sensor monitoring a sensing point in space through which a properly aimed ink drop should pass; and

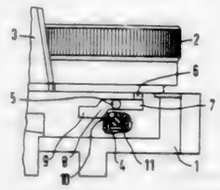
said nozzle module mounted on said frame with the nozzle a predetermined distance from the sensing point so that a reference line of predetermined length is defined along the desired flight path of the ink drops from the nozzle to the sensing point.

4,277,791

INK CONTROLLING DEVICE FOR INK PRINTING EQUIPMENT IN OFFICE MACHINES AND THE LIKE

Guenter Rosenstock, and Wilfried Kindler, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 20, 1979, Ser. No. 22,379
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 2812562
Int. Cl.[3] G01D 15/16; B41F 31/02
U.S. Cl. 346—140 R 3 Claims



1. In a device for optionally shutting off the supply in an ink printing machine, with the ink being supplied to a printing head of the machine from a replaceable ink reservoir, in which device a hollow needle in the ink feed line to the printing head

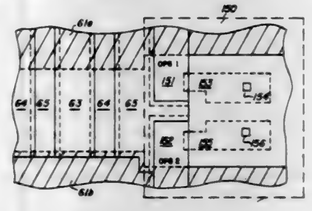
extends into the ink reservoir and is provided with an inlet aperture, the combination of the inlet aperture of the hollow needle extending at right angles to the direction of penetration of the hollow needle through the adjacent wall of the ink reservoir, which inlet aperture is smaller in diameter than the wall thickness at the point of penetration, an adjusting mechanism for permitting movement of the ink reservoir in the direction of penetration of the hollow needle through the reservoir wall between working and inoperative positions, said working position being where said inlet aperture is disposed within said ink reservoir above said adjacent ink reservoir wall and said inoperative position being where said inlet aperture is disposed in engagement with and sealed by the wall of the ink reservoir, wherein the ink reservoir is so disposed that it can rotate and pivot about the hollow needle, and said adjusting mechanism including a pin means fixably connected with the exterior surface of said ink reservoir and a slotted guide arrangement located in a wall member adjacent said ink reservoir exterior surface for cooperably receiving said pin, said slot arrangement provided with two end portions extending at right angles to the direction of movement of the reservoir, for respectively disposing the ink reservoir in said working and said inoperative positions and an intermediate guide portion connecting said two end portions for enabling adjustment of the ink reservoir to either of said two positions.

4,277,792

PIGGYBACK READOUT STRATIFIED CHANNEL CCD

Larry J. Horabeck, Van Alstyne, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 17, 1978, Ser. No. 869,735
Int. Cl.[3] H01L 29/78; G11C 19/28; H01L 27/14, 31/00
U.S. Cl. 357—24 15 Claims



1. A charge coupled device comprised of:

(a) a semiconductor substrate having dopant atoms of a first conductivity type and a first surface;

(b) a charge transfer channel lying in said substrate near said first surface;

(c) an insulating layer lying over said charge transfer channel;

(d) a plurality of phase electrodes serially disposed on said insulating layer transversely to said charge transfer channel;

(e) a barrier region in said substrate lying under and adjacent to said charge transfer channel, said barrier region having dopant atoms of said first type;

(f) a charge integration channel in said substrate lying under and adjacent to said barrier region, said charge integration channel having dopant atoms of a second conductivity type opposite to said first type; and

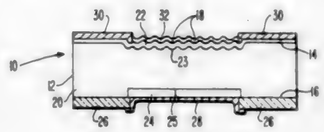
(g) clocking means coupled to said electrodes for applying first voltages on selected ones of said electrodes to enable charge transfer from said charge integration channel to the portions of said charge transfer channel underlying said selected electrodes, and for applying second voltages on all of said electrodes to enable propagation of charge packets simultaneously along both said charge transfer channel and said charge integration channel in piggyback fashion to respective output ends of said channels.

4,277,793

PHOTODIODE HAVING ENHANCED LONG WAVELENGTH RESPONSE

Paul P. Webb, Beaconsfield, Canada, assignor to RCA Corporation, New York, N.Y.

Filed Jul. 16, 1979, Ser. No. 58,026
Int. Cl.[3] H01L 27/14, 29/12
U.S. Cl. 357—30 9 Claims



1. In a photodiode which comprises:

a semiconductor body having two opposed surfaces;

a first conducting region of a first conductivity type extending a distance into said body from a first surface of said body;

a second conducting region of a second conductivity type extending into said body from a second surface of said body, such that said regions of first and second conductivity type do not overlap;

first and second electrically conducting layers overlying portions of said first and second conducting regions, respectively, whereby electrical contact is made to said first and second conducting regions;

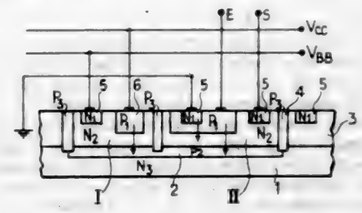
the improvement which comprises a portion of the surface of said first conducting region being contoured in the form of a regular array of almost hemispherically shaped indentations extending a distance into said body, wherein sharp points in the indented surface are directed away from the interior of the body, thereby minimizing the formation of local regions of high electric field in the interior of the body.

4,277,794

STRUCTURE FOR LOGIC CIRCUITS

Gerard Nuzillat, Paris, France, assignor to Thomson-CSF, Paris, France

Continuation of Ser. No. 855,618, Nov. 29, 1977, abandoned.
This application Sep. 6, 1979, Ser. No. 72,841
Claims priority, application France, Dec. 3, 1976, 76 36534
Int. Cl.[3] H01L 27/02
U.S. Cl. 357—40 6 Claims



1. An integrated logic circuit comprising:

a substrate layer of semiconductor material having a first conductivity type;

a first layer of semiconductor material of said first conductivity type epitaxied upon said substrate layer;

at least one second layer of semiconductor material inserted between said substrate layer and said first layer, said second layer being of a second conductivity type opposite to said first conductivity type;

walls of semiconductor material of said second type extending from the surface of said first layer of semiconductor

material through said second layer of semiconductor material so as to form therewith at least first and second insulating boxes;

said first box including semiconductor material regions forming a first bipolar transistor having an emitter region of said second conductivity type diffused into said first layer, a base region, a collector region, and contact means for coupling said collector and said base regions to power sources;

said second box including second and third complementary transistors, said second transistor including a collector region of said second conductivity type diffused into said first layer, a base region, and an emitter region, and said third transistor including a collector region of said first conductivity type diffused so as to be in contact with said collector region of said second transistor, a base region coinciding with said emitter region of said second transistor and an emitter region; and

contact input means coupled to said collector region of said second transistor and contact output means coupled to said collector region of said third transistor.

4,277,795

CIRCUIT ARRANGEMENT FOR DETECTING A SWITCHING PHASE

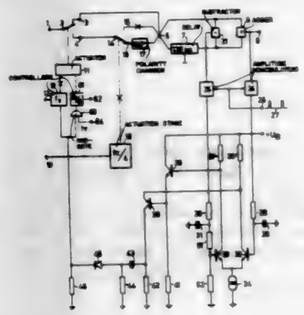
Karl H. Rehfeldt, Quickborn, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 9, 1979, Ser. No. 55,947

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1978, 2830168

Int. Cl.³ H04N 5/76, 9/47, 5/78

U.S. Cl. 358—8 **7 Claims**



1. A circuit arrangement for detecting the switching phase of wave trains which periodically exhibit a fixed phase difference relative to a normal condition, in particular the color synchronizing pulses of a color television signal recorded on a video tape recorder, whose polarity changes from field to field, having delaying means and a compensation circuit which includes a first combination stage, in which the pulses, which have been restored to the normal condition, are combined, for example added, directly and delayed in said delaying means by a sampling interval, so that in the case of a correct switching rhythm, said first combination stage produces a signal having a maximum amplitude, characterized in that said circuit arrangement further comprises a second combination stage to which said direct and delayed signals are applied, a first and a second low-pass filter coupled respectively to said first and said second combination stage, and a comparator coupled to said first and said second low-pass filters, whereby in the event of an incorrect switching rhythm, said second combination stage produces a signal having a maximum amplitude while said first combination stage produces a signal having a minimum amplitude, causing said comparator to produce a correction signal.

4,277,796

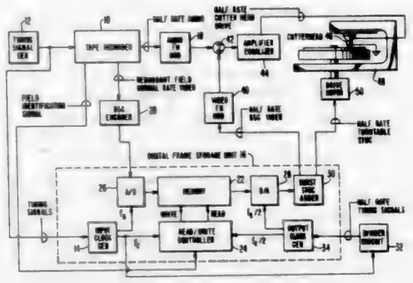
SLOW DOWN COLOR PROCESSOR FOR VIDEO DISC MASTERING USING A SPECIAL MODE VTR

Michael D. Ross, Somerdale, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 87,452

Int. Cl.³ H04N 5/795; G11B 11/00, 19/28

U.S. Cl. 358—8 **11 Claims**



1. A slow down processor for producing a composite audio-video signal of reduced bandwidth suitable for use in mastering of video disc records at less than real time rates, said processor comprising:

tape recorder means responsive in a playback mode for producing a redundant field video signal, each field being produced at a rate corresponding to the rate at which it was originally recorded on said tape, and responsive also in said playback mode for producing an audio signal from the tape at a rate less than the original recording rate of said audio signal;

memory means for providing temporary storage of selected fields of said redundant field video signal;

memory control means responsive to a field identification signal supplied thereto for writing said selected fields into said memory means at a given clock rate proportional to a subcarrier reference signal supplied thereto and for reading and selected fields out of said memory means at a lesser clock rate so as to produce a non-redundant video output signal of reduced bandwidth, the ratio of said clock rates being predetermined in accordance with the redundancy level of said redundant field video signal; and

means for combining said audio signal with said non-redundant video signal produced by said memory means to provide said composite signal.

4,277,797

COLOR TELEVISION RECEIVER HAVING AN AUTOMATIC ADJUSTMENT SYSTEM AND A PROCESS FOR ADJUSTING THE RECEIVER

Rainer Dungschat, Landsham; Alfred Jeschke, Munich; Helmit Leichtl, Mittenwald, and Wolfgang Winkler, Egmating, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 19, 1979, Ser. No. 21,346

Int. Cl.³ H04N 9/535

U.S. Cl. 358—21 R **13 Claims**

1. A color television receiver comprising:

receiving means for receiving television signals and providing video signals;

a picture tube including a picture screen;

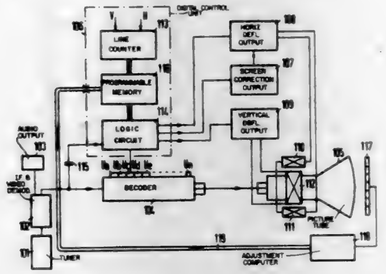
analog control stages coupled to said picture tube for controlling horizontal and vertical deflection and screen correction; and

a digital control unit connected to said receiving means and to said analog control stages for controlling the operation

of said control stages in accordance with the received video signal, said digital control unit including

a line counter for counting vertical and horizontal lines,

a programmable read only memory for storing reference values, and



logic means connected to said line counter and to said programmable read only memory, said logic means coupled to receive the video signals and connected to and operable to control said analog control stages in response to the video signals and the reference value stored in said memory.

4,277,798

AUTOMATIC KINESCOPE BIASING SYSTEM WITH INCREASED INTERFERENCE IMMUNITY

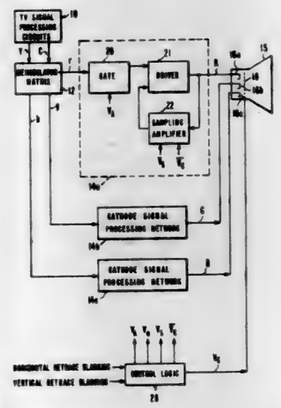
Werner Hinn, Zollikerberg, Switzerland, assignor to RCA Corporation, New York, N.Y.

Filed Mar. 27, 1980, Ser. No. 134,656

Claims priority, application United Kingdom, Apr. 18, 1979, 13423/79

Int. Cl.³ H04N 9/535

U.S. Cl. 358—33 **11 Claims**



1. In a system for processing an image representative video signal having periodically recurring image display intervals and image blanking intervals during which image information to be displayed is absent, said system including an image display kinescope having an electron gun with cathode and grid intensity control electrodes; means for coupling video signals to said kinescope electron gun; and apparatus for automatically controlling the level of blanking current conducted by said kinescope, comprising:

means for providing a reference bias voltage to said cathode electrode via a cathode current conduction path during a monitoring interval when said blanking current conduction of said kinescope is to be monitored, said monitoring interval encompassing a portion of said blanking interval;

means for providing an auxiliary signal to said grid electrode with a sense for forward biasing said grid electrode during one portion of said monitoring interval;

first means with an input coupled to said cathode current path and operative during said one portion of said monitoring interval for deriving a first signal proportional to the level of cathode current conducted in response to said auxiliary signal;

second means with an input coupled to said cathode current path and operative during another portion of said monitoring interval for deriving a second signal proportional to the level of cathode current conducted during said other portion of said monitoring interval;

differential amplifier means responsive to said first and second derived signals for providing an output control signal proportional to the difference in magnitude between said first and second derived signals, and thereby proportional to the difference between currents flowing in said cathode current path over said monitoring interval; and

means for supplying said control signal to said video signal coupling means to modify the bias of said kinescope in a direction to adjust said signal difference to a level corresponding to a desired kinescope bias condition.

4,277,799

COLOR SOLID-STATE IMAGING DEVICE

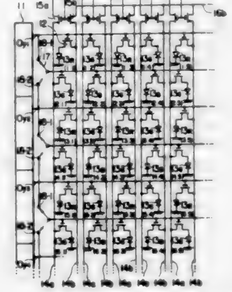
Norio Koike, Tokyo; Iwao Takemoto, Kodaira; Masaharu Kubo, Hachioji; Kazuhiro Sato, Tokyo, and Shusaku Nagahara, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 12, 1978, Ser. No. 923,982

Claims priority, application Japan, Jul. 13, 1977, 52-82965

Int. Cl.³ H04N 9/07

U.S. Cl. 358—44 **12 Claims**



11. A color solid-state imaging devices comprising;

a photoelectric conversion arrangement having a two-dimensional structure in which a first set of a plurality of photoelectric conversion elements for detecting respective lights of a plurality of different colors which set of conversion elements and their associated colors are regularly arranged in a certain order in a horizontal scanning direction, and a second set of a plurality of photoelectric conversion elements for detecting respective light of said colors which second set of conversion elements and their associated colors are regularly arranged in a certain order different from said first set in a horizontal scanning direction, with each of said sets being arranged alternately in a vertical scanning direction,

vertical switch means, disposed in correspondence with said photoelectric conversion elements arranged in two dimensions, for selecting said photoelectric conversion elements in response to vertical scanning pulses supplied thereto,

outputs of said vertical switch means being connected to respective vertical signal output lines provided in common for each of said colors, said vertical scanning pulses being supplied from vertical scanning circuit means for effecting interlaced scanning for reading out every two rows in the vertical scanning direction on the basis of combinations different for respective scanning fields,

horizontal switches, disposed for the respective colors, turned "on" and "off" in response to horizontal scanning pulses supplied thereto

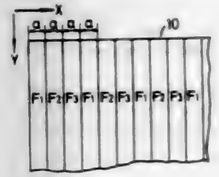
output means for deriving photoelectric conversion output signals through said horizontal switches disposed for said respective colors from said vertical signal output lines.

4,277,800

COLOR TELEVISION SIGNAL GENERATING APPARATUS

Shintaro Nakagaki; Itsuo Takanashi, both of Yokohama; Koichiro Motoyama, Ninomiya; Tadayoshi Miyoshi; Sumio Yokokawa, both of Yokohama, and Kenichi Miyazaki, Sagamihara, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Mar. 11, 1980, Ser. No. 129,337
Claims priority, application Japan, Mar. 12, 1979, 54-28450
Int. Cl.³ H04N 9/07
U.S. Cl. 358—44 **7 Claims**



1. A color television signal generating apparatus comprising:

a color-resolving striped filter comprising a plurality of groups of filter stripes, said groups being disposed in parallel and consecutively in a sequentially repeated arrangement, each of said groups comprising at least three filter stripes from among,

a first filter stripe having a light transmission characteristics for transmitting the light of one of the three primary colors of an addition mixture color,

a second filter stripe having a light transmission characteristic for transmitting the light of a mixed color which includes the primary color transmitted through said first filter stripe and one of the other two primary colors, and

a transparent third filter stripe for transmitting white light,

said at least three filter stripes being arranged in parallel and consecutively in a specific sequence;

a camera tube having said color-resolving striped filter disposed on the front surface thereof and producing a superimposed output signal comprising, in superimposition:

a direct wave signal containing signals of the three primary colors in said addition mixture color, and

a high-band signal component comprising a group of modulated color signals resulting from an amplitude modulation of a carrier wave by the signals of two primary colors other than the primary color of the light transmitted through said first filter stripe, said carrier wave having a frequency equal to a space frequency determined by the number of said groups of filter stripes, and said carrier wave also having frequency components which are higher harmonics of the frequency of said carrier wave;

a first separation means for separating and deriving, out of the output signal of the camera tube, a fundamental wave component signal in which the carrier wave having the frequency equal to the space frequency is amplitude modulated;

a second separation means for separating and deriving, out of the output signal of the camera tube, a second harmonics wave component signal in which a carrier wave having a frequency twice the space frequency is amplitude modulated;

a multiplication means for multiplying the output signals of the first and second separation means;

means for separating and deriving signals of two primary colors other than the primary color transmitted through the first filter stripe, responsive to the output signals of the multiplication means and the first separation means;

separation means for separating said direct wave signal from the output signal of said camera tube; and

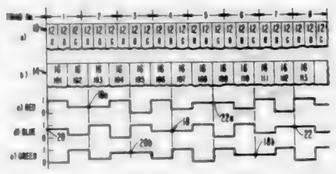
matrix means, responsive to said output direct wave signal and said output signals of said two primary colors, for producing three primary color output signals.

4,277,801

COLOR FILTER HAVING VERTICAL COLOR STRIPES WITH A NONINTEGRAL RELATIONSHIP TO CCD PHOTOSENSORS

Roland N. Rhodes, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,301
Int. Cl.³ H04N 9/07
U.S. Cl. 358—55 **9 Claims**



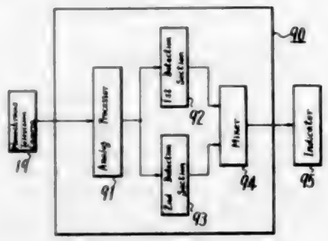
1. A filter for use with an image pickup device having a plurality of photosensors, said filter comprising a plurality of vertical stripe color filters arranged in horizontally repeating cycles of color order, the ratio of the width of a cycle to the width of a photosensor being a non-integer.

4,277,802

DEFECT INSPECTION SYSTEM

Hajime Yoshida, Tokyo, Japan, assignor to Hajime Industries, Ltd., Tokyo, Japan

Filed Feb. 14, 1980, Ser. No. 121,518
Claims priority, application Japan, Feb. 20, 1979, 54-18867
Int. Cl.³ H04N 7/18
U.S. Cl. 358—106 **4 Claims**



1. A defect inspection system by comparative inspection of a standard subject with an object to be inspected comprising:

(a) means for supporting a standard subject and an object to be inspected at predetermined positions, respectively;

(b) optical means for forming an overlapped image of said standard image and object;

(c) means for picking up said overlapped image and producing a video signal thereof;

(d) a plurality of detecting means connected to said picking-up means for producing signals in response to rate of change of said video signal with respect to time, the sensitivity of said plurality of detecting means being so selected that when said standard subject and object coincide with each other, all of said plurality of detecting means produce signals, but when said object is different from said standard subject, some of said detecting means do not produce any signals while the remaining detecting means produce signals; and

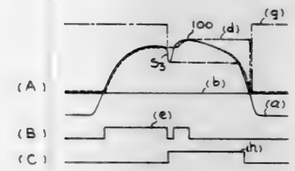
(e) means connected to said plurality of detecting means for producing a defect detection signal when some of said detecting means do not produce any signals but the remaining ones produce signals, namely said object is a defective one.

4,277,803

AUTOMATIC PRODUCT CHECKING SYSTEM

Yasukazu Sano, Kawasaki, Japan, assignor to Fuji Electric Co., Ltd., Tokyo, Japan

Filed May 12, 1980, Ser. No. 149,261
Int. Cl.³ H04N 7/18
U.S. Cl. 358—106 **10 Claims**



1. The method for checking the surface condition of a product which method includes the following steps:

generating a video signal representing at least a portion of the surface of the product;

counting the number of zero-slope conditions in said video signal; and,

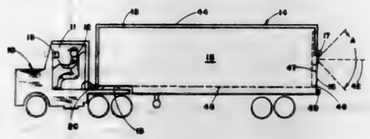
generating a defect signal if the number of such zero-slope conditions exceeds one.

4,277,804

SYSTEM FOR VIEWING THE AREA REARWARDLY OF A VEHICLE

Elburn Robison, P.O. Box 788, Shawnee, Okla. 74801

Continuation-in-part of Ser. No. 956,695, Nov. 1, 1978, abandoned. This application Jan. 31, 1980, Ser. No. 117,174
Int. Cl.³ H04N 7/18
U.S. Cl. 358—106 **10 Claims**



1. In a viewing system for observing the area rearward of an automotive vehicle having a cabin area forward of an enclosed cargo section, a substantially flat panel adjacent the rear end of said cargo section, said panel being substantially vertically disposed and perpendicular to the longitudinal axis of said vehicle, and a television circuit comprising a camera positioned at the rear of said vehicle and connected by electrical wires to a display device positioned within said cabin area, the improved features comprising:

(a) a camera assembly comprising a television camera body and associated lens housed within a protective enclosure having a first transparent window optically aligned with said lens,

(b) said protective enclosure being mounted to an inside surface of said panel in a manner such that the axis of said lens lies horizontally in a plane perpendicular to the longitudinal axis of said vehicle,

(c) light deflecting means positioned in front of said lens to cause light coming from behind the vehicle to bend 90 degrees to enter said lens, and further causing left-to-right reversal of the image entering said lens, and

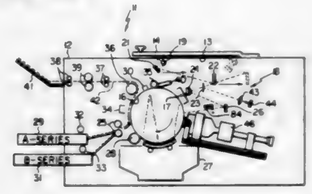
(d) an aperture within said panel admitting light onto said light deflecting means and positioned at a location between 20% and 70% of the total height of said vehicle.

4,277,805

COMBINATION COPYING-FACSIMILE REPRODUCTION APPARATUS

Yojiro Sato, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 8, 1978, Ser. No. 967,835
Claims priority, application Japan, Dec. 27, 1977, 52-159717
Int. Cl.³ H04N 1/42
U.S. Cl. 358—286 **6 Claims**



1. A reproduction apparatus including a moving photoconductive member and optical imaging means for radiating a light image of an original document onto the photoconductive member to form an electrostatic image of the document on the photoconductive member, characterized by comprising:

electronic scanning means for producing electrical signals corresponding to the document;

electronic imaging means for radiating a light image onto the photoconductive member corresponding to electrical signals applied to the electronic imaging means;

contour compensation means; and

control means for connecting an output of the electronic scanning means to an input of the contour compensation means and an output of the contour compensation means to an input of the electronic imaging means, the optical imaging means, electronic scanning means, contour compensation means and electronic imaging means being so constructed that an electrostatic image of the document formed on the photoconductive member by the electronic imaging means is superimposed on the electrostatic image of the document formed on the photoconductive member by optical imaging means;

the optical imaging means being constructed to radiate a light image of the document onto the electronic scanning means;

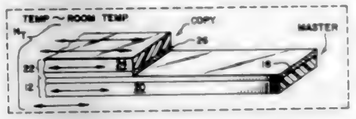
the optical imaging means comprising optical means for focussing a light image of a linear portion of the document onto the photoconductive member and the electronic scanning means and feed means for producing relative movement between the optical means and the document in a direction perpendicular to the linear portion of the document.

4,277,806

MAGNETIC RECORDING USING RECORDING MEDIA HAVING TEMPERATURE DEPENDENT COERCIVITY

Frederick J. Jeffers, Escondido, and Richard J. McClure, San Diego, both of Calif., assignors to Eastman Technology, Inc., Rochester, N.Y.

Filed May 14, 1979, Ser. No. 39,019
Int. Cl.³ G11B *5/86*
U.S. Cl. 360—16 **15 Claims**



1. A duplicate magnetic record having magnetic signals recorded thereon corresponding to the magnetic signals previously recorded on the magnetic layer of an original magnetic record, said duplicate magnetic record being produced by the process of:

(a) anhysteretically transferring magnetic signals from the original magnetic record to a master record having a magnetic recording layer comprising submicron particles of MnBi dispersed in a binder, whereby an inverted mirror image of said magnetic signals is formed on the recording layer of said master, said anhysteretic transfer being effected at a first temperature at which the coercivity of the recording layer of the original is between three and ten times greater than the coercivity of the recording layer of the master; and

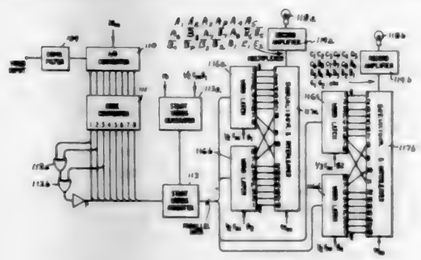
(b) anhysteretically transferring, at a second temperature of the order of room temperature which is substantially higher than said first temperature, magnetic signals from the master record to a duplicate magnetic record having a magnetic recording layer with a coercivity, at said second temperature, which is at least ten times lower than the coercivity of the recording layer of the master record.

4,277,807

RECORDING DIGITAL SIGNALS

John L. E. Baldwin, Croydon, England, assignor to Independent Broadcasting Authority, London, England

Continuation of Ser. No. 864,002, Dec. 23, 1977. This application Jun. 7, 1979, Ser. No. 46,267
Int. Cl.³ G11B *5/00*; H04N *5/78*; G11B *5/09*
U.S. Cl. 360—32 **18 Claims**



1. The method for recording an alternating current analog signal in a manner to alleviate drop-outs, said signal having a given subcarrier frequeny (f_{sc}), comprising the steps of

(a) sampling the analog signal at a sampling frequency which is a multiple of the subcarrier frequency (f_{sc}), thereby to produce a plurality of digital words constituted by a plurality of bits;

(b) introducing into said digital words an error detection signal (P);

(c) storing groups of said digital words in at least two separate channels, respectively, a first group of words of one channel including first and second subgroups of words of different phase relative to each other, and a second group of words of the other channel including third and fourth subgroups of words of different phase relative to each other;

(d) serializing the subgroups of words of each channel, respectively; and

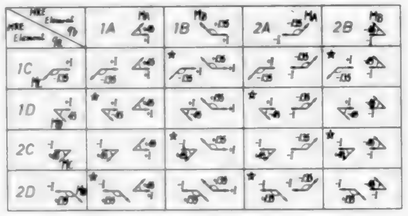
(e) recording on a recording medium the serialized channel signals, respectively.

4,277,808

MAGNETIC TRANSDUCER HEAD

Takehiro Nagaki, Komae, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,439
Claims priority, application Japan, May 26, 1978, 53-62956
Int. Cl.³ G11B *5/30, 5/12*
U.S. Cl. 360—113 **16 Claims**



1. A magnetic transducer head comprising:

(a) first and second thin film magneto-resistive elements having a common center tap and adjacently aligned on substantially one line;

(b) current supply means for flowing a current through said first and second magneto-resistive elements in respective selected directions; and

(c) bias means for applying a respective bias magnetic field to each of said first and second magneto-resistive elements, each of said bias magnetic fields being selected from a group of bias magnetic fields having respective directions of approximately $\pm(\pi/4)\pm(n/2)\,\pi$ (n being an integer) with respect to the direction of the current flowing through said first and second magneto-resistive elements;

said current supply means and said bias means being selected such that when a uniform signal magnetic field is applied to said first and second magneto-resistive elements, the resistances thereof are varied oppositely with respect to each other, whereby the outputs of said first and second magneto-resistive elements are tapped differentially for forming an output signal for said transducer head.

4,277,809

APPARATUS FOR RECORDING MAGNETIC IMPULSES PERPENDICULAR TO THE SURFACE OF A RECORDING MEDIUM

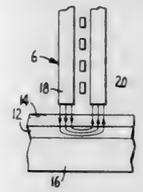
Robert D. Fisher, Cupertino, and Eric R. Katz, San Jose, both of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Sep. 26, 1979, Ser. No. 78,876
Int. Cl.³ G11B *5/66, 5/02*
U.S. Cl. 360—131 **9 Claims**

1. In apparatus for recording magnetic impulses on a selectively magnetizable medium, which apparatus includes a recording medium, at least one magnetic recording and playback head, means for moving the recording medium relative to the recording head and means for supplying signals to the recording head for recording upon the medium, the improvement comprising

said recording medium comprising an extended under layer of a material having a magnetic permeability greater than 100, with an overlying coating of magnetic material having uniaxial anisotropy substantially perpendicular to the surface of said under layer, and

said magnetic recording and playback head being a unitary recording/playback head having two closely spaced magnetic poles with both said poles positioned adjacent the outer surface



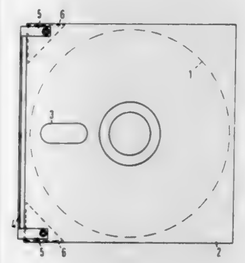
of said recording medium overlying coating on one side of said medium, whereby the magnetic lines of flux extending between the poles of the head loop into and out of the outer surface of the recording medium overlying coating with the under layer of the recording medium causing the lines of flux to pass through the coating in a direction generally perpendicular to the surface of the medium to record information on the recording medium in the form of magnetic impulses having their axes of magnetization substantially perpendicular to the surface of the medium.

4,277,810

FLOPPY DISC STRUCTURE WITH RECTANGULAR CASING

Hans Helmrich, Geisenbrunn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,381
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 7808788[U]
Int. Cl.³ G11B *23/02, 25/04*
U.S. Cl. 360—133 **4 Claims**



1. A floppy disc structure to be gripped by a pair of spaced grippers of a gripping arrangement of a floppy disc drive unit for drawing the floppy disc structure into the floppy disc drive unit, comprising:

a rectangular casing for loading into a floppy disc drive unit, said casing including a pair of spaced walls;

a floppy disc rotatably mounted in said casing between said pair of spaced walls; and

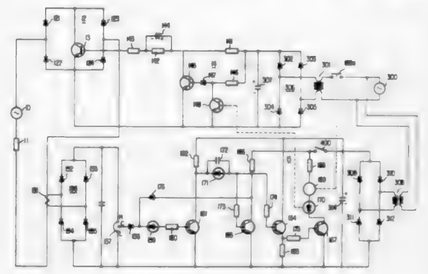
spacing means between said walls only at gripping locations of the spaced grippers of the gripping arrangement at two adjacent corners of said casing and outside of the space occupied by said floppy disc, said spacing means having a thickness which is approximately the same as that of said floppy disc.

4,277,811

STATIC TYPE CIRCUIT BREAKER

Kozo Sato, Hino, Japan, assignor to Tokyo Shibaura Electric Company, Limited, Kawasaki, Japan

Continuation-in-part of Ser. No. 771,329, Feb. 23, 1977, abandoned. This application Mar. 19, 1979, Ser. No. 21,706
Claims priority, application Japan, Feb. 23, 1976, 51-18021; Feb. 23, 1976, 51-18029
Int. Cl.³ H02H *3/08*
U.S. Cl. 361—101 **10 Claims**



1. In a load circuit containing a power source and a load, a static type circuit breaker comprising:

a first transistor adapted to be connected in series in the load circuit with the power source and the load;

a detector adapted to be connected to the load circuit for detecting a fault current flowing in the load circuit, the detector including

a second transistor;

a third transistor;

a first constant voltage diode connected to the base of the second transistor and conductive when a fault current flows through the load;

a parallel circuit, consisting of a second constant voltage diode in parallel with a condenser, connected to the collector of the second transistor and to the base of the third transistor;

a diode having its cathode connected to the base of the second transistor and its anode connected to the collector of the third transistor to form a self-maintaining circuit for the second transistor;

means for connecting the collector of the second transistor to a control power source;

means for connecting the collector of the third transistor to the control power source;

whereby when a fault current has flowed, the second transistor is made conductive and is made self-maintaining and the third transistor is made non-conductive to produce a fault voltage detection signal; and

means responsive to the producing of the detection signal for cutting off the base current of the first transistor to render the first transistor non-conductive.

4,277,812

EXCESS VOLTAGE ARRESTER

Raymond D. Jones, Cheam, England, assignor to TII Industries, Inc., Copiague, N.Y.

Filed Jun. 11, 1979, Ser. No. 47,038
Int. Cl.³ H02H *3/22*
U.S. Cl. 361—119 **17 Claims**

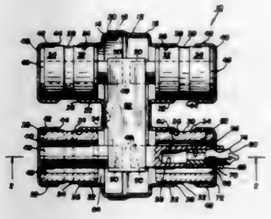
1. A gas-filled excess voltage arrester for preventing electrical surges, comprising:

(a) a sealed housing having a plurality of non-coaxially aligned openings therein;

(b) a plurality of elongated hollow insulating members, said

insulating members being provided with metalized bands proximate both ends thereof, one end of each said insulating members cooperating with each said housing opening and in sealed engagement therein;

(c) a plurality of metal end caps, said end caps being shaped to receive and be in sealed engagement with said insulating members;



(d) a plurality of elongated metal electrodes, one of said electrodes being affixed to each end cap and extending through each of said hollow insulating members, said electrodes being spaced from said housing and from each other, defining a plurality of spark gaps; and

(e) an inert gaseous readily ionizable atmosphere disposed within said sealed housing.

4,277,813

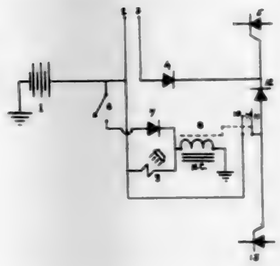
ENVIRONMENTAL SIGNAL SWITCH FOR MOTOR VEHICLES

Paul A. Reneau, 9261 N. 60th St., Brown Deer, Wis. 53223

Filed Jul. 27, 1979, Ser. No. 61,384

Int. Cl.³ H01H 47/24

U.S. Cl. 361—173 **4 Claims**



1. I claim a switching device for automotive use for the purpose of providing electrical current for activating electrical devices in response to moisture and the absence of daylight, the combination comprising a storage battery, moisture probes, a photoconductive cell, a direct current relay with sets of normally closed contacts, two (2) signal circuits from said battery to said electrical devices, two (2) or more electrical devices for receiving said signals (electrical current) of said signal circuits, the first said signal circuit having said moisture probes in series between said battery and said first electrical device(s), the said probes forming a closed switch between said battery and said first electrical device(s) when bridged by moisture (a conductive medium) and closing said first signal circuit to said first electrical device(s), the opening of said closed moisture switch opening said first signal circuit, the said second signal circuit having sets of said normally closed relay contacts in series between said battery and said first and said second electrical devices, two (2) circuits for engaging said relay, the first said engaging circuit being from said battery directly to the coil of said relay and also having a switch in series between said battery and said relay coil, the closing of said switch closing said first engaging circuit, the said second engaging circuit for said relay being in parallel with said first engaging circuit and having said photoconductive cell connected in series between said battery and said relay coil, the said cell being normally conductive in response to daylight, the said closed switch (cell) closing said second engaging circuit for said relay, the engaging of said relay is by means of closing any of the said engaging circuits, the said engaging of said relay opening said sets of normally closed contacts, the opening of said relay contacts opening said second signal circuit to all said electrical devices, the closing of said first signal circuit by said means activating only said first electrical device(s), the closing of said second signal circuit is by means of opening both said relay engaging circuits, the said opening of said engaging circuits closing said sets of normally closed relay contacts, the said closing of said second signal circuit activating all of the said electrical devices.

4,277,814

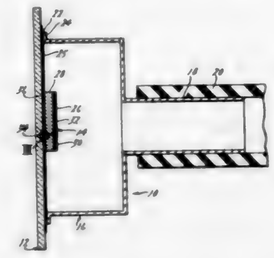
SEMICONDUCTOR VARIABLE CAPACITANCE PRESSURE TRANSDUCER ASSEMBLY

Joseph M. Giachino, Farmington Hills; Russell J. Haeberle, Canton, and Joseph W. Crow, Livonia, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Sep. 4, 1979, Ser. No. 72,503

Int. Cl.³ H01G 5/00

U.S. Cl. 361—283 **7 Claims**



1. An improved variable capacitance pressure transducer assembly of the type which has a capacitive pressure transducer device comprising at least two spaced conductive plates subject to variation in the spacing between the plates, and resultant variation of the electrical capacitance between the plates, in response to fluctuations in fluid pressure acting on at least one of the plates, characterized by:

(a) a substrate, the substrate having electrically conductive strips thereon; and

(b) the pressure transducer device has conductive bumps on one of its surfaces, the conductive pumps being attached to the conductive strips of the substrate;

wherein the transducer assembly includes a cover surrounding the capacitive pressure transducer device, the cover being bonded to the substrate with a closed-path seal which crosses the conductive strips on the substrate without electrical contact to such conductive strips.

4,277,815

REPLACEABLE AIR SEAL FOR FORCE COOLED REMOVABLE ELECTRONIC UNITS

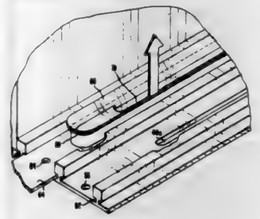
James D. Skroupa, Ellicott City, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 15, 1979, Ser. No. 49,007

Int. Cl.³ H05K 7/20

U.S. Cl. 361—383 **5 Claims**

1. In an assembly removably containing aligned spaced board members mounted between opposed plate members forming a part of the assembly and said assembly having means for indexed receipt of said board members providing a separation space between the board members, an aperture in each of said opposed plate members disposed to permit cooling air flow between selected adjacent spaced board members, and sealing means mounted on opposed facing surfaces of said plate members for sealingly engaging opposed facing surfaces of said selected adjacent boards to prevent the cooling air delivered to the separation space between the board members from leaking between the board members and said plate members, an improvement of each said sealing means comprising:



a planar strip slidingly retained on each said plate member, said strip having an aperture therethrough in alignment with said aperture in each said plate member and a resilient rubber-like seal ring bonded to each said strip and encircling said aperture in each said plate member and defining a peripheral surface having a dimension in the unbiased position generally larger than the spatial separation of said adjacent board members and deformable to a sealing engagement inherently biased against said board members within said assembly, and means for normally retaining each said strip in proper position on each said plate member.

4,277,816

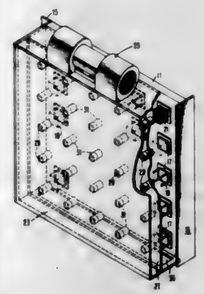
ELECTRONIC CIRCUIT MODULE COOLING

Robert M. Dunn, Endicott; Martin D. Schulman, Wappingers, and Nicholas Timko, Jr., Johnson City, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1979, Ser. No. 43,404

Int. Cl.³ H05K 7/20

U.S. Cl. 361—384 **1 Claim**



1. A cooling apparatus combined with an electronic circuit assembly which includes a plurality of electronic cirucit modules mounted on a back mounting board assembly with the spaces between modules defining channels and the exposed surface of each module having a plurality of heat sink rods extending from said surface, said combination comprising:

an air plenum receiving cooling air at a relatively constant pressure, said plenum including a plurality of openings in one wall thereof, said number of openings being equal to the number of circuit modules on said board assembly and the pattern of said openings conforming approximately to the pattern of said circuit modules on said board assembly;

means mounting said plenum adjacent said board assembly with said openings facing toward the head sink rods and exposed surface of their associated modules; and

a plurality of hollow cylinders each having one end attached to an associated one of said openings and its opposite end disposed proximate to its associated module whereby a controled flow of air is caused to impinge in parallel down through said heat sink rods and onto the exposed surface of each of said modules, said air flow causing a turbulence within said heat sink rods to enhance the cooling of said modules with the spent air exhausting through the channels between the modules with minimum impingement on adjacent modules.

4,277,817

LARGE-AREA LIGHT SOURCE

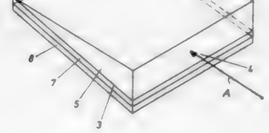
Wilfried Hehr, Hildesheim-Himmelsthür, Fed. Rep. of Germany, assignor to Blaupunkt-Werke GmbH, Hildesheim, Fed. Rep. of Germany

Filed Jun. 13, 1979, Ser. No. 48,040

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1978, P 2827573

Int. Cl.³ F21V 7/04

U.S. Cl. 362—31 **4 Claims**



1. Large-area light source comprising

a light-transmissive body (1), a form of a thin wedge having an essentially flat, light-emitting surface and being of essentially rectangular cross section, adapted to be exposed to a visible radiation source at one side surface,

the wedge shaped light transmissive body has two major surfaces (2,3), which are inclined with respect to each other, one of said surface (2) forming the light-emitting surface.

the side surface (4) which receives the visible radiation (A) is a surface which is angled off from said one, or light-emitting surface (2) and joins said one light-emitting major surface (2) to the other major surface (3) at an essentially right-angle junction with respect to said other major surface (3),

and a thin, light-transmissive layer (7) is provided coating said other major surface (3) opposite the light-emitting surface of the wedge-shaped body (1), the optical index of refraction of said layer (7) being less than the optical index of refraction of the material of the wedge-shaped body (1);

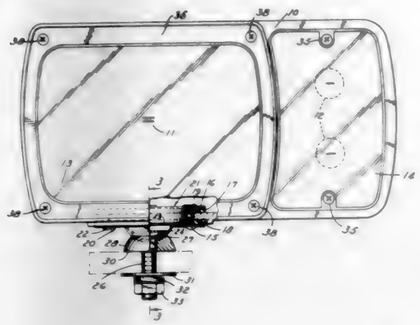
and a light-dispersing, light-reflecting pigment coating or layer (8) is provided, covering said light-transmissive coating or layer (7).

4,277,818

COMBINED HEADLIGHT, TURN SIGNAL AND PARKING LAMP FOR SNOW PLOWS AND THE LIKE

Karel Urbanek, Weston, and Arthur F. Bleiweiss, Toronto, both of Canada, assignors to Dominion Auto Accessories Limited, Toronto, Canada

Filed Dec. 31, 1979, Ser. No. 108,967
Int. Cl.³ B60Q *3/00*; F21V *29/00*
U.S. Cl. 362—61 **20 Claims**



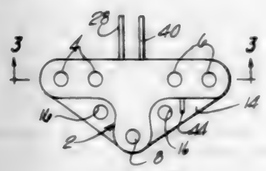
1. A lamp comprised of a housing and at least one bulb, said housing having an opening through one wall thereof,
a grommet of resilient material positioned in said opening,
said grommet having spaced radially outwardly extending flanges engaging the inner and outer surfaces of said housing adjacent said opening,
an outside plate engaging said outside flange of said grommet
an inside plate engaging said inside flange of said grommet
said inside plate having a portion formed outwardly toward said outside plate,
fastening means holding said inside plate and said outside plate together,
the height of said outwardly formed portion being less than the height of said grommet providing compression of said grommet flanges against said inner and outer surfaces of said housing adjacent said opening,
mounting means on said outside plate attaching said lamp to a vehicle.

4,277,819

BLACKOUT LIGHTING FOR VEHICLES

Valentine M. Sobota, Warren, and Marshall Vinson, East Detroit, both of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 3, 1979, Ser. No. 54,721
Int. Cl.³ B60Q *1/26*
U.S. Cl. 362—80 **6 Claims**



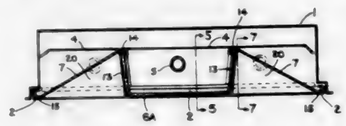
1. Blackout lighting for vehicles operating in wartime conditions, comprising:
(a.) a first pair of light emitting diodes connected in parallel,
(b.) a second pair of light emitting diodes connected in parallel,
(c.) a blocking diode,
(d.) a blackout marker operator-operable switch mounted accessible to the vehicle operator, having a first terminal connected with the vehicle battery and a second terminal, the switch being operable between a closed-circuit position and an open-circuit position,
(e.) a first resistance,
(f.) a series electrical circuit comprising the first and second pairs of light emitting diodes, the blocking diode, and the first resistance, to a ground,
(g.) means connecting the second terminal of said blackout marker switch with the aforesaid series circuit.

4,277,820

METHOD AND APPARATUS FOR CONVERTING A CEILING LIGHT FIXTURE HAVING A PLURALITY OF FLUORESCENT LAMPS INTO A SINGLE LAMP, OR TWO LAMP, FIXTURE

Edward T. Bostonian, 330 Christine St., Elizabeth, N.J. 07202

Filed Apr. 4, 1979, Ser. No. 27,076
Int. Cl.³ F21V *13/04*
U.S. Cl. 362—223 **18 Claims**



1. In a ceiling light fixture having a fixture body adapted for receiving a plurality of replaceable fluorescent lamps, and a light transmitting panel detachably supported by the fixture body for covering the fixture body, the improvement wherein said light transmitting panel includes a light transmitting part partially covering the fixture body and partially surrounding at least one of said fluorescent lamps for permitting light passage therefrom while leaving exposed a remaining portion of the fixture body at which a plurality of fluorescent lamps could have been installed, shielding means for covering said remaining portion of the fixture body; said shielding means being operatively positioned in facing relation to said light transmitting part to reflect downwardly light transmitted thereto, and door frame means detachably engageable with the fixture body and operatively engaging both said light transmitting part and said shielding means to mount the light transmitting part and the shielding means as a unit on the fixture body when the door frame means is engaged therewith.

4,277,821

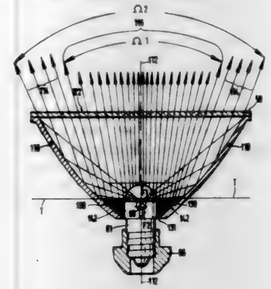
LAMP

Knut O. Sassmannshausen, Rothenbach, D-6580 Idar-Oberstein, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 808,728, Jun. 21, 1977, Pat. No. 4,143,412, and Ser. No. 940,574, Sep. 8, 1978, abandoned. This application Mar. 9, 1979, Ser. No. 18,931
Claims priority, application Fed. Rep. of Germany, Jun. 24, 1976, 2628243; Oct. 22, 1976, 2647889; Ireland, Sep. 12, 1977, 1883/77
Int. Cl.³ F21V *7/00*
U.S. Cl. 362—346 **42 Claims**

1. Lamp having a main concave and an assistant concave reflector disposed mutually coaxially and having different parameters and focal regions, the different focal regions being disposed in the common axis of the reflectors and spaced from one another, the lamp comprising a light source disposed in the focal region of the assistant reflector so that the main reflector emits a hollow conical light beam, the assistant reflector having a reflective surface formed with a multiplicity of reflecting

curved surface portions, the mean height of all thereof being equal to from 3% to 12% of the mean smallest base diameter of



all of said reflecting curved surface portions for diverting light from the assistant reflector into a solidly conical light beam.

4,277,822

KNOCKDOWN SHADE ASSEMBLY FOR LIGHTING FIXTURE

Franz K. Weber, 15930 Royal Oak Rd., Encino, Calif. 91436, and Martin R. Reed, 323 N. Maple St., Burbank, Calif. 91505

Filed Jul. 5, 1979, Ser. No. 54,843
Int. Cl.³ F21V *1/06*
U.S. Cl. 362—352 **10 Claims**



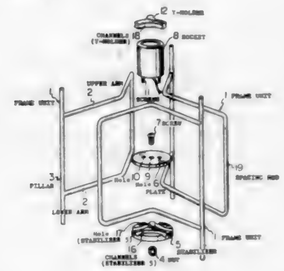
1. In a lighting fixture, an easily disassembled shade assembly comprising, in combination:
a flat horizontally disposed base member having a central opening for receiving electrical circuit means extending vertically downward therethrough, and also having a plurality of recesses circumferentially spaced about its outer edge and extending radially inward therefrom;
a plurality of elongated ribs, one for each of said recesses, each rib having an inner end extending into the associated recess and releasably secured therein, the rib extending radially outward from said base member, bending downward through an angle of about 50°, and having a straight outer end portion;
a polygonal brace member having a number of straight sections equal to the number of said ribs, said brace member being horizontally disposed, positioned beneath said base member, and located inside the straight portions of said ribs with each apex of said brace member being releasably secured to the interior and underside of an associated one of said ribs; and
a plurality of flat trapezoidal windows, each of said windows being disposed between two adjacent ribs and each end of each window being aligned with the associated rib on the exterior side thereof;
said plurality of windows collectively forming a regular polyhedron surrounding the lower ends of said ribs;
the vertical height of said windows being less than the vertical height of said ribs, thereby leaving a vertical open space above said windows and below said base member.

4,277,823

EASY-TO-ASSEMBLE LAMP

Akira Suzuki, Tokyo, Japan, assignor to Kazusuke Takagi, Tokyo, Japan, a part interest

Filed Jul. 10, 1979, Ser. No. 56,431
Claims priority, application Japan, Dec. 25, 1978, 53-177896[U]
Int. Cl.³ F21V *1/06*
U.S. Cl. 362—352 **11 Claims**



1. A lamp easily assembled and disassembled comprising:
a plurality of frame units each including a pillar extending vertically and first and second frame arms transversely extending from said pillar and joined to one another at their opposite ends by a vertically extending rod, each of said frame arms being bent at its intermediate portion, the bent portion of each of said frame units being disposed adjacent one another;
a lower holder attached to each of said first frame arms for clamping said frame units together;
an upper holder attached to each of said second frame arms;
a socket mounted on one of said upper and lower holders; and
a plurality of shade plates each with two opposite edge portions thereof curved so as to define facingly disposed channels, one of said channels receiving therein said pillar, the other of said channels receiving therein said rod so as to secure said shade plate to said frame unit.

4,277,824

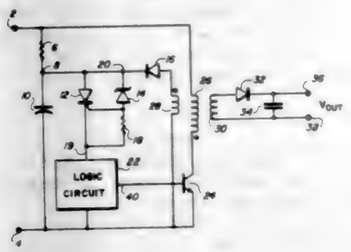
START-UP CIRCUIT

Jade H. Alberkrack, Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 12, 1979, Ser. No. 74,590
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—49 **7 Claims**

1. A start-up circuit having an AC line voltage applied across first and second terminals thereof for supplying power to a user circuit which in turn generates a pulse train at its output, comprising:
first means coupled between said first and second terminals for deriving a first DC voltage from said AC line voltage;
a silicon controlled rectifier having its anode coupled to said first means and having its cathode coupled to said user circuit for applying power thereto;
second means coupled to said silicon controlled rectifier and

responsive to said first DC voltage for turning said silicon controlled rectifier on; and



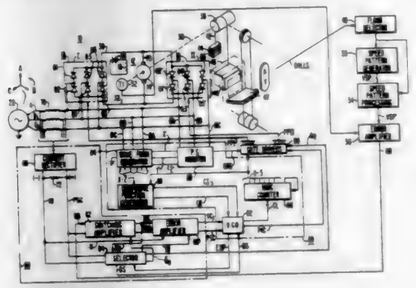
third means coupled between said output and said first means for maintaining a second DC voltage across said first means to latch said silicon controlled rectifier on.

4,277,825

CONVERTER APPARATUS

Frederick O. Johnson, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 27, 1979, Ser. No. 61,533
Int. Cl.³ H02P *13/24*
U.S. Cl. 363—87 **6 Claims**



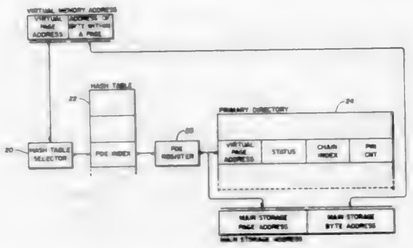
1. Converter apparatus, comprising:
a polyphase source of alternating potential,
a load circuit,
converter means having controlled rectifier devices connected to interchange electrical energy between said source of alternating potential and said load circuit,
means providing a feedback signal responsive to a predetermined parameter of said converter means,
means providing a reference signal indicative of the desired operation of said converter means,
means providing an error signal in response to said feedback and reference signals,
first means providing a first plurality of logic signals responsive to said polyphase source of alternating potential, with each of said logic signals being phase shifted by a predetermined angle from a selected voltage of said polyphase source,
second means sequentially providing a second plurality of logic signals, with each logic signal initiating the gating of a selected one of the controlled rectifier devices,
third means logically combining predetermined logic signals from the first and second plurality of logic signals to provide first and second end stop signals for each controlled rectifier device,
and phase controller means responsive to said error signal and to said first and second end stop signals, said phase controller means providing a signal for said second means which causes said second means to issue the next logic signal and gate the associated controlled rectifier device, as required by the error signal, but within the constraints of the first and second end stop signals.

4,277,826

SYNCHRONIZING MECHANISM FOR PAGE REPLACEMENT CONTROL

Robert W. Collins, 2404 NW. 4 Ave., Rochester, Minn. 55901; Roy L. Hoffman, Rte. #2, Pine Island, Minn. 55963; Larry W. Loen, 2203 NW. 17 Ave., Rochester, Minn. 55901; Glen R. Mitchell, Rte. #1, Pine Island, Minn. 55963, and Frank G. Soltis, 2804 Mayowood Hills Dr. SW, Rochester, Minn. 55901

Filed Oct. 23, 1978, Ser. No. 954,034
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—200 **13 Claims**



1. In a computer system employing paged virtual memory and having main storage, a central processing unit (CPU), and input-output (I/O) devices connected to the main storage and the central processing unit, the improvement comprising:
virtual memory address translation means common to said CPU and said I/O devices for translating virtual memory addresses received from the CPU and the I/O devices into addresses of locations in main storage, said translation means including a page directory common to said CPU and said I/O devices and having entries corresponding to pages in main storage, in which said entry contains a page pin field for indicating page usage;
synchronizing means operable under the control of either the CPU or the I/O devices for accessing said common page directory and for setting the page pin fields in the entries of the page directory to indicate page usage by the CPU and/or the I/O devices; and
means under the control of the CPU for testing the page pin fields for indicating page usage to determine whether a given page is in use by either the CPU or the I/O devices and for invalidating further references to that page when it is found not to be in use, without surrendering control between the testing and invalidating operations.

4,277,827

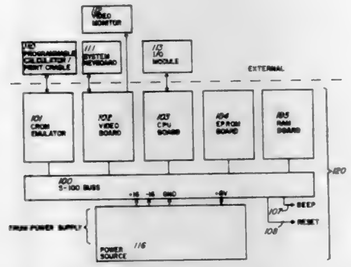
MICROPROCESSOR BASED SYSTEM FOR THE DEVELOPMENT AND EMULATION OF PROGRAMMABLE CALCULATOR CONTROL READ ONLY MEMORY SOFTWARE

George M. Carlson, Sugarland, and Michael O'Hagan, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 2, 1979, Ser. No. 615
Int. Cl.³ G06F *9/00, 15/02, 15/20*
U.S. Cl. 364—200 **13 Claims**

1. A system, used externally in conjunction with a programmable calculator containing an external control read only memory port and a control read only memory for generating instruction and clock signals, for emulating and developing control read only memory of said calculator, comprising:

(A) means for connection to an external control read only memory port of a programmable calculator for receiving said instruction and clock signals,
(B) means for emulating an external control read only memory for said calculator coupled to said means for connection said means for emulating comprising:
(1) interface controller means connectable to said port of said calculator for decoding instruction commands received from said calculator via said port for providing selected data via said port to said calculator for execution therein in response to said instruction commands; and



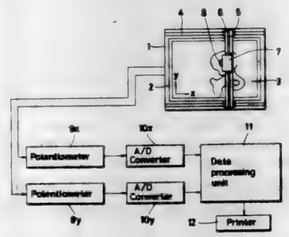
(2) memory means, coupled to said controller means for providing to said controller means prestored data corresponding to a control read only memory program, in a sequence addressed by said controller means, said controller means including means for decoding said data from said memory means and for transmitting said data to said calculator via said port, whereby said control read only memory of said programmable calculator is being replaced by the memory means.

4,277,828

ANALYZER FOR RESULTANT FORCE AT JOINT

Tetsuya Tateishi, Higashi-Murayama, Japan, assignor to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Oct. 19, 1979, Ser. No. 86,687
Claims priority, application Japan, Oct. 24, 1978, 53-1300760
Int. Cl.³ A61B *5/00*
U.S. Cl. 364—415 **2 Claims**



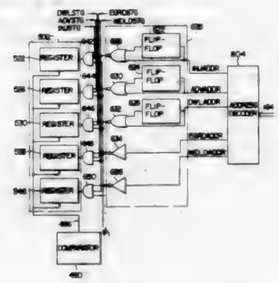
1. An analyzer for the resultant force at a given joint in a human/animal body, which comprises:
a table provided with a transparent top plate and adapted to support thereon the image of the joint under test,
a pair of cursors disposed on the table, one adapted to be freely slid on the table in the longitudinal direction and the other adapted to be freely slid on the table in the lateral direction,
a pair of potentiometers adapted to generate potential signals corresponding to the positions assumed by the cursors on the table, and
a data processing unit adapted to calculate the resultant force at the joint in accordance with the potential signals issuing from the potentiometers and representing the crucial points of the image of the joint.

4,277,829

ERROR PREVENTING DEVICE FOR AN ELECTRONIC ENGINE CONTROL APPARATUS

Hiroastu Tokuda, Katsuta; Shigeki Morisaga, Hitachi, and Hideo Nakamura, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 18, 1978, Ser. No. 952,276
Claims priority, application Japan, Oct. 19, 1977, 52-125981
Int. Cl.³ G05B *15/02*; G06F *11/00*; F02D *5/00*
U.S. Cl. 364—431 **70 Claims**



43. For use in a processor-controlled apparatus for controlling the operation of an internal combustion engine having an output crankshaft driven by mechanical energy converted from heat energy which is released by the combustion of fuel, said engine including at least fuel supply means for supplying fuel to said engine and ignition means for controlling the ignition of fuel supplied to the engine in response to signals produced by sensors in accordance with operating conditions of the engine, said sensors including rotation sensor means for generating pulses in accordance with the rotation of said output crankshaft,
a control appartus comprising, in combination:
first means for generating an engine control timing signal pattern containing timing pulses occurring at predetermined intervals through which operational events of said engine are controlled;
second means for storing processor-generated engine control data;
third means, coupled to said first means, for generating respective engine timing codes the values of which are selectively modified by said engine control timing signal pattern;
fourth means, coupled to said second and third means, for comparing respective ones of said engine timing codes with respective engine control data and producing respective output signals when said respective engine timing codes define a prescribed relationship with respect to said engine control data; and
fifth means, coupled to said fourth means, for producing respective control signals to be supplied to said fuel supply means and said ignition control means in response to respective output signals produced by said fourth means, and wherein
said second means includes means for storing first prescribed engine control data representative of a prescribed angular rotation of said crankshaft between a predetermined angular position of said crankshaft and the angular position of said crankshaft at which said rotation sensor means produces a prescribed reference pulse, and
said fourth means includes means for producing an output signal for controlling the supply of fuel to said engine by said fuel supply means upon a first of said engine timing

codes generating by said third means reaching a value corresponding to said first prescribed engine control data; and

wherein said control apparatus further includes

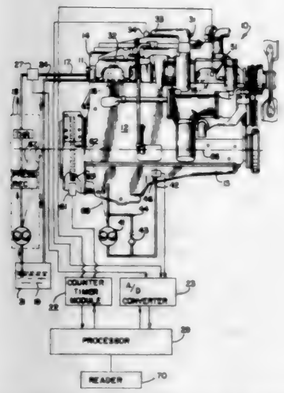
sixth means for preventing said fifth means from responding to an output signal produced by said fourth means, so that said fifth means does not supply a control signal at its output, during the coupling of respective engine control data to said second means.

4,277,830

DIAGNOSIS OF ENGINE TURBOCHARGER PERFORMANCE

David L. Reid, and Dennis O. Taylor, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Jun. 11, 1979, Ser. No. 47,055
Int. Cl.[3] G01M *15/00*
U.S. Cl. 364—431 7 Claims



5. Apparatus for testing a turbocharger of an internal combustion engine, comprising speed sensor means responsive to engine speed, pressure sensor means responsive to intake manifold pressure, and processor means responsive to said speed and pressure for determining when said engine has stabilized at maximum governed speed after a period of rapid acceleration, and for taking first and second time spaced pressure measurements after said engine has stabilized but before said turbocharger has stabilized.

4,277,831

COMPUTER AIDED WIRE WRAP OPERATOR CHECK SYSTEM

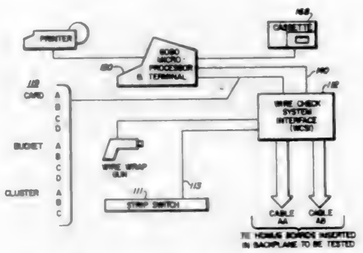
Robert C. Saunders; Dean T. Au; W. Ray Williams, and Donald Zarek, all of Phoenix, Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed May 18, 1979, Ser. No. 40,249
Int. Cl.[3] G01R *31/02*
U.S. Cl. 364—481 10 Claims

1. A wire wrap error check apparatus for verification of correct placement of a wire wrap tool on a wire wrap pin in an array of pins on a logic board comprising:

(a) a first means for supplying binary pin data indicating which pin in an array of pins is the correct pin for one operation in a particular wiring transaction and for supplying condition data indicating an expected electrical condition on the pin touched;

(b) a second means for decoding said binary pin data indicating the correct pin and for subjecting said correct pin to said predetermined electrical condition and for comparing the expected electrical condition derived from said condition data to the actual electrical condition on the pin



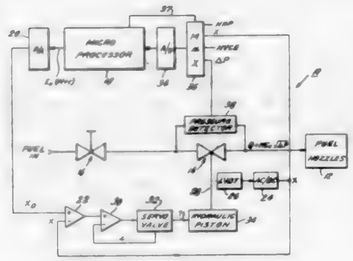
touched and for generating a signal indicative of whether the pin touched was correct.

4,277,832

FLUID FLOW CONTROL SYSTEM

Thomas Y. Wong, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,197
Int. Cl.[3] G06F *15/20*; G01F *1/34*
U.S. Cl. 364—510 21 Claims



1. A fluid flow control system, comprising:

(A) a fluid control valve, the flow of fluid through said valve varying as a function of the position of said valve;

(B) valve adjust means for adjusting the position of said control valve as a function of a valve position signal; and

(C) control means for generating a new said valve position signal during each of a plurality of sampling intervals N, said control means generating said valve position signal by:

(1) computing, during each successive sampling interval N, the rate of flow of fluid through said valve as a function of the position of said valve and in accordance with the static flow equation for said valve; and

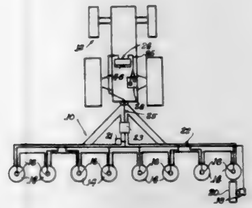
(2) generating said new valve position signal as a function of the difference between a desired flow and said computed flow and in accordance with a non-linear control transfer function which limits said valve position signal, and therefore limits the change in position of said valve between the present sampling interval N and the following sampling interval N+1, to a value which ensures that the actual flow of fluid through said valve during said following sampling interval N+1 is substantially equal to the flow predicted by said static flow equation.

4,277,833

PLANTER POPULATION MONITOR

David E. Steffen, Chatham, Ill., assignor to Dickey-john Corporation, Auburn, Ill.

Continuation-in-part of Ser. No. 939,605, Sep. 5, 1978, Pat. No. 4,225,930. This application Oct. 17, 1979, Ser. No. 85,743
Int. Cl.[3] G06F *15/20*; G08B *21/00*
U.S. Cl. 364—555 13 Claims



1. A monitoring apparatus for monitoring a plurality of functions of a multi-row field seed planting machine including ground speed sensor means and including seed sensor means associated with each row of said multi-row seed planting machine, comprising: electronic circuit means, including a microprocessor operating in accordance with a predetermined program, for continually receiving and storing population data simultaneously from all of said plurality of seed sensor means and from said ground speed sensor means, user accessible control means coupled with said microprocessor and observable indicator means, the electronic circuit means further including means for energizing said observable indicator means for producing observable indications derived from the population data substantially immediately as such indications are called for by said user accessible control means and wherein said user accessible control means includes means for providing input data to said electronic circuit means representative of machine characteristics of a given multi-row field seed planting machine whose functions are to be monitored, said electronic circuit means further including an EAROM and means responsive to said input data for customizing the EAROM to customize said monitoring apparatus for operation with given multi-row field seed planting machine whose functions are to be monitored.

4,277,834

WAVE-SIGNAL-PROCESSING SYSTEM WITH A TWO-DIMENSIONAL RECURSIVE DIGITAL FILTER

Giovanni Garibotto, Turin, Italy, assignor to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

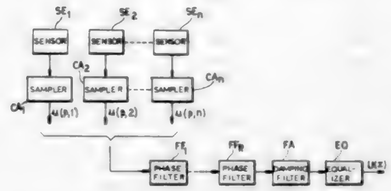
Continuation-in-part of Ser. No. 968,863, Dec. 12, 1978, abandoned. This application Jul. 6, 1979, Ser. No. 55,262
Claims priority, application Italy, Dec. 21, 1977, 69862 A/77
Int. Cl.[3] G06F *15/31*; G01V *1/28*
U.S. Cl. 364—724 7 Claims

1. A processing system for determining the location of a shock-wave source in a homogeneous medium, comprising:

a multiplicity of equispaced sensors disposed in a generally linear array for detecting magnitudes of a wave field generated by said source;

sampling means operationally connected to said sensors for extracting pulses therefrom at successive sampling intervals equal to the quotient of the distance between juxtaposed sensors divided by the average wave velocity in said medium;

two-dimensional phase-shifting filter means operationally connected to said sampling means for generating during each sampling interval, from pulses extracted from said sensors, output signals approximating wave-field values at progressively increasing distances from said linear array;



a two-dimensional attenuator operationally connected to said filter means for damping signals having a temporal frequency component less in magnitude than the product of an associated spatial frequency component multiplied by said wave velocity; and

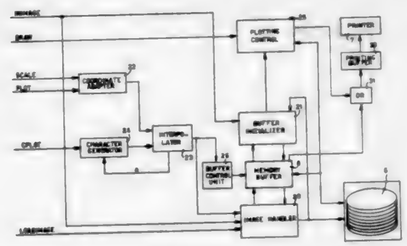
a two-dimensional equalizer operationally connected to said attenuator for ensuring a global linear response thereof.

4,277,835

APPARATUS FOR RECORDING AND DISPLAYING OR PLOTTING GRAPHS

Gastone Garziera, Ivrea, and Federico Pisani, Scarmagno, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Turin, Italy

Filed Mar. 3, 1978, Ser. No. 883,245
Claims priority, application Italy, Mar. 9, 1977, 67509 A/77
Int. Cl.[3] G06F *3/12, 3/13*
U.S. Cl. 364—900 18 Claims



1. In a graphic recording and plotting system for recording and plotting graphs obtained as a computer output, wherein said plotted graph consists of a plotted area which is divided in subareas arranged in sequence, each subarea including a group of locations of points of said graph, and having a computer unit for sequentially generating the points of the graph, and a read-write operating memory for storing said graph, the improvement comprising a data compaction system comprising:

said memory being divided in cells, each one adapted to store a group of indications associated with the points of the graph included in a corresponding subarea,

said computing unit including an initialization means for recording in each cell a number indicating a corresponding plurality of adjacent blank subareas, whereby said cells store a compact record of said blank subareas,

means for plotting a graph stored by said memory,

addressable recording means controlled by said computing unit in response to the generation of each point of the graph for recording in an addressable cell of said memory an indication corresponding to the location of said gener-

ated point of the graph and an additional indication indicating that the selected cell records at least the indication of one of the associated point locations,

addressing means included in said computing unit responsive to said numbers recorded in said cells for addressing said recording means as to record, in the next memory cell following a series of cells indicating points of the graph, a number indicating the total number of blank subareas separating the location of the next point to be recorded from the previous recorded locations, whereby the locations of the various generated points are recorded in the same order as the representation of the points to be made by said plotting means,

shifting means included in said computing unit and conditioned by said addressing means when addressing said recording means at a cell recording at least one blank subarea for causing the shifting in said memory of the records of all cells following the addressed cell,

and reading means for sequentially reading the cells of said memory for controlling said plotting means.

4,277,836

COMPOSITE RANDOM ACCESS MEMORY PROVIDING DIRECT AND AUXILIARY MEMORY ACCESS

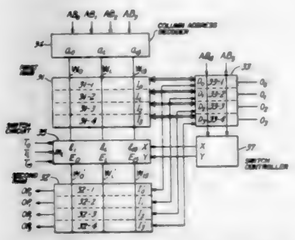
Yuichi Kawakami, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 752,892, Dec. 21, 1976, abandoned. This application Aug. 18, 1978, Ser. No. 934,982

Claims priority, application Japan, Dec. 25, 1975, 50-152906

Int. Cl.³ G06F *13/06*; G11C *11/40, 5/02*

U.S. Cl. 364—900 **5 Claims**



3. A memory device comprising a plurality of column lines, said column lines being divided into first and second column line parts, a plurality of first row lines intersecting said first column line part, a plurality of second row lines intersecting said second column line part, memory cells arranged at the intersections of said first and second column line parts and the row lines, a plurality of first data lines, a plurality of second data lines, means for selectively coupling selected row lines of said first and second row lines to said first data lines, means for coupling said second row lines to said second data lines, first selecting means for selecting said first column line parts, second selecting means for selecting said second column line parts, detecting means for detecting when said second row lines are coupled to said first data lines, and first gating means responsive to said detection means for inhibiting said second selecting means from selecting said second column line part when said second row lines are coupled to said first data lines.

4,277,837

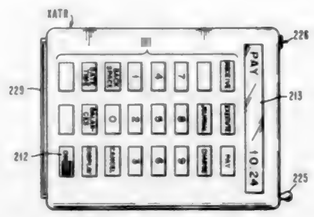
PERSONAL PORTABLE TERMINAL FOR FINANCIAL TRANSACTIONS

Paul E. Stuckert, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 866,197, Dec. 30, 1977. This application Feb. 11, 1980, Ser. No. 120,225

Int. Cl.³ G06F *15/16*; G06K *1/14, 17/00*

U.S. Cl. 364—900 **6 Claims**



1. A substantially wallet-sized personal portable hand held terminal device (XATR) including keyboard means for entering transaction data, memory means for at least temporarily storing transaction data and other selected data logic means for performing arithmetic operations on data stored in said memory means and data entered via said keyboard means, display means for selectively displaying data to the operator of said terminal device (XATR), control means for causing predetermined operations to be performed by said terminal device (XATR), means for receiving at least one data storage and transfer card (DSTC) in said terminal device (XATR), receiving and transmitting means located in said terminal device (XATR) for coupling with complementary data receiving an transmitting means in said data storage and transfer card (DSTC) for transferring data between said terminal device (XATR) and said data storage and transfer card (DSTC), means in said terminal device (XATR) for preventing the transfer of data to or from a said contained data storage and transfer card (DSTC) until actuated by the operator of said terminal device (XATR), fixed means for directly connecting said terminal device (XATR) to external devices, said external devices including receiving and transmitting means for transferring data between said external devices and said data storage and transfer card (DSTC) contained in said terminal device (XATR), whereby said terminal device (XATR) effectively functions as a controllable interface device between said at least one contained data storage and transfer card (DSTC) and said external devices, means responsive to the recognition of said external device as being a second substantially wallet-sized personal portable hand held terminal device (XATR), for concurrently entering data in said data storage and transfer card (DSTC) located in said first terminal device (XATR) and a data storage and transfer card (DSTC) located in said second connected terminal device (XATR), said last named means being responsive to the approval by both operators of said terminal device (XATRs) for entering data in said both data storage and transfer card (DSTCs) after the data is first displayed on said display means which approval is signified by said operators deactivating said means for preventing in said both terminal devices (XATRs).

4,277,838

DATA RECEIVING APPARATUS

John P. Chambers, Crawley, England, assignor to British Broadcasting Corporation, London, England

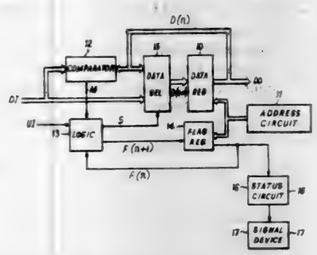
Filed May 4, 1979, Ser. No. 36,259

Claims priority, application United Kingdom, May 8, 1978, 18293/78

Int. Cl.³ G11C *13/00*

U.S. Cl. 365—222 **4 Claims**

1. Data receiving apparatus comprising means for storing a block of received bytes, means for storing at least one flag bit individual to each byte, and control means operable in each refresh cycle of the apparatus and on a byte-by-byte basis to compare the currently received byte with the currently stored corresponding byte, to subject the corresponding flag bit(s) to



a non-cyclic count operation of one sense when the compared bytes match and of the other sense when the compared bytes do not match, and to replace the stored byte by the received byte, when they do not match, conditionally in dependence upon the state of the corresponding flag bit(s) established in the preceding refresh cycle.

4,277,839

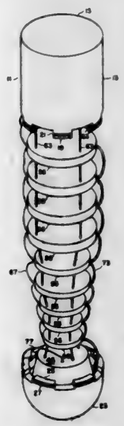
TRANSDUCER ARRAY RELEASE AND PRESSURE COMPENSATION SYSTEM

James A. McKinney, Fort Wayne, Ind., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 14, 1980, Ser. No. 121,550

Int. Cl.³ H04R *1/44*

U.S. Cl. 367—155 **13 Claims**



1. A transducer array release and pressure compensation system comprising in combination:

a cylindrical housing having a permanently closed upper end and an open lower end, the lower end of said cylindrical housing having a plurality of teeth, each of which has located therein a groove;

a nose cone assembly having an outlet port, and a plurality of teeth in interlocking removable engagement with the teeth of said cylindrical housing, each tooth of said nose cone assembly having a groove therein in substantial alignment with the grooves of the teeth of said cylindrical housing;

signal sending means positioned within said cylindrical housing, said signal sending means having a plurality of inlet ports effectively connected to the outlet port of said nose cone assembly for transmitting through a liquid a plurality of sound waves;

pressure compensating means located within said nose cone assembly and secured thereto for varying the air pressure within said signal sending means when hydrostatic pressure is applied to said pressure compensating means so as to prevent the fracturing of said signal sending means when hydrostatic pressure is applied thereto; and

securing means adapted to fit within the grooves of the teeth of said nose cone assembly and said cylindrical housing, and effectively connected to said pressure compensating means for releasing said nose cone assembly from said cylindrical housing when hydrostatic pressure is applied to said pressure compensating means.

4,277,840

ELECTRONIC TIMEPIECE

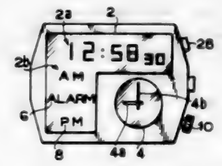
Fukuo Sekiya, Tokorozawa, and Takashi Yamada, Sayama, both of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1978, Ser. No. 965,892

Claims priority, application Japan, Dec. 27, 1977, 52-175181[U]

Int. Cl.³ G04B *25/00, 23/02*; G04C *9/00*

U.S. Cl. 368—71 **10 Claims**



1. An electronic timepiece comprising a first display unit including an electronic/optical means to display the present time in the form of digital values, and a second display unit for displaying the time maintained by an additional function, in which said second display unit is an analog display wherein

(a) the analog display is interconnected with the electronic-/optical display by means of an electronic circuit;

(b) the analog display becomes interlocked with the electronic interconnection circuit during the operation of the analog display;

(c) the analog display displays time in time units which are of the same magnitude as at least one of the time units displayed by the digital display; and

(d) an external operating means is operable in one mode to adjust both the analog and digital displays and operable in an alternate mode to adjust either the analog display or the digital display, thereby allowing synchronization of the analog and digital displays.

4,277,841

ELAPSED TIME INDICATOR

Gerald W. Ogden, Elgin, Ill., assignor to General Time Corporation, Thomaston, Conn.

Filed Mar. 14, 1979, Ser. No. 20,434

Int. Cl.³ G04B *19/20*; G04C *15/00*; H02H *37/17*

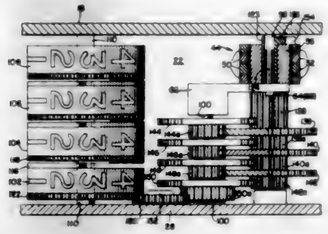
U.S. Cl. 368—78 **4 Claims**

1. A stepping motor for an elapsed time indicator comprising:

(a) a rotor having two magnetic poles of alternate opposite polarity in contiguous arrangement therearound;

(b) a stator having a single pair of stator poles, and a winding adapted to be energized by current pulses occurring periodically for polarizing said stator poles in opposite polarity to each other during substantially the duration of each said pulse, said stator poles being arranged to provide a radial air gap within which said rotor moves and each said

stator pole having a face along said air gap adjacent said rotor, said face including a notch forming on each side along said air gap a major and a minor pole face, said stator poles being spaced apart through an arc whose length is about equal to the length of arc of said minor pole face, and each said major and minor pole faces of each stator pole extending throughout an arcuate length less than the arcuate length of the rotor poles and disposed



diametrically opposite a like pole face of the other stator pole whereby said rotor aligns substantially with a stator pole during the period of an energizing pulse and within the period between energizing pulses said rotor seeks a detent position rotationally removed therefrom to align substantially with one of said major pole faces; and

(c) means for supporting said rotor for rotation within said gap relative to said stator poles.

4,277,842

PROTECTIVE WATCH COVER

M. David Richards, 1109 E.Date, Brea, Calif. 92621

Filed Nov. 23, 1979, Ser. No. 96,917
Int. Cl.³ G04B *37/00*
U.S. Cl. 368—282 **9 Claims**



1. A protective watch cover for wrist watches, comprising:

an elongated strap member having a central body portion including a central opening disposed therein;

a housing defined by an upper substantially flat wall and depending flange wall members, said flat wall having a central opening therein disposed to be contiguously aligned with said opening in said strap member when said strap and said housing are secured together, said housing being adapted to receive a watch therein;

a secondary crystal member adapted to be received in said contiguous openings and having the same peripheral configuration as said openings, said crystal being affixed within said housing;

an ornamental sheathing arranged to encapsulate said housing, and said elongated strap throughout its length; and

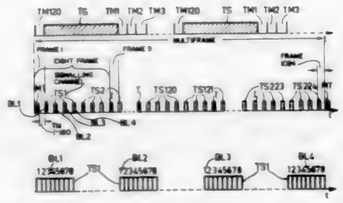
fastening means mounted to said elongated strap member, so as to hold said watch cover in place about said wrist watch.

4,277,843

CLOSED-LOOP TELECOMMUNICATION SYSTEM

Michel G. A. Duquenne, Meudon-Bellevul; Guy A. J. David, Thiais; Jean-Claude Grima, Chatillon Sous Bagneux, and Jacques L. Daguet, Saint-Maur, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 849,711, Nov. 8, 1977, abandoned, which is a continuation of Ser. No. 666,653, Mar. 15, 1976, abandoned, which is a continuation of Ser. No. 541,728, Jan. 17, 1975, abandoned, which is a continuation of Ser. No. 320,497, Jan. 2, 1973, abandoned. This application Feb. 12, 1979, Ser. No. 11,580
Claims priority, application France, Dec. 21, 1971, 71.45976
Int. Cl.³ H04J *3/12*
U.S. Cl. 370—84 **5 Claims**



1. A time multiplex telecommunication system comprising a unidirectional transmission line, timing means connected to the ends of said line for determining the timing throughout the system, said timing means including means for generating timing signals defining periodically reocurring multiframes, each multiframe being divided into a plurality of frames of equal time intervals, each frame being divided into a non-message time interval and a plurality of message time intervals of equal duration, each frame having the same number of said message time intervals, each of said message time intervals defining a message channel for exchange of information between subscribers, said timing means further including means for providing on said line a multiframe synchronization code during the first non-message interval of each multiframe and means for providing, during at least one other non-message interval in the multiframe, a frame synchronization code, at least some of the remaining non-message time intervals of each multiframe defining a plurality of signalling channels each associated with a respective one of said message channels, said signalling channels having a repetition rate lower than the repetition rate of said message channels, said system further comprising a plurality of subscriber units and means for connecting said subscriber units to said line, said connecting means including means for detecting a free message channel and, upon request by a subscriber unit, for assigning a free message channel and an associated signal channel to that subscriber unit, means for interrupting transmission of signals through said line during the assignment of a free channel to the requesting subscriber unit, means for providing on said line signalling information such as the address of the subscriber unit to be called or the like during the time interval of a multiframe corresponding to said assigned signalling channel and means for providing on said line message information during the time interval of the multiframe corresponding to said assigned message channel.

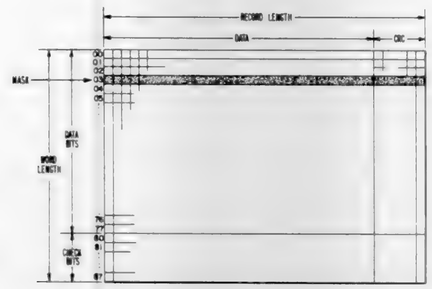
4,277,844

METHOD OF DETECTING AND CORRECTING ERRORS IN DIGITAL DATA STORAGE SYSTEMS

Robert J. Hancock; William A. Burns, both of Boulder, and James B. Hall, Louisville, all of Colo., assignors to Storage Technology Corporation, Louisville, Colo.

Filed Jul. 26, 1979, Ser. No. 61,025
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—38 **24 Claims**

1. Method of detecting errors in digital data, said data being stored as an array of bits, said array having orthogonal extension in at least two dimensions, wherein the improvement comprises generating first parity-dependent check bits in each of said dimensions during the writing of said data into said array; regenerating comparable second check bits in each of said dimensions during the reading of said data from said array;



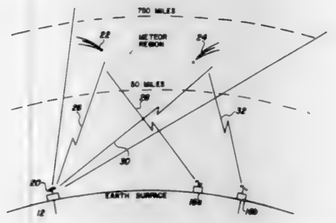
comparing said first and second check bits in at least one of said dimensions to generate an error syndrome; inverting bits identified as in error by said syndrome; and comparing said first and second check bits in the remaining of said dimensions, thus determining whether said inverting eliminated errors from said array.

4,277,845

METEOR SCATTER BURST COMMUNICATION SYSTEM

Dale K. Smith, Benton; Thomas G. Donich, Federal Way; Bobby V. Dickerson, Maple Valley, and Raymond E. Leader, Seattle, all of Wash., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 29, 1977, Ser. No. 820,206
Int. Cl.³ H04B *1/38*
U.S. Cl. 455—52 **38 Claims**



1. A meteor burst communications system comprising:

at least one master station,

a plurality of remote stations spaced at locations remote from said master station,

said master station including a radio transmitter for transmitting probing digital radio signals having address portions of selectively variable length, said probing digital radio signals being directed from said master station for reflection from meteor vapor trails to said remote stations,

each of said remote stations including a radio receiver for receiving said reflected probing digital radio signals from said master station,

each of said remote stations including address recognition circuitry having a predetermined digital address sequence stored therein and further having means to compare the received address portions with said stored digital address sequence,

at least one sensor of physical characteristics connected with each said remote station, and

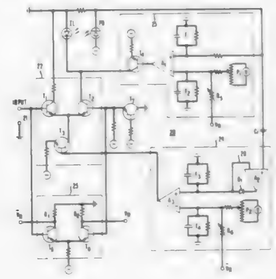
each remote station including a transmitter for transmitting digital data representative of the output of said sensor to said master station via reflection from a meteor vapor trail if said received address portion compares with said stored digital address sequence in accordance with predetermined criteria based upon the length of said received address portion.

4,277,846

CIRCUIT FOR STABILIZING THE OUTPUT OF AN INJECTION LASER

Fang-Shang Chen, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 27, 1979, Ser. No. 107,510
Int. Cl.³ H04B *9/00*
U.S. Cl. 455—611 **4 Claims**



1. A circuit for maintaining substantially constant the light output of the "ON" and "OFF" states of an injection laser to be supplied with an input signal train for use as the transmitter in a digital lightwave system comprising

means for monitoring the light output from a laser and developing a photovoltage which is a measure of such output,

control means supplied both with said photovoltage and with a voltage which is a measure of the duty cycle of the input train for providing a bias current to the laser which is a measure of the average light output compensated for the duty cycle,

control means supplied both with said photovoltage and with a voltage which is a measure of the duty cycle of the input train for providing a control voltage which is a measure of the difference between the peak light output and the average light output compensated for the duty cycle, and

means supplied both which the input train and said control voltage for providing modulating current to the laser.

259,745
GARMENT
Alen S. York, New York, N.Y., and Judd M. York, Clover, S.C., assignors to Countess York, Ltd., Kings Mountain, N.C.
Filed Oct. 31, 1978, Ser. No. 956,419
Term of patent 14 years
Int. Cl. D2—*02, 01*
U.S. Cl. D2—29



259,746
SWEATER OR SIMILAR ARTICLE
Karen L. Dahlgard, Seattle, Wash., assignor to Standard Knitting Company, Seattle, Wash.
Filed Oct. 17, 1979, Ser. No. 85,914
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—44



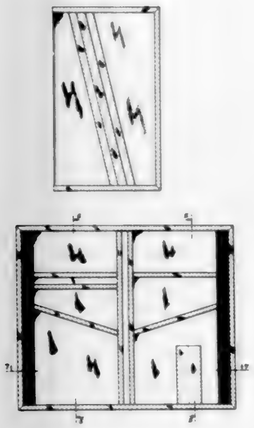
259,747
SANDAL
Beverley Silvanov, 99 Gloucester Ave., London N.W. 1, England
Filed Jul. 27, 1979, Ser. No. 61,431
Claims priority, application United Kingdom, Feb. 12, 1979, 988527/79
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—270



259,748
PHOTOGRAPHIC FILTER CASE
Miller Outcalt, 2036 Broadway, Santa Monica, Calif. 90404
Filed Sep. 28, 1979, Ser. No. 80,157
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—33



259,749
TRAVELER'S MULTI-POCKETED FOLDED POUCH OR THE LIKE
Terry W. McDonald, Rte. 6, Box 13, Quincy, Fla. 32351
Filed Aug. 6, 1979, Ser. No. 64,197
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—58



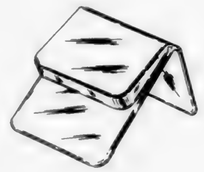
259,750
HIGH BACK OPEN ARM CHAIR
Randall P. Buhk, Wyoming, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed May 22, 1978, Ser. No. 908,144
The portion of the term of this patent subsequent to Oct. 23, 1993, has been disclaimed.
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—31



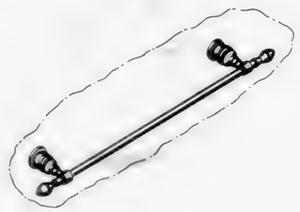
259,751
BAR STOOL
Jobie G. Redmond, High Point, N.C., assignor to Jack Daniel Distillery, Lem Motlow, Prop., Inc., Lynchburg, Tenn.
Filed Nov. 8, 1978, Ser. No. 958,845
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—32



259,752
LEISURE CHAIR
Robert C. Geschwender, Lincoln, Nebr., assignor to Concept Engineering, Inc., Lincoln, Nebr.
Filed Sep. 26, 1978, Ser. No. 945,855
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



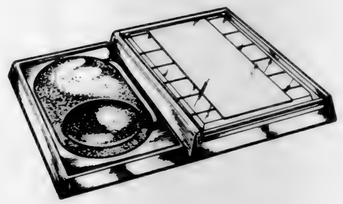
259,753
TOWEL BAR
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.
Filed Apr. 10, 1980, Ser. No. 138,829
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—99



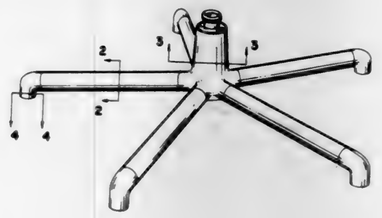
259,754
TOWEL RING
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.
Filed Apr. 10, 1980, Ser. No. 138,837
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—99



259,755
COMBINED VENDING CABINET AND COIN TRAY
Richard W. Housman, 3416 Manning Ave., Los Angeles, Calif. 90064
Filed Apr. 7, 1978, Ser. No. 894,441
Term of patent 14 years
Int. Cl. D20—*02*; D6—*04*
U.S. Cl. D6—172



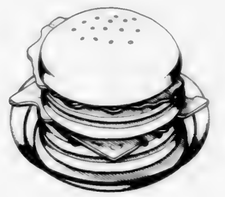
259,756
FURNITURE BASE
Don C. Albinson, Coopersburg, Pa., assignor to Collier-Keyworth Company, Gardner, Mass.
Filed Nov. 9, 1978, Ser. No. 959,376
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—196

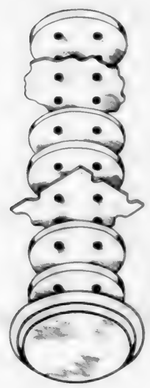


259,757
BEVERAGE CUP
Alain D. Perrin, Rueil Malmaison, France, assignor to Interdics, S.A., Villars-sur-Glane, Switzerland
Filed Feb. 23, 1979, Ser. No. 14,760
Claims priority, application Hague, Aug. 29, 1978, 67,448
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—15

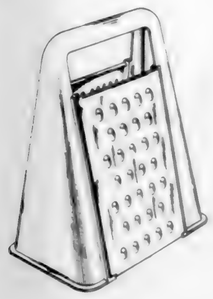


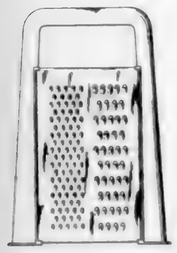
259,758
COASTER SET
Jo Anne Marquardt, 4570 Francis Ct., Sacramento, Calif. 95822
Filed Jul. 27, 1979, Ser. No. 61,441
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—45



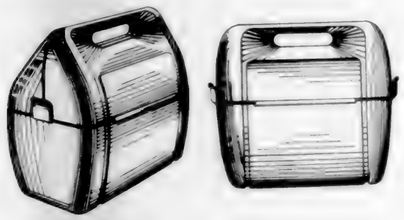


259,759
GRATER
Christopher Williams, London, England, assignor to Airfix Plastics Limited, Middlesex, England
Filed Oct. 19, 1979, Ser. No. 86,295
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—47

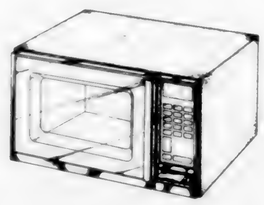




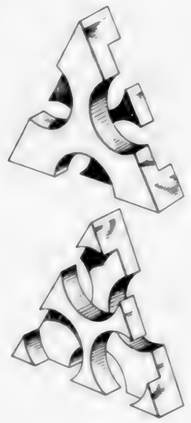
259,760
COOLER
Harry W. Lucas, Caledon East, and Gerald J. Adamson, Toronto, both of Canada, assignors to The Coleman Company, Inc., Wichita, Kans.
Filed May 30, 1978, Ser. No. 910,617
Term of patent 14 years
Int. Cl. D07—*07;* D03—*01*
U.S. Cl. D7—77



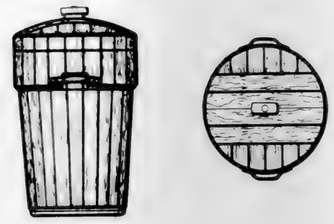
259,761
MICROWAVE OVEN
Masamichi Yamamura, Osaka; Toshio Harada, Shin, and Hanji Takahashi, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Aug. 16, 1978, Ser. No. 934,328
Claims priority, application Japan, Feb. 20, 1978, 53-6237
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—128



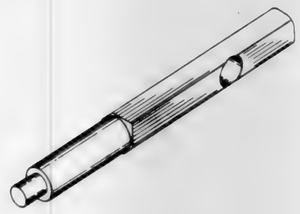
259,762
TRIVET
Christopher E. Sabin, 46 Birch St., Greenfield, Mass. 01301
Filed Apr. 5, 1979, Ser. No. 27,616
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—130



259,763
WASTE RECEPTACLE
Thomas Dickinson, University City, Mo., assignor to Contico International, Inc., St. Louis, Mo.
Filed Oct. 3, 1978, Ser. No. 948,203
The portion of the term of this patent subsequent to Jan. 31, 1992, has been disclaimed.
Term of patent 14 years
Int. Cl. D7—*07*
U.S. Cl. D7—194



259,764
MOTORCYCLE HUB LOCK
Richard J. Fouhy, 8980 Westhill Rd., Lakeside, Calif. 92040
Filed Sep. 7, 1978, Ser. No. 940,180
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—331



259,765
PLATE HANGER
Diane J. L. Kemper, 31870 Kingswood Ln., Apartment 22, Farmington, Mich. 48018
Filed Apr. 26, 1978, Ser. No. 900,334
Term of patent 14 years
Int. Cl. D8—*08;* D6—*04*
U.S. Cl. D8—355



259,766
BOTTLE
Philip F. Hartung, Dean Bldg. 655 Main St., East Greenwich, R.I. 02818
Filed Nov. 21, 1978, Ser. No. 962,829
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—370



259,767
FUEL CONTAINER
George W. MacFarlane, P.O. Box 8513, Orlando, Fla. 32802
Filed Apr. 6, 1979, Ser. No. 27,941
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—374



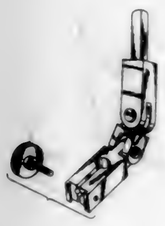
259,768
PACKAGING CONTAINER OR SIMILAR ARTICLE
Joseph G. Banaszak, Jr., Sayreville, N.J., assignor to North American Philips Corporation, New York, N.Y.
Filed Apr. 4, 1979, Ser. No. 28,013
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—414



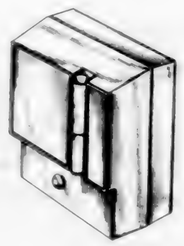
259,769
COMBINED COVER AND BASE FOR A SQUEEZE TUBE OR THE LIKE
George S. Northrop, Babylon; John Hudik, Hauppauge, and Richard F. Schneider, Smithtown, all of N.Y., assignors to Tri-Molded Plastics Inc., Bay Shore, N.Y.
Filed Jan. 31, 1979, Ser. No. 8,167
Term of patent 14 years
Int. Cl. D9 —*01*
U.S. Cl. D9—455



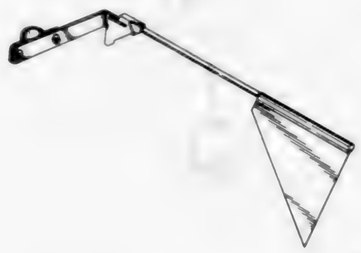
259,770
FLEXIBLE HOLDER FOR A DIAL TEST INDICATOR
Robert E. Leutz, 1090 El Camino, Redwood City, Calif. 94063
Filed May 15, 1979, Ser. No. 39,357
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—74



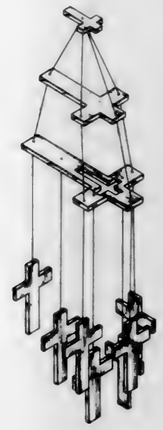
259,771
ALARM CABINET
Joseph T. Sullivan, 1170 Country La., Huntingdon Valley, Pa. 19006
Filed May 4, 1979, Ser. No. 35,910
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D10—106



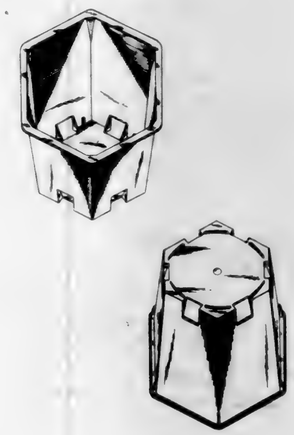
259,772
BICYCLE SAFETY FLAG
Donald Huntington, 1471 Home Ave., Menasha, Wis. 54952
Filed Apr. 2, 1979, Ser. No. 25,849
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D10—109



259,773
CROSS MOBILE
David Sweet, 15 Kellogg Rd., New Hartford, N.Y. 13413
Filed Feb. 28, 1978, Ser. No. 882,959
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—141



259,774
PLANT CONTAINER
Frank T. Criscitiello, Jr., 1080 Prospect Ave., Mountainside, N.J. 07092
Filed Jul. 9, 1979, Ser. No. 55,525
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—143



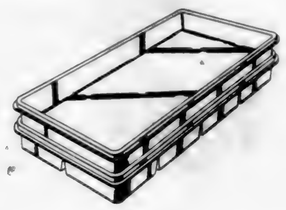
259,775
PLANTER
Donald E. Johnson, Barrington, Ill., assignor to Florists' Transworld Delivery Association, Southfield, Mich.
Filed May 22, 1978, Ser. No. 908,136
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—148



259,776
PLANTER BOWL
Martin J. Waterfield, Birmingham, Mich.; assignor to Florists' Transworld Delivery Association, Southfield, Mich.
Filed Jul. 2, 1979, Ser. No. 54,190
Term of patent 7 years
Int. Cl. D11—*02*; D7—*01*
U.S. Cl. D11—153



259,777
SELF-WATERING PLANT TRAY
John E. Ehrreich, Wayland, Mass., assignor to Ercon Corporation, Waltham, Mass.
Filed Oct. 7, 1977, Ser. No. 840,317
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—155



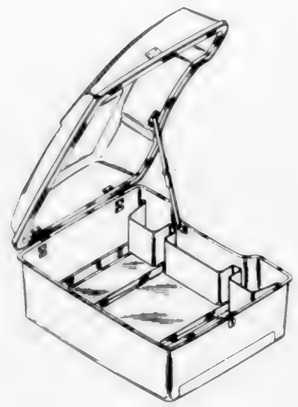
259,778
HORSEMAN FIGURE
Charles A. MacLean, 23073 Beech, Dearborn, Mich. 48124
Filed Apr. 27, 1979, Ser. No. 33,870
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



259,779
CART
Robert L. Bond, 307 Yoakum Pkwy., #525, Alexandria, Va. 22304
Filed Mar. 5, 1979, Ser. No. 17,820
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—29



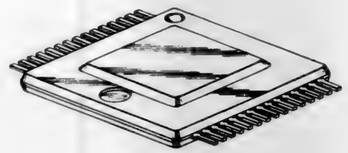
259,780
MOTORCYCLE LUGGAGE CARRIER
William G. Davidson, Elm Grove, Wis., assignor to AMF Incorporated, White Plains, N.Y.
Filed Aug. 16, 1979, Ser. No. 66,995
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—158



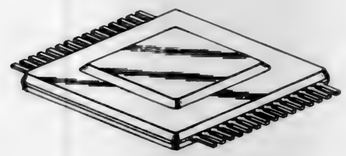
259,781
BOAT ANCHOR
Huntly S. Holmes, 103B, Dexter, Me. 04930
Filed Apr. 17, 1978, Ser. No. 896,922
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—215



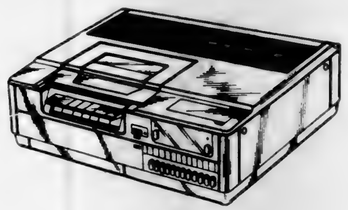
259,782
SEMICONDUCTOR
Hidetoshi Mochizuki, Fuchu; Keizo Otsuki, Higashiyamato; Hideki Kosaka, Kodaira, and Gen Murakami, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 24, 1979, Ser. No. 6,193
Claims priority, application Japan, Jul. 28, 1978, 53-31693
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—99



259,783
SEMICONDUCTOR
Hidetoshi Mochizuki, Fuchu; Keizo Otsuki, Higashiyamayo; Hideki Kosaka, Kodaira, and Gen Murakami, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 26, 1979, Ser. No. 15,160
Claims priority, application Japan, Aug. 25, 1978, 53-35732
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—99



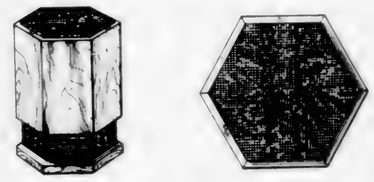
259,784
VIDEO TAPE RECORDER
Masaaki Furukawa, Sagamihara; Noboru Onozaki, Ohmorinishi; Hideo Kondoh, and Michiko Nishihayashi, both of Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 9, 1978, Ser. No. 932,413
Claims priority, application Japan, Feb. 15, 1978, 53-4998
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—02



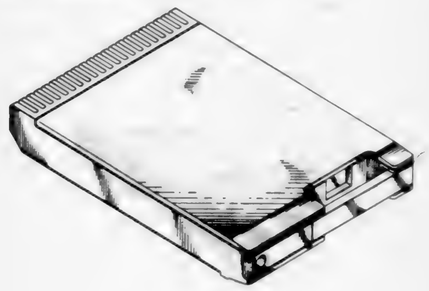
259,785
COMBINED TAPE RECORDER AND RADIO RECEIVER
Keizo Kushida, Hirakata; Toshio Igo, Katano; Munenori Fujimoto, Neyagawa; Kunio Hoshino, Katano; Satoru Unami, Hirakata; Kazumasa Takenaka, Katano; Kikuo Ohta, Ikoma, and Benito Mishiro, Sakai, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Sep. 27, 1978, Ser. No. 946,855
Claims priority, application Japan, Apr. 4, 1978, 53-13243
Term of patent 14 years
Int. Cl. D14—*03, 01*
U.S. Cl. D14—5



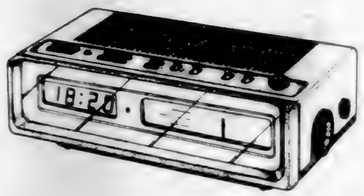
259,786
CONFERENCING TELEPHONE UNIT
Fred D. Leeson; Henry A. Main, both of London, and Clifford D. Read, Almonte, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada
Filed Oct. 3, 1978, Ser. No. 948,205
Term of patent 14 years
Int. Cl. D14—*03*; D6—*03*
U.S. Cl. D14—57



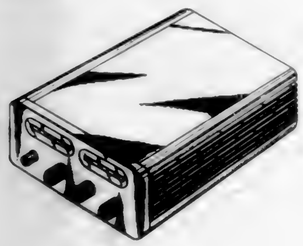
259,787
VEHICULAR TWO-WAY RADIO OR SIMILAR ARTICLE
Albert L. Nagele, Wilmette, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Mar. 19, 1979, Ser. No. 21,525
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



259,788
CLOCK RADIO
Setsuo Miyanaga, Neyagawa, and Bonito Mishiro, Sakai, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Nov. 27, 1979, Ser. No. 98,377
Term of patent 14 years
Int. Cl. D14—*03*; D10—*01*
U.S. Cl. D14—73



259,789
MOUNTED AMPLIFIER
Ikuo Watanabe, 3-12-8, [illegible]ji, Kita-ku, Tokyo, Japan
Filed Apr. 3, 1978, Ser. No. 893,170
Claims priority, application Japan, Dec. 21, 1977, 52-50187
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



259,790
BEVERAGE MACHINE
Harry Heutschel, Munich, Fed. Rep. of Germany, assignor to Bosch-Siemens Hausgerite GmbH, Stuttgart, Fed. Rep. of Germany
Filed Mar. 2, 1979, Ser. No. 16,937
Claims priority, application Fed. Rep. of Germany, Sep. 4, 1978, 4881
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D15—112



259,791
MACHINE FOR SORTING AND SEPARATING ALUMINUM CANS
Charles M. Davis, Jr., 23 The Point, Coronado, Calif. 92118
Filed Apr. 3, 1978, Ser. No. 893,154
Term of patent 14 years
Int. Cl. D15—*99*; D12—*05*
U.S. Cl. D15—147



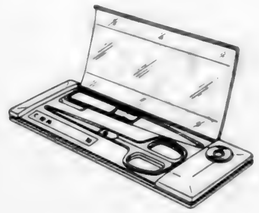
259,792
MARKING PEN OR SIMILAR ARTICLE
Kunio Itoh, and Shigeo Oka, both of Tokyo, Japan, assignors to Pentel Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 8, 1978, Ser. No. 967,838
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—51



259,793
BALL-POINT PEN
Alain Carre, Paris, France, assignor to Waterman S.A., Paris, France
Filed Jul. 18, 1979, Ser. No. 58,496
Claims priority, application France, Mar. 6, 1979, 77,375
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—51



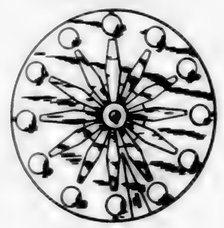
259,794
COMBINED DESK SET, PEN HOLDER AND THERMOMETER
Walter Henkels, Holunderweg 1, 5142 Hückelhoven, Fed. Rep. of Germany
Filed Aug. 13, 1979, Ser. No. 65,969
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, MR 122
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—75



259,795
ELECTRONIC WORD GAME HOUSING
Angelo S. Longo, Huntington, N.Y., assignor to Selchow & Righter Company, Bay Shore, N.Y.
Filed Jun. 25, 1979, Ser. No. 51,857
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



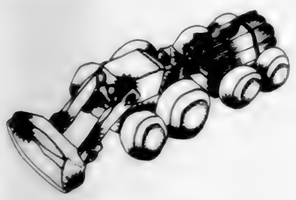
259,796
GAME SPINNER
Milton Meyer, 3157 Werk Rd., Cincinnati, Ohio 45211
Filed May 8, 1978, Ser. No. 903,995
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—22



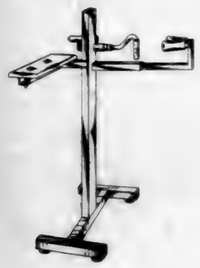
259,797
TOY DUMP TRUCK
Gloria Merchant, R.R. 4, Box 98, William Henry Rd., North Scituate, R.I. 02857
Filed Nov. 13, 1978, Ser. No. 960,846
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—134



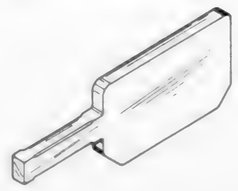
259,798
COMBINED TOY TRACTOR, FLATBED AND LOGS THEREFORE
Gloria Merchant, R.R. 4, Box 98, William Henry Rd., North Scituate, R.I. 02857
Filed Nov. 13, 1978, Ser. No. 960,845
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—135



259,799
FOREARM EXERCISER
Jerry D. Brentham, P.O. Box 599, Belton, Tex. 76513
Filed Apr. 23, 1979, Ser. No. 32,552
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—195



259,800
BALL PADDLE OR SIMILAR ARTICLE
Le Mar M. Gearhart, II, 333 E. Carrillo St., #6, Santa Barbara, Calif. 93101
Filed May 14, 1979, Ser. No. 38,530
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—213



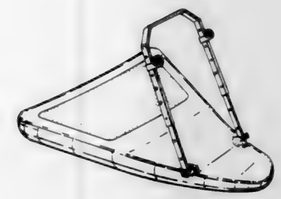
259,801
HEAD FOR A GOLF PUTTER
Tony J. Vella, 3504 Wesleyan Ave., Rockford, Ill. 61108
Filed May 7, 1979, Ser. No. 36,747
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—217



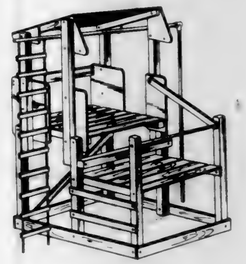
259,802
GOLF CLUB GRIP
Jeffrey M. Williams, Laurinburg, N.C., assignor to Eaton Corporation, Cleveland, Ohio
Filed Jun. 1, 1979, Ser. No. 44,435
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—222



259,803
WATER SKI-FLOAT
Dennie L. Coffin, 14 Mastenbrook Ct., Gaithersburg, Md. 20760
Filed Jul. 25, 1978, Ser. No. 928,011
Claims priority, application United Kingdom, Dec. 7, 1977, 982523/77
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—228



259,804
PLAYHOUSE CLIMBER
Berthold B. Dieter, and Charles L. Gibson, both of Terre Haute, Ind., assignors to Creative Playgrounds Corporation, Terre Haute, Ind.
Filed Mar. 15, 1979, Ser. No. 20,879
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—245



259,805
CLIMBING STAND
Herman Persson, Varvsgatan 26, 290 20 Ahus, Sweden
Filed Jul. 11, 1979, Ser. No. 56,809
Claims priority, application Sweden, Jan. 29, 1979, 79-0232
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—245



259,806
SLUG FOR A SHOTGUN
Kihachiro Kimura, Room 501, Lions Mansion Shiba Koen Daini, 6-2, Mita 1-chome, Minato-ku, Tokyo, 108, Japan
Filed Jun. 27, 1979, Ser. No. 52,580
Claims priority, application Japan, Dec. 28, 1978, 53-54592
Term of patent 14 years
Int. Cl. D22—*03*
U.S. Cl. D22—10



259,807
STORAGE TANK FOR LIQUIDS OR THE LIKE
Keisaku Koga, Ibaraki, and Takeshi Iseda, Yahata, both of Japan, assignors to Sekisui Koji Kabushiki Kaisha, Japan
Filed Oct. 13, 1978, Ser. No. 951,355
Claims priority, application Japan, Apr. 24, 1978, 53-16615
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—2



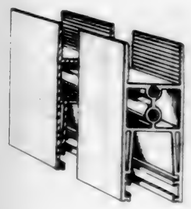
259,808
STOVE
David K. Halls, 296 E. 300 North, Manti, Utah 84642
Filed May 21, 1979, Ser. No. 40,768
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



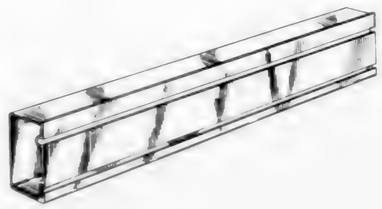
259,809
TRANSPARENT COVER FOR A MEDICAL DISINFECTANT HOUSING OR SIMILAR ARTICLE
Joseph J. Lancellotti, 8 Starr Rd., East Brunswick, N.J. 08816, and Michel S. Schwartz, 14 Clover Dr., Great Neck, N.Y. 11021
Filed Mar. 30, 1978, Ser. No. 891,929
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—29



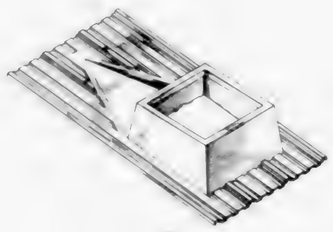
259,810
WINDOW COMPONENT EXTRUSION
Raymond Dallaire, P.O. Box 220, Levis, Quebec, Canada
Filed Sep. 14, 1978, Ser. No. 942,392
Claims priority, application Canada, Mar. 17, 1978, 1703781
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



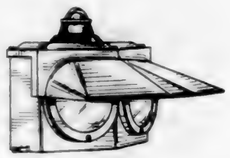
259,811
EXTRUDED MOLDING
Richard Guy, 27752 Torija, Mission Viejo, Calif. 92691
Filed Oct. 30, 1978, Ser. No. 956,070
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



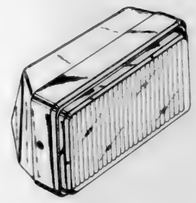
259,812
ROOF PANEL
Warren D. Smith, South Bend, Ind., assignor to Glaspec Corporation, South Bend, Ind.
Filed Jun. 7, 1979, Ser. No. 46,208
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—80



259,813
HELIPORT FLOODLIGHT
James R. Downing, 10218 Donna Ave., Northridge, Calif. 91324
Filed Jan. 29, 1979, Ser. No. 7,072
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D26—24



259,814
FOG LIGHT
Hisao Yabata, Takasaki, Japan, assignor to Ichikawa Press Industries Co., Ltd., Takasaki, Japan
Filed Apr. 5, 1979, Ser. No. 27,599
Claims priority, application Japan, Feb. 16, 1979, 54-5567
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D26—28



259,815
HAIR STYLER
Rayko Ergaver, and Nevenka Ergaver, both of Toronto, Canada, assignors to Capella, Inc., Freeport, The Bahamas
Filed May 29, 1979, Ser. No. 43,082
Claims priority, application France, Aug. 28, 1978, 76 823; Spain, Aug. 30, 1978, 92959; Switzerland, Sep. 12, 1978, 110039; Belgium, Sep. 18, 1978, 4583; Sweden, Sep. 20, 1978, 78-2158; Canada, Sep. 26, 1978, 45024; Japan, Sep. 27, 1978, 53-40974; Fed. Rep. of Germany, Sep. 29, 1978, 945/78; Australia, Oct. 9, 1978, 76117; United Kingdom, Jan. 30, 1979, 988323/79; Denmark, Feb. 12, 1979, 125/79
Term of patent years
Int. Cl. D28—*03*
U.S. Cl. D28—35



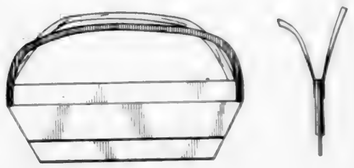


259,816
PERMANENT WAVE ROD
Larry C. Sledge, Bethel, Conn., assignor to Clairol Incorporated, New York, N.Y.
Filed Aug. 20, 1979, Ser. No. 68,258
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—35

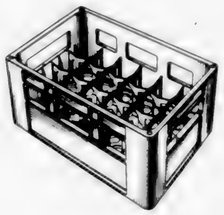




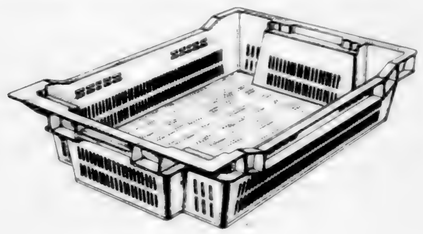
259,817
DUST RESPIRATOR
Willard C. White, Huntington, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Continuation-in-part of Ser. No. 926,481, Jul. 20, 1978, abandoned. This application Sep. 10, 1979, Ser. No. 74,212
Term of patent 14 years
Int. Cl. D29—*02*; D24—*9*
U.S. Cl. D29—8



259,818
PLASTIC CRATE
Graham Beavis, 47 Rooikrans Crescent, Van Riebeeck Park, Kempton Park 1620, South Africa
Filed Mar. 21, 1979, Ser. No. 22,468
Claims priority, application Canada, Oct. 24, 1978, 2410784
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—44



259,819
TRAY
Jean Cornou, Verrieres-le-Buisson, France, assignor to Allibert Exploitation Societe Anonyme, Grenoble, France
Filed Apr. 16, 1979, Ser. No. 30,522
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—44



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TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF JULY, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Nattermann & Cie. GmbH: *See—*
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Miller, James S.; Lauyans, Frank M.; and Hilger, Edwin T., 4,277,217, Cl. 414-395.000.

Aaras, Arne; Martinsen, Kjell M.; and Nakland, Rikard, to International Standard Electric Corporation. Chair. 4,277,102, Cl. 297-411.000.

Abe, Kozin; Uozumi, Norihira; and Oishi, Kazuaki, to Hitachi, Ltd. Gas-insulated electric apparatus and method of detecting partial discharge therein. 4,277,746, Cl. 324-72.000.

Abell, William R., to United States of America, Army. Transportable roadway and means for deploying the same. 4,277,201, Cl. 404-35.000.

Abraham, Fayez F.: *See—*
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Ackermann, Otto; Bretzinger, Dieter; Schneidewind, Herbert; and Stephan, Rudolf, to Dynamit Nobel Aktiengesellschaft. Method of preparing alkoxymethylene compounds. 4,277,418, Cl. 260-465.400.

Ackermann, Peter: *See—*
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.

Acoustic Standards: *See—*
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Acumeter Laboratories, Inc.: *See—*
McIntyre, Donald B.; and McIntyre, Frederic S., 4,277,301, Cl. 156-446.000.

Adams, Daisy E. Painting and misting shield. 4,276,852, Cl. 118-326.000.

Adelaide & Wallaroo Fertilizers Ltd.: *See—*
Walter, Karl H.; Johnston, John D.; and Wetherley, Dennis, 4,277,253, Cl. 23-313.00R.

Adler, Ernst: *See—*
Holdsworth, Dennis W.; and Adler, Ernst, 4,277,022, Cl. 239-7.000.

Aeritalia S.p.A. Settore Avionica: *See—*
Audone, Bruno; Bolla, Luciano; and Gerbi, Giuseppe, 4,277,744, Cl. 324-72.000.

Agency of Industrial Science & Technology: *See—*
Tateishi, Tetsuya, 4,277,828, Cl. 364-415.000.

AGFA-Gevaert, A.G.: *See—*
Gref, Hans; Hoffmann, Hans; Zander, Werner; and Busch, Josef, 4,276,853, Cl. 118-643.000.
Jager, Gerhard; von Konig, Anita; Liebe, Werner; and Voigt, Armin, 4,277,557, Cl. 430-446.000.
Nagel, Erich; Turcke, Rainer; and Ludemann, Heinz, 4,277,061, Cl. 271-302.000.

AGFA-Gevaert N.V.: *See—*
Jaeken, Jan; and Verhecken, Andre, 4,277,559, Cl. 430-549.000.

Aggen, George: *See—*
Lula, Remus A.; and Aggen, George, 4,277,374, Cl. 252-446.000.

Aguf, Igor A.: *See—*
Barsukov, Vyacheslav Z.; Dunovsky, Sergei A.; Sagoian, Lenik N.; Trepalin, Anatoly I.; Aguf, Igor A.; and Smolkova, Valentina S., 4,277,546, Cl. 429-59.000.

Aiken, John E.; and Didycz, William J., to United States Steel Corporation. Waste gas purification reactor and method. 4,277,453, Cl. 423-247.000.

Aine, Harry E. Thin film magnetic recording medium. 4,277,540, Cl. 428-627.000.

Ainsworth, Leonard Hastings: *See—*
Heywood, Joseph R., 4,276,894, Cl. 133-5.00R.

Aisan Industry Co., Ltd.: *See—*
Takada, Shigetaka; Naruse, Kazumichi; and Watanabe, Yukihiro, 4,276,745, Cl. 60-276.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Yamanaka, Minoru; and Tamura, Tooru, 4,276,746, Cl. 60-290.000.

Akazawa, Michitada: *See—*
Kondo, Shiro; and Akazawa, Michitada, 4,277,665, Cl. 200-314.000.

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Iwata, Yoichi, 4,276,964, Cl. 188-73.300.

Akister, James F.: *See—*
Nally, Robert B.; Akister, James F.; and Trohatos, George, 4,277,775, Cl. 340-146.30Q.
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Leinfelt, Karl E., 4,277,265, Cl. 55-302.000.

Aktiebolaget IRO: *See—*
Pejchal, Karel; Fritzon, Hans G.; and Lindstrom, Raimo, 4,276,912, Cl. 139-437.000.

Aktiebolaget Svenska Flaktfabriken: *See—*
Apelgren, Roland G., 4,277,255, Cl. 55-20.000.

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Tsukada, Takami; Akutsu, Masao; and Saito, Tadao, 4,276,986, Cl. 215-1.00C.

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Albanes, Wilfredo V.: *See—*
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Alberkrack, Jade H., to Motorola, Inc. Start-up circuit. 4,277,824, Cl. 363-49.000.

Albert, Judith; and Beny, Janos, to Ideal Toy Corporation. Doll including mechanism for sucking action and sounds. 4,276,714, Cl. 46-118.000.

Alberto-Culver Company: *See—*
Bliznak, John B.; and Harcarufka, Rudolph E., 4,277,511, Cl. 426-548.000.

Alberto, Pietro; and Meneghetti, Giorgio. Automatic apparatus for continuously forming cloth rolls. 4,277,032, Cl. 242-56.00R.

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Albizzati, Enrico: *See—*
Giannini, Umberto; Albizzati, Enrico; and Parodi, Sandro, 4,277,589, Cl. 526-122.000.

Albright & Wilson Limited: *See—*
Williams, Thomas A.; and Cussons, Frank M., 4,277,455, Cl. 423-321.00S.

Alcan Research and Development Limited: *See—*
Montgrain, Luc, 4,277,280, Cl. 75-68.00R.

Alfano, Robert R.; and Schiller, Norman H., to Hamamatsu T.V. Co, Ltd. Method and device for detecting the threshold of generation of a laser beam. 4,277,669, Cl. 219-121.0LK.

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Lula, Remus A.; and Aggen, George, 4,277,374, Cl. 252-446.000.
Miller, Robert F., 4,277,530, Cl. 428-216.000.

Allen, Herbert, to Hallen Company. Cork extractor. 4,276,789, Cl. 81-3.360.

Allen, Joseph C.; and Tate, Jack F., to Texaco Inc. Terpolymer of N-vinyl pyrrolidone in alkoxylated form. 4,277,580, Cl. 525-383.000.

Allen, Paul E., to Logic Devices, Inc. Plastic tumbler and method and apparatus for making same. 4,277,435, Cl. 264-328.120.

Allied Chemical Corporation: *See—*
Demmin, Timothy R.; and Rogic, Milorad M., 4,277,419, Cl. 260-465.400.
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Allis-Chalmers Corporation: *See—*
Dilworth, Louis R., 4,277,450, Cl. 423-244.000.

Allison, Jean B.; Kudchadker, Mohan V.; and Whittington, Lawrence E., to Texaco Inc. Demulsification of emulsions produced from surfactant recovery operations and recovery of surfactants therefrom. 4,277,352, Cl. 252-8.55D.

Alongi, Robert E.: *See—*
Yates, Robert E.; Leonard, John P.; Alongi, Robert E.; Albanes, Wilfredo V.; and Bishop, Charles M., 4,277,038, Cl. 244-3.150.

Alpha Solarco Inc.: *See—*
Uroshevich, Miroslav, 4,276,873, Cl. 126-438.000.

Alps Electric Co., Ltd.: *See—*
Kondo, Shiro; and Akazawa, Michitada, 4,277,665, Cl. 200-314.000.

Aluminum Company of America: *See—*
Turley, Bernard C.; and Hochbein, David E., 4,277,093, Cl. 294-83.00R.

Aluminum Pechiney: *See—*
Lectard, Alain; and Magrone, Robert, 4,277,289, Cl. 134-3.000.

Ambler, Theodore C. Dispensing apparatus for an aircraft anti-icing and biocidal fuel additive. 4,276,997, Cl. 222-23.000.

Amcor, Ltd.: *See—*
Zeldov, Meir; and Yavnieli, Mordechai, 4,276,712, Cl. 43-112.000.

Amemiya, Norio: *See—*
Nishikawa, Masaji; and Amemiya, Norio, 4,277,550, Cl. 430-68.000.

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Stein, Reinhardt P., 4,277,609, Cl. 548-125.000.

American Hospital Supply Corporation: *See—*
Aulik, Clarence J., 4,276,962, Cl. 188-1.00D.

American Optical Corporation: *See—*
Hamilton, W. Duane, 4,277,044, Cl. 248-571.000.
Richards, William D., 4,277,172, Cl. 356-244.000.

American Screen Printing Equipment Company: *See—*
Bubley, Henry J.; and Oltra, Claude H., 4,276,826, Cl. 101-123.000.

American Sterilizer Company: *See*—
Andrews, James P.; Callahan, Arthur C.; and Gendy, Moheb M., 4,277,290, Cl. 134-10.000.
Aminoil, USA, Inc.: *See*—
Grant, Norman A., 4,277,416, Cl. 518-703.000.
AMP Incorporated: *See*—
Loose, Winfield W.; and MacDougall, Alan R., 4,277,124, Cl. 339-99.00R.
Soes, Lucas, 4,277,663, Cl. 200-283.000.
Amschler, Hermann, to Byk Gulden Lomberg Chemische Fabrik GmbH. 3,6-Disubstituted-5,7-(lower alkano)-5,6,7,8-tetrahydropyrido(4,3-C)pyridazines; their intermediates, preparation, antihypertensive use and compositions. 4,277,472, Cl. 424-248.500.
Amy, J. A.; and Huber, Harvard C., to United States of America, Navy. Sulfur dioxide detector. 4,277,368, Cl. 252-408.000.
Anaren Microwave, Incorporated: *See*—
Gerst, Carl W.; and Paciorek, Leonard J., 4,277,748, Cl. 324-83.00D.
Anciaux widow Wastesaeger, Martine: *See*—
Michel, Joseph P., 4,277,570, Cl. 521-106.000.
Anciens Etablissements Leon Guilbert & Fils: *See*—
Moumaneix, Francis; and Marietta, Cesar, 4,277,031, Cl. 239-414.000.
Andco Incorporated: *See*—
Mamula, Ronald S.; and Dotson, Samuel C., 4,276,956, Cl. 182-128.000.
Anderson, Dale W., to Ford Motor Company. Lightweight mounted camshaft post. 4,276,783, Cl. 74-15.630.
Anderson, Douglas E. Recovery apparatus. 4,276,846, Cl. 114-52.000.
Anderson, Douglas O.: *See*—
McKenna, James F.; and Anderson, Douglas O., 4,277,312, Cl. 202-241.000.
Anderson, John L.; Davidson, John C.; Schaaf, Henry W.; and Meis, Charles H., to Lindsay Manufacturing Company. Center pivot irrigation system with corner watering arrangement. 4,277,023, Cl. 239-11.000.
Anderson, Robert A., to Lucas Industries Limited. Spreading disc brakes for vehicles. 4,276,963, Cl. 188-71.400.
Andreoni, Alessandro: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.
Andrews, James P.; Callahan, Arthur C.; and Gendy, Moheb M., to American Sterilizer Company. Low temperature washing and chemical sanitizing of foodware. 4,277,290, Cl. 134-10.000.
Andrillon, Patrick: *See*—
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Hofmeister, Helmut; Wiechert, Rudolf; Annen, Klaus; Laurent, Henry; and Steinbeck, Hermann, 4,277,468, Cl. 424-243.000.
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Kirkegaard, Allan K., 4,276,940, Cl. 172-42.000.
Aoyagi, Hirofumi: *See*—
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Apsit, Voldemar V.: *See*—
Sika, Zigurd K.; Apsit, Voldemar V.; Daugulis, Khubert L.; and Kurkalov, Ivan I., 4,276,832, Cl. 104-292.000.
APURA GmbH: *See*—
Baumann, Manfred; and Besserer, Walter, 4,276,797, Cl. 83-308.000.
Aquino, Agostino J.: *See*—
Koppa, Daniel A.; and Aquino, Agostino J., 4,276,800, Cl. 83-863.000.
Arai, Shoji: *See*—
Saito, Toshihiro; Tsutsumi, Yukihiro; Arai, Shoji; and Matsunaga, Hideaki, 4,277,414, Cl. 260-429.00R.
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Schmitz, Fernand, 4,276,763, Cl. 72-234.000.
Archambaud, Denis G.; and Dermy, Rene M., to Compagnie Francaise des Petroles. Positioning of the end of an underwater flowline. 4,277,202, Cl. 405-169.000.
Archibald, G. Kent, to Avi, Inc. IV Pump with empty supply reservoir and occlusion detector. 4,277,226, Cl. 417-38.000.
Arend, Inez F.; and Locke, James S., to Northern Telecom Limited. Single frequency tone receiver. 4,277,650, Cl. 179-84.0VF.
Argyll, Marion H. Sludge separation plant. 4,276,915, Cl. 141-98.000.
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Arkens, Charles T., to Rohm and Haas Company. Heteropolymer acrylic latices and textiles treated therewith. 4,277,384, Cl. 260-29.6RB.
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Sato, Kunito; Miller, Alfred F.; and Zimont, Leonard J., 4,277,508, Cl. 426-266.000.
Arnoldussen, Thomas C., to General Motors Corporation. Display device having reduced electrochromic film dissolution. 4,277,147, Cl. 350-357.000.
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Sibrava, Joseph S.; and Caroselli, Frank E., 4,276,982, Cl. 206-439.000.
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Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,277,578, Cl. 525-211.000.
Asahi Glass Company, Ltd.: *See*—
Oda, Yoshio; Yamabe, Masaaki; and Kato, Masao, 4,277,565, Cl. 521-31.000.
Ukihashi, Hiroshi; Yamabe, Masaaki; and Kojima, Hiroaki, 4,277,586, Cl. 526-93.000.
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Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, 4,277,192, Cl. 400-671.000.
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Jorendal, Gunnar; and von Renteln, Adrian, 4,277,770, Cl. 336-60.000.
Olsson, Karl E., 4,277,639, Cl. 174-42.000.
Stenkvist, Sven-Einar, 4,277,638, Cl. 13-35.000.
Ash, Arthur A., Sr. Bar soap receptacle. 4,277,042, Cl. 248-309.00R.
Ash, John E. Method and apparatus for releasing an elevated pressure developed behind a wall. 4,276,725, Cl. 52-1.000.
Ashie, Yutaka: *See*—
Nakajima, Hideiku; Koyama, Itsuji; Kusama, You; and Ashie, Yutaka, 4,277,524, Cl. 427-362.000.
Ashland Oil, Inc.: *See*—
Norton, Richard V.; Frank, Peter J.; Fisher, Dennis H.; and Howe, Steven C., 4,277,636, Cl. 585-14.000.
Ashton, Wallace T.: *See*—
Tolman, Richard L.; Ashton, Wallace T.; and Brown, Ronald D., 4,277,603, Cl. 544-250.000.
Astek Engineering, Inc.: *See*—
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Astro Resources Corporation: *See*—
Ejzak, Edward M., 4,277,438, Cl. 422-80.000.
Atack, Joseph, to Fire (Waterless Sprinklers) Limited. Fire detection and extinguishing systems. 4,276,939, Cl. 169-60.000.
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Jaulmes, Christian, 4,276,858, Cl. 123-73.0CC.
Atlantic Richfield Company: *See*—
Blake, Floyd A.; and Northrup, Lynn L., Jr., 4,276,872, Cl. 126-425.000.
Szulinski, Milton J., 4,277,361, Cl. 422-120.000.
Au, Dean T.: *See*—
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,277,831, Cl. 364-481.000.
Audone, Bruno; Bolla, Luciano; and Gerbi, Giuseppe, to Aeritalia S.p.A. Settore Avionica. Apparatus for measuring electric and magnetic fields. 4,277,744, Cl. 324-72.000.
Aulik, Clarence J., to American Hospital Supply Corporation. Caster brake for stretcher or the like. 4,276,962, Cl. 188-1.00D.
Aumick, James M.: *See*—
Webb, Paul D.; Kiefer, William J.; and Aumick, James M., 4,276,960, Cl. 184-6.220.
Aurora Products Canada, Ltd.: *See*—
Zbriger, Michael J.; and Passamenti, Anthony, 4,276,717, Cl. 46-262.000.
Austin, John J., to Champion International Corporation. Supportive sidewall container for expandable food packages. 4,277,506, Cl. 426-111.000.
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Ball, David J., 4,277,125, Cl. 339-113.00R.
Kutnyak, Thomas A.; Koerber, Marvin A.; and Wills, Henry K., 4,277,640, Cl. 174-47.000.
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Waddington, Clive, 4,276,784, Cl. 74-336.00R.
Avi, Inc.: *See*—
Archibald, G. Kent, 4,277,226, Cl. 417-38.000.
Ayers, David T., to Kelsey-Hayes Company. Automatic adjusting strut. 4,276,966, Cl. 188-79.50P.
Baalham, Christopher J.: *See*—
Thompson, Eric; and Baalham, Christopher J., 4,277,601, Cl. 544-22.000.
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Baggs, Burton D.: *See*—
Smith, Alexander; and Baggs, Burton D., 4,277,080, Cl. 280-473.000.
Baker, William H. Wave-making apparatus. 4,276,661, Cl. 4-491.000.
Baker, William H. Apparatus for wave-making. 4,276,664, Cl. 4-491.000.
Balco, Inc.: *See*—
Balzer, Claude P.; and Corman, Edward M., 4,276,728, Cl. 52-177.000.
Baldwin, John L. E., to Independent Broadcasting Authority. Recording digital signals. 4,277,807, Cl. 360-32.000.
Baldwin Piano & Organ Company: *See*—
Fritz, William L., 4,276,803, Cl. 84-343.000.
Ball, David J., to Automation Industries, Inc. Enhanced detent guide track with dog-leg. 4,277,125, Cl. 339-113.00R.
Balzer, Claude P.; and Corman, Edward M., to Balco, Inc. Dirt removing grid system for floors. 4,276,728, Cl. 52-177.000.
Banjavic, Richard A.: *See*—
Madsen, Ernest L.; Zagzebski, James A.; Banjavic, Richard A.; and Burlew, Michele M., 4,277,367, Cl. 252-408.000.
Banks, Edwin L., Jr.: *See*—
Dowell, Terrence P.; Banks, Edwin L., Jr.; and Luce, Carl T., 4,276,967, Cl. 188-134.000.
Banks, Neill K., Jr. Glass-to-metal seal construction. 4,277,716, Cl. 313-220.000.
Barbeau, Dennis E., to Teledyne Industries, Inc. Turbine engine compressor. 4,277,222, Cl. 415-177.000.
Barber, Ronald A. Quick way scaffold. 4,276,959, Cl. 182-150.000.
Barclay, David K.: *See*—
Yunker, Michael P.; and Barclay, David K., 4,276,710, Cl. 43-4.000.
Bargeron, Thomas C.; and Moodie, Stanley T. Liquid spring stanchion. 4,277,045, Cl. 248-599.000.
Bargiel, Stefan, to Newage Kitchens Limited. Corner fittings. 4,277,122, Cl. 312-330.00R.
Barlics, John J. Cover and aerosol activator for aerosol spray can. 4,277,004, Cl. 222-402.140.
Baron, Richard D.: *See*—
de Fasselle, Robert J.; Baron, Richard D.; and Nottke, James E., 4,276,734, Cl. 53-77.000.
Barruw, Jacob. Truck rails and time saver. 4,277,095, Cl. 296-24.00B.
Barry Wright Corporation: *See*—
Dowell, Terrence P.; Banks, Edwin L., Jr.; and Luce, Carl T., 4,276,967, Cl. 188-134.000.
Barsukov, Vyacheslav Z.; Dunovsky, Sergei A.; Sagoian, Lenik N.; Trepalin, Anatoly I.; Aguf, Igor A.; and Smolkova, Valentina S. Sealed lead-acid storage battery. 4,277,546, Cl. 429-59.000.
Barth, Clifford E.: *See*—
Barth, William L.; and Barth, Clifford E., 4,276,705, Cl. 40-579.000.
Barth, William L.; and Barth, Clifford E. Graphical display means. 4,276,705, Cl. 40-579.000.
Bartlett, Charles J.; Rhodes, Ronald J.; and Rust, Ray D., to Bell Telephone Laboratories, Incorporated. Treating multilayer printed wiring boards. 4,277,321, Cl. 204-192.00E.
BASF Aktiengesellschaft: *See*—
Eicken, Karl; and Wuerzer, Bruno, 4,277,278, Cl. 71-92.000.
Falkenstein, Georg; and Kessler, Hansjuergen, 4,277,571, Cl. 521-164.000.
Hagen, Helmut; Kohler, Rolf-Dieter; and Markert, Juergen, 4,277,477, Cl. 424-251.000.
Lindner, Alfred; Volkamer, Klaus; and Wagner, Ulrich, 4,277,314, Cl. 203-50.000.
Mueller, Herbert; Paulus, Gerhard; Schoeppl, Hubert; and Scharf, Emil, 4,277,422, Cl. 260-791.000.
Naarmann, Herbert; Penzien, Klaus; Doerfel, Helmut; and Eckell, Albrecht, 4,277,588, Cl. 526-114.000.
Straub, Ferdinand; Spoor, Herbert; and Cordes, Claus, 4,277,576, Cl. 525-123.000.
Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, 4,277,315, Cl. 203-51.000.
BASF Wyandotte Corporation: *See*—
Inks, Clyde G.; Compton, John W.; Ellerman, Kathryn M.; and Bergman, Lee H., 4,277,520, Cl. 427-220.000.
Basic Incorporated: *See*—
Fisher, Theodore H., II; and Cusimano, Richard J., 4,277,651, Cl. 179-90.00B.
Basili, Luigi: *See*—
Caldo, Cornelio; and Basili, Luigi, 4,277,371, Cl. 252-429.00B.
Baskin, Craig P.: *See*—
Dauben, William G.; Baskin, Craig P.; and vanRiel, Herman C. H. A., 4,277,604, Cl. 546-44.000.
Bass, Merlyn D.; and Demorest, Donald W., to Deere & Company. Safety lock for raising and lowering mechanism. 4,276,814, Cl. 92-23.000.
Bastgen, Wendel, to Alb. Klein & Co. GmbH KG. Apparatus for the batch filtering of suspensions. 4,276,822, Cl. 100-207.000.
Battelle Memorial Institute: *See*—
Rufer, Willy; and Menzi, Robert, 4,277,513, Cl. 426-656.000.
Bauer, Claude J.; and Moore, Kenneth M., to GTE Products Corporation. Electrical outlet box and cable clamp device. 4,277,641, Cl. 174-65.00R.
Baughn, John W., to Gelman Sciences, Inc. Water purifier. 4,277,332, Cl. 210-96.200.
Baumann, Manfred; and Besserer, Walter, to APURA GmbH. Apparatus for dispensing sheets of web material of predetermined length. 4,276,797, Cl. 83-308.000.
Bausch & Lomb Incorporated: *See*—
Deichert, William G.; Niu, Gregory C.; and VanBuren, Martin F., 4,277,595, Cl. 528-26.000.
Bausch, Max: *See*—
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Baxter Travenol Laboratories, Inc.: *See*—
Schnell, William J., 4,276,687, Cl. 29-407.000.
Bayer Aktiengesellschaft: *See*—
Beck, Manfred; and Gobel, Wilhelm, 4,277,579, Cl. 525-344.000.
Berendes, Otto; and Vopel, Karl-Heinz, 4,277,459, Cl. 423-567.00A.
Dorn, Hubert; and Voege, Herbert, 4,277,467, Cl. 424-217.000.
Dorsch, Hans-Lothar; and Hermann, Karl H., 4,277,396, Cl. 260-146.00R.
Groll, Manfred; Kuhnel, Werner; and Kuth, Robert, 4,277,245, Cl. 8-532.000.
Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., 4,277,536, Cl. 428-402.000.
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.
Bayh, Russell I., III: *See*—
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Baylor College of Medicine: *See*—
Melnick, Joseph L.; and Wallis, Craig, 4,277,250, Cl. 23-230.00B.
Beck, Manfred; and Gobel, Wilhelm, to Bayer Aktiengesellschaft. Increasing the molecular weight of a chlorinated polymer of ethylene by treatment with a sulfur compound either before or during chlorination of said polymer. 4,277,579, Cl. 525-344.000.
Beckman, Robert P., to Litton Business Systems, Inc. Furniture joint construction. 4,277,198, Cl. 403-231.000.
Beckmann, Rolf; and Knackstedt, Wilhelm, to Dynamit Nobel Aktiengesellschaft. Method of manufacturing laminated safety glass. 4,277,538, Cl. 428-429.000.
Beeghly, Bruce R., to Economy Engine Company, The. Integral spark plug coil for automotive-type plug. 4,277,724, Cl. 315-57.000.
Beguwala, Moiz M. E.; and Erdmann, Francis M., to Rockwell International Corporation. Process for direct thermal nitridation of silicon semiconductor devices. 4,277,320, Cl. 204-164.000.
Behn, Reinhard; Heywang, Hermann; and Pachonik, Horst, to Siemens Aktiengesellschaft. Method for generating layers on a carrier foil. 4,277,516, Cl. 427-81.000.
Belcher, Donald K.: *See*—
Rosier, Charles D.; Pan, Jing-Jong; and Belcher, Donald K., 4,277,764, Cl. 333-24.00C.
Bell Telephone Laboratories, Incorporated: *See*—
Bartlett, Charles J.; Rhodes, Ronald J.; and Rust, Ray D., 4,277,321, Cl. 204-192.00E.
Brolin, Stephen J.; and Colodner, Samuel, 4,277,647, Cl. 179-6.30R.
Chen, Fang-Shang, 4,277,846, Cl. 455-611.000.
Levinson, Stephen E.; and Pirz, Frank C., 4,277,644, Cl. 179-1.0SD.
Licht, Steven J., 4,277,519, Cl. 427-129.000.
May, Carl J., Jr., 4,277,645, Cl. 179-1.0SC.
Parks, Kenneth B., 4,277,740, Cl. 324-51.000.
Patel, Chandra K. N.; and Tam, Andrew C., 4,276,780, Cl. 73-643.000.
Sampieri, Eugene E.; and Sosnowski, Thomas P., 4,277,783, Cl. 340-708.000.
Sheinbein, Daniel, 4,277,649, Cl. 179-18.00B.
Belyanin, Petr N.: *See*—
Salomatin, Viktor M.; Belyanin, Petr N.; and Pestrikov, Vladimir I., 4,276,727, Cl. 52-115.000.
Bendix Corporation, The: *See*—
Coman, William E.; and Tepolt, Florian E., 4,276,758, Cl. 64-9.00R.
Benjamin, Milton L.; and Miles, Wilbur N., to Erickson Tool Company. Threading attachment. 4,277,209, Cl. 408-139.000.
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Albert, Judith; and Beny, Janos, 4,276,714, Cl. 46-118.000.
Beougher, Gael. Ambulatory apparatus. 4,277,100, Cl. 297-5.000.
Berbalk, Hermann, to Gebruder Boehringer G.m.b.H. Tool machine for machining crankshafts and a method of operation thereof. 4,276,794, Cl. 82-1.00C.
Berendes, Otto; and Vopel, Karl-Heinz, to Bayer Aktiengesellschaft. Process for working up organic reaction mixtures. 4,277,459, Cl. 423-567.00A.
Berg, Christoph: *See*—
Knothe, Erich; Berg, Christoph; and Melcher, Franz J., 4,276,949, Cl. 177-212.000.
Bergeron, Willard. Air and rock particle separator with spiral deflectors. 4,277,263, Cl. 55-282.000.
Bergman, Lee H.: *See*—
Inks, Clyde G.; Compton, John W.; Ellerman, Kathryn M.; and Bergman, Lee H., 4,277,520, Cl. 427-220.000.
Bernardi, Herbert: *See*—
Haberstroh, Markus; and Bernardi, Herbert, 4,276,736, Cl. 53-399.000.
Bertini, Millo. Tap sharpener. 4,276,722, Cl. 51-225.000.
Besserer, Walter: *See*—
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Bethlehem Steel Corporation: *See*—
Kwasnoski, Daniel; and Sterner, Charles J., 4,277,311, Cl. 202-183.000.
Betzing, Hans: *See*—
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Bey, Philippe; Metcalf, Brian W.; and Wiseman, Jeffrey S., to Richardson-Merrell Inc. Novel enzyme inhibitors. 4,277,395, Cl. 260-112.50R.

Bi-Modal Corporation: *See*—
Cripe, Alan R.; and Cripe, Christopher A., 4,276,968, Cl. 188-153.00R.

Bianchi, John E.; and Nichols, Richard D. E., to Bianchi Leather Products, Inc. Front opening holster for pistols. 4,277,007, Cl. 224-193.000.

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Bianchi, John E.; and Nichols, Richard D. E., 4,277,007, Cl. 224-193.000.

Bickley Manufacturing Company: *See*—
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Bienenstein, Charles A.: *See*—
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Bienz, Robert H.: *See*—
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Biermann, Kurt; and Reinke, Kurt, to Durkoppwerke GmbH. Welt feeder for sewing machines. 4,276,837, Cl. 112-152.000.

Biggar, Elizabeth Short: *See*—
Biggar, Frank M., III, 4,277,058, Cl. 493-433.000.

Biggar, Frank M., III, to Biggar, Elizabeth Short. Folding apparatus and method for folding a continuous web. 4,277,058, Cl. 493-433.000.

Billig, Ernst: *See*—
Bryant, David R.; and Billig, Ernst, 4,277,627, Cl. 568-454.000.

Bily, Robert R. Addition of lecithin to increase yield of cheese. 4,277,503, Cl. 426-40.000.

Bindra, Jasjit S., to Pfizer Inc. Prostaglandin intermediates. 4,277,403, Cl. 260-343.30P.

Bingham, Allen H., to Kearney-National, Inc. Telescoping tool and coupling means therefor. 4,277,197, Cl. 403-104.000.

Binns, John S.; Braithwaite, Malcolm J.; and Dignum, George, to Lankro Chemicals Limited. Processes for the preparation of chlorinated phenols. 4,277,629, Cl. 568-779.000.

Biron, Raymond J.: *See*—
Peckinpaugh, Frank L.; and Biron, Raymond J., 4,277,430, Cl. 264-129.000.

Birt, David E.; and Holt, Lyn, to E M I Limited. Disc records having surface markings. 4,277,071, Cl. 369-84.000.

Biscop, Francois. Heat-recoverable wrap-around devices. 4,276,909, Cl. 138-167.000.

Bishop, Charles M.: *See*—
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Black & Decker, Inc.: *See*—
Henning, Brian C. R., 4,276,737, Cl. 56-12.800.
Jackson, Ronald A.; and Maruscak, John, 4,277,208, Cl. 408-14.000.
Muehling, Anthony A., 4,276,799, Cl. 83-473.000.
Pioch, Peter P., 4,276,675, Cl. 16-111.00R.

Blackburn, Eugene L. Meter-controlled braking system for a fluid-delivering vehicle. 4,276,998, Cl. 222-30.000.

Blake, Floyd A.; and Northrup, Lynn L., Jr., to Atlantic Richfield Company. Solar system employing ground level heliostats and solar collectors. 4,276,872, Cl. 126-425.000.

Blanning, Robert B.; Treadwell, Archie B.; and Logie, James A., to Martin Marietta Corporation. Method and system for inducing and controlling nutation of a gyroscope. 4,277,039, Cl. 244-3.160.

Blaskowski, Henry J., to Combustion Engineering, Inc. Superheater inlet/outlet header. 4,276,928, Cl. 165-82.000.

Blatnik, Edward F. Liquid level sensor. 4,277,773, Cl. 340-59.000.

Blaupunkt-Werke GmbH: *See*—
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Bleiweiss, Arthur F.: *See*—
Urbanek, Karel; and Bleiweiss, Arthur F., 4,277,818, Cl. 362-61.000.

Bliznak, John B.; and Harcarufka, Rudolph E., to Alberto-Culver Company. Sweetener and flavoring compositions and method of producing same. 4,277,511, Cl. 426-548.000.

Bloxham, Roger W. Ballast control system for submersible vessel. 4,276,849, Cl. 114-125.000.

Boardman, Bryan J., to Boardman Energy Systems Incorporated. Heat or cold storage composition containing a hydrated hydraulic cement. 4,277,357, Cl. 252-70.000.

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Boardman, Bryan J., 4,277,357, Cl. 252-70.000.

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Koppers, Manfred; Bohnes, Karlheinz; and Fitzgerald, Harry J., 4,277,204, Cl. 405-288.000.

Bock, Hartmut: *See*—
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Bock, Jan; Makowski, Henry S.; and Lundberg, Robert D., to Exxon Research & Engineering Co. Process for the formation of elastomeric blends of a sulfonated elastomeric polymer. 4,277,381, Cl. 260-23.50A.

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Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Boeing Company, The: *See*—
Dunstan, Phillip E.; and McConnell, Charles H., 4,276,976, Cl. 198-334.000.

Boezing, John H. Jewelry support. 4,276,757, Cl. 63-1.00R.

Bohachevsky, Ihor O., to United States of America, Energy. Beam heated linear theta-pinch device for producing hot plasmas. 4,277,305, Cl. 176-1.000.

Bohnes, Karlheinz: *See*—
Koppers, Manfred; Bohnes, Karlheinz; and Fitzgerald, Harry J., 4,277,204, Cl. 405-288.000.

Bojsen, Erik M., to F. L. Smidth & Co. Electrostatic precipitator and discharge electrode therefor. 4,277,258, Cl. 55-152.000.

Boliden Aktiebolag: *See*—
Sundkvist, Gustaf J.; Lundgren, Fred O.; Lindberg, Mats-Ove R.; and Bostrom, Erik A., 4,276,777, Cl. 73-864.810.

Bolla, Luciano: *See*—
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Bolldorf, Kurt, to Pfaff Industriemaschinen GmbH. Thread changer for embroidering machines. 4,276,838, Cl. 112-221.000.

Bonin, Werner: *See*—
Sinharay, Akhileswar; Stahler, Gerhard; and Bonin, Werner, 4,277,493, Cl. 424-304.000.

Bonnet, Jean; and Fournet, Julien, to Compagnie Generale des Matieres Nucleaires (COGEMA Groupe C.E.A.). Induction probe for the measurement of magnetic susceptibility. 4,277,750, Cl. 324-201.000.

Bonvallet, Duane J. Acceleration compensated step-in ski bindings. 4,277,084, Cl. 280-629.000.

Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and van der Kruijs, Franciscus N. G. R., to U.S. Philips Corporation. Resistance material. 4,277,542, Cl. 338-308.000.

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Bostonian, Edward T. Method and apparatus for converting a ceiling light fixture having a plurality of fluorescent lamps into a single lamp, or two lamp, fixture. 4,277,820, Cl. 362-223.000.

Bostrom, Erik A.: *See*—
Sundkvist, Gustaf J.; Lundgren, Fred O.; Lindberg, Mats-Ove R.; and Bostrom, Erik A., 4,276,777, Cl. 73-864.810.

Bott, John A. Permanent luggage carrier adapters with removable primary luggage carriers. 4,277,009, Cl. 224-309.000.

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Wahl, Edward F., III; and Boucher, Frederic B., 4,276,748, Cl. 60-641.00D.

Boudot, Jean E.; Roger, Francoise M. M.; and Jeanmaire, Michel P. H., to Corning Glass Works. Sealing glass with high coefficient of absorption for infra-red rays. 4,277,285, Cl. 106-52.000.

Bouwknegt, Albert: *See*—
Couwenberg, Winston D.; Bouwknegt, Albert; Ligthart, Franciscus A. S.; and Heuvelmans, Jean J., 4,277,720, Cl. 313-485.000.

Boyce, Jay, to Jay Boyce & Associates. Energy controller for conversion from a direct current source to a variable frequency load. 4,277,736, Cl. 318-811.000.

Boyd, David C.; and Thompson, David A., to Corning Glass Works. Lead-free glasses of high x-ray absorption for cathode ray tubes. 4,277,286, Cl. 106-52.000.

Braithwaite, Malcolm J.: *See*—
Binns, John S.; Braithwaite, Malcolm J.; and Dignum, George, 4,277,629, Cl. 568-779.000.

Brammall, Inc.: *See*—
Van Gompel, James J., 4,277,211, Cl. 410-47.000.

Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, to Telefonaktiebolaget L M Ericsson. Fastening arrangement in a telephone instrument. 4,277,652, Cl. 179-100.00D.

Braun, Wolfgang; and Irion, Leonhard, to Kraftwerk Union Ag. Water-cooled nuclear reactor. 4,277,310, Cl. 176-50.000.

Bregulla, Eduard; Chrubasik, Alfred; and Vietzke, Horst, to Nukem G.m.b.H. Furnace for incineration of nuclear fission and fertile material waste particularly plutonium and uranium containing organic waste. 4,276,834, Cl. 110-237.000.

Bretzinger, Dieter: *See*—
Ackermann, Otto; Bretzinger, Dieter; Schneidewind, Herbert; and Stephan, Rudolf, 4,277,418, Cl. 260-465.400.

Brindley, Donald J. Calendar apparatus. 4,276,703, Cl. 40-121.000.

Bristol-Myers Company: *See*—
Buyniski, Joseph P.; Hooper, John W.; and Lim, Gary M. F., 4,277,605, Cl. 546-74.000.

British Broadcasting Corporation: *See*—
Chambers, John P., 4,277,838, Cl. 365-222.000.

British Leyland UK Limited: *See*—
Burnett, Stanley F.; Dunkley, Michael; Grimes, Raymond M.; and Parmee, Keith, 4,276,972, Cl. 192-4.00C.

Broellos, Klaus: *See*—
Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, 4,277,315, Cl. 203-51.000.

Broerman, Arthur B., to Phillips Petroleum Company. Fluid actuated valve. 4,276,907, Cl. 137-637.200.

Brois, Stanley J.; Ryer, Jack; and Winans, Esther D., to Exxon Research & Engineering Co. Oil-soluble hydrocarbyl substituted 1-aza-3,7-dioxabicyclo[3.3.0]oct-5-yl methyl alcohols, as additives for functional fluids. 4,277,354, Cl. 252-51.50R.

Brois, Stanley J.: *See*—
Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., 4,277,353, Cl. 252-51.50R.

Brolin, Stephen J.; and Colodner, Samuel, to Bell Telephone Laboratories, Incorporated. Coin signaling system. 4,277,647, Cl. 179-6.30R.

Brook, Edward E. Floor wax stripping apparatus. 4,276,673, Cl. 15-49.00C.

Brookdeal Electronics Limited: *See*—
Faulkner, Eric A., 4,277,753, Cl. 328-26.000.

Brookes, Ronald R., to TRW Inc. Plug mold assembly. 4,276,922, Cl. 164-27.000.

Bross, Robert. Handgun stock pommel. 4,276,709, Cl. 42-71.00P.

Brother Industires, Ltd.: *See*—
Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, 4,277,192, Cl. 400-671.000.

Broughton, Alan, to Nichols Institute. Mammalian Somatomedin measurement. 4,277,249, Cl. 23-230.00B.

Brown, David J.; Walther, Ronald G.; Williams, Thomas W.; and Wrigglesworth, Michael D., to International Business Machines Corporation. Latch circuit operable as a D-type edge trigger. 4,277,699, Cl. 307-272.00R.

Brown, John B. Butter melter device for toaster. 4,276,821, Cl. 99-339.000.

Brown, Neil L.: *See*—
Lawson, Kenneth D.; and Brown, Neil L., 4,277,751, Cl. 324-254.000.

Brown, Ronald D.: *See*—
Tolman, Richard L.; Ashton, Wallace T.; and Brown, Ronald D., 4,277,603, Cl. 544-250.000.

Browning, Jesse H. Powder collectors. 4,277,260, Cl. 55-273.000.

Bruce, Charles W., to United States of America, Army. Resonant subcavity differential spectrophone. 4,277,179, Cl. 356-433.000.

Bruun, Jan F.: *See*—
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Bryansky, Jury A.; Gess de Kalve, Stanislav B.; and Ermilin, Igor V. Transport vehicle. 4,277,085, Cl. 280-660.000.

Bryant, David R.; and Billig, Ernst, to Union Carbide Corporation. Hydroformylation process. 4,277,627, Cl. 568-454.000.

Bubley, Henry J.; and Oltra, Claude H., to American Screen Printing Equipment Company. Squeegee and flood bar actuator. 4,276,826, Cl. 101-123.000.

Buchholz, Kenneth M.; and Le Maire, Henry T., to Schomann, Inc. Filter cleaning arrangement. 4,277,264, Cl. 55-294.000.

Bugaut, Andree; and Andrillon, Patrick, to Societe Anonyme dite: L'Oreal. Dye compositions for keratinic fibers containing para-phenylenediamines. 4,277,244, Cl. 8-410.000.

Bulidon, Jacques; and Pavan, Charles, to Roussel Uclaf. Process for the preparation of 4-chloroquinolines. 4,277,607, Cl. 546-179.000.

Bulidon, Jacques: *See*—
Pavan, Charles; and Bulidon, Jacques, 4,277,408, Cl. 260-397.100.

Bullock, Robert L., to Standard Car Truck Company. Railway truck friction stabilizing assembly. 4,276,833, Cl. 105-197.0DB.

Bundy, Gordon L., to Upjohn Company, The. ω-Aryl-9-deoxy-9-methylene-5,6-didehydro-PGF_1 compounds. 4,277,612, Cl. 560-55.000.

Bunker Ramo Corporation: *See*—
Schrott, Werner G.; and Wodok, Hans, 4,277,135, Cl. 350-96.210.

Burg, Karlheinz; Schmieder, Werner; and Wolters, Ernst, to Hoechst Aktiengesellschaft. Thermoplastic molding compositions on the basis of oxymethylene polymers. 4,277,577, Cl. 525-154.000.

Burgeson, John E.; and Lieurance, Dennis W., to General Dynamics Corporation. Superconducting magnetic coil. 4,277,768, Cl. 335-216.000.

Burke, Robert V., to Litton Systems, Inc. Solid-state ballast for rapid-start type fluorescent lamps. 4,277,726, Cl. 315-98.000.

Burlew, Michele M.: *See*—
Madsen, Ernest L.; Zagzebski, James A.; Banjavic, Richard A.; and Burlew, Michele M., 4,277,367, Cl. 252-408.000.

Burnett, Stanley F.; Dunkley, Michael; Grimes, Raymond M.; and Parmee, Keith, to British Leyland UK Limited. Method of, and apparatus for, retarding the motion of a power driven vehicle. 4,276,972, Cl. 192-4.00C.

Burnham, Robert D.: *See*—
Scifres, Donald R.; Streifer, William; and Burnham, Robert D., 4,277,762, Cl. 331-94.50H.

Burns, William A.: *See*—
Hancock, Robert J.; Burns, William A.; and Hall, James B., 4,277,844, Cl. 371-38.000.

Burrell, Bruce: *See*—
Saltzman, Robert N.; and Burrell, Bruce, 4,276,751, Cl. 62-138.000.

Burroughs Wellcome Co.: *See*—
Copp, Frederick C.; Collard, David; and Denyer, Clive V., 4,277,498, Cl. 424-320.000.

Burrows, Thomas W.; and Cavil, David T., to Outboard Marine Corporation. Capacitor discharge ignition system having automatic spark advance. 4,276,868, Cl. 123-602.000.

Busch, Josef: *See*—
Gref, Hans; Hofmann, Hans; Zander, Werner; and Busch, Josef, 4,276,853, Cl. 118-643.000.

Buschmann, Horst, to Schloemann-Siemag Aktiengesellschaft. Slab cooling and conveying apparatus. 4,276,979, Cl. 198-775.000.

Bush Boake Allen Limited: *See*—
Webb, David; and Milla, Anthony J., 4,277,377, Cl. 252-522.00R.

Buyniski, Joseph P.; Hooper, John W.; and Lim, Gary M. F., to Bristol-Myers Company. Chemical compounds. 4,277,605, Cl. 546-74.000.

Buzzell, James M., to Centronics Data Computer Corp. Paper roll holder with dancer bar for use with printers and the like. 4,277,034, Cl. 242-67.30R.

Byk Gulden Lomberg Chemische Fabrik GmbH: *See*—
Amschler, Hermann, 4,277,472, Cl. 424-248.500.

Cadotte, John E., to FilmTec Corporation. Interfacially synthesized reverse osmosis membrane. 4,277,344, Cl. 210-654.000.

Calabrese, Richard A., to Pitney Bowes, Inc. Cleaner for pressure fixing roller. 4,277,161, Cl. 355-3.0FU.

Calderon, Reynaldo, to Texaco Inc. Methods for cleaning a helical spring filter. 4,277,348, Cl. 210-791.000.

Caldo, Cornelio; and Basili, Luigi, to Montedison S.p.A. Catalyst-forming components, process for preparing same, and catalysts for stereospecifically polymerizing olefins prepared therefrom. 4,277,371, Cl. 252-429.00B.

Calhoun, Michael B.; Bayh, Russell L., III; and Dutton, Robert E., to Otis Engineering Corporation. Well safety system. 4,276,937, Cl. 166-323.000.

Callahan, Arthur C.: *See*—
Andrews, James P.; Callahan, Arthur C.; and Gendy, Moheb M., 4,277,290, Cl. 134-10.000.

Callahan, David K. Portable in-line press. 4,276,685, Cl. 29-252.000.

Capurka, Zbynek A., to Motorola, Inc. Apparatus for the generation of monostable pulses having predetermined durations independent of input signal period. 4,276,860, Cl. 123-415.000.

Carl Freudenberg, Firma: *See*—
Forch, Hans, 4,277,072, Cl. 277-65.000.
Ticks, Gerd-Heinz, 4,277,056, Cl. 267-140.100.

Carlson, George M.; and O'Hagan, Michael, to Texas Instruments Incorporated. Microprocessor based system for the development and emulation of programmable calculator control read only memory software. 4,277,827, Cl. 364-200.000.

Carlson, Roland W.: *See*—
Covic, John; Leininger, Glen; and Carlson, Roland W., 4,277,685, Cl. 250-445.00T.

Carnahan, James C., to General Electric Company. Phenol recovery from bisphenol-A waste streams. 4,277,628, Cl. 568-749.000.

Caroselli, Frank E.: *See*—
Sibrava, Joseph S.; and Caroselli, Frank E., 4,276,982, Cl. 206-439.000.

Carroll, Howard E.; and Sweitzer, Gerald M., to SCM Corporation. High PVC latex paint. 4,277,385, Cl. 260-29.6RW.

Carson, Arthur N., to U.S. Philips Corporation. X-Ray collimator, particularly for use in computerized axial tomography apparatus. 4,277,684, Cl. 250-445.00T.

Cartwright, Frederick D. Erosion potential determinations. 4,276,767, Cl. 73-7.000.

Caruso, Michael J.: *See*—
Mar, Clarence Y.; and Caruso, Michael J., 4,277,675, Cl. 235-92.0MB.

Casler, William A.; and Saurenman, Phillip E., to Clamp Manufacturing Co., Inc. Clamping means and tool for making it. 4,276,692, Cl. 30-347.000.

Casper, William L.; Jordon, Michael A.; Caulkins, Craig S.; and Miller, Robert G., to Liftech Consultants, Inc. Method of constructing and erecting a dome-shaped structure. 4,276,733, Cl. 52-745.000.

Castle Keep, Inc.: *See*—
Hunyadi, Steve, 4,277,781, Cl. 340-545.000.

Caterpillar Tractor Co.: *See*—
Kuhfuss, Alvin L., Jr.; and Riediger, Craig W., 4,276,952, Cl. 180-294.000.
Langenstein, Joseph G., 4,276,786, Cl. 74-491.000.
Livesay, Richard E., 4,277,199, Cl. 403-317.000.

Caulkins, Craig S.: *See*—
Casper, William L.; Jordon, Michael A.; Caulkins, Craig S.; and Miller, Robert G., 4,276,733, Cl. 52-745.000.

Cavanagh, Patrick E., to Maghemite Inc. Induction belt separation. 4,277,329, Cl. 209-212.000.

Cavil, David T.: *See*—
Burrows, Thomas W.; and Cavil, David T., 4,276,868, Cl. 123-602.000.

Cavileer, Watson V. Irrigation valve. 4,277,046, Cl. 251-312.000.

Celanese Corporation: *See*—
Jaarsma, Frank C., 4,277,000, Cl. 222-142.400.

Centro Ricerche Fiat S.p.A.: *See*—
Paolasini, Sergio, 4,277,376, Cl. 252-455.00R.

Centronics Data Computer Corp.: *See*—
Buzzell, James M., 4,277,034, Cl. 242-67.30R.
Howard, Robert; Robinson, Prentice; and Vitale, Alexander F., 4,277,189, Cl. 400-320.000.

Cerofolini, Gianfranco; and Ferla, Giuseppe, to SGS-ATES Componenti Elettronici S.p.A. Process for making CMOS field-effect transistors. 4,277,291, Cl. 148-1.500.

Ceserani, Roberto: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Chambers, John P., to British Broadcasting Corporation. Data receiving apparatus. 4,277,838, Cl. 365-222.000.

Chambers, Richard F.; and Rachima, Nissim, to Olin Corporation. Process for reducing calcium ion concentrations in alkaline alkali metal chloride brines. 4,277,447, Cl. 423-165.000.

Chambley, Phillip W.; and Norris, Alan H., to WWG Industries, Inc. Self-twisted yarn and method and apparatus for producing it. 4,276,740, Cl. 57-205.000.

Champion International Corporation: *See*—
Austin, John J., 4,277,506, Cl. 426-111.000.
Webinger, George, 4,277,014, Cl. 229-11.000.

Chao, Robert L., to Supertex, Inc. Detection circuit and structure therefor. 4,277,782, Cl. 340-661.000.

Chapin, Lawrey H.; and Maze, Robert O., to Honeywell Inc. Electric induction field navigation apparatus. 4,277,771, Cl. 340-27.0NA.

Charles, John J., to GAF Corporation. Durable polyester molding composition and product. 4,277,391, Cl. 260-40.00R.

Chase, Marshall D. Pistol receiver actuating mechanism. 4,276,708, Cl. 42-44.000.

Chemie Linz Aktiengesellschaft: *See*—
Czepel, Hubert; Jilek, Franz; and Zochbauer, Heinz, 4,277,532, Cl. 428-244.000.

Chen, Fang-Shang, to Bell Telephone Laboratories, Incorporated. Circuit for stabilizing the output of an injection laser. 4,277,846, Cl. 455-611.000.

Chen, Wu. Mechano-electrostatic charge-imaging method and apparatus. 4,276,829, Cl. 101-426.000.

Cherenko, Joseph; Frey, William I.; Kelly, Joseph D.; and Sokol, Larry S., to PPG Industries, Inc. Release molds for laminating bilayer safety glass. 4,277,299, Cl. 156-242.000.

Cherry Electrical Products Corp.: *See*—
Lewandowski, Raymond, 4,277,662, Cl. 200-242.000.

Chia, E. Henry: *See*—
Weber, John G.; and Chia, E. Henry, 4,277,281, Cl. 75-93.00R.

Child, Edward T.: *See*—
Paull, Peter L.; and Child, Edward T., 4,277,365, Cl. 252-373.000.

Chin, Robert W.; and Krause, Walter J., to Goodyear Aerospace Corporation. Method and means for fastening friction wear pads. 4,276,969, Cl. 188-218.0XL.

Chinushi, Kiyoto: *See*—
Mitaunaga, Takayoshi; Chinushi, Kiyoto; and Umezu, Tadashi, 4,277,488, Cl. 424-273.00R.

Chiodo, Morvan. Pressure cooker with seal safety relief. 4,276,990, Cl. 220-209.000.

Chisholm-Ryder Co., Inc.: *See*—
Ferraro, Dominick, 4,276,738, Cl. 56-130.000.

Chiyoda Chemical Engineering & Construction Co., Ltd.: *See*—
Wakabayashi, Ataru; and Masuhara, Isao, 4,277,451, Cl. 423-243.000.

Chleck, David J.: *See*—
Kovac, Michael G.; Chleck, David J.; and Goodman, Philip, 4,277,742, Cl. 324-61.00R.

Choi, Sam Kwon; and Lee, Kee Dong, to Sunkyong Fibers, Ltd. Antistatic agents, synthesis and use thereof. 4,277,584, Cl. 525-437.000.

Chrisman, Max G., to Owens-Corning Fiberglas Corporation. Process for controlling molten glass variables. 4,277,274, Cl. 65-29.000.

Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., to Merck & Co., Inc. 3-Substituted thio-6-amido-7-oxo-1-azabicyclo[3.2.0]-hept-2-ene-2-carboxylic acid 4-oxides. 4,277,482, Cl. 424-263.000.

Christensen, Charles R.: *See*—
Smith, James L.; and Christensen, Charles R., 4,277,127, Cl. 350-3.670.
Upatnieks, Juris; Christensen, Charles R.; and Guenther, Bobby D., 4,277,137, Cl. 350-162.0SF.

Christensen, Donald R.; and Stanford, Ralph F., to King-Seeley Thermos Co. Ice dispensing mechanism. 4,277,002, Cl. 222-349.000.

Christoffel, Julius M., Jr., to Damon Corporation. Kite strut connector. 4,277,040, Cl. 244-153.00R.

Chriswell, Colin D.: *See*—
Oulman, Charles S.; and Chriswell, Colin D., 4,277,635, Cl. 568-916.000.

Chrubasik, Alfred: *See*—
Bregulla, Eduard; Chrubasik, Alfred; and Vietzke, Horst, 4,276,834, Cl. 110-237.000.

Ciba-Geigy AG: *See*—
Whitear, Brian R. D., 4,277,398, Cl. 260-162.000.

Ciba-Geigy Corporation: *See*—
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.
Garner, Robert; and Whitehead, Michael J., 4,277,400, Cl. 260-326.13B.
Keller, Karlheinz; and Furer, Lotti, 4,277,247, Cl. 8-557.000.
Lawrence, Simon G.; and Hossack, James, 4,277,288, Cl. 106-309.000.
Mueller, Karl F.; and Good, William R., 4,277,582, Cl. 525-421.000.
Reinehr, Dieter; and Pfeifer, Josef, 4,277,621, Cl. 564-250.000.
Rosen, Melvin H., 4,277,484, Cl. 424-267.000.
Zahner, Hans; Drautz, Hannelore; and Keller, Walter, 4,277,478, Cl. 424-258.000.

Citizen Watch Co., Ltd.: *See*—
Sekiya, Fukuo; and Yamada, Takashi, 4,277,840, Cl. 368-71.000.

CKD Corporation: *See*—
Konno, Toshio; and Hayakawa, Masatoshi, 4,276,683, Cl. 29-25.420.

Claassens, Jacobus M. M.; van der Leeuw, Bart; and van Elderen, Nicolaas F., to U.S. Philips Corporation. Electric gas discharge lamp. 4,277,715, Cl. 313-220.000.

Clamp Manufacturing Co., Inc.: *See*—
Casler, William A.; and Saurenman, Phillip E., 4,276,692, Cl. 30-347.000.

Clark, Ralph E.: *See*—
Mehra, Yuv R.; and Clark, Ralph E., 4,277,313, Cl. 203-32.000.

Clarke, John T.: *See*—
Luck, Allan J.; Clarke, John T.; and Sutton, Roger F., 4,277,428, Cl. 264-118.000.

Classen, Donald A. Lift structure for servicing vehicles. 4,277,049, Cl. 254-91.000.

Clegg, John E. Conical split-image microscopic lens. 4,277,148, Cl. 350-432.000.

Cly-Del Manufacturing Company, The: *See*—
L'Allemand, Charles C., 4,277,298, Cl. 156-199.000.

Coal Industry (Patents) Limited: *See*—
Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., 4,277,568, Cl. 521-68.000.

Cohen, Noal; and Saucy, Gabriel, to Hoffmann-La Roche Inc. Synthesis of 2,6,10-trimethyl-undecan-1-ol. 4,277,610, Cl. 556-446.000.

Coleman, Jess A. Underwater cruise device. 4,276,851, Cl. 114-313.000.

Collard, David: *See*—
Copp, Frederick C.; Collard, David; and Denyer, Clive V., 4,277,498, Cl. 424-320.000.

Collins, Robert W.; Hoffman, Roy L.; Loen, Larry W.; Mitchell, Glen R.; and Soltis, Frank G. Synchronizing mechanism for page replacement control. 4,277,826, Cl. 364-200.000.

Colodner, Samuel: *See*—
Brolin, Stephen J.; and Colodner, Samuel, 4,277,647, Cl. 179-6.30R.

Colombo, Antonio, to SGS-ATES Componenti Elettronici S.p.A. Voltage limiter for flyback generator of television sweep system. 4,277,730, Cl. 315-408.000.

Colt Industries Operating Corp: *See*—
Smitley, Marion L., 4,276,951, Cl. 180-165.000.

Coman, William E.; and Tepolt, Florian E., to Bendix Corporation, The. Fail safe redundant drive shaft apparatus including electrically operative failure detection means. 4,276,758, Cl. 64-9.00R.

Combustion Engineering, Inc.: *See*—
Blaskowski, Henry J., 4,276,928, Cl. 165-82.000.

Comeau, Paul E., to Kenney Manufacturing Company. Traverse rod and support combination. 4,276,920, Cl. 160-345.000.

Commissariat a l'Energie Atomique: *See*—
Duhayon, Jacques; Goumondy, Jean-Pierre; Leudet, Alain; and Rousseau, Jean-Claude, 4,277,363, Cl. 252-301.10W.
Madelaine, Guy; and Pourprix, Michel, 4,277,682, Cl. 250-380.000.

Commodore Electronics Limited: *See*—
Hyltin, Tom M., 4,277,784, Cl. 340-711.000.

Commonwealth Scientific and Industrial Research Organization: *See*—
Holan, George; and Walser, Reimund A., 4,277,490, Cl. 424-282.000.

Compagnie Francaise des Petroles: *See*—
Archambaud, Denis G.; and Dermy, Rene M., 4,277,202, Cl. 405-169.000.

Compagnie Generale des Matieres Nucleaires (COGEMA Groupe C.E.A.): *See*—
Bonnet, Jean; and Fournet, Julien, 4,277,750, Cl. 324-201.000.

Compagnie Industrielle Radioelectrique: *See*—
Grosvernier, Claude-Arnold, 4,277,176, Cl. 356-394.000.

Compton, John W.: *See*—
Inks, Clyde G.; Compton, John W.; Ellerman, Kathryn M.; and Bergman, Lee H., 4,277,520, Cl. 427-220.000.

Compu-Pic Incorporated: *See*—
Newman, Thomas M., 4,277,064, Cl. 273-138.00A.

Conageski, Raymond H., to Du Pont de Nemours, E. I., and Company. One-stage flotation purification of NaOH. 4,277,331, Cl. 23-293.00R.

Congoleum Corporation: *See*—
Kaminski, Stanley; Mansolillo, Robert D.; and Wilmer, Eugene A., 4,277,427, Cl. 264-45.500.

Conoco, Inc.: *See*—
Dudt, Philip J., 4,277,252, Cl. 23-313.00R.
Spangler, Carl D., Jr., 4,277,268, Cl. 62-26.000.

Continental Group, Inc., The: *See*—
Hansen, Everett T., 4,276,843, Cl. 113-1.00F.
Hasegawa, Gary K., 4,276,993, Cl. 220-269.000.

Contraves AG: *See*—
Guggenbuhl, Walter, 4,277,743, Cl. 324-71.0CP.

Control Concepts, Inc.: *See*—
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,276,810, Cl. 91-449.000.
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,276,811, Cl. 91-449.000.

Convers, Alain: *See*—
Courty, Philippe; Miquel, Jean; Martino, Germain; and Convers, Alain, 4,277,369, Cl. 252-415.000.

Conway, Gerald A. Injection molding resilient ring clip. 4,277,434, Cl. 264-297.000.

Copp, Frederick C.; Collard, David; and Denyer, Clive V., to Burroughs Wellcome Co. Amides. 4,277,498, Cl. 424-320.000.

Coppola, Peter J. Portable water filtration system. 4,277,333, Cl. 210-136.000.

Coral Chemical Company: *See*—
Tupper, George L., 4,277,292, Cl. 148-6.270.

Cordes, Claus: *See*—
Straub, Ferdinand; Spoor, Herbert; and Cordes, Claus, 4,277,576, Cl. 525-123.000.

Corman, Edward M.: *See*—
Balzer, Claude P.; and Corman, Edward M., 4,276,728, Cl. 52-177.000.

Cornell Research Foundation, Inc.: *See*—
Hayes, Thomas D.; and Jewell, William J., 4,277,342, Cl. 210-609.000.

Corning Glass Works: *See*—
Boudot, Jean E.; Roger, Francoise M. M.; and Jeanmaire, Michel P. H., 4,277,285, Cl. 106-52.000.
Boyd, David C.; and Thompson, David A., 4,277,286, Cl. 106-52.000.
Dorfeld, William G., 4,277,522, Cl. 427-292.000.

Kane, William T., 4,277,322, Cl. 204-195.00S.

Courty, Philippe; Miquel, Jean; Martino, Germain; and Convers, Alain, to Institut Francais du Petrole. Regeneration of a catalyst for aromatic hydrocarbons steam dealkylation. 4,277,369, Cl. 252-415.000.

Courty, Philippe: *See*—
Sugier, Andre; Courty, Philippe; Deschamps, Andre; and Gruhier, Henri, 4,277,458, Cl. 423-437.000.

Couttet, Andre: *See*—
Eranian, Armand; Dubois, Jean-Claude; Couttet, Andre; and Datamanti, Evelyne, 4,277,554, Cl. 430-270.000.

Couwenberg, Winston D.; Bouwknegt, Albert; Ligthart, Franciscus A. S.; and Heuvelmans, Jean J., to U.S. Philips Corporation. Low-pressure mercury vapor discharge lamp. 4,277,720, Cl. 313-485.000.

Covic, John; Leininger, Glen; and Carlson, Roland W., to Ohio-Nuclear, Inc. Adjustable collimator. 4,277,685, Cl. 250-445.00T.

Cox, Michael. Sculptured optical art form. 4,277,139, Cl. 350-286.000.

CPC International Inc.: *See*—
Yahl, Kenneth R., 4,277,411, Cl. 260-412.400.

Cragoe, Edward J., Jr.: *See*—
Woltersdorf, Otto W.; and Cragoe, Edward J., Jr., 4,277,602, Cl. 544-207.000.

Crane, Walton B., to Industrial Designs & Services. Container for produce and the like having releasably securable flaps. 4,277,015, Cl. 229-23.00C.

Cranfield Institute of Technology: *See*—
Dinsdale, Jack; Parkins, David W.; and Hardwick, John P., 4,277,070, Cl. 369-248.000.

Crawford, Thomas J.: *See*—
Rodriguez, Luis F.; and Crawford, Thomas J., 4,277,680, Cl. 250-358.00R.

Creusot-Loire: *See*—
Lefebvre, Jean-Pierre, 4,276,668, Cl. 9-2.00A.
Zanetta, Hugues, 4,277,054, Cl. 266-268.000.

Cripe, Alan R.; and Cripe, Christopher A., to Bi-Modal Corporation. Rail car brake system. 4,276,968, Cl. 188-153.00R.

Cripe, Christopher A.: *See*—
Cripe, Alan R.; and Cripe, Christopher A., 4,276,968, Cl. 188-153.00R.

Crosbie, Scott C. Percolating bubble generator. 4,276,713, Cl. 46-8.000.

Crottaz, Roland: *See*—
Henggeler, Aldo; and Crottaz, Roland, 4,276,731, Cl. 52-484.000.

Crow, Joseph W.: *See*—
Giachino, Joseph M.; Haeberle, Russell J.; and Crow, Joseph W., 4,277,814, Cl. 361-283.000.

Crow, Morgan L., to Dresser Industries, Inc. Axial compression positive rock bit seal. 4,277,109, Cl. 308-8.200.

Crowley, Ralph P., to Phillips Petroleum Company. Storage system for liquefied gases. 4,276,749, Cl. 62-51.000.

CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See*—
Fausone, Alfredo; and Seano, Vittorio, 4,277,755, Cl. 330-128.000.
Garibotto, Giovanni, 4,277,834, Cl. 364-724.000.

Cull, Neville L.: *See*—
Sawyer, Willard H.; and Cull, Neville L., 4,277,373, Cl. 252-437.000.

Cummins Engine Company, Inc.: *See*—
Lauterbach, Jerre F., 4,277,116, Cl. 308-188.000.
Reid, David L.; and Taylor, Dennis O., 4,277,830, Cl. 364-431.000.

Cupitt, Larry T.: *See*—
Morgan, Robert L.; Cupitt, Larry T.; and Gamble, William L., 4,277,146, Cl. 350-356.000.

Cushing, Charles J.; Phillips, Clifton W.; and VanderNeut, Richard D., to Ford Aerospace & Communications Corp. Web element concentration detection system. 4,277,178, Cl. 356-431.000.

Cusimano, Richard J.: *See*—
Fisher, Theodore H., II; and Cusimano, Richard J., 4,277,651, Cl. 179-90.00B.

Cussons, Frank M.: *See*—
Williams, Thomas A.; and Cussons, Frank M., 4,277,455, Cl. 423-321.00S.

Cyloflex, Inc.: *See*—
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., 4,276,693, Cl. 30-380.000.

Czepel, Hubert; Jilek, Franz; and Zochbauer, Heinz, to Chemie Linz Aktiengesellschaft. Thermally expandable sealants. 4,277,532, Cl. 428-244.000.

D.E.J. International Research Company B.V.: *See*—
Wouda, Hermanus A. J., 4,277,509, Cl. 426-387.000.

Dabrowski, Ralf, to Hans Kramer GmbH & Co. KG, Firma. Mineral substance based on a reversibly swellable tri-laminar mineral developed to be crystalline over a large area and having crystal layers separated from one another. 4,277,456, Cl. 423-328.000.

Dadachanji, Fali M. Relates to apparatus for measuring the dew point. 4,276,768, Cl. 73-17.00A.

Daguet, Jacques L.: *See*—
Duquenne, Michel G. A.; David, Guy A. J.; Grima, Jean-Claude; and Daguet, Jacques L., 4,277,843, Cl. 370-84.000.

Dai Nippon Toryo Co., Ltd: *See*—
Hayashi, Masaaki; Nagami, Koichi; Tsuneta, Kazuyoshi; and Kenmotsu, Nobuhiro, 4,277,383, Cl. 260-29.300.

Daiichi Radioisotope Laboratories, Ltd.: *See*—
Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, 4,277,460, Cl. 424-1.000.
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Daimler-Benz Aktiengesellschaft: *See*—
Klein, Wilhelm; Bausch, Max; and Eckert, Dieter, 4,277,099, Cl. 296-146.000.

Dainippon Ink & Chemicals Inc.: *See*—
Asada, Touru; Miura, Yasuhisa; and Yoshino, Tsutomu, 4,277,622, Cl. 564-512.000.

Dammann, Hans, to U.S. Philips Corporation. Diffraction grating and system for the formation of color components. 4,277,138, Cl. 350-162.00R.

Damon Corporation: *See*—
Christoffel, Julius M., Jr., 4,277,040, Cl. 244-153.00R.

Dangschat, Rainer; Jeschke, Alfred; Leichtl, Helmut; and Winkler, Wolfgang, to Siemens Aktiengesellschaft. Color television receiver having an automatic adjustment system and a process for adjusting the receiver. 4,277,797, Cl. 358-21.00R.

Daniel, John K.; and Peet, Norton P., to Dow Chemical Company, The. Novel 4-bis[(Phenylmethyl)amino)-benzenesulfonic acids possessing antiviral activity. 4,277,492, Cl. 424-304.000.

Dantlgraber, Jorg, to G. L. Rexroth GmbH. Radial piston pump. 4,277,228, Cl. 417-273.000.

Datamanti, Evelyne: *See*—
Eranian, Armand; Dubois, Jean-Claude; Couttet, Andre; and Datamanti, Evelyne, 4,277,554, Cl. 430-270.000.

Datascope Corp.: *See*—
Wolvek, Sidney; and Hanson, Bruce L., 4,276,874, Cl. 128-1.00D.

Dauben, William G.; Baskin, Craig P.; and vanRiel, Herman C. H. A., to United States of America, Health and Human Services. Facile synthesis of codeine precursors from thebaine. 4,277,604, Cl. 546-44.000.

Daugulis, Khubert L.: *See*—
Sika, Zigurd K.; Apsit, Voldemar V.; Daugulis, Khubert L.; and Kurkalov, Ivan I., 4,276,832, Cl. 104-292.000.

David, Guy A. J.: *See*—
Duquenne, Michel G. A.; David, Guy A. J.; Grima, Jean-Claude; and Daguet, Jacques L., 4,277,843, Cl. 370-84.000.

Davidson, John C.: *See*—
Anderson, John L.; Davidson, John C.; Schaaf, Henry W.; and Meis, Charles H., 4,277,023, Cl. 239-11.000.

Davis, Brian L. Open-ended wrench having ratcheting action. 4,276,790, Cl. 81-111.000.

Davis, Glenn W.; and Fleek, Arthur E., to International Business Machines Corporation. Printer system having microprocessor control. 4,277,191, Cl. 400-582.000.

Davis, Luther, Jr., to Raytheon Company. Dynamically focussed array. 4,276,779, Cl. 73-626.000.

Davis, Walter Z.: *See*—
Sonderman, Ed L.; and Davis, Walter Z., 4,277,780, Cl. 340-365.00S.

Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., to Coal Industry (Patents) Limited. Sealant material. 4,277,568, Cl. 521-68.000.

Daye, Leslie G. Closed circuit heating system. 4,277,021, Cl. 237-56.000.

DBS, Inc.: *See*—
Thomson, Morton W., 4,276,825, Cl. 101-45.000.

Decker, Harry J.; and Thorsteinson, Erlind M., to Union Carbide Corporation. Catalytic oxide of molybdenum, vanadium, tantalum and optional 4th metal. 4,277,375, Cl. 252-455.00R.

Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., to Exxon Research & Engineering Co. Oil-soluble substituted mono and bicyclic oxazolidines, their preparation and use as additives for functional fluids. 4,277,353, Cl. 252-51.50R.

Deere & Company: *See*—
Bass, Merlyn D.; and Demorest, Donald W., 4,276,814, Cl. 92-23.000.
Hunck, Billie G.; and Nelson, Robert W., 4,276,896, Cl. 137-101.000.

de Fasselle, Robert J.; Baron, Richard D.; and Nottke, James E., to Lykes Pasco Packing Company. Rotary filling and capping apparatus. 4,276,734, Cl. 53-77.000.

De Groff, James T.: *See*—
Feldman, Martin L.; and De Groff, James T., 4,277,392, Cl. 260-40.00R.

Deguchi, Masanobu; and Ikegami, Takeshi, to Sharp Kabushiki Kaisha. Sheet conveyor for use in copying machines. 4,276,978, Cl. 198-654.000.

Deichert, William G.; Niu, Gregory C.; and VanBuren, Martin F., to Bausch & Lomb Incorporated. Water absorbing contact lenses made from polysiloxane/acrylic acid polymer. 4,277,595, Cl. 528-26.000.

Delp, Hermann; and Muller, Norbert, to General Motors Corporation. Steering column switch assembly. 4,277,658, Cl. 200-61.540.

Demmin, Timothy R.; and Rogic, Milorad M., to Allied Chemical Corporation. Preparation of muconic acid mononitriles and copper-(II)-ammonia reagent therefor. 4,277,419, Cl. 260-465.400.

Demorest, Donald W.: *See*—
Bass, Merlyn D.; and Demorest, Donald W., 4,276,814, Cl. 92-23.000.

Demoute, Jean-Pierre: *See*—
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,277,617, Cl. 560-124.000.

Denki Kagaku Kogyo Kabushiki Kaisha: *See*—
Kagami, Toshio; Saito, Yoshijiro; Matsushita, Shigeru; and Iriuchijima, Kunio, 4,277,388, Cl. 260-33.40R.

Deno, Don W., to Electric Power Research Institute, Inc. Personal electric field exposure monitor. 4,277,745, Cl. 324-72.000.

Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., to Westinghouse Electric Corp. Steam generator sludge lancing method. 4,276,856, Cl. 122-382.000.

Denyer, Clive V.: *See—*
Copp, Frederick C.; Collard, David; and Denyer, Clive V., 4,277,498, Cl. 424-320.000.

DeRemer, Harold A., to General Electric Company. Power interlock switch for electrical appliances. 4,277,659, Cl. 200-61.620.

Dermer, Saul R. Jaw implant measuring instrument. 4,277,237, Cl. 433-72.000.

Dermy, Rene M.: *See—*
Archambaud, Denis G.; and Dermy, Rene M., 4,277,202, Cl. 405-169.000.

Derus, David L. Collapsable, articulated wall structure. 4,276,726, Cl. 52-109.000.

Deschamps, Andre: *See—*
Sugier, Andre; Courty, Philippe; Deschamps, Andre; and Gruhier, Henri, 4,277,458, Cl. 423-437.000.

De Schepper, Achille; and Van Peteghem, Antoine, to Metallurgie Hoboken-Overpelt. Apparatus for liquid-liquid extraction. 4,277,445, Cl. 422-259.000.

Descotes, Maurice J. Photo-processing drum with non-reusable chemicals, for use in daylight conditions, for processing photo-sensitive surfaces with flexible supports. 4,277,159, Cl. 354-312.000.

De Vaan, Robertus L. C.: *See—*
Van Benthem, Willem; and De Vaan, Robertus L. C., 4,277,717, Cl. 313-226.000.

Dick, Gordon A., to Wheelabrator Corporation of Canada Limited. Ultra filtration unit comprising a tubular filter element. 4,277,266, Cl. 55-381.000.

Dickerson, Bobby V.: *See—*
Smith, Dale K.; Donich, Thomas G.; Dickerson, Bobby V.; and Leader, Raymond E., 4,277,845, Cl. 455-52.000.

Dickey-john Corporation: *See—*
Steffen, David E., 4,277,833, Cl. 364-555.000.

Dickhudt, Eugene A.; and Ray, Charles D., to Medtronic, Inc. Lead anchoring device. 4,276,882, Cl. 128-419.00P.

Didycz, William J.: *See—*
Aiken, John E.; and Didycz, William J., 4,277,453, Cl. 423-247.000.

Diemakers, Inc.: *See—*
Spalding, George, 4,276,994, Cl. 220-454.000.

Diethelm, Eugen, to Grissman Chemicals Limited. Process for preparing pyrenzepine. 4,277,399, Cl. 260-239.30T.

Dignum, George: *See—*
Binns, John S.; Braithwaite, Malcolm J.; and Dignum, George, 4,277,629, Cl. 568-779.000.

Dilworth, Louis R., to Allis-Chalmers Corporation. Removal of sulfur dioxide from gas. 4,277,450, Cl. 423-244.000.

Dinkelacker, Walter; and Knoedler, Juergen, to Robert Bosch GmbH. Device for testing ignition system of a combustion engine. 4,277,752, Cl. 324-399.000.

Dinsdale, Jack; Parkins, David W.; and Hardwick, John P., to Cranfield Institute of Technology. Phonograph. 4,277,070, Cl. 369-248.000.

Dittman, William J.: *See—*
Goodman, Robert M., Jr.; and Dittman, William J., 4,277,789, Cl. 343-708.000.

Dittmer, Harold E.: *See—*
Modler, Peter R.; Dittmer, Harold E.; Rose, Richard L.; and Stafsnes, John A., 4,276,752, Cl. 62-166.000.

Doane, William M.: *See—*
Shasha, Baruch S.; Doane, William M.; and Russell, Charles R., 4,277,364, Cl. 252-316.000.

Dr. Johannes Heidenhain GmbH: *See—*
Ernst, Alfons, 4,276,696, Cl. 33-169.00R.

Doerfel, Helmut: *See—*
Naarmann, Herbert; Penzien, Klaus; Doerfel, Helmut; and Eckell, Albrecht, 4,277,588, Cl. 526-114.000.

Doi, Takao; and Nomura, Satoshi, to Kyoto Ceramic Kabushiki Kaisha. Ceramic substrate. 4,277,528, Cl. 428-192.000.

Dominion Auto Accessories Limited: *See—*
Urbanek, Karel; and Bleiweiss, Arthur F., 4,277,818, Cl. 362-61.000.

Dominion Engineering Works Limited: *See—*
Kanger, Feodor, 4,277,221, Cl. 415-160.000.

Domtar Inc.: *See—*
Lucas, John M.; and Nayar, Raman, 4,276,766, Cl. 73-1.00R.

Donich, Thomas G.: *See—*
Smith, Dale K.; Donich, Thomas G.; Dickerson, Bobby V.; and Leader, Raymond E., 4,277,845, Cl. 455-52.000.

Dore, Alain; and Judet, Henri, to Societe D'Applications Generales D'Electricite et de Mecanique Sagem. Machines for measuring the dimensions of workparts. 4,276,698, Cl. 33-174.00L.

Dorfeld, William G., to Corning Glass Works. Coating glass-ceramic surfaces. 4,277,522, Cl. 427-292.000.

Dorma Nahmaschinen GmbH: *See—*
Meier, Willi, 4,276,839, Cl. 112-227.000.

Dorn, Hubert; and Voege, Herbert, to Bayer Aktiengesellschaft. Endoparasiticidal pastes for horses. 4,277,467, Cl. 424-217.000.

Dorsch, Hans-Lothar; and Hermann, Karl H., to Bayer Aktiengesellschaft. Thiazolediazacyanine dyestuffs. 4,277,396, Cl. 260-146.00R.

Dotson, Samuel C.: *See—*
Mamula, Ronald S.; and Dotson, Samuel C., 4,276,956, Cl. 182-128.000.

Dover Corporation: *See—*
Ostaad, Paul R., 4,276,916, Cl. 141-206.000.

Dow Chemical Company, The: *See—*
Daniel, John K.; and Peet, Norton P., 4,277,492, Cl. 424-304.000.

Kalmbach, Debra S. K., 4,277,637, Cl. 585-828.000.

Dowell, Terrence P.; Banks, Edwin L., Jr.; and Luce, Carl T., to Barry Wright Corporation. Snubber assembly. 4,276,967, Cl. 188-134.000.

Drabek, Jozef: *See—*
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.

Draco Laboratories, Inc.: *See—*
Schotz, Larry A.; and Wiesmann, Thomas W., 4,277,785, Cl. 340-753.000.

Dragerwerk Aktiengesellschaft: *See—*
Gdulla, Manfred, 4,276,877, Cl. 128-200.270.
Leichnitz, Kurt, 4,277,251, Cl. 23-232.00R.
Van der Smissen, Carl-Ernst; and Pantaleon-Stemberg, Gerd, 4,277,443, Cl. 422-122.000.

Drake, Leo O.; and Drake, Randall S. Printed circuit board storage cabinet. 4,277,120, Cl. 312-320.000.

Drake, Randall S.: *See—*
Drake, Leo O.; and Drake, Randall S., 4,277,120, Cl. 312-320.000.

Drake, Samuel H.; and Simunovic, Sergio N., to Astek Engineering, Inc. Compliance element for remote center compliance unit. 4,276,697, Cl. 33-169.00C.

Drautz, Hannelore: *See—*
Zahner, Hans; Drautz, Hannelore; and Keller, Walter, 4,277,478, Cl. 424-258.000.

Dresser Industries, Inc.: *See—*
Crow, Morgan L., 4,277,109, Cl. 308-8.200.
Fox, Lenwood, 4,277,110, Cl. 308-8.200.

Drzewiecki, Tadeusz M., to United States of America, Army. Apparatus and method for temperature compensation of fluidic circuits. 4,276,895, Cl. 137-2.000.

Dubois, Claude; and Surdi, Jean M., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Rotor for jet engines. 4,277,225, Cl. 416-198.00A.

Dubois, Jean-Claude: *See—*
Eranian, Armand; Dubois, Jean-Claude; Couttet, Andre; and Datamanti, Evelyne, 4,277,554, Cl. 430-270.000.

Dudt, Philip J., to Conoco, Inc. Method for producing agglomerates from finely divided carbonaceous solids. 4,277,252, Cl. 23-313.00R.

Duhayon, Jacques; Goumondy, Jean-Pierre; Leudet, Alain; and Rousseau, Jean-Claude, to Commissariat a l'Energie Atomique. Method for processing a mixture of air and rare gases, especially xenon and krypton. 4,277,363, Cl. 252-301.10W.

Duhl, Daniel, to Polylok Corporation. Wall construction material comprising a rigid support with a textile material facing laminated thereto. 4,277,527, Cl. 428-109.000.

Dukane Corporation: *See—*
Harwood, Philip C.; and Johnson, George H., 4,277,710, Cl. 310-316.000.

Dunkley, Michael: *See—*
Burnett, Stanley F.; Dunkley, Michael; Grimes, Raymond M.; and Parmee, Keith, 4,276,972, Cl. 192-4.00C.

Dunn, Robert M.; Schulman, Martin D.; and Timko, Nicholas, Jr., to International Business Machines Corporation. Electronic circuit module cooling. 4,277,816, Cl. 361-384.000.

Dunning, Gordon R., to International Business Machines Corporation. Sheet feeder for typewriters. 4,277,059, Cl. 271-23.000.

Dunovsky, Sergei A.: *See—*
Barsukov, Vyacheslav Z.; Dunovsky, Sergei A.; Sagoian, Lenik N.; Trepalin, Anatoly I.; Aguf, Igor A.; and Smolkova, Valentina S., 4,277,546, Cl. 429-59.000.

Dunstan, Phillip E.; and McConnell, Charles H., to Boeing Company, The. Accelerating and decelerating moving walkway with minimal walkway surface irregularities. 4,276,976, Cl. 198-334.000.

Du Pont de Nemours, E. I., and Company: *See—*
Conageski, Raymond H., 4,277,331, Cl. 23-293.00R.

DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor I., to Synthelabo. Derivatives of fluorenes and fluoranthenes and process for their preparation. 4,277,476, Cl. 424-250.000.

Duquenne, Michel G. A.; David, Guy A. J.; Grima, Jean-Claude; and Daguet, Jacques L., to U.S. Philips Corporation. Closed-loop telecommunication system. 4,277,843, Cl. 370-84.000.

Durant, Graham J.; Emmett, John C.; Ganellin, Charon F.; and Prain, Hunter D., to Smith Kline & French Laboratories Limited. Oxazole or isoxazole alkylamino ethylene compounds as inhibitors of H-2 histamine receptors. 4,277,485, Cl. 424-272.000.

Durkoppwerke GmbH: *See—*
Biermann, Kurt; and Reinke, Kurt, 4,276,837, Cl. 112-152.000.

Dusenbery, John F.: *See—*
Landskroener, Peter A.; Dusenbery, John F.; and Young, Roger W., 4,277,010, Cl. 226-95.000.

Dusheck, George J., Jr., to United States of America, Navy. Output one-shot. 4,277,700, Cl. 307-273.000.

Dutton, Robert E.: *See—*
Calhoun, Michael B.; Bayh, Russell I., III; and Dutton, Robert E., 4,276,937, Cl. 166-323.000.

Dyett, Derek H.; and Rakowicz, Jan A., to Molins Limited. Trimming devices for cigarette-making machines. 4,276,891, Cl. 131-84.00C.

Dymond, Richard W., to TRW Inc. Power steering valve and method of making the same. 4,276,812, Cl. 91-467.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Ackermann, Otto; Bretzinger, Dieter; Schneidewind, Herbert; and Stephan, Rudolf, 4,277,418, Cl. 260-465.400.
Beckmann, Rolf; and Knackstedt, Wilhelm, 4,277,538, Cl. 428-429.000.

Dyneer Corporation: *See—*
Kraft, Derald H., 4,277,240, Cl. 474-110.000.

E-B Industries, Inc.: *See—*
Kelly, Cornelius J. N., 4,277,673, Cl. 219-528.000.

E M I Limited: *See—*
Birt, David E.; and Holt, Lyn, 4,277,071, Cl. 369-84.000.

Eastman Kodak Company: *See—*
Jessop, Thomas C.; and Smith, William L., 4,277,440, Cl. 422-100.000.

Eastman Technology, Inc.: *See—*
Jeffers, Frederick J.; and McClure, Richard J., 4,277,806, Cl. 360-16.000.

Eaton Corporation: *See—*
Sugiyama, Jun-ichi, 4,276,961, Cl. 187-9.00E.

Ebauches S.A.: *See—*
Saurer, Eric; Gharadjedaghi, Fereydoun; Laesser, Claude; Viennet, Rene; and Ruedin, Yves, 4,277,144, Cl. 350-349.000.

Eckbreth, Alan C., to United Technologies Corporation. Crossed-beam phase-matched coherent anti-stokes raman spectroscopy. 4,277,760, Cl. 331-94.50N.

Eckell, Albrecht: *See—*
Naarmann, Herbert; Penzien, Klaus; Doerfel, Helmut; and Eckell, Albrecht, 4,277,588, Cl. 526-114.000.

Eckert, Dieter: *See—*
Klein, Wilhelm; Bausch, Max; and Eckert, Dieter, 4,277,099, Cl. 296-146.000.

Economy Engine Company, The: *See—*
Beeghly, Bruce R., 4,277,724, Cl. 315-57.000.

Eda, Tadahiro: *See—*
Tatsumi, Susumu; Eda, Tadahiro; and Imai, Chikara, 4,277,549, Cl. 430-30.000.

Edo Corporation: *See—*
Miko, Richard J.; and Shapiro, Daniel H., 4,277,261, Cl. 55-278.000.
Miko, Richard J.; and Shapiro, Daniel H., 4,277,262, Cl. 55-278.000.

Educational Health Products, Inc.: *See—*
Thornton, Thomas F., 4,277,297, Cl. 156-161.000.

Egami, Tsuneyuki: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,276,773, Cl. 73-204.000.

Eguchi, Katsumi. Single-seat globe control valve. 4,276,906, Cl. 137-625.380.

Eichenauer, Rudolf. Steering column and ignition lock for motor vehicle. 4,276,761, Cl. 70-252.000.

Eichenberger, Werner, to Gebruder Loepfe AG. Photoelectrical bobbin feeler. 4,276,910, Cl. 139-273.00A.

Eichhorn, Wilfried, to Hoechst Aktiengesellschaft. N-vinylamide polymers and process for their manufacture using two types of initiators. 4,277,592, Cl. 526-227.000.

Eicken, Karl; and Wuerzer, Bruno, to BASF Aktiengesellschaft. Herbicidal agents based on acetanilides. 4,277,278, Cl. 71-92.000.

Eiden, Leo: *See—*
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

Ejzak, Edward M., to Astro Resources Corporation. Method and apparatus for measuring the amount of carbon and other organics in an aqueous solution. 4,277,438, Cl. 422-80.000.

El Paso Products Company: *See—*
Mehra, Yuv R.; and Clark, Ralph E., 4,277,313, Cl. 203-32.000.

Electric Power Research Institute: *See—*
Rios, Pedro A., 4,277,705, Cl. 310-64.000.

Electric Power Research Institute, Inc.: *See—*
Deno, Don W., 4,277,745, Cl. 324-72.000.

Eli Lilly and Company: *See—*
Lacefield, William B.; and Simon, Richard L., 4,277,471, Cl. 424-248.400.
Lacefield, William B.; and Simon, Richard L., 4,277,495, Cl. 424-309.000.
Molloy, Bryan B.; and Steinberg, Mitchell I., 4,277,501, Cl. 424-330.000.
Zimmerman, Dennis M.; and Robey, Roger L., 4,277,608, Cl. 546-339.000.

Ellerman, Kathryn M.: *See—*
Inks, Clyde G.; Compton, John W.; Ellerman, Kathryn M.; and Bergman, Lee H., 4,277,520, Cl. 427-220.000.

Ellis, John D.: *See—*
Ore, Fernando; Ellis, John D.; and Moore, James H., 4,277,448, Cl. 423-167.000.

Eltra Corporation: *See—*
Sakabinos, Steven, 4,277,154, Cl. 354-5.000.

Emelyanov, Igor V.: *See—*
Klimenko, Alexandr S.; Emelyanov, Igor V.; Krylov, Anatoly A.; and Yantovsky, Semen A., 4,276,938, Cl. 169-47.000.

Emery Industries, Inc.: *See—*
Li, Thomas Z.; and Lamont, James, 4,277,410, Cl. 260-404.000.

Emmett, John C.: *See—*
Durant, Graham J.; Emmett, John C.; Ganellin, Charon F.; and Prain, Hunter D., 4,277,485, Cl. 424-272.000.

Endowment and Research Foundation at Montana State University: *See—*
Strobel, Gary A., 4,277,462, Cl. 424-93.000.

Energy Systems, Incorporated: *See—*
Hanson, Robert C., 4,277,254, Cl. 48-180.00R.

Enoguchi, Yuji: *See—*
Wada, Kenichi; Murasaki, Hiroshi; Enoguchi, Yuji; and Fujiwara, Takao, 4,277,165, Cl. 355-55.000.

Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Palladium complex, process for the preparation thereof and catalyst for producing 1,3-diene oligomers. 4,277,633, Cl. 568-879.000.

Enomoto, Seikichiro; and Hatakeyama, Yoshiharu. Compact. 4,276,893, Cl. 132-83.00R.

Enyart, David O.: *See—*
Kastura, John L.; and Enyart, David O., 4,277,772, Cl. 340-52.00F.

Eotec Corporation: *See—*
Krohn, David A., 4,277,270, Cl. 65-3.00A.
Krohn, David A., 4,277,271, Cl. 65-3.00A.

Eppel, Joseph C., to United States of America, Navy. Depth mapping system. 4,277,167, Cl. 356-5.000.

Eranian, Armand; Dubois, Jean-Claude; Couttet, Andre; and Datamanti, Evelyne, to Thomson-CSF. Resin with a thietane ring, cross-linkable by electron photon irradiation, and process for using such a resin. 4,277,554, Cl. 430-270.000.

Erdmann, Francis M.: *See—*
Beguwala, Moiz M. E.; and Erdmann, Francis M., 4,277,320, Cl. 204-164.000.

Erickson Tool Company: *See—*
Benjamin, Milton L.; and Miles, Wilbur N., 4,277,209, Cl. 408-139.000.

Ermilin, Igor V.: *See—*
Bryansky, Jury A.; Gess de Kalve, Stanislav B.; and Ermilin, Igor V., 4,277,085, Cl. 280-660.000.

Ernst, Alfons, to Dr. Johannes Heidenhain GmbH. Precision length measuring instrument. 4,276,696, Cl. 33-169.00R.

Espig, Winfried: *See—*
Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, 4,277,155, Cl. 354-23.00D.

Essex Cryogenics of Missouri Inc.: *See—*
Lyons, Jerry L., 4,276,901, Cl. 137-469.000.

Eta A.G. Ebauches-Fabrik: *See—*
Giger, Urs; and Perucchi, Norberto, 4,277,704, Cl. 310-49.00R.

Etablissements Carpano and Pons: *See—*
Saligny, Yves, 4,277,643, Cl. 179-1.0PC.

Ethyl Corporation: *See—*
Bittner, John M., 4,276,770, Cl. 73-35.000.

Evangelow, James. Stove pipe heater. 4,276,926, Cl. 165-39.000.

Evolution SA: *See—*
Kempf, Gerhard; and Kunz, Albert, 4,276,739, Cl. 57-91.000.

Exxon Research & Engineering Co.: *See—*
Bock, Jan; Makowski, Henry S.; and Lundberg, Robert D., 4,277,381, Cl. 260-23.50A.
Brois, Stanley J.; Ryer, Jack; and Winans, Esther D., 4,277,354, Cl. 252-51.50R.
Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., 4,277,353, Cl. 252-51.50R.
Greenwood, Sydney H., 4,277,324, Cl. 208-45.000.
Greenwood, Sydney H. J., 4,277,325, Cl. 208-45.000.
Grimes, Patrick G.; and Zahn, Markus, 4,277,317, Cl. 204-1.00R.
Langer, Arthur W., Jr., 4,277,590, Cl. 526-127.000.
Rello, Michael J., 4,277,187, Cl. 400-248.000.
Sawyer, Willard H.; and Cull, Neville L., 4,277,373, Cl. 252-437.000.
Schlosberg, Richard H.; and Scouten, Charles G., 4,277,326, Cl. 208-263.000.
Schlosberg, Richard H.; and Gorbaty, Martin L., 4,277,327, Cl. 208-263.000.
Varma, Vijaya K., 4,277,417, Cl. 260-456.00R.

F. L. Smidth & Co.: *See—*
Bojsen, Erik M., 4,277,258, Cl. 55-152.000.

Faldella, Roberto; and Margary, Riccardo, to Fiat Societa Per Azioni. Heat recovery system. 4,276,747, Cl. 60-618.000.

Falkenstein, Georg; and Kessler, Hansjuergen, to BASF Aktiengesellschaft. Urethane group-containing polyisocyanurate foam based on naphthenic acid-hydroxylamine adduct. 4,277,571, Cl. 521-164.000.

Farcnik, Alexander. Insulative fireproof textured coating. 4,277,355, Cl. 252-62.000.

Farmitalia Carlo Erba, S.p.A.: *See—*
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, to Ciba-Geigy Corporation. Novel esters. 4,277,494, Cl. 424-305.000.

Faulbecker, Gerd, to Gelenkwellenbau GmbH. Centered double joint. 4,276,759, Cl. 64-17.00R.

Faulkner, Eric A., to Brookdeal Electronics Limited. Rectifier circuits. 4,277,753, Cl. 328-26.000.

Fausone, Alfredo; and Seano, Vittorio, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Circuit arrangement for driving nonlinear threshold devices. 4,277,755, Cl. 330-128.000.

Faustini, Franco: *See—*
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Faxvog, Frederick R.; and Krage, Mark K., to General Motors Corporation. Microwave acoustic spectrometer. 4,277,741, Cl. 324-58.50C.

Federal-Mogul Corp.: *See—*
Ladin, Eli M., 4,276,974, Cl. 192-98.000.

Feldman, Martin L.; and De Groff, James T., to Tenneco Chemicals, Inc. Thickening agents for unsaturated polyester resin compositions. 4,277,392, Cl. 260-40.00R.

Fenk, Josef: *See—*
Kriedt, Hans; and Fenk, Josef, 4,277,756, Cl. 330-261.000.

Ferdinand Menrad: *See—*
Schonhut, Kurt, 4,277,151, Cl. 351-41.000.

Ferguson, Andrew C., to W. & T. Avery Limited. Force transducer. 4,276,772, Cl. 73-862.620.

Ferguson, Lyndel G., to Halliburton Company. Insert type soft chuck jaws. 4,277,073, Cl. 279-1.0SJ.

Ferla, Giuseppe: *See—*
Cerofolini, Gianfranco; and Ferla, Giuseppe, 4,277,291, Cl. 148-1.500.

Ferraro, Dominick, to Chisholm-Ryder Co., Inc. Hop picking machine. 4,276,738, Cl. 56-130.000.

Ferriss, Lincoln S.: *See—*
Ljung, Bo H. G.; and Ferriss, Lincoln S., 4,277,173, Cl. 356-350.000.

Feuerbaum, Hans P., to Siemens Aktiengesellschaft. Apparatus and method for contact-free potential measurements of an electronic composition. 4,277,679, Cl. 250-310.000.

Fiat Societa Per Azioni: *See—*
Faldella, Roberto; and Margary, Riccardo, 4,276,747, Cl. 60-618.000.

Fichera, Anthony T. Tobacco smoking inhibitor. 4,276,890, Cl. 131-270.000.

FilmTec Corporation: *See—*
Cadotte, John E., 4,277,344, Cl. 210-654.000.

Finike Italiana Marposs S.p.A.: *See—*
Possati, Mario; and Longhi, Giuliano, 4,277,121, Cl. 312-320.000.

Fire (Waterless Sprinklers) Limited: *See—*
Atack, Joseph, 4,276,939, Cl. 169-60.000.

Firmenich SA: *See—*
Schulte-Elte, Karl-Heinrich; Hauser, Arnold; and Ohloff, Gunther, 4,277,625, Cl. 568-341.000.

Fischer, Siegbert: *See—*
Pfalzer, Lothar; and Fischer, Siegbert, 4,277,328, Cl. 209-169.000.

Fisher, Dennis H.: *See—*
Norton, Richard V.; Frank, Peter J.; Fisher, Dennis H.; and Howe, Steven C., 4,277,636, Cl. 585-14.000.

Fisher, Robert D.; and Katz, Eric R., to Memorex Corporation. Apparatus for recording magnetic impulses perpendicular to the surface of a recording medium. 4,277,809, Cl. 360-131.000.

Fisher, Stephen G.: *See—*
Zabik, Alexander J.; and Fisher, Stephen G., 4,277,153, Cl. 353-27.00R.

Fisher, Theodore H., II; and Cusimano, Richard J., to Basic Incorporated. Telephone dialer. 4,277,651, Cl. 179-90.00B.

Fitzgerald, Harry J.: *See—*
Koppers, Manfred; Bohnes, Karlheinz; and Fitzgerald, Harry J., 4,277,204, Cl. 405-288.000.

Fleek, Arthur E.: *See—*
Davis, Glenn W.; and Fleek, Arthur E., 4,277,191, Cl. 400-582.000.

Flowers, Ralph G., to General Electric Company. Electrical insulating composition comprising an epoxy resin, a phenolic resin and a polyvinyl acetal resin in combination. 4,277,534, Cl. 428-379.000.

FMC Corporation: *See—*
Fujita, George, 4,276,917, Cl. 141-387.000.
Thompson, John S.; and Jadlocki, Joseph F., Jr., 4,277,507, Cl. 426-264.000.

Foley, James W., to Polaroid Corporation. Novel triarylmethane compounds. 4,277,406, Cl. 260-389.000.

Foley, James W., to Polaroid Corporation. Novel triarylmethane compounds. 4,277,407, Cl. 260-390.000.

Forch, Hans, to Carl Freudenberg, Firma. Seal for the gap between a revolving shaft and the bore of a housing against a mixture of a liquid and a gas. 4,277,072, Cl. 277-65.000.

Ford Aerospace & Communications Corp.: *See—*
Cushing, Charles J.; Phillips, Clifton W.; and VanderNeut, Richard D., 4,277,178, Cl. 356-431.000.

Ford Motor Company: *See—*
Anderson, Dale W., 4,276,783, Cl. 74-15.630.
Giachino, Joseph M.; Haeberle, Russell J.; and Crow, Joseph W., 4,277,814, Cl. 361-283.000.

Formax, Inc.: *See—*
Sandberg, Glenn A.; and Janssen, Wilbur A., 4,276,753, Cl. 62-186.000.

Forsch, Manfred; Schaub, Wolfgang; and Gerhards, Hermann, to Hoechst Aktiengesellschaft. Heterocyclic spiro-linked amidines, compositions and use thereof. 4,277,470, Cl. 424-246.000.

Forss, Kaj G.; Talka, Esko T.; and Fremer, Kaj-Erik. Method for the isolation of vanillin from lignin in alkaline solutions. 4,277,626, Cl. 568-438.000.

Fortmann, Hermann, to Olympia Werke AG. Photocopier photoconductive sheet holding device. 4,277,164, Cl. 355-16.000.

Fournel, Francis; and Soussan, Salomon, to Rhone-Progil. Vertical autoclave for bulk polymerization of vinyl chloride. 4,277,585, Cl. 526-65.000.

Fournet, Julien: *See—*
Bonnet, Jean; and Fournet, Julien, 4,277,750, Cl. 324-201.000.

Fournier, Roger H., to Warner & Swasey Company, The. Compensating steadyrest. 4,276,723, Cl. 51-238.00S.

Foust, Harry D., to Trane Company, The. Plate type heat exchanger. 4,276,927, Cl. 165-70.000.

Fox, Leawood, to Dresser Industries, Inc. Earth boring bit with eccentric seal groove. 4,277,110, Cl. 308-8.200.

Fozo, Andras: *See—*
Makara, Gyorgy; Morlin, Andras; Fozo, Andras; and Fulop, Robert, 4,276,818, Cl. 98-40.00B.

Frank, Peter J.: *See—*
Norton, Richard V.; Frank, Peter J.; Fisher, Dennis H.; and Howe, Steven C., 4,277,636, Cl. 585-14.000.

Fraser, Ward M. Method and device for blocking wells to extinguish fires, prohibit saltwater intrusion, etc. 4,276,934, Cl. 166-286.000.

Frei, Bernhard: *See—*
Seifert, Helmut; Honl, Wolf-Dieter; Schmid, Johannes; and Frei, Bernhard, 4,277,036, Cl. 242-107.40A.

Fremer, Kaj-Erik: *See—*
Forss, Kaj G.; Talka, Esko T.; and Fremer, Kaj-Erik, 4,277,626, Cl. 568-438.000.

Fremont, Michael J., to Kransco Manufacturing, Inc. Soft sailboard. 4,276,844, Cl. 114-39.000.

Frey, William L: *See—*
Cherenko, Joseph; Frey, William L; Kelly, Joseph D.; and Sokol, Larry S., 4,277,299, Cl. 156-242.000.

Friedman, Norman J., to Johnson & Johnson. Bonding of lightweight tissue paper. 4,277,529, Cl. 428-211.000.

Frito-Lay, Inc.: *See—*
Wicklund, Peter A.; and Ivers, John T., 4,277,510, Cl. 426-441.000.

Fritz, William L., to Baldwin Piano & Organ Company. Stop tab for capture combination action systems used in electronic organs. 4,276,803, Cl. 84-343.000.

Fritzon, Hans G.: *See—*
Pejchal, Karel; Fritzon, Hans G.; and Lindstrom, Raimo, 4,276,912, Cl. 139-437.000.

Fromantin, Jean-Pierre M. J., to Unicler. Analgesic 2-(M-benzoylphenoxy)-propionic acid derivatives. 4,277,497, Cl. 424-316.000.

Fromson, Howard A.; and Gracia, Robert F., to Fromson, Howard A. Aluminum lithographic plate with visible image and process. 4,277,555, Cl. 430-278.000.

Froning, H. Robert: *See—*
Powers, George W., Jr.; Froning, H. Robert; and Taggart, Davis L., 4,277,351, Cl. 252-8.55D.

Frost, Jonathan: *See—*
DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor L., 4,277,476, Cl. 424-250.000.

Frye, Robert B., to General Electric Company. Silicone resin coating composition. 4,277,287, Cl. 106-287.120.

Fuchs, Otto, to Hoechst Aktiengesellschaft. Monoazo compounds deriving from 5-amino-benzimidazole-2-one-6-carboxylic acid. 4,277,397, Cl. 260-157.000.

Fuel Computer Corporation of America: *See—*
Palmieri, Joseph M., 4,276,925, Cl. 165-12.000.

Fuji Electric Co., Ltd.: *See—*
Sano, Yasukazu, 4,277,803, Cl. 358-106.000.

Fujii, Kiyoshi; Tsuji, Keiji; and Nishimoto, Seiya, to Laurel Bank Machine Co., Ltd. Bill discriminating apparatus. 4,277,774, Cl. 340-146.30Q.

Fujino, Hisaaki: *See—*
Kanamaru, Naokatu; Imai, Kazuo; and Fujino, Hisaaki, 4,277,340, Cl. 210-433.200.

Fujino, Masahiko; Shinagawa, Susumu; and Kawai, Kiyohisa, to Takeda Chemical Industries, Ltd. Tetrapeptidehydrazide derivatives. 4,277,394, Cl. 260-112.50R.

Fujita, George, to FMC Corporation. Mobile apparatus for fluid transfer. 4,276,917, Cl. 141-387.000.

Fujita, Hisao; Tanaka, Yasuhiko; Kobayashi, Isao; and Nakamura, Ken, to Konishiroku Photo Industry Co., Ltd. Apparatus for detecting toner density. 4,276,854, Cl. 118-689.000.

Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, to Furukawa Electric Company, Ltd., The; and Furukawa Battery Co., The. Galvanic cell separator. 4,277,572, Cl. 525-61.000.

Fujiwara, Takao: *See—*
Wada, Kenichi; Murasaki, Hiroshi; Enoguchi, Yuji; and Fujiwara, Takao, 4,277,165, Cl. 355-55.000.

Fukui, Seiji, to Shimano Industrial Company, Limited. Control mechanism for a transmitting-pawl at a transmission hub for a bicycle. 4,276,973, Cl. 192-47.000.

Fukushima, Yoshio; and Kanmoto, Yoshiaki, to Ricoh Company, Ltd. Focusing position detection apparatus. 4,277,156, Cl. 354-25.000.

Fulmer, Norman C.; and Kewley, Norman E., to General Electric Company. Percussive flashcube arrangement. 4,277,234, Cl. 431-361.000.

Fulop, Robert: *See—*
Makara, Gyorgy; Morlin, Andras; Fozo, Andras; and Fulop, Robert, 4,276,818, Cl. 98-40.00B.

Fumagalli, Angelo: *See—*
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Funke, Mandred: *See—*
Johne, Hans; Jentzsch, Arndt; Schmidt, Lothar; Muller, Wolfgang; and Funke, Mandred, 4,276,827, Cl. 101-212.000.

Furer, Lotti: *See—*
Keller, Karlheinz; and Furer, Lotti, 4,277,247, Cl. 8-557.000.

Furukawa Battery Co., The: *See—*
Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, 4,277,572, Cl. 525-61.000.

Furukawa Electric Company, Ltd., The: *See—*
Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, 4,277,572, Cl. 525-61.000.

Furuta, Kenzi: *See—*
Sato, Masanobu; Satoh, Ken; Nakao, Toshihiro; and Furuta, Kenzi, 4,277,674, Cl. 235-92.0EA.

Fushiki, Isamu: *See—*
Koboshi, Sigeharu; Fushiki, Isamu; and Sakamoto, Kenro, 4,277,556, Cl. 430-393.000.

Futober Epuletgepeszeti Termekeket Gyarto Vallalat: *See—*
Makara, Gyorgy; Morlin, Andras; Fozo, Andras; and Fulop, Robert, 4,276,818, Cl. 98-40.00B.

G. L. Rexroth GmbH: *See—*
Dantlgraber, Jorg, 4,277,228, Cl. 417-273.000.

GAF Corporation: *See—*
Charles, John J., 4,277,391, Cl. 260-40.00R.

Gaibov, Gjuloglan G. O.: *See—*
Kuliev, Aladdin M. O.; Kadyrov, Tokhrul A. O.; Gaibov, Gjuloglan G. O.; Sinaisky, Anatoly G.; and Matiyasevich, Valentina N., 4,277,390, Cl. 260-37.0EP.

Gamble, William L.: *See—*
Morgan, Robert L.; Cupitt, Larry T.; and Gamble, William L., 4,277,146, Cl. 350-356.000.

Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., to Farmitalia Carlo Erba, S.p.A. Bicyclic prostaglandins. 4,277,491, Cl. 424-285.000.

Ganellin, Charon F.: *See—*
Durant, Graham J.; Emmett, John C.; Ganellin, Charon F.; and Prain, Hunter D., 4,277,485, Cl. 424-272.000.

GAO Gesellschaft fur Automation und Organisation mbH: *See—*
Haberstroh, Markus; and Bernardi, Herbert, 4,276,736, Cl. 53-399.000.

Gardner, Billy R. Periscopic mirror. 4,277,142, Cl. 350-302.000.

Garibotto, Giovanni, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Wave-signal-processing system with a two-dimensional recursive digital filter. 4,277,834, Cl. 364-724.000.

Garner, Robert; and Whitehead, Michael J., to Ciba-Geigy Corporation. 2(Indol-3'-oyl) 3,4,5,6-tetrahalo benzoic acid anhydrides. 4,277,400, Cl. 260-326.13B.

Garrett Corporation, The: *See—*
LaGrone, Charles H., 4,276,743, Cl. 60-39.14R.
Silver, Alexander; and Wuertz, Kenneth L., 4,277,707, Cl. 310-104.000.

Garvey, Peter M. Liquid chemical spraying apparatus movable by a tower-type water irrigation system. 4,277,026, Cl. 239-127.000.

Garziera, Gastone; and Pisani, Federico, to Ing. C. Olivetti & C., S.p.A. Apparatus for recording and displaying or plotting graphs. 4,277,835, Cl. 364-900.000.

Gaski, John M. Flexible member caddy. 4,277,035, Cl. 242-85.900.

Gdulla, Manfred, to Dragerwerk Aktiengesellschaft. Respiratory method and apparatus. 4,276,877, Cl. 128-200.270.

Gebruder Boehringer G.m.b.H.: *See—*
Berbalk, Hermann, 4,276,794, Cl. 82-1.00C.

Gebruder Loepfe AG: *See—*
Eichenberger, Werner, 4,276,910, Cl. 139-273.00A.

Geczy, Bela, to Smith International, Inc. In-hole motor with bit clutch. 4,276,944, Cl. 175-102.000.

Gelbein, Abraham P.; and Khonsari, Ali M., to Lummus Company, The. Catalyst and process for producing aromatic hydroxy compounds. 4,277,630, Cl. 568-801.000.

Gelenkwellenbau GmbH: *See—*
Faulbecker, Gerd, 4,276,759, Cl. 64-17.00R.

Gelman Sciences, Inc.: *See—*
Baughn, John W., 4,277,332, Cl. 210-96.200.

Gendy, Moheb M.: *See—*
Andrews, James P.; Callahan, Arthur C.; and Gendy, Moheb M., 4,277,290, Cl. 134-10.000.

General Atomic Company: *See—*
Ohkawa, Tihiro, 4,277,306, Cl. 176-9.000.

General Dynamics Corporation: *See—*
Burgeson, John E.; and Lieurance, Dennis W., 4,277,768, Cl. 335-216.000.

General Electric Company: *See—*
Carnahan, James C., 4,277,628, Cl. 568-749.000.
DeRemer, Harold A., 4,277,659, Cl. 200-61.620.
Flowers, Ralph G., 4,277,534, Cl. 428-379.000.
Frye, Robert B., 4,277,287, Cl. 106-287.120.
Fulmer, Norman C.; and Kewley, Norman E., 4,277,234, Cl. 431-361.000.
Gustafson, Ralph W., 4,276,690, Cl. 29-602.00R.
Haaf, William R.; and Shank, Charles P., 4,277,575, Cl. 525-89.000.
Hall, Walter L.; Jaquiss, Donald B. G.; and Mark, Victor, 4,277,598, Cl. 528-199.000.
Jones, Dwight V., 4,277,672, Cl. 219-497.000.
Kast, Howard B., 4,276,809, Cl. 91-417.00R.
King, Robert D., 4,277,787, Cl. 343-100.0SA.
Mark, Victor, 4,277,597, Cl. 528-199.000.
Mark, Victor, 4,277,599, Cl. 528-199.000.
Mark, Victor; and Hedges, Charles V., 4,277,600, Cl. 528-204.000.
Pisano, Alan D., 4,276,744, Cl. 60-39.16R.
Urick, Palmer D.; and Bienz, Robert H., 4,276,689, Cl. 29-596.000.
Waldron, Wesley K., 4,277,786, Cl. 340-765.000.
Wong, Thomas Y., 4,277,832, Cl. 364-510.000.

General Foods Corporation: *See—*
Reussner, George H.; and Thiessen, Reinhardt, Jr, 4,277,464, Cl. 424-177.000.

General Industries, Inc.: *See—*
Grenier, Wilfred J., 4,277,020, Cl. 237-1.00R.

General Mills, Inc.: *See—*
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tauchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

General Motors Corporation: *See—*
Arnoldussen, Thomas C., 4,277,147, Cl. 350-357.000.
Delp, Hermann; and Muller, Norbert, 4,277,658, Cl. 200-61.540.
Faxvog, Frederick R.; and Krage, Mark K., 4,277,741, Cl. 324-58.50C.
Horvath, Richard A., 4,276,971, Cl. 188-322.000.
Kastura, John L.; and Enyart, David O., 4,277,772, Cl. 340-52.00F.
Kearney, Mark B.; Mowery, Kenneth D.; and Pechous, L. Joseph, 4,276,861, Cl. 123-425.000.
Kennedy, Richard A., 4,277,757, Cl. 330-300.000.
Livesay, J. D., 4,276,756, Cl. 62-503.000.
Loose, Richard D.; and Kapanka, Harley L., 4,277,037, Cl. 242-107.40A.
Mercer, Robert R., 4,277,012, Cl. 227-68.000.
Viers, Homer J., 4,277,092, Cl. 285-263.000.
Voss, Richard J., 4,277,738, Cl. 322-28.000.

General Time Corporation: *See—*
Ogden, Gerald W., 4,277,841, Cl. 368-78.000.

Genis, Mariano R. Slate for writing braille. 4,277,239, Cl. 434-115.000.

Gensurowsky, Walter. Toilet facility. 4,276,663, Cl. 4-313.000.

George, Richard F., to Keene Corporation. Internally reinforced ball bearing spacer. 4,277,117, Cl. 308-199.000.

Georgia Tech Research Institute: *See—*
Goodman, Robert M., Jr.; and Dittman, William J., 4,277,789, Cl. 343-708.000.

Gerbi, Giuseppe: *See—*
Audone, Bruno; Bolla, Luciano; and Gerbi, Giuseppe, 4,277,744, Cl. 324-72.000.

Gerhard Peter KG: *See—*
Peter, Gerhard, 4,276,815, Cl. 493-287.000.

Gerhards, Hermann: *See—*
Forsch, Manfred; Schaub, Wolfgang; and Gerhards, Hermann, 4,277,470, Cl. 424-246.000.

Gerst, Carl W.; and Paciorek, Leonard J., to Anaren Microwave, Incorporated. Angle digitizer. 4,277,748, Cl. 324-83.00D.

Gess de Kalve, Stanislav B.: *See—*
Bryansky, Jury A.; Gess de Kalve, Stanislav B.; and Ermilin, Igor V., 4,277,085, Cl. 280-660.000.

Gettleman, Sara L. Game device with board surfaces visible only to opposing players. 4,277,067, Cl. 273-271.000.

Getty Oil Company, Inc.: *See—*
McKinzie, Howard L., 4,276,936, Cl. 166-303.000.

Getty Synthetic Fuels, Inc.: *See—*
Ham, Robert K., 4,276,778, Cl. 73-864.430.

Gharadjedaghi, Fereydoun: *See—*
Saurer, Eric; Gharadjedaghi, Fereydoun; Laesser, Claude; Viennet, Rene; and Ruedin, Yves, 4,277,144, Cl. 350-349.000.

Giachino, Joseph M.; Haeberle, Russell J.; and Crow, Joseph W., to Ford Motor Company. Semiconductor variable capacitance pressure transducer assembly. 4,277,814, Cl. 361-283.000.

Giannini, Umberto; Albizzati, Enrico; and Parodi, Sandro, to Montedison S.p.A.; and Mitsui Petrochemical Industries, Ltd. Components of catalysts useful for the polymerization of alpha-olefins, and catalysts prepared therefrom. 4,277,589, Cl. 526-122.000.

Gibney, Lloyd. Foldable truck cap assembly. 4,277,098, Cl. 296-100.000.

Gielen, Hendrik A. L.: *See—*
Lemmens, Alfons E.; and Gielen, Hendrik A. L., 4,276,921, Cl. 164-4.000.

Giger, Urs; and Perucchi, Norberto, to Eta A.G. Ebauches-Fabrik. Motor for electronic watch. 4,277,704, Cl. 310-49.00R.

Ginsberg, Thomas; and Kaufman, Lawrence G., to Union Carbide Corporation. Single-package zinc-rich coatings. 4,277,284, Cl. 106-1.050.

Girgis, Mikhail M., to PPG Industries, Inc. Modified phenolic aldehyde resin to produce an improved adhesive coating and method of making same. 4,277,535, Cl. 428-389.000.

Givaudan Corporation: *See—*
Helmlinger, Daniel; and Naegeli, Peter, 4,277,618, Cl. 560-231.000.
Oppolzer, Wolfgang, 4,277,631, Cl. 568-817.000.

Glassman, David M. Telephone monitoring apparatus. 4,277,648, Cl. 179-7.10R.

Glaxo Group Limited: *See—*
Thompson, Eric; and Baalham, Christopher J., 4,277,601, Cl. 544-22.000.

Gobel, Wilhelm: *See—*
Beck, Manfred; and Gobel, Wilhelm, 4,277,579, Cl. 525-344.000.

Goldman, Max; and Stein, Arthur A., to Pathology Products, Ltd. Adsorbent enclosure for automatic tissue processors. 4,276,819, Cl. 98-115.0LH.

Gomi, Tohru: *See—*
Sakotani, Akio; and Gomi, Tohru, 4,277,346, Cl. 210-691.000.

Good, William R.: *See—*
Mueller, Karl F.; and Good, William R., 4,277,582, Cl. 525-421.000.

Goodman, Philip: *See—*
Kovac, Michael G.; Chleck, David J.; and Goodman, Philip, 4,277,742, Cl. 324-61.00R.

Goodman, Robert M., Jr.; and Dittman, William J., to Georgia Tech Research Institute. Microwave energy transmission system for around-the-mast applications. 4,277,789, Cl. 343-708.000.

Goodyear Aerospace Corporation: *See—*
Chin, Robert W.; and Krause, Walter J., 4,276,969, Cl. 188-218.0XL.

Gorbaty, Martin L.: *See—*
Schlosberg, Richard H.; and Gorbaty, Martin L., 4,277,327, Cl. 208-263.000.

Gordon, John H. Method and apparatus for pressure forming pipe bells. 4,277,231, Cl. 425-387.100.

Goto, Naohiro: *See—*
Nonaka, Yasuhiko; Goto, Naohiro; and Shidara, Keiichi, 4,277,515, Cl. 427-76.000.

Gottschalk, Klaus W. Flat cable conductor separating apparatus. 4,276,798, Cl. 83-430.000.

Goumondy, Jean-Pierre: *See—*
Duhayon, Jacques; Goumondy, Jean-Pierre; Leudet, Alain; and Rousseau, Jean-Claude, 4,277,363, Cl. 252-301.10W.

Gracia, Robert F.: *See—*
Fromson, Howard A.; and Gracia, Robert F., 4,277,555, Cl. 430-278.000.

Graham, Sandra I.: *See—*
Nyi, Kayson; and Graham, Sandra I., 4,277,319, Cl. 204-159.230.

Grant, Norman A., to Aminoil, USA, Inc. Process for producing methanol. 4,277,416, Cl. 518-703.000.

Graphtek, Inc.: *See—*
Hittel, Lorenz A.; and Yurcik, Raymond H., Jr., 4,277,732, Cl. 318-696.000.

Gray, Don N.; and Keyes, Melvin H., to Technicon Instruments Corporation. Enzyme immunoassays using immobilized reagents in a flowing stream. 4,277,560, Cl. 435-7.000.

Gray, Stanley; and Heshmat, Hooshang, to Mechanical Technology Incorporated. Support element for compliant hydrodynamic thrust bearing. 4,277,111, Cl. 308-9.000.

Grecksch, Hans: *See—*
Raasch, Hans; and Grecksch, Hans, 4,276,742, Cl. 57-263.000.

Greenwood, Sydney H., to Exxon Research & Engineering Co. Treatment of pitches in carbon artifact manufacture. 4,277,324, Cl. 208-45.000.

Greenwood, Sydney H. J., to Exxon Research & Engineering Co. Treatment of pitches in carbon artifact manufacture. 4,277,325, Cl. 208-45.000.

Gref, Hans; Hofmann, Hans; Zander, Werner; and Busch, Josef, to AGFA-Gevaert, A.G. Experimental plant for the coating and drying of material in the form of webs. 4,276,853, Cl. 118-643.000.

Gremier, Wilfred J., to General Industries, Inc. Fluid friction heater. 4,277,020, Cl. 237-1.00R.

Greulich, Kenneth R.: *See—*
Wakeman, William R.; Van Malderghem, Edmund G.; and Greulich, Kenneth R., 4,277,016, Cl. 229-69.000.

Griehl, Wolfgang: *See—*
Schmid, Eduard; and Griehl, Wolfgang, 4,277,433, Cl. 264-289.300.

Grima, Jean-Claude: *See—*
Duquenne, Michel G. A.; David, Guy A. J.; Grima, Jean-Claude; and Daguet, Jacques L., 4,277,843, Cl. 370-84.000.

Grimes, Patrick G.; and Zahn, Markus, to Exxon Research & Engineering Co. Shunt current elimination and device employing tunneled protective current. 4,277,317, Cl. 204-1.00R.

Grimes, Raymond M.: *See—*
Burnett, Stanley F.; Dunkley, Michael; Grimes, Raymond M.; and Parmee, Keith, 4,276,972, Cl. 192-4.00C.

Grissman Chemicals Limited: *See—*
Diethelm, Eugen, 4,277,399, Cl. 260-239.30T.

Griswold Controls: *See—*
Griswold, David E., 4,276,897, Cl. 137-218.000.

Griswold, David E., to Griswold Controls. Backflow prevention apparatus. 4,276,897, Cl. 137-218.000.

Groll, Manfred; Kuhnel, Werner; and Kuth, Robert, to Bayer Aktiengesellschaft. Process for dyeing and printing cellulose fibres. 4,277,245, Cl. 8-532.000.

Grollier, Jean-Francois: *See—*
Vanlerberghe, Guy; Sebag, Henri; Grollier, Jean-Francois; and Zysman, Alexandre, 4,277,581, Cl. 525-420.000.

Grosvernier, Claude-Arnold, to Compagnie Industrielle Radioelectrique. Method and apparatus for checking the width and parallelism of margins following the centering of a print with respect to a support. 4,277,176, Cl. 356-394.000.

Gruhier, Henri: *See—*
Sugier, Andre; Courty, Philippe; Deschamps, Andre; and Gruhier, Henri, 4,277,458, Cl. 423-437.000.

Grunner, Erich. Turntable apparatus for molding tires. 4,277,233, Cl. 425-588.000.

Gsell, Laurenz: *See—*
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.

GTE Products Corporation: *See—*
Bauer, Claude J.; and Moore, Kenneth M., 4,277,641, Cl. 174-65.00R.
Keeffe, William M.; Koury, Frederic; and Gungle, W. Calvin, 4,277,714, Cl. 313-217.000.

Guenther, Bobby D.: *See—*
Upatnieks, Juris; Christensen, Charles R.; and Guenther, Bobby D., 4,277,137, Cl. 350-162.0SF.

Guggenbuhl, Walter, to Contraves AG. Method and circuit for producing measuring pulses in a particle analyzer. 4,277,743, Cl. 324-71.0CP.

Gungle, W. Calvin: *See—*
Keeffe, William M.; Koury, Frederic; and Gungle, W. Calvin, 4,277,714, Cl. 313-217.000.

Gunter & Cooke, Inc.: *See—*
Howe, James W., Jr, 4,276,678, Cl. 19-106.00R.

Gunther, Arnold. Floating roofs with magnetic seals. 4,276,991, Cl. 220-223.000.

Gupton, B. Frank; and Ulmer, Harry E., to Virginia Chemicals Inc. Byproduct recovery from a pentaerythritol waste stream. 4,277,620, Cl. 562-609.000.

Gustafson, Ralph W., to General Electric Company. Method of assembling components of a thermostat. 4,276,690, Cl. 29-602.00R.

Guthikonda, Ravindra N.: *See—*
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,277,482, Cl. 424-263.000.

Guthrie, Roderick I. L.; and Mucciardi, Frank, to Guthrie, Roderick I. L. Method of melt dispersing a floatable solid additive in molten metal and a melt dispersible, floatable, solid additive therefor. 4,277,282, Cl. 75-53.000.

Guy F. Atkinson Company: *See—*
Nelson, Richard M., 4,277,223, Cl. 415-199.100.

Gyrex Corp.: *See—*
Schillke, Peter; and Walls, Robert R., 4,277,518, Cl. 427-96.000.

H-C Industries, Inc.: *See—*
Peller, William N., 4,277,431, Cl. 264-148.000.

Haaf, William R.; and Shank, Charles P., to General Electric Company. Impact modifier for thermoplastic compositions. 4,277,575, Cl. 525-89.000.

Haberstroh, Markus; and Bernardi, Herbert, to GAO Gesellschaft fur Automation und Organisation mbH. Process and apparatus for doing up sheet material with label tapes. 4,276,736, Cl. 53-399.000.

Haeberle, Russell J.: *See—*
Giachino, Joseph M.; Haeberle, Russell J.; and Crow, Joseph W., 4,277,814, Cl. 361-283.000.

Hagen, Helmut; Kohler, Rolf-Dieter; and Markert, Juergen, to BASF Aktiengesellschaft. Method of using 1,2-benzisothiazoles. 4,277,477, Cl. 424-251.000.

Hajime Industries, Ltd.: *See—*
Yoshida, Hajime, 4,277,802, Cl. 358-106.000.

Hajos, Zoltan G.; and Levine, Seymour, to Ortho Pharmaceutical Corporation. Total synthesis of 1RS,4SR,5RS-4-(4,8-dimethyl)-5-hydroxy-7-nonen-1-yl)-4-methyl-3,8-dioxabicyclo[3.2.1]octane-1-acetic acid. 4,277,401, Cl. 260-340.600.

Hakkinen, Taisto. Respirator apparatus. 4,276,876, Cl. 128-200.140.

Hall, George R.; and Hall, Robert J., to Norlin Industries, Inc. Duty cycle control apparatus. 4,277,697, Cl. 307-265.000.

Hall, Graham W.: *See—*
Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., 4,277,568, Cl. 521-68.000.

Hall, James B.: *See—*
Hancock, Robert J.; Burns, William A.; and Hall, James B., 4,277,844, Cl. 371-38.000.

Hall, Robert J.: *See—*
Hall, George R.; and Hall, Robert J., 4,277,697, Cl. 307-265.000.

Hall, Walter L.; Jaquiss, Donald B. G.; and Mark, Victor, to General Electric Company. Process for preparing polycarbonates using cyclic amidine catalysts. 4,277,598, Cl. 528-199.000.

Hallen Company: *See—*
Allen, Herbert, 4,276,789, Cl. 81-3.360.

Halliburton Company: *See—*
Ferguson, Lyndel G., 4,277,073, Cl. 279-1.0SJ.

Ham, Robert K., to Getty Synthetic Fuels, Inc. Anaerobic sampling method. 4,276,778, Cl. 73-864.430.

Hamai, Kyugo, to Nissan Motor Company, Limited. Diesel engine having a subchamber. 4,276,865, Cl. 123-569.000.

Hamamatsu T.V. Co, Ltd: *See—*
Alfano, Robert R.; and Schiller, Norman H., 4,277,669, Cl. 219-121.0LK.

Hamilton, James M.; and Porter, Arthur J., to Hughes Aircraft Company. Charge comparator output driver. 4,277,702, Cl. 307-304.000.

Hamilton, W. Duane, to American Optical Corporation. Mechanical counterbalance. 4,277,044, Cl. 248-571.000.

Hammann, Ingeborg: *See—*
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.

Hammes, Theo: *See—*
Kimm, Otfried; Hammes, Theo; and Loebler, Peter, 4,276,988, Cl. 215-254.000.

Hammond, Donald J.: *See—*
Lin, Kingso C.; and Hammond, Donald J., 4,277,382, Cl. 260-29.20M.

Hanafy, Amin M., to Hewlett-Packard Company. Acoustic electric transducer with shield of controlled thickness. 4,277,711, Cl. 310-334.000.

Hanafy, Amin M., to Hewlett-Packard Company. Acoustic electric transducer with slotted base. 4,277,712, Cl. 310-334.000.

Hancock, Robert J.; Burns, William A.; and Hall, James B., to Storage Technology Corporation. Method of detecting and correcting errors in digital data storage systems. 4,277,844, Cl. 371-38.000.

Hanna, Clinton R. Stabilizing vehicles. 4,277,076, Cl. 280-112.00A.

Hans Kramer GmbH & Co. KG, Firma: *See—*
Dabrowski, Ralf, 4,277,456, Cl. 423-328.000.

Hansen, Everett T., to Continental Group, Inc., The. Dome tooling to eliminate tab protrusion of a can end. 4,276,843, Cl. 113-1.00F.

Hansen, Paul A. Automatic biaxial sun tracking mechanism for sun ray utilization devices. 4,277,132, Cl. 350-83.000.

Hanson, Bruce L.: *See—*
Wolvek, Sidney; and Hanson, Bruce L., 4,276,874, Cl. 128-1.00D.

Hanson, Donald W.; and Palmquist, William E., to St. Jude Medical, Inc. Heart valve prosthesis. 4,276,658, Cl. 3-1.500.

Hanson, Robert C., to Energy Systems, Incorporated. Control system and apparatus for producing compatible mixtures of fuel gases. 4,277,254, Cl. 48-180.00R.

Hara, Yasuhiko: *See—*
Karasaki, Koichi; and Hara, Yasuhiko, 4,277,175, Cl. 356-378.000.

Harcarufka, Rudolph E.: *See—*
Bliznak, John B.; and Harcarufka, Rudolph E., 4,277,511, Cl. 426-548.000.

Harding, Geoffrey, to U.S. Philips Corporation. Device for determining internal body structures by means of scattered radiation. 4,277,686, Cl. 250-445.00T.

Hardinge, Kevin. Medullary canal plug. 4,276,659, Cl. 3-1.900.

Hardwick, John P.: *See—*
Dinsdale, Jack; Parkins, David W.; and Hardwick, John P., 4,277,070, Cl. 369-248.000.

Hareng, Michel; Le Berre, Serge; and Leclerc, Pierre, to Thomson-CSF. Liquid-crystal display device. 4,277,145, Cl. 350-351.000.

Haris, J. Wylie, Jr.: *See—*
Vance, John M., 4,276,950, Cl. 180-7.00P.

Harris Corporation: *See—*
Rosier, Charles D.; Pan, Jing-Jong; and Belcher, Donald K., 4,277,764, Cl. 333-24.00C.

Harris Hub Co., Inc.: *See—*
Mis, Frank J., 4,276,665, Cl. 5-184.000.

Harshaw Chemical Company, The: *See—*
Swinehart, Carl F., 4,277,303, Cl. 156-616.00R.

Hart, W. Howard; and Weber, Helmut E., to United States of America, Environmental Protection Agency. Antifouling window assembly. 4,277,131, Cl. 350-63.000.

Harvey, Dennis, to Plessey Handel und Investments AG. Vibratory atomizer. 4,277,025, Cl. 239-102.000.

Harvey, Philip C., to MKS Instruments, Inc. Wide range digital meter. 4,277,747, Cl. 324-78.00D.

Harwood, Philip C.; and Johnson, George H., to Dukane Corporation. Control circuit for piezoelectric ultrasonic generators. 4,277,710, Cl. 310-316.000.

Hasegawa, Gary K., to Continental Group, Inc., The. Easy-opening container with non-detach tab. 4,276,993, Cl. 220-269.000.

Hasegawa, Hidenobu: *See—*
Mori, Shun'ichiro; Kimata, Kunio; Aoygi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,670, Cl. 219-492.000.
Mori, Shunichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,671, Cl. 219-494.000.

Haskér, Jan; Vervest, Johannes C. G.; Peters, Cornelis; and Vroomen, Laurentius C. J., to U.S. Philips Corporation. Low-pressure gas discharge lamp and method for making. 4,277,713, Cl. 313-203.000.

Haslmayr, Johann, to Voest-Alpine Aktiengesellschaft. Process of producing cool agglomerated solids. 4,277,235, Cl. 432-18.000.

Hata, Hideo: *See—*
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,277,578, Cl. 525-211.000.

Hatakeyama, Yoshiharu: *See—*
Enomoto, Seikichiro; and Hatakeyama, Yoshiharu, 4,276,893, Cl. 132-83.00R.

Hauni-Werke Korber & Co Kg.: *See—*
Wahle, Gunter; and Heitmann, Uwe, 4,277,678, Cl. 250-223.00R.

Hauser, Arnold: *See—*
Schulte-Elte, Karl-Heinrich; Hauser, Arnold; and Ohloff, Gunther, 4,277,625, Cl. 568-341.000.

Hawken, Kenneth W.; and Janko, Bozidar, to Tektronix, Inc. Cathode ray tube having low voltage focus and dynamic correction. 4,277,722, Cl. 315-31.00R.

Haworth Mfg., Inc.: *See—*
Haworth, Richard G.; Wilson, Harold R.; and Tillmann, Ditmar K., 4,277,123, Cl. 339-22.00R.

Haworth, Richard G.; Wilson, Harold R.; and Tillmann, Ditmar K., to Haworth Mfg., Inc. Raceway structure for power panel. 4,277,123, Cl. 339-22.00R.

Hayakawa, Masatoshi: *See—*
Konno, Toshio; and Hayakawa, Masatoshi, 4,276,683, Cl. 29-25.420.

Hayashi, Hisao, to Kabushiki Kaisha Kawaguchiya Hayashi Juho Kayaku-Ten. Cartridge/carrier locking device for automatic gun. 4,276,707, Cl. 42-17.000.

Hayashi, Masaaki; Nagami, Koichi; Tsuneta, Kazuyoshi; and Kenmotusu, Nobuhiro, to Dai Nippon Toryo Co., Ltd. Aqueous cationic thermosetting urethane resin coating compositions. 4,277,383, Cl. 260-29.300.

Hayes, Thomas D.; and Jewell, William J., to Cornell Research Foundation, Inc. Combined biological-chemical detoxification of organics. 4,277,342, Cl. 210-609.000.

Heap, Peter, to IROPA (Textile Accessories) Ltd. Apparatus for folding garments such as shirts. 4,277,005, Cl. 223-37.000.

Heard, Charles B., Jr. Fireplace device. 4,276,870, Cl. 126-141.000.

Hebel, James B., to Smith International, Inc. Roller Belleville spring damper. 4,276,947, Cl. 175-321.000.

Hechler, Valentine, IV. Spray and foam dispensing nozzle. 4,277,030, Cl. 239-407.000.

Heckler & Koch GmbH: *See—*
Strobel, Herbert, 4,276,792, Cl. 82-1.00C.

Hedges, Charles V.: *See—*
Mark, Victor; and Hedges, Charles V., 4,277,600, Cl. 528-204.000.

Hehr, Wilfried, to Blaupunkt-Werke GmbH. Large-area light source. 4,277,817, Cl. 362-31.000.

Heibein, Harry P.; Millington, Richard G.; Salvadore, John M.; Scott, Dean J.; and Sendelweck, Michael L., to International Business Machines Corporation. Field replaceable modules for ink jet head assembly. 4,277,790, Cl. 346-75.000.

Height Inc.: *See—*
Shinriki, Tatsuo, 4,277,183, Cl. 366-98.000.

Heinz, Carlo: *See—*
Legille, Edouard; and Heinz, Carlo, 4,277,273, Cl. 65-19.000.

Heitkamp, Dieter; and Wagener, Klaus, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method for the recovery of uranium dissolved in sea water. 4,277,345, Cl. 210-679.000.

Heitmann, Uwe: *See—*
Wahle, Gunter; and Heitmann, Uwe, 4,277,678, Cl. 250-223.00R.

Heller, Peter V. N. Record bearing assembly for encapsulation of a record member, capsule part for a record bearing assembly and method of fabrication of record bearing assembly. 4,276,704, Cl. 40-159.000.

Helmlinger, Daniel; and Naegeli, Peter, to Givaudan Corporation. 2-Substituted-1-acetoxy and hydroxy-1-methyl-cyclohexanes. 4,277,618, Cl. 560-231.000.

Helmrich, Hans, to Siemens Aktiengesellschaft. Floppy disc structure with rectangular casing. 4,277,810, Cl. 360-133.000.

Henggeler, Aldo; and Crottaz, Roland. Supporting rib arrangement for a lower ceiling which is to be suspended beneath a structure-fixed ceiling and method of using such supporting rib arrangement. 4,276,731, Cl. 52-484.000.

Henning, Brian C. R., to Black & Decker, Inc. Vegetation cutter. 4,276,737, Cl. 56-12.800.

Henschel, Arthur O., Jr. Multiple by-pass filter system. 4,277,336, Cl. 210-167.000.

Hercules Incorporated: *See—*
Matlack, Albert S., 4,277,372, Cl. 252-429.00B.
Scheve, Bernard J., 4,277,593, Cl. 526-279.000.

Hergart, P. Anders, to Unikat AB. Catalytic exhaust cleaner. 4,277,442, Cl. 422-119.000.

Herman Miller, Inc.: *See—*
Propst, Robert L.; and Propst, Paul L., 4,277,079, Cl. 280-411.00R.

Hermann, Gerson; Patel, Babubhai C.; and Patel, Sudhakerbhai B., to Apex Chemical Company, Inc. Flame resisting composition. 4,277,379, Cl. 252-608.000.

Hermann, Karl H.: *See—*
Dorsch, Hans-Lothar; and Hermann, Karl H., 4,277,396, Cl. 260-146.00R.

Herrmann, Berthold; and Lindenthal, Hans, to Voith Getriebe KG. High speed hydrodynamic brake. 4,276,970, Cl. 188-296.000.

Heshmat, Hooshang, to Mechanical Technology Incorporated. Stepped, split, cantilevered compliant bearing support. 4,277,112, Cl. 308-9.000.

Heshmat, Hooshang, to Mechanical Technology Incorporated. Composite material compliant bearing element. 4,277,113, Cl. 308-9.000.

Heshmat, Hooshang: *See—*
Gray, Stanley; and Heshmat, Hooshang, 4,277,111, Cl. 308-9.000.

Hesky, Hans; and Wunderer, Armin, to Hoechst Aktiengesellschaft. Process for the purification of gases containing radioactive substances. 4,277,256, Cl. 55-66.000.

Hessert, James E.; and Johnston, Chester C., Jr., to Phillips Petroleum Company. Treatment of subsurface gas-bearing formations to reduce water production therefrom. 4,276,935, Cl. 166-295.000.

Heuvelmans, Jean J.: *See—*
Couwenberg, Winston D.; Bouwknegt, Albert; Ligthart, Franciscus A. S.; and Heuvelmans, Jean J., 4,277,720, Cl. 313-485.000.

Hewlett-Packard Company: *See—*
Hanafy, Amin M., 4,277,711, Cl. 310-334.000.
Hanafy, Amin M., 4,277,712, Cl. 310-334.000.
Traub, Stefan, 4,277,749, Cl. 324-126.000.

Heywang, Hermann: *See—*
Behn, Reinhard; Heywang, Hermann; and Pschonik, Horst, 4,277,516, Cl. 427-81.000.

Heywood, Joseph R., to Heywood, Joseph Richard; and Ainsworth, Leonard Hastings. Automatic coin dispenser. 4,276,894, Cl. 133-5.00R.

Heywood, Joseph Richard: *See—*
Heywood, Joseph R., 4,276,894, Cl. 133-5.00R.

Hickman, Ronald P., to Tekron Licensing B.V. Multiple-purpose work unit. 4,276,955, Cl. 182-33.000.

Hicks, David M. Closures. 4,276,989, Cl. 215-270.000.

Hieronymus, Hans, to Siemens Aktiengesellschaft. Arrangement for cooling a superconduction magnet coil winding. 4,277,769, Cl. 335-216.000.

Higashiyama, Kazuhiro, to Nissan Motor Company, Limited. Computer-controlled exhaust gas recirculation system for internal combustion engine. 4,276,866, Cl. 123-571.000.

Hilger, Edwin T.: *See—*
Miller, James S.; Lauyans, Frank M.; and Hilger, Edwin T., 4,277,217, Cl. 414-395.000.

Hilton, Edward W. Adjustable chip breaker for a cutting tool. 4,277,206, Cl. 407-3.000.

Himmetsberger, Alois; and Wittmann, Heinz, to TMC Corporation. Safety ski binding. 4,277,083, Cl. 280-618.000.

Hinn, Werner, to RCA Corporation. Automatic kinescope biasing system with increased interference immunity. 4,277,798, Cl. 358-33.000.

Hirohata, Hyogo: *See—*
Nakata, Koreaki; Oita, Masahiro; and Hirohata, Hyogo, 4,277,543, Cl. 428-546.000.

Hitachi, Ltd.: *See—*
Abe, Kozin; Uozumi, Norihira; and Oishi, Kazuaki, 4,277,746, Cl. 324-72.000.
Kanehori, Keiichi; Horigome, Shinkichi; Katsumoto, Masayuki; and Arikawa, Yoshijiro, 4,277,452, Cl. 423-246.000.
Kaneko, Kazuo, 4,277,723, Cl. 315-39.770.
Karasaki, Koichi; and Hara, Yasuhiko, 4,277,175, Cl. 356-378.000.
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; and Shibuya, Yoshimichi, 4,277,275, Cl. 65-43.000.
Koike, Norio; Takemoto, Iwao; Kubo, Masaharu; Sato, Kazuhiro; and Nagahara, Shusaku, 4,277,799, Cl. 358-44.000.
Nonaka, Yasuhiko; Goto, Naohiro; and Shidara, Keiichi, 4,277,515, Cl. 427-76.000.
Okuyama, Toshiaki; Kubota, Yuzuru; and Nagase, Hiroshi, 4,277,735, Cl. 318-766.000.
Tokuda, Hironobu; Morinaga, Shigeki; and Nakamura, Hideo, 4,277,829, Cl. 364-431.000.
Tokunaga, Michio; and Kitano, Junjiro, 4,277,696, Cl. 307-255.000.
Ura, Mitsugu, 4,277,767, Cl. 335-210.000.
Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,277,703, Cl. 307-553.000.

Hitachi Metals, Ltd.: *See—*
Asanae, Masumi; and Noguchi, Kohji, 4,277,552, Cl. 430-122.000.

Hitachi Shipbuilding & Engineering Company Limited: *See—*
Yamamoto, Masahiko; and Nishino, Yoshinori, 4,277,688, Cl. 250-506.000.

Hittel, Lorenz A.; and Yurcik, Raymond H., Jr., to Graphtek, Inc. Low power stepping motor driver circuit and method. 4,277,732, Cl. 318-696.000.

Hizume, Akio: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Hoagland, John C., to Monsanto Company. Filter assembly. 4,277,338, Cl. 210-186.000.

Hochbein, David E.: *See—*
Turley, Bernard C.; and Hochbein, David E., 4,277,093, Cl. 294-83.00R.

Hodges, Newton J.: *See—*
Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., 4,277,568, Cl. 521-68.000.

Hoechst Aktiengesellschaft: *See—*
Burg, Karlheinz; Schmieder, Werner; and Wolters, Ernst, 4,277,577, Cl. 525-154.000.
Eichhorn, Wilfried, 4,277,592, Cl. 526-227.000.
Forsch, Manfred; Schaub, Wolfgang; and Gerhards, Hermann, 4,277,470, Cl. 424-246.000.
Fuchs, Otto, 4,277,397, Cl. 260-157.000.
Hesky, Hans; and Wunderer, Armin, 4,277,256, Cl. 55-66.000.
Kleinschmidt, Willi; and Bock, Hartmut, 4,277,657, Cl. 200-61.210.
Landsauer, Franz; and Schaeffer, Georg, 4,277,421, Cl. 570-185.000.
Lehinaat, Armand; Lehmann, Joachim W.; and Maier, Hans-Peter, 4,277,246, Cl. 8-532.000.
Meidert, Helmut; Pressler, Wilfried; and Muller, Werner H., 4,277,606, Cl. 546-157.000.
Ruber, Klaus; and Zill, Karl, 4,276,682, Cl. 28-289.000.
Sinharay, Akhileswar; Stahler, Gerhard; and Bonin, Werner, 4,277,493, Cl. 424-304.000.

Hoehler, Thomas J.: *See—*
Smith, Charles A.; and Hoehler, Thomas J., 4,276,888, Cl. 128-706.000.

Hoekman, Earl B., to Minnesota Mining and Manufacturing Company. Apparatus for providing a time controlled output. 4,277,693, Cl. 307-141.000.

Hoffman, Roy L.: *See—*
Collins, Robert W.; Hoffman, Roy L.; Loen, Larry W.; Mitchell, Glen R.; and Soltis, Frank G., 4,277,826, Cl. 364-200.000.

Hoffmann-La Roche Inc.: *See—*
Cohen, Noal; and Saucy, Gabriel, 4,277,610, Cl. 556-446.000.
Osadca, Modest, 4,277,248, Cl. 23-230.00M.

Hofmann, Hans: *See—*
Gref, Hans; Hofmann, Hans; Zander, Werner; and Busch, Josef, 4,276,853, Cl. 118-643.000.

Hofmeister, Helmut; Wiechert, Rudolf; Annen, Klaus; Laurent, Henry; and Steinbeck, Hermann, to Schering Aktiengesellschaft. 11-Methylene steroids, their preparation and pharmaceutical preparations containmg them. 4,277,468, Cl. 424-243.000.

Hofstein, Steven R., to World Medical Marketing Corporation. Foot exerciser. 4,276,887, Cl. 128-691.000.

Holan, George; and Walser, Reimund A., to Commonwealth Scientific and Industrial Research Organization. Insecticidal 1-(2-naphthyl)-cyclobutane carboxylate. 4,277,490, Cl. 424-282.000.

Holdsworth, Dennis W.; and Adler, Ernst, to Holdsworth, Dennis W. Mobile material distribution system. 4,277,022, Cl. 239-7.000.

Holland, Jack O. Pitch adjuster for valved brass instruments. 4,276,804, Cl. 84-394.000.

Holm, Olle: *See—*
Branden, Leif; Brunn, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Holmes, Allen B., to United States of America, Army. Fluidic pulser. 4,276,943, Cl. 175-40.000.

Holstein und Kappert GmbH: *See—*
Schwinghammer, Gunther, 4,277,349, Cl. 210-797.000.

Holt, Lyn: *See—*
Birt, David E.; and Holt, Lyn, 4,277,071, Cl. 369-84.000.

Honeywell Inc.: *See—*
Borken, Richard J., 4,277,681, Cl. 250-358.00R.
Chapin, Lawrey H.; and Maze, Robert O., 4,277,771, Cl. 340-27.0NA.
Nelson, Lorne W., 4,277,018, Cl. 236-46.00R.
Szonntagh, Eugene L., 4,276,913, Cl. 141-1.000.
Upton, Robert W., Jr., 4,277,134, Cl. 350-96.200.

Honeywell Information Systems Inc.: *See—*
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,277,831, Cl. 364-481.000.

Honl, Wolf-Dieter: *See—*
Seifert, Helmut; Honl, Wolf-Dieter; Schmid, Johannes; and Frei, Bernhard, 4,277,036, Cl. 242-107.40A.

Hooper, John W.: *See—*
Buyniski, Joseph P.; Hooper, John W.; and Lim, Gary M. F., 4,277,605, Cl. 546-74.000.

Hopkins, Lamar. Environmentally degradable soap bar system. 4,277,358, Cl. 252-92.000.

Hori, Mitutaka. Expansion and contraction drive apparatus. 4,277,335, Cl. 210-159.000.

Horigome, Shinkichi: *See—*
Kanehori, Keiichi; Horigome, Shinkichi; Katsumoto, Masayuki; and Arikawa, Yoshijiro, 4,277,452, Cl. 423-246.000.

Horii, Hiroshi: *See—*
Mori, Shun'ichiro; Kimata, Kunio; Aoygi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,670, Cl. 219-492.000.
Mori, Shunichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,671, Cl. 219-494.000.

Horiike, Yasuhiro; Okano, Haruo; Shibagaki, Masahiro; and Kadono, Katsuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Ion source and ion etching process. 4,277,304, Cl. 156-643.000.

Hornbeck, Larry J., to Texas Instruments Incorporated. Piggyback readout stratified channel CCD. 4,277,792, Cl. 357-24.000.

Horne, Shek C., to Polymer Corporation, The. Bonded thermoplastic hose. 4,276,908, Cl. 138-125.000.

Horning, Thomas D.: *See—*
Rudy, Michael W.; Horning, Thomas D.; and Kraemer, Edward J., 4,277,190, Cl. 400-582.000.

Hornung, Robert M.; and Lebesnerais, Gerard M., to International Business Machines Corporation. Semiconductor integrated injection logic structure controlled by the injector. 4,277,701, Cl. 307-291.000.

Horvath, Richard A., to General Motors Corporation. Vehicle suspension strut with serviceable shock absorber. 4,276,971, Cl. 188-322.000.

Horwell, David C.; and Tupper, David E., to Lilly Industries Limited. Tetrahydroindoloisoquinolines. 4,277,480, Cl. 424-258.000.

Horwitz, Joshua, to Pacer Systems, Inc. Aircraft flight simulating trainer. 4,276,702, Cl. 434-47.000.

Hoshizaki Electric Co., Ltd.: *See—*
Kawasumi, Sakichi, 4,276,750, Cl. 62-137.000.

Hossack, James: *See—*
Lawrence, Simon G.; and Hossack, James, 4,277,288, Cl. 106-309.000.

Hotta, Yoshio: *See—*
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Hough, Sherman C. Game apparatus. 4,277,066, Cl. 273-267.000.

Hoval Interliz AG: *See—*
Zdansky, Ewald, 4,277,337, Cl. 210-173.000.

Howard, Robert; Robinson, Prentice; and Vitale, Alexander F., to Centronics Data Computer Corp. Bidirectional carriage drive employing a closed loop belt drive means for printers and the like. 4,277,189, Cl. 400-320.000.

Howard, Thomas, to T.J.D. Industries, Ltd. Heat exchanger. 4,276,929, Cl. 165-145.000.

Howarth, John J.: *See—*
Larsen, Tor G.; and Howarth, John J., 4,277,177, Cl. 356-431.000.

Howe, James W., Jr, to Gunter & Cooke, Inc. Ring doffer. 4,276,678, Cl. 19-106.00R.

Howe, Steven C.: *See—*
Norton, Richard V.; Frank, Peter J.; Fisher, Dennis H.; and Howe, Steven C., 4,277,636, Cl. 585-14.000.

Hoya Glass Works, Ltd.: *See—*
Izumitani, Tetsuro; and Miyade, Eimei, 4,277,523, Cl. 427-294.000.

HPM Corporation: *See—*
Kruder, George A., 4,277,182, Cl. 366-89.000.

Hsu, Sheng T., to RCA Corporation. Method for forming buried contact complementary MOS devices. 4,276,688, Cl. 29-571.000.

Huber, Harvard C.: *See—*
Amy, J. A.; and Huber, Harvard C., 4,277,368, Cl. 252-408.000.

Hudson, John A.: *See—*
Nelson, Richard S.; Hudson, John A.; and Mazey, David J., 4,277,293, Cl. 148-175.000.

Hughes Aircraft Company: *See—*
Hamilton, James M.; and Porter, Arthur J., 4,277,702, Cl. 307-304.000.
Jensen, William E., 4,277,694, Cl. 307-221.00D.
Verzwyvelt, Scott A., 4,277,547, Cl. 429-251.000.

Hughes Tool Company: *See—*
Millsapps, Stuart C., Jr., 4,276,946, Cl. 175-228.000.

Hulford, David: *See—*
Nally, Robert B.; Akister, James F.; and Hulford, David, 4,277,776, Cl. 340-146.3AG.

Humberger, Roger B.: *See—*
Long, Gary L.; and Humberger, Roger B., 4,277,454, Cl. 423-320.000.

Hunck, Billie G.; and Nelson, Robert W., to Deere & Company. Flow control valve assembly with integrated torque and flow divider control. 4,276,896, Cl. 137-101.000.

Hunt, Frederick B., to Milwaukee Dustless Brush Co. Rotary broom for sweeper. 4,276,674, Cl. 15-182.000.

Hunter, John J. Coupling for lined pipe. 4,277,091, Cl. 285-55.000.

Hunyadi, Steve, to Castle Keep, Inc. Closure alarm with three-way switch. 4,277,781, Cl. 340-545.000.

Hurt, Frank K.; and Wellons, Edwin L., to Mefcor, Inc. Pump assembly. 4,276,981, Cl. 198-866.000.

Huslik, Winfried. Writing utensil with built-in stamp and stamp pad. 4,277,195, Cl. 401-195.000.

Huston, Larry: *See—*
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

Hyltin, Tom M., to Commodore Electronics Limited. Switch scanning means for use with integrated circuits. 4,277,784, Cl. 340-711.000.

Iaquinta, Joseph. Smoking device with self contained lighting apparatus. 4,276,892, Cl. 131-185.000.

Ideal Toy Corporation: *See—*
Albert, Judith; and Beny, Janos, 4,276,714, Cl. 46-118.000.

Idenawa, Hiroyuki: *See—*
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.

Ienaka, Masanori: *See—*
Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,277,703, Cl. 307-553.000.

Igarashi, Keiichi: *See—*
Yoshimoto, Takeo; Igarashi, Keiichi; Oda, Kengo; Ura, Masaaki; and Sato, Naoki, 4,277,624, Cl. 568-44.000.

Iizuka, Haruhiko: *See—*
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,276,863, Cl. 123-481.000.

Iizuka, Yo; Midorikawa, Susumu, deceased (by Midorikawa, Taeko, heir); Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, to Kureha Kagaku Kogyo Kabushiki Kaishi. Vinyl chloride resin and alkyl methacrylate resin processing aid composition. 4,277,573, Cl. 525-85.000.

Ikegami, Takeshi: *See—*
Deguchi, Masanobu; and Ikegami, Takeshi, 4,276,978, Cl. 198-654.000.

Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, to Ricoh Company, Ltd. Variable magnification electrostatic copying machine. 4,277,163, Cl. 355-14.00R.

Iki, Tetsuo: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Imai, Chikara: *See—*
Tatsumi, Susumu; Eda, Tadahiro; and Imai, Chikara, 4,277,549, Cl. 430-30.000.

Imai, Kazuo: *See—*
Kanamaru, Naokatu; Imai, Kazuo; and Fujino, Hisaaki, 4,277,340, Cl. 210-433.200.

Imed Corporation: *See—*
Jenkins, Jon A., 4,277,227, Cl. 417-63.000.

Imperial Chemical Industries Limited: *See—*
Worthington, Paul A.; Rathmell, William G.; and Skidmore, Anthony M., 4,277,469, Cl. 424-245.000.

Inamine, Shigeo; Matsuda, Toshio; and Shimomura, Takeo, to Kabushiki Kaisha Veno Seiyaku Oyo Kenkyo. Food additive composition and process for preparation thereof. 4,277,512, Cl. 426-549.000.

Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, to Kao Soap Co., Ltd.; and Sumitomo Chemical Industries Ltd. 4-Homoisotwistane-aminoacid amides. 4,277,473, Cl. 424-248.540.

Incom International Inc.: *See—*
McCloskey, Albert R., 4,277,118, Cl. 308-238.000.

Independent Broadcasting Authority: *See—*
Baldwin, John L. E., 4,277,807, Cl. 360-32.000.

Industrial Designs & Services: *See—*
Crane, Walton B., 4,277,015, Cl. 229-23.00C.

Ing. C. Olivetti & C., S.p.A.: *See—*
Garziera, Gastone; and Pisani, Federico, 4,277,835, Cl. 364-900.000.

Ingersoll-Rand Company: *See—*
Webb, Paul D.; Kiefer, William J.; and Aumick, James M., 4,276,960, Cl. 184-6.220.

Ingram, James A.: *See—*
Kuntz, David H.; and Ingram, James A., 4,276,889, Cl. 128-761.000.

Inheed Pty. Ltd.: *See—*
Wright, Douglas C.; and Roberts, Sidney N., 4,277,330, Cl. 209-459.000.

Inks, Clyde G.; Compton, John W.; Ellerman, Kathryn M.; and Bergman, Lee H., to BASF Wyandotte Corporation. Freeze modification agent. 4,277,520, Cl. 427-220.000.

Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,277,668, Cl. 219-69.00M.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. High-frequency power feeder circuitry and supply method for electrical discharge machining. 4,277,668, Cl. 219-69.00M.

Institut Francais du Petrole: *See—*
Courty, Philippe; Miquel, Jean; Martino, Germain; and Convers, Alain, 4,277,369, Cl. 252-415.000.
Sugier, Andre; Courty, Philippe; Deschamps, Andre; and Gruhier, Henri, 4,277,458, Cl. 423-437.000.
Van Landeghem, Hugo, 4,277,444, Cl. 422-191.000.

Institut International de Pathologie Cellulaire et Moleculaire: *See—*
Trouet, Andre, 4,277,466, Cl. 424-180.000.

Instructional/Communications Technology, Inc.: *See—*
Taylor, Stanford E., 4,277,152, Cl. 352-17.000.

International Business Machines Corporation: *See—*
Brown, David J.; Walther, Ronald G.; Williams, Thomas W.; and Wrigglesworth, Michael D., 4,277,699, Cl. 307-272.00R.
Davis, Glenn W.; and Fleek, Arthur E., 4,277,191, Cl. 400-582.000.
Dunn, Robert M.; Schulman, Martin D.; and Timko, Nicholas, Jr., 4,277,816, Cl. 361-384.000.
Dunning, Gordon R., 4,277,059, Cl. 271-23.000.
Heibein, Harry P.; Millington, Richard G.; Salvadore, John M.; Scott, Dean J.; and Sendelweck, Michael L., 4,277,790, Cl. 346-75.000.
Hornung, Robert M.; and Lebesnerais, Gerard M., 4,277,701, Cl. 307-291.000.
McDaniel, Robert F.; Prewarski, Mike; and Ramey, Leonard D., 4,277,188, Cl. 400-257.000.
Stuckert, Paul E., 4,277,837, Cl. 364-900.000.

International Standard Electric Corporation: *See—*
Aaras, Arne; Martinsen, Kjell M.; and Nakland, Rikard, 4,277,102, Cl. 297-411.000.

Inventa AG fur Forschung und Patentverwertung: *See—*
Schmid, Eduard; and Griehl, Wolfgang, 4,277,433, Cl. 264-289.300.

Iowa State University Research Foundation, Inc.: *See—*
Oulman, Charles S.; and Chriswell, Colin D., 4,277,635, Cl. 568-916.000.

IPM Corporation: *See—*
Pietrocini, Thomas W., 4,277,544, Cl. 428-547.000.

Irion, Leonhard: *See—*
Braun, Wolfgang; and Irion, Leonhard, 4,277,310, Cl. 176-50.000.

Iriuchijima, Kunio: *See—*
Kagami, Toshio; Saito, Yoshijiro; Matsushita, Shigeru; and Iriuchijima, Kunio, 4,277,388, Cl. 260-33.40R.

IROPA (Textile Accessories) Ltd.: *See—*
Heap, Peter, 4,277,005, Cl. 223-37.000.

Isaacson, Milton S., to Nu-Tech Industries, Inc. Actuator for heart pump. 4,277,706, Cl. 310-80.000.

Ishihara, Taketoshi: *See—*
Wada, Shinzi; Kitao, Ikuo; Kato, Yasuo; and Ishihara, Taketoshi, 4,277,150, Cl. 351-13.000.

ITT Industries, Inc.: *See—*
Pickel, Hajo, 4,276,965, Cl. 188-73.500.

ITW de France: *See—*
Morel, Henri, 4,276,806, Cl. 411-41.000.
Morel, Henri, 4,277,196, Cl. 403-3.000.

Ivanov, Jury P. Method for assembling hulls of vessels. 4,276,847, Cl. 114-65.00R.

Ivers, John T.: *See—*
Wicklund, Peter A.; and Ivers, John T., 4,277,510, Cl. 426-441.000.

Iwafune, Yasuo; and Iwai, Hideo, to Tokyo Kogaku Kakai Kabushiki Kaisha. Base board device for measuring instruments. 4,277,171, Cl. 356-153.000.

Iwai, Hideo: *See—*
Iwafune, Yasuo; and Iwai, Hideo, 4,277,171, Cl. 356-153.000.

Iwase, Takayuki: *See—*
Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, 4,277,192, Cl. 400-671.000.

Iwata, Hidehito: *See—*
Tabuchi, Kenji; and Iwata, Hidehito, 4,277,003, Cl. 222-350.000.

Iwata, Masakatsu: *See—*
Shiga, Yoshinobu; Kage, Ryusuke; and Iwata, Masakatsu, 4,276,729, Cl. 52-209.000.

Iwata, Yoichi, to Akebono Brake Industry Co., Ltd. Caliper carrying structure of pin-slide type disc brake. 4,276,964, Cl. 188-73.300.

Izumitani, Tetsuro; and Miyade, Eimei, to Hoya Glass Works, Ltd. Method of preventing tarnishing of polished glass articles. 4,277,523, Cl. 427-294.000.

J. Hengstler K.G.: *See—*
Neher, Hans, 4,277,677, Cl. 235-109.000.

J. & J. Marquardt: *See—*
Riess, Axel, 4,277,661, Cl. 200-157.000.

J.M. Voith GmbH: *See—*
Pfalzer, Lothar; and Fischer, Siegbert, 4,277,328, Cl. 209-169.000.

J. P. Simpson and Co. (ALNWICK) Limited: *See—*
Simpson, Simon B., 4,277,505, Cl. 426-64.000.

J.P. Tool Ltd.: *See—*
Proulx, Sylvester E., 4,277,207, Cl. 407-15.000.

J. R. Simplot Company: *See—*
Long, Gary L.; and Humberger, Roger B., 4,277,454, Cl. 423-320.000.

Jaarsma, Frank C., to Celanese Corporation. Multi-compartment containers. 4,277,000, Cl. 222-142.400.

Jablonski, Werner: *See—*
Mallek, Heinz; Jablonski, Werner; and Plum, Willi, 4,277,362, Cl. 252-301.10W.

Jackson, Kenneth M., to United States of America, Energy. Adjustable flow rate controller for polymer solutions. 4,276,904, Cl. 137-599.000.

Jackson, Norman C., to Standard Products Company, The. Protective and decorative molding having foam-filled channel. 4,277,526, Cl. 428-31.000.

Jackson, Ronald A.; and Maruscak, John, to Black & Decker Inc. Tool guide. 4,277,208, Cl. 408-14.000.

Jadlocki, Joseph F., Jr.: *See*—
Thompson, John S.; and Jadlocki, Joseph F., Jr., 4,277,507, Cl. 426-264.000.

Jaedicke, Wilfried, to Maul Lochkartengerate GmbH. Method for using a multiple input bin collating machine with a single output hopper. 4,277,057, Cl. 270-58.000.

Jaeken, Jan; and Verhecken, Andre, to AGFA-Gevaert N.V. Novel magenta-forming color couplers and their use in photography. 4,277,559, Cl. 430-549.000.

Jager, Gerhard; von Konig, Anita; Liebe, Werner; and Voigt, Armin, to AGFA-Gevaert, A.G. Photographic material containing a stabilizing agent. 4,277,557, Cl. 430-446.000.

Janko, Bozidar: *See*—
Hawken, Kenneth W.; and Janko, Bozidar, 4,277,722, Cl. 315-31.00R.

Janome Sewing Machine Co., Ltd.: *See*—
Takenoya, Hideaki; and Makabe, Hachiro, 4,276,840, Cl. 112-315.000.

Jansen, Martin B.: *See*—
Saliger, Kenneth C.; and Jansen, Martin B., 4,276,932, Cl. 166-214.000.

Janssen, Wilbur A.: *See*—
Sandberg, Glenn A.; and Janssen, Wilbur A., 4,276,753, Cl. 62-186.000.

Jaquiss, Donald B. G.: *See*—
Hall, Walter L.; Jaquiss, Donald B. G.; and Mark, Victor, 4,277,598, Cl. 528-199.000.

Jarman, Alonzo B.: *See*—
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,276,810, Cl. 91-449.000.
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,276,811, Cl. 91-449.000.

Jastrzębski, Michael B.; and Padwa, Allen R., to Monsanto Company. Process for preparing ABS polyblends. 4,277,574, Cl. 525-86.000.

Jaulmes, Christian, to Ateliers de la Motobecane. Two-cycle internal combustion engine. 4,276,858, Cl. 123-73.0CC.

Jay Boyce & Associates: *See*—
Boyce, Jay, 4,277,736, Cl. 318-811.000.

Jeanmaire, Michel P. H.: *See*—
Boudot, Jean E.; Roger, Francoise M. M.; and Jeanmaire, Michel P. H., 4,277,285, Cl. 106-52.000.

Jeffers, Frederick J.; and McClure, Richard J., to Eastman Technology, Inc. Magnetic recording using recording media having temperature dependent coercivity. 4,277,806, Cl. 360-16.000.

Jenkins, Eugene M. Inclination maintaining system for a discharge chute. 4,276,975, Cl. 193-10.000.

Jenkins, Jon A., to Imed Corporation. Apparatus for converting a pump to a controller. 4,277,227, Cl. 417-63.000.

Jennewein, Manfred A., to Sussman Bugeltechnik GmbH. Garment-hanging station on a conveyor. 4,276,995, Cl. 221-15.000.

Jensen, William E., to Hughes Aircraft Company. Charge coupled device variable divider with integrating well. 4,277,694, Cl. 307-221.00D.

Jentzsch, Arndt: *See*—
Johne, Hans; Jentzsch, Arndt; Schmidt, Lothar; Muller, Wolfgang; and Funke, Mandred, 4,276,827, Cl. 101-212.000.

Jeschke, Alfred: *See*—
Dangschat, Rainer; Jeschke, Alfred; Leichtl, Helmut; and Winkler, Wolfgang, 4,277,797, Cl. 358-21.00R.

Jessop, Thomas C.; and Smith, William L., to Eastman Kodak Company. Metering apparatus. 4,277,440, Cl. 422-100.000.

Jeter, David R., to Southwire Company. Quick adjusting elongated object guide. 4,277,011, Cl. 226-199.000.

Jewell, William J.: *See*—
Hayes, Thomas D.; and Jewell, William J., 4,277,342, Cl. 210-609.000.

Jilek, Franz: *See*—
Czepel, Hubert; Jilek, Franz; and Zochbauer, Heinz, 4,277,532, Cl. 428-244.000.

Joannou, Constantinos J. Automatic egg cooker. 4,276,820, Cl. 99-334.000.

John Dusenbery Company, Inc.: *See*—
Landskroener, Peter A.; Dusenbery, John F.; and Young, Roger W., 4,277,010, Cl. 226-95.000.

Johne, Hans; Jentzsch, Arndt; Schmidt, Lothar; Muller, Wolfgang; and Funke, Mandred, to Veb Polygraph Leipzig Kombinat fur Polygraphische Maschinen und Ausrustungen. Operator safety device. 4,276,827, Cl. 101-212.000.

Johnson, Donovan E., to United States of America, Agriculture. Preparing entomocidal products with oligosporogenic mutants of bacillus thuringensis. 4,277,564, Cl. 435-242.000.

Johnson, Frederick O., to Westinghouse Electric Corp. Converter apparatus. 4,277,825, Cl. 363-87.000.

Johnson, George H.: *See*—
Harwood, Philip C.; and Johnson, George H., 4,277,710, Cl. 310-316.000.

Johnson & Johnson: *See*—
Friedman, Norman J., 4,277,529, Cl. 428-211.000.

Johnson, Weldon K., to Kerr-McGee Coal Corporation. Articulate material transfer system. 4,277,215, Cl. 414-292.000.

Johnston, Chester C., Jr.: *See*—
Hessert, James E.; and Johnston, Chester C., Jr., 4,276,935, Cl. 166-295.000.

Johnston, David B. R.: *See*—
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,277,482, Cl. 424-263.000.

Johnston, John D.: *See*—
Walter, Karl H.; Johnston, John D.; and Wetherley, Dennis, 4,277,253, Cl. 23-313.00R.

Jolly, Jean: *See*—
Warnant, Julien; and Jolly, Jean, 4,277,409, Cl. 260-397.450.

Jones, Dwight V., to General Electric Company. Control circuit for controlling quantity of heat to electrically heatable windshield. 4,277,672, Cl. 219-497.000.

Jones & Laughlin Steel Corporation: *See*—
Kerlin, Richard G.; Kossler, Henry T.; Koros, Peter J.; and Petrushka, Robert G., 4,277,279, Cl. 75-58.000.

Jones, Raymond D., to TII Industries, Inc. Excess voltage arrester. 4,277,812, Cl. 361-119.000.

Jordan, Arthur D., Jr.; and Lavelle, Joseph A., to Rohm and Haas Company. Plasticizer combination of alkylene oxide-alkyl phenol adduct and carboxylic acid ester, and caulking composition. 4,277,387, Cl. 260-29.70H.

Jordan, Diane E.: *See*—
Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., 4,276,856, Cl. 122-382.000.

Jordon, Michael A.: *See*—
Casper, William L.; Jordon, Michael A.; Caulkins, Craig S.; and Miller, Robert G., 4,276,733, Cl. 52-745.000.

Jorendal, Gunnar; and von Renteln, Adrian, to ASEA Aktiebolag. Regulating winding structure for transformer. 4,277,770, Cl. 336-60.000.

Judet, Henri: *See*—
Dore, Alain; and Judet, Henri, 4,276,698, Cl. 33-174.00L.

June, Robert F., Jr. Method of coating the interior surfaces of vehicles with polyvinyl acetate. 4,277,521, Cl. 427-236.000.

Kabushiki Kaisha Kawaguchiya Hayashi Juho Kayaku-Ten: *See*—
Hayashi, Hisao, 4,276,707, Cl. 42-17.000.

Kabushiki Kaisha Keiheisha: *See*—
Sasaki, Sei'ichi, 4,277,068, Cl. 273-324.000.

Kabushiki Kaisha Sato Kenkyusho: *See*—
Sato, Yo, 4,276,828, Cl. 101-291.000.

Kabushiki Kaisha Veno Seiyaku Oyo Kenkyo: *See*—
Inamine, Shigeo; Matsuda, Toshio; and Shimomura, Takeo, 4,277,512, Cl. 426-549.000.

Kadono, Katsuo: *See*—
Horiike, Yasuhiro; Okano, Haruo; Shibagaki, Masahiro; and Kadono, Katsuo, 4,277,304, Cl. 156-643.000.

Kadyrov, Tokhrul A. O.: *See*—
Kuliev, Aladdin M. O.; Kadyrov, Tokhrul A. O.; Gaibov, Gjuloglan G. O.; Sinaisky, Anatoly G.; and Matiyasevich, Valentina N., 4,277,390, Cl. 260-37.0EP.

Kagami, Toshio; Saito, Yoshijiro; Matsushita, Shigeru; and Iriuchijima, Kunio, to Denki Kagaku Kogyo Kabushiki Kaisha. Thermoplastic resin of hydrolyzed product of vinyl chloride copolymer for use in coating resin and process for preparing such resin. 4,277,388, Cl. 260-33.40R.

Kage, Ryusuke: *See*—
Shiga, Yoshinobu; Kage, Ryusuke; and Iwata, Masakatsu, 4,276,729, Cl. 52-209.000.

Kalfoglou, George: *See*—
Kudchadker, Mohan V.; Kalfoglou, George; and Whittington, Lawrence E., 4,276,933, Cl. 166-266.000.

Kallinger, Franz. Jacking apparatus. 4,277,052, Cl. 254-106.000.

Kalmbach, Debra S. K., to Dow Chemical Company, The. Process for purifying aryl-substituted mono-olefins. 4,277,637, Cl. 585-828.000.

Kalnoki-Kis, Tibor, to Union Carbide Corporation. Nonaqueous cell. 4,277,545, Cl. 429-48.000.

Kamada, Akira, to Kyoto Yakuhin Kogyo Kabushiki Kaisha; and Sawai Seiyaku Kabushiki Kaisha. Adjuvant for promoting absorption of therapeutically active substances through the digestive tract. 4,277,465, Cl. 424-178.000.

Kaminski, Stanley; Mansolillo, Robert D.; and Wilmer, Eugene A., to Congoleum Corporation. Randomly embossed surface covering. 4,277,427, Cl. 264-45.500.

Kammerer, Otto W., to Pileco, Inc. Apparatus for measuring the fall height of a pile driver ram. 4,277,676, Cl. 235-92.0PD.

Kamoda, Masaru: *See*—
Kataoka, Yushin; Matsuda, Masaaki; and Kamoda, Masaru, 4,277,566, Cl. 521-32.000.

Kamshitsky, Pavel V.: *See*—
Koshman, Vitaly I.; Petrichenko, Vladimir F.; and Kamshitsky, Pavel V., 4,277,766, Cl. 335-122.000.

Kanamaru, Naokatu; Imai, Kazuo; and Fujino, Hisaaki, to Toray Industries, Inc. Membrane separation module and apparatus for its production. 4,277,340, Cl. 210-433.200.

Kanamori, Kyozo: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Kane, William T., to Corning Glass Works. Oxygen sensor. 4,277,322, Cl. 204-195.00S.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Kato, Shingi; Ogawa, Nobuo; Kawanami, Norio; and Onda, Takashi, 4,277,426, Cl. 264-8.000.

Kanehori, Keiichi; Horigome, Shinkichi; Katsumoto, Masayuki; and Arikawa, Yoshijiro, to Hitachi, Ltd.; and Babcock-Hitachi Kabushiki Kaisha. Carbon monoxide absorbing liquid. 4,277,452, Cl. 423-246.000.

Kaneko, Kazuo, to Hitachi, Ltd. Symmetrical magnetron with output means on center axis. 4,277,723, Cl. 315-39.770.

Kaneko, Takashi: *See*—
Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, 4,277,578, Cl. 525-211.000.

Kaneko, Yasutoski, to Nippon Gakki Seizo Kabushiki Kaisha. Covering wire tightening device composite strings of pianos. 4,276,805, Cl. 84-458.000.

Kanger, Feodor, to Dominion Engineering Works Limited. Wicket gate bearing seal. 4,277,221, Cl. 415-160.000.

Kanmoto, Yoshiaki: *See*—
Fukushima, Yoshio; and Kanmoto, Yoshiaki, 4,277,156, Cl. 354-25.000.

Kao Soap Co., Ltd.: *See*—
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,277,473, Cl. 424-248.540.
Minegishi, Yutaka; and Nishimura, Toshiro, 4,277,350, Cl. 252-8.800.
Tsujii, Kaoru; Saito, Naoyuki; and Kawai, Michio, 4,277,378, Cl. 252-546.000.

Kapanka, Harley L.: *See*—
Loose, Richard D.; and Kapanka, Harley L., 4,277,037, Cl. 242-107.40A.

Karasaki, Koichi; and Hara, Yasuhiko, to Hitachi, Ltd. Method and apparatus for inspecting printed wiring boards. 4,277,175, Cl. 356-378.000.

Karayannis, Nicholas M.; and Skryantz, John S., to Standard Oil Company (Indiana). Alpha-olefin polymerization catalyst. 4,277,370, Cl. 252-429.00B.

Kasahara, Nobuo; and Yamanobe, Kouji, to Ricoh Company, Ltd. Electrophotographic apparatus comprising density sensor means. 4,277,162, Cl. 355-14.00R.

Kashihara, Eiji: *See*—
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,277,473, Cl. 424-248.540.

Kashiwara, Tomokazu: *See*—
Yamaguchi, Tetsuo; and Kashiwara, Tomokazu, 4,277,055, Cl. 267-140.000.

Kast, Howard B., to General Electric Company. Simplified fail-fixed servovalve. 4,276,809, Cl. 91-417.00R.

Kastura, John L.; and Enyart, David O., to General Motors Corporation. Motor vehicle diagnostic and monitoring system. 4,277,772, Cl. 340-52.00F.

Katagiri, Masataka. Artificial bonelike graft and method for producing the same. 4,277,238, Cl. 433-201.000.

Kataoka, Yushin; Matsuda, Masaaki; and Kamoda, Masaru, to Sumitomo Chemical Company, Limited. Chelate resin prepared by aftertreatment of aminated resin with polyfunctional compound and amine. 4,277,566, Cl. 521-32.000.

Kato, Masao: *See*—
Oda, Yoshio; Yamabe, Masaaki; and Kato, Masao, 4,277,565, Cl. 521-31.000.

Kato, Shingi; Ogawa, Nobuo; Kawanami, Norio; and Onda, Takashi, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Method for production of coagulated synthetic polymer latex. 4,277,426, Cl. 264-8.000.

Kato, Yasuo: *See*—
Wada, Shinzi; Kitao, Ikuo; Kato, Yasuo; and Ishihara, Taketoshi, 4,277,150, Cl. 351-13.000.

Katsukawa, Heitaro: *See*—
Sakotani, Akio; and Gomi, Tohru, 4,277,346, Cl. 210-691.000.

Katsumoto, Masayuki: *See*—
Kanehori, Keiichi; Horigome, Shinkichi; Katsumoto, Masayuki; and Arikawa, Yoshijiro, 4,277,452, Cl. 423-246.000.

Katz, Eric R.: *See*—
Fisher, Robert D.; and Katz, Eric R., 4,277,809, Cl. 360-131.000.

Kaufman, Lawrence G.: *See*—
Ginsberg, Thomas; and Kaufman, Lawrence G., 4,277,284, Cl. 106-1.050.

Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, to Nippon Soken, Inc. Gas flow measuring apparatus. 4,276,773, Cl. 73-204.000.

Kawai, Kiyohisa: *See*—
Fujino, Masahiko; Shinagawa, Susumu; and Kawai, Kiyohisa, 4,277,394, Cl. 260-112.50R.

Kawai, Michio: *See*—
Tsujii, Kaoru; Saito, Naoyuki; and Kawai, Michio, 4,277,378, Cl. 252-546.000.

Kawakami, Yuichi, to Nippon Electric Co., Ltd. Composite random access memory providing direct and auxiliary memory access. 4,277,836, Cl. 364-900.000.

Kawamura, Atsushi, to Ricoh Company, Ltd. Anamorphic Fθ lens system. 4,277,128, Cl. 350-6.800.

Kawamura, Hiromitsu; Nakajima, Tokuyoshi; and Shibuya, Yoshimichi, to Hitachi, Ltd. Method for fabricating liquid crystal display element. 4,277,275, Cl. 65-43.000.

Kawanami, Norio: *See*—
Kato, Shingi; Ogawa, Nobuo; Kawanami, Norio; and Onda, Takashi, 4,277,426, Cl. 264-8.000.

Kawasaki Kasei Chemicals Ltd.: *See*—
Matsuura, Ryo; Matsuzaki, Katsumi; and Narita, Masao, 4,277,257, Cl. 55-85.000.

Kawasumi, Sakichi, to Hoshizaki Electric Co., Ltd. Flake ice vending machine. 4,276,750, Cl. 62-137.000.

Kearney, Mark B.; Mowery, Kenneth D.; and Pechous, L. Joseph, to General Motors Corporation. Engine knock control with knock pulse duration adjustment. 4,276,861, Cl. 123-425.000.

Kearney-National, Inc.: *See*—
Bingham, Allen H., 4,277,197, Cl. 403-104.000.

Keefe, Donald J.: *See*—
Rusch, Gordon K.; Keefe, Donald J.; and McDowell, William P., 4,277,308, Cl. 176-19.0EC.

Keeffe, William M.; Koury, Frederic; and Gungle, W. Calvin, to GTE Products Corporation. Metal halide arc discharge lamp having coiled coil electrodes. 4,277,714, Cl. 313-217.000.

Keene Corporation: *See*—
George, Richard F., 4,277,117, Cl. 308-199.000.

Keeton Enterprises, Inc.: *See*—
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,718, Cl. 47-1.500.
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,719, Cl. 47-1.500.

Keeton, Eugene G.: *See*—
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,718, Cl. 47-1.500.
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,719, Cl. 47-1.500.

Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., to Keeton Enterprises, Inc. Herbicide application. 4,276,718, Cl. 47-1.500.

Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., to Keeton Enterprises, Inc. Herbicide roller application. 4,276,719, Cl. 47-1.500.

Keeton, Lyle S.: *See*—
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,718, Cl. 47-1.500.
Keeton, John H.; Keeton, Lyle S.; and Keeton, Eugene G., 4,276,719, Cl. 47-1.500.

Keio Giken Kogyo Kabushiki Kaisha: *See*—
Mieda, Fumio, 4,276,802, Cl. 84-1.190.

Kellar, John D.; and Pereman, Gordon F., to PPG Industries, Inc. Method and apparatus for shaping glass sheets using deformable vacuum mold. 4,277,276, Cl. 65-106.000.

Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, to Rosenthal Technik AG. Refractory articles and composite metal-ceramic articles (cermets) prepared from a silicate-containing aluminum titanate. 4,277,539, Cl. 428-450.000.

Keller, Karlheinz; and Furer, Lotti, to Ciba-Geigy Corporation. Process for dyeing pre-cleaned cellulose fiber material. 4,277,247, Cl. 8-557.000.

Keller, Walter: *See*—
Zahner, Hans; Drautz, Hannelore; and Keller, Walter, 4,277,478, Cl. 424-258.000.

Kellner, Andrew. Steering device for a cycle. 4,276,787, Cl. 74-552.000.

Kelly, Cornelius J. N., to E-B Industries, Inc. Electrically conductive self-regulating article. 4,277,673, Cl. 219-528.000.

Kelly, Joseph D.: *See*—
Cherenko, Joseph; Frey, William I.; Kelly, Joseph D.; and Sokol, Larry S., 4,277,299, Cl. 156-242.000.

Kelsey-Hayes Company: *See*—
Ayers, David T., 4,276,966, Cl. 188-79.50P.

Kempf, Gerhard; and Kunz, Albert, to Evolution SA. Electronically controlled system for making a multiply effect yarn. 4,276,739, Cl. 57-91.000.

Kendall Company, The: *See*—
Marshall, Preston F., 4,276,681, Cl. 28-105.000.

Kenmotusu, Nobuhiro: *See*—
Hayashi, Masaaki; Nagami, Koichi; Tsuneta, Kazuyoshi; and Kenmotusu, Nobuhiro, 4,277,383, Cl. 260-29.300.

Kennecott Corporation: *See*—
Sweeting, Truett B., 4,277,269, Cl. 65-2.000.

Kennedy, Richard A., to General Motors Corporation. Two stage RF amplifier. 4,277,757, Cl. 330-300.000.

Kenney Manufacturing Company: *See*—
Comeau, Paul E., 4,276,920, Cl. 160-345.000.

Kenrich Petrochemicals, Inc.: *See*—
Sugerman, Gerald; and Monte, Salvatore J., 4,277,415, Cl. 260-429.500.

Kerey, Gyorgy: *See*—
Takacs, Istvan; Rudolf, Peter; Szabo, Bela; and Kerey, Gyorgy, 4,276,701, Cl. 34-109.000.

Kerkhoffs, Pieter L., to Stamicarbon, B.V. Preparation of fructose. 4,277,563, Cl. 435-99.000.

Kerlin, Richard G.; Kossler, Henry T.; Koros, Peter J.; and Petrushka, Robert G., to Jones & Laughlin Steel Corporation. Method and apparatus for dispensing a fluidized stream of particulate material. 4,277,279, Cl. 75-58.000.

Kern, Eugene F. Barbecue grill slab. 4,276,869, Cl. 126-41.00R.

Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See*—
Heitkamp, Dieter; and Wagener, Klaus, 4,277,345, Cl. 210-679.000.
Mallek, Heinz; Jablonski, Werner; and Plum, Willi, 4,277,362, Cl. 252-301.10W.

Kernforschungszentrum Karlsruhe GmbH: *See*—
Rohrbacher, Hans-Adolf, 4,277,779, Cl. 340-348.000.
Szecsi, Laszlo, 4,277,765, Cl. 333-99.00S.

Kerr-McGee Coal Corporation: *See*—
Johnson, Weldon K., 4,277,215, Cl. 414-292.000.

Kessler, Hansjuergen: *See—*
Falkenstein, Georg; and Kessler, Hansjuergen, 4,277,571, Cl. 521-164.000.

Kewley, Norman E.: *See—*
Fulmer, Norman C.; and Kewley, Norman E., 4,277,234, Cl. 431-361.000.

Key Tronic Corporation: *See—*
Sonderman, Ed L.; and Davis, Walter Z., 4,277,780, Cl. 340-365.00S.
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Keyes, Melvin H.: *See—*
Gray, Don N.; and Keyes, Melvin H., 4,277,560, Cl. 435-7.000.

Keystone Camera Corporation: *See—*
Zawodny, Arthur, 4,277,158, Cl. 354-197.000.

Keyworth, Donald A.; and Purpi, David C., to Tenneco Chemicals, Inc. Flame-retardant vinyl aromatic polymer compositions. 4,277,567, Cl. 521-56.000.

Kharitonovich, Mikhail V.: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Khonsari, Ali M.: *See—*
Gelbein, Abraham P.; and Khonsari, Ali M., 4,277,630, Cl. 568-801.000.

Kiefer, William J.: *See—*
Webb, Paul D.; Kiefer, William J.; and Aumick, James M., 4,276,960, Cl. 184-6.220.

Kikuchi, Shoji; Yajima, Toshio; Kishi, Kenichi; Sasaki, Takashi; Mori, Keiichi; and Sato, Haruhiko, to Konishiroku Photo Industry Co., Ltd. Light-sensitive silver halide color photographic materials. 4,277,558, Cl. 430-542.000.

Kilberis, Harry. Keyless chuck. 4,277,074, Cl. 279-60.000.

Kilgore, H. Lee. Portable scaffold assembly with movable anchor. 4,276,957, Cl. 182-130.000.

Killig, Klaus; Lichtenberg, Wolfhart; and Schittenhelm, Rudolf, to Siemens Aktiengesellschaft. Tomographic apparatus for producing transverse layer images. 4,277,687, Cl. 250-445.00T.

Kimata, Kunio: *See—*
Mori, Shun'ichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,670, Cl. 219-492.000.
Mori, Shunichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,671, Cl. 219-494.000.

Kimberly-Clark Corporation: *See—*
Lilaonitkul, Amnuey, 4,276,881, Cl. 128-263.000.

Kimm, Otfried; Hammes, Theo; and Loebler, Peter, to Mauser-Werke GmbH. Tamper-proof closure. 4,276,988, Cl. 215-254.000.

Kindler, Wilfried: *See—*
Rosenstock, Guenter; and Kindler, Wilfried, 4,277,791, Cl. 346-140.00R.

King, John L., Jr., to MWA Company. Water tank for submerged grinding system. 4,276,724, Cl. 51-266.000.

King, Robert D., to General Electric Company. Charge transfer device phased array beamsteering and multibeam beamformer. 4,277,787, Cl. 343-100.0SA.

King-Seeley Thermos Co.: *See—*
Christensen, Donald R.; and Stanford, Ralph F., 4,277,002, Cl. 222-349.000.

King, William E.: *See—*
Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., 4,276,856, Cl. 122-382.000.

Kirk-Duncan, Brian A. C. Faucets. 4,276,899, Cl. 137-327.000.

Kirkegaard, Allan K., to Anpartsselskab. Garden implement with a drum motor. 4,276,940, Cl. 172-42.000.

Kishi, Kenichi: *See—*
Kikuchi, Shoji; Yajima, Toshio; Kishi, Kenichi; Sasaki, Takashi; Mori, Keiichi; and Sato, Haruhiko, 4,277,558, Cl. 430-542.000.

Kishikawa, Shinobu: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Kitano, Junjiro: *See—*
Tokunaga, Michio; and Kitano, Junjiro, 4,277,696, Cl. 307-255.000.

Kitao, Ikuo: *See—*
Wada, Shuzzi; Kitao, Ikuo; Kato, Yasuo; and Ishihara, Taketoshi, 4,277,150, Cl. 351-13.000.

Kiuchi, Mitsuyuki, to Matsushita Electric Industrial Co., Ltd. Induction heating apparatus with negative feedback controlled pulse generation. 4,277,667, Cl. 219-10.49R.

Klauke, Erich: *See—*
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.

Kleesattel, Claus. Method and apparatus for the measurement of hardness testing indentations. 4,277,174, Cl. 356-372.000.

Kleiber, Joseph P., to Tropel, Inc. Multifaceted mirror and assembly fixture and method of making such mirror. 4,277,141, Cl. 350-299.000.

Klein, Wilhelm; Bausch, Max; and Eckert, Dieter, to Daimler-Benz Aktiengesellschaft. Motor vehicle with at least one door. 4,277,099, Cl. 296-146.000.

Kleinschmidt, Willi; and Bock, Hartmut, to Hoechst Aktiengesellschaft. Apparatus for determining the quantity of particles present in a container. 4,277,657, Cl. 200-61.210.

Klimenko, Alexandr S.; Emelyanov, Igor V.; Krylov, Anatoly A.; and Yantovsky, Semen A. Method and appliance for fire extinguishing in enclosed compartment. 4,276,938, Cl. 169-47.000.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Streicher, Kurt; and zur Nieden, Achim, 4,276,859, Cl. 123-196.00R.

Knackstedt, Wilhelm: *See—*
Beckmann, Rolf; and Knackstedt, Wilhelm, 4,277,538, Cl. 428-429.000.

Knaus, Ray. Hair grooming device. 4,277,193, Cl. 401-39.000.

Kneipp, Kenneth G.: *See—*
Sonnonstine, Terry J.; and Kneipp, Kenneth G., 4,277,551, Cl. 430-120.000.

Knoedler, Juergen: *See—*
Dinkelacker, Walter; and Knoedler, Juergen, 4,277,752, Cl. 324-399.000.

Knothe, Erich; Berg, Christoph; and Melcher, Franz J., to Sartorius GmbH. Electromagnetic force-compensating weighing appliance. 4,276,949, Cl. 177-212.000.

Knox, Walter H., III: *See—*
Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., 4,277,594, Cl. 526-352.000.

Kobayashi, Isao: *See—*
Fujita, Hisao; Tanaka, Yasuhiko; Kobayashi, Isao; and Nakamura, Ken, 4,276,854, Cl. 118-689.000.

Kobayashi, Ryuichiro: *See—*
Onodera, Kaoru; Mizukura, Noboru; and Kobayashi, Ryuichiro, 4,277,553, Cl. 430-216.000.

Kobinger, Walter: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Koboshi, Sigeharu; Fushiki, Isamu; and Sakamoto, Kenro, to Konishiroku Photo Industry Co., Ltd. Process for treating light-sensitive silver halide color photographic materials. 4,277,556, Cl. 430-393.000.

Kodama, Mitsuo: *See—*
Tobioka, Masaaki; Kodama, Mitsuo; Asai, Tsuyoshi; and Yamamoto, Takaharu, 4,277,283, Cl. 75-238.000.

Koehler-Dayton, Inc.: *See—*
Weik, Kirby B., 4,277,043, Cl. 248-503.100.
Weik, Kirby B., 4,277,103, Cl. 297-457.000.

Koelmel, Carl F.: *See—*
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., 4,276,693, Cl. 30-380.000.

Koenig, Karl E., to Monsanto Company. Ephedrine and pseudoephedrine precursors. 4,277,420, Cl. 560-24.000.

Koerber, Marvin A.: *See—*
Kutnyak, Thomas A.; Koerber, Marvin A.; and Wills, Henry K., 4,277,640, Cl. 174-47.000.

Kohama, Tokio: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,276,773, Cl. 73-204.000.

Kohda, Akihide; and Kurosaki, Teikichi, to Nippon Zoki Pharmaceutical Co., Ltd. Treatment of allergic symptoms with propanone derivatives. 4,277,474, Cl. 424-248.570.

Kohler, Rolf-Dieter: *See—*
Hagen, Helmut; Kohler, Rolf-Dieter; and Markert, Juergen, 4,277,477, Cl. 424-251.000.

Koike, Norio; Takemoto, Iwao; Kubo, Masaharu; Sato, Kazuhiro; and Nagahara, Shusaku, to Hitachi, Ltd. Color solid-state imaging device. 4,277,799, Cl. 358-44.000.

Koike, Shigemitsu: *See—*
Tanno, Takashi; and Koike, Shigemitsu, 4,276,700, Cl. 33-179.50R.

Kojima, Hiroaki: *See—*
Ukihashi, Hiroshi; Yamabe, Masaaki; and Kojima, Hiroaki, 4,277,586, Cl. 526-93.000.

Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, to Daiichi Radioisotope Laboratories, Ltd. Cortisol radioimmunoassay method and cortisol derivatives useful therefor. 4,277,460, Cl. 424-1.000.

Koletar, Gabor I.: *See—*
DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor I., 4,277,476, Cl. 424-250.000.

Kondo, Shiro; and Akazawa, Michitada, to Alps Electric Co., Ltd. Illuminated push-button electrical switch. 4,277,665, Cl. 200-314.000.

Konishiroku Photo Industry Co., Ltd.: *See—*
Fujita, Hisao; Tanaka, Yasuhiko; Kobayashi, Isao; and Nakamura, Ken, 4,276,854, Cl. 118-689.000.
Kikuchi, Shoji; Yajima, Toshio; Kishi, Kenichi; Sasaki, Takashi; Mori, Keiichi; and Sato, Haruhiko, 4,277,558, Cl. 430-542.000.
Koboshi, Sigeharu; Fushiki, Isamu; and Sakamoto, Kenro, 4,277,556, Cl. 430-393.000.
Onodera, Kaoru; Mizukura, Noboru; and Kobayashi, Ryuichiro, 4,277,553, Cl. 430-216.000.

Konno, Toshio; and Hayakawa, Masatoshi, to CKD Corporation. Method for winding electrode foils and separators for capacitor. 4,276,683, Cl. 29-25.420.

Konoma, Kunihiko, to Minolta Camera Kabushiki Kaisha. Modified gauss type lens system. 4,277,149, Cl. 350-467.000.

Kononov, Ivan V.: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Koppa, Daniel A.; and Aquino, Agostino J., to Nabisco, Inc. Rotary cutter for scoring dough sheets. 4,276,800, Cl. 83-863.000.

Koppe, Herbert: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Koppers, Manfred; Bohnes, Karlheinz; and Fitzgerald, Harry J., to Bochumer Eisenhutte Heintzmann GmbH & Co. Excavation roof support and method of installing the same. 4,277,204, Cl. 405-288.000.

Koros, Peter J.: *See—*
Kerlin, Richard G.; Kossler, Henry T.; Koros, Peter J.; and Petrushka, Robert G., 4,277,279, Cl. 75-58.000.

Koshman, Vitaly I.; Petrichenko, Vladimir F.; and Kamshitsky, Pavel V. Electric circuit switching device. 4,277,766, Cl. 335-122.000.

Kosmahl, Henry G., to United States of America, National Aeronautics and Space Administration. Multistage depressed collector for dual mode operation. 4,277,721, Cl. 315-5.380.

Kossler, Henry T.: *See—*
Kerlin, Richard G.; Kossler, Henry T.; Koros, Peter J.; and Petrushka, Robert G., 4,277,279, Cl. 75-58.000.

Koury, Frederic: *See—*
Keeffe, William M.; Koury, Frederic; and Gungle, W. Calvin, 4,277,714, Cl. 313-217.000.

Kovac, Michael G.; Chleck, David J.; and Goodman, Philip, to Panametrics, Inc. Absolute humidity sensors and methods of manufacturing humidity sensors. 4,277,742, Cl. 324-61.00R.

Koyama, Itsuji: *See—*
Nakajima, Hideiku; Koyama, Itsuji; Kusama, You; and Ashie, Yutaka, 4,277,524, Cl. 427-362.000.

Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and by Ustinov, Klavdia G., administrator. Die set for sizing sections. 4,276,764, Cl. 72-275.000.

Kraemer, Edward J.: *See—*
Rudy, Michael W.; Horning, Thomas D.; and Kraemer, Edward J., 4,277,190, Cl. 400-582.000.

Kraft, Derald H., to Dyneer Corporation. Hydraulic belt tensioner construction. 4,277,240, Cl. 474-110.000.

Kraftwerk Union Ag: *See—*
Braun, Wolfgang; and Irion, Leonhard, 4,277,310, Cl. 176-50.000.

Kraftwerk Union Aktiengesellschaft: *See—*
Schabert, Hans-Peter, 4,277,309, Cl. 176-37.000.

Krage, Mark K.: *See—*
Faxvog, Frederick R.; and Krage, Mark K., 4,277,741, Cl. 324-58.50C.

Kransco Manufacturing, Inc.: *See—*
Fremont, Michael J., 4,276,844, Cl. 114-39.000.

Krause, Walter J.: *See—*
Chin, Robert W.; and Krause, Walter J., 4,276,969, Cl. 188-218.0XL.

Krauth, Axel: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Krehan, Ingomar: *See—*
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.

Kriedt, Hans; and Fenk, Josef, to Siemens Aktiengesellschaft. Amplifier circuit arrangement for aperiodic signals. 4,277,756, Cl. 330-261.000.

Krieg, Werner. Device for simultaneously performing alignment and sighting operations. 4,277,169, Cl. 356-152.000.

Kristiansen, Odd: *See—*
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gnell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.

Krohn, David A., to Eotec Corporation. Method of manufacture of optical fiber. 4,277,270, Cl. 65-3.00A.

Krohn, David A., to Eotec Corporation. Method of manufacturing graded index optical fibers. 4,277,271, Cl. 65-3.00A.

Kruder, George A., to HPM Corporation. Extruder with short cycle multichannel wave screw. 4,277,182, Cl. 366-89.000.

Krylov, Anatoly A.: *See—*
Klimenko, Alexandr S.; Emelyanov, Igor V.; Krylov, Anatoly A.; and Yantovsky, Semen A., 4,276,938, Cl. 169-47.000.

Kubica, Wladyslaw: *See—*
Schmidt, Oskar; and Kubica, Wladyslaw, 4,277,295, Cl. 156-117.000.

Kubicek, Donald H., to Phillips Petroleum Company. Conversion of alkane and/or cycloalkane thiols to disulfide with catalyst system comprised of cobalt molybdate and an alkali- or alkaline earth metal hydroxide. 4,277,623, Cl. 568-26.000.

Kubo, Masaharu: *See—*
Koike, Norio; Takemoto, Iwao; Kubo, Masaharu; Sato, Kazuhiro; and Nagahara, Shusaku, 4,277,799, Cl. 358-44.000.

Kubota, Yuzuru: *See—*
Okuyama, Toshiaki; Kubota, Yuzuru; and Nagase, Hiroshi, 4,277,735, Cl. 318-766.000.

Kudchadker, Mohan V.; Kalfoglou, George; and Whittington, Lawrence E., to Texaco Inc. Surfactant waterflood method for the recovery of oil. 4,276,933, Cl. 166-266.000.

Kudchadker, Mohan V.: *See—*
Allison, Jean B.; Kudchadker, Mohan V.; and Whittington, Lawrence E., 4,277,352, Cl. 252-8.55D.

Kuhfuss, Alvin L., Jr.; and Riediger, Craig W., to Caterpillar Tractor Co. Apparatus for installing vehicle components. 4,276,952, Cl. 180-294.000.

Kuhnel, Werner: *See—*
Groll, Manfred; Kuhnel, Werner; and Kuth, Robert, 4,277,245, Cl. 8-532.000.

Kuliev, Aladdin M. O.; Kadyrov, Tokhrul A. O.; Gaibov, Gjuloglan G. O.; Sinaisky, Anatoly G.; and Matiyasevich, Valentina N. Polymeric composition. 4,277,390, Cl. 260-37.0EP.

Kumahara, Yuichi: *See—*
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Kumazawa, Toshihiko; Yamamoto, Takeshi; and Odanaka, Hiroshi, to Nippon Shokubai Kaguku Kogyo Co., Ltd. Process for the production of alkylene glycols. 4,277,632, Cl. 568-867.000.

Kumins, Charles A.; and Warford, Milan L., to Tremco, Inc. Waterproofing sheet material. 4,277,533, Cl. 428-332.000.

Kummer, Werner: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Kuntz, David H.; and Ingram, James A., to SHS Enterprises, Ltd. Urine specimen collecting device. 4,276,889, Cl. 128-761.000.

Kunz, Albert: *See—*
Kempf, Gerhard; and Kunz, Albert, 4,276,739, Cl. 57-91.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Kureha Kagaku Kogyo Kabushiki Kaishi: *See—*
Iizuka, Yo; Midorikawa, Susumu, deceased; Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, 4,277,573, Cl. 525-85.000.

Kurkalov, Ivan I.: *See—*
Sika, Zigurd K.; Apsit, Voldemar V.; Daugulis, Khubert L.; and Kurkalov, Ivan I., 4,276,832, Cl. 104-292.000.

Kurosaki, Teikichi: *See—*
Kohda, Akihide; and Kurosaki, Teikichi, 4,277,474, Cl. 424-248.570.

Kurz, Craven H. Orthodontic instrument for applying elastic ligatures. 4,277,236, Cl. 433-3.000.

Kurzius, Karl A. Preparing yeast raised bakery products with glandless cotton-seed. 4,277,502, Cl. 426-20.000.

Kusama, You: *See—*
Nakajima, Hideiku; Koyama, Itsuji; Kusama, You; and Ashie, Yutaka, 4,277,524, Cl. 427-362.000.

Kuth, Robert: *See—*
Groll, Manfred; Kuhnel, Werner; and Kuth, Robert, 4,277,245, Cl. 8-532.000.

Kutnyak, Thomas A.; Koerber, Marvin A.; and Wills, Henry K., to Automation Industries, Inc. Electric current-carrying hose assembly having end fittings enclosing an electrical switch and/or a circuit-breaking device. 4,277,640, Cl. 174-47.000.

Kuzuya, Susumu: *See—*
Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, 4,277,192, Cl. 400-671.000.

Kwasnoski, Daniel; and Sterner, Charles J., to Bethlehem Steel Corporation. Apparatus for distillation. 4,277,311, Cl. 202-183.000.

Kyoto Ceramic Kabushiki Kaisha: *See—*
Doi, Takao; and Nomura, Satoshi, 4,277,528, Cl. 428-192.000.

Kyoto Yakuhin Kogyo Kabushiki Kaisha: *See—*
Kamada, Akira, 4,277,465, Cl. 424-178.000.

La Telemecanique Electrique: *See—*
Vignaud, Jean C., 4,277,666, Cl. 200-328.000.

Laboratoire de Recherche API: *See—*
Monget, Daniel; and Nardon, Paul, 4,277,561, Cl. 435-14.000.

Laboratorios Bago S.A.: *See—*
Los, Mario A., 4,277,496, Cl. 424-309.000.

Lacefield, William B.; and Simon, Richard L., to Eli Lilly and Company. 1,1-Biphenyl-2-yl alkylamines, formulations and antiarrhythmic treatment. 4,277,471, Cl. 424-248.400.

Lacefield, William B.; and Simon, Richard L., to Eli Lilly and Company. Treating cardiac arrhythmias. 4,277,495, Cl. 424-309.000.

Ladin, Eli M., to Federal-Mogul Corp. Self-aligning clutch release bearing. 4,276,974, Cl. 192-98.000.

Laesser, Claude: *See—*
Saurer, Eric; Gharsdjedaghi, Fereydoun; Laesser, Claude; Viennet, Rene; and Ruedin, Yves, 4,277,144, Cl. 350-349.000.

LaGrone, Charles H., to Garrett Corporation, The. Fuel control system. 4,276,743, Cl. 60-39.14R.

Laitram Corporation, The: *See—*
Lapeyre, James M., 4,276,776, Cl. 73-363.700.

Lalancette, Jean M., to Societe Nationale de l'Amiante. Calcined polyhydroxysilicate polymer reaction product. 4,277,596, Cl. 528-106.000.

Lalancette, Jean-Marc, to Societe Nationale de l'Aminate. Dry reaction process of asbestos tailings and ammonium sulfate. 4,277,449, Cl. 423-167.000.

Lalanne, Andre P., to Societe Anonyme Automobiles Citroen; and Societe dite: Automobile Peugeot. Vehicle having a rear deck for covering a luggage boot. 4,277,097, Cl. 296-37.160.

L'Allemand, Charles C., to Cly-Del Manufacturing Company, The. Method of making a hollow article. 4,277,298, Cl. 156-199.000.

Lamont, James: *See—*
Li, Thomas Z.; and Lamont, James, 4,277,410, Cl. 260-404.000.

Landauer, Franz; and Schaeffer, Georg, to Hoechst Aktiengesellschaft. Process for the manufacture of para-tert.butylbenzaldehyde and its derivatives which are halogen-substituted at the nucleus. 4,277,421, Cl. 570-185.000.

Landskroener, Peter A.; Dusenbery, John F.; and Young, Roger W., to John Dusenbery Company, Inc. Vacuum roller for transporting a web. 4,277,010, Cl. 226-95.000.

Langenstein, Joseph G., to Caterpillar Tractor Co. Boot seal. 4,276,786, Cl. 74-491.000.

Langer, Arthur W., Jr., to Exxon Research & Engineering Co. Polymerization of alpha-olefins with novel $T_aMR'_{3-n}$ cocatalysts. 4,277,590, Cl. 526-127.000.

Lankro Chemicals Limited: *See—*
Binns, John S.; Braithwaite, Malcolm J.; and Dignum, George, 4,277,629, Cl. 568-779.000.

Lapeyre, James M., to Laitram Corporation, The. Temperature/pressure transducer. 4,276,776, Cl. 73-363.700.

Lardenois, Patrick: *See—*
DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor I., 4,277,476, Cl. 424-250.000.

Larsen, Tor G.; and Howarth, John J., to Measurex Corporation. Apparatus to measure select properties of a moving sheet. 4,277,177, Cl. 356-431.000.

Lauderback, Sanford K.: *See—*
Swanson, Michael E.; and Lauderback, Sanford K., 4,277,386, Cl. 260-29.6RW.

Laure, George R., to Laure Prosthetics, Inc. Carpometacarpal thumb joint. 4,276,660, Cl. 3-1.910.

Laure Prosthetics, Inc.: *See—*
Laure, George R., 4,276,660, Cl. 3-1.910.

Laurel Bank Machine Co., Ltd.: *See—*
Fujii, Kiyoshi; Tsuji, Keiji; and Nishimoto, Seiya, 4,277,774, Cl. 340-146.30Q.
Miyazaki, Yorizo, 4,276,735, Cl. 53-212.000.
Uchida, Shinya, 4,277,119, Cl. 312-208.000.

Laurent, Henry: *See—*
Hofmeister, Helmut; Wiechert, Rudolf; Annen, Klaus; Laurent, Henry; and Steinbeck, Hermann, 4,277,468, Cl. 424-243.000.

Lauterbach, Jerre F., to Cummins Engine Company, Inc. Bearing construction and retainer therefor. 4,277,116, Cl. 308-188.000.

Lauyans, Frank M.: *See—*
Miller, James S.; Lauyans, Frank M.; and Hilger, Edwin T., 4,277,217, Cl. 414-395.000.

Lavelle, Joseph A.: *See—*
Jordan, Arthur D., Jr.; and Lavelle, Joseph A., 4,277,387, Cl. 260-29.7OH.

Lawrence, Mark. Leg stretching exercise. 4,277,062, Cl. 272-126.000.

Lawrence, Simon G.; and Hossack, James, to Ciba-Geigy Corporation. Fluidized granulation of pigments using organic granulating assistant. 4,277,288, Cl. 106-309.000.

Lawson, Kenneth D.; and Brown, Neil L., to Neil Brown Instruments Systems, Inc. Low-power magnetometer circuit with constant current drive. 4,277,751, Cl. 324-254.000.

Leader, Raymond E.: *See—*
Smith, Dale K.; Donich, Thomas G.; Dickerson, Bobby V.; and Leader, Raymond E., 4,277,845, Cl. 455-52.000.

Leandris, Serge, to Precision Mecanique Labinal. Device for feeding a work station with a series of articles, particularly electric wires, in a predetermined order. 4,276,996, Cl. 221-87.000.

Lear Siegler, Inc.: *See—*
Surprenant, Ronald J., 4,277,655, Cl. 179-170.00R.

Le Berre, Serge: *See—*
Hareng, Michel; Le Berre, Serge; and Leclerc, Pierre, 4,277,145, Cl. 350-351.000.

Lebesnerais, Gerard M.: *See—*
Hornung, Robert M.; and Lebesnerais, Gerard M., 4,277,701, Cl. 307-291.000.

Leclerc, Pierre: *See—*
Hareng, Michel; Le Berre, Serge; and Leclerc, Pierre, 4,277,145, Cl. 350-351.000.

Lectard, Alain; and Magrone, Robert, to Aluminum Pechiney. Process for removing titaniferous and silico-aluminous incrustations from surfaces. 4,277,289, Cl. 134-3.000.

Ledges Associates: *See—*
Radlove, Sol B., 4,277,504, Cl. 426-62.000.

Lee, Kee Dong: *See—*
Choi, Sam Kwon; and Lee, Kee Dong, 4,277,584, Cl. 525-437.000.

Lefebvre, Jean-Pierre, to Creusot-Loire. Device for holding in position the forward portion of an inflatable boat. 4,276,668, Cl. 9-2.00A.

Leger, Jean-Paul. Trolley storage. 4,276,831, Cl. 104-93.000.

Legille, Edouard; and Heinz, Carlo. Treatment and handling of metallurgical slag. 4,277,273, Cl. 65-19.000.

Lehinant, Armand; Lehmann, Joachim W.; and Maier, Hans-Peter, to Hoechst Aktiengesellschaft. Process for the dyeing of cellulose fibers with reactive dyes according to the batchwise exhaustion method. 4,277,246, Cl. 8-532.000.

Lehmann, Joachim W.: *See—*
Lehinant, Armand; Lehmann, Joachim W.; and Maier, Hans-Peter, 4,277,246, Cl. 8-532.000.

Lehmann, Werner: *See—*
Wanner, Karl; Lehmann, Werner; and Ranger, Ulrich, 4,276,941, Cl. 173-117.000.

Leichnitz, Kurt, to Dragerwerk Aktiengesellschaft. Method and device for determining the alcohol content of a person's breathing. 4,277,251, Cl. 23-232.00R.

Leichtl, Helmut: *See—*
Dangschat, Rainer; Jeschke, Alfred; Leichtl, Helmut; and Winkler, Wolfgang, 4,277,797, Cl. 358-21.00R.

Leighton, Stephen B., to United States of America, Health, Education and Welfare. Gear drive for seal-less counter current chromatography. 4,277,017, Cl. 233-25.000.

Leinfelt, Karl E., to Aktiebolaget Electrolux. Compressing arrangement for a dust container. 4,277,265, Cl. 55-302.000.

Leininger, Glen: *See—*
Covic, John; Leininger, Glen; and Carlson, Roland W., 4,277,685, Cl. 250-445.00T.

Leitner, Harald, to U.S. Philips Corporation. Method of and arrangement for adapting a hearing aid. 4,276,781, Cl. 73-647.000.

Le Maire, Henry T.: *See—*
Buchholz, Kenneth M.; and Le Maire, Henry T., 4,277,264, Cl. 55-294.000.

Lemmens, Alfons E.; and Gielen, Hendrik A. L., to Metallurgie Hoboken-Overpelt. Process and apparatus for the continuous casting of metal. 4,276,921, Cl. 164-4.000.

Lemmer, Alfred. Adjustable footrest. 4,277,660, Cl. 200-86.500.

Leonard, John P.: *See—*
Yates, Robert E.; Leonard, John P.; Alongi, Robert E.; Albanes, Wilfredo V.; and Bishop, Charles M., 4,277,038, Cl. 244-3.150.

Lepeska, Bohumir: *See—*
Waitkus, Phillip A.; and Lepeska, Bohumir, 4,277,583, Cl. 525-423.000.

Lerch, Donald C.: *See—*
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Leudet, Alain: *See—*
Duhayon, Jacques; Goumondy, Jean-Pierre; Leudet, Alain; and Rousseau, Jean-Claude, 4,277,363, Cl. 252-301.10W.

Leva, Max. Tower packing element. 4,277,425, Cl. 261-98.000.

LeVert, Francis E. Digital room light controller. 4,277,727, Cl. 315-155.000.

Levine, Seymour: *See—*
Hajos, Zoltan G.; and Levine, Seymour, 4,277,401, Cl. 260-340.600.

Levinson, Stephen E.; and Pirz, Frank C., to Bell Telephone Laboratories, Incorporated. Syntactic continuous speech recognizer. 4,277,644, Cl. 179-1.0SD.

Lewandowski, Raymond, to Cherry Electrical Products Corp. Switch blade with wiping contact action. 4,277,662, Cl. 200-242.000.

Lewis, David M. Building wall construction. 4,276,730, Cl. 52-221.000.

Lewis, Mack A., to Wilson Trailer Company. Telescoping reach rod for gate and ramp device with lift deck. 4,277,096, Cl. 296-24.00C.

Li, Thomas Z.; and Lamont, James, to Emery Industries, Inc. Process for the production of carboxylic amides using alkyltin catalysts. 4,277,410, Cl. 260-404.000.

Licht, Steven J., to Bell Telephone Laboratories, Incorporated. Simultaneous formation of garnet epilayer on a plurality of substrates. 4,277,519, Cl. 427-129.000.

Lichtenberg, Wolfhart: *See—*
Killig, Klaus; Lichtenberg, Wolfhart; and Schittenhelm, Rudolf, 4,277,687, Cl. 250-445.00T.

Liebe, Werner: *See—*
Jager, Gerhard; von Konig, Anita; Liebe, Werner; and Voigt, Armin, 4,277,557, Cl. 430-446.000.

Lieurance, Dennis W.: *See—*
Burgeson, John E.; and Lieurance, Dennis W., 4,277,768, Cl. 335-216.000.

Liftech Consultants, Inc.: *See—*
Casper, William L.; Jordon, Michael A.; Caulkins, Craig S.; and Miller, Robert G., 4,276,733, Cl. 52-745.000.

Ligthart, Franciscus A. S.: *See—*
Couwenberg, Winston D.; Bouwknegt, Albert; Ligthart, Franciscus A. S.; and Heuvelmans, Jean J., 4,277,720, Cl. 313-485.000.

Lilaonitkul, Amnuey, to Kimberly-Clark Corporation. Compact tampon applicator. 4,276,881, Cl. 128-263.000.

Lillie, Christian: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Lilly Industries Limited: *See—*
Horwell, David C.; and Tupper, David E., 4,277,480, Cl. 424-258.000.

Lim, Gary M. F.: *See—*
Buyniski, Joseph P.; Hooper, John W.; and Lim, Gary M. F., 4,277,605, Cl. 546-74.000.

Lin, Kingao C.; and Hammond, Donald J., to Owens-Corning Fiberglas Corporation. Stable aqueous emulsion of reactive polysiloxane and curing agent. 4,277,382, Cl. 260-29.20M.

Lincoln, Thomas C., to Malco. Releasable key arrangement for an electrical connector. 4,277,126, Cl. 339-186.00M.

Lindberg, Gunnar V. Transport arrangement for trays and the like. 4,277,216, Cl. 414-331.000.

Lindberg, Mats-Ove R.: *See—*
Sundkvist, Gustaf J.; Lundgren, Fred O.; Lindberg, Mats-Ove R.; and Bostrom, Erik A., 4,276,777, Cl. 73-864.810.

Lindegger, Eric X. Rollers including labyrinth seals. 4,277,114, Cl. 308-20.000.

Lindenthal, Hans: *See—*
Herrmann, Berthold; and Lindenthal, Hans, 4,276,970, Cl. 188-296.000.

Linder, Ernst: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.

Lindner, Alfred; Volkamer, Klaus; and Wagner, Ulrich, to BASF Aktiengesellschaft. Isolation of 1,3-butadiene from a C4-hydrocarbon mixture. 4,277,314, Cl. 203-50.000.

Lindner, Alfred: *See—*
Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, 4,277,315, Cl. 203-51.000.

Lindsay Manufacturing Company: *See—*
Anderson, John L.; Davidson, John C.; Schaaf, Henry W.; and Meis, Charles H., 4,277,023, Cl. 239-11.000.

Lindstrom, Raimo: *See—*
Pejchal, Karel; Fritzon, Hans G.; and Lindstrom, Raimo, 4,276,912, Cl. 139-437.000.

Lindtveit, Herbert, to Sid Harvey, Inc. Flue damper and draft regulator. 4,276,871, Cl. 126-292.000.

Lipinski, Richard J., to Mogul Corporation. Water treatment to inhibit corrosion and scale and process. 4,277,359, Cl. 252-181.000.

Litton Business Systems, Inc.: *See—*
Beckman, Robert P., 4,277,198, Cl. 403-231.000.

Litton Systems, Inc.: *See—*
Burke, Robert V., 4,277,726, Cl. 315-98.000.

Livesay, J. D., to General Motors Corporation. Liquid accumulator. 4,276,756, Cl. 62-503.000.

Livesay, Richard E., to Caterpillar Tractor Co. Keeper assembly. 4,277,199, Cl. 403-317.000.

Ljung, Bo H. G., to Singer Company, The. Method and apparatus for casting a splat-cooled flexure member. 4,276,924, Cl. 164-130.000.

Ljung, Bo H. G.; and Ferriss, Lincoln S., to Singer Company, The. Ring laser gyroscope dither drive circuit. 4,277,173, Cl. 356-350.000.

Locke, James S.: *See—*
Arend, Inez F.; and Locke, James S., 4,277,650, Cl. 179-84.0VF.

Lockhart, James L. Pharmaceutical record and label system. 4,277,089, Cl. 282-27.00R.

Lockheed Corporation: *See—*
Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., 4,277,041, Cl. 244-182.000.
Mershon, Butler A.; and Wilhelm, Keith A., 4,276,762, Cl. 72-13.000.

Loebler, Peter: *See—*
Kimm, Otfried; Hammes, Theo; and Loebler, Peter, 4,276,988, Cl. 215-254.000.

Loen, Larry W.: *See—*
Collins, Robert W.; Hoffman, Roy L.; Loen, Larry W.; Mitchell, Glen R.; and Soltis, Frank G., 4,277,826, Cl. 364-200.000.

Logan, Ted J., to Proctor & Gamble Company, The. Fractionation of triglyceride mixtures. 4,277,412, Cl. 260-428.500.

Logan, Ted J., to Procter & Gamble Company, The. Fractionation of alkyl carboxylate mixtures. 4,277,413, Cl. 260-428.500.

Logic Devices, Inc.: *See—*
Allen, Paul E., 4,277,435, Cl. 264-328.120.

Logie, James A.: *See—*
Blanning, Robert B.; Treadwell, Archie B.; and Logie, James A., 4,277,039, Cl. 244-3.160.

Long, Gary L.; and Humberger, Roger B., to J. R. Simplot Company. Methods for the control of excessive corrosion in phosphoric acid circuits. 4,277,454, Cl. 423-320.000.

Longhi, Giuliano: *See—*
Possati, Mario; and Longhi, Giuliano, 4,277,121, Cl. 312-320.000.

Loose, Richard D.; and Kapanka, Harley L., to General Motors Corporation. Lock bar release for inertia locking seat belt retractor. 4,277,037, Cl. 242-107.40A.

Loose, Winfield W.; and MacDougall, Alan R., to AMP Incorporated. Connector having wire-in-slot connecting means and crimped strain relief. 4,277,124, Cl. 339-99.00R.

L'Oreal: *See—*
Vanlerberghe, Guy; Sebag, Henri; Grollier, Jean-Francois; and Zysman, Alexandre, 4,277,581, Cl. 525-420.000.

Loredo, Tomas A.: *See—*
Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., 4,277,594, Cl. 526-352.000.

Los, Mario A., to Laboratorios Bago S.A. Methods of treating mammals suffering from inflammation and pain. 4,277,496, Cl. 424-309.000.

Lourdeaux, Bernard, to Neyrpic. Mechanism including two cut-off devices in series. 4,276,905, Cl. 137-613.000.

Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., to Cyloflex, Inc. Portable board mill. 4,276,693, Cl. 30-380.000.

Lovas, Paul J.: *See—*
Lovas, Joseph R.; Lovas, Paul J.; and Koelmel, Carl F., 4,276,693, Cl. 30-380.000.

Lucas Industries Limited: *See—*
Anderson, Robert A., 4,276,963, Cl. 188-71.400.

Lucas, John M.; and Nayar, Raman, to Domtar Inc. Roughness sensor calibration. 4,276,766, Cl. 73-1.00R.

Lucas, Joseph E., to Marine Engineering Company, C. A. Tilt-up/jack-up off-shore drilling apparatus and method. 4,277,051, Cl. 254-106.000.

Luce, Carl T.: *See—*
Dowell, Terrence P.; Banks, Edwin L., Jr.; and Luce, Carl T., 4,276,967, Cl. 188-134.000.

Luck, Allan J.; Clarke, John T.; and Sutton, Roger F., to Masonite Corporation. Post-press molding of man-made boards to produce contoured furniture parts. 4,277,428, Cl. 264-118.000.

Lucker, Peter W.; and Wetzelsberger, Nikolaus. Vaginal contraceptive. 4,277,461, Cl. 424-44.000.

Ludemann, Heinz: *See—*
Nagel, Erich; Turcke, Rainer; and Ludemann, Heinz, 4,277,061, Cl. 271-302.000.

Lula, Remus A.; and Aggen, George, to Allegheny Ludlum Steel Corporation. Ferritic stainless steel substrate for catalytic system. 4,277,374, Cl. 252-446.000.

Lummus Company, The: *See—*
Apanel, George J., 4,277,405, Cl. 260-348.210.
Gelbein, Abraham P.; and Khonsari, Ali M., 4,277,630, Cl. 568-801.000.

Lundberg, Robert D.: *See—*
Bock, Jan; Makowski, Henry S.; and Lundberg, Robert D., 4,277,381, Cl. 260-23.50A.

Lundgren, Fred O.: *See—*
Sundkvist, Gustaf J.; Lundgren, Fred O.; Lindberg, Mats-Ove R.; and Bostrom, Erik A., 4,276,777, Cl. 73-864.810.

Lundgren, Roy L. Fan attachment for rocking chairs. 4,277,224, Cl. 416-58.000.

Lunn, Lawrence M. Energy allocator. 4,277,691, Cl. 307-35.000.

Lusi, Domenico F. Music scoring and musical staffs. 4,277,090, Cl. 283-47.000.

Lykes Pasco Packing Company: *See—*
de Fasselle, Robert J.; Baron, Richard D.; and Nottke, James E., 4,276,734, Cl. 53-77.000.

Lyon, William. Plant watering mat system. 4,276,720, Cl. 47-39.000.

Lyons, Jerry L., to Essex Cryogenics of Missouri Inc. High flow pressure relief valve. 4,276,901, Cl. 137-469.000.

Maag Gear Wheel & Machine Co. Ltd.: *See—*
Sterki, Armin; Sommer, Gerd R.; and Naegeli, Walter, 4,276,699, Cl. 33-179.50R.

Mabuchi, Kenichi, to Mabuchi Motor Co, Ltd. Multi-stage energy storage device. 4,276,716, Cl. 46-206.000.

Mabuchi Motor Co, Ltd: *See—*
Mabuchi, Kenichi, 4,276,716, Cl. 46-206.000.

MacDougall, Alan R.: *See—*
Loose, Winfield W.; and MacDougall, Alan R., 4,277,124, Cl. 339-99.00R.

Machida Endoscope Co., Ltd.: *See—*
Oku, Toshio, 4,277,168, Cl. 356-138.000.

Machlan, G. Richard: *See—*
Shah, Hashmuk G.; and Machlan, G. Richard, 4,277,436, Cl. 264-518.000.

Madelaine, Guy; and Pourprix, Michel, to Commissariat a l'Energie Atomique. Device for analyzing the activity of a radioactive aerosol as a function of the grain size distribution of its particles. 4,277,682, Cl. 250-380.000.

Madsen, Ernest L.; Zagzebski, James A.; Banjavic, Richard A.; and Burlew, Michele M., to Wisconsin Alumni Research Foundation. Phantom material and method. 4,277,367, Cl. 252-408.000.

Maeda Industries, Ltd.: *See—*
Ozaki, Nobuo, 4,277,077, Cl. 280-236.000.

Maggio, Edward T., to Syva Company. Kit for carrying out chemically induced fluorescence immunoassay. 4,277,437, Cl. 422-61.000.

Maghemite Inc.: *See—*
Cavanagh, Patrick E., 4,277,329, Cl. 209-212.000.

Mago, Blake F., to Union Carbide Corporation. Poly(alkylene oxide) composition. 4,277,366, Cl. 252-392.000.

Magrone, Robert: *See—*
Lectard, Alain; and Magrone, Robert, 4,277,289, Cl. 134-3.000.

Mahle, Howard C.; and Wesenberg, Kenneth L., to Nott Company. Barge loading device. 4,277,214, Cl. 414-139.000.

Maier, Alfred E.; and Ricci, Louis N., to Westinghouse Electric Corp. Circuit breaker structure. 4,277,664, Cl. 200-293.000.

Maier, Hans-Peter: *See—*
Lehinant, Armand; Lehmann, Joachim W.; and Maier, Hans-Peter, 4,277,246, Cl. 8-532.000.

Maier, Horst R.: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Makabe, Hachiro: *See—*
Takenoya, Hideaki; and Makabe, Hachiro, 4,276,840, Cl. 112-315.000.

Makara, Gyorgy; Morlin, Andras; Fozo, Andras; and Fulop, Robert, to Futober Epuletgepeszeti Termekeket Gyarto Vallalat. Air distributor. 4,276,818, Cl. 98-40.00B.

Makowski, Henry S.: *See—*
Bock, Jan; Makowski, Henry S.; and Lundberg, Robert D., 4,277,381, Cl. 260-23.50A.

Malco: *See—*
Lincoln, Thomas C., 4,277,126, Cl. 339-186.00M.

Mallek, Heinz; Jablonski, Werner; and Plum, Willi, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method of treating radioactively contaminated solvent waste. 4,277,362, Cl. 252-301.10W.

Malmin, Oscar. Cannula and process. 4,276,880, Cl. 128-221.000.

Mamula, Ronald S.; and Dotson, Samuel C., to Andco Incorporated. Swing scaffold for hot blast stove checker chamber relining. 4,276,956, Cl. 182-128.000.

Mansolillo, Robert D.: *See—*
Kaminski, Stanley; Mansolillo, Robert D.; and Wilmer, Eugene A., 4,277,427, Cl. 264-45.500.

Manzoni, Stephane. Vehicle rearview mirrors. 4,277,140, Cl. 350-288.000.

Mar, Clarence Y.; and Caruso, Michael J., to Texas Instruments Incorporated. Non-sequential counter. 4,277,675, Cl. 235-92.0MB.

Marchello, Barbara L.: *See*—
Marchello, John L.; and Marchello, Barbara L., 4,276,670, Cl. 9-337.000.

Marchello, John L.; and Marchello, Barbara L. Swimmer's floatation aid. 4,276,670, Cl. 9-337.000.

Margary, Riccardo: *See*—
Faldella, Roberto; and Margary, Riccardo, 4,276,747, Cl. 60-618.000.

Marhold, Albrecht: *See*—
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.

Marietta, Cesar: *See*—
Moumaneix, Francis; and Marietta, Cesar, 4,277,031, Cl. 239-414.000.

Marine Engineering Company, C. A.: *See*—
Lucas, Joseph E., 4,277,051, Cl. 254-106.000.

Mark, Victor, to General Electric Company. Process for preparing polycarbonates using sterically hindered heterocycloaliphatic secondary amine catalysts. 4,277,597, Cl. 528-199.000.

Mark, Victor, to General Electric Company. Process for preparing polycarbonates using pyrrole catalysts. 4,277,599, Cl. 528-199.000.

Mark, Victor; and Hedges, Charles V., to General Electric Company. Tetraphenolic compounds and polycarbonates containing the same. 4,277,600, Cl. 528-204.000.

Mark, Victor: *See*—
Hall, Walter L.; Jaquiss, Donald B. G.; and Mark, Victor, 4,277,598, Cl. 528-199.000.

Marker, Hannes. Device for connecting a sailmast to a sailboard. 4,276,848, Cl. 114-91.000.

Markert, Juergen: *See*—
Hagen, Helmut; Kohler, Rolf-Dieter; and Markert, Juergen, 4,277,477, Cl. 424-251.000.

Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., to Lockheed Corporation. Aircraft cruise speed control system. 4,277,041, Cl. 244-182.000.

Marshall, Preston F., to Kendall Company, The. In an apparatus for forming biaxially oriented nonwoven fabrics. 4,276,681, Cl. 28-105.000.

Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, to Roussel Uclaf. Process for the preparation of esters. 4,277,617, Cl. 560-124.000.

Martin, Barrie J., to Plessey Handel und Investments AG. Boiler control systems. 4,276,857, Cl. 122-448.00R.

Martin Marietta Corporation: *See*—
Blanning, Robert B.; Treadwell, Archie B.; and Logie, James A., 4,277,039, Cl. 244-3.160.

Martino, Germain: *See*—
Courty, Philippe; Miquel, Jean; Martino, Germain; and Convers, Alain, 4,277,369, Cl. 252-415.000.

Martinsen, Kjell M.: *See*—
Aaras, Arne; Martinsen, Kjell M.; and Nakland, Rikard, 4,277,102, Cl. 297-411.000.

Maruscak, John: *See*—
Jackson, Ronald A.; and Maruscak, John, 4,277,208, Cl. 408-14.000.

Maslennikov, Ivan E.: *See*—
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Masonite Corporation: *See*—
Luck, Allan J.; Clarke, John T.; and Sutton, Roger F., 4,277,428, Cl. 264-118.000.

Masuhara, Isao: *See*—
Wakabayashi, Ataru; and Masuhara, Isao, 4,277,451, Cl. 423-243.000.

Masui, Kiyoshi: *See*—
Sugiura, Takeo; Miyajima, Keiji; Nagatomo, Hideo; and Masui, Kiyoshi, 4,277,514, Cl. 427-1.000.

Materne, Carsten; and Betzing, Hans, to A. Nattermann & Cie. GmbH. 1,4-Dihydropyridine-derivatives with antihypertensive activity. 4,277,483, Cl. 424-263.000.

Mathauser, William R. Fishing rod with strike signalling apparatus. 4,276,711, Cl. 43-17.000.

Matiyasevich, Valentina N.: *See*—
Kuliev, Aladdin M. O.; Kadyrov, Tokhrul A. O.; Gaibov, Gjuloglan G. O.; Simaiuky, Anatoly G.; and Matiyasevich, Valentina N., 4,277,390, Cl. 260-37.0EP.

Matlack, Albert S., to Hercules Incorporated. Solid catalyst component for olefin polymerization. 4,277,372, Cl. 252-429.00B.

Matlock, Paul L.; and Sandner, Michael R., to Union Carbide Corporation. Electrochemical benzylic oxidations. 4,277,318, Cl. 204-78.000.

Matsuda, Masaaki: *See*—
Kataoka, Yushin; Matsuda, Masaaki; and Kamoda, Masaru, 4,277,566, Cl. 521-32.000.

Matsuda, Toshio: *See*—
Inamine, Shigeo; Matsuda, Toshio; and Shimomura, Takeo, 4,277,512, Cl. 426-549.000.

Matsumoto, Hiromitsu, to Yamaha Hatsukoki Kabushiki Kaisha. Internal combustion engine of fuel injection type. 4,276,862, Cl. 123-432.000.

Matsumoto, Junichiro: *See*—
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,276,863, Cl. 123-481.000.

Matsunaga, Hideaki: *See*—
Saito, Toshihiro; Tsutsumi, Yukihiro; Arai, Shoji; and Matsunaga, Hideaki, 4,277,414, Cl. 260-429.00R.

Matsushita Electric Industrial Co., Ltd.: *See*—
Kiuchi, Mitsuyuki, 4,277,667, Cl. 219-10.49R.
Minakuchi, Hiroshi, 4,277,754, Cl. 328-133.000.
Mori, Shun'ichiro; Kimata, Kunio; Aoygi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,670, Cl. 219-492.000.
Mori, Shunichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, 4,277,671, Cl. 219-494.000.
Nakata, Koreaki; Oita, Masahiro; and Hirohata, Hyogo, 4,277,543, Cl. 428-546.000.

Matsushita, Shigeru: *See*—
Kagami, Toshio; Saito, Yoshijiro; Matsushita, Shigeru; and Iriuchijima, Kunio, 4,277,388, Cl. 260-33.40R.

Matsuura, Ryo; Matsuzaki, Katsumi; and Narita, Masao, to Kawasaki Kasei Chemicals Ltd. Process for preventing scale deposition. 4,277,257, Cl. 55-85.000.

Matsuzaki, Katsumi: *See*—
Matsuura, Ryo; Matsuzaki, Katsumi; and Narita, Masao, 4,277,257, Cl. 55-85.000.

Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., to Reynolds Metals Company. Heat shrinkable polyethylene film and method for its manufacture. 4,277,594, Cl. 526-352.000.

Mattson, Charles T. Hand tool spring compressor. 4,276,684, Cl. 29-227.000.

Maul Lochkartengerate GmbH: *See*—
Jaedicke, Wilfried, 4,277,057, Cl. 270-58.000.

Maurer, Helmut: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.

Mauser-Werke GmbH: *See*—
Kimm, Otfried; Hammes, Theo; and Loebler, Peter, 4,276,988, Cl. 215-254.000.

May, Carl J., Jr., to Bell Telephone Laboratories, Incorporated. Multiple variable threshold speech detector. 4,277,645, Cl. 179-1.0SC.

Maze, Robert O.: *See*—
Chapin, Lawrey H.; and Maze, Robert O., 4,277,771, Cl. 340-27.0NA.

Mazey, David J.: *See*—
Nelson, Richard S.; Hudson, John A.; and Mazey, David J., 4,277,293, Cl. 148-175.000.

McCleary, Donald J. Multi-purpose rack and hitch for ATC. 4,277,008, Cl. 224-273.000.

McCloskey, Albert R., to Incom International Inc. Bearings with felted teflon liners. 4,277,118, Cl. 308-238.000.

McClure, Richard J.: *See*—
Jeffers, Frederick J.; and McClure, Richard J., 4,277,806, Cl. 360-16.000.

McConnell, Charles H.: *See*—
Dunstan, Phillip E.; and McConnell, Charles H., 4,276,976, Cl. 198-334.000.

McDaniel, Max P.; and Welch, Melvin B., to Phillips Petroleum Company. Sulfiding and reoxidation of chromium catalyst. 4,277,587, Cl. 526-106.000.

McDaniel, Robert F.; Prewarski, Mike; and Ramey, Leonard D., to International Business Machines Corporation. Direct keyboard controlled rack shift device for a single element typewriter. 4,277,188, Cl. 400-257.000.

McDonald, Ray S.; and Thompson, David L., to Medtronic, Inc. Battery monitor for digital cardiac pacemaker. 4,276,883, Cl. 128-419.0PT.

McDonnell Douglas Corporation: *See*—
Speakman, Eugene R., 4,277,200, Cl. 403-408.000.

McDowell, William P.: *See*—
Rusch, Gordon K.; Keefe, Donald J.; and McDowell, William P., 4,277,308, Cl. 176-19.0EC.

McGookin, Hugh R., to McGookin, Hugh R. Method and apparatus for measuring the level of semi-solid material. 4,276,774, Cl. 73-290.00B.

McIntyre, Donald B.; and McIntyre, Frederic S., to Acumeter Laboratories, Inc. Wide-band and continuous line adhesive applicator for cigarette filter attachment and the like. 4,277,301, Cl. 156-446.000.

McIntyre, Frederic S.: *See*—
McIntyre, Donald B.; and McIntyre, Frederic S., 4,277,301, Cl. 156-446.000.

McKenna, James F.; and Anderson, Douglas O., to United States Steel Corporation. Ascension pipe cleaning apparatus. 4,277,312, Cl. 202-241.000.

McKinney, James A., to United States of America, Navy. Transducer array release and pressure compensation system. 4,277,839, Cl. 367-155.000.

McKinzie, Howard L., to Getty Oil Company, Inc. Method of thermally insulating a wellbore. 4,276,936, Cl. 166-303.000.

McLaren, Keith G., to Australian Atomic Energy Commision. Ionizing radiation treatment of wool textiles with resin for shrink resistance. 4,277,242, Cl. 8-128.00A.

McNab, Ian R.; and Reichner, Philip, to Westinghouse Electric Corp. Environment and brushes for high-current rotating electrical machinery. 4,277,708, Cl. 310-228.000.

Mead Corporation, The: *See*—
Vedder, James L., 4,277,548, Cl. 430-22.000.

Measurex Corporation: *See*—
Larsen, Tor G.; and Howarth, John J., 4,277,177, Cl. 356-431.000.

Mechanical Technology Incorporated: *See*—
Gray, Stanley; and Heshmat, Hooshang, 4,277,111, Cl. 308-9.000.

Heshmat, Hooshang, 4,277,112, Cl. 308-9.000.
Heshmat, Hooshang, 4,277,113, Cl. 308-9.000.

Meckler, Gershon. Air bar assembly. 4,276,817, Cl. 98-38.00E.

Medrex Ltd.: *See*—
Zabik, Alexander J.; and Fisher, Stephen G., 4,277,153, Cl. 353-27.00R.

Medtronic, Inc.: *See*—
Dickhudt, Eugene A.; and Ray, Charles D., 4,276,882, Cl. 128-419.00P.
McDonald, Ray S.; and Thompson, David L., 4,276,883, Cl. 128-419.0PT.

Mefcor, Inc.: *See*—
Hurt, Frank K.; and Wellons, Edwin L., 4,276,981, Cl. 198-866.000.

Mehra, Yuv R.; and Clark, Ralph E., to El Paso Products Company. Recovery of 1,3-butadiene. 4,277,313, Cl. 203-32.000.

Meidert, Helmut; Pressler, Wilfried; and Muller, Werner H., to Hoechst Aktiengesellschaft. 8-Oxo-5,6,7,8-tetrahydro-2-quinolone and process for the preparation thereof. 4,277,606, Cl. 546-157.000.

Meier, Willi, to Dorina Nahmaschinen GmbH. Needle bar pendulum for sewing machines. 4,276,839, Cl. 112-227.000.

Meinert, Hartnut: *See*—
Wieland, Dieter; and Meinert, Hartnut, 4,276,769, Cl. 73-19.000.

Meis, Charles H.: *See*—
Anderson, John L.; Davidson, John C.; Schaaf, Henry W.; and Meis, Charles H., 4,277,023, Cl. 239-11.000.

Melcher, Franz J.: *See*—
Knothe, Erich; Berg, Christoph; and Melcher, Franz J., 4,276,949, Cl. 177-212.000.

Mellgren, Ronnie E.: *See*—
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Mellors, Geoffrey W.; and Sheffield, Glenn W., to Union Carbide Corporation. Manganese dioxide. 4,277,360, Cl. 252-182.100.

Melnick, Joseph L.; and Wallis, Craig, to Baylor College of Medicine. Methods for detecting and quantifying occult blood. 4,277,250, Cl. 23-230.00B.

Melton, Florence. Method of making a slipper sock. 4,276,671, Cl. 12-142.00T.

Memorex Corporation: *See*—
Fisher, Robert D.; and Katz, Eric R., 4,277,809, Cl. 360-131.000.

Meneghetti, Giorgio: *See*—
Alberto, Pietro; and Meneghetti, Giorgio, 4,277,032, Cl. 242-56.00R.

Menzi, Robert: *See*—
Rufer, Willy; and Menzi, Robert, 4,277,513, Cl. 426-656.000.

Mercer, Robert R., to General Motors Corporation. Apparatus for installing a ferrule. 4,277,012, Cl. 227-68.000.

Merck & Co., Inc.: *See*—
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,277,482, Cl. 424-263.000.
Tolman, Richard L.; Ashton, Wallace T.; and Brown, Ronald D., 4,277,603, Cl. 544-250.000.
Woltersdorf, Otto W.; and Cragoe, Edward J., Jr., 4,277,602, Cl. 544-207.000.

Mershon, Butler A.; and Wilhelm, Keith A., to Lockheed Corporation. Joggling machine. 4,276,762, Cl. 72-13.000.

Messrs. O.M.G. Officina macchine Grafiche de pessina e Perobelli: *See*—
Perobelli, Aldo; and Pessina, Giorgio, 4,277,060, Cl. 271-186.000.

Metallurgie Hoboken-Overpelt: *See*—
De Schepper, Achille; and Van Peteghem, Antoine, 4,277,445, Cl. 422-259.000.
Lemmens, Alfons E.; and Gielen, Hendrik A. L., 4,276,921, Cl. 164-4.000.

Metcalf, Brian W.: *See*—
Bey, Philippe; Metcalf, Brian W.; and Wiseman, Jeffrey S., 4,277,395, Cl. 260-112.50R.

Metzenthin, Dieter W. Fuel atomizing device. 4,276,867, Cl. 123-590.000.

Meunier, Georges, to Saint Gobain Industries. Apparatus for distribution of solid particles. 4,277,205, Cl. 406-123.000.

Meyers, Gary W.: *See*—
Reed, Russell, Jr.; Moore, Kenneth L.; and Meyers, Gary W., 4,277,203, Cl. 405-264.000.

Michel, Edmond, to Solvay & Cie. Hollow body made of an oriented thermoplastic. 4,276,987, Cl. 215-1.00C.

Michel, Joseph P., to Anciaux widow Wastesaeger, Martine, a part interest. Method of producing cross-linked, unsaturated polyesters. 4,277,570, Cl. 521-106.000.

Midorikawa, Kiyoshi, heir: *See*—
Iizuka, Yo; Midorikawa, Susumu, deceased; Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, 4,277,573, Cl. 525-85.000.

Midorikawa, Susumu, deceased: *See*—
Iizuka, Yo; Midorikawa, Susumu, deceased; Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, 4,277,573, Cl. 525-85.000.

Midorikawa, Taeko, heir: *See*—
Iizuka, Yo; Midorikawa, Susumu, deceased; Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, 4,277,573, Cl. 525-85.000.

Midorikawa, Yumi, heir: *See*—
Iizuka, Yo; Midorikawa, Susumu, deceased; Midorikawa, Kiyoshi, heir; and Midorikawa, Yumi, heir, 4,277,573, Cl. 525-85.000.

Mieda, Fumio, to Keio Giken Kogyo Kabushiki Kaisha. Electronic keyboard instrument. 4,276,802, Cl. 84-1.190.

Miko, Richard J.; and Shapiro, Daniel H., to Edo Corporation. Reusable helical filter for high temperature gases. 4,277,261, Cl. 55-278.000.

Miko, Richard J.; and Shapiro, Daniel H., to Edo Corporation. Reusable axial filter for high temperature gases. 4,277,262, Cl. 55-278.000.

Miles, Richard B. Laser beacon and optical detector system for aircraft collision hazard determination. 4,277,170, Cl. 356-152.000.

Miles, Wilbur N.: *See*—
Benjamin, Milton L.; and Miles, Wilbur N., 4,277,209, Cl. 408-139.000.

Miller, Alfred F.: *See*—
Sato, Kunito; Miller, Alfred F.; and Zimont, Leonard J., 4,277,508, Cl. 426-266.000.

Miller, James S.; Lauyans, Frank M.; and Hilger, Edwin T., to A-T-O Inc. Load transfer apparatus. 4,277,217, Cl. 414-395.000.

Miller, Robert F., to Allegheny Ludlum Steel Corporation. Electrical steel lamination. 4,277,530, Cl. 428-216.000.

Miller, Robert G.: *See*—
Casper, William L.; Jordon, Michael A.; Caulkins, Craig S.; and Miller, Robert G., 4,276,733, Cl. 52-745.000.

Millington, Richard G.: *See*—
Heibein, Harry P.; Millington, Richard G.; Salvadore, John M.; Scott, Dean J.; and Sendelweck, Michael L., 4,277,790, Cl. 346-75.000.

Mills, Anthony J.: *See*—
Webb, David; and Mills, Anthony J., 4,277,377, Cl. 252-522.00R.

Millsapps, Stuart C., Jr., to Hughes Tool Company. Biased lubricant compensator for an earth boring drill bit. 4,276,946, Cl. 175-228.000.

Milwaukee Dustless Brush Co.: *See*—
Hunt, Frederick B., 4,276,674, Cl. 15-182.000.

Minakuchi, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Digital frequency-phase comparator. 4,277,754, Cl. 328-133.000.

Minato, Mitsuaki: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Minegishi, Yutaka; and Nishimura, Toshiro, to Kao Soap Co., Ltd. Textile softening agent. 4,277,350, Cl. 252-8.800.

Ministry of International Trade & Industry: *See*—
Tateishi, Tetsuya, 4,277,828, Cl. 364-415.000.

Minnesota Mining and Manufacturing Company: *See*—
Hoekman, Earl B., 4,277,693, Cl. 307-141.000.
Sonnonstine, Terry J.; and Kneipp, Kenneth G., 4,277,551, Cl. 430-120.000.

Minolta Camera Kabushiki Kaisha: *See*—
Konoma, Kunihiko, 4,277,149, Cl. 350-467.000.
Tabuchi, Kenji; and Iwata, Hidehito, 4,277,003, Cl. 222-350.000.
Wada, Kenichi; Murasaki, Hiroshi; Enoguchi, Yuji; and Fujiwara, Takao, 4,277,165, Cl. 355-55.000.

Miquel, Jean: *See*—
Courty, Philippe; Miquel, Jean; Martino, Germain; and Convers, Alain, 4,277,369, Cl. 252-415.000.

Mis, Frank J., to Harris Hub Co., Inc. Bed frame of adjustable width. 4,276,665, Cl. 5-184.000.

Mishiro, Shoji, to Taga Electric Company, Limited. Ultrasonic wave generating apparatus with voltage-controlled filter. 4,277,758, Cl. 331-1.00R.

Mislan, Joseph D. Method for pressure casting metal objects. 4,276,923, Cl. 164-76.000.

Mitchell, Glen R.: *See*—
Collins, Robert W.; Hoffman, Roy L.; Loen, Larry W.; Mitchell, Glen R.; and Soltis, Frank G., 4,277,826, Cl. 364-200.000.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Tanaka, Toshio; Namizaki, Hirofumi; Takamiya, Saburo; and Susaki, Wataru, 4,277,759, Cl. 331-94.50H.

Mitsubishi Paper Mills, Ltd.: *See*—
Nakajima, Hideiku; Koyama, Itsuji; Kusama, You; and Ashie, Yutaka, 4,277,524, Cl. 427-362.000.

Mitsui Petrochemical Industries, Ltd.: *See*—
Giannini, Umberto; Albizzati, Enrico; and Parodi, Sandro, 4,277,589, Cl. 526-122.000.

Mitsui Toatsu Chemicals, Inc.: *See*—
Yoshimoto, Takeo; Igarashi, Keiichi; Oda, Kengo; Ura, Masaaki; and Sato, Naoki, 4,277,624, Cl. 568-44.000.

Mitsunaga, Takayoshi; Chinushi, Kiyoto; and Umezu, Tadashi, to Sumitomo Chemical Company, Limited. Water-soluble biotin-containing preparation. 4,277,488, Cl. 424-273.00R.

Miura, Yasuhisa: *See*—
Asada, Touru; Miura, Yasuhisa; and Yoshino, Tsutomu, 4,277,622, Cl. 364-512.000.

Miyade, Eimei: *See*—
Izumitani, Tetsuro; and Miyade, Eimei, 4,277,523, Cl. 427-294.000.

Miyagawa, Fumihiro; and Sawabe, Kousaku, to Ricoh Company, Ltd. Lens tube retraction mechanism for camera having retractable lens tube. 4,277,157, Cl. 354-187.000.

Miyajima, Keiji: *See*—
Sugiura, Takeo; Miyajima, Keiji; Nagatomo, Hideo; and Masui, Kiyoshi, 4,277,514, Cl. 427-1.000.

Miyamoto, Yukihiko: *See*—
Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,277,703, Cl. 307-553.000.

Miyazaki, Kenichi: *See*—
Nakagaki, Shintaro; Takaneshi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Miyazaki, Yorizo, to Laurel Bank Machine Co., Ltd. Apparatus for guiding wrapping paper in coin wrapping machine. 4,276,735, Cl. 53-212.000.

Miyoshi, Tadayoshi: *See*—
Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Mizukura, Noboru: *See*—
Onodera, Kaoru; Mizukura, Noboru; and Kobayashi, Ryuichiro, 4,277,553, Cl. 430-216.000.

MKS Instruments, Inc.: *See*—
Harvey, Philip C., 4,277,747, Cl. 324-78.00D.

Moba Holding Barneveld B.V.: *See*—
van Kattenbroek, Hendrik J., 4,276,977, Cl. 198-446.000.

Mobil Tyco Solar Energy Corporation: *See*—
Sachs, Emanual M., 4,277,441, Cl. 422-105.000.

Model A and Model T Motor Car Reproduction Corporation, The: *See*—
Turner, Nelson R.; Sanders, Daniel E.; and Bienenstein, Charles A., 4,277,087, Cl. 280-718.000.

Modler, Peter R.; Dittmer, Harold E.; Rose, Richard L.; and Stafnes, John A., to Pax Equipment Management, Inc. Refrigerated air cargo container. 4,276,752, Cl. 62-166.000.

Modrovich, Ivan E. Stabilized liquid enzyme and coenzyme compositions. 4,277,562, Cl. 435-17.000.

Moertel, George B., to Textron, Inc. Slide fastener. 4,276,679, Cl. 24-205.16R.

Moertel, George B., to Textron, Inc. Low cost slide fastener stringer. 4,276,680, Cl. 24-205.16R.

Mogul Corporation: *See*—
Lipinski, Richard J., 4,277,359, Cl. 252-181.000.

Molins Limited: *See*—
Dyett, Derek H.; and Rakowicz, Jan A., 4,276,891, Cl. 131-84.00C.

Molloy, Bryan B.; and Steinberg, Mitchell I., to Eli Lilly and Company. Para-nitrophenylalkylamines and pharmaceutical compositions. 4,277,501, Cl. 424-330.000.

Monget, Daniel; and Nardon, Paul, to Laboratoire de Recherche API. Support for the determination of enzyme activities and process. 4,277,561, Cl. 435-14.000.

Monsanto Company: *See*—
Aliberti, Vincent A., 4,277,541, Cl. 428-518.000.
Hoagland, John C., 4,277,338, Cl. 210-186.000.
Jastrzebski, Michael B.; and Padwa, Allen R., 4,277,574, Cl. 525-86.000.
Koenig, Karl E., 4,277,420, Cl. 560-24.000.

Monte, Salvatore J.: *See*—
Sugerman, Gerald; and Monte, Salvatore J., 4,277,415, Cl. 260-429.500.

Montedison S.p.A.: *See*—
Caldo, Cornelio; and Basili, Luigi, 4,277,371, Cl. 252-429.00B.
Giannini, Umberto; Albizzati, Enrico; and Parodi, Sandro, 4,277,589, Cl. 526-122.000.

Montesi, Edward M., to Norton Company. Accessory to hard hat attaching means. 4,276,657, Cl. 2-422.000.

Montgrain, Luc, to Alcan Research and Development Limited. Apparatus and method for removal of alkali and alkaline earth metals from molten aluminium. 4,277,280, Cl. 75-68.00R.

Moodie, Stanley T.: *See*—
Bargeron, Thomas C.; and Moodie, Stanley T., 4,277,045, Cl. 248-599.000.

Moore Business Forms: *See*—
Wakeman, William R.; Van Malderghem, Edmund G.; and Greulich, Kenneth R., 4,277,016, Cl. 229-69.000.

Moore, James H.: *See*—
Ore, Fernando; Ellis, John D.; and Moore, James H., 4,277,448, Cl. 423-167.000.

Moore, Kenneth L.: *See*—
Reed, Russell, Jr.; Moore, Kenneth L.; and Meyers, Gary W., 4,277,203, Cl. 405-264.000.

Moore, Kenneth M.: *See*—
Bauer, Claude J.; and Moore, Kenneth M., 4,277,641, Cl. 174-65.00R.

Morel, Claude: *See*—
DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor I., 4,277,476, Cl. 424-250.000.

Morel, Henri, to ITW de France. Self-retained and reusable fastener. 4,276,806, Cl. 411-41.000.

Morel, Henri, to ITW de France. Fixing device for securing any part to a holding member such as a panel by inserting said fixing device into a hole of standard shape formed in said panel. 4,277,196, Cl. 403-3.000.

Morewood, William H., to Winsford Products, Inc. Self-feeding device for handicapped persons. 4,277,213, Cl. 414-9.000.

Morgan, Gary B.: *See*—
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Morgan, Robert L.; Cupitt, Larry T.; and Gamble, William L., to United States of America, Army. Visible and infrared intensity limiter. 4,277,146, Cl. 350-356.000.

Mori, Keiichi: *See*—
Kikuchi, Shoji; Yajima, Toshio; Kishi, Kenichi; Sasaki, Takashi; Mori, Keiichi; and Sato, Haruhiko, 4,277,558, Cl. 430-542.000.

Mori, Shun'ichiro; Kimata, Kunio; Aoygi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, to Matsushita Electric Industrial Co., Ltd. Temperature control system for electric heating apparatus. 4,277,670, Cl. 219-492.000.

Mori, Shunichiro; Kimata, Kunio; Aoyagi, Hirofumi; Horii, Hiroshi; and Hasegawa, Hidenobu, to Matsushita Electric Industrial Co., Ltd. Temperature control system for electric heating appliance. 4,277,671, Cl. 219-494.000.

Morinaga, Shigeki: *See*—
Tokuda, Hiroastu; Morinaga, Shigeki; and Nakamura, Hideo, 4,277,829, Cl. 364-431.000.

Morlin, Andras: *See*—
Makara, Gyorgy; Morlin, Andras; Fozo, Andras; and Fulop, Robert, 4,276,818, Cl. 98-40.00B.

Morrison, Clifton H.: *See*—
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

Morse, Donald W.: *See*—
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

Mostert, Jacob J. Method of jacking up a vehicle, and jack therefor. 4,277,050, Cl. 254-94.000.

Motonami, Masanao: *See*—
Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, 4,277,088, Cl. 280-804.000.

Motorola, Inc.: *See*—
Alberkrack, Jade H., 4,277,824, Cl. 363-49.000.
Capurka, Zbynek A., 4,276,860, Cl. 123-415.000.
Vasquez, Ray M., 4,277,698, Cl. 307-272.00A.

Motoyama, Koichiro: *See*—
Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Moumaneix, Francis; and Marietta, Cesar, to Anciens Etablissements Leon Guilbert & Fils. Dual gas supply blow torch. 4,277,031, Cl. 239-414.000.

Mowery, Kenneth D.: *See*—
Kearney, Mark B.; Mowery, Kenneth D.; and Pechous, L. Joseph, 4,276,861, Cl. 123-425.000.

Mucciardi, Frank: *See*—
Guthrie, Roderick I. L.; and Mucciardi, Frank, 4,277,282, Cl. 75-53.000.

Muehling, Anthony A., to Black & Decker Inc. Power tool apparatus. 4,276,799, Cl. 83-473.000.

Mueller, Herbert; Paulus, Gerhard; Schoeppl, Hubert; and Scharf, Emil, to BASF Aktiengesellschaft. Vulcanization activator. 4,277,422, Cl. 260-781.000.

Mueller, Karl F.; and Good, William R., to Ciba-Geigy Corporation. Water-insoluble hydrophilic copolymers. 4,277,582, Cl. 525-421.000.

Mukaida, Yutaka: *See*—
Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Muller, Karl-Heinz, to Robert Bosch GmbH. Gear machine operable as pump or motor with axially spaced and circumferentially offset pair of gears. 4,277,230, Cl. 418-131.000.

Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, to Robert Bosch GmbH. Electrochemical oxygen sensor, particularly for use in the exhaust system of automotive-type internal combustion engines. 4,277,323, Cl. 204-195.00S.

Muller, Norbert: *See*—
Delp, Hermann; and Muller, Norbert, 4,277,658, Cl. 200-61.540.

Muller, Werner H.: *See*—
Meidert, Helmut; Pressler, Wilfried; and Muller, Werner H., 4,277,606, Cl. 546-157.000.

Muller-Werth, Bernd. Method of and means for utilizing rechargeable batteries in the operation of electric vehicles. 4,277,737, Cl. 320-2.000.

Muller, Wolfgang: *See*—
Johne, Hans; Jentzsch, Arndt; Schmidt, Lothar; Muller, Wolfgang; and Funke, Mandred, 4,276,827, Cl. 101-212.000.

Mundersch, Paul. Method and apparatus for making bituminous mixtures. 4,277,180, Cl. 366-7.000.

Munson, William A., to Westinghouse Electric Corp. Slip recovery system for wound rotor motor. 4,277,733, Cl. 318-732.000.

Murasaki, Hiroshi: *See*—
Wada, Kenichi; Murasaki, Hiroshi; Enoguchi, Yuji; and Fujiwara, Takao, 4,277,165, Cl. 355-55.000.

Murray, John T., to United Centrifugal Pumps. Adjustable angle star feed machining slide. 4,277,210, Cl. 409-191.000.

Murray, William K., to Tri-State Oil Tool Industries, Inc. Junk basket. 4,276,931, Cl. 166-99.000.

Mutsaers, Cornelis A. H. A.: *See*—
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and van der Kruijs, Franciscus N. G. R., 4,277,542, Cl. 338-308.000.

MWA Company: *See*—
King, John L., Jr., 4,276,724, Cl. 51-266.000.

Naarmann, Herbert; Penzien, Klaus; Doerfel, Helmut; and Eckell, Albrecht, to BASF Aktiengesellschaft. Preparation of acetylene copolymers. 4,277,588, Cl. 526-114.000.

Nabisco, Inc.: *See*—
Koppa, Daniel A.; and Aquino, Agostino J., 4,276,800, Cl. 83-863.000.

Naegeli, Peter: *See*—
Helmlinger, Daniel; and Naegeli, Peter, 4,277,618, Cl. 560-231.000.

Naegeli, Walter: *See*—
Sterki, Armin; Sommer, Gerd R.; and Naegeli, Walter, 4,276,699, Cl. 33-179.50R.

Nagahara, Shusaku: *See*—
Koike, Norio; Takemoto, Iwao; Kubo, Masaharu; Sato, Kazuhiro; and Nagahara, Shusaku, 4,277,799, Cl. 358-44.000.

Nagaki, Takehiro, to Sony Corporation. Magnetic transducer head. 4,277,808, Cl. 360-113.000.

Nagami, Koichi: *See*—
Hayashi, Masaaki; Nagami, Koichi; Tsuneta, Kazuyoshi; and Kenmotusu, Nobuhiro, 4,277,383, Cl. 260-29.300.

Nagase, Hiroshi: *See*—
Okuyama, Toshiaki; Kubota, Yuzuru; and Nagase, Hiroshi, 4,277,735, Cl. 318-766.000.

Nagatomo, Hideo: *See*—
Sugiura, Takeo; Miyajima, Keiji; Nagatomo, Hideo; and Masui, Kiyoshi, 4,277,514, Cl. 427-1.000.

Nagel, Erich; Turcke, Rainer; and Ludemann, Heinz, to AGFA-Gevaert, A.G. Apparatus for classifying photographic prints or the like. 4,277,061, Cl. 271-302.000.

Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, to Victor Company of Japan, Ltd. Color television signal generating apparatus. 4,277,800, Cl. 358-44.000.

Nakagawa, Kazuyuki: *See*—
Nishi, Takao; and Nakagawa, Kazuyuki, 4,277,479, Cl. 424-258.000.

Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, to Brother Industires, Ltd. End of line locking mechanism for power operated typewriter. 4,277,192, Cl. 400-671.000.

Nakajima, Hideiku; Koyama, Itsuji; Kusama, You; and Ashie, Yutaka, to Mitsubishi Paper Mills, Ltd. Method and apparatus for finishing coated papers. 4,277,524, Cl. 427-362.000.

Nakajima, Tokuyoshi: *See*—
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; and Shibuya, Yoshimichi, 4,277,275, Cl. 65-43.000.

Nakamura, Hideo: *See*—
Tokuda, Hiroastu; Morinaga, Shigeki; and Nakamura, Hideo, 4,277,829, Cl. 364-431.000.

Nakamura, Isao: *See*—
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.

Nakamura, Ken: *See*—
Fujita, Hisao; Tanaka, Yasuhiko; Kobayashi, Isao; and Nakamura, Ken, 4,276,854, Cl. 118-689.000.

Nakane, Hisashi: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Nakao, Toshihiro: *See*—
Sato, Masanobu; Satoh, Ken; Nakao, Toshihiro; and Furuta, Kenzi, 4,277,674, Cl. 235-92.0EA.

Nakata, Koreaki; Ota, Masahiro; and Hirohata, Hyogo, to Matsushita Electric Industrial Co., Ltd. Anode for solid electrolytic capacitor and method for making the same. 4,277,543, Cl. 428-546.000.

Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, to Tokyo Ohka Kogyo Kabushiki Kaisha; and Tokyo Denshi Kagaku Kabushiki Kaisha. Liquid compositions for forming silica coating films. 4,277,525, Cl. 427-387.000.

Nakazawa, Nobuhiko: *See*—
Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, 4,277,460, Cl. 424-1.000.
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Nakland, Rikard: *See*—
Aaras, Arne; Martinsen, Kjell M.; and Nakland, Rikard, 4,277,102, Cl. 297-411.000.

Nally, Robert B.; Akister, James F.; and Trohatos, George, to NCR Canada LTD - NCR Canada Ltee. Character recognition system. 4,277,775, Cl. 340-146.30Q.

Nally, Robert B.; Akister, James F.; and Hulford, David, to NCR Canada Ltd - NCR Canada Ltee. Magnetic ink character recognition apparatus. 4,277,776, Cl. 340-146.3AG.

Namizaki, Hirofumi: *See*—
Tanaka, Toshio; Namizaki, Hirofumi; Takamiya, Saburo; and Susaki, Wataru, 4,277,759, Cl. 331-94.50H.

Nardon, Paul: *See*—
Monget, Daniel; and Nardon, Paul, 4,277,561, Cl. 435-14.000.

Narita, Masao: *See*—
Matsuura, Ryo; Matsuzaki, Katsumi; and Narita, Masao, 4,277,257, Cl. 55-85.000.

Naruse, Kazumichi: *See*—
Takada, Shigetaka; Naruse, Kazumichi; and Watanabe, Yukihiro, 4,276,745, Cl. 60-276.000.

National Semiconductor Corporation: *See*—
Priel, Ury, 4,277,739, Cl. 323-313.000.

Nayar, Raman: *See*—
Lucas, John M.; and Nayar, Raman, 4,276,766, Cl. 73-1.00R.

Naylor, Floyd E., to Phillips Petroleum Company. Process for producing random copolymers of conjugated dienes and alpha-methylstyrene type monomers. 4,277,591, Cl. 526-174.000.

NCR Canada LTD - NCR Canada Ltee: *See*—
Nally, Robert B.; Akister, James F.; and Trohatos, George, 4,277,775, Cl. 340-146.30Q.
Nally, Robert B.; Akister, James F.; and Hulford, David, 4,277,776, Cl. 340-146.3AG.

Neher, Hans, to J. Hengstler K.G. Mechanical counter. 4,277,677, Cl. 235-109.000.

Neil Brown Instruments Systems, Inc.: *See*—
Lawson, Kenneth D.; and Brown, Neil L., 4,277,751, Cl. 324-254.000.

Nelson, Lorne W., to Honeywell Inc. Clock thermostat apparatus for resetting the temperature of a space during selected time periods with means for varying the pickup time as a function of the drop in space temperature during the setback period. 4,277,018, Cl. 236-46.00R.

Nelson, Richard M., to Guy F. Atkinson Company. Case construction for multi-stage pump. 4,277,223, Cl. 415-199.100.

Nelson, Richard S.; Hudson, John A.; and Mazey, David J. Growth of synthetic diamonds having altered electrical conductivity. 4,277,293, Cl. 148-175.000.

Nelson, Robert W.: *See*—
Hunck, Billie G.; and Nelson, Robert W., 4,276,896, Cl. 137-101.000.

Newage Kitchens Limited: *See*—
Bargiel, Stefan, 4,277,122, Cl. 312-330.00R.

Newman, Thomas M., to Compu-Pic Incorporated. Lottery number generating method and apparatus. 4,277,064, Cl. 273-138.00A.

Newman, Timothy L. Truck mounted railroad crane. 4,276,985, Cl. 212-177.000.

Neyrpic: *See*—
Lourdeaux, Bernard, 4,276,905, Cl. 137-613.000.

Nichols, Donald H. Microwave oven cooking time scale. 4,276,948, Cl. 177-44.000.

Nichols Institute: *See*—
Broughton, Alan, 4,277,249, Cl. 23-230.00B.

Nichols, Richard D. E.: *See*—
Bianchi, John E.; and Nichols, Richard D. E., 4,277,007, Cl. 224-193.000.

Nielsen, James W., to Nielsen, Sharon G. Device for killing moss. 4,276,732, Cl. 52-517.000.

Nielsen, Sharon G.: *See*—
Nielsen, James W., 4,276,732, Cl. 52-517.000.

Nink, Horst: *See*—
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Nippon Electric Co., Ltd.: *See*—
Kawakami, Yuichi, 4,277,836, Cl. 364-900.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Kaneko, Yasutoski, 4,276,805, Cl. 84-458.000.

Nippon Hoso Kyokai: *See*—
Nonaka, Yasuhiko; Goto, Naohiro; and Shidara, Keiichi, 4,277,515, Cl. 427-76.000.

Nippon Light Metal Company Limited: *See*—
Shiga, Yoshinobu; Kage, Ryusuke; and Iwata, Masakatsu, 4,276,729, Cl. 52-209.000.

Nippon Shokubai Kaguku Kogyo Co., Ltd.: *See*—
Kumazawa, Toshihiko; Yamamoto, Takeshi; and Odanaka, Hiroshi, 4,277,632, Cl. 568-867.000.

Nippon Soken, Inc.: *See*—
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,276,773, Cl. 73-204.000.
Yasuda, Eturo; and Ohta, Minoru, 4,277,439, Cl. 422-94.000.

Nippon Zoki Pharmaceutical Co., Ltd.: *See*—
Kohda, Akihide; and Kurosaki, Teikichi, 4,277,474, Cl. 424-248.570.

Nishi, Takao; and Nakagawa, Kazuyuki, to Otsuka Pharmaceutical Co., Ltd. Tetrazolylalkoxycarbostyril derivatives and pharmaceutical compositions containing them. 4,277,479, Cl. 424-258.000.

Nishikawa, Masaji; and Amemiya, Norio, to Olympus Optical Company Limited. Photosensitive screen for electrographic apparatus. 4,277,550, Cl. 430-68.000.

Nishimoto, Seiya: *See*—
Fujii, Kiyoshi; Tsuji, Keiji; and Nishimoto, Seiya, 4,277,774, Cl. 340-146.30Q.

Nishimura, Toshihiro: *See*—
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Nishimura, Toshiro: *See*—
Minegishi, Yutaka; and Nishimura, Toshiro, 4,277,350, Cl. 252-8.800.

Nishino, Yoshinori: *See*—
Yamamoto, Masahiko; and Nishino, Yoshinori, 4,277,688, Cl. 250-506.000.

Nishita, Sadao: *See*—
Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Nissan Motor Company, Limited: *See*—
Hamai, Kyugo, 4,276,865, Cl. 123-569.000.
Higashiyama, Kazuhiro, 4,276,866, Cl. 123-571.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,276,863, Cl. 123-481.000.

Niu, Gregory C.: *See*—
Deichert, William G.; Niu, Gregory C.; and VanBuren, Martin F., 4,277,595, Cl. 528-26.000.

NL Industries, Inc.: *See*—
Saliger, Kenneth C.; and Jansen, Martin B., 4,276,932, Cl. 166-214.000.

Noguchi, Kenzo: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Noguchi, Kohji: *See—*
Asanae, Masumi; and Noguchi, Kohji, 4,277,552, Cl. 430-122.000.

Noguez, Robert W. Fuel calibration device for carburetor. 4,277,423, Cl. 261-34.00R.

Nolin, Roger J. Two-bolt lockset with simultaneous locking and unlocking of its bolts. 4,276,760, Cl. 70-107.000.

Nomura, Satoshi: *See—*
Doi, Takao; and Nomura, Satoshi, 4,277,528, Cl. 428-192.000.

Nonaka, Yasuhiko; Goto, Naohiro; and Shidara, Keiichi, to Hitachi, Ltd.; and Nippon Hoso Kyokai. Targets for use in photoconductive image pickup tubes. 4,277,515, Cl. 427-76.000.

Noren, Sven A. Plant for utilizing kinetic energy. 4,277,690, Cl. 290-53.000.

Norlin Industries, Inc.: *See—*
Hall, George R.; and Hall, Robert J., 4,277,697, Cl. 307-265.000.

Norris, Alan H.: *See—*
Chambley, Phillip W.; and Norris, Alan H., 4,276,740, Cl. 57-205.000.

Northern Telecom Limited: *See—*
Arend, Inez F.; and Locke, James S., 4,277,650, Cl. 179-84.0VF.

Northrup, Lynn L., Jr.: *See—*
Blake, Floyd A.; and Northrup, Lynn L., Jr., 4,276,872, Cl. 126-425.000.

Norton Company: *See—*
Montesi, Edward M., 4,276,657, Cl. 2-422.000.

Norton, Richard V.; Frank, Peter J.; Fisher, Dennis H.; and Howe, Steven C., to Ashland Oil, Inc. Process for preparing high density fuels. 4,277,636, Cl. 585-14.000.

Nott Company: *See—*
Mahle, Howard C.; and Wesenberg, Kenneth L., 4,277,214, Cl. 414-139.000.

Nottke, James E.: *See—*
de Fasselle, Robert J.; Baron, Richard D.; and Nottke, James E., 4,276,734, Cl. 53-77.000.

Nozawa, Takamitsu, to Yoshino Kogyosho Co., Ltd. Invertible miniature atomizer of manual type. 4,277,001, Cl. 222-321.000.

Nu-Tech Industries, Inc.: *See—*
Isaacson, Milton S., 4,277,706, Cl. 310-80.000.

Nukem G.m.b.H.: *See—*
Bregulla, Eduard; Chrubasik, Alfred; and Vietzke, Horst, 4,276,834, Cl. 110-237.000.

Nuzillat, Gerard, to Thomson-CSF. Structure for logic circuits. 4,277,794, Cl. 357-40.000.

Nyi, Kayson; and Graham, Sandra I., to Rohm and Haas Company. Radiation curable compositions. 4,277,319, Cl. 204-159.230.

Obayashi, Hideki: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,276,773, Cl. 73-204.000.

Occidental Petroleum Corporation: *See—*
Ore, Fernando; Ellis, John D.; and Moore, James H., 4,277,448, Cl. 423-167.000.
Wahl, Edward F., III; and Boucher, Frederic B., 4,276,748, Cl. 60-641.00D.

Oce-Nederland B.V.: *See—*
van Boven, Petrus L. M.; and Winthaegen, Leon M. W., 4,277,166, Cl. 355-67.000.

Oda, Kengo: *See—*
Yoshimoto, Takeo; Igarashi, Keiichi; Oda, Kengo; Ura, Masaaki; and Sato, Naoki, 4,277,624, Cl. 568-44.000.

Oda, Yoshio; Yamabe, Masaaki; and Kato, Masao, to Asahi Glass Company, Ltd. Macromolecular adsorbent containing pendant difluoroalkyl phosphate groups for adsorbing heavy metal ions. 4,277,565, Cl. 521-31.000.

Odanaka, Hiroshi: *See—*
Kumazawa, Toshihiko; Yamamoto, Takeshi; and Odanaka, Hiroshi, 4,277,632, Cl. 568-867.000.

O'Daniels, Avis K. Brassiere. 4,276,884, Cl. 128-510.000.

Ogawa, Hiroshi: *See—*
Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, 4,277,460, Cl. 424-1.000.
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Ogawa, Hisashi: *See—*
Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, 4,277,088, Cl. 280-804.000.

Ogawa, Nobuo: *See—*
Kato, Shingi; Ogawa, Nobuo; Kawanami, Norio; and Onda, Takashi, 4,277,426, Cl. 264-8.000.

Ogden, Gerald W., to General Time Corporation. Elapsed time indicator. 4,277,841, Cl. 368-78.000.

O'Hagan, Michael: *See—*
Carlson, George M.; and O'Hagan, Michael, 4,277,827, Cl. 364-200.000.

O'Halloran, Rosemary: *See—*
Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., 4,277,353, Cl. 252-51.50R.

Ohio-Nuclear, Inc.: *See—*
Covic, John; Leininger, Glen; and Carlson, Roland W., 4,277,685, Cl. 250-445.00T.

Ohkawa, Tihiro, to General Atomic Company. Coil-less divertors for toroidal plasma systems. 4,277,306, Cl. 176-9.000.

Ohloff, Gunther: *See—*
Schulte-Elte, Karl-Heinrich; Hauser, Arnold; and Ohloff, Gunther, 4,277,625, Cl. 568-341.000.

Ohta, Minoru: *See—*
Yasuda, Eturo; and Ohta, Minoru, 4,277,439, Cl. 422-94.000.

Oikawa, Teruo: *See—*
Taga, Genji; Oikawa, Teruo; and Watanabe, Yoshiaki, 4,277,457, Cl. 423-331.000.

Oishi, Kazuaki: *See—*
Abe, Kozin; Uozumi, Norihira; and Oishi, Kazuaki, 4,277,746, Cl. 324-72.000.

Oita, Masahiro: *See—*
Nakata, Koreaki; Oita, Masahiro; and Hirohata, Hyogo, 4,277,543, Cl. 428-546.000.

Oizumi, Yoshio, to Yamakyu Automatics Co., Ltd. Conveyor belt for conveyor system. 4,276,980, Cl. 198-851.000.

Okada, Yoshiaki: *See—*
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Okano, Haruo: *See—*
Horiike, Yasuhiro; Okano, Haruo; Shibagaki, Masahiro; and Kadono, Katsuo, 4,277,304, Cl. 156-643.000.

Okita, Koichi, to Sumitomo Electric Industries, Ltd. Production of asymmetric porous film materials. 4,277,429, Cl. 264-127.000.

Oku, Toshio, to Machida Endoscope Co., Ltd. Endoscope with means for detecting rotation of a distal examining end. 4,277,168, Cl. 356-138.000.

Okuda, Genzaburo. Hydraulic actuator with automatic travel limit bypass. 4,277,048, Cl. 254-8.00B.

Okuyama, Toshiaki; Kubota, Yuzuru; and Nagase, Hiroshi, to Hitachi, Ltd. Control apparatus for induction motor. 4,277,735, Cl. 318-766.000.

Olin Corporation: *See—*
Chambers, Richard F.; and Rachima, Nissim, 4,277,447, Cl. 423-165.000.

Oliver, Richard J.: *See—*
Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., 4,277,041, Cl. 244-182.000.

Olson, Dale E., to Valmont Industries, Inc. Irrigation system and drive unit therefor. 4,277,028, Cl. 239-184.000.

Olsson, Karl E., to ASEA Aktiebolag. High-voltage installation including heavy electrical apparatus suspended by insulator means. 4,277,639, Cl. 174-42.000.

Oltra, Claude H.: *See—*
Bubley, Henry J.; and Oltra, Claude H., 4,276,826, Cl. 101-123.000.

Olympia Werke AG: *See—*
Fortmann, Hermann, 4,277,164, Cl. 355-16.000.

Olympus Optical Company Limited: *See—*
Nishikawa, Masaji; and Amemiya, Norio, 4,277,550, Cl. 430-68.000.
Sato, Masanobu; Satoh, Ken; Nakao, Toshihiro; and Furuta, Kenzi, 4,277,674, Cl. 235-92.0EA.
Takahashi, Naoyuki, 4,277,130, Cl. 350-36.000.

Onda, Takashi: *See—*
Kato, Shingi; Ogawa, Nobuo; Kawanami, Norio; and Onda, Takashi, 4,277,426, Cl. 264-8.000.

Onoda, Hiroshi: *See—*
Nakai, Toshio; Kuzuya, Susumu; Onoda, Hiroshi; Iwase, Takayuki; and Asai, Akira, 4,277,192, Cl. 400-671.000.

Onoders, Kaoru; Mizukura, Noboru; and Kobayashi, Ryuichiro, to Konishiroku Photo Industry Co., Ltd. Light-sensitive color photographic material. 4,277,553, Cl. 430-216.000.

Oppolzer, Wolfgang, to Givaudan Corporation. Process for making norpatchoulenol. 4,277,631, Cl. 568-817.000.

Optical Coating Laboratory, Inc.: *See—*
Seddon, Richard L., 4,276,855, Cl. 118-719.000.

Orazio, Fred D., Jr.: *See—*
Silva, Robert M.; and Orazio, Fred D., Jr., 4,277,761, Cl. 331-94.50T.

Orcutt, Dee R., to PPG Industries, Inc. Method of fabricating window panels, particularly curved panels. 4,277,294, Cl. 156-102.000.

Ore, Fernando; Ellis, John D.; and Moore, James H., to Occidental Petroleum Corporation. Phosphoric acid process with high circulation rates. 4,277,448, Cl. 423-167.000.

Ortho Pharmaceutical Corporation: *See—*
Hajos, Zoltan G.; and Levine, Seymour, 4,277,401, Cl. 260-340.600.

Osadca, Modest, to Hoffmann-La Roche Inc. Methods for the detection of low level concentrations of sulfonamides. 4,277,248, Cl. 23-230.00M.

Osawa, Kazuya: *See—*
Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, 4,277,572, Cl. 525-61.000.

Osbourne, Barry C. Device for holding bed clothes in position. 4,276,667, Cl. 5-498.000.

Ostand, Paul R., to Dover Corporation. Sensing arrangements for sensing the presence of liquid in a vapor line. 4,276,916, Cl. 141-206.000.

Osugi, Motoyoshi: *See—*
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,277,473, Cl. 424-248.540.

Otis Engineering Corporation: *See—*
Calhoun, Michael B.; Bayh, Russell L., III; and Dutton, Robert E., 4,276,937, Cl. 166-323.000.

Otsuka Pharmaceutical Co., Ltd.: *See—*
Nishi, Takao; and Nakagawa, Kazuyuki, 4,277,479, Cl. 424-258.000.

Oulman, Charles S.; and Chriswell, Colin D., to Iowa State University Research Foundation, Inc. Process of concentrating ethanol from dilute aqueous solutions thereof. 4,277,635, Cl. 568-916.000.

Outboard Marine Corporation: *See—*
Burrows, Thomas W.; and Cavil, David T., 4,276,868, Cl. 123-602.000.

Owens-Corning Fiberglas Corporation: *See—*
Chrisman, Max G., 4,277,274, Cl. 65-29.000.
Lin, Kingso C.; and Hammond, Donald J., 4,277,382, Cl. 260-29.20M.
Propster, Mark A., 4,277,277, Cl. 65-134.000.
Shah, Hashmuk G.; and Machlan, G. Richard, 4,277,436, Cl. 264-518.000.
Swanson, Michael E.; and Lauderback, Sanford K., 4,277,386, Cl. 260-29.6RW.

Owens-Illinois, Inc.: *See—*
Spanoudis, Louis, 4,277,013, Cl. 228-136.000.

Ozaki, Nobuo, to Maeda Industries, Ltd. Variable-speed bicycle. 4,277,077, Cl. 280-236.000.

Paccar Inc.: *See—*
Penzotti, Roger P.; and Schmeisser, Gordon F., 4,276,953, Cl. 180-328.000.

Pacer Systems, Inc.: *See—*
Horwitz, Joshua, 4,276,702, Cl. 434-47.000.

Pachonik, Horst: *See—*
Behn, Reinhard; Heywang, Hermann; and Pachonik, Horst, 4,277,516, Cl. 427-81.000.

Pacht, Amos, to Partek Corporation of Houston. High pressure fluid delivery system. 4,277,229, Cl. 417-454.000.

Paciorek, Leonard J.: *See—*
Gerst, Carl W.; and Paciorek, Leonard J., 4,277,748, Cl. 324-83.00D.

Padwa, Allen R.: *See—*
Jastrzebski, Michael B.; and Padwa, Allen R., 4,277,574, Cl. 525-86.000.

Palmieri, John P.: *See—*
Palmieri, Vincent A.; and Palmieri, John P., 4,276,691, Cl. 30-347.000.

Palmieri, Joseph M., to Fuel Computer Corporation of America. Electronic temperature control system. 4,276,925, Cl. 165-12.000.

Palmieri, Vincent A.; and Palmieri, John P. Rotary nylon line vegetation cutter. 4,276,691, Cl. 30-347.000.

Palmquist, William E.: *See—*
Hanson, Donald W.; and Palmquist, William E., 4,276,658, Cl. 3-1.500.

Pan, Jing-Jong: *See—*
Rosier, Charles D.; Pan, Jing-Jong; and Belcher, Donald K., 4,277,764, Cl. 333-24.00C.

Panametrics, Inc.: *See—*
Kovac, Michael G.; Chleck, David J.; and Goodman, Philip, 4,277,742, Cl. 324-61.00R.

Pantaleon-Stemberg, Gerd: *See—*
Van der Smissen, Carl-Ernst; and Pantaleon-Stemberg, Gerd, 4,277,443, Cl. 422-122.000.

Paolasini, Sergio, to Centro Ricerche Fiat S.p.A. Process for the manufacture of a monolithic support for catalysts suitable for use in controlling carbon monoxide emissions. 4,277,376, Cl. 252-455.00R.

Parkins, David W.: *See—*
Dinsdale, Jack; Parkins, David W.; and Hardwick, John P., 4,277,070, Cl. 369-248.000.

Parks, Kenneth B., to Bell Telephone Laboratories, Incorporated. Cable tester for multipair cables. 4,277,740, Cl. 324-51.000.

Parmee, Keith: *See—*
Burnett, Stanley F.; Dunkley, Michael; Grimes, Raymond M.; and Parmee, Keith, 4,276,972, Cl. 192-4.00C.

Parodi, Sandro: *See—*
Giannini, Umberto; Albizzati, Enrico; and Parodi, Sandro, 4,277,589, Cl. 526-122.000.

Partek Corporation of Houston: *See—*
Pacht, Amos, 4,277,229, Cl. 417-454.000.

Passamenti, Anthony: *See—*
Zbriger, Michael J.; and Passamenti, Anthony, 4,276,717, Cl. 46-262.000.

Passarotti, Carlo: *See—*
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Pastora Alice, Julio C. Cartridge case. 4,276,830, Cl. 102-467.000.

Pataick, Vicky England: *See—*
Pinckard, William A., 4,277,006, Cl. 294-145.000.

Patel, Babubhai C.: *See—*
Hermann, Gerson; Patel, Babubhai C.; and Patel, Sudhakerbhai B., 4,277,379, Cl. 252-608.000.

Patel, Chandra K. N.; and Tam, Andrew C., to Bell Telephone Laboratories, Incorporated. Optoacoustic spectroscopy of thin layers. 4,276,780, Cl. 73-643.000.

Patel, Sudhakerbhai B.: *See—*
Hermann, Gerson; Patel, Babubhai C.; and Patel, Sudhakerbhai B., 4,277,379, Cl. 252-608.000.

Pathology Products, Ltd.: *See—*
Goldman, Max; and Stein, Arthur A., 4,276,819, Cl. 98-115.0LH.

Pauli, Arthur G.; Schade, Reinhart; and Stiel, Karl, to Siemens Aktiengesellschaft. Liquid crystal cell having electrodes on adjacent plates connected by a contact bridge and the process of producing same. 4,277,143, Cl. 350-334.000.

Paull, Peter L.; and Child, Edward T., to Texaco Development Corporation. Production of reducing gas. 4,277,365, Cl. 252-373.000.

Paulus, Gerhard: *See—*
Mueller, Herbert; Paulus, Gerhard; Schoeppl, Hubert; and Scharf, Emil, 4,277,422, Cl. 260-791.000.

Pavan, Charles; and Bulidon, Jacques, to Roussel Uclaf. Novel purification process. 4,277,408, Cl. 260-397.100.

Pavan, Charles: *See—*
Bulidon, Jacques; and Pavan, Charles, 4,277,607, Cl. 546-179.000.

Pawelzick, George K. Speaker adapter. 4,277,653, Cl. 179-146.00E.

Pax Equipment Management, Inc.: *See—*
Modler, Peter R.; Dittmer, Harold E.; Rose, Richard L.; and Stafsnes, John A., 4,276,752, Cl. 62-166.000.

Paz, Jacob D. Method for continuously monitoring and controlling alkalinity for environmental purposes using a pCO_2 probe. 4,277,343, Cl. 210-614.000.

Pechous, L. Joseph: *See—*
Kearney, Mark B.; Mowery, Kenneth D.; and Pechous, L. Joseph, 4,276,861, Cl. 123-425.000.

Peck & Hale, Inc.: *See—*
Rosaia, Albert H., 4,277,212, Cl. 410-78.000.

Peckinpaugh, Frank L.; and Biron, Raymond J., to Allied Chemical Corporation. Quench process for synthetic fibers using fog and flowing air. 4,277,430, Cl. 264-129.000.

Peet, Norton P.: *See—*
Daniel, John K.; and Peet, Norton P., 4,277,492, Cl. 424-304.000.

Pejchal, Karel; Fritzon, Hans G.; and Lindstrom, Raimo, to Aktiebolaget IRO. Weft thread control device for a weaving loom with removal of the weft thread from a supply spool beside the loom. 4,276,912, Cl. 139-437.000.

Peller, William N., to H-C Industries, Inc. Method of dispensing metered charges of material. 4,277,431, Cl. 264-148.000.

Penning, Cornelis, to U.S. Philips Corporation. Stethoscopic headphone set. 4,277,654, Cl. 179-156.00R.

Pentel Kabushkik Kaisha: *See—*
Takahashi, Hiromichi, 4,277,186, Cl. 400-120.000.

Penzien, Klaus: *See—*
Naarmann, Herbert; Penzien, Klaus; Doerfel, Helmut; and Eckell, Albrecht, 4,277,588, Cl. 526-114.000.

Penzotti, Roger P.; and Schmeisser, Gordon F., to Paccar Inc. Shift linkage for a tilt cab truck. 4,276,953, Cl. 180-328.000.

Pereman, Gordon F.: *See—*
Kellar, John D.; and Pereman, Gordon F., 4,277,276, Cl. 65-106.000.

Perez, Arthur; and Abraham, Fayez F., to Tyler Refrigeration Corporation. Gas defrost system including heat exchange. 4,276,755, Cl. 62-196.00B.

Perfect Filter Corporation: *See—*
Posner, Howard L., 4,277,267, Cl. 55-494.000.

Perobelli, Aldo; and Pessina, Giorgio, to Messrs. O.M.G. Officina macchine Grafiche de pessina e Perobelli. Method of forming a packet of signatures and stacker for implementing said method. 4,277,060, Cl. 271-186.000.

Perrone, Albert L., deceased; and Perrone, Mary, administratrix, to Perrone, Mary, administratrix, Estate of Albert Perrone. Support device for strengthening the hand gripping of racquet handles and other shaft members. 4,277,063, Cl. 273-75.000.

Perrone, Mary: *See—*
Perrone, Albert L., deceased; and Perrone, Mary, administratrix, 4,277,063, Cl. 273-75.000.

Perrone, Mary, administratrix: *See—*
Perrone, Albert L., deceased; and Perrone, Mary, administratrix, 4,277,063, Cl. 273-75.000.

Persson, Paul M. Information transmitting system. 4,277,778, Cl. 340-171.00A.

Perucchi, Norberto: *See—*
Giger, Urs; and Perucchi, Norberto, 4,277,704, Cl. 310-49.00R.

Pessina, Giorgio: *See—*
Perobelli, Aldo; and Pessina, Giorgio, 4,277,060, Cl. 271-186.000.

Pestrikov, Vladimir I.: *See—*
Salomatin, Viktor M.; Belyanin, Petr N.; and Pestrikov, Vladimir I., 4,276,727, Cl. 52-115.000.

Peter, Gerhard, to Gerhard Peter KG. Apparatus for opening, conveying and dividing tubular coverings. 4,276,815, Cl. 493-287.000.

Peters, Cornelis: *See—*
Hasker, Jan; Vervest, Johannes C. G.; Peters, Cornelis; and Vroomen, Laurentius C. J., 4,277,713, Cl. 313-203.000.

Petrichenko, Vladimir F.: *See—*
Koshman, Vitaly I.; Petrichenko, Vladimir F.; and Kamshitsky, Pavel V., 4,277,766, Cl. 335-122.000.

Petrushka, Robert G.: *See—*
Kerlin, Richard G.; Kossler, Henry T.; Koros, Peter J.; and Petrushka, Robert G., 4,277,279, Cl. 75-58.000.

Pfaff Industriemaschinen GmbH: *See—*
Bolldorf, Kurt, 4,276,838, Cl. 112-221.000.

Pfalzer, Lothar; and Fischer, Siegbert, to J.M. Voith GmbH. Flotation apparatus for separating impurities from a fiber suspension. 4,277,328, Cl. 209-169.000.

Pfarrwaller, Erwin, to Sulzer Brothers Limited. Take-off apparatus for the fabric web of a textile machine, especially a loom. 4,276,911, Cl. 139-308.000.

Pfeifer, Josef: *See—*
Reinehr, Dieter; and Pfeifer, Josef, 4,277,621, Cl. 564-250.000.

Pfizer Inc.: *See—*
Bindra, Jasjit S., 4,277,403, Cl. 260-343.30P.
Welch, Willard M., Jr., 4,277,404, Cl. 260-347.800.

Phillips, Clifton W.: *See—*
Cushing, Charles J.; Phillips, Clifton W.; and VanderNeut, Richard D., 4,277,178, Cl. 356-431.000.

Phillips Petroleum Company: *See—*
Broerman, Arthur B., 4,276,907, Cl. 137-637.200.
Crowley, Ralph P., 4,276,749, Cl. 62-51.000.
Hessert, James E.; and Johnston, Chester C., Jr., 4,276,935, Cl. 166-295.000.
Kubicek, Donald H., 4,277,623, Cl. 568-26.000.
McDaniel, Max P.; and Welch, Melvin B., 4,277,587, Cl. 526-106.000.
Naylor, Floyd E., 4,277,591, Cl. 526-174.000.

Pichler, Ludwig: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,277,487, Cl. 424-273.00R.

Pickel, Hajo, to ITT Industries, Inc. Floating caliper spot type disc brake. 4,276,965, Cl. 188-73.500.

Picone, Charles E., to PPG Industries, Inc. High strength fiber glass reinforced thermoplastic sheets and method of manufacturing same involving a reverse barb needling procedure. 4,277,531, Cl. 428-228.000.

Piekarski, Michael: *See—*
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Pielkenrood, Jacob, to Pielkenrood-Vinitex B.V. Method for making flotable, particles suspended in a liquid by means of gas bubbles. 4,277,347, Cl. 210-704.000.

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Pielkenrood, Jacob, 4,277,347, Cl. 210-704.000.

Pietrocini, Thomas W., to IPM Corporation. Powder metallurgical articles and method of bonding the articles to ferrous base materials. 4,277,544, Cl. 428-547.000.

Pileco, Inc.: *See—*
Kammerer, Otto W., 4,277,676, Cl. 235-92.0PD.

Pinckard, William A., to Pataick, Vicky England, a part interest. Roller skate carrier. 4,277,006, Cl. 294-145.000.

Pioch, Peter P., to Black & Decker Inc. Auxiliary handle for a power tool. 4,276,675, Cl. 16-111.00R.

Piper, George F.; Vesperman, William C.; and Wilson, Max K., to Western Electric Company, Inc. Cordage having a plurality of conductors in a partitioned jacket. 4,277,642, Cl. 174-117.00F.

Pirz, Frank C.: *See—*
Levinson, Stephen E.; and Pirz, Frank C., 4,277,644, Cl. 179-1.0SD.

Pisani, Federico: *See—*
Garziera, Gastone; and Pisani, Federico, 4,277,835, Cl. 364-900.000.

Pisano, Alan D., to General Electric Company. Control system for gas turbine engine. 4,276,744, Cl. 60-39.16R.

Piske, Wolfgang, to Trutzschler GmbH & Co. KG. Traveling cover. 4,276,677, Cl. 19-102.000.

Pitney Bowes Deutschland GmbH: *See—*
Schottle, Helmut A. M., 4,276,824, Cl. 101-18.000.

Pitney Bowes, Inc.: *See—*
Calabrese, Richard A., 4,277,161, Cl. 355-3.0FU.

Plastics Engineering Company: *See—*
Waitkus, Phillip A.; and Lepeska, Bohumir, 4,277,583, Cl. 525-423.000.

Platonov, Vladimir N.: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Plessey Handel und Investments AG: *See—*
Harvey, Dennis, 4,277,025, Cl. 239-102.000.
Martin, Barrie J., 4,276,857, Cl. 122-448.00R.

Plum, Willi: *See—*
Mallek, Heinz; Jablonski, Werner; and Plum, Willi, 4,277,362, Cl. 252-301.10W.

Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., to Bayer Aktiengesellschaft. Bead polymers of viscous dimethacrylates. 4,277,536, Cl. 428-402.000.

Pohlmann, Hans J.: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Polaroid Corporation: *See—*
Petry, James W., 4,277,606, Cl. 260-349.000.
Petry, James W., 4,277,607, Cl. 260-350.000.

Poshkus, Algirdas C.: *See—*
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Posner, Howard L., to Perfect Filter Corporation, a part interest. Air filter assembly. 4,277,267, Cl. 55-494.000.

Possati, Mario; and Longhi, Giuliano, to Finike Italiana Marposs S.p.A. Drawer for electric cabinets. 4,277,121, Cl. 312-320.000.

Potthast, Alfred J.: *See—*
Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., 4,277,041, Cl. 244-182.000.

Potts, Robert S.: *See—*
Rounbehler, David P.; and Potts, Robert S., 4,277,259, Cl. 55-270.000.

Pourprix, Michel: *See—*
Madelaine, Guy; and Pourprix, Michel, 4,277,682, Cl. 250-380.000.

Powers, George W., Jr.; Froning, H. Robert; and Taggart, Davis L., to Standard Oil Company (Indiana). Method for improving sulfonate surfactants used in enhanced recovery processing in subterranean oil-bearing formations. 4,277,351, Cl. 252-8.55D.

PPG Industries, Inc.: *See—*
Cherenko, Joseph; Frey, William I.; Kelly, Joseph D.; and Sokol, Larry S., 4,277,299, Cl. 156-242.000.
Girgis, Mikhail M., 4,277,535, Cl. 428-389.000.
Kellar, John D.; and Pereman, Gordon F., 4,277,276, Cl. 65-106.000.
Orcutt, Dee R., 4,277,294, Cl. 156-102.000.
Picone, Charles E., 4,277,531, Cl. 428-228.000.

Prain, Hunter D.: *See—*
Durant, Graham J.; Emmett, John C.; Ganellin, Charon F.; and Prain, Hunter D., 4,277,485, Cl. 424-272.000.

Precision Mecanique Labinal: *See—*
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Pressler, Wilfried: *See—*
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Presto Lock Company, Division of Walter Kidde & Company, Inc.: *See—*
Stolarz, Edward M., 4,276,676, Cl. 16-126.000.

Prewarski, Mike: *See—*
McDaniel, Robert F.; Prewarski, Mike; and Ramey, Leonard D., 4,277,188, Cl. 400-257.000.

Price, David W.: *See—*
Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., 4,277,568, Cl. 521-68.000.

Priel, Ury, to National Semiconductor Corporation. Fixed voltage reference circuit. 4,277,739, Cl. 323-313.000.

Procter & Gamble Company, The: *See—*
Logan, Ted J., 4,277,413, Cl. 260-428.500.

Proctor & Gamble Company, The: *See—*
Logan, Ted J., 4,277,412, Cl. 260-428.500.

Prontor-Werk Alfred Gauthier GmbH: *See—*
Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, 4,277,155, Cl. 354-23.00D.

Propst, Paul L.: *See—*
Propst, Robert L.; and Propst, Paul L., 4,277,079, Cl. 280-411.00R.

Propst, Robert L.; and Propst, Paul L., to Herman Miller, Inc. Material handling system. 4,277,079, Cl. 280-411.00R.

Propster, Mark A., to Owens-Corning Fiberglas Corporation. Feeding agglomerates to a glass melting furnace. 4,277,277, Cl. 65-134.000.

Proulx, Sylvester E., to J.P. Tool Ltd. Helical broaching tool for curved surfaces. 4,277,207, Cl. 407-15.000.

Provasnik, Robert, to Siemens Corporation. Temperature sensor for measuring the temperature of a part of an automobile. 4,276,775, Cl. 73-346.000.

Purpi, David C.: *See—*
Keyworth, Donald A.; and Purpi, David C., 4,277,567, Cl. 521-56.000.

Pust, Waldo H. Grain drill utilizing a fertilizer spout and adjustable deflector therefor. 4,276,836, Cl. 111-86.000.

Quin, Michael J. Paint pigment skimmer. 4,277,339, Cl. 210-413.000.

R. Stahl GmbH & Co.: *See—*
Uhrner, Rudolf; Teuke, Klaus; and Schwarz, Wolfgang, 4,277,734, Cl. 318-758.000.

R W M-Raster-Werkzeugmaschinen GmbH: *See—*
Rotzler, Frank, 4,276,823, Cl. 100-257.000.

Raasch, Hans; and Greckasch, Hans, to W. Schlafhorst and Co. Thread-joining device. 4,276,742, Cl. 57-263.000.

Rabstach, Benjamin F. Irrigation sprinkler. 4,277,029, Cl. 239-232.000.

Rachima, Nissim: *See—*
Chambers, Richard P.; and Rachima, Nissim, 4,277,667, Cl. 423-165.000.

Radlove, Sol B., to Ledgex Associates. Premix product for a dietetic cake mix. 4,277,504, Cl. 426-62.000.

Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, to General Mills, Inc. Fish stick cutting method and apparatus. 4,276,795, Cl. 83-42.000.

Rasor Associates, Inc: *See—*
Tickner, Ernest G.; and Rasor, Ned S., 4,276,885, Cl. 128-660.000.

Rasor, Ned S.: *See—*
Tickner, Ernest G.; and Rasor, Ned S., 4,276,885, Cl. 128-660.000.

Rathmell, William G.: *See—*
Worthington, Paul A.; Rathmell, William G.; and Skidmore, Anthony M., 4,277,469, Cl. 424-245.000.

Ray, Charles D.: *See—*
Dickhudt, Eugene A.; and Ray, Charles D., 4,276,882, Cl. 128-419.00P.

Raytheon Company: *See—*
Davis, Luther, Jr., 4,276,779, Cl. 73-626.000.

RCA Corporation: *See—*
Hinn, Werner, 4,277,798, Cl. 358-33.000.
Hsu, Sheng T., 4,276,688, Cl. 29-571.000.
Rhodes, Roland N., 4,277,801, Cl. 358-55.000.
Rodgers, Robert L., III, 4,277,729, Cl. 315-398.000.
Rose, Michael D., 4,277,796, Cl. 358-8.000.
Webb, Paul P., 4,277,793, Cl. 357-30.000.
Wilber, James A.; and Yorkanis, Bernard J., 4,277,695, Cl. 307-542.000.

Reddig, Horst: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Reed, Martin R.: *See—*
Weber, Franz K.; and Reed, Martin R., 4,277,822, Cl. 362-352.000.

Reed, Russell, Jr.; Moore, Kenneth L.; and Meyers, Gary W., to United States of America, Navy. Soil stabilization materials and methods. 4,277,203, Cl. 405-264.000.

Reed Tool Company: *See—*
Wallace, Duane W., 4,277,108, Cl. 308-4.00A.

Regie Nationale des Usines Renault: *See—*
Roue, Yves, 4,277,094, Cl. 296-1.00C.

Rehfeldt, Karl H., to U.S. Philips Corporation. Circuit arrangement for detecting a switching phase. 4,277,795, Cl. 358-8.000.

Reichenberger, Arthur M. Beverage dispensing system. 4,276,999, Cl. 222-129.400.

Reichner, Philip: *See—*
McNab, Ian R.; and Reichner, Philip, 4,277,708, Cl. 310-228.000.

Reid, David L.; and Taylor, Dennis O., to Cummins Engine Company, Inc. Diagnosis of engine turbocharger performance. 4,277,830, Cl. 364-431.000.

Reid, Philip. Apparatus for advancing sheet material. 4,277,302, Cl. 156-466.000.

Reinehr, Dieter; and Pfeifer, Josef, to Ciba-Geigy Corporation. Substituted 11-amino-undeca-4,8-dienal and 11-amino-undecanal derivatives and processes for their preparation 4,277,621, Cl. 564-250.000.

Reinke, Kurt: *See—*
Biermann, Kurt; and Reinke, Kurt, 4,276,837, Cl. 112-152.000.

Rello, Michael J., to Exxon Research & Engineering Co. Ribbon locating means. 4,277,187, Cl. 400-248.000.

Reneau, Paul A. Environmental signal switch for motor vehicles. 4,277,813, Cl. 361-173.000.

Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, to Prontor-Werk Alfred Gauthier GmbH. Control device for photographic cameras. 4,277,155, Cl. 354-23.00D.

Repa Feinstanzwerk GmbH: *See—*
Seifert, Helmut; Honl, Wolf-Dieter; Schmid, Johannes; and Frei, Bernhard, 4,277,036, Cl. 242-107.40A.

Resfar S.r.l.: *See—*
Vandoni, Guido, 4,277,489, Cl. 424-274.000.

Reussner, George H.; and Thiessen, Reinhardt, Jr, to General Foods Corporation. Preventing tooth demineralization using aspartame. 4,277,464, Cl. 424-177.000.

Reynolds Metals Company: *See—*
Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., 4,277,594, Cl. 526-352.000.
Weston, David, 4,277,446, Cl. 423-136.000.

Rhodes, Roland N., to RCA Corporation. Color filter having vertical color stripes with a nonintegral relationship to CCD photosensors. 4,277,801, Cl. 358-55.000.

Rhodes, Ronald J.: *See—*
Bartlett, Charles J.; Rhodes, Ronald J.; and Rust, Ray D., 4,277,321, Cl. 204-192.00E.

Rhone-Progil: *See—*
Fournel, Francis; and Soumain, Salomon, 4,277,585, Cl. 526-65.000.

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Maier, Alfred R.; and Ricci, Louis N., 4,277,664, Cl. 200-293.000.

Richards, M. David. Protective watch cover. 4,277,042, Cl. [illegible]

Ricoh Company, Ltd.: *See—*
Fukushima, Yoshio; and Kanmoto, Yoshiaki, 4,277,156, Cl. 354-25.000.
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.
Kasahara, Nobuo; and Yamanobe, Kouji, 4,277,162, Cl. 355-14.00R.
Kawamura, Atsushi, 4,277,128, Cl. 350-6.800.
Miyagawa, Fumihiro; and Sawabe, Kousaku, 4,277,157, Cl. 354-187.000.
Sato, Yojiro, 4,277,805, Cl. 358-286.000.
Tatsumi, Susumu; Eda, Tadahiro; and Imai, Chikara, 4,277,549, Cl. 430-30.000.

Riedel, Tilo, to S.A. Etablissements Francois Salomon & Fils. Ski brake. 4,277,082, Cl. 280-605.000.

Riediger, Craig W.: *See—*
Kuhfuss, Alvin L., Jr.; and Riediger, Craig W., 4,276,952, Cl. 180-294.000.

Rieger, Frank W.: *See—*
Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., 4,276,856, Cl. 122-382.000.

Rieger, Franz: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.

Riess, Axel, to J. & J. Marquardt. Basic electric switch with an additional switch portion. 4,277,661, Cl. 200-157.000.

Riggins, Oral L., to Westinghouse Electric Corp. Power spark gap for high current conduction. 4,277,719, Cl. 313-325.000.

Rios, Pedro A., to Electric Power Research Institute. Method and apparatus for cooling a winding in the rotor of an electrical machine. 4,277,705, Cl. 310-64.000.

Rivers, Charles F. Front loading, side unloading dumper. 4,277,219, Cl. 414-421.000.

RK Industries: *See—*
Roth, Verlon C., 4,276,902, Cl. 137-505.180.

Robert Bosch GmbH: *See—*
Dinkelacker, Walter; and Knoedler, Juergen, 4,277,752, Cl. 324-399.000.
Muller, Karl-Heinz, 4,277,230, Cl. 418-131.000.
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.
Wanner, Karl; Lehmann, Werner; and Ranger, Ulrich, 4,276,941, Cl. 173-117.000.

Roberts, Sidney N.: *See—*
Wright, Douglas C.; and Roberts, Sidney N., 4,277,330, Cl. 209-459.000.

Robey, Roger L.: *See—*
Zimmerman, Dennis M.; and Robey, Roger L., 4,277,608, Cl. 546-339.000.

Robinson, Prentice: *See—*
Howard, Robert; Robinson, Prentice; and Vitale, Alexander F., 4,277,189, Cl. 400-320.000.

Robison, Elburn. System for viewing the area rearwardly of a vehicle. 4,277,804, Cl. 358-108.000.

Rockwell International Corporation: *See—*
Beguwala, Moiz M. E.; and Erdmann, Francis M., 4,277,320, Cl. 204-164.000.
Smith, Dale K.; Donich, Thomas G.; Dickerson, Bobby V.; and Leader, Raymond E., 4,277,845, Cl. 455-52.000.
Smith, Elroy C., Jr., 4,277,517, Cl. 427-96.000.

Rockwell-Rimoldi, S.p.A.: *See—*
Torre, Giancarlo D., 4,276,842, Cl. 112-322.000.

Rodgers, Robert L., III, to RCA Corporation. Simplified vertical deflection circuit. 4,277,729, Cl. 315-398.000.

Rodriguez, Luis F.; and Crawford, Thomas J. Neutron poison test device for high density spent fuel storage racks. 4,277,680, Cl. 250-358.00R.

Rogemoser, David R.: *See—*
Williams, Roy C.; and Rogemoser, David R., 4,277,380, Cl. 260-18.0TN.

Roger, Francoise M. M.: *See—*
Boudot, Jean E.; Roger, Francoise M. M.; and Jeanmaire, Michel P. H., 4,277,285, Cl. 106-52.000.

Rogers, Robert D. Puppet. 4,276,715, Cl. 46-154.000.

Rogic, Milorad M.: *See—*
Demmin, Timothy R.; and Rogic, Milorad M., 4,277,419, Cl. 260-465.400.

Rohm and Haas Company: *See—*
Arkens, Charles T., 4,277,384, Cl. 260-29.6R.B.
Jordan, Arthur D., Jr.; and Lavelle, Joseph A., 4,277,387, Cl. 260-29.70H.
Nyi, Kaynor; and Graham, Sandra L., 4,277,319, Cl. 204-159.20.

Robrbacher, Hans-Adolf, to Kernforschungszentrum Karlsruhe GmbH. Time code generator 4,277,779, Cl. 340-348.000.

Pfizer Inc.: *See—*
Bindra, Jasjit S., 4,277,403, Cl. 260-343.30P.
Welch, Willard M., Jr., 4,277,404, Cl. 260-347.800.

Phillips, Clifton W.: *See—*
Cushing, Charles J.; Phillips, Clifton W.; and VanderNeut, Richard D., 4,277,178, Cl. 356-431.000.

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Broerman, Arthur B., 4,276,907, Cl. 137-637.200.
Crowley, Ralph P., 4,276,749, Cl. 62-51.000.
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Naylor, Floyd E., 4,277,591, Cl. 526-174.000.

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Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Pielkenrood, Jacob, to Pielkenrood-Vinitex B.V. Method for making floatable, particles suspended in a liquid by means of gas bubbles. 4,277,347, Cl. 210-704.000.

Pielkenrood-Vinitex B.V.: *See—*
Pielkenrood, Jacob, 4,277,347, Cl. 210-704.000.

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Kammerer, Otto W., 4,277,676, Cl. 235-92.0PD.

Pinckard, William A., to Patrick, Vicky England, a part interest. Roller skate carrier. 4,277,006, Cl. 294-145.000.

Pioch, Peter P., to Black & Decker Inc. Auxiliary handle for a power tool. 4,276,675, Cl. 16-111.00R.

Piper, George F.; Vesperman, William C.; and Wilson, Max K., to Western Electric Company, Inc. Cordage having a plurality of conductors in a partitioned jacket. 4,277,642, Cl. 174-117.00F.

Pirz, Frank C.: *See—*
Levinson, Stephen E.; and Pirz, Frank C., 4,277,644, Cl. 179-1.0SD.

Pisani, Federico: *See—*
Garziera, Gastone; and Pisani, Federico, 4,277,835, Cl. 364-900.000.

Pisano, Alan D., to General Electric Company. Control system for gas turbine engine. 4,276,744, Cl. 60-39.16R.

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Schottle, Helmut A. M., 4,276,824, Cl. 101-18.000.

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Calabrese, Richard A., 4,277,161, Cl. 355-3.0FU.

Plastics Engineering Company: *See—*
Waitkus, Phillip A.; and Lepeska, Bohumir, 4,277,583, Cl. 525-423.000.

Platonov, Vladimir N.: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Plessey Handel und Investments AG: *See—*
Harvey, Dennis, 4,277,025, Cl. 239-102.000.
Martin, Barrie J., 4,276,857, Cl. 122-448.00R.

Plum, Willi: *See—*
Mallek, Heinz; Jablonski, Werner; and Plum, Willi, 4,277,362, Cl. 252-301.10W.

Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., to Bayer Aktiengesellschaft. Bead polymers of viscous dimethacrylates. 4,277,536, Cl. 428-402.000.

Pohlmann, Hans J.: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Polaroid Corporation: *See—*
Foley, James W., 4,277,406, Cl. 260-389.000.
Foley, James W., 4,277,407, Cl. 260-390.000.

Polyair Maschinenbau G.m.b.H.: *See—*
Schmidt, Oskar; and Kubica, Wladyslaw, 4,277,295, Cl. 156-117.000.

Polylok Corporation: *See—*
Duhl, Daniel, 4,277,527, Cl. 428-109.000.

Polymer Corporation, The: *See—*
Horne, Shek C., 4,276,908, Cl. 138-125.000.
Scheetz, Howard A., 4,277,389, Cl. 260-37.00N.

Pongracz, Endre, to SAPAL Societe Anonyme des Plieuses Automatiques. Wrapping machine. 4,277,731, Cl. 318-685.000.

Porter, Arthur J.: *See—*
Hamilton, James M.; and Porter, Arthur J., 4,277,702, Cl. 307-304.000.

Poshkus, Algirdas C.: *See—*
United States of America, National Aeronautics and Space Administration; and Poshkus, Algirdas C., 4,277,402, Cl. 260-340.90R.

Posner, Howard L., to Perfect Filter Corporation, a part interest. Air filter assembly. 4,277,267, Cl. 55-494.000.

Possati, Mario; and Longhi, Giuliano, to Finike Italiana Marposs S.p.A. Drawer for electric cabinets. 4,277,121, Cl. 312-320.000.

Potthast, Alfred J.: *See—*
Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., 4,277,041, Cl. 244-182.000.

Potts, Robert S.: *See—*
Rounbehler, David P.; and Potts, Robert S., 4,277,259, Cl. 55-270.000.

Pourprix, Michel: *See—*
Madelaine, Guy; and Pourprix, Michel, 4,277,682, Cl. 250-380.000.

Powers, George W., Jr.; Froning, H. Robert; and Taggart, Davis L., to Standard Oil Company (Indiana). Method for improving sulfonate surfactants used in enhanced recovery processing in subterranean oil-bearing formations. 4,277,351, Cl. 252-8.55D.

PPG Industries, Inc.: *See—*
Cherenko, Joseph; Frey, William I.; Kelly, Joseph D.; and Sokol, Larry S., 4,277,299, Cl. 156-242.000.
Girgis, Mikhail M., 4,277,535, Cl. 428-389.000.
Kellar, John D.; and Pereman, Gordon F., 4,277,276, Cl. 65-106.000.
Orcutt, Dee R., 4,277,294, Cl. 156-102.000.
Picone, Charles E., 4,277,531, Cl. 428-228.000.

Prain, Hunter D.: *See—*
Durant, Graham J.; Emmett, John C.; Ganellin, Charon F.; and Prain, Hunter D., 4,277,485, Cl. 424-272.000.

Precision Mecanique Labinal: *See—*
Leandris, Serge, 4,276,996, Cl. 221-87.000.

Pressler, Wilfried: *See—*
Meidert, Helmut; Pressler, Wilfried; and Muller, Werner H., 4,277,606, Cl. 546-157.000.

Presto Lock Company, Division of Walter Kidde & Company, Inc.: *See—*
Stolarz, Edward M., 4,276,676, Cl. 16-126.000.

Prewarski, Mike: *See—*
McDaniel, Robert F.; Prewarski, Mike; and Ramey, Leonard D., 4,277,188, Cl. 400-257.000.

Price, David W.: *See—*
Davison, Joseph A.; Hall, Graham W.; Hodges, Newton J.; and Price, David W., 4,277,568, Cl. 521-68.000.

Priel, Ury, to National Semiconductor Corporation. Fixed voltage reference circuit. 4,277,739, Cl. 323-313.000.

Procter & Gamble Company, The: *See—*
Logan, Ted J., 4,277,413, Cl. 260-428.500.

Proctor & Gamble Company, The: *See—*
Logan, Ted J., 4,277,412, Cl. 260-428.500.

Prontor-Werk Alfred Gauthier GmbH: *See—*
Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, 4,277,155, Cl. 354-23.00D.

Propst, Paul L.: *See—*
Propst, Robert L.; and Propst, Paul L., 4,277,079, Cl. 280-411.00R.

Propst, Robert L.; and Propst, Paul L., to Herman Miller, Inc. Material handling system. 4,277,079, Cl. 280-411.00R.

Propster, Mark A., to Owens-Corning Fiberglas Corporation. Feeding agglomerates to a glass melting furnace. 4,277,277, Cl. 65-134.000.

Proulx, Sylvester E., to J.P. Tool Ltd. Helical broaching tool for curved surfaces. 4,277,207, Cl. 407-15.000.

Provasnik, Robert, to Siemens Corporation. Temperature sensor for measuring the temperature of a part of an automobile. 4,276,775, Cl. 73-346.000.

Purpi, David C.: *See—*
Keyworth, Donald A.; and Purpi, David C., 4,277,567, Cl. 521-56.000.

Pust, Waldo H. Grain drill utilizing a fertilizer spout and adjustable deflector therefor. 4,276,836, Cl. 111-86.000.

Quin, Michael J. Paint pigment skimmer. 4,277,339, Cl. 210-413.000.

R. Stahl GmbH & Co.: *See—*
Uhrner, Rudolf; Teuke, Klaus; and Schwarz, Wolfgang, 4,277,734, Cl. 318-758.000.

R W M-Raster-Werkzeugmaschinen GmbH: *See—*
Rotzler, Frank, 4,276,823, Cl. 100-257.000.

Raasch, Hans; and Grecksch, Hans, to W. Schlafhorst and Co. Thread-joining device. 4,276,742, Cl. 57-263.000.

Rabitsch, Benjamin F. Irrigation sprinkler. 4,277,029, Cl. 239-232.000.

Rachima, Nissim: *See—*
Chambers, Richard F.; and Rachima, Nissim, 4,277,447, Cl. 423-165.000.

Radlove, Sol B., to Ledges Associates. Premix product for a dietetic cake mix. 4,277,504, Cl. 426-62.000.

Rakowicz, Jan A.: *See—*
Dyett, Derek H.; and Rakowicz, Jan A., 4,276,891, Cl. 131-84.00C.

Ramey, Leonard D.: *See—*
McDaniel, Robert F.; Prewarski, Mike; and Ramey, Leonard D., 4,277,188, Cl. 400-257.000.

Ranger, Ulrich: *See—*
Wanner, Karl; Lehmann, Werner; and Ranger, Ulrich, 4,276,941, Cl. 173-117.000.

Rank, John: *See—*
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, to General Mills, Inc. Fish stick cutting method and apparatus. 4,276,795, Cl. 83-42.000.

Rasor Associates, Inc: *See—*
Tickner, Ernest G.; and Rasor, Ned S., 4,276,885, Cl. 128-660.000.

Rasor, Ned S.: *See—*
Tickner, Ernest G.; and Rasor, Ned S., 4,276,885, Cl. 128-660.000.

Rathmell, William G.: *See—*
Worthington, Paul A.; Rathmell, William G.; and Skidmore, Anthony M., 4,277,469, Cl. 424-245.000.

Ray, Charles D.: *See—*
Dickhudt, Eugene A.; and Ray, Charles D., 4,276,882, Cl. 128-419.00P.

Raytheon Company: *See—*
Davis, Luther, Jr., 4,276,779, Cl. 73-626.000.

RCA Corporation: *See—*
Hinn, Werner, 4,277,798, Cl. 358-33.000.
Hsu, Sheng T., 4,276,688, Cl. 29-571.000.
Rhodes, Roland N., 4,277,801, Cl. 358-55.000.
Rodgers, Robert L., III, 4,277,729, Cl. 315-398.000.
Ross, Michael D., 4,277,796, Cl. 358-8.000.
Webb, Paul P., 4,277,793, Cl. 357-30.000.
Wilber, James A.; and Yorkanis, Bernard J., 4,277,695, Cl. 307-542.000.

Reddig, Horst: *See—*
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

Reed, Martin R.: *See—*
Weber, Franz K.; and Reed, Martin R., 4,277,822, Cl. 362-352.000.

Reed, Russell, Jr.; Moore, Kenneth L.; and Meyers, Gary W., to United States of America, Navy. Soil stabilization materials and methods. 4,277,203, Cl. 405-264.000.

Reed Tool Company: *See—*
Wallace, Duane W., 4,277,108, Cl. 308-4.00A.

Regie Nationale des Usines Renault: *See—*
Roue, Yves, 4,277,094, Cl. 296-1.00C.

Rehfeldt, Karl H., to U.S. Philips Corporation. Circuit arrangement for detecting a switching phase. 4,277,795, Cl. 358-8.000.

Reichenberger, Arthur M. Beverage dispensing system. 4,276,999, Cl. 222-129.400.

Reichner, Philip: *See—*
McNab, Ian R.; and Reichner, Philip, 4,277,708, Cl. 310-228.000.

Reid, David L.; and Taylor, Dennis O., to Cummins Engine Company, Inc. Diagnosis of engine turbocharger performance. 4,277,830, Cl. 364-431.000.

Reid, Philip. Apparatus for advancing sheet material. 4,277,302, Cl. 156-466.000.

Reinehr, Dieter; and Pfeifer, Josef, to Ciba-Geigy Corporation. Substituted 11-amino-undeca-4,8-dienal and 11-amino-undecanal derivatives and processes for their preparation. 4,277,621, Cl. 564-250.000.

Reinke, Kurt: *See—*
Biermann, Kurt; and Reinke, Kurt, 4,276,837, Cl. 112-152.000.

Rello, Michael J., to Exxon Research & Engineering Co. Ribbon locating means. 4,277,187, Cl. 400-248.000.

Reneau, Paul A. Environmental signal switch for motor vehicles. 4,277,813, Cl. 361-173.000.

Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, to Prontor-Werk Alfred Gauthier GmbH. Control device for photographic cameras. 4,277,155, Cl. 354-23.00D.

Repa Feinstanzwerk GmbH: *See—*
Seifert, Helmut; Honl, Wolf-Dieter; Schmid, Johannes; and Frei, Bernhard, 4,277,036, Cl. 242-107.40A.

Resfar S.r.l.: *See—*
Vandoni, Guido, 4,277,489, Cl. 424-274.000.

Reussner, George H.; and Thiessen, Reinhardt, Jr, to General Foods Corporation. Preventing tooth demineralization using aspartame. 4,277,464, Cl. 424-177.000.

Reynolds Metals Company: *See—*
Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., 4,277,594, Cl. 526-352.000.
Weston, David, 4,277,446, Cl. 423-136.000.

Rhodes, Roland N., to RCA Corporation. Color filter having vertical color stripes with a nonintegral relationship to CCD photosensors. 4,277,801, Cl. 358-55.000.

Rhodes, Ronald J.: *See—*
Bartlett, Charles J.; Rhodes, Ronald J.; and Rust, Ray D., 4,277,321, Cl. 204-192.00E.

Rhone-Progil: *See—*
Fournel, Francis; and Soussan, Salomon, 4,277,585, Cl. 526-65.000.

Ricci, Louis N.: *See—*
Maier, Alfred E.; and Ricci, Louis N., 4,277,664, Cl. 200-293.000.

Richards, M. David. Protective watch cover. 4,277,842, Cl. 368-282.000.

Richards, William D., to American Optical Corporation. Soft contact lens apparatus. 4,277,172, Cl. 356-244.000.

Richardson, Mason E., to Van Products Company. Fluid level indicator (vent holes). 4,276,694, Cl. 33-126.70R.

Richardson-Merrell Inc.: *See—*
Bey, Philippe; Metcalf, Brian W.; and Wiseman, Jeffrey S., 4,277,395, Cl. 260-112.50R.

Richter Gedeon Vegyeszeti Gyar RT: *See—*
Takacs, Istvan; Rudolf, Peter; Szabo, Bela; and Kerey, Gyorgy, 4,276,701, Cl. 34-109.000.

Ricoh Company, Ltd.: *See—*
Fukushima, Yoshio; and Kanmoto, Yoshiaki, 4,277,156, Cl. 354-25.000.
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.
Kasahara, Nobuo; and Yamanobe, Kouji, 4,277,162, Cl. 355-14.00R.
Kawamura, Atsushi, 4,277,128, Cl. 350-6.800.
Miyagawa, Fumihiro; and Sawabe, Kousaku, 4,277,157, Cl. 354-187.000.
Sato, Yojiro, 4,277,805, Cl. 358-286.000.
Tatsumi, Susumu; Eda, Tadahiro; and Imai, Chikara, 4,277,549, Cl. 430-30.000.

Riedel, Tilo, to S.A. Etablissements Francois Salomon & Fils. Ski brake. 4,277,082, Cl. 280-605.000.

Riediger, Craig W.: *See—*
Kuhfuss, Alvin L., Jr.; and Riediger, Craig W., 4,276,952, Cl. 180-294.000.

Rieger, Frank W.: *See—*
Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., 4,276,856, Cl. 122-382.000.

Rieger, Franz: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.

Riess, Axel, to J. & J. Marquardt. Basic electric switch with an additional switch portion. 4,277,661, Cl. 200-157.000.

Riggins, Oral L., to Westinghouse Electric Corp. Power spark gap for high current conduction. 4,277,719, Cl. 313-325.000.

Rios, Pedro A., to Electric Power Research Institute. Method and apparatus for cooling a winding in the rotor of an electrical machine. 4,277,705, Cl. 310-64.000.

Rivers, Charles F. Front loading, side unloading dumper. 4,277,219, Cl. 414-421.000.

RK Industries: *See—*
Roth, Verlon C., 4,276,902, Cl. 137-505.180.

Robert Bosch GmbH: *See—*
Dinkelacker, Walter; and Knoedler, Juergen, 4,277,752, Cl. 324-399.000.
Muller, Karl-Heinz, 4,277,230, Cl. 418-131.000.
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.
Wanner, Karl; Lehmann, Werner; and Ranger, Ulrich, 4,276,941, Cl. 173-117.000.

Roberts, Sidney N.: *See—*
Wright, Douglas C.; and Roberts, Sidney N., 4,277,330, Cl. 209-459.000.

Robey, Roger L.: *See—*
Zimmerman, Dennis M.; and Robey, Roger L., 4,277,608, Cl. 546-339.000.

Robinson, Prentice: *See—*
Howard, Robert; Robinson, Prentice; and Vitale, Alexander F., 4,277,189, Cl. 400-320.000.

Robison, Elburn. System for viewing the area rearwardly of a vehicle. 4,277,804, Cl. 358-108.000.

Rockwell International Corporation: *See—*
Beguwala, Moiz M. E.; and Erdmann, Francis M., 4,277,320, Cl. 204-164.000.
Smith, Dale K.; Donich, Thomas G.; Dickerson, Bobby V.; and Leader, Raymond E., 4,277,845, Cl. 455-52.000.
Smith, Elroy C., Jr., 4,277,517, Cl. 427-96.000.

Rockwell-Rimoldi, S.p.A.: *See—*
Torre, Giancarlo D., 4,276,842, Cl. 112-322.000.

Rodgers, Robert L., III, to RCA Corporation. Simplified vertical deflection circuit. 4,277,729, Cl. 315-398.000.

Rodriguez, Luis F.; and Crawford, Thomas J. Neutron poison test device for high density spent fuel storage racks. 4,277,680, Cl. 250-358.00R.

Rogemoser, David R.: *See—*
Williams, Roy C.; and Rogemoser, David R., 4,277,380, Cl. 260-18.0TN.

Roger, Francoise M. M.: *See—*
Boudot, Jean E.; Roger, Francoise M. M.; and Jeanmaire, Michel P. H., 4,277,285, Cl. 106-52.000.

Rogers, Robert D. Puppet. 4,276,715, Cl. 46-154.000.

Rogic, Milorad M.: *See—*
Demmin, Timothy R.; and Rogic, Milorad M., 4,277,419, Cl. 260-465.400.

Rohm and Haas Company: *See—*
Arkens, Charles T., 4,277,384, Cl. 260-29.6RB.
Jordan, Arthur D., Jr.; and Lavelle, Joseph A., 4,277,387, Cl. 260-29.70H.
Nyi, Kayson; and Graham, Sandra L., 4,277,319, Cl. 204-159.230.

Rohrbacher, Hans-Adolf, to Kernforschungszentrum Karlsruhe GmbH. Time code generator. 4,277,779, Cl. 340-348.000.

Romano, Paul L., to Acoustic Standards. Adjustable light and air-admitting window thermal and acoustic barrier system. 4,276,954, Cl. 181-224.000.

Ronco Teleproducts, Inc.: *See—*
Stansbury, Benjamin H., Jr., 4,276,695, Cl. 33-141.00E.

Root, Myron A. Three-wheel conveyance. 4,277,078, Cl. 280-269.000.

Rosaia, Albert H., to Peck & Hale, Inc. Connector interconnecting freight devices. 4,277,212, Cl. 410-78.000.

Rose, Richard L.: *See—*
Modler, Peter R.; Dittmer, Harold E.; Rose, Richard L.; and Stafsnes, John A., 4,276,752, Cl. 62-166.000.

Rosen, Melvin H., to Ciba-Geigy Corporation. 1-Benzothiepin-4-carboxamides. 4,277,484, Cl. 424-267.000.
Rosenqvist, Lars. Irrigation device. 4,276,900, Cl. 137-355.210.
Rosenstock, Guenter; and Kindler, Wilfried, to Siemens Aktiengesellschaft. Ink controlling device for ink printing equipment in office machines and the like. 4,277,791, Cl. 346-140.00R.
Rosenthal Technik AG: *See*—
Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.
Rosier, Charles D.; Pan, Jing-Jong; and Belcher, Donald K., to Harris Corporation. Microwave transistor stabilization circuit. 4,277,764, Cl. 333-24.00C.
Ross, Michael D., to RCA Corporation. Slow down color processor for video disc mastering using a special mode VTR. 4,277,796, Cl. 358-8.000.
Ross, Peter, to Stop-A-Flat Corporation. Delivery system for pneumatic vessels. 4,276,898, Cl. 137-231.000.
Roth, Verlon C., to RK Industries. Modular fluid pressure regulator valves. 4,276,902, Cl. 137-505.180.
Rotzler, Frank, to R W M-Raster-Werkzeugmaschinen GmbH. Eccentric press. 4,276,823, Cl. 100-257.000.
Rouse, Yves, to Regie Nationale des Usines Renault. Device for the remote-controlled closing of a gasoline vent. 4,277,094, Cl. 296-1.00C.
Rounbehler, David P.; and Potts, Robert S., to Thermo Electron Corporation. Air-sampling cartridge. 4,277,259, Cl. 55-270.000.
Rouse, Michael F. Arrow for blood tracking. 4,277,069, Cl. 273-418.000.
Rousseau, Jean-Claude: *See*—
Duhayon, Jacques; Goumondy, Jean-Pierre; Leudet, Alain; and Rousseau, Jean-Claude, 4,277,363, Cl. 252-301.10W.
Roussel Uclaf: *See*—
Bulidon, Jacques; and Pavan, Charles, 4,277,607, Cl. 546-179.000.
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,277,617, Cl. 560-124.000.
Pavan, Charles; and Bulidon, Jacques, 4,277,408, Cl. 260-397.100.
Warnant, Julien; and Jolly, Jean, 4,277,409, Cl. 260-397.450.
Rouverol, William S. Low-noise gearing. 4,276,785, Cl. 74-462.000.
Rowland, Stanley P., to United States of America, Agriculture. Process for producing durable-press cotton fabrics with improved balances of textile properties. 4,277,243, Cl. 8-183.000.
Ruber, Klaus; and Zill, Karl, to Hoechst Aktiengesellschaft. Device for laying down continuous material by means of a pair of profiled rolls. 4,276,682, Cl. 28-289.000.
Rudolf, Peter: *See*—
Takacs, Istvan; Rudolf, Peter; Szabo, Bela; and Kerey, Gyorgy, 4,276,701, Cl. 34-109.000.
Rudy, Michael W.; Horning, Thomas D.; and Kraemer, Edward J., to Terminal Data Corporation. Indicia printer. 4,277,190, Cl. 400-582.000.
Ruedin, Yves: *See*—
Saurer, Eric; Gharadjedaghi, Fereydoun; Laesser, Claude; Viennet, Rene; and Ruedin, Yves, 4,277,144, Cl. 350-349.000.
Rufer, Willy; and Menzi, Robert, to Battelle Memorial Institute. Process for the manufacture of a foodstuff having a fibrous structure similar to that of meat. 4,277,513, Cl. 426-656.000.
Ruidisch, Louis E.; and Van Wagenen, Sterling O., to Texaco Inc. Oil and debris skimmer. 4,277,334, Cl. 210-154.000.
Rusay, Ronald J., to Stauffer Chemical Company. Certain 2-hydroxy-1-naphthaldehyde acylhydrazones and their use as fungicides. 4,277,500, Cl. 424-324.000.
Rusch, Gordon K.; Keefe, Donald J.; and McDowell, William P., to United States of America, Energy. Count-doubling time safety circuit. 4,277,308, Cl. 176-19.0EC.
Russell, Charles R.: *See*—
Shasha, Baruch S.; Doane, William M.; and Russell, Charles R., 4,277,364, Cl. 252-316.000.
Rust, Ray D.: *See*—
Bartlett, Charles J.; Rhodes, Ronald J.; and Rust, Ray D., 4,277,321, Cl. 204-192.00E.
Rustad, Stanley C.: *See*—
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.
Ryer, Jack: *See*—
Brois, Stanley J.; Ryer, Jack; and Winans, Esther D., 4,277,354, Cl. 252-51.50R.
Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., 4,277,353, Cl. 252-51.50R.
Ryr, Karl A.: *See*—
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronshien, Erling, 4,277,652, Cl. 179-100.00D.
Saab-Scania AB: *See*—
Torby, Arne, 4,277,788, Cl. 343-113.00R.
Sachs, Emanual M., to Mobil Tyco Solar Energy Corporation. Apparatus for monitoring crystal growth. 4,277,441, Cl. 422-105.000.
Sagoian, Lenik N.: *See*—
Barsukov, Vyacheslav Z.; Dunovsky, Sergei A.; Sagoian, Lenik N.; Trepalin, Anatoly I.; Aguf, Igor A.; and Smolkova, Valentina S., 4,277,546, Cl. 429-59.000.
Sahley, Lloyd W., to Syndrill Carbide Diamond Company. Self renewing working tip mining pick. 4,277,106, Cl. 299-79.000.
Saint Gobain Industries: *See*—
Meunier, Georges, 4,277,205, Cl. 406-123.000.
St. Jude Medical, Inc.: *See*—
Hanson, Donald W.; and Palmquist, William E., 4,276,658, Cl. 3-1.500.
Saito, Naoyuki: *See*—
Tsujii, Kaoru; Saito, Naoyuki; and Kawai, Michio, 4,277,378, Cl. 252-546.000.
Saito, Tadao: *See*—
Tsukada, Takami; Akutsu, Masao; and Saito, Tadao, 4,276,986, Cl. 215-1.00C.
Saito, Toshihiro; Tsutsumi, Yukihiro; Arai, Shoji; and Matsunaga, Hideaki, to Toyo Soda Manufacturing Co., Ltd. Process for producing catalyst. 4,277,414, Cl. 260-429.00R.
Saito, Yoshijiro: *See*—
Kagami, Toshio; Saito, Yoshijiro; Matsushita, Shigeru; and Iriuchijima, Kunio, 4,277,388, Cl. 260-33.40R.
Sakabinos, Steven, to Eltra Corporation. Optical system for electro-optical scanner. 4,277,154, Cl. 354-5.000.
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, to Daiichi Radioisotope Laboratories, Ltd. Radioimmunoassay method for determining calcitonin and radioactive tracer for use therein. 4,277,393, Cl. 260-112.50R.
Sakamoto, Kenro: *See*—
Koboshi, Sigeharu; Fushiki, Isamu; and Sakamoto, Kenro, 4,277,556, Cl. 430-393.000.
Sakotani, Akio; and Gomi, Tohru, to Katsukawa, Heitaro. Treating agents for waste water containing dyes and/or other organic substances, a process for treating said waste water by using the same. 4,277,346, Cl. 210-691.000.
Saliger, Kenneth C.; and Jansen, Martin B., to NL Industries, Inc. Well casing hanger assembly. 4,276,932, Cl. 166-214.000.
Saligny, Yves, to Etablissements Carpano and Pons. Connecting member for telephone systems. 4,277,643, Cl. 179-1.0PC.
Salomatin, Viktor M.; Belyanin, Petr N.; and Pestrikov, Vladimir I. Telescopic jib for load-handling device. 4,276,727, Cl. 52-115.000.
Saltzman, Robert N.; and Burrell, Bruce. Ice making machine. 4,276,751, Cl. 62-138.000.
Salvadore, John M.: *See*—
Heibein, Harry P.; Millington, Richard G.; Salvadore, John M.; Scott, Dean J.; and Sendelweck, Michael L., 4,277,790, Cl. 346-75.000.
Sampieri, Eugene E.; and Sosnowski, Thomas P., to Bell Telephone Laboratories, Incorporated. Light pen tracking method and apparatus. 4,277,783, Cl. 340-708.000.
Sams, Terry L., to Western Electric Company, Inc. Apparatus and method for resetting data sets. 4,277,646, Cl. 179-2.0DP.
Samuelson, Roland M.: *See*—
Marrs, Graham J.; Oliver, Richard J.; Potthast, Alfred J.; and Samuelson, Roland M., 4,277,041, Cl. 244-182.000.
Sanchez, Edward J. Reciprocating shingle remover with upward thrust blade. 4,277,104, Cl. 299-37.000.
Sandberg, Glenn A.; and Janssen, Wilbur A., to Formax, Inc. Cryogenic freezing tunnel control system. 4,276,753, Cl. 62-186.000.
Sandegard, Jan. Splint for extremities. 4,276,875, Cl. 128-89.00R.
Sanders, Daniel E.: *See*—
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Sassmannshausen, Knut O. Lamp. 4,277,821, Cl. 362-346.000.
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Alfano, Robert R.; and Schiller, Norman H., 4,277,669, Cl. 219-121.0LK.
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Schnell, William J., to Baxter Travenol Laboratories, Inc. Method of winding capillary fiber bundles. 4,276,687, Cl. 29-407.000.
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Buchholz, Kenneth M.; and Le Maire, Henry T., 4,277,264, Cl. 55-294.000.
Schonhut, Kurt, to Ferdinand Menrad. Metal frame for eyeglasses. 4,277,151, Cl. 351-41.000.
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Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., 4,277,536, Cl. 428-402.000.
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Uhrner, Rudolf; Teuke, Klaus; and Schwarz, Wolfgang, 4,277,734, Cl. 318-758.000.
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Carroll, Howard E.; and Sweitzer, Gerald M., 4,277,385, Cl. 260-29.6RW.
Scott, Albert Q. Post and panel sign assembly. 4,276,706, Cl. 40-607.000.
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Vanlerberghe, Guy; Sebag, Henri; Grollier, Jean-Francois; and Zysman, Alexandre, 4,277,581, Cl. 525-420.000.
Seddon, Richard L., to Optical Coating Laboratory, Inc. Coating apparatus. 4,276,855, Cl. 118-719.000.
Seifert, Helmut; Honl, Wolf-Dieter; Schmid, Johannes; and Frei, Bernhard, to Repa Feinstanzwerk GmbH. Automatic wind-up roller for a safety belt. 4,277,036, Cl. 242-107.40A.
Sekiya, Fukuo; and Yamada, Takashi, to Citizen Watch Co., Ltd. Electronic timepiece. 4,277,840, Cl. 368-71.000.
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Teague, Walter D., Jr.; and Sempliner, Arthur T., 4,276,672, Cl. 15-22.00R.
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Colombo, Antonio, 4,277,730, Cl. 315-408.000.
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Cerofolini, Gianfranco; and Ferla, Giuseppe, 4,277,291, Cl. 148-1.500.

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Milko, Richard J.; and Shapiro, Daniel H., 4,277,261, Cl. 55-278.000.
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Shay, Robert W. Moving dolly. 4,277,075, Cl. 280-47.360.

Sheffield, Glenn W.: *See—*
Mellors, Geoffrey W.; and Sheffield, Glenn W., 4,277,360, Cl. 252-182.100.

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Zijlstra, Kornelis N., 4,276,942, Cl. 175-21.000.

Sherwin, Owen W., to Valmont Industries, Inc. Towable center-pivot irrigation system. 4,277,027, Cl. 239-177.000.

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Shiga, Yoshinobu; Kage, Ryusuke; and Iwata, Masakatsu, to Nippon Light Metal Company Limited. Flashing construction for a curtain wall. 4,276,729, Cl. 52-209.000.

Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu. Torsional vibration monitoring apparatus for rotating shaft system. 4,276,782, Cl. 73-650.000.

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Fukui, Seiji, 4,276,973, Cl. 192-47.000.

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Inamine, Shigeo; Matsuda, Toshio; and Shimomura, Takeo, 4,277,512, Cl. 426-549.000.

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Shivers, Charles B., Jr. Carburetor for internal combustion engines. 4,277,424, Cl. 261-41.00D.

Shrader, Merrald B., to Varian Associates, Inc. Modular electron tube with carbon grid. 4,277,718, Cl. 313-304.000.

Shreve, James S. Electrically-controlled damper. 4,277,019, Cl. 236-49.000.

SHS Enterprises, Ltd.: *See—*
Kuntz, David H.; and Ingram, James A., 4,276,889, Cl. 128-761.000.

Sibley, Alfred E. Blood pressure recorder. 4,276,886, Cl. 128-681.000.

Sibrava, Joseph S.; and Caroselli, Frank E., to Arvey Corporation. Pressure sensitive tape closure pouch. 4,276,982, Cl. 206-439.000.

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Keller, Hartmut; Krauth, Axel; Maier, Horst R.; Nink, Horst; Pohlmann, Hans J.; Reddig, Horst; and Siebels, Johann, 4,277,539, Cl. 428-450.000.

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Dangschat, Rainer; Jeschke, Alfred; Leichtl, Helmut; and Winkler, Wolfgang, 4,277,797, Cl. 358-21.00R.
Feuerbaum, Hans P., 4,277,679, Cl. 250-310.000.
Helmrich, Hans, 4,277,810, Cl. 360-133.000.
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Kriedt, Hans; and Fenk, Josef, 4,277,756, Cl. 330-261.000.
Pauli, Arthur G.; Schade, Reinhart; and Stiel, Karl, 4,277,143, Cl. 350-334.000.
Rosenstock, Guenter; and Kindler, Wilfried, 4,277,791, Cl. 346-140.00R.
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Schneider, Hartmut, 4,277,272, Cl. 65-3.00A.
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Spirk, Franz, 4,277,709, Cl. 310-261.000.
Struwe, Botho; and Vobel, Wilhelm, 4,277,115, Cl. 308-26.000.
Voss, Peter, 4,277,307, Cl. 176-10.000.

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Provasnik, Robert, 4,276,775, Cl. 73-346.000.

Sigosin, Roger. Tree processing unit. 4,276,918, Cl. 144-2.00Z.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-inter-phenylene-19-oxo-PGE_1 compounds. 4,277,611, Cl. 560-53.000.

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Sika, Zigurd K.; Apsit, Voldemar V.; Daugulis, Khubert L.; and Kurkalov, Ivan I. Transportation device with an electrodynamic suspension. 4,276,832, Cl. 104-292.000.

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Sime, Sylvan H., 4,277,656, Cl. 200-47.000.

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Matthews, Stephen B.; Loredo, Tomas A.; Knox, Walter H., III; and Simmons, Herman F., 4,277,594, Cl. 526-352.000.

Simon, Francois. Lifting and handling equipment unit, especially for shipside operations. 4,277,053, Cl. 254-326.000.

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Lacefield, William B.; and Simon, Richard L., 4,277,471, Cl. 424-248.400.
Lacefield, William B.; and Simon, Richard L., 4,277,495, Cl. 424-309.000.

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Singer Company, The: *See—*
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Ljung, Bo H. G.; and Ferriss, Lincoln S., 4,277,173, Cl. 356-350.000.
Weisz, William, 4,276,841, Cl. 112-317.000.

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Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, to Bayer Aktiengesellschaft. Combating insects with N-(substituted-phenyl)-N-(2-chloro-6-fluoro-benzoyl)-ureas. 4,277,499, Cl. 424-322.000.

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SKF Industrial Trading & Development Co. B.V.: *See—*
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Worthington, Paul A.; Rathmell, William G.; and Skidmore, Anthony M., 4,277,469, Cl. 424-245.000.

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Skroupa, James D., to Westinghouse Electric Corp. Replaceable air seal for force cooled removable electronic units. 4,277,815, Cl. 361-383.000.

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Small, Kenneth T., to Tab Products Company. Continuous power source with bi-directional converter. 4,277,692, Cl. 307-66.000.

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Smith, Elroy C., Jr., to Rockwell International Corporation. Method of forming transparent conductor pattern. 4,277,517, Cl. 427-96.000.

Smith International, Inc.: *See—*
Geczy, Bela, 4,276,944, Cl. 175-102.000.
Hebel, James B., 4,276,947, Cl. 175-321.000.

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Smith, Alexander; and Baggs, Burton D., 4,277,080, Cl. 280-473.000.

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Sneijers, Andreas P. E., to U.S. Philips Corporation. Gas and/or vapor discharge lamp. 4,277,725, Cl. 315-73.000.

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Societe Anonyme Automobiles Citroen: *See—*
Lalanne, Andre P., 4,277,097, Cl. 296-37.160.

Societe Anonyme dite: L'Oreal: *See—*
Bugaut, Andree; and Andrillon, Patrick, 4,277,244, Cl. 8-410.000.

S.A. Etablissements Francois Salomon & Fils: *See—*
Riedel, Tilo, 4,277,082, Cl. 280-605.000.

Societe D'Applications Generales D'Electricite et de Mecanique Sagem: *See—*
Dore, Alain; and Judet, Henri, 4,276,698, Cl. 33-174.00L.

Societe dite: Automobile Peugeot: *See—*
Lalanne, Andre P., 4,277,097, Cl. 296-37.160.

Societe Nationale de l'Amiante: *See—*
Lalancette, Jean M., 4,277,596, Cl. 528-106.000.

Societe Nationale de l'Aminate: *See—*
Lalancette, Jean-Marc, 4,277,449, Cl. 423-167.000.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Dubois, Claude; and Surdi, Jean M., 4,277,225, Cl. 416-198.00A.

Soes, Lucas, to AMP Incorporated. Electrical switch. 4,277,663, Cl. 200-283.000.

Sokol, Larry S.: *See—*
Cherenko, Joseph; Frey, William I.; Kelly, Joseph D.; and Sokol, Larry S., 4,277,299, Cl. 156-242.000.

Solomon, Alan. Disposable orthopedic implement and method. 4,277,184, Cl. 366-150.000.

Soltis, Frank G.: *See—*
Collins, Robert W.; Hoffman, Roy L.; Loen, Larry W.; Mitchell, Glen R.; and Soltis, Frank G., 4,277,826, Cl. 364-200.000.

Solvay & Cie: *See—*
Michel, Edmond, 4,276,987, Cl. 215-1.00C.

Sommer, Gerd R.: *See—*
Sterki, Armin; Sommer, Gerd R.; and Naegeli, Walter, 4,276,699, Cl. 33-179.50R.

Sonderman, Ed L.; and Davis, Walter Z., to Key Tronic Corporation. Scan-controlled keyboard. 4,277,780, Cl. 340-365.00S.

Sone, Hisao: *See—*
Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, 4,277,460, Cl. 424-1.000.

Sonnonstine, Terry J.; and Kneipp, Kenneth G., to Minnesota Mining and Manufacturing Company. Electrophotographic plate having charge transport overlayer. 4,277,551, Cl. 430-120.000.

Sony Corporation: *See—*
Nagaki, Takehiro, 4,277,808, Cl. 360-113.000.

Sosnowski, Thomas P.: *See—*
Sampieri, Eugene E.; and Sosnowski, Thomas P., 4,277,783, Cl. 340-708.000.

Soussan, Salomon: *See—*
Fournel, Francis; and Soussan, Salomon, 4,277,585, Cl. 526-65.000.

Southwire Company: *See—*
Jeter, David R., 4,277,011, Cl. 226-199.000.
Weber, John G.; and Chia, E. Henry, 4,277,281, Cl. 75-93.00R.

Spalding, George, to Diemakers, Inc. Composite power cylinder. 4,276,994, Cl. 220-454.000.

Spangler, Carl D., Jr., to Conoco, Inc. Heat pump fractionation process. 4,277,268, Cl. 62-26.000.

Spanner, W. F. Ice cutting and breaking vessel. 4,276,845, Cl. 114-42.000.

Spanoudis, Louis, to Owens-Illinois, Inc. Method for braze-assembling metal components having low softening temperatures, without disrupting regions of stabilized dimensions. 4,277,013, Cl. 228-136.000.

Speakman, Eugene R., to McDonnell Douglas Corporation. Structure to retard fretting and method of manufacture. 4,277,200, Cl. 403-408.000.

Spector, Donald. Self-stick aroma-dispensing tab. 4,277,024, Cl. 239-36.000.

Spirk, Franz, to Siemens Aktiengesellschaft. Large diameter synchronous electric machine. 4,277,709, Cl. 310-261.000.

Spohr, Hanswerner. Control valve. 4,276,903, Cl. 137-554.000.

Spoor, Herbert: *See—*
Straub, Ferdinand; Spoor, Herbert; and Cordes, Claus, 4,277,576, Cl. 525-123.000.

Sprunck, Emile: *See—*
Zanetta, Hugues, 4,277,054, Cl. 266-268.000.

Staehle, Dale O., to Western Publishing Company. Microscope. 4,277,133, Cl. 350-90.000.

Stafsnes, John A.: *See—*
Modler, Peter R.; Dittmer, Harold E.; Rose, Richard L.; and Stafsnes, John A., 4,276,752, Cl. 62-166.000.

Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, to Boehringer Ingelheim GmbH. Substituted 2-phenylamino-2-imidazolines as bradycardiacs. 4,277,487, Cl. 424-273.00R.

Stahlecker, Fritz; and Zilian, Dietrich, to Stahlecker, Fritz; and Stahlecker, Hans. Method and apparatus for start-spinning a thread on an open-end spinning unit. 4,276,741, Cl. 57-263.000.

Stahlecker, Hans: *See—*
Stahlecker, Fritz; and Zilian, Dietrich, 4,276,741, Cl. 57-263.000.

Stahler, Gerhard: *See—*
Sinharay, Akhileswar; Stahler, Gerhard; and Bonin, Werner, 4,277,493, Cl. 424-304.000.

Stahly, Daniel C.; Scott, William H.; and Wagdy, Mohamed K., to Sunbeam Corporation. Food mixer. 4,277,181, Cl. 366-69.000.

Stamicarbon, B.V.: *See—*
Kerkhoffs, Pieter L., 4,277,563, Cl. 435-99.000.

Standard Car Truck Company: *See—*
Bullock, Robert L., 4,276,833, Cl. 105-197.0DB.

Standard Oil Company (Indiana): *See—*
Karayannis, Nicholas M.; and Skryantz, John S., 4,277,370, Cl. 252-429.00B.
Powers, George W., Jr.; Froning, H. Robert; and Taggart, Davis L., 4,277,351, Cl. 252-8.55D.

Standard Products Company, The: *See—*
Jackson, Norman C., 4,277,526, Cl. 428-31.000.

Stanford, Ralph F.: *See—*
Christensen, Donald R.; and Stanford, Ralph F., 4,277,002, Cl. 222-349.000.

Stansbury, Benjamin H., Jr., to Ronco Teleproducts, Inc. Roller measure device. 4,276,695, Cl. 33-141.00E.

Starp, Franz: *See—*
Rentschler, Waldemar; Starp, Franz; and Espig, Winfried, 4,277,155, Cl. 354-23.00D.

Stauffer Chemical Company: *See—*
Rusay, Ronald J., 4,277,500, Cl. 424-324.000.

Steffen, David E., to Dickey-john Corporation. Planter population monitor. 4,277,833, Cl. 364-555.000.

Stein, Arthur A.: *See—*
Goldman, Max; and Stein, Arthur A., 4,276,819, Cl. 98-115.0LH.

Stein, Reinhardt P., to American Home Products Corporation. Sydnone imines. 4,277,609, Cl. 548-125.000.

Steinbeck, Hermann: *See—*
Hofmeister, Helmut; Wiechert, Rudolf; Annen, Klaus; Laurent, Henry; and Steinbeck, Hermann, 4,277,468, Cl. 424-243.000.

Steinberg, Mitchell I.: *See—*
Molloy, Bryan B.; and Steinberg, Mitchell I., 4,277,501, Cl. 424-330.000.

Stendel, Wilhelm: *See—*
Sirrenberg, Wilhelm; Klauke, Erich; Marhold, Albrecht; Hammann, Ingeborg; Stendel, Wilhelm; and Krehan, Ingomar, 4,277,499, Cl. 424-322.000.

Stenkvist, Sven-Einar, to ASEA Aktiebolag. Prefabricated unit for a DC arc furnace. 4,277,638, Cl. 13-35.000.

Stephan, Rudolf: *See—*
Ackermann, Otto; Bretzinger, Dieter; Schneidewind, Herbert; and Stephan, Rudolf, 4,277,418, Cl. 260-465.400.

Sterki, Armin; Sommer, Gerd R.; and Naegeli, Walter, to Maag Gear Wheel & Machine Co. Ltd. Method and test apparatus for testing the tooth flank profile of large diameter gears. 4,276,699, Cl. 33-179.50R.

Sterner, Charles J.: *See—*
Kwasnoski, Daniel; and Sterner, Charles J., 4,277,311, Cl. 202-183.000.

Stevens, Carlile R., to Stevens Luminoptics. Power supply for a high intensity discharge or fluorescent lamp. 4,277,728, Cl. 315-307.000.

Stevens Luminoptics: *See—*
Stevens, Carlile R., 4,277,728, Cl. 315-307.000.

Stiegler, Karl Heinz: *See—*
Schulze, Ehrhart, 4,277,241, Cl. 493-196.000.

Stiel, Karl: *See—*
Pauli, Arthur G.; Schade, Reinhart; and Stiel, Karl, 4,277,143, Cl. 350-334.000.

Stolarz, Edward M., to Presto Lock Company, Division of Walter Kidde & Company, Inc. Handle mounting device. 4,276,676, Cl. 16-126.000.

Stone, Samuel L. Security bolts for trailer wheels. 4,277,107, Cl. 301-13.0SM.

Stop-A-Flat Corporation: *See—*
Ross, Peter, 4,276,898, Cl. 137-231.000.

Storage Technology Corporation: *See—*
Hancock, Robert J.; Burns, William A.; and Hall, James B., 4,277,844, Cl. 371-38.000.

Storz, Karl. Injection syringe. 4,276,878, Cl. 128-218.0PA.

Stoutenburg, Garnet H. Bumper trailer hitch. 4,277,081, Cl. 280-502.000.

Straub, Ferdinand; Spoor, Herbert; and Cordes, Claus, to BASF Aktiengesellschaft. Preparation of modified polymers of N-vinylpyrrolid-2-one and their use for the preparation of polymers interrupted by bridge members. 4,277,576, Cl. 525-123.000.

Streicher, Kurt; and zur Nieden, Achim, to Klockner-Humboldt-Deutz Aktiengesellschaft. Pressure lubrication for internal combustion engines. 4,276,859, Cl. 123-196.00R.

Streifer, William: *See—*
Scifres, Donald R.; Streifer, William; and Burnham, Robert D., 4,277,762, Cl. 331-94.50H.

Strobel, Gary A., to Endowment and Research Foundation at Montana State University. Method for treating Dutch elm disease using *P. syringae*. 4,277,462, Cl. 424-93.000.

Strobel, Herbert, to Heckler & Koch GmbH. Method for continuous path control of a machine tool. 4,276,792, Cl. 82-1.00C.

Stromer, Carl-Axel: *See—*
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Stuckert, Paul E., to International Business Machines Corporation. Personal portable terminal for financial transactions. 4,277,837, Cl. 364-900.000.

Stuwe, Botho; and Vobel, Wilhelm, to Siemens Aktiengesellschaft. Mount for calotte bearings. 4,277,115, Cl. 308-26.000.

Suba, Virgilio. Automatically-inflatable life preserver. 4,276,669, Cl. 9-313.000.

Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, to Nissan Motor Company, Limited. Apparatus for controlling the number of enabled cylinders of an internal combustion engine upon deceleration. 4,276,863, Cl. 123-481.000.

Sugerman, Gerald; and Monte, Salvatore J., to Kenrich Petrochemicals, Inc. Pyrophosphato titanate adducts. 4,277,415, Cl. 260-429.500.

Sugier, Andre; Courty, Philippe; Deschamps, Andre; and Gruhier, Henri, to Institut Francais du Petrole. Process for oxidizing sulfur and sulfur compounds. 4,277,458, Cl. 423-437.000.

Sugiura, Takeo; Miyajima, Keiji; Nagatomo, Hideo; and Masui, Kiyoshi, to Toppan Printing Co., Ltd. Forgery resistant document with colored areas and method for thwarting reproduction of same. 4,277,514, Cl. 427-1.000.

Sugiyama, Jun-ichi, to Eaton Corporation. Mast and carriage assembly. 4,276,961, Cl. 187-9.00E.

Suling, Carlhans: *See—*
Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., 4,277,536, Cl. 428-402.000.

Sulzer Brothers Limited: *See—*
Pfarrwaller, Erwin, 4,276,911, Cl. 139-308.000.
Weber, Max, 4,276,930, Cl. 165-172.000.

Sumitomo Chemical Company, Limited: *See—*
Kataoka, Yushin; Matsuda, Masaaki; and Kamoda, Masaru, 4,277,566, Cl. 521-32.000.
Mitsunaga, Takayoshi; Chinushi, Kiyoto; and Umezu, Tadashi, 4,277,488, Cl. 424-273.00R.

Sumitomo Chemical Industries Ltd.: *See—*
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,277,473, Cl. 424-248.540.

Sumitomo Electric Industries, Ltd.: *See—*
Okita, Koichi, 4,277,429, Cl. 264-127.000.
Tobioka, Masaaki; Kodama, Mitsuo; Asai, Tsuyoshi; and Yamamoto, Takaharu, 4,277,283, Cl. 75-238.000.

Sumitomo Rubber Industries, Ltd.: *See—*
Yamaguchi, Tetsuo; and Kashiwara, Tomokazu, 4,277,055, Cl. 267-140.000.

Sunbeam Corporation: *See—*
Stahly, Daniel C.; Scott, William H.; and Wagdy, Mohamed K., 4,277,181, Cl. 366-69.000.

Sundkvist, Gustaf J.; Lundgren, Fred O.; Lindberg, Mats-Ove R.; and Bostrom, Erik A., to Boliden Aktiebolag. Apparatus for analysing flowing media. 4,276,777, Cl. 73-864.810.

Sunkyong Fibers, Ltd.: *See—*
Choi, Sam Kwon; and Lee, Kee Dong, 4,277,584, Cl. 525-437.000.

Supertex, Inc.: *See—*
Chao, Robert L., 4,277,782, Cl. 340-661.000.

Surdi, Jean M.: *See—*
Dubois, Claude; and Surdi, Jean M., 4,277,225, Cl. 416-198.00A.

Surprenant, Ronald J., to Lear Siegler, Inc. Automatic gain repeater. 4,277,655, Cl. 179-170.00R.

Susaki, Wataru: *See—*
Tanaka, Toshio; Namizaki, Hirofumi; Takamiya, Saburo; and Susaki, Wataru, 4,277,759, Cl. 331-94.50H.

Susich, Roland J. Drinking cup with laterally actuated valve. 4,276,992, Cl. 220-254.000.

Susuman Bugeltechnik GmbH: *See—*
Jennewein, Manfred A., 4,276,995, Cl. 221-15.000.

Sutton, Roger F.: *See—*
Luck, Allan J.; Clarke, John T.; and Sutton, Roger F., 4,277,428, Cl. 264-118.000.

Suzuki, Akira, to Takagi, Kazusuke, a part interest. Easy-to-assemble lamp. 4,277,823, Cl. 362-352.000.

Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Passive seatbelt system. 4,277,088, Cl. 280-804.000.

Swanson, Michael E.; and Lauderback, Sanford K., to Owens-Corning Fiberglas Corporation. Adhesive composition. 4,277,386, Cl. 260-29.6RW.

Sweeting, Truett B., to Kennecott Corporation. Process for the manufacture of ceramic oxide fibers from solvent solution. 4,277,269, Cl. 65-2.000.

Sweitzer, Gerald M.: *See—*
Carroll, Howard E.; and Sweitzer, Gerald M., 4,277,385, Cl. 260-29.6RW.

Swanson, Robert E. Web supply arrangement. 4,277,033, Cl. 242-67.30R.

Swinehart, Carl F., to Harshaw Chemical Company, The. Getter for melt-grown scintillator ingot and method for growing the ingot. 4,277,303, Cl. 156-616.00R.

Syndrill Carbide Diamond Company: *See—*
Sahley, Lloyd W., 4,277,106, Cl. 299-79.000.

Syntex (U.S.A.) Inc.: *See—*
Vickery, Brian H., 4,277,475, Cl. 424-250.000.
Walker, Keith A. M., 4,277,486, Cl. 424-273.00R.

Synthelabo: *See—*
DuPont, Regis; Lardenois, Patrick; Morel, Claude; Frost, Jonathan; and Koletar, Gabor I., 4,277,476, Cl. 424-250.000.

Syva Company: *See—*
Maggio, Edward T., 4,277,437, Cl. 422-61.000.

Szabo, Bela: *See—*
Takacs, Istvan; Rudolf, Peter; Szabo, Bela; and Kerey, Gyorgy, 4,276,701, Cl. 34-109.000.

Szecsi, Laszlo, to Kernforschungszentrum Karlsruhe GmbH. Device for cooling a superconductive resonator and method of making the device. 4,277,765, Cl. 333-99.00S.

Szonntagh, Eugene L., to Honeywell Inc. Method and apparatus for fluid sample injection for fluid chromatography. 4,276,913, Cl. 141-1.000.

Szulinski, Milton J., to Atlantic Richfield Company. Ventilating system for reprocessing of nuclear fuel rods. 4,277,361, Cl. 422-120.000.

T.J.D. Industries, Ltd.: *See—*
Howard, Thomas, 4,276,929, Cl. 165-145.000.

Tab Products Company: *See—*
Small, Kenneth T., 4,277,692, Cl. 307-66.000.

Tabuchi, Kenji; and Iwata, Hidehito, to Minolta Camera Kabushiki Kaisha. Developing material supplying device. 4,277,003, Cl. 222-350.000.

Tachibana, Seiji: *See—*
Kojima, Masaharu; Sone, Hisao; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tachibana, Seiji, 4,277,460, Cl. 424-1.000.

Taga Electric Company, Limited: *See—*
Mishiro, Shoji, 4,277,758, Cl. 331-1.00R.

Taga, Genji; Oikawa, Teruo; and Watanabe, Yoshiaki, to Tokuyama Soda Kabushiki Kaisha. Alkali calcium silicates and process for preparation thereof. 4,277,457, Cl. 423-331.000.

Taggart, Davis L.: *See—*
Powers, George W., Jr.; Froning, H. Robert; and Taggart, Davis L., 4,277,351, Cl. 252-8.55D.

Takacs, Istvan; Rudolf, Peter; Szabo, Bela; and Kerey, Gyorgy, to Richter Gedeon Vegyeszeti Gyar RT. Apparatus for the drying of wet, pasty and/or fusible materials. 4,276,701, Cl. 34-109.000.

Takada, Shigetaka; Naruse, Kazumichi; and Watanabe, Yukihiro, to Aisan Industry Co., Ltd. Exhaust gas control apparatus. 4,276,745, Cl. 60-276.000.

Takagi, Kazusuke: *See—*
Suzuki, Akira, 4,277,823, Cl. 362-352.000.

Takahashi, Hiromichi, to Pentel Kabushikik Kaisha. Printing and displaying apparatus. 4,277,186, Cl. 400-120.000.

Takahashi, Naoyuki, to Olympus Optical Co., Ltd. Zoom stereomicroscope with taking lens barrel. 4,277,130, Cl. 350-36.000.

Takamiya, Saburo: *See—*
Tanaka, Toshio; Namizaki, Hirofumi; Takamiya, Saburo; and Susaki, Wataru, 4,277,759, Cl. 331-94.50H.

Takanashi, Itsuo: *See—*
Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Takeda Chemical Industries, Ltd: *See—*
Fujino, Masahiko; Shinagawa, Susumu; and Kawai, Kiyohisa, 4,277,394, Cl. 260-112.50R.

Takeda, Yoshiteru: *See—*
Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, 4,277,572, Cl. 525-61.000.

Takemoto, Iwao: *See—*
Koike, Norio; Takemoto, Iwao; Kubo, Masaharu; Sato, Kazuhiro; and Nagahara, Shusaku, 4,277,799, Cl. 358-44.000.

Takenoya, Hideaki; and Makabe, Hachiro, to Janome Sewing Machine Co., Ltd. Electronic sewing machine with a feed control device. 4,276,840, Cl. 112-315.000.

Takita, Hitoshi: *See—*
Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Talka, Esko T.: *See—*
Forss, Kaj G.; Talka, Esko T.; and Fremer, Kaj-Erik, 4,277,626, Cl. 568-438.000.

Taluba, Anthony P.; and Taluba, Paul A. Apparatus for forming a molded squeeze toy including whistle. 4,277,232, Cl. 425-525.000.

Taluba, Anthony P.; and Taluba, Paul A. Method for forming a molded squeeze toy including whistle. 4,277,300, Cl. 156-244.140.

Taluba, Paul A.: *See—*
Taluba, Anthony P.; and Taluba, Paul A., 4,277,232, Cl. 425-525.000.
Taluba, Anthony P.; and Taluba, Paul A., 4,277,300, Cl. 156-244.140.

Tam, Andrew C.: *See—*
Patel, Chandra K. N.; and Tam, Andrew C., 4,276,780, Cl. 73-643.000.

Tamura, Tooru: *See—*
Yamanaka, Minoru; and Tamura, Tooru, 4,276,746, Cl. 60-290.000.

Tanaka, Toshio; Namizaki, Hirofumi; Takamiya, Saburo; and Susaki, Wataru, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor laser device. 4,277,759, Cl. 331-94.50H.

Tanaka, Yasuhiko: *See—*
Fujita, Hisao; Tanaka, Yasuhiko; Kobayashi, Isao; and Nakamura, Ken, 4,276,854, Cl. 118-689.000.

Tani, Tatsuo: *See—*
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.

Tanno, Takashi; and Koike, Shigemitsu, to Toyo Kogyo Co., Ltd. Method for inspecting gear contact patterns. 4,276,700, Cl. 33-179.50R.

Tate, Jack F.: *See—*
Allen, Joseph C.; and Tate, Jack F., 4,277,580, Cl. 525-383.000.

Tateishi, Tetsuya, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Analyzer for resultant force at joint. 4,277,828, Cl. 364-415.000.

Tatsumi, Susumu; Eda, Tadahiro; and Imai, Chikara, to Ricoh Company, Ltd. Copy image adjustment method. 4,277,549, Cl. 430-30.000.

Tatsumi, Susumu: *See—*
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.

Taucher, Kenneth F. Multiple stage optical system for creating high-intensity solar light beam. 4,277,129, Cl. 350-27.000.

Taylor, Dennis O.: *See—*
Reid, David L.; and Taylor, Dennis O., 4,277,830, Cl. 364-431.000.

Taylor, John C. Conveyor system for a continuous mining machine. 4,277,105, Cl. 299-64.000.

Taylor, Robert A. Solvent extraction process. 4,277,316, Cl. 203-99.000.

Taylor, Stanford E., to Instructional/Communications Technology, Inc. Controls for synchronizing audio signals with film advancement in a projector. 4,277,152, Cl. 352-17.000.

Teague, Walter D., Jr.; and Sempliner, Arthur T. Power toothbrush or the like with orbital brush action. 4,276,672, Cl. 15-22.00R.

Teche, Andre: *See—*
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,277,617, Cl. 560-124.000.

Technicon Instruments Corporation: *See—*
Gray, Don N.; and Keyes, Melvin H., 4,277,560, Cl. 435-7.000.

Tekron Licensing B.V.: *See—*
Hickman, Ronald P., 4,276,955, Cl. 182-33.000.

Tektronix, Inc.: *See—*
Hawken, Kenneth W.; and Janko, Bozidar, 4,277,722, Cl. 315-31.00R.

Teledyne Industries, Inc.: *See—*
Barbeau, Dennis E., 4,277,222, Cl. 415-177.000.

Telefonaktiebolaget L M Ericsson: *See—*
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Tenneco Chemicals, Inc.: *See—*
Feldman, Martin L.; and De Groff, James T., 4,277,392, Cl. 260-40.00R.
Keyworth, Donald A.; and Purpi, David C., 4,277,567, Cl. 521-56.000.

Tepolt, Florian E.: *See—*
Coman, William E.; and Tepolt, Florian E., 4,276,758, Cl. 64-9.00R.

Terminal Data Corporation: *See—*
Rudy, Michael W.; Horning, Thomas D.; and Kraemer, Edward J., 4,277,190, Cl. 400-582.000.

Teshima, Hiroshi: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Tessier, Jean: *See—*
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Teche, Andre, 4,277,617, Cl. 560-124.000.

Teuke, Klaus: *See—*
Uhrner, Rudolf; Teuke, Klaus; and Schwarz, Wolfgang, 4,277,734, Cl. 318-758.000.

Texaco Development Corporation: *See—*
Paull, Peter L.; and Child, Edward T., 4,277,365, Cl. 252-373.000.

Texaco Inc.: *See—*
Allen, Joseph C.; and Tate, Jack F., 4,277,580, Cl. 525-383.000.
Allison, Jean B.; Kudchadker, Mohan V.; and Whittington, Lawrence E., 4,277,352, Cl. 252-8.55D.
Calderon, Reynaldo, 4,277,348, Cl. 210-791.000.
Kudchadker, Mohan V.; Kalfoglou, George; and Whittington, Lawrence E., 4,276,933, Cl. 166-266.000.
Ruidisch, Louis E.; and Van Wagenen, Sterling O., 4,277,334, Cl. 210-154.000.

Texas Instruments Incorporated: *See—*
Carlson, George M.; and O'Hagan, Michael, 4,277,827, Cl. 364-200.000.
Hornbeck, Larry J., 4,277,792, Cl. 357-24.000.
Mar, Clarence Y.; and Caruso, Michael J., 4,277,675, Cl. 235-92.0MB.
Ty, Henry, 4,276,754, Cl. 62-187.000.

Textron, Inc.: *See—*
Moertel, George B., 4,276,679, Cl. 24-205.16R.
Moertel, George B., 4,276,680, Cl. 24-205.16R.
Williams, Roy C.; and Rogemoser, David R., 4,277,380, Cl. 260-18.0TN.

Thermo Electron Corporation: *See—*
Rounbehler, David P.; and Potts, Robert S., 4,277,259, Cl. 55-270.000.

Thiele, Horst. Hydraulic damper system. 4,277,086, Cl. 280-709.000.

Thiessen, Reinhardt, Jr: *See—*
Reussner, George H.; and Thiessen, Reinhardt, Jr, 4,277,464, Cl. 424-177.000.

Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., to Key Tronic Corporation. Document reader. 4,277,689, Cl. 250-567.000.

Thompson, B. Gene. Rotary gravity mixer. 4,277,185, Cl. 366-213.000.

Thompson, David A.: *See—*
Boyd, David C.; and Thompson, David A., 4,277,286, Cl. 106-52.000.

Thompson, David L.: *See—*
McDonald, Ray S.; and Thompson, David L., 4,276,883, Cl. 128-419.0PT.

Thompson, Eric; and Baalham, Christopher J., to Glaxo Group Limited. Preparation of sodium cefuroxime. 4,277,601, Cl. 544-22.000.

Thompson, John S.; and Jadlocki, Joseph F., Jr., to FMC Corporation. Method for inhibiting the growth of clostridium botulinum and the formation of enterotoxin in smoked fish products. 4,277,507, Cl. 426-264.000.

Thompson, John W. Distributor ratchet wrench. 4,276,791, Cl. 81-62.000.

Thomson-CSF: *See—*
Eranian, Armand; Dubois, Jean-Claude; Couttet, Andre; and Datamanti, Evelyne, 4,277,554, Cl. 430-270.000.
Hareng, Michel; Le Berre, Serge; and Leclerc, Pierre, 4,277,145, Cl. 350-351.000.
Nuzillat, Gerard, 4,277,794, Cl. 357-40.000.
Simonet, William, 4,277,356, Cl. 252-62.590.

Thomson, Morton W., to DBS, Inc. Portable transaction log recorder. 4,276,825, Cl. 101-45.000.

Thornton, Thomas F., to Educational Health Products, Inc. Method of forming dental floss with string and brush portions. 4,277,297, Cl. 156-161.000.

Thorsteinson, Erlind M.: *See—*
Decker, Harry J.; and Thorsteinson, Erlind M., 4,277,375, Cl. 252-455.00R.

Thurman, William O.: *See—*
Thomas, Robert J.; Piekarski, Michael; Morgan, Gary B.; Rank, John; Thurman, William O.; and Lerch, Donald C., 4,277,689, Cl. 250-567.000.

Tickner, Ernest G.; and Rasor, Ned S., to Rasor Associates, Inc. Ultrasonic image enhancement. 4,276,885, Cl. 128-660.000.

Ticks, Gerd-Heinz, to Carl Freudenberg, Firma. Hydraulically damped rubber motor mounting. 4,277,056, Cl. 267-140.100.

TII Industries, Inc.: *See—*
Jones, Raymond D., 4,277,812, Cl. 361-119.000.

Tillmann, Ditmar K.: *See—*
Haworth, Richard G.; Wilson, Harold R.; and Tillmann, Ditmar K., 4,277,123, Cl. 339-22.00R.

Timko, Nicholas, Jr.: *See—*
Dunn, Robert M.; Schulman, Martin D.; and Timko, Nicholas, Jr., 4,277,816, Cl. 361-384.000.

TMC Corporation: *See—*
Himmetsberger, Alois; and Wittmann, Heinz, 4,277,083, Cl. 280-618.000.

Tobioka, Masaaki; Kodama, Mitsuo; Asai, Tsuyoshi; and Yamamoto, Takaharu, to Sumitomo Electric Industries, Ltd. Sintered hard metal and the method for producing the same. 4,277,283, Cl. 75-238.000.

Toda, Shozo: *See—*
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Tokuda, Hiroostu; Morinaga, Shigeki; and Nakamura, Hideo, to Hitachi, Ltd. Error preventing device for an electronic engine control apparatus. 4,277,829, Cl. 364-431.000.

Tokunaga, Michio; and Kitano, Junjiro, to Hitachi, Ltd. Semiconductor switch circuit. 4,277,696, Cl. 307-255.000.

Tokuyama Soda Kabushiki Kaisha: *See—*
Taga, Genji; Oikawa, Teruo; and Watanabe, Yoshiaki, 4,277,457, Cl. 423-331.000.

Tokyo Denshi Kagaku Kabushiki Kaisha: *See—*
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Tokyo Kogaku Kakai Kabushiki Kaisha: *See—*
Iwafune, Yasuo; and Iwai, Hideo, 4,277,171, Cl. 356-153.000.

Tokyo Kogaku Kikai Kabushiki Kaisha: *See—*
Wada, Shinzi; Kitao, Ikuo; Kato, Yasuo; and Ishihara, Taketoshi, 4,277,150, Cl. 351-13.000.

Tokyo Koso Kabushiki Kaisha: *See—*
Zinnai, Sadazi, 4,277,047, Cl. 251-362.000.

Tokyo Ohka Kogyo Kabushiki Kaisha: *See—*
Nakayama, Muneo; Nishimura, Toshihiro; Nakane, Hisashi; Toda, Shozo; Hotta, Yoshio; and Minato, Mitsuaki, 4,277,525, Cl. 427-387.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Horiike, Yasuhiro; Okano, Haruo; Shibagaki, Masahiro; and Kadono, Katsuo, 4,277,304, Cl. 156-643.000.
Yamada, Yoshihiro, 4,277,160, Cl. 355-3.00R.

Tokyo Shibaura Electric Company, Limited: *See—*
Sato, Kozo, 4,277,811, Cl. 361-101.000.

Tolman, Richard L.; Ashton, Wallace T.; and Brown, Ronald D., to Merck & Co., Inc. Preparation of 5-deazariboflavins. 4,277,603, Cl. 544-250.000.

Tomic, Dobrivoje. Remedy producing hemostatic and antiphlogistic effects. 4,277,463, Cl. 424-128.000.

Toppan Printing Co., Ltd.: *See—*
Sugiura, Takeo; Miyajima, Keiji; Nagatomo, Hideo; and Masui, Kiyoshi, 4,277,514, Cl. 427-1.000.

Torsy Industries, Inc.: *See—*
Kasamaru, Naokatu; Imai, Kazuo; and Fujino, Hisaaki, 4,277,340, Cl. 210-433.200.

Torby, Arne, to Saab-Scania AB. Direction determining apparatus responsive to electromagnetic radiation. 4,277,788, Cl. 343-113.00R.

Torre, Giancarlo D., to Rockwell-Rimoldi, S.p.A. Device for regulating the transport mechanism in sewing machines. 4,276,842, Cl. 112-322.000.

Toyo Kogyo Co., Ltd.: *See—*
Tsuno, Takashi; and Koike, Shigemitsu, 4,276,700, Cl. 33-179.50R.

Toyo Soda Manufacturing Co., Ltd.: *See—*
Saito, Toshihiro; Tsutsumi, Yukihiro; Arai, Shoji; and Matsunaga, Hideaki, 4,277,414, Cl. 260-429.00R.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Suzuki, Ichiro; Motonami, Masanao; and Ogawa, Hisashi, 4,277,088, Cl. 280-804.000.

Trane Company, The: *See—*
Foust, Harry D., 4,276,927, Cl. 165-70.000.

Traub, Stefan, to Hewlett-Packard Company. Input circuit for electronic instruments. 4,277,749, Cl. 324-126.000.

Treadwell, Archie B.: *See—*
Blanning, Robert B.; Treadwell, Archie B.; and Logie, James A., 4,277,039, Cl. 244-3.160.

Tremco, Inc.: *See—*
Kumms, Charles A.; and Warford, Milan L., 4,277,533, Cl. 428-332.000.

Trepalin, Anatoly I.: *See—*
Barsukov, Vyacheslav Z.; Dunovsky, Sergei A.; Sagoian, Lenik N.; Trepalin, Anatoly I.; Aguf, Igor A.; and Smolkova, Valentina S., 4,277,546, Cl. 429-59.000.

Tri-State Oil Tool Industries, Inc.: *See—*
Murray, William K., 4,276,931, Cl. 166-99.000.

Trio Kabushiki Kaisha: *See—*
Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,277,703, Cl. 307-553.000.

Trohatos, George: *See—*
Nally, Robert B.; Akister, James F.; and Trohatos, George, 4,277,775, Cl. 340-146.30Q.

Tronslien, Erling: *See—*
Branden, Leif; Bruun, Jan F.; Holm, Olle; Mellgren, Ronnie E.; Ryr, Karl A.; Stromer, Carl-Axel; and Tronslien, Erling, 4,277,652, Cl. 179-100.00D.

Tropel, Inc.: *See—*
Kleiber, Joseph P., 4,277,141, Cl. 350-299.000.

Trouet, Andre, to Institut International de Pathologie Cellulaire et Moleculaire. Complexes of DNA and esters derived from daunorubicine, their preparation and use. 4,277,466, Cl. 424-180.000.

Trutzschler GmbH & Co. KG.: *See—*
Piske, Wolfgang, 4,276,677, Cl. 19-102.000.

TRW Inc.: *See—*
Brookes, Ronald R., 4,276,922, Cl. 164-27.000.
Dymond, Richard W., 4,276,812, Cl. 91-467.000.

Tsuchiya, Takuzo: *See—*
Rasmussen, Glenn; Huston, Larry; Morse, Donald W.; Tsuchiya, Takuzo; Morrison, Clifton H.; Rustad, Stanley C.; and Eiden, Leo, 4,276,795, Cl. 83-42.000.

Tsuji, Keiji: *See—*
Fujii, Kiyoshi; Tsuji, Keiji; and Nishimoto, Seiya, 4,277,774, Cl. 340-146.30Q.

Tsujii, Kaoru; Saito, Naoyuki; and Kawai, Michio, to Kao Soap Co., Ltd. Detergent compositions containing partially neutralized alkyl or alkenyl succinic acid. 4,277,378, Cl. 252-546.000.

Tsukada, Takami; Akutsu, Masao; and Saito, Tadao, to Yoshino Kogyosho Co., Ltd. Bottle made of saturated polyester resin. 4,276,986, Cl. 215-1.00C.

Tsuneta, Kazuyoshi: *See—*
Hayashi, Masaaki; Nagami, Koichi; Tsuneta, Kazuyoshi; and Kenmotsu, Nobuhiro, 4,277,383, Cl. 260-29.300.

Tsushima, Shoichiro: *See—*
Sakakibara, Shumpei; Kumahara, Yuichi; Okada, Yoshiaki; Ogawa, Hiroshi; Nakazawa, Nobuhiko; and Tsushima, Shoichiro, 4,277,393, Cl. 260-112.50R.

Tsutsumi, Yukihiro: *See—*
Saito, Toshihiro; Tsutsumi, Yukihiro; Arai, Shoji; and Matsunaga, Hideaki, 4,277,414, Cl. 260-429.00R.

Tulen, Jack A.; and Tulen, James L. Replacement spoons & fixtures for rotary hoe. 4,276,686, Cl. 29-270.000.

Tulen, James L.: *See—*
Tulen, Jack A.; and Tulen, James L., 4,276,686, Cl. 29-270.000.

Tuley, Bertha L. Wind propelled fan. 4,276,816, Cl. 98-23.000.

Tupper, David E.: *See—*
Horwell, David C.; and Tupper, David E., 4,277,480, Cl. 424-258.000.

Tupper, George L., to Coral Chemical Company. Ternary corrosion resistant coatings. 4,277,292, Cl. 148-6.270.

Turcke, Rainer: *See—*
Nagel, Erich; Turcke, Rainer; and Ludemann, Heinz, 4,277,061, Cl. 271-302.000.

Turley, Bernard C.; and Hochbein, David E., to Aluminum Company of America. Safety hook device. 4,277,093, Cl. 294-83.00R.

Turner, Henry H. Method and device for control of translocation in a stem. 4,276,721, Cl. 47-58.000.

Turner, Nelson R.; Sanders, Daniel E.; and Bienenstein, Charles A., to Model A and Model T Motor Car Reproduction Corporation, The. Vehicle rear leaf spring support. 4,277,087, Cl. 280-718.000.

Ty, Henry, to Texas Instruments Incorporated. Refrigerator control and system. 4,276,754, Cl. 62-187.000.

Tyler Refrigeration Corporation: *See—*
Perez, Arthur; and Abraham, Fayez F., 4,276,755, Cl. 62-196.00B.

Uchida, Shinya, to Laurel Bank Machine Co., Ltd. Cover for counting zone in note counter. 4,277,119, Cl. 312-208.000.

Uhrner, Rudolf; Teuke, Klaus; and Schwarz, Wolfgang, to R. Stahl GmbH & Co. Electric brake motor. 4,277,734, Cl. 318-758.000.

Ukihashi, Hiroshi; Yamabe, Masaaki; and Kojima, Hiroaki, to Asahi Glass Company, Ltd. Process for preparing a propylene-tetrafluoroethylene copolymer. 4,277,586, Cl. 526-93.000.

Ulmer, Harry E.: *See—*
Gupton, B. Frank; and Ulmer, Harry E., 4,277,620, Cl. 562-609.000.

Umezu, Tadashi: *See—*
Mitsunaga, Takayoshi; Chinushi, Kiyoto; and Umezu, Tadashi, 4,277,488, Cl. 424-273.00R.

Unicler: *See—*
Fromantin, Jean-Pierre M. J., 4,277,497, Cl. 424-316.000.

Unikat AB: *See—*
Hergart, P. Anders, 4,277,442, Cl. 422-119.000.

Union Carbide Corporation: *See—*
Bryant, David R.; and Billig, Ernst, 4,277,627, Cl. 568-454.000.
Decker, Harry J.; and Thorsteinson, Erlind M., 4,277,375, Cl. 252-455.00R.
Ginsberg, Thomas; and Kaufman, Lawrence G., 4,277,284, Cl. 106-1.050.
Kalnoki-Kis, Tibor, 4,277,545, Cl. 429-48.000.
Mago, Blake F., 4,277,366, Cl. 252-392.000.
Matlock, Paul L.; and Sandner, Michael R., 4,277,318, Cl. 204-78.000.
Mellors, Geoffrey W.; and Sheffield, Glenn W., 4,277,360, Cl. 252-182.100.
Walker, Wellington E., 4,277,634, Cl. 568-902.000.

United Centrifugal Pumps: *See—*
Murray, John T., 4,277,210, Cl. 409-191.000.

United States of America
Agriculture: *See—*
Johnson, Donovan E., 4,277,564, Cl. 435-242.000.
Rowland, Stanley P., 4,277,243, Cl. 8-183.000.
Shasha, Baruch S.; Doane, William M.; and Russell, Charles R., 4,277,364, Cl. 252-316.000.
Army: *See—*
Abell, William R., 4,277,201, Cl. 404-35.000.
Bruce, Charles W., 4,277,179, Cl. 356-433.000.
Drzewiecki, Tadeusz M., 4,276,895, Cl. 137-2.000.
Holmes, Allen B., 4,276,943, Cl. 175-40.000.
Morgan, Robert L.; Cupitt, Larry T.; and Gamble, William L., 4,277,146, Cl. 350-356.000.
Smith, James L.; and Christensen, Charles R., 4,277,127, Cl. 350-3.670.
Sobota, Valentine M.; and Vinson, Marshall, 4,277,819, Cl. 362-80.000.
Upatnieks, Juris; Christensen, Charles R.; and Guenther, Bobby D., 4,277,137, Cl. 350-162.0SF.
Yates, Robert E.; Leonard, John P.; Alongi, Robert E.; Albanes, Wilfredo V.; and Bishop, Charles M., 4,277,038, Cl. 244-3.150.
Energy: *See—*
Bohachevsky, Ihor O., 4,277,305, Cl. 176-1.000.
Jackson, Kenneth M., 4,276,904, Cl. 137-599.000.
Rusch, Gordon K.; Keefe, Donald J.; and McDowell, William P., 4,277,308, Cl. 176-19.0EC.
Environmental Protection Agency: *See—*
Hart, W. Howard; and Weber, Helmut E., 4,277,131, Cl. 350-63.000.
Health and Human Services: *See—*
Dauben, William G.; Baskin, Craig P.; and vanRiel, Herman C. H. A., 4,277,604, Cl. 546-44.000.
Health, Education and Welfare: *See—*
Leighton, Stephen B., 4,277,017, Cl. 233-25.000.
National Aeronautics and Space Administration; administrator; with respect to an invention of:
Poshkus, Algirdas C. Synthesis of polyformals. 4,277,402, Cl. 260-340.90R.
National Aeronautics and Space Administration: *See—*
Kosmahl, Henry G., 4,277,721, Cl. 315-5.380.
Navy: *See—*
Amy, J. A.; and Huber, Harvard C., 4,277,368, Cl. 252-408.000.
Dusheck, George J., Jr., 4,277,700, Cl. 307-273.000.
Eppel, Joseph C., 4,277,167, Cl. 356-5.000.
McKinney, James A., 4,277,839, Cl. 367-155.000.
Reed, Russell, Jr.; Moore, Kenneth L.; and Meyers, Gary W., 4,277,203, Cl. 405-264.000.
Skaalen, Clifford I., 4,276,958, Cl. 182-135.000.

U.S. Philips Corporation: *See—*
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and van der Kruijs, Franciscus N. G. R., 4,277,542, Cl. 338-308.000.
Carson, Arthur N., 4,277,684, Cl. 250-445.00T.
Claassens, Jacobus M. M.; van der Leeuw, Bart; and van Elderen, Nicolaas F., 4,277,715, Cl. 313-220.000.

Couwenberg, Winston D.; Bouwknegt, Albert; Ligthart, Franciscus A. S.; and Heuvelmans, Jean J., 4,277,720, Cl. 313-485.000.
Dammann, Hans, 4,277,138, Cl. 350-162.00R.
Duquenne, Michel G. A.; David, Guy A. J.; Grima, Jean-Claude; and Daguet, Jacques L., 4,277,843, Cl. 370-84.000.
Harding, Geoffrey, 4,277,686, Cl. 250-445.00T.
Hasker, Jan; Vervest, Johannes C. G.; Peters, Cornelis; and Vroomen, Laurentius C. J., 4,277,713, Cl. 313-203.000.
Leitner, Harald, 4,276,781, Cl. 73-647.000.
Penning, Cornelis, 4,277,654, Cl. 179-156.00R.
Rehfeldt, Karl H., 4,277,795, Cl. 358-8.000.
Sneijers, Andreas P. E., 4,277,725, Cl. 315-73.000.
Van Benthem, Willem; and De Vaan, Robertus L. C., 4,277,717, Cl. 313-226.000.

United States Steel Corporation: *See—*
Aiken, John E.; and Didycz, William J., 4,277,453, Cl. 423-247.000.
McKenna, James F.; and Anderson, Douglas O., 4,277,312, Cl. 202-241.000.

United Technologies Corporation: *See—*
Eckbreth, Alan C., 4,277,760, Cl. 331-94.50N.

Uozumi, Norihira: *See—*
Abe, Kozin; Uozumi, Norihira; and Oishi, Kazuaki, 4,277,746, Cl. 324-72.000.

Upatnieks, Juris; Christensen, Charles R.; and Guenther, Bobby D., to United States of America, Army. Coherent optical correlator. 4,277,137, Cl. 350-162.0SF.

Upjohn Company, The: *See—*
Bundy, Gordon L., 4,277,612, Cl. 560-55.000.
Sih, John C., 4,277,611, Cl. 560-53.000.
Sih, John C., 4,277,613, Cl. 560-121.000.
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Sih, John C., 4,277,616, Cl. 560-121.000.
Sih, John C., 4,277,619, Cl. 562-465.000.

Upton, Robert W., Jr., to Honeywell Inc. Fiber optic loop signal coupler apparatus. 4,277,134, Cl. 350-96.200.

Ura, Masaaki: *See—*
Yoshimoto, Takeo; Igarashi, Keiichi; Oda, Kengo; Ura, Masaaki; and Sato, Naoki, 4,277,624, Cl. 568-44.000.

Ura, Mitsugu, to Hitachi, Ltd. Deflection yoke. 4,277,767, Cl. 335-210.000.

Urbanek, Karel; and Bleiweiss, Arthur F., to Dominion Auto Accessories Limited. Combined headlight, turn signal and parking lamp for snow plows and the like. 4,277,818, Cl. 362-61.000.

Urick, Palmer D.; and Bienz, Robert H., to General Electric Company. Apparatus and method for axial insertion of dynamoelectric machine end turn insulation. 4,276,689, Cl. 29-596.000.

Uroshevich, Miroslav, to Alpha Solarco Inc. Reflectors for solar energy collectors. 4,276,873, Cl. 126-438.000.

Usardi, Maria M.: *See—*
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Cesarani, Roberto; and Usardi, Maria M., 4,277,491, Cl. 424-285.000.

Ustinov, deceased Viktor I.: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Ustinov, Klavdia G., administrator: *See—*
Kozhevnikov, Vladislav A.; Kononov, Ivan V.; Maslennikov, Ivan E.; Platonov, Vladimir N.; Kharitonovich, Mikhail V.; Ustinov, deceased Viktor I.; and Ustinov, Klavdia G., administrator, 4,276,764, Cl. 72-275.000.

Valencia, C. Estaben. Apparatus to aid in the docking and mooring of a boat. 4,276,850, Cl. 114-230.000.

Valmont Industries, Inc.: *See—*
Olson, Dale E., 4,277,028, Cl. 239-184.000.
Sherwin, Owen W., 4,277,027, Cl. 239-177.000.

Van Products Company: *See—*
Richardson, Mason E., 4,276,694, Cl. 33-126.70R.

Van Benthem, Willem; and De Vaan, Robertus L. C., to U.S. Philips Corporation. Low-pressure sodium vapor discharge lamp. 4,277,717, Cl. 313-226.000.

van Boven, Petrus L. M.; and Winthaegen, Leon M. W., to Oce-Nederland B.V. Exposure device. 4,277,166, Cl. 355-67.000.

VanBuren, Martin F.: *See—*
Deichert, William G.; Niu, Gregory C.; and VanBuren, Martin F., 4,277,595, Cl. 528-26.000.

Vance, John M., to Haris, J. Wylie, Jr. Power assisted pedicycle. 4,276,950, Cl. 180-7.00P.

van der Kruijs, Franciscus N. G. R.: *See—*
Boonstra, Alexander H.; Mutsaers, Cornelis A. H. A.; and van der Kruijs, Franciscus N. G. R., 4,277,542, Cl. 338-308.000.

van der Leeuw, Bart: *See—*
Claassens, Jacobus M. M.; van der Leeuw, Bart; and van Elderen, Nicolaas F., 4,277,715, Cl. 313-220.000.

VanderNeut, Richard D.: *See—*
Cushing, Charles J.; Phillips, Clifton W.; and VanderNeut, Richard D., 4,277,178, Cl. 356-431.000.

Van der Smissen, Carl-Ernst; and Pantaleon-Stemberg, Gerd, to Dragerwerk Aktiengesellschaft. Air purifying cartridges for respirators. 4,277,443, Cl. 422-122.000.

Vandoni, Guido, to Resfar S.r.l. 1(p-Chlorobenzoyl)-5-methoxy-2-methyl indole-3-acetic acid-3-oxo-isobenzofuranyl ester and pharmaceutical use thereof. 4,277,489, Cl. 424-274.000.

van Elderen, Nicolaas F.: *See—*
Claassens, Jacobus M. M.; van der Leeuw, Bart; and van Elderen, Nicolaas F., 4,277,715, Cl. 313-220.000.

Van Gompel, James J., to Brammall, Inc. Manually operated adjustable retainer. 4,277,211, Cl. 410-47.000.

van Kattenbroek, Hendrik J., to Moba Holding Barneveld B.V. Distribution and conveyor apparatus for eggs. 4,276,977, Cl. 198-446.000.

Van Landeghem, Hugo, to Institut Francais du Petrole. Apparatus for converting hydrocarbons. 4,277,444, Cl. 422-191.000.

Vanlerberghe, Guy; Sebag, Henri; Grollier, Jean-Francois; and Zysman, Alexandre, to L'Oreal. Polyamino-polyamide crosslinked with crosslinking agent. 4,277,581, Cl. 525-420.000.

Van Malderghem, Edmund G.: *See—*
Wakeman, William R.; Van Malderghem, Edmund G.; and Greulich, Kenneth R., 4,277,016, Cl. 229-69.000.

van Nederveen, Hans B., to SKF Industrial Trading & Development Co. B.V. Process for the manufacture of a drill head provided with hard, wear-resistant elements. 4,276,788, Cl. 76-108.00A.

Van Peteghem, Antoine: *See—*
De Schepper, Achille; and Van Peteghem, Antoine, 4,277,445, Cl. 422-259.000.

vanRiel, Herman C. H. A.: *See—*
Dauben, William G.; Baskin, Craig P.; and vanRiel, Herman C. H. A., 4,277,604, Cl. 546-44.000.

Van Wagenen, Sterling O.: *See—*
Ruidisch, Louis E.; and Van Wagenen, Sterling O., 4,277,334, Cl. 210-154.000.

Varian Associates, Inc.: *See—*
Shrader, Merrald B., 4,277,718, Cl. 313-304.000.

Varma, Vijaya K., to Exxon Research & Engineering Co. Hydrocarbon soluble sulfonated polyols, esters of hydrocarbon substituted C_4–C_{10} dicarboxylic acids with polyols and sulfonic acid, processes therefor, and lubricating compositions thereof. 4,277,417, Cl. 260-456.00R.

Vasquez, Ray M., to Motorola, Inc. Delay type flip-flop. 4,277,698, Cl. 307-272.00A.

Veb Polygraph Leipzig Kombinat fur Polygraphische Maschinen und Ausrustungen: *See—*
Johne, Hans; Jentzsch, Arndt; Schmidt, Lothar; Muller, Wolfgang; and Funke, Mandred, 4,276,827, Cl. 101-212.000.

Vedder, James L., to Mead Corporation, The. Method of producing a charge plate for use in an ink recorder. 4,277,548, Cl. 430-22.000.

Verhecken, Andre: *See—*
Jacken, Jan; and Verhecken, Andre, 4,277,559, Cl. 430-549.000.

Vervest, Johannes C. G.: *See—*
Hasker, Jan; Vervest, Johannes C. G.; Peters, Cornelis; and Vroomen, Laurentius C. J., 4,277,713, Cl. 313-203.000.

Verzwyvelt, Scott A., to Hughes Aircraft Company. Alkaline battery spearator. 4,277,547, Cl. 429-251.000.

Vesperman, William C.: *See—*
Piper, George F.; Vesperman, William C.; and Wilson, Max K., 4,277,642, Cl. 174-117.00F.

Vesta, Inc.: *See—*
Woinowski, Willis E., 4,277,432, Cl. 264-173.000.

Vickery, Brian H., to Syntex (U.S.A.) Inc. Contraceptive methods employing 1-substituted imidazole derivatives. 4,277,475, Cl. 424-250.000.

Victor Company of Japan, Ltd.: *See—*
Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Viennet, Rene: *See—*
Saurer, Eric; Gharadjedaghi, Fereydoun; Laesser, Claude; Viennet, Rene; and Ruedin, Yves, 4,277,144, Cl. 350-349.000.

Viers, Homer J., to General Motors Corporation. Supple exhaust coupling. 4,277,092, Cl. 285-263.000.

Vietzke, Horst: *See—*
Bregulla, Eduard; Chrubasik, Alfred; and Vietzke, Horst, 4,276,834, Cl. 110-237.000.

Vignaud, Jean C., to La Telemecanique Electrique. Switch push button lock. 4,277,666, Cl. 200-328.000.

Vigouret, Jean-Marie, to Sandoz Ltd. Organic compounds. 4,277,481, Cl. 424-261.000.

Vineland Laboratories, Inc.: *See—*
Yiournas, Costas, 4,276,879, Cl. 128-218.00A.

Vinson, Marshall: *See—*
Sobota, Valentine M.; and Vinson, Marshall, 4,277,819, Cl. 362-80.000.

Virginia Chemicals Inc.: *See—*
Gupton, B. Frank; and Ulmer, Harry E., 4,277,620, Cl. 562-609.000.

Vitale, Alexander F.: *See—*
Howard, Robert; Robinson, Prentice; and Vitale, Alexander F., 4,277,189, Cl. 400-320.000.

Vobel, Wilhelm: *See—*
Stuwe, Botho; and Vobel, Wilhelm, 4,277,115, Cl. 308-26.000.

Voege, Herbert: *See—*
Dorn, Hubert; and Voege, Herbert, 4,277,467, Cl. 424-217.000.

Voest-Alpine Aktiengesellschaft: *See—*
Haslmayr, Johann, 4,277,235, Cl. 432-18.000.

Vogel, Ignaz. Vehicle seat support. 4,277,101, Cl. 297-232.000.

Voigt, Armin: *See—*
Jager, Gerhard; von Konig, Anita; Liebe, Werner; and Voigt, Armin, 4,277,557, Cl. 430-446.000.

Voith Getriebe KG: *See—*
Herrmann, Berthold; and Lindenthal, Hans, 4,276,970, Cl. 188-296.000.

Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, to BASF Aktiengesellschaft. Isolation of a conjugated diolefin from a C_4- or C_5-hydrocarbon mixture. 4,277,315, Cl. 203-51.000.

Volkamer, Klaus: *See—*
Lindner, Alfred; Volkamer, Klaus; and Wagner, Ulrich, 4,277,314, Cl. 203-50.000.

Von ROLL AG: *See—*
Zeltner, Erich, 4,276,835, Cl. 110-342.000.

von Konig, Anita: *See—*
Jager, Gerhard; von Konig, Anita; Liebe, Werner; and Voigt, Armin, 4,277,557, Cl. 430-446.000.

von Renteln, Adrian: *See—*
Jorendal, Gunnar; and von Renteln, Adrian, 4,277,770, Cl. 336-60.000.

Vopel, Karl-Heinz: *See—*
Berendes, Otto; and Vopel, Karl-Heinz, 4,277,459, Cl. 423-567.00A.

Voss, Peter, to Siemens Aktiengesellschaft. Method of restoring Si crystal lattice order after neutron irradiation. 4,277,307, Cl. 176-10.000.

Voss, Richard J., to General Motors Corporation. Generator voltage regulator. 4,277,738, Cl. 322-28.000.

Vroomen, Laurentius C. J.: *See—*
Hasker, Jan; Vervest, Johannes C. G.; Peters, Cornelis; and Vroomen, Laurentius C. J., 4,277,713, Cl. 313-203.000.

VTI, Inc.: *See—*
Silva, Robert M.; and Orazio, Fred D., Jr., 4,277,761, Cl. 331-94.50T.

W. Schlafhorst and Co.: *See—*
Rasch, Hans; and Greckach, Hans, 4,276,742, Cl. 57-263.000.

W. & T. Avery Limited: *See—*
Ferguson, Andrew C., 4,276,772, Cl. 73-862.620.

Wada, Hisayuki: *See—*
Enomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Wada, Kenichi; Murasaki, Hiroshi; Enoguchi, Yuji; and Fujiwara, Takao, to Minolta Camera Kabushiki Kaisha. Photocopying machine equipped with variable magnification arrangement. 4,277,165, Cl. 355-55.000.

Wada, Shinzi; Kitao, Ikuo; Kato, Yasuo; and Ishihara, Taketoshi, to Tokyo Kogaku Kikai Kabushiki Kaisha. Eye refractmeter. 4,277,150, Cl. 351-13.000.

Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, to Hitachi, Ltd.; and Trio Kabushiki Kaisha. Monostable multivibrator circuit with clamped non-saturating common emitter amplifier in feedback path. 4,277,703, Cl. 307-553.000.

Waddington, Clive, to Avco Corporation. Stepless, variable stroke drive having a non-rotating cam. 4,276,784, Cl. 74-336.00R.

Wagdy, Mohamed K.: *See—*
Stahly, Daniel C.; Scott, William H.; and Wagdy, Mohamed K., 4,277,181, Cl. 366-69.000.

Wagener, Klaus: *See—*
Heitkamp, Dieter; and Wagener, Klaus, 4,277,345, Cl. 210-679.000.

Wagner, Ulrich: *See—*
Lindner, Alfred; Volkamer, Klaus; and Wagner, Ulrich, 4,277,314, Cl. 203-50.000.
Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, 4,277,315, Cl. 203-51.000.

Wahl, Edward F., III; and Boucher, Frederic B., to Occidental Petroleum Corporation. Recovery of energy from geothermal brine and other hot water sources. 4,276,748, Cl. 60-641.00D.

Wahle, Gunter; and Heitmann, Uwe, to Hauni-Werke Korber & Co Kg. Method and apparatus for testing cigarettes or the like. 4,277,678, Cl. 250-223.00R.

Waitkus, Phillip A.; and Lepeska, Bohumir, to Plastics Engineering Company. Oxirane polyimide copolymers. 4,277,583, Cl. 525-423.000.

Wakabayashi, Ataru; and Masuhara, Isao, to Chiyoda Chemical Engineering & Construction Co., Ltd. Wet process for the desulfurization of exhaust gas. 4,277,451, Cl. 423-243.000.

Wakeman, William R.; Van Malderghem, Edmund G.; and Greulich, Kenneth R., to Moore Business Forms. Envelope assembly. 4,277,016, Cl. 229-69.000.

Waldron, Wesley K., to General Electric Company. Multi-electrode liquid crystal displays. 4,277,786, Cl. 340-765.000.

Walker, Benjamin M., to Sentinel Foam Products Incorporated. Fire-retardant foam. 4,277,569, Cl. 521-92.000.

Walker, Keith A. M., to Syntex (U.S.A.) Inc. 1-[(Substituted-naphthyl-)ethyl]-imidazole derivatives. 4,277,486, Cl. 424-273.00R.

Walker, Wellington E., to Union Carbide Corporation. Process for the selective homologation of methanol to ethanol. 4,277,634, Cl. 568-902.000.

Walkowiak, Michael: *See—*
Podszun, Wolfgang; Suling, Carlhans; Walkowiak, Michael; and Schulz, Hans H., 4,277,536, Cl. 428-402.000.

Wallace, Duane W., to Reed Tool Company. Hard surfacing for oil well tools. 4,277,108, Cl. 308-4.00A.

Wallis, Craig: *See—*
Melnick, Joseph L.; and Wallis, Craig, 4,277,250, Cl. 23-230.00B.

Walls, Robert R.: *See—*
Schillke, Peter; and Walls, Robert R., 4,277,518, Cl. 427-96.000.

Walser, Reimund A.: *See—*
Holan, George; and Walser, Reimund A., 4,277,490, Cl. 424-282.000.

Walter, Karl H.; Johnston, John D.; and Wetherley, Dennis, to Adelaide & Wallaroo Fertilizers Ltd. Granulating an aqueous dispersion of ammonium and potassium salts. 4,277,253, Cl. 23-313.00R.

Walters, Kenneth I. Enclosure doors. 4,276,919, Cl. 160-206.000.

Walther, Ronald G.: *See—*
Brown, David J.; Walther, Ronald G.; Williams, Thomas W.; and Wrigglesworth, Michael D., 4,277,699, Cl. 307-272.00R.

Wanner, Karl; Lehmann, Werner; and Ranger, Ulrich, to Robert Bosch GmbH. Hand-held power tool. 4,276,941, Cl. 173-117.000.

Ward, Bobby N., Sr. Mud return line connector apparatus. 4,276,945, Cl. 175-209.000.

Ward, William H., Jr. Non-linear predistortion linearizing circuit for a varactor diode tuned oscillator. 4,277,763, Cl. 331-96.000.

Warford, Milan L.: *See—*
Kumins, Charles A.; and Warford, Milan L., 4,277,533, Cl. 428-332.000.

Warnant, Julien; and Jolly, Jean, to Roussel Uclaf. Preparation of 9α-fluoro-16α-methyl-21-acetoxy-$\Delta^{1,4}$-pregnadiene-11β-ol-3,20-dione. 4,277,409, Cl. 260-397.450.

Warner & Swasey Company, The: *See—*
Fournier, Roger H., 4,276,723, Cl. 51-238.00S.

Waschkuttis, Gerhard. Fuel-vaporizing system for internal-combustion engine and method of operating same. 4,276,864, Cl. 123-544.000.

Watanabe, Yoshiaki: *See—*
Taga, Genji; Oikawa, Teruo; and Watanabe, Yoshiaki, 4,277,457, Cl. 423-331.000.

Watanabe, Yukihiro: *See—*
Takada, Shigetaka; Naruse, Kazumichi; and Watanabe, Yukihiro, 4,276,745, Cl. 60-276.000.

Webb, David; and Mills, Anthony J., to Bush Boake Allen Limited. Perfume compositions containing dimethyl heptenonitriles. 4,277,377, Cl. 252-522.00R.

Webb, Paul D.; Kiefer, William J.; and Aumick, James M., to Ingersoll-Rand Company. Oil distributing means. 4,276,960, Cl. 184-6.220.

Webb, Paul P., to RCA Corporation. Photodiode having enhanced long wavelength response. 4,277,793, Cl. 357-30.000.

Weber, Franz K.; and Reed, Martin R. Knockdown shade assembly for lighting fixture. 4,277,822, Cl. 362-352.000.

Weber, Helmut E.: *See—*
Hart, W. Howard; and Weber, Helmut E., 4,277,131, Cl. 350-63.000.

Weber, John G.; and Chia, E. Henry, to Southwire Company. Continuous filter for molten copper. 4,277,281, Cl. 75-93.00R.

Weber, Max, to Sulzer Brothers Limited. Tube nest for a heat exchanger. 4,276,930, Cl. 165-172.000.

Webinger, George, to Champion International Corporation. Air freshener. 4,277,014, Cl. 229-11.000.

Wehrli, Rudolf: *See—*
Farooq, Saleem; Ackermann, Peter; Drabek, Jozef; Gsell, Laurenz; Kristiansen, Odd; and Wehrli, Rudolf, 4,277,494, Cl. 424-305.000.

Weik, Kirby B., to Koehler-Dayton, Inc. Locking assembly for aircraft seat. 4,277,043, Cl. 248-503.100.

Weik, Kirby B., to Koehler-Dayton, Inc. Aircraft seat with pelvic pad. 4,277,103, Cl. 297-457.000.

Weisz, William, to Singer Company, The. Stitch length and feed reversing control for a sewing machine. 4,276,841, Cl. 112-317.000.

Weitz, Hans-Martin: *See—*
Volkamer, Klaus; Broellos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Juergen, 4,277,315, Cl. 203-51.000.

Welch, Melvin B.: *See—*
McDaniel, Max P.; and Welch, Melvin B., 4,277,587, Cl. 526-106.000.

Welch, Willard M., Jr., to Pfizer Inc. 5-(4-Fluorophenyl)tetrahydro-2-furanol. 4,277,404, Cl. 260-347.800.

Wellons, Edwin L.: *See—*
Hurt, Frank K.; and Wellons, Edwin L., 4,276,981, Cl. 198-866.000.

Weresch, Thomas. Apparatus for cutting to length the connecting wires of electrical components. 4,276,796, Cl. 83-167.000.

Wesch, William E., Jr. Hydrostatic testing apparatus. 4,276,771, Cl. 73-49.800.

Wesenberg, Kenneth L.: *See—*
Mahle, Howard C.; and Wesenberg, Kenneth L., 4,277,214, Cl. 414-139.000.

Western Electric Company, Inc.: *See—*
Piper, George F.; Vesperman, William C.; and Wilson, Max K., 4,277,642, Cl. 174-117.00F.
Sams, Terry L., 4,277,646, Cl. 179-2.0DP.

Western Publishing Company: *See—*
Staehle, Dale O., 4,277,133, Cl. 350-90.000.

Westinghouse Electric Corp.: *See—*
Dent, Thomas H.; Jordan, Diane E.; King, William E.; and Rieger, Frank W., 4,276,856, Cl. 122-382.000.
Johnson, Frederick O., 4,277,825, Cl. 363-87.000.
Maier, Alfred E.; and Ricci, Louis N., 4,277,664, Cl. 200-293.000.
McNab, Ian R.; and Reichner, Philip, 4,277,708, Cl. 310-228.000.
Munson, William A., 4,277,733, Cl. 318-732.000.
Riggins, Oral L., 4,277,719, Cl. 313-325.000.
Skroupa, James D., 4,277,815, Cl. 361-383.000.

Weston, David, to Reynolds Metals Company. Removal of iron and titanium minerals from aluminum bearing materials by chlorination and beneficiation. 4,277,446, Cl. 423-136.000.

Wetherley, Dennis: *See—*
Walter, Karl H.; Johnston, John D.; and Wetherley, Dennis, 4,277,253, Cl. 23-313.00R.

Wetzelsberger, Nikolaus: *See—*
Lucker, Peter W.; and Wetzelsberger, Nikolaus, 4,277,461, Cl. 424-44.000.

Weyman, Henry W. Pneumatic cylinder assemblies. 4,276,813, Cl. 92-12.000.

Wheelabrator Corporation of Canada Limited: *See—*
Dick, Gordon A., 4,277,266, Cl. 55-381.000.

White, William D. Golf game and method for playing the same. 4,277,065, Cl. 273-245.000.

Whitear, Brian R. D., to Ciba-Geigy AG. Magenta-masked color azopyrazolinone couplers. 4,277,398, Cl. 260-162.000.

Whitehead, Michael J.: *See—*
Garner, Robert; and Whitehead, Michael J., 4,277,400, Cl. 260-326.13B.

Whitlock, Ben H. Rifle baton. 4,276,807, Cl. 89-37.0BA.

Whittington, Lawrence E.: *See—*
Allison, Jean B.; Kudchadker, Mohan V.; and Whittington, Lawrence E., 4,277,352, Cl. 252-8.55D.
Kudchadker, Mohan V.; Kalfoglou, George; and Whittington, Lawrence E., 4,276,933, Cl. 166-266.000.

Wicklund, Peter A.; and Ivers, John T., to Frito-Lay, Inc. Process of making potato chips. 4,277,510, Cl. 426-441.000.

Wiechert, Rudolf: *See—*
Hofmeister, Helmut; Wiechert, Rudolf; Annen, Klaus; Laurent, Henry; and Steinbeck, Hermann, 4,277,468, Cl. 424-243.000.

Wieland, Dieter; and Meinert, Hartnut. Apparatus for determining the carbon dioxide content of a liquid, especially a beverage. 4,276,769, Cl. 73-19.000.

Wiesmann, Thomas W.: *See—*
Schotz, Larry A.; and Wiesmann, Thomas W., 4,277,785, Cl. 340-753.000.

Wilber, James A.; and Yorkanis, Bernard J., to RCA Corporation. Amplifier having dead zone of controllable width and position. 4,277,695, Cl. 307-542.000.

Wiley, Frederick R. Combined load cover and unloader. 4,277,220, Cl. 414-539.000.

Wilhelm, Keith A.: *See—*
Mershon, Butler A.; and Wilhelm, Keith A., 4,276,762, Cl. 72-13.000.

Williams, Roy C.; and Rogemoser, David R., to Textron, Inc. Water-dispersible urethane polymers and aqueous polymer dispersions. 4,277,380, Cl. 260-18.0TN.

Williams, Thomas A.; and Cussons, Frank M., to Albright & Wilson Limited. Process for purifying phosphoric acid. 4,277,455, Cl. 423-321.00S.

Williams, Thomas W.: *See—*
Brown, David J.; Walther, Ronald G.; Williams, Thomas W.; and Wrigglesworth, Michael D., 4,277,699, Cl. 307-272.00R.

Williams, W. Ray: *See—*
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,277,831, Cl. 364-481.000.

Wills, Henry K.: *See—*
Kutnyak, Thomas A.; Koerber, Marvin A.; and Wills, Henry K., 4,277,640, Cl. 174-47.000.

Wilmer, Eugene A.: *See—*
Kaminski, Stanley; Mansolillo, Robert D.; and Wilmer, Eugene A., 4,277,427, Cl. 264-45.500.

Wilson, Harold R.: *See—*
Haworth, Richard G.; Wilson, Harold R.; and Tillmann, Ditmar K., 4,277,123, Cl. 339-22.00R.

Wilson, Max K.: *See—*
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Wilson Trailer Company: *See—*
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Winans, Esther D.: *See—*
Brois, Stanley J.; Ryer, Jack; and Winans, Esther D., 4,277,354, Cl. 252-51.50R.
Deen, Harold E.; O'Halloran, Rosemary; Winans, Esther D.; Ryer, Jack; and Brois, Stanley J., 4,277,353, Cl. 252-51.50R.

Winkler, Wolfgang: *See—*
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Winsford Products, Inc.: *See—*
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Winthaegen, Leon M. W.: *See—*
van Boven, Petrus L. M.; and Winthaegen, Leon M. W., 4,277,166, Cl. 355-67.000.

Wirtz, Arthur T. Method and apparatus for truing a metal wheel, especially of a railroad locomotive or other rolling stock. 4,276,793, Cl. 82-1.00C.

Wisconsin Alumni Research Foundation: *See—*
Madsen, Ernest L.; Zagzebski, James A.; Banjavic, Richard A.; and Burlew, Michele M., 4,277,367, Cl. 252-408.000.

Wise, William F.; and Snyder, Jesse E., Jr., to Schramm, Inc. Water treatment discharge means. 4,277,341, Cl. 210-602.000.

Wiseman, Jeffrey S.: *See—*
Bey, Philippe; Metcalf, Brian W.; and Wiseman, Jeffrey S., 4,277,395, Cl. 260-112.50R.

Witmer, Theodore B., to Bickley Manufacturing Company. Sorting apparatus. 4,276,983, Cl. 209-587.000.

Wittmann, Heinz: *See—*
Himmetsberger, Alois; and Wittmann, Heinz, 4,277,083, Cl. 280-618.000.

Wodok, Hans: *See—*
Schrott, Werner G.; and Wodok, Hans, 4,277,135, Cl. 350-96.210.

Woinowski, Willis E., to Vesta, Inc. Method for extruding catheter tubing. 4,277,432, Cl. 264-173.000.

Wolters, Ernst: *See—*
Burg, Karlheinz; Schmieder, Werner; and Wolters, Ernst, 4,277,577, Cl. 525-154.000.

Woltersdorf, Otto W.; and Cragoe, Edward J., Jr., to Merck & Co., Inc. 3-Amino-5-substituted-6-halo-N-(3,4-dihydro-6-substituted-1,3,5-truazin-2-yl)2-pyrazinecarboxamides. 4,277,602, Cl. 544-207.000.

Wolvek, Sidney; and Hanson, Bruce L., to Datascope Corp. Elongatable balloon catheter. 4,276,874, Cl. 128-1.00D.

Wong, Thomas Y., to General Electric Company. Fluid flow control system. 4,277,832, Cl. 364-510.000.

Woodman, Trevor P. Paint composition for the spectrally selective coating of metal surfaces, method of producing coatings therewith and an article produced thereby. 4,277,537, Cl. 428-409.000.

World Medical Marketing Corporation: *See—*
Hofstein, Steven R., 4,276,887, Cl. 128-691.000.

Worthington, Paul A.; Rathmell, William G.; and Skidmore, Anthony M., to Imperial Chemical Industries Limited. Heterocyclic triazole compounds, processes for their preparation, pesticidal compositions containing them, and methods of combating pests. 4,277,469, Cl. 424-245.000.

Wouda, Hermanus A. J., to D.E.J. International Research Company B.V. Process for extracting ground roasted coffee. 4,277,509, Cl. 426-387.000.

Wrigglesworth, Michael D.: *See—*
Brown, David J.; Walther, Ronald G.; Williams, Thomas W.; and Wrigglesworth, Michael D., 4,277,699, Cl. 307-272.00R.

Wright, Douglas C.; and Roberts, Sidney N., to Inheed Pty. Ltd. Spiral separators. 4,277,330, Cl. 209-459.000.

Wuertz, Kenneth L.: *See—*
Silver, Alexander; and Wuertz, Kenneth L., 4,277,707, Cl. 310-104.000.

Wuerzer, Bruno: *See—*
Eicken, Karl; and Wuerzer, Bruno, 4,277,278, Cl. 71-92.000.

Wunderer, Armin: *See—*
Hesky, Hans; and Wunderer, Armin, 4,277,256, Cl. 55-66.000.

WWG Industries, Inc.: *See—*
Chambley, Phillip W.; and Norris, Alan H., 4,276,740, Cl. 57-205.000.

Xerox Corporation: *See—*
Scifres, Donald R.; Streifer, William; and Burnham, Robert D., 4,277,762, Cl. 331-94.50H.

Yabumoto, Toshiaki: *See—*
Fujiwara, Kunihiko; Osawa, Kazuya; Takeda, Yoshiteru; and Yabumoto, Toshiaki, 4,277,572, Cl. 525-61.000.

Yahl, Kenneth R., to CPC International Inc. Extraction of oil from vegetable materials. 4,277,411, Cl. 260-412.400.

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Kikuchi, Shoji; Yajima, Toshio; Kishi, Kenichi; Sasaki, Takashi; Mori, Keiichi; and Sato, Haruhiko, 4,277,558, Cl. 430-542.000.

Yamabe, Masaaki: *See—*
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Ukihashi, Hiroshi; Yamabe, Masaaki; and Kojima, Hiroaki, 4,277,586, Cl. 526-93.000.

Yamada Co., Ltd.: *See—*
Yamada, Junji, 4,276,666, Cl. 5-481.000.

Yamada, Junji, to Yamada Co., Ltd. Mattress. 4,276,666, Cl. 5-481.000.

Yamada, Takashi: *See—*
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Yamada, Tsuneo: *See—*
Wada, Takeshi; Ienaka, Masanori; Miyamoto, Yukihiko; and Yamada, Tsuneo, 4,277,703, Cl. 307-553.000.

Yamada, Yoshihiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrostatic printer. 4,277,160, Cl. 355-3.00R.

Yamaguchi, Tetsuo; and Kashiwara, Tomokazu, to Sumitomo Rubber Industries, Ltd. Cushioning fender. 4,277,055, Cl. 267-140.000.

Yamaha Hatsukoki Kabushiki Kaisha: *See—*
Matsumoto, Hiromitsu, 4,276,862, Cl. 123-432.000.

Yamakyu Automatics Co., Ltd.: *See—*
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Yamamoto, Masahiko; and Nishino, Yoshinori, to Hitachi Shipbuilding & Engineering Company Limited. Cask bagging device. 4,277,688, Cl. 250-506.000.

Yamamoto, Takaharu: *See—*
Tobioka, Masaaki; Kodama, Mitsuo; Asai, Tsuyoshi; and Yamamoto, Takaharu, 4,277,283, Cl. 75-238.000.

Yamamoto, Takashi: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Yamamoto, Takeshi: *See—*
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Yamamoto, Tatsuo: *See—*
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Yamanaka, Minoru; and Tamura, Tooru, to Aisin Seiki Kabushiki Kaisha. Compound valve device. 4,276,746, Cl. 60-290.000.

Yamanobe, Kouji: *See—*
Kasahara, Nobuo; and Yamanobe, Kouji, 4,277,162, Cl. 355-14.00R.

Yanaka, Mikiro: *See*—
Eaomoto, Satoru; Wada, Hisayuki; Nishita, Sadao; Mukaida, Yutaka; Yanaka, Mikiro; and Takita, Hitoshi, 4,277,633, Cl. 568-879.000.

Yano, Takashi: *See*—
Ikesue, Masumi; Yano, Takashi; Tatsumi, Susumu; Idenawa, Hiroyuki; Nakamura, Isao; and Tani, Tatsuo, 4,277,163, Cl. 355-14.00R.

Yantovsky, Semen A.: *See*—
Klimenko, Alexandr S.; Emelyanov, Igor V.; Krylov, Anatoly A.; and Yantovsky, Semen A., 4,276,938, Cl. 169-47.000.

Yasuda, Eturo; and Ohta, Minoru, to Nippon Soken, Inc. Gas component detector. 4,277,439, Cl. 422-94.000.

Yates, Robert E.; Leonard, John P.; Alongi, Robert E.; Albanes, Wilfredo V.; and Bishop, Charles M., to United States of America, Army. Trajectory shaping of anti-armor missiles via tri-mode guidance. 4,277,038, Cl. 244-3.150.

Yavnieli, Mordechai: *See*—
Zeldov, Meir; and Yavnieli, Mordechai, 4,276,712, Cl. 43-112.000.

Yerusavage, Joseph A. Pedal actuated musical chord system. 4,276,801, Cl. 84-1.010.

Yiournas, Costas, to Vineland Laboratories, Inc. Automatic injection apparatus. 4,276,879, Cl. 128-218.00A.

Yokokawa, Sumio: *See*—
Nakagaki, Shintaro; Takanashi, Itsuo; Motoyama, Koichiro; Miyoshi, Tadayoshi; Yokokawa, Sumio; and Miyazaki, Kenichi, 4,277,800, Cl. 358-44.000.

Yoneda, Rikizo. Pressing device for a hose coupler. 4,276,765, Cl. 72-402.000.

York, Norman N. Attachment for firearms. 4,276,808, Cl. 89-136.000.

Yorkanis, Bernard J.: *See*—
Wilber, James A.; and Yorkanis, Bernard J., 4,277,695, Cl. 307-542.000.

Yoshibayashi, Shigeru: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; Noguchi, Kenzo; and Kishikawa, Shinobu, 4,276,782, Cl. 73-650.000.

Yoshida, Hajime, to Hajime Industries, Ltd. Defect inspection system. 4,277,802, Cl. 358-106.000.

Yoshimoto, Takeo; Igarashi, Keiichi; Oda, Kengo; Ura, Masaaki; and Sato, Naoki, to Mitsui Toatsu Chemicals, Inc. Process for preparing diphenyl ethers. 4,277,624, Cl. 568-44.000.

Yoshimura, Isao; Hata, Hideo; and Kaneko, Takashi, to Asahi-Dow Limited. Composition for drawn film, cold drawn film made of said composition and process for manufacture of said film. 4,277,578, Cl. 525-211.000.

Yoshino Kogyosho Co., Ltd.: *See*—
Nozawa, Takamitsu, 4,277,001, Cl. 222-321.000.
Tsukada, Takami; Akutsu, Masao; and Saito, Tadao, 4,276,986, Cl. 215-1.00C.

Yoshino, Tsutomu: *See*—
Asada, Touru; Miura, Yasuhisa; and Yoshino, Tsutomu, 4,277,622, Cl. 564-512.000.

Young, Roger W.: *See*—
Landskroener, Peter A.; Dusenbery, John F.; and Young, Roger W., 4,277,010, Cl. 226-95.000.

Young, Victor. Plug device for drainpipe of basin or bathtub. 4,276,662, Cl. 4-295.000.

Yunker, Michael P.; and Barclay, David K. Aquaculture pond and harvester. 4,276,710, Cl. 43-4.000.

Yurcik, Raymond H., Jr.: *See*—
Hittel, Lorenz A.; and Yurcik, Raymond H., Jr., 4,277,732, Cl. 318-696.000.

Zabik, Alexander J.; and Fisher, Stephen G., to Medrex Ltd. X-ray microfilm reader. 4,277,153, Cl. 353-27.00R.

Zagzebski, James A.: *See*—
Madsen, Ernest L.; Zagzebski, James A.; Banjavic, Richard A.; and Burlew, Michele M., 4,277,367, Cl. 252-408.000.

Zahn, Markus: *See*—
Grimes, Patrick G.; and Zahn, Markus, 4,277,317, Cl. 204-1.00R.

Zahner, Hans; Drautz, Hannelore; and Keller, Walter, to Ciba-Geigy Corporation. Antibiotic and use thereof. 4,277,478, Cl. 424-258.000.

Zander, Werner: *See*—
Gref, Hans; Hofmann, Hans; Zander, Werner; and Busch, Josef, 4,276,853, Cl. 118-643.000.

Zanetta, Hugues, to Creusot-Loire; and Sprunck, Emile. Multiflow refining blastpipes for equipping converters for refining. 4,277,054, Cl. 266-268.000.

Zawodny, Arthur, to Keystone Camera Corporation. Camera. 4,277,158, Cl. 354-197.000.

Zbriger, Michael J.; and Passamenti, Anthony, to Aurora Products Canada, Ltd. Periodically swerving toy vehicle. 4,276,717, Cl. 46-262.000.

Zdansky, Ewald, to Hoval Interliz AG. Deposit filtering apparatus for filtering turbid liquids. 4,277,337, Cl. 210-173.000.

Zeldov, Meir; and Yavnieli, Mordechai, to Amcor, Ltd. Insect electrocution apparatus. 4,276,712, Cl. 43-112.000.

Zeltner, Erich, to Von ROLL AG. method for processing sewage sludge. 4,276,835, Cl. 110-342.000.

Zeuner, Kenneth W.; and Jarman, Alonzo B., to Control Concepts, Inc. Programmed valve system used for positioning control. 4,276,810, Cl. 91-449.000.

Zeuner, Kenneth W.; and Jarman, Alonzo B., to Control Concepts, Inc. Closed center programmed valve system with load sense. 4,276,811, Cl. 91-449.000.

Ziegler, Bodo: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; and Ziegler, Bodo, 4,277,323, Cl. 204-195.00S.

Zijlstra, Kornelis N., to Shell Oil Company. Deviation device. 4,276,942, Cl. 175-21.000.

Zilian, Dietrich: *See*—
Stahlecker, Fritz; and Zilian, Dietrich, 4,276,741, Cl. 57-263.000.

Zill, Karl: *See*—
Ruber, Klaus; and Zill, Karl, 4,276,682, Cl. 28-289.000.

Zimmerman, Dennis M.; and Robey, Roger L., to Eli Lilly and Company. Method of preparing 4a-arylhexahydro-1H-2-pyrindines and 4a-aryloctahydroisoquinolines. 4,277,608, Cl. 546-339.000.

Zimont, Leonard J.: *See*—
Sato, Kunito; Miller, Alfred F.; and Zimont, Leonard J., 4,277,508, Cl. 426-266.000.

Zinnai, Sadazi, to Tokyo Koso Kabushiki Kaisha. Metallic sealing device for valve. 4,277,047, Cl. 251-362.000.

Zochbauer, Heinz: *See*—
Czepel, Hubert; Jilek, Franz; and Zochbauer, Heinz, 4,277,532, Cl. 428-244.000.

Zurek, Donald: *See*—
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,277,831, Cl. 364-481.000.

zur Nieden, Achim: *See*—
Streicher, Kurt; and zur Nieden, Achim, 4,276,859, Cl. 123-196.00R.

Zysman, Alexandre: *See*—
Vanlerberghe, Guy; Sebag, Henri; Grollier, Jean-Francois; and Zysman, Alexandre, 4,277,581, Cl. 525-420.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF JULY, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, to Carl Zeiss-Stiftung. Binocular telescope. Re. 30,665, Cl. 350-76.000.

Applied Science Research Institute: *See*—
Watanabe, Nobuatsu; and Kita, Yasushi, Re. 30,667, Cl. 252-1.000.

Buonomo, Franco; Fattore, Vittorio; and Notari, Bruno, to Snamprogetti, S.p.A. Process for preparing materials having improved mechanical and thermal properties and materials obtained thereby. Re. 30,668, Cl. 252-455.00R.

Carl Zeiss-Stiftung: *See*—
Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, Re. 30,665, Cl. 350-76.000.

Day, Edward J.: *See*—
Mitchell, James A. H.; and Day, Edward J., Re. 30,666, Cl. 434-307.000.

Donn, Volker: *See*—
Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, Re. 30,665, Cl. 350-76.000.

Ezumi, Yuh; Kobayashi, Masaharu; Kubota, Takashi; and Shimokawa, Yoichi, to Toray Industries, Inc. Dry planographic printing plate. Re. 30,670, Cl. 430-281.000.

Fattore, Vittorio: *See*—
Buonomo, Franco; Fattore, Vittorio; and Notari, Bruno, Re. 30,668, Cl. 252-455.00R.

Feldman, Louis, to Gist-Brocades N.V. Microbial rennin. Re. 30,669, Cl. 426-36.000.

Gist-Brocades N.V.: *See*—
Feldman, Louis, Re. 30,669, Cl. 426-36.000.

Hornschu, Joachim: *See*—
Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, Re. 30,665, Cl. 350-76.000.

Jachan, Walter: *See*—
Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, Re. 30,665, Cl. 350-76.000.

Jung, Artur: *See*—
Altenheiner, Erwin; Donn, Volker; Hornschu, Joachim; Jachan, Walter; and Jung, Artur, Re. 30,665, Cl. 350-76.000.

Kita, Yasushi: *See*—
Watanabe, Nobuatsu; and Kita, Yasushi, Re. 30,667, Cl. 252-1.000.

Kobayashi, Masaharu: *See*—
Ezumi, Yuh; Kobayashi, Masaharu; Kubota, Takashi; and Shimokawa, Yoichi, Re. 30,670, Cl. 430-281.000.

Kubota, Takashi: *See*—
Ezumi, Yuh; Kobayashi, Massharu; Kubota, Takashi; and Shimokawa, Yoichi, Re. 30,670, Cl. 430-281.000.

McKee, Donald S.: *See*—
Upton, Albert E.; and McKee, Donald S., Re. 30,664, Cl. 160-66.000.

Mitchell Beazley Encyclopedias, Ltd.: *See*—
Mitchell, James A. H.; and Day, Edward J., Re. 30,666, Cl. 434-307.000.

Mitchell, James A. H.; and Day, Edward J., to Mitchell Beazley Encyclopedias, Ltd. Audio visual information system. Re. 30,666, Cl. 434-307.000.

Notari, Bruno: *See*—
Buonomo, Franco; Fattore, Vittorio; and Notari, Bruno, Re. 30,668, Cl. 252-455.00R.

Poland, Sydney W., to Texas Instruments Incorporated. Microprocessor system having high order capability. Re. 30,671, Cl. 364-706.000.

Scott & Fetzer Company, The: *See*—
Upton, Albert E.; and McKee, Donald S., Re. 30,664, Cl. 160-66.000.

Shimokawa, Yoichi: *See*—
Ezumi, Yuh; Kobayashi, Masaharu; Kubota, Takashi; and Shimokawa, Yoichi, Re. 30,670, Cl. 430-281.000.

Snamprogetti, S.p.A.: *See*—
Buonomo, Franco; Fattore, Vittorio; and Notari, Bruno, Re. 30,668, Cl. 252-455.00R.

Texas Instruments Incorporated: *See*—
Poland, Sydney W., Re. 30,671, Cl. 364-706.000.

Toray Industries, Inc.: *See*—
Ezumi, Yuh; Kobayashi, Masaharu; Kubota, Takashi; and Shimokawa, Yoichi, Re. 30,670, Cl. 430-281.000.

Upton, Albert E.; and McKee, Donald S., to Scott & Fetzer Company, The. Retractable awning. Re. 30,664, Cl. 160-66.000.

Watanabe, Nobuatsu; and Kita, Yasushi, to Watanabe, Nobuatsu; and Applied Science Research Institute. Poly-dicarbon monofluoride. Re. 30,667, Cl. 252-1.000.

LIST OF DESIGN PATENTEES

Adamson, Gerald J.: *See*—
Lucas, Harry W.; and Adamson, Gerald J., 259,760, Cl. D7-77.000.

Airfix Plastics Limited: *See*—
Williams, Christopher, 259,759, Cl. D7-47.000.

Albinson, Don C., to Collier-Keyworth Company. Furniture base. 259,756, 7-7-81, Cl. D6-196.000.

Allibert Exploitation Societe Anonyme: *See*—
Cornou, Jean, 259,819, Cl. D99-44.000.

AMF Incorporated: *See*—
Davidson, William G., 259,780, Cl. D12-158.000.

Banasiak, Joseph G., Jr., to North American Philips Corporation. Packaging container or similar article. 259,768, 7-7-81, Cl. D9-414.000.

Beavis, Graham. Plastic crate. 259,818, 7-7-81, Cl. D99-44.000.

Bond, Robert L. Cart. 259,779, 7-7-81, Cl. D12-29.000.

Bosch-Siemens Hausgerate GmbH: *See*—
Hentschel, Harry, 259,790, Cl. D15-112.000.

Brentham, Jerry D. Forearm exerciser. 259,799, 7-7-81, Cl. D21-195.000.

Buhk, Randall P., to Steelcase Inc. High back open arm chair. 259,750, 7-7-81, Cl. D6-31.000.

Capella, Inc.: *See*—
Ergaver, Rayko; and Ergaver, Nevenka, 259,815, Cl. D28-35.000.

Carre, Alain, to Waterman S.A. Ball-point pen. 259,793, 7-7-81, Cl. D19-51.000.

Clairol Incorporated: *See*—
Sledge, Larry C., 259,816, Cl. D28-35.000.

Coffin, Dennie L. Water ski-float. 259,803, 7-7-81, Cl. D21-228.000.

Coleman Company, Inc., The: *See*—
Lucas, Harry W.; and Adamson, Gerald J., 259,760, Cl. D7-77.000.

Collier-Keyworth Company: *See*—
Albinson, Don C., 259,756, Cl. D6-196.000.

Concept Engineering, Inc.: *See*—
Geschwender, Robert C., 259,752, Cl. D6-37.000.

Contico International, Inc.: *See*—
Dickinson, Thomas, 259,763, Cl. D7-194.000.

Cornou, Jean, to Allibert Exploitation Societe Anonyme. Tray. 259,819, 7-7-81, Cl. D99-44.000.

Countess York, Ltd.: *See*—
York, Alen S.; and York, Judd M., 259,745, Cl. D2-29.000.

Creative Playgrounds Corporation: *See*—
Dieter, Berthold B.; and Gibson, Charles L., 259,804, Cl. D21-245.000.

Criscitiello, Frank T., Jr. Plant container. 259,774, 7-7-81, Cl. D11-143.000.

Dahlgard, Karen L., to Standard Knitting Company. Sweater or similar article. 259,746, 7-7-81, Cl. D2-44.000.

Dallaire, Raymond. Window component extrusion. 259,810, 7-7-81, Cl. D25-74.000.

Davidson, William G., to AMF Incorporated. Motorcycle luggage carrier. 259,780, 7-7-81, Cl. D12-158.000.

Davis, Charles M., Jr. Machine for sorting and separating aluminum cans. 259,791, 7-7-81, Cl. D15-147.000.

Dickinson, Thomas, to Contico International, Inc. Waste receptacle. 259,763, 7-7-81, Cl. D7-194.000.

Dieter, Berthold B.; and Gibson, Charles L., to Creative Playgrounds Corporation. Playhouse climber. 259,804, 7-7-81, Cl. D21-245.000.

Downing, James R. Heliport floodlight. 259,813, 7-7-81, Cl. D26-24.000.

Eaton Corporation: *See*—
Williams, Jeffrey M., 259,802, Cl. D21-222.000.

Ehrreich, John E., to Ercon Corporation. Self-watering plant tray. 259,777, 7-7-81, Cl. D11-155.000.

Ercon Corporation: *See*—
Ehrreich, John E., 259,777, Cl. D11-155.000.

Ergaver, Nevenka: *See*—
Ergaver, Rayko; and Ergaver, Nevenka, 259,815, Cl. D28-35.000.
Ergaver, Rayko; and Ergaver, Nevenka, to Capella, Inc. Hair styler. 259,815, 7-7-81, Cl. D28-35.000.
Fleischmann, Gary A.; and Peabody, Lawrence C., to Kohler Co. Towel bar. 259,753, 7-7-81, Cl. D6-99.000.
Fleischmann, Gary A.; and Peabody, Lawrence C., to Kohler Co. Towel ring. 259,754, 7-7-81, Cl. D6-99.000.
Florists' Transworld Delivery Association: *See*—
Johnson, Donald K., 259,775, Cl. D11-148.000.
Waterfield, Martin J., 259,776, Cl. D11-153.000.
Fouhy, Richard J. Motorcycle hub lock. 259,764, 7-7-81, Cl. D8-331.000.
Fujimoto, Munenori: *See*—
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, 259,785, Cl. D14-5.000.
Furukawa, Masaaki; Onozaki, Noboru; Kondoh, Hideo; and Nishibayashi, Michiko, to Hitachi, Ltd. Video tape recorder. 259,784, 7-7-81, Cl. D14-02.000.
Gearhart, Le Mar M., II. Ball paddle or similar article. 259,800, 7-7-81, Cl. D21-213.000.
Geschwender, Robert C., to Concept Engineering, Inc. Leisure chair. 259,752, 7-7-81, Cl. D6-37.000.
Gibson, Charles L.: *See*—
Dieter, Berthold B.; and Gibson, Charles L., 259,804, Cl. D21-245.000.
Glaspec Corporation: *See*—
Smith, Warren D., 259,812, Cl. D25-80.000.
Guy, Richard. Extruded molding. 259,811, 7-7-81, Cl. D25-74.000.
Halla, David K. Stove. 259,808, 7-7-81, Cl. D23-97.000.
Harada, Toshio: *See*—
Yamamura, Masamichi; Harada, Toshio; and Takahashi, Hanji, 259,761, Cl. D7-128.000.
Hartung, Philip F. Bottle. 259,766, 7-7-81, Cl. D9-370.000.
Henkels, Walter. Combined desk set, pen holder and thermometer. 259,794, 7-7-81, Cl. D19-75.000.
Hentschel, Harry, to Bosch-Siemens Hausgerate GmbH. Beverage machine. 259,790, 7-7-81, Cl. D15-112.000.
Hitachi, Ltd.: *See*—
Furukawa, Masaaki; Onozaki, Noboru; Kondoh, Hideo; and Nishibayashi, Michiko, 259,784, Cl. D14-02.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,782, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,783, Cl. D13-99.000.
Holmes, Huntly S. Boat anchor. 259,781, 7-7-81, Cl. D12-215.000.
Hoshino, Kunio: *See*—
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, 259,785, Cl. D14-5.000.
Housman, Richard W. Combined vending cabinet and coin tray. 259,755, 7-7-81, Cl. D6-172.000.
Hudik, John: *See*—
Northrop, George S.; Hudik, John; and Schneider, Richard F., 259,769, Cl. D9-455.000.
Huntington, Donald. Bicycle safety flag. 259,772, 7-7-81, Cl. D10-109.000.
Ichikawa Press Industries Co., Ltd.: *See*—
Yabata, Hisao, 259,814, Cl. D26-28.000.
Igo, Toshio: *See*—
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, 259,785, Cl. D14-5.000.
Interdica, S.A.: *See*—
Perrin, Alain D., 259,757, Cl. D7-15.000.
Iseda, Takeshi: *See*—
Koga, Keisaku; and Iseda, Takeshi, 259,807, Cl. D23-2.000.
Itoh, Kunio; and Oka, Shigeo, to Pentel Kabushiki Kaisha. Marking pen or similar article. 259,792, 7-7-81, Cl. D19-51.000.
Jack Daniel Distillery, Lem Motlow, Prop., Inc.: *See*—
Redmond, Jobie G., 259,751, Cl. D6-32.000.
Johnson, Donald K., to Florists' Transworld Delivery Association. Planter. 259,775, 7-7-81, Cl. D11-148.000.
Kemper, Diane J. L. Plate hanger. 259,765, 7-7-81, Cl. D8-355.000.
Kimura, Kihachiro. Slug for a shotgun. 259,806, 7-7-81, Cl. D22-10.000.
Koga, Keisaku; and Iseda, Takeshi, to Sekisui Koji Kabushiki Kaisha. Storage tank for liquids or the like. 259,807, 7-7-81, Cl. D23-2.000.
Kohler Co.: *See*—
Fleischmann, Gary A.; and Peabody, Lawrence C., 259,753, Cl. D6-99.000.
Fleischmann, Gary A.; and Peabody, Lawrence C., 259,754, Cl. D6-99.000.
Kondoh, Hideo: *See*—
Furukawa, Masaaki; Onozaki, Noboru; Kondoh, Hideo; and Nishibayashi, Michiko, 259,784, Cl. D14-02.000.
Kosaka, Hideki: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,782, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,783, Cl. D13-99.000.
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, to Matsushita Electric Industrial Co., Ltd. Combined tape recorder and radio receiver. 259,785, 7-7-81, Cl. D14-5.000.
Lancellotti, Joseph J.; and Schwartz, Michel S. Transparent cover for a medical disinfectant housing or similar article. 259,809, 7-7-81, Cl. D24-29.000.
Leeson, Fred D.; Main, Henry A.; and Read, Clifford D., to Northern Telecom Limited. Conferencing telephone unit. 259,786, 7-7-81, Cl. D14-57.000.
Leutz, Robert E. Flexible holder for a dial test indicator. 259,770, 7-7-81, Cl. D10-74.000.
Longo, Angelo S., to Selchow & Righter Company. Electronic word game housing. 259,795, 7-7-81, Cl. D21-13.000.
Lucas, Harry W.; and Adamson, Gerald J., to Coleman Company, Inc., The. Cooler. 259,760, 7-7-81, Cl. D7-77.000.
MacFarlane, George W. Fuel container. 259,767, 7-7-81, Cl. D9-374.000.
MacLean, Charles A. Horseman figure. 259,778, 7-7-81, Cl. D11-159.000.
Main, Henry A.: *See*—
Leeson, Fred D.; Main, Henry A.; and Read, Clifford D., 259,786, Cl. D14-57.000.
Marquardt, Jo Anne. Coaster set. 259,758, 7-7-81, Cl. D7-45.000.
Matsushita Electric Industrial Co., Ltd.: *See*—
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, 259,785, Cl. D14-5.000.
Miyanaga, Setsuo; and Mishiro, Benito, 259,788, Cl. D14-73.000.
Yamamura, Masamichi; Harada, Toshio; and Takahashi, Hanji, 259,761, Cl. D7-128.000.
McDonald, Terry W. Traveler's multi-pocketed folded pouch or the like. 259,749, 7-7-81, Cl. D3-58.000.
Merchant, Gloria. Toy dump truck. 259,797, 7-7-81, Cl. D21-134.000.
Merchant, Gloria. Combined toy tractor, flatbed and logs therefore. 259,798, 7-7-81, Cl. D21-135.000.
Meyer, Milton. Game spinner. 259,796, 7-7-81, Cl. D21-22.000.
Mishiro, Benito: *See*—
Kushida, Keizo; Igo, Toshio; Fujimoto, Munenori; Hoshino, Kunio; Usami, Satoru; Takenaka, Kazumasa; Ohta, Kikuo; and Mishiro, Benito, 259,785, Cl. D14-5.000.
Miyanaga, Setsuo; and Mishiro, Benito, 259,788, Cl. D14-73.000.
Miyanaga, Setsuo; and Mishiro, Benito, to Matsushita Electric Industrial Co., Ltd. Clock radio. 259,788, 7-7-81, Cl. D14-73.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, to Hitachi, Ltd. Semiconductor. 259,782, 7-7-81, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, to Hitachi, Ltd. Semiconductor. 259,783, 7-7-81, Cl. D13-99.000.
Motorola, Inc.: *See*—
Nagele, Albert L., 259,787, Cl. D14-68.000.
Murakami, Gen: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,782, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,783, Cl. D13-99.000.
Nagele, Albert L., to Motorola, Inc. Vehicular two-way radio or similar article. 259,787, 7-7-81, Cl. D14-68.000.
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NOTE.—First number, class; second number, subclass; third number, patent number

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01 :	4,277,038		4,277,015		4,277,809	13 :	4,276,721		4,276,861		4,277,316
	4,277,045		4,277,041		4,277,822		4,276,740		4,276,983		4,277,642
	4,277,294		4,277,046		4,277,842		4,276,870		4,277,033		4,277,815
	4,277,424		4,277,107	08 :	4,276,872		4,277,011		4,277,078	25 :	4,276,697
	4,277,447		4,277,125		4,277,790		4,277,026		4,277,116		4,276,702
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	4,276,743		4,277,136	09 :	4,276,717		4,277,042		4,277,351		4,276,723
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	4,277,831		4,277,227		4,277,103	15 :	4,276,710		4,277,597		4,277,172
06 :	4,276,684		4,277,236		4,277,118	16 :	4,276,711		4,277,598		4,277,184
	4,276,691		4,277,249		4,277,154		4,277,215		4,277,599		4,277,259
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	4,276,704		4,277,320		4,277,271		4,276,687		4,277,691		4,277,338
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	4,276,886		4,277,655		4,276,957		4,277,292		4,276,719		4,276,694
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	4,276,890		4,277,694		4,277,067		4,277,364		4,277,059		4,276,724
	4,276,897		4,277,697		4,277,075		4,277,370		4,277,188		4,276,755
	4,276,902		4,277,702		4,277,076		4,277,411		4,277,217		4,276,757
	4,276,917		4,277,707		4,277,080		4,277,428	22 :	4,276,776		4,276,783
	4,276,934		4,277,718		4,277,095		4,277,504		4,276,931		4,276,799
	4,276,944		4,277,728		4,277,131		4,277,506		4,277,104		4,276,812
	4,276,953		4,277,736		4,277,134		4,277,511		4,277,243		4,276,867
	4,276,954		4,277,739		4,277,139		4,277,564		4,277,373		4,276,951
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	4,276,967		4,277,763		4,277,224		4,277,710		4,276,895		4,276,974
	4,276,975		4,277,768		4,277,423		4,277,727		4,276,915		4,277,009
	4,276,992		4,277,771		4,277,484		4,277,833		4,276,943		4,277,012
	4,277,006		4,277,782		4,277,764		4,277,841		4,277,017		4,277,037

	4,277,066		4,276,780		4,276,715		4,276,803		4,276,856		4,276,959
	4,277,084		4,276,800		4,276,720		4,276,809		4,276,908		4,277,051
	4,277,087		4,276,841		4,276,758		4,276,873		4,276,913		4,277,074
	4,277,092		4,276,879		4,276,807		4,276,880		4,276,919		4,277,091
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	4,277,147		4,276,984		4,276,898		4,276,971		4,277,093		4,277,127
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	259,764		259,787		259,765		259,769		259,771	55 :	259,753
	259,791		259,801		259,776		259,773	44 :	259,766		259,754
	259,800	18 :	259,804		259,778		259,795		259,797		259,772
	259,811		259,812	29 :	259,763		259,817		259,798		259,780
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DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

July 14, 1981 Volume 1008 Number 2

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,430,221, Re. S.N. 252,801, Filed Apr. 10, 1981, Cl. 307/125, Proximity Detector, Anthony Rene Barringer, et al., Owner of Record: *Barringer Research Ltd., Ontario, Canada,* Attorney or Agent: James P. Hume, et al., Ex. Gp.: 217

3,540,486, Re. S.N. 253,864, Filed Apr. 13, 1981, Cl. 138/109, HIGH PRESSURE HOSE, James M. Flounders, Owner of Record: *American Biltrite Rubber Co., Inc., Chelsea, Mass.,* Attorney or Agent: Joseph Weingarten, et al., Ex. Gp.: 243

3,590,623, Re. S.N. 239,181, Filed Apr. 3, 1981, Cl. 72/302, METHOD FOR REFORMING AND STRAIGHTENING MEMBERS, Wayne E. Hunnicutt, et al., Owner of Record: *Applied Power, Inc., Brookfield, Wis.,* Attorney or Agent: Fred Wiviott, et al., Ex. Gp.: 321

3,846,900, Re. S.N. 246,036, Filed Mar. 20, 1981, Cl. 29/413, METHOD OF APPLYING RETAINER RINGS FROM INTERCONNECTED RETAINER RING SUPPLY, David E. Weglage, Owner of Record: *Said Weglage Assor. of 50% to Walter Becker (deceased), Kettering, Ohio,* Attorney or Agent: Robert W. Becker, et al., Ex. Gp.: 321

3,996,702, Re. S.N. 245,081, Filed Mar. 18, 1981, Cl. 51/328, COATED ABRASIVE PRODUCT CONTAINING FUSED ZIRCONIA GRAINS AND METHOD FOR ABRADING IRON, Sidney M. Leahy, Owner of Record: *Minnesota Mining and Manufacturing Co., St. Paul, Minn.,* Attorney or Agent: Cruzan Alexander, et al., Ex. Gp.: 323

3,998,943, Re. S.N. 251,034, Filed Apr. 3, 1981, Cl. 424/12, DOUBLE RECEPTOR FLUORESCENT IMMUNOASSAY, Edwin F. Ullman, Owner of Record: *Syva Co., Palo Alto, Calif.,* Attorney or Agent: Bertram I. Rowland, Ex. Gp.: 125

4,041,199, Re. S.N. 253,370, Filed Apr. 13, 1981, Cl. 428/36, REFRACTORY HEAT INSULATING MATERIALS, John Edward Cartwright, Owner of Record: *Foseco International Ltd., Birmingham, England,* Attorney or Agent: Stephen G. Rudisill, et al., Ex. Gp.: 164

4,044,340, Re. S.N. 252,786, Filed Apr. 10, 1981, Cl. 365/208, SEMICONDUCTOR MEMORY, Kiyoo Itoh, Owner of Record: *Hitachi, Ltd., Tokyo, Japan,* Attorney or Agent: Paul M. Craig, Jr., et al., Ex. Gp.: 235

4,110,810, Re. S.N. 253,807, Filed Apr. 13, 1981, Cl. 361/213, STATIC CHARGE NEUTRALIZER AND PROCESS, Edward J. Moore, et al., Owner of Record: *E.I. du Pont de Nemours and Co., Wilmington, Del.,* Attorney or Agent: Robert J. Shafer, Ex. Gp.: 212

4,123,007, Re. S.N. 253,231, Filed Apr. 13, 1981, Cl. 239/414, VALVE ASSEMBLY AND SPRAYING APPARATUS THEREFOR, Charles R. Gardner, Owner of Record: *Poly-Glas Systems, Inc., Sun Valley, Calif.,* Attorney or Agent: Thomas R. Juettner, et al., Ex. Gp.: 313

4,144,162, Re. S.N. 243,067, Filed Mar. 12, 1981, Cl. 208/13, METHOD FOR THE CONTAINMENT OF OILS AND OIL SLUDGES, Allen C. Edgar, et al., Owner of Record: *Mid-Florida Mining Co., Lowell, Fla.,* Attorney or Agent: C. Douglas McDonald, Jr., Ex. Gp.: 116

4,148,704, Re. S.N. 252,666, Filed Apr. 9, 1981, Cl. 204/181C, METHOD FOR CATHODIC ELECTRODEPOSITION OF COATING COMPOSITIONS CONTAINING DIELS-ALDER ADDUCTS, Ivan H. Tsou, Owner of Record: *Grow Chemical Corp., New York, N.Y.,* Attorney or Agent: Ralph M. Burton, et al., Ex. Gp.: 114

4,149,097, Re. S.N. 252,657, Filed Apr. 9, 1981, Cl. 307/212, WAVEFORM TRANSITION SENSITIVE JOSEPHSON JUNCTION CIRCUIT HAVING SENSE BUS AND LOGIC APPLICATIONS, Sadeg M. Faris, Owner of Record: *International Business Machines Corp., Armonk, N.Y.,* Attorney or Agent: Thomas J. Kilgannon, Jr., et al., Ex. Gp.: 254

4,149,513, Re. S.N. 254,956, Filed Apr. 13, 1981, Cl. 125/006, DEEP TEXTURE HAMMER, Howard P. Gooden, Owner of Record: *Goodwall Construction Co., Houston, Tex.,* Attorney or Agent: David M. Ostfeld, et al., Ex. Gp.: 323

4,150,702, Re. S.N. 253,464, Filed Apr. 13, 1981, Cl. 411/310, LOCKING FASTENER, Horace D. Holmes, Owner of Record: *Inventor,* Attorney or Agent: Allen M. Krass, et al., Ex. Gp.: 355

4,150,749, Re. S.N. 255,107, Filed Apr. 17, 1981, Cl. 209/437, ORE CONCENTRATOR TABLE SUPPORT, Walter W. Stevens, Owner of Record: *Inventor,* Attorney or Agent: Max E. Shirk, Ex. Gp.: 177

4,150,897, Re. S.N. 255,132, Filed Apr. 17, 1981, Cl. 356/152, WHEEL MOUNTED VEHICLE WHEEL ALIGNER, Thomas E. Roberts, et al., Owner of Record: *Inventor,* Attorney or Agent: Robert S. Kelly, et al., Ex. Gp.: 222

4,157,269, Re. S.N. 253,441, Filed Apr. 13, 1981, Cl. 148/1.5, UTILIZING POLYSILICON DIFFUSION SOURCES AND SPECIAL MASKING TECHNIQUES, Tak Hung Ning, et al., Owner of Record: *International Business Machines Corp., New York, N.Y.,* Attorney or Agent: John J. Goodwin, et al., Ex. Gp.: 111

4,177,102, Re. S.N. 254,972, Filed Apr. 16, 1981, Cl. 156/472, SINGLE FACER FOR MANUFACTURING SINGLE-FACED CORRUGATED BOARD, Masateru Tokuno, Owner of Record: *Rengo Co., Ltd., Osaka, Japan,* Attorney or Agent: Robert B. Frailey, et al., Ex. Gp.: 161

4,178,653, Re. S.N. 246,285, Filed Mar. 23, 1981, Cl. 15/383, IMPROVED AGITATOR CHAMBER, Donald B. Tschudy, Owner of Record: *Hoover Co., North Canton, Ohio,* Attorney or Agent: Gerald H. Kreske, et al., Ex. Gp.: 242

4,181,460, Re. S.N. 253,115, Filed Apr. 10, 1981, Cl. 414/400, ARTICLE HANDLING APPARATUS, David W. Lutz, Owner of Record: *Automatic Truckloading System, Inc., Carlisle, Pa.,* Attorney or Agent: John J. Byrne, et al., Ex. Gp.: 314

4,181,565, Re. S.N. 233,962, Filed Feb. 12, 1981, Cl. 162/076, PROCESS FOR COOKING LIGNOCELLULOSIC MATERIAL IN THE PRESENCE OF HYDROXYANTHRACENES AND DERIVATIVE THEREOF, Masato Nakamura, et al., Owner of Record: *Honshu Sieshi Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: James E. Armstrong, III, et al., Ex. Gp.: 173

4,201,825, Re. S.N. 252,532, Filed Apr. 9, 1981, Cl. 428/263, METALLIZED TEXTILE MATERIAL, Harold Ebneth, Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Federal Republic of Germany,* Attorney or Agent: Arnold Sprung, et al., Ex. Gp.: 164

4,202,957, Re. S.N. 238,569, Filed Feb. 26, 1981, Cl. 528/77, THERMOPLASTIC POLYURETHANE ELASTOMERS FROM POLYOXYPROPYLENE POLYOXYETHYLENE BLOCK COPOLYMERS, Henry W. Bonk, et al., Owner of Record: *The Upjohn Co., Kalamazoo, Mich.,* Attorney or Agent: Denis A. Firth, et al., Ex. Gp.: 143

4,213,743, Re. S.N. 255,137, Filed Apr. 17, 1981, Cl. 417/229, PUMP ASSEMBLY DRIVEN BY ENDLESS CONVEYOR, Frank K. Hurt, Owner of Record: *Mefcor, Inc., Bluefield, Va.,* Attorney or Agent: B. Franklin Griffin, Jr., et al., Ex. Gp.: 343

4,221,285, Re. S.N. 246,646, Filed Mar. 23, 1981, Cl. 194/1G, COIN CHUTE TO ACCOMMODATE VARIOUS COIN SLIDES HAVING DIFFERENTLY SIZED COINS AND COIN COMBINATIONS, Harry Greenwald, et al., Owner of Record: *Walter Kidde & Co., Inc., Clifton, N.J.,* Attorney or Agent: Lloyd McAulay, et al., Ex. Gp.: 311

4,245,937, Re. S.N. 244,009, Filed Mar. 16, 1981, Cl. 407/105, CLAMPING MECHANISM FOR CUTTING INSERT, Robert A. Erickson, Owner of Record: *Kennametal, Inc., Latrobe, Pa.,* Attorney or Agent: Lawrence R. Burns, Ex. Gp.: 324

4,252,220, Re. S.N. 253,385, Filed Apr. 13, 1981, Cl. 190/041, GARMENT BAG ASSEMBLY, Wallace London, et al., Owner of Record: *Inventor,* Attorney or Agent: Samuel Lebowitz, Ex. Gp.: 241

COMMISSIONER'S NOTICE

Practice under 37 CFR §1.225(b)

When a junior party to an interference is placed under an order to show cause why judgment should not be entered pursuant to 37 CFR §1.225 and requests final hearing to contest an ancillary matter, either the junior or senior party may file a motion for permission to take testimony pursuant to 37 CFR §1.225(b) and the last sentence of 37 CFR §1.251(b). However, some uncertainty has arisen as to when the motion must be filed and what it must contain.

Motion by the Junior Party

When a junior party is placed under an order to show cause and the junior party desired a testimony period, the motion for permission to take testimony should be filed preferably before the time set for responding to the order to show cause. The motion will be considered timely, however, if filed no later than twenty (20) days after the Board of Patent Interferences enters an order setting final hearing.

There are instances where the requested testimony relates to priority. For example, the junior party may occasionally desire to take testimony to establish prior inventive acts alleged in a preliminary statement even though those acts are subsequent to the senior party's effective filing date. This situation arises when (1) the junior party's preliminary statement dates fall between the filing date of the senior party's involved application and the filing date of a prior application accorded to the senior party, (2) the junior party has unsuccessfully contended in a motion under 37 CFR §1.231 that the senior party should not be accorded benefit of the prior application, and (3) the junior party has requested final hearing to review the examiner's adverse decision on the motion.

When the requested testimony includes priority testimony, the motion to take testimony may be *pro forma, viz.,* a simple request that a testimony period be set to obtain priority evidence. Normally, however, when a junior party seeks to take testimony under 37 CFR § 1.225(b), the proposed testimony relates solely to ancillary matters. When the requested testimony relates solely to ancillary matters, the motion must comply with the provisions of 37 CFR §1.225(b)—a showing of good cause must be submitted and a *pro forma* request would not be sufficient. See generally Rivise & Caesar, *Interference Law and Practice,* Vol. III, §§376–377 (1947).

Motion by the Senior Party

There are occasions when a senior party may desire a testimony period even if the junior party does not request a testimony period. See e.g., *Lorenian v. Winstead,* 127 USPQ 501 (Bd.Int. 1959). When a senior party desires a testimony period, the motion for permission to take testimony should be filed promptly after the Board of Patent Interferences enters an order setting final hearing, but in no event later than twenty (20) days after entry of such order. A senior party should take into account the fact that a junior party will begin preparation of a brief for final hearing after receiving notice of the briefing schedule. Therefore, a senior party should not be permitted to let a junior party expend unnecessary energy preparing a brief for final hearing if the senior party plans to move to take testimony.

As in the case of a junior party, a request to take testimony relating to priority may be *pro forma.* A request to take testimony limited to ancillary matters must comply with 37 CFR §1.225(b). See 37 CFR 1.251(b), last sentence.

RENE D. TEGTMEYER,
Acting Commissioner of Patents and Trademarks.

June 15, 1981.

PATENT NOTICES

Certificates of Correction for the Week of July 14, 1981

3,765,763	4,233,783	4,247,430	4,258,546
3,817,333	4,234,591	4,247,637	4,258,814
4,049,648	4,235,902	4,247,787	4,259,027
4,115,533	4,236,833	4,247,849	4,259,204
4,147,767	4,238,172	4,247,972	4,259,571
4,160,095	4,238,248	4,248,093	4,259,788
4,172,801	4,238,438	4,248,299	4,260,441
4,172,897	4,238,450	4,248,453	4,260,598
4,174,991	4,239,156	4,248,597	4,260,621
4,179,326	4,239,483	4,248,741	4,260,692
4,186,186	4,239,768	4,248,843	4,261,138
4,188,335	4,239,835	4,249,246	4,261,270
4,188,898	4,240,048	4,250,035	4,261,541
4,192,749	4,240,694	4,250,044	4,261,919
4,194,472	4,240,755	4,250,991	4,261,961
4,196,042	4,242,087	4,251,186	4,262,003
4,197,239	4,242,993	4,251,573	4,262,156
4,199,521	4,243,215	4,251,722	4,262,419
4,204,433	4,243,287	4,251,779	4,262,676
4,211,799	4,243,554	4,251,786	4,262,693
4,215,867	4,244,077	4,252,235	4,262,746
4,218,324	4,244,259	4,252,291	4,263,014
4,219,665	4,244,447	4,252,423	4,263,501
4,220,258	4,244,516	4,252,723	4,264,438
4,222,012	4,244,598	4,252,804	4,264,479
4,223,129	4,244,941	4,253,162	4,264,615
4,224,070	4,245,646	4,253,273	4,264,753
4,224,237	4,246,099	4,253,744	4,264,773
4,225,383	4,246,155	4,254,437	4,265,250
4,228,352	4,246,255	4,254,613	4,265,270
4,229,443	4,246,324	4,254,622	4,265,477
4,229,717	4,246,367	4,254,811	4,265,571
4,231,124	4,246,551	4,256,294	4,265,880
4,231,520	4,246,584	4,256,779	4,266,017
4,231,683	4,246,628	4,257,720	4,266,231
4,231,772	4,246,697	4,257,838	4,266,408
4,232,071	4,247,118	4,258,173	4,267,593
4,233,153			

Disclaimers

3,663,369.—*Alpha Morehouse; Ronald C. Malzahn* and *John T. Day,* Muscatine, Iowa. HYDROLYSIS OF STARCH. Patent dated May 16, 1972. Disclaimer filed Apr. 15, 1981, by the assignee, *Grain Processing Corp.*

Hereby enters this disclaimer to claims 1 through 9, inclusive of said patent.

3,706,940.—*Jerry Hausner,* Flushing, N.Y. HIGH FREQUENCY SWEEP GENERATOR. Patent dated Dec. 19, 1972. Disclaimer filed Apr. 13, 1981, by the assignee, *The Narda Microwave Corp.*

Hereby enters this disclaimer to claims 1, 4, 5 and 17 of said patent.

3,913,225.—*Eduard W. Tietjens* and *Dirk Jan Van Hemmen,* Drachten, Netherlands. DRY SHAVING APPARATUS WITH SHEAR PLATE BIASING MEANS. Patent dated Oct. 21, 1975. Disclaimer filed May 4, 1981, by the assignee, *U.S. Philips Corp.*

Hereby enters this disclaimer to claims 1, 2, 5 and 7 of said patent.

4,035,073.—*George Del Vecchio,* North Rose, N.Y. DUPLEX REPRODUCTION MACHINE. Patent dated July 12, 1977. Disclaimer filed Apr. 16, 1981, by the assignee, *Xerox Corp.*

Hereby enters this disclaimer to claims 1-6 and 8-12 inclusive of said patent.

4,053,015.—*Joseph T. Hamrick;* Roanoke and *Leslie C. Rose,* Rocky Mount, Va. IGNITION PROCESS FOR DOWNHOLE GAS GENERATOR. Patent dated Oct. 11, 1977. Disclaimer filed May 4, 1981, by the assignee, *World Energy Systems.*

Hereby enters this disclaimer to all claims of said patent.

4,059,867.—*Robert J. Adamis,* San Mateo, Calif. HANDLE FOR UTENSILS. Patent dated Nov. 29, 1977. Disclaimer filed May 4, 1981, by the inventor.

Hereby enters this disclaimer to claim 1 of said patent.

4,195,637.—*Andreas Gruntzig* and *Hans Gleichner,* Zurich, Switzerland. CATHETER ARRANGEMENT, METHOD OF CATHETERIZATION, AND METHOD OF MANUFACTURING A DILATATION ELEMENT. Patent dated Apr. 1, 1980. Disclaimer filed Apr. 16, 1981, by the assignee, *Schneider Medintag AG.*

Hereby enters this disclaimer to claims 1 to 17 inclusive of said patent.

4,202,483.—*Frederick Stirling Sillars,* Beverly, Mass. CAN BODY CONVEYOR WITH ANTI-ROTATION MECHANISM. Patent dated May 13, 1980. Disclaimer filed Mar. 27, 1981, by the assignee, *USM Corp.*

Hereby enters this disclaimer to claims 1 to 6 of said patent.

4,213,221.—*Alphonse Casimer Kulik;* Ipswich, Mass. WIPER MOTION STOP. Patent dated July 22, 1980. Disclaimer filed Mar. 18, 1981, by the assignee, *USM Corp.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,214,923.—*Robert J. Price,* Peoria, Ill. METHOD FOR TREATING METAL. Patent dated July 29, 1980. Disclaimer filed Apr. 30, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1-9 of said patent.

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

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The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing.

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DOUGLAS J. CAMPION,
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Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE AIR FORCE

AF/JACP
1900 Half St., S.W.
Washington, D.C. 20324

Patent application 6-206,413. Fluid-Cooled Electrical Conductor. Filed Nov. 30, 1980.

Patent application 6-206,414. Cursor Apparatus Interactive Graphic Display System. Filed Nov. 13, 1980.

Patent application 6-206,415. High Voltage Driver Amplifier Apparatus. Filed Nov. 13, 1980.

Patent application 6-207,830. A Laser Designator Test Tool Apparatus. Filed Nov. 17, 1980.

Patent application 6-210,476. Universal Timing Array. Filed Dec. 4, 1980.

Patent 4,242,899. Thermoclamps. Filed Mar. 5, 1979. Patented Jan. 6, 1981. Not available NTIS.

Patent 4,243,697. Self Biased Ferrite Resonators. Filed Mar. 14, 1979. Patented Jan. 6, 1981. Not available NTIS.

Patent 4,244,053. Privacy Communication Method and System. Filed Sept. 10, 1970. Patented Jan. 6, 1981. Not available NTIS.

Patent 4,245,477. Internal Heater Module for Cryogenic Refrigerators and Stirling Heat Engines. Filed July 18, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,245,860. Missile Hoisting Sling. Filed May 3, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,245,911. Economical Fast Scan Spectrometer. Filed Feb. 23, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,252. Gas Generating System for Chemical Lasers. Filed Apr. 13, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,585. Subarray Pattern Control and Null Steering for Subarray Antenna Systems. Filed Sept. 7, 1979. Patented Jan. 20, 1981. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY

Director, Navy Patent Program/
Patent Counsel for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-179,863. Michael Reaction of Methylenemalonates with Nitro Compounds. Filed Aug. 20, 1980.

Patent application 6-217,269. Improved Electrolyte for Lithium-Thionyl Chloride Battery. Filed Dec. 17, 1980.

Patent application 6-219,689. Lightweight Concrete Using Polymer Filled Aggregate for Ocean Applications. Filed Dec. 24, 1980.

Patent application 6-224,776. Unsymmetrical Polynitrocarbonates and Symmetrical 1,3-Bis(Halo- and Nitroalkyl Carbonyldioxy)-2,2-Dinitropropanes and Methods of Preparation. Filed Jan. 13, 1981.

Patent application 6-227,311. Servo Control System for the Positioning of an Apparatus. Filed Jan. 22, 1981.

Patent application 6-227,323. Efficient, Precompression, Bandwidth-Tolerant Digital Pulse Expander-Compressor. Filed Jan. 22, 1981.

Patent application 6-227,337. Waveguide Switch. Filed Jan. 22, 1981.

Patent application 6-228,032. N,N,N', N'-Tetrakis(2-Fluoro-2, 2-Dinitroethyl) Oxamide and a Method of Preparation Thereof. Filed Jan. 23, 1981.

Patent 4,231,053. High Electrical Frequency Infrared Detector. Filed Mar. 5, 1979. Patented Oct. 28, 1980. Not available NTIS.

Patent 4,237,428. 15.9 Micron Acetylene Laser. Filed Sept. 1, 1978. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,238,742. Laser System. Filed Aug. 21, 1978. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,239,561. Plateau Propellant Compositions. Filed Nov. 29, 1973. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,241,432. Transducer-Reflector System. Filed Apr. 21, 1967. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,248,257. Flood Valve. Filed Mar. 26, 1979. Patented Feb. 3, 1981. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

Patent application 6-186,881. Optical Crystal Temperature Gauge with Fiber Optic Connections. Filed Sept. 12, 1980.

Patent application 6-199,767. Pulsed Phase Locked Loop Strain Monitor. Filed Oct. 23, 1980.

Patent application 6-210,490. Tunable Injection-Locked Pulsed CO_2 Laser. Filed Nov. 26, 1980.

Patent application 6-214,360. Containerless Melting and Rapid Solidification Apparatus and Method. Filed Dec. 8, 1980.

Patent application 6-218,585. Method of Bonding Plasticized Elastomer to Metal and Article Produced Thereby. Filed Dec. 19, 1980.

Patent application 6-219,640. Rhomboid Prism Pair for Rotating the Plane of Parallel Light Beams. Filed Dec. 24, 1980.

Patent application 6-219,677. High Voltage Planar Multijunction. Filed Dec. 24, 1980.

Patent application 6-219,678. High Voltage V-Groove Solar Cell. Filed Dec. 24, 1980.

Patent application 6-220,213. Linear Magnetic Bearings. Filed Dec. 24, 1980.

Patent application 6-225,499. Holding Fixture for a Hot Stamping Press. Filed Jan. 16, 1981.

Patent 4,206,713. Continuous Coal Processing Method. Filed Sept. 28, 1976. Patented June 10, 1980. Not available NTIS.

Patent 4,218,921. Method and Apparatus for Shaping and Enhancing Acoustical Levitation Forces. Filed July 13, 1979. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,219,107. Speed Control Device for a Heavy Duty Shaft. Filed Dec. 13, 1977. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,224,810. System for Refurbishing and Processing Parachutes. Filed Dec. 21, 1977. Patented Sept. 30, 1980. Not available NTIS.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
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California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738–2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(404) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862–1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 30, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-13-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	2-15-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	7-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	12-28-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	1-07-80
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	8-02-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-29-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	10-16-78
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,980, inclusive

Plant Patents ..... Numbers 2,399 to 2,406, inclusive

REISSUES

JULY 14, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,672

METHOD FOR FORMING INSERTS IN SHOE SOLES AND THE PRODUCT OBTAINED

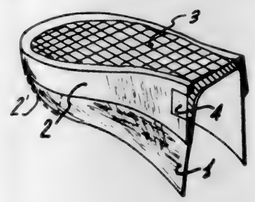
Fosco Brilli, Via Ruscomi, 44, 20027 Milan, Italy

Original No. 4,024,652, dated May 24, 1977, Ser. No. 572,626, Apr. 28, 1975. Application for reissue Feb. 12, 1979, Ser. No. 11,641

Claims priority, application Italy, Apr. 30, 1974, 22108/74

Int. Cl.[3] **A43C** *13/08;* **A43D** *9/00, 65/00*

U.S. Cl. 36—14 **9 Claims**



1. In a process for producing footwear having an upper and a plastic sole attached thereto by injection moulding, the sole comprising an edge portion and a bottom portion differing in colour with part of one of said portions extending into the other of said portion to form a differently coloured insert therein comprising the steps of:

a. Providing an open topped injection mold having its top closed by said upper and having its inner periphery comforming to the outer periphery of said sole,

b. Providing a movable member in the side walls of said mold having an inner [service] *surface* thereof conforming to a portion of the outer periphery of the edge of said sole, said member being movable to an extended position within said mold and to a retracted position with its inner surface conforming to the adjacent inner surface of the inside wall of said mold,

c. Injecting a first sole forming plastic material into said mold with said movable member in one of said positions to partially fill said mold,

d. Moving said movable member to the other of said positions, and

e. Injecting a second sole-forming plastic having a different colour from said first sole-forming plastic to fill said mold and complete the formation of said sole and provide two different colours of plastic in the edge of said sole with portions of one of said sole-forming plastic extending into the other of said sole-forming plastic to provide a coloured insert therein.

Re. 30,673

SIDE VIEW MIRROR EMPLOYING PRISM FOR BLIND SPOT CORRECTION

William Feinbloom, P.O. Box 411, New Paltz, N.Y. 12561

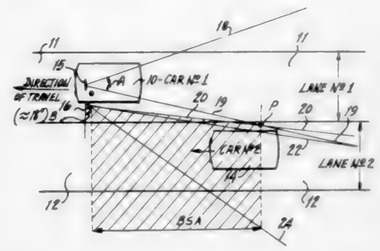
Original No. 4,182,552, dated Jan. 8, 1980, Ser. No. 938,052, Aug. 30, 1978. Application for reissue Feb. 26, 1980, Ser. No. 124,722

Int. Cl.[3] **G02B** *5/08*

U.S. Cl. 350—288 **1 Claim**

1. In combination with a side view mirror of a vehicle, said side view mirror having a relatively planar reflecting surface and positioned on the side of said vehicle near the position of the vehicle driver for providing visual access to the rear of said vehicle, said side view mirror operative in conjunction with a conventional rear view mirror located within said vehicle to enable said driver to view traffic conditions at the rear of said vehicle, said mirrors undesirably providing a blind spot area in said visual field of view at the driver's side of said vehicle, the improvement therewith of apparatus, comprising:

correction means coupled to said side view mirror at an angle with respect thereto of between [six to ten] *twelve to twenty* degrees to provide a visual field of view for said driver determinative of said blind spot area to thereby



enable said driver to have visual access to said blind spot area, wherein said correction means comprises a glass prism positioned over a portion of said planar surface with the base of said prism facing out from the driver's side of the vehicle, the base angle of the prism being between [six to ten] *twelve to twenty* degrees, whereby refraction of light by the glass prism is employed to provide correction of said blind spot area.

Re. 30,674

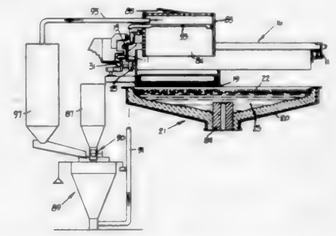
METHOD AND APPARATUS FOR FEEDING A GLASS MELTING FURNACE

Alojzy Wenda, and Leonard E. Olds, both of Arvada, Colo., assignors to Johns-Manville Corporation, Denver, Colo.

Original No. 4,142,880, dated Mar. 6, 1979, Ser. No. 865,644, Dec. 29, 1977. Application for reissue Feb. 28, 1980, Ser. No. 125,609

Int. Cl.[3] **C03B** *3/00*

U.S. Cl. 65—29 **10 Claims**



5. Apparatus [according to claim 3 including] *for depositing particulate batch material over substantially the entire circular top surface of molten material in a circular furnace, comprising:*

(a) a carriage mounted for rotation in a generally horizontal plane over said circular surface about the center of said surface;

(b) means for supporting said carriage;

(c) means for rotating said carriage;

(d) a trough-like hopper carried by said carriage for holding said particulate material, the bottom of said hopper having

material discharge openings, said discharge openings being provided in the bottom of said hopper for a radial extent substantially equal to the radius of the surface of said molten material;

(e) an agitator mounted within said hopper for engaging said particulate material in the vicinity of said openings;

(f) means for driving said agitator whenever said carriage is rotated to effect the flow of said particulate material through said openings; and

(g) means responsive to the thickness of said layer of material, for controlling the [rotating] *rotation* of said carriage.

11. A method for continually depositing a thin, uniformly thick layer of batch material over substantially the entire top surface of molten material in a furnace comprising:

(a) quickly loading a perforated-bottomed trough with a charge of batch material, such that the batch does not pass through the perforations;

(b) moving the trough in a generally horizontal plane above the molten material while agitating the charge of batch material in the vicinity of the perforations so as to discharge batch through the perforations and onto the upper surface of the molten material in a thin layer, said agitation occurring only during moving of the trough;

(c) stopping motion of the trough after a pre-determined distance of travel and when a desired thickness of batch material is deposited;

(d) sensing the depletion of the charge of batch within the trough and in response thereto automatically recharging the trough; and

(e) sensing the thinning of the batch layer to a thickness less than a certain minimal and in response thereto automatically restarting the depositing motion of the trough.

Re. 30,675

DENTIFRICE

Murray L. Schole, 487 Munroe Ave., North Tarrytown, N.Y. 10591

Original No. 4,175,120, dated Nov. 20, 1979, Ser. No. 956,200, Oct. 30, 1978. Application for reissue Dec. 26, 1979, Ser. No. 107,493

Int. Cl.³ A61K *7/22, 7/24*

U.S. Cl. 424—54 **3 Claims**

1. A water-containing dentifrice consisting essentially of strontium edatate in an amount sufficient to provide from about 2.5 wt. % to about 25 wt. % of strontium [ion] *edatate* and from about 0.1 wt. % to about 10 wt. % of a ricinoleate compound said dentifrice being free from strontium edatate-sequestering Ca, Mg, Al, Sn metal.

Re. 30,676

FLAME RESISTANT POLYURETHANE FOAM AND PROCESS FOR PRODUCING THE SAME

Shigeo Mori, and Takeshi Fujita, both of Kyoto, Japan, assignors to Dai-Ichi Kogyo Seiyaku Co., Ltd., Kyoto, Japan

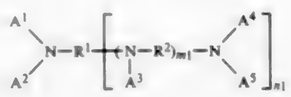
Original No. 4,088,614, dated May 9, 1978, Ser. No. 645,172, Dec. 29, 1975. Continuation of Ser. No. 483,339, Jun. 26, 1974, abandoned. Application for reissue Jan. 8, 1980, Ser. No. 110,501

Claims priority, application Japan, Jun. 26, 1973, 48-72463; Oct. 1, 1973, 48-110799

Int. Cl.³ C08G *18/14, 18/18, 18/20, 18/32*

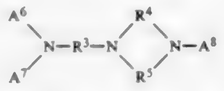
U.S. Cl. 521—110 **17 Claims**

1. A process for producing a flame resistant rigid polyurethane foam comprising reacting a mixture consisting of (i) a polyetherpolyol [and] *or* a polyesterpolyol, each having an active hydrogen atom, (ii) a polyisocyanate, said polyisocyanate being used in an amount of 0.5 to 3 equivalents per 1 equivalent of said polyetherpolyol [and] *or* polyesterpolypol, (iii) at least one blowing agent selected from water and a volatile foaming agent, said water when present being used in an amount of less than about 5% by weight and said volatile foaming agent when present being used in an amount of less than about 70% by weight, said weights being based on the total weight of the starting materials, (iv) an emulsifying agent, said emulsifying agent being used in an amount of less than about 2% by weight based on the total weight of the starting materials, and (v) at least one amine compound selected from general formulae (I), (II), (III), (IV), (V), (VI), and (VII):



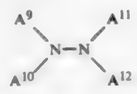
(I)

wherein A^1, A^2, A^3, A^4, and A^5 each represents a hydrogen atom or a monovalent organic group, wherein at least one of A^1 to A^5 being a hydrogen atom or an organic group which contains a hydrogen atom active to an isocyanate group; R^1 is a divalent organic group, a trivalent organic group or a tetravalent organic group; R^2 represents a divalent organic group; m_1 represents 0 or a positive integer smaller than 8; and n_1 represents 1, 2 or 3;



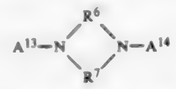
(II)

wherein A^6, A^7, and A^8 each represents a hydrogen atom or a monovalent organic group, with at least one of A^6 to A^8 being a hydrogen atom or an organic group which contains a hydrogen atom active to an isocyanate group; R^3, R^4 and R^5 each represents a divalent organic group;



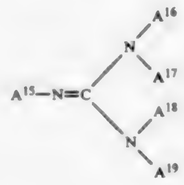
(III)

wherein A^9, A^{10}, A^{11}, and A^{12} each represents a hydrogen atom or a monovalent organic group, with at least one of A^9 to A^{12} being a hydrogen atom or an organic group which contains a hydrogen atom active to an isocyanate group;



(IV)

wherein A^{13} and A^{14} each represents a hydrogen atom or a monovalent organic group, with at least one of A^{13} and A^{14} being a hydrogen atom or an organic group which contains a hydrogen atom active to a isocyanate group and R^6 and R^7 each represents a divalent organic group;



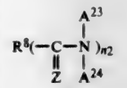
(V)

wherein A^{15}, A^{16}, A^{17}, A^{18}, and A^{19} each represents a hydrogen atom or a monovalent organic group, with at least one of A^{15} to A^{19} being a hydrogen atom or an organic group which contains a hydrogen atom active to an isocyanate group;



(VI)

wherein A^{20}, A^{21} and A^{22} each represents a hydrogen atom or a monovalent organic group, with at least one of A^{20} to A^{22} being a hydrogen atom or an organic group which contains a hydrogen atom active to an isocyanate group; and



(VII)

wherein R^8 represents a hydrogen atom, a monovalent organic group, a divalent organic group, or a trivalent organic group; A^{23} and A^{24} each represents a hydrogen atom or a monovalent organic group, at least one of said R^8, A^{23}, and A^{24} being a hydrogen atom or a group having a hydrogen atom active to an isocyanate group; Z represents an oxygen atom or a sulfur atom; and n_2 is an integer of 1 to 3, the weight ratio of said amine compound to said polyetherpolyol [and] *or* polyesterpolyol being from 7:3 to 3:7, said polyurethane foam being self-extinguishing with a burning distance of 14 to 22 mm as tested in accordance with ASTM D 1692-68.

Re. 30,677

SILICONE CONTAINING BIS-THIOETHER AROMATIC AMINES

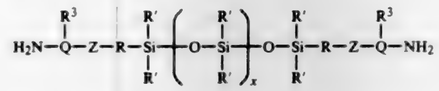
Abe Berger, Summit, N.J., assignor to M&T Chemicals Inc., Woodbridge, N.J.

Original No. 4,139,547, dated Feb. 13, 1979, Ser. No. 906,877, May 17, 1978. Application for reissue Apr. 4, 1980, Ser. No. 137,405

Int. Cl.³ C07F *7/10*

U.S. Cl. 556—423 **5 Claims**

1. A silicone containing bis-thioether aromatic amine having the general formula:



wherein

Q is an aromatic nucleus

Z is sulfur, sulfoxide or sulfone

R is a bivalent group or a functional bivalent group

R′ is a monovalent hydrocarbon radical or a functional hydrocarbon radical

R^3 is a *hydrogen atom, a* hydrocarbon radical or a functional group, and

x is 0 or greater.

Re. 30,678

DORMANT OSCILLATOR GROUND TO NEUTRAL PROTECTION FOR GROUND FAULT INTERRUPTERS

Donald L. Van Zeeland, Franklin, and Russell P. Schuchmann, Racine, both of Wis., assignors to Eaton Corp., Cleveland, Ohio

Original No. 3,878,435, dated Apr. 15, 1975, Ser. No. 434,988, Jan. 21, 1974. Application for reissue Mar. 26, 1976, Ser. No. 670,851

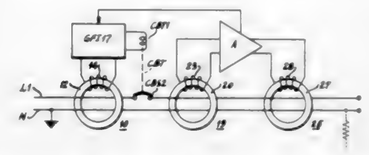
Int. Cl.³ H02H *3/28*

U.S. Cl. 361—44 **15 Claims**

7. A protective system for use in an electrical system having at least a first conductor and a second conductor extending from a source of alternating current to a load, said protective system comprising:

a transformer having a core, a primary on said core and a secondary formed by said at least first and second conductors;

an amplifier;



means to couple the output of said amplifier to said primary of said transformer; and

means including said transformer for causing said amplifier to break into self-sustained oscillations upon the occurrence of a given event relating to said at least first and second conductors.

Re. 30,679

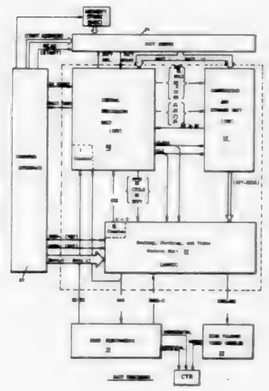
CHARACTER GENERATING METHOD AND SYSTEM

Gregory W. Evans, Mountain View, and Robert L. Caswell, Placentia, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Original No. 4,029,947, dated Jun. 14, 1977, Ser. No. 359,591, May 11, 1973. Application for reissue Jun. 14, 1979, Ser. No. 48,477

Int. Cl.³ G06F *15/20, 3/153*

U.S. Cl. 364—523 **99 Claims**



48. A character generator for generating characters encoded in accordance with a normalized quad of first and second coordinates, each character being encoded in a succession of sets of data, each related to an outline segment of the character and including a beginning line manifestation identifying the initial first coordinate of its outline, segment and outline change manifestations specifying directions of outline, each change manifestation including an identification of the outline to which it relates, and an indication of the number of incremental lengths along the second coordinate to a subsequent set of data, said character generator comprising:

means responsive to a beginning line manifestation for storing the manifestation identifying the initial first coordinate,

means responsive to a change manifestation for a related outline segment, as identified and stored, for computing, in each of its successive computation cycles, a new first coordinate value for its outline in accordance with its associated change manifestation, said means maintaining a stored first coordinate

value for an outline segment for which there is no change manifestation,

means for updating the first coordinate values in accordance with the computed new value thereof, as computed in each computation cycle, and

means responsive to the indication of the number of incremental lengths of each successive change manifestation to request and receive the next successive set of data for the character upon completion of the encoded number of incremental lengths of the present set of data.

PATENTS

GRANTED JUL. 14, 1981

ERRATA

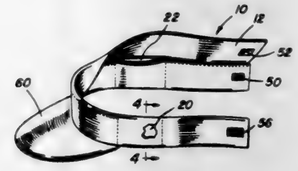
For CLASS	See PATENT NO.
411-337	4,278,005
411-047	4,278,006
181-116	4,278,025
411-190	4,278,120
277-040	4,278,218
369-036	4,278,258
404-117	4,278,368
369-128	4,278,846

PATENTS

GRANTED JULY 14, 1981

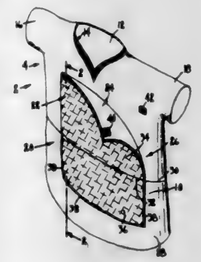
GENERAL AND MECHANICAL

4,277,847
HEADBAND FOR JOGGERS
John D. Florio, Miami, Fla., assignor to Jose Estrada, Miami, Fla.
Filed Apr. 1, 1980, Ser. No. 136,294
Int. Cl.[3] A42B *1/24*
U.S. Cl. 2—12 6 Claims



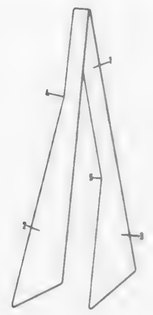
1. A headband for use in sporting events comprising an elongated piece of absorbent material divided into three longitudinally extending sections, a smaller piece of elongated water resistant material covering a portion of two adjacent longitudinally extending sections, wherein said two adjacent longitudinally extending sections are folded one over the other and sewn together to form pockets with said water resistant material comprising the inner lining of said pockets with the remaining longitudinally extending section being foldable over said pockets to provide a cover therefor.

4,277,848
COLOR CHANGEABLE ATHLETIC JERSEY
Melvin G. Boehland, 3170 Park Overlook Dr., Shoreview, Minn. 55112
Filed Mar. 10, 1980, Ser. No. 128,650
Int. Cl.[3] A41B *1/00*
U.S. Cl. 2—115 12 Claims



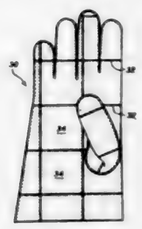
1. An athletic jersey, which comprises:
(a) a body portion having an inside and an outside with the outside being of a substantially uniform first color, wherein the body portion of the jersey includes front and back sides;
(b) a color changing panel on each of the front and back sides of the body portion each of the panels being of a second color different from the first color;
(c) means for selectively covering and uncovering the color changing panels without turning the body portion of the jersey inside out; and
(d) wherein the color changing panels are of sufficient size in relation to the body portion of the jersey such that the jersey appears to be generally of the second color rather than the first color when the color changing panels are uncovered.

4,277,849
ELONGATE GARMENT FOR WOMEN AND GIRLS
Leslie G. Spears, 70, Church St., Chesham, Buckinghamshire, England
Filed Feb. 8, 1980, Ser. No. 119,934
Int. Cl.[3] A41D *25/00*
U.S. Cl. 2—144 4 Claims



1. A garment for women and girls which is elongate, has no longitudinal axis of symmetry, and has an intermediate section of constant width and two outer sections which are of different shape, the outher sections increasing in width initially as they extend away from the intermediate section being of different lengths to each other, the length of the intermediate section being at least 29% of the overall length of the garment, the garment having an overall length of 25″ to 70″ and overall width of ⅜″ to 8½″.

4,277,850
GLOVE AND METHOD FOR MAKING SAME
Murray Strongwater, 822 Moore St., Woodmere, N.Y. 11598
Continuation of Ser. No. 903,211, May 5, 1978, which is a continuation-in-part of Ser. No. 767,508, Feb. 10, 1977, Pat. No. 4,100,623. This application Jun. 27, 1979, Ser. No. 52,408
Int. Cl.[3] A41D *19/00*
U.S. Cl. 2—163 2 Claims



1. A fabric glove having finger stalls, provided on at least one side thereof with an applique secured only along the contour thereof to said fabric glove, said applique being made from genuine leather fabric in the piece comprising a plurality of unsupported geometrical sections cut from genuine leather left over scrap, said sections being of selectively predetermined configurations and being secured to each other in end-to-end

and side-by-side relation to form a continuous piece which defines said genuine leather fabric in the piece having ornamental characteristics imparted thereto by said secured together sections of predetermined geometrical configuration, said applique being in the form of a panel having a main body portion and a plurality of discrete upwardly extending elongated segments secured only along the contour thereof to said at least one side of said fabric glove with said elongated segments being in overlying relation with the finger stalls of said fabric glove.

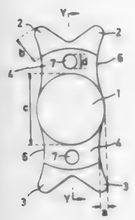
2. A glove in accordance with claim 1, wherein said applique is applied on both the palm side and the back side of the glove.

4,277,851

INTRAOCULAR ANTERIOR CHAMBER IMPLANTS

David P. Choyce, 9 Drake Rd., Westcliff-on-Sea, Essex, England SSO 8LR

Continuation-in-part of Ser. No. 907,595, May 19, 1978, abandoned. This application Dec. 4, 1979, Ser. No. 100,120
Claims priority, application United Kingdom, Dec. 22, 1977, 53425/77
Int. Cl.[3] A61F *1/16, 1/24*
U.S. Cl. 3—13 1 Claim



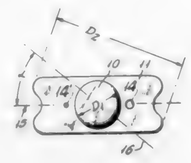
1. An intraocular anterior chamber implant consisting of an integrally formed elongate structure which comprises:
- a central lens which does not exceed 5 mm in diameter;
- first and second support members of substantially the same width as the lens diameter, situated on diametrically opposed sides of the lens and spaced therefrom, each support member having a flat support surface which, in use, rests on the iris of an eye into which the implant is inserted; and
- first and second bridging members each of which extends between and interconnects an edge of a respective support member and an edge of the lens, the bridging members being shaped and dimensioned such that said support surfaces lie in a common plane spaced from the lens;
- wherein each support member has a concave edge remote from the lens such that the support surface thereof is a generally 'U' shaped surface with the members of said U constituting feet and the trough of said U constituting a connecting portion which connects the feet to one another and to the respective bridging member,
- wherein each bridging member has concave side edges so that at least a portion of said bridging member is narrower than the lens diameter, and
- wherein each bridging member has an aperture between the said edges thereof, said aperture being of at least approximately 1 mm diameter, whereby in use fluid flow can take place through said aperture despite the presence of surgical thread therein.

4,277,852

INTRAOCULAR LENS WITH ASTIGMATISM CORRECTION

Stanley Poler, 78 E. Second St., New York, N.Y. 10003

Continuation-in-part of Ser. No. 113,967, Jan. 21, 1980. This application Mar. 20, 1980, Ser. No. 132,275
Int. Cl.[3] A61F *1/16, 1/24*
U.S. Cl. 3—13 16 Claims



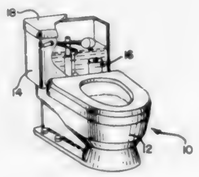
1. As an article of manufacture, a circular optically finished glass intraocular lens element having a central optical axis and finished with a correction for astigmatism, said correction being at a predetermined transverse orientation through said central axis, and a mounting adapter for said lens element, said adapter being of autoclavable material and in retaining engagement with the periphery of said lens element, said adapter having two diametrically opposed radially outwardly extending foot elements adapted for foot-stabilized positioning of the lens element within a chamber of an eye, said foot elements establishing a recognizably unique transverse axis of orientation of said article through said central axis, and said correction orientation having a predetermined angular relation with respect to said unique axis of orientation.

4,277,853

FOR TOILET BOWL CLEANING

Richard L. McDuffee, Aurora, Ill., assignor to Twinoak Products, Inc., Plano, Ill.

Continuation of Ser. No. 964,276, Nov. 28, 1978, abandoned. This application Aug. 27, 1980, Ser. No. 181,906
Int. Cl.[3] E03D *9/02*; B65D *51/24*
U.S. Cl. 4—228 8 Claims



1. In a container for a system for cleaning toilet bowls wherein the container is located within a water tank associated with the bowl, and wherein a cleaning compound located within the container is exposed to the water present in the tank for entry of the compound into the water whereby water containing the compound is delivered to the toilet bowl when the toilet is flushed, the improvement wherein said container comprises an outer wall, a closed bottom wall, an inner wall in contact with said closed bottom wall and a top wall, a first holding space defined between said outer wall and said inner wall and a second holding space defined within said inner wall, a plurality of perforations defined by said inner wall, said top wall defining an opening providing access of water to said perforations, said perforations being exposed to the water when the container is located in said tank, said compound filling one of said holding spaces provided in the container whereby the compound is located directly adjacent a surface of said inner wall for contact of the compound by water in the area of said perforations, said outer wall and said inner wall comprise coaxially disposed cylinders, wherein the holding space containing the compound has a closed top wall portion and the other said holding space defines a water chamber having an open top wall portion for communicating with said water chamber and said perforations, and means otherwise preventing access of the water to the container whereby the entry of compound into the water is controlled by said perforations.

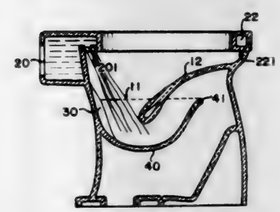
4,277,854

WATER-SAVING TOILET BOWL

Kuo L. Tsai, 5, Lane 59, Chad Chou St., Taipei, Taiwan

Filed Nov. 26, 1979, Ser. No. 97,442
Int. Cl.[3] E03D *11/00*
U.S. Cl. 4—420 6 Claims





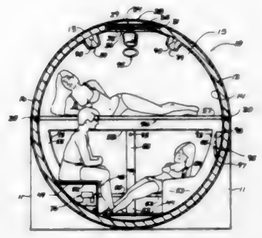
1. A water saving toilet bowl comprising a bowl defining a water reservoir, flush water guiding means comprising an outwardly projecting convex formation within the bowl smoothly and integrally merging with the inner surface of said bowl and longitudinally extending downwardly into the reservoir from the upper portion of the inner wall surface of the bowl, first and second main flush inlets connected by an intake passage in the bowl to a flush water entrance means and opening into said bowl at opposite sides of said convex guiding means, a front pan extending from the upper inner wall of said bowl opposite said inlets away from said wall and down into said reservoir with a free end presented toward said main flush inlets, said first main flush inlet being so oriented with respect to the bowl wall as to move flush water toward said front pan in streams of both a smaller circle whirlpool around the lower portion of the bowl wall and a larger circle whirlpool around the upper portion of the bowl wall that is deflected by said guiding means to provide a stream toward the interior of the reservoir, and said second main flush inlet means being so oriented with respect to the bowl wall as to provide a relatively straight downward stream of flush water to mix with water from said other streams and effectively flush waste away from said bowl wall.

4,277,855

PORTABLE SAUNA

Glen Poss, c/o Crown Dental Labs, W. 508 Sixth Ave., Spokane, Wash. 99204

Filed Jan. 25, 1980, Ser. No. 115,394
Int. Cl.[3] A61H *33/02*
U.S. Cl. 4—524 20 Claims



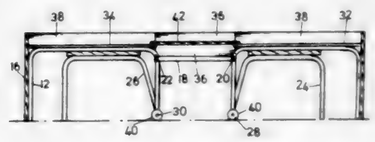
1. A portable sauna, comprising:
- a support frame;
- a hollow ball shaped structure on the support frame having a substantially spherical exterior wall and an inwardly spaced interior wall defining a substantially spherical room, formed about a center point;
- a door hinged to the compartment allowing access to the room;
- a floor surface within the room;
- a bench extending about the floor on an arc centered on an upright axis passing through the center part of the room adapted to support one or more people in a sitting or reclining position;
- a loft above the bench opposite the door and adjacent a horizontal plane passing through the center point of the room adapted to support one or more persons in sitting, prone, or reclining positions;
- a steam generator having a steam outlet within the room;
- reservoir means for supplying water to the steam generator;
- means above the loft along the interior wall for radiating heat into the room;
- blower means for circulating air within the room; and
- heater means associated with the blower means for selectively heating the air passing through the blower.

4,277,856

ARTICLE OF FURNITURE

Colin Danin, 14 Homestead Rd., Bedfordview, Transvaal, South Africa

Filed Jun. 8, 1979, Ser. No. 46,790
Claims priority, application South Africa, Jan. 10, 1979, 79/0102
Int. Cl.[3] A47C *17/60, 17/62*
U.S. Cl. 5—3 4 Claims



1. An article of furniture which comprises:
- first and second support members each of which has a cushion supporting section;
- at least one planar member supported by at least one of the support members;
- the support members being movable between first positions at which the cushion supporting sections are substantially

vertical and are spaced from and oppose one another and at which the planar member is substantially horizontal to form a working top, and second positions at which the cushion supporting sections are substantially horizontal and provide at least part of the sleeping surface; at least one connecting piece adapted to pivotally interconnect the support members at what are their lower ends when at the first positions, each support member having at least one leg which is substantially horizontal and rests on the ground to stabilize the article of furniture when the support members are in the first positions; the support members being pivotal about the free ends of the legs while being moved to the second positions, whereby the legs are pivoted to upright positions and the connecting piece is raised to a position at which it also forms part of the sleeping surface, the legs in the vertical positions supporting the cushion supporting sections horizontally.

4,277,857

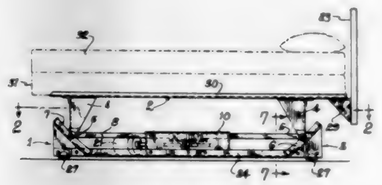
ROCKING MECHANISM FOR BEDS

Oswald C. Svehaug, 780 Gretchen Rd., Chula Vista, Calif. 92010

Filed Nov. 28, 1979, Ser. No. 97,923

Int. Cl.³ A47D *9/02*

U.S. Cl. 5—62 **5 Claims**



1. An apparatus for imparting a rocking motion of a bed foundation or the like which comprises:

(a) a movable frame defining a longitudinal direction;

(b) first and second longitudinally spaced apart guiding structures, each said guiding structure having at least one traveling surface slanted downwardly toward the other structure;

(c) means for slidingly connecting the movable frame to said traveling surfaces; and

(d) means for imparting a gentle longitudinal reciprocating movement to the movable frame along said guiding structure whereby a slow motion generally rotational about a horizontal virtual axis perpendicular to said longitudinal direction is imparted to said frame.

4,277,858

PIECE OF FURNITURE FOR SITTING AND LYING

Gunther Böhme, Duchswaldweg 55, D-7000 Stuttgart, Fed. Rep. of Germany

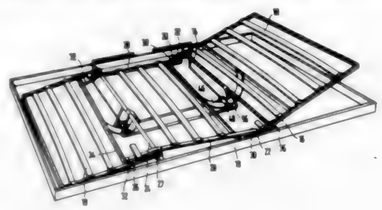
Filed Nov. 14, 1979, Ser. No. 93,971

Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849304; Sep. 22, 1979, 7926923[U]; Oct. 5, 1979, 2940364

Int. Cl.³ A61G *7/06;* **A41C** *19/00*

U.S. Cl. 5—66 **21 Claims**

1. An article of furniture for sitting or lying comprising a surface adapted to support the body of a user, said surface having head, central and foot portions, a stationary frame extending over at least the length of said central portion, said head portion being pivotally mounted to said frame about a horizontal steering shaft and adjustable between horizontal and inclined positions by shifting the weight of the user's body, means for locking said head portion in a selected position, said head portion having extension portions extending toward said foot portion beyond said steering shaft, spring means operative about said steering shaft for equalizing the weight of said head portion, said central portion having longitudinal side members supported by supporting elements comprising pin and slot connections with said extension portions of said head portion,



the slots of said pin and slot connections being upwardly curved.

4,277,859

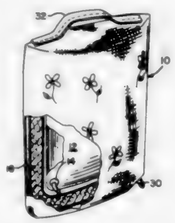
TRAVEL PILLOW

Florence Seaman, 1039 Cecile Dr., Port Moody, Canada V3H 1M5

Filed Jul. 20, 1979, Ser. No. 59,416

Int. Cl.³ A47C *27/08*

U.S. Cl. 5—434 **3 Claims**



1. A portable pillow for travelers comprising in combination an inner pneumatically inflatable removable bag, an intermediate fiber-filled casing for said inflatable bag, said intermediate casing being closed on three sides and having an opening in one end thereof to receive said inflatable bag and a separate exterior slip cover for said intermediate casing and inflatable bag, whereby in use said inflatable bag is placed within said intermediate casing which in turn is placed within said slip to provide said traveling pillow said casing having an outer covering and an inner covering and a substantial thickness of fibrous material between said outer and inner coverings thus providing an insulating and cushioning cover around said inflatable bag, said intermediate casing having a pocket on said outer covering thereof for the storage of said inflatable bag when deflated and not in use, a carrying case of more compact size than said pillow into which said bag may be fitted when deflated and rolled, said carrying case having a handle for carrying the same, a pneumatic pump, said pneumatic pump for inflating said inflatable bag, said handle of said carrying case having a compartment therein for removably storing said pneumatic pump therein.

4,277,860

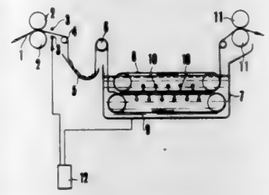
METHOD OF HEAT FULLING AND WATER WASHING OF CLOTH

Yoshikazu Sando, and Hiroshi Ishidoshiro, both of Wakayama, Japan, assignors to Sando Iron Works Co. Ltd., Tokyo, Japan

Division of Ser. No. 628,495, Nov. 3, 1975, abandoned, which is a continuation of Ser. No. 478,749, Jun. 12, 1974, abandoned. This application Apr. 12, 1977, Ser. No. 786,801

Int. Cl.³ D06B *3/20*

U.S. Cl. 8—151 **2 Claims**



1. A method for cleaning and fulling a cloth, comprising passing the cloth in an untensioned state through an elongated opening formed between a horizontally elongated upper net conveyor and a horizontally elongated lower net conveyor and located within a washing tank filled with cleaning fluid with the vertical spacing of the opening between the conveyors being greater than the thickness of the cloth, spraying hot fluid downwardly through the upper conveyor against the upper surface of the cloth at horizontally spaced positions along the path of travel of the cloth between the conveyors, spraying hot fluid through the lower conveyor upwardly against the lower surface of the cloth at spaced positions different from and alternating with the last mentioned positions for spraying through the upper conveyor into the elongated opening with the spray passing through the upper conveyor into the elongated opening pushing the cloth against the lower conveyor and the spray passing through the lower conveyor into the elongated opening pushing the cloth against the upper conveyor as the cloth moves along the path of travel between the conveyors, and moving the cloth through the elongated opening formed by said pair of conveyors in a wave-like manner, whereby no tension is exerted on the cloth.

4,277,861

CLEANING DEVICE FOR VENETIAN BLINDS

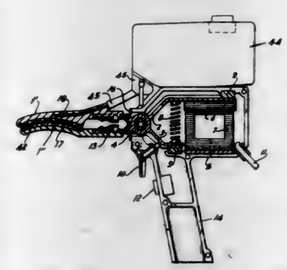
Franz Lex, Annenstrasse 6, A 8020 Graz, Austria

Filed Aug. 27, 1979, Ser. No. 70,316

Claims priority, application Austria, Sep. 4, 1978, 636578

Int. Cl.³ A47L *4/00*

U.S. Cl. 15—102 **10 Claims**



1. A cleaning device for a transversely curved Venetian blind element, which comprises

(a) a housing,

(b) a pair of cooperating cleaning bodies mounted on the housing, each cleaning body having a conformingly curved cleaning part for holding the Venetian blind element therebetween in a cleaning position of the cleaning bodies,

(c) means for manually moving one of the cleaning bodies away from the other cleaning body for spacing the cleaning parts apart, and

(d) a driving system mounted in the housing for transmitting a vibratory cleaning motion to at least one of the cleaning bodies.

4,277,862

TOOTHBRUSH

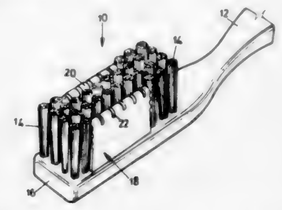
Christiaan R. Weideman, Johannesburg, South Africa, assignor to Alexander E. Vowles, Marister, South Africa

Filed Nov. 28, 1979, Ser. No. 98,054

Claims priority, application South Africa, Jan. 25, 1979, 79/0329

Int. Cl.³ A46B *9/04*

U.S. Cl. 15—110 **2 Claims**



1. A toothbrush which comprises a head, a plurality of tufts of bristles which are fixed to and project from the head, the bristles defining at their free ends an elongate brush surface, and two massage members which extend upwardly from the head and which are located on the opposing longer sides of the brush surface, each massage member having a resilient integral massage surface at or near the brush surface, being adjacent at least three tufts of bristles, and being in line with bristles at each of its ends so that the bristles provide unimpeded brushing action transversely to the massage member.

4,277,863

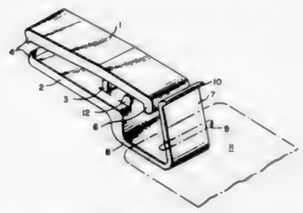
IDENTIFICATION CARD HOLDER

Daniel Faneuf, c/o Precision Design Co., 66 Nashua St., Milford, N.H. 03055

Filed May 11, 1979, Ser. No. 38,338

Int. Cl.³ A44B *21/00;* **A45F** *5/02*

U.S. Cl. 24—3 R **5 Claims**



1. A spring clip comprising:

two elongate, relatively stiff members;

a relatively flexible web forming a hinge joining the two members intermediate their ends;

opposed jaw portions on respective members at one side of the hinge; and

a spring finger on one member at the other side of the hinge resiliently biased into engagement against the other member so as yieldingly to hold the jaws closed, the spring

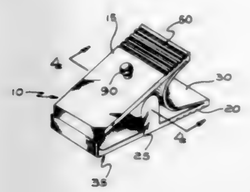
finger forming an open loop disengageable from the other member for insertion through an aperture in an article, whereby the finger serves both as a spring to close the jaws and a holder for the article.

4,277,864

SPRING OPERATED CLIP

Theodore Orson, Sr., Granby, Mass., assignor to Dielectrics Corporation, Chicopee, Mass.

Filed Nov. 21, 1979, Ser. No. 96,465
Int. Cl.[3] A44B *1/18*; A44C *3/00*
U.S. Cl. 24—327 **3 Claims**



1. Spring clip integrally molded of synthetic plastic material comprising a pair of lever arms adapted for pivotable movement about a fulcrum provided by interengageable post and socket detents formed on opposed inner surface portions of a pair of bosses, each boss extending from opposite side edges of each arm, the axis of engagement of said post and socket detents extending transversely of the direction of pivotable movement of said lever arms, the inner end portions of said lever arms being in the form of jaws which by manipulation of the outer ends of said lever arms are movable toward and away from each other for selectively clamping and releasing a material disposed therebetween, a resilient spring forming web of synthetic plastic material disposed between the outer end portions of said lever arms, the spring web being generally U-shaped and of substantially lesser thickness than said arm portions of the clip and with the outer end portions of the spring web extending from the outer ends of said lever arms and having a curved central portion disposed toward said detents, said spring web being in unstressed condition when the detents are not engaged and being energized to bias said jaws toward their mutual clamping relation when said post and socket detents are engaged, whereby said jaws are urged closed by said spring web and are opened by compressing said spring by squeezing together the outer end portions of said lever arms, said clip being molded with said bosses spaced apart with their inner surfaces generally co-planar and said spring web in its relaxed condition, said mating post and socket detents adapted to snap-fit into engagement when said lever arms are squeezed together after removal of the clip from the mold, said post and socket detents serving as the pivot fulcrum of the lever arms of said clip.

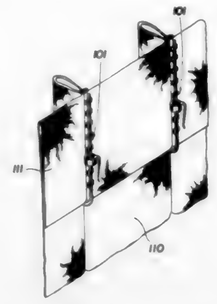
4,277,865

CURTAIN HANGER

Ietsugu Takazawa, Bancho-Chidorigafuchi Habitation 901.3 Sanbancho, Tokyo, Japan

Filed Jun. 12, 1979, Ser. No. 47,721
Claims priority, application Japan, Jun. 14, 1978, 53-81616; Sep. 11, 1978, 53-124691
Int. Cl.[3] A44G *21/00*
U.S. Cl. 24—345 **4 Claims**

1. An adjustable curtain hanger comprising a fitting part adapted to be fitted to the upper edge of a curtain, an adjusting rod attached to said fitting part in a manner to extend substantially vertically when in use, a plurality of locking projections in longitudinal spaced relationship on said adjusting rod, a hook member having a fitting cylinder attached thereto which cooperatively engages with said adjusting rod to adjustably suspend a curtain, said fitting cylinder being a cylindric member having a hole therethrough which slidably and rota ably receives said adjusting rod therein, the central axis of sa hole being substantially parallel to the cylindrical axis of sa fitting cylinder, means on said cylindrical member to allo



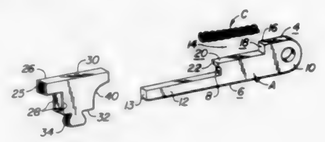
said locking projections to pass therethrough when said cylir drical member is rotated into the adjusting position, and lock ing means on said cylindrical member adapted to engage sai projections and support said fitting part when said cylindrica member is rotated into the locking position.

4,277,866

JEWELRY CLASP AND METHOD

Chang J. Song, #20-17, Yangjae-Dong, Kang Nam-Ku, Seoul Rep. of Korea

Filed Jan. 24, 1980, Ser. No. 114,869
Int. Cl.[3] A44B *19/00*
U.S. Cl. 24—238 **2 Claims**



1. A jewelry clasp comprising:

a relatively flat, elongate pin body made of malleable metal having a first end and a second end and having a finger element extending from said first end, said finger element being generally J-shaped;

said body having a spring notch formed along the upper edge of said body, said notch being bounded at one end by a spring stop portion of said body and being open at the opposed end thereof, said spring stop portion and the free end of said J-shaped finger element being in opposed, spaced, relation;

a box-like enclosure surrounding at least a portion of said body and completely surrounding said spring notch, said enclosure having an enclosure spring stop element disposed between said free end of said finger element and said spring stop portion of said body and being slidable parallel to said spring notch, said spring stop element having an inner face facing said spring stop portion and a seating surface facing said free end; and

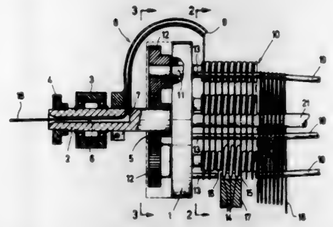
a compression spring captured within said spring notch and between said spring stop portion and said inner face thereby biasing said seating surface against the free end of said finger element to define a closeable aperture bounded by said J-shaped finger element, said enclosure and said pin body.

4,277,867

APPARATUS FOR THE CONTINUOUS DELIVERY OF A YARN OR THE LIKE IN LOOSE FORM

Florian Lucke, Mengen, Fed. Rep. of Germany, assignor to Lucke Apparate-Bau GmbH, Mengen, Fed. Rep. of Germany

Filed Oct. 26, 1979, Ser. No. 88,351
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1978, 2847291
Int. Cl.[3] D02G *1/20*; D02J *1/12, 1/22*
U.S. Cl. 28—220 **9 Claims**



1. Apparatus for the continuous delivery of a yarn in loose form comprising, in combination,

a bearing support having a plurality of axially parallel screw spindles rotatingly mounted thereon and a plurality of axially parallel reversing pins mounted thereon between the spindles, the axes of the spindles and reversing pins extending in substantially horizontal directions and the reversing pins extending beyond the ends of the spindles to form guide rods,

a flyer rotatable about the bearing support and adapted for depositing a yarn in loops over the reversing pins and into the flights of the spindles,

and means for rotating the spindles about their respective axes in directions to cause the yarn loops to progress to and beyond the ends of the spindles on to the guide rods, whereby the yarn loops become substantially perpendicularly suspended on and gradually advanced along the guide rods by mutual interaction.

4,277,868

MACHINE AND METHOD FOR SINGLE PASS TAPER MILLING

Doyle W. Huber, Kent; Richard H. Smith, and Robert L. Strong, both of Auburn, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Apr. 30, 1979, Ser. No. 34,808
Int. Cl.[3] B21B *15/00*
U.S. Cl. 29—33 Q **9 Claims**



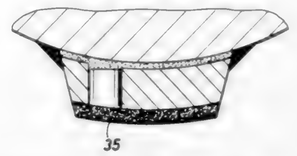
1. An apparatus for single pass taper milling of a metal strip comprising: an anvil wheel, means for driving a metal strip under tension over the anvil wheel, a milling cutter mounted for radial movement with respect to the anvil wheel, and means for controlling radial movement of the milling cutter based on linear movement of the metal strip to contour mill the strip as it passes over the anvil wheel.

4,277,869

STABILIZER

Charles A. Hartwell, 2923 Freshmeadows, Houston, Tex. 77063

Filed Jul. 30, 1979, Ser. No. 61,904
Int. Cl.[3] B21D *53/10*; F16C *1/26*
U.S. Cl. 29—149.5 R **8 Claims**



1. A method of fabricating a splined stabilizer comprising the steps of:

(a) forming an opening completely through a metal spline body which opening extends from a front or outer face and intersects a back face of said body;

(b) positioning an insert of material in said opening which insert is harder than the metal of said metal spline body;

(c) joining said insert to said spline body at said back face by means of a brazing material; and

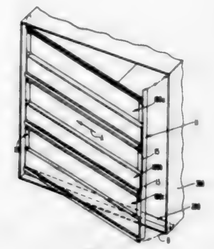
(d) thereafter joining said spline body to a stabilizer body with the back face of said spline body against the stabilizer body.

4,277,870

METHOD FOR INSTALLING AN ANGLE BLADE DAMPER

Francis J. McCabe, Doylestown, Pa., assignor to Prefco Products, Inc., Buckingham, Pa.

Division of Ser. No. 891,330, Mar. 29, 1978, Pat. No. 4,185,657, which is a continuation-in-part of Ser. No. 764,774, Feb. 2, 1977, Pat. No. 4,114,646, which is a continuation of Ser. No. 689,994, May 26, 1976, Pat. No. 4,081,173, said Ser. No. 891,330, is a continuation-in-part of Ser. No. 770,831, Feb. 22, 1977, Pat. No. 4,113,230, and Ser. No. 729,831, Oct. 4, 1976, Pat. No. 4,113,232, each is a continuation-in-part of Ser. No. 689,994, , said Ser. No. 891,330, is a continuation-in-part of Ser. No. 874,001, Jan. 31, 1978, Pat. No. 4,165,629, which is a continuation-in-part of Ser. No. 736,823, Oct. 18, 1977, Pat. No. 4,080,860, which is a continuation-in-part of Ser. No. 650,926, Jan. 21, 1976, Pat. No. 4,004,480. This application Sep. 11, 1979, Ser. No. 74,290
Int. Cl.[3] B21D *53/00*; B23P *11/00*
U.S. Cl. 29—157 R **6 Claims**



1. A method of installing a damper in an opening comprising the steps of:

(a) providing a length of blade stock having disposed along a longitudinal axis thereof a uniform hook-shaped hinge portion;

(b) providing notched angle stock lengths having periodically spaced therealong hook-shaped hinge elements for receiving and, upon rotation of the blade around a longitu-

dinal axis, for slidingly engaging said blade, at least at opposite ends of said blade;

(c) installing a length of said angle stock against at least one interior surface of said opening;

(d) inserting along a transverse axis with respect to the axis of one of said hinge elements of said installed length of said angle stock at least one end of a length of said blade stock into engagement with said hook-shaped hinge element;

(e) applying a second length of angle stock on the exposed end of said blade such that a portion of the hinge portion of said blade engages at least one hook-shaped hinge element of said second length of angle stock;

(f) pivoting said second angle stock length and said at least one blade generally around said installed angle stock length into a position within said opening wherein opposing hook-shaped hinge elements and said hinge portion of said blade are coaxially oriented; and

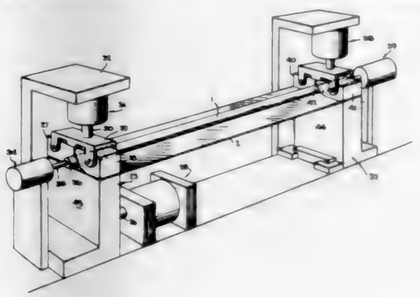
(g) attaching said second angle stock length to the opposing interior surface of said opening, to thereby create a damper within said opening.

4,277,871

HEAT EXCHANGER PANELS AND METHOD OF MANUFACTURE

Humfrey N. Udall, Darien, Conn., assignor to Thermatool Corp., Stamford, Conn.

Filed Jan. 21, 1980, Ser. No. 113,796
Int. Cl.³ B23P *15/26*
U.S. Cl. 29—157.3 C **5 Claims**



1. A method of manufacturing a heat exchanger element which comprises:

joining a metal tube to a metal sheet by means of heated metal and thereafter cooling said metal, said sheet being wide relative to the cross-sectional dimension of said tube and being thin relative to its width and the axis of said tube extending in the length direction of said sheet, said tube being joined to said sheet intermediate its width by said heated metal substantially continuously along the length of said tube, whereby upon cooling, said tube and said heated and cooled metal have a length shorter than the outboard edges of said sheet and buckling of said sheet occurs; and

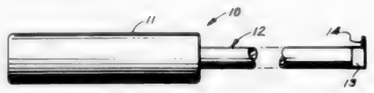
thereafter, mechanically stretching at least said tube along its axis and beyond the elastic limit of the metal thereof and by an amount sufficient to cause its length to be substantially equal to the length of the outboard edges of said sheet and to substantially eliminate ripples in said sheet caused by buckling thereof when the stretching is discontinued.

4,277,872

TOOL FOR INSTALLATION AND REMOVAL RETAINING CLIPS

Joe Lewis, 3460 W. Tulane Dr., Kenner, La. 70062

Filed Dec. 13, 1979, Ser. No. 103,284
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—229 **1 Claim**



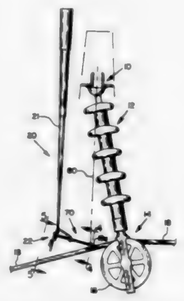
1. A tool for installation and removal of retaining clips, comprising, in combination, a straight shank having a handle on one end thereof, and a pair of spaced-apart blades on its opposite end, said blades being magnetized, a tooth on one said blade, said tooth projecting from a side edge of said blade in a direction that is at right angles to a longitudinal axis of said shank, and an end of said tooth being pointed.

4,277,873

CABLE MARKING DEVICE

Harlan B. Smith, 395 N.W. 10th, Canby, Oreg. 97013

Filed Aug. 8, 1979, Ser. No. 64,722
Int. Cl.³ B23P *19/02*
U.S. Cl. 29—235 **6 Claims**



1. A marking device for providing a datum on a plurality of objects, such as spaced-apart cables having their longitudinal axes lying generally parallel to one another, comprising:

a plurality of attachments for coupling to the cables, each attachment being formed as a resilient annular band having opposed ends, each attachment being elastically deformable radially outwardly;

dispenser means shiftable toward the cables for releasably holding said attachments including guide means defined by a plurality of elongate projections for positioning between the cables to pre-spot an attachment adjacent each of the cables prior to cable-attachment contact, each pair of said projections being spaced-apart to define a cable-receiving slot; and

mounting means disposed adjacent said projections, said mounting means being defined by retaining members extending outwardly from said projections for supporting and locating said attachments when they are elastically deformed radially outwardly so that said attachments span across an associated slot, contact of the cables with said attachments resulting in shifting of said attachments from said retaining members so that said attachments are released and inwardly contract to grip circumferential portions of the cables.

4,277,874

AIR FILTRATION BAG REPLACEMENT DEVICE

Michael D. Brown, 27011 Nudgent, and Keaneth A. Brown, P.O. Box 402, both of Boron, Calif. 93516

Filed Sep. 17, 1979, Ser. No. 75,764
Int. Cl.³ B23P *19/02*
U.S. Cl. 29—235 **2 Claims**



1. Apparatus for facilitating the insertion of the cylindrical frame into a filter bag having a circular mouth for collecting airborne particulate matter comprising:

a cylindrical member having an axial discontinuity in the side walls thereof, the outer diameter of the cylindrical member being at least equal to the inner diameter of the mouth of the bag and the inner diameter of the cylindrical member being no less than the outer diameter of the frame;

a rod spanning the discontinuity and attached to the cylindrical member at one side of the discontinuity;

a lever attached to the cylindrical member at the outer side of the discontinuity and coupled to the rod, said lever being manually actuatable to draw the side walls of the cylindrical member together to decrease the outer diameter of the cylindrical member to slightly less than the inner diameter of the mouth of the bag so that the mouth of the bag can be inserted over one end of the cylindrical member, said lever having a over-center locking position when the side walls of the cylindrical member have been drawn together; and

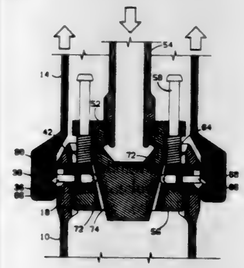
means for clamping the mouth of the bag in position over one end of the cylindrical member so that the frame can be inserted into the bag through the other end of the cylindrical member after the release of the lever.

4,277,875

VMP RISER RELEASE TOOL

J. Robert Worrell, Tulsa, Okla., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Sep. 4, 1979, Ser. No. 72,725
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—253 **3 Claims**



1. A releasing tool for connecting to the lower end of a string of drill pipe which comprises:

(a) a cam carrier having a longitudinal axis connectable to the lower end of said drill string and having a conical cone section about said axis;

(b) an annular releasing pin block having a plurality of radial holes extending therethrough;

(c) a releasing pin in each said hole with biasing means forcing the inner end of each said pin into the open cylindrical space within said annular releasing pin block;

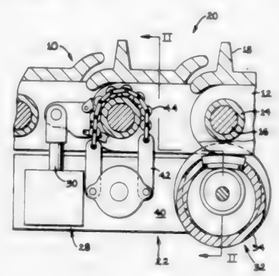
(d) means to support said annular releasing pin block from said cam carrier including biasing means urging said pin block and said cam carrier longitudinally apart and holding said pin block and said cam such that when said releasing block is moved toward said cam carrier that said cam forces said releasing pins outwardly.

4,277,876

METHOD FOR ROTATING A TRACK CHAIN BUSHING

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 916,974, Jun. 19, 1978, Pat. No. 4,187,744.
This application Sep. 17, 1979, Ser. No. 75,929
Int. Cl.³ B23P *7/00*; **B21D** *53/10*
U.S. Cl. 29—402.01 **3 Claims**



1. In a method for rotating a bushing (**14**) of an assembled and in place track (**10**) of a track-type vehicle (**20**) to expose a new wear surface, said track (**10**) having interconnected links (**12**) fitted on opposed ends of the bushing (**14**), said method including applying a rotative force to the bushing (**14**), the improvement comprising:

impacting the links (**12**) and applying a rotative force to the links (**12**) opposite in direction to the rotative force applied to the bushing (**14**) connected to the links (**12**).

4,277,877

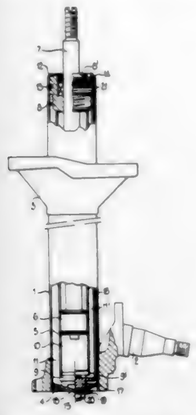
METHOD FOR MOUNTING A REPLACEMENT SHOCK ABSORBER

Martinus de Koning, Oud-Beijerland, Netherlands, assignor to ITT Industries, Inc., New York, N.Y.

Filed Sep. 13, 1979, Ser. No. 75,210
Claims priority, application Netherlands, Sep. 22, 1978, 7809636
Int. Cl.³ B23P *7/00*
U.S. Cl. 29—402.08 **2 Claims**

1. A method for mounting a replacement shock absorber to replace the elements necessary for the damping action in a wheel suspension system which is provided with a housing which is closed at the bottom, to which a wheel carrier is connected and in which the housing comprises at the top a non-removable cylinder cover while the elements inside the housing for the damping action comprise a piston in a cylinder connected by means of a piston rod passing through the cylinder cover to a part of the carriage to be carried by the wheel, and in which the piston in the cylinder and the cylinder rod in the cylinder cover form guides for the wheel suspension system, said method comprising the steps of removing the portion of the top side of the housing which encloses the cylinder cover in a non-detachable way by machining, removing the damping action elements from the housing, providing a bore in the bottom side of the housing, thereafter inserting a replacement shock absorber unit from the top into the housing

whereby the cylinder cover of the replacement shock absorber unit interferingly fits in the top side of the housing, and secur-



ing the shock absorber unit to the housing by means of a fastener through the bore of the bottom side of the housing.

4,277,878

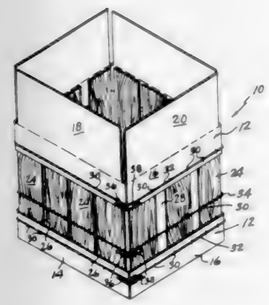
METHOD OF MAKING WIRE-BOUND SHIPPING CARTON

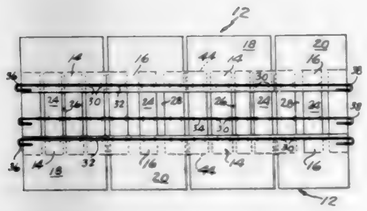
James E. O'Neal, Pompano Beach, Fla., assignor to Vernon E. Ramsey, Inc., Boca Raton, Fla.

Division of Ser. No. 28,700, Apr. 10, 1979, abandoned. This application Nov. 20, 1979, Ser. No. 96,195

Int. Cl.³ B23P *11/00*

U.S. Cl. 29—432 **4 Claims**





1. The method of making a shipping carton for fruits, vegetables, and the like, comprising the steps of:

a. forming substantially identical top and bottom closure members from a pair of planar blanks, each blank having fold lines to define four sides of a rectangular, tubular rim, and slits defining flaps foldable to overlie one another and close one side of the rim;

b. arranging a plurality of slats in spaced parallel relation to one plane;

c. placing the closure member blanks in flat unfolded condition with their rim portions covering the ends of the slats and their flap portions disposed outwardly away from each other;

d. placing an elongated binding element along each rim portion covering the rim and the underlying slat ends; and

e. fastening the binding elements to the adjacent rim and slat ends, thereby completing the carton in flat condition ready for shipment to a packing destination where the carton may be folded into a box-like structure.

4,277,879

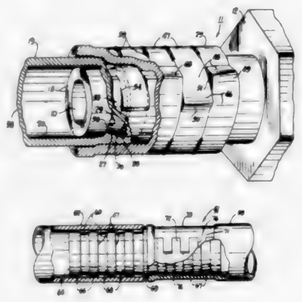
TUBING JOINT ASSEMBLY METHOD

Ralph G. Ridenour, 626 Lexington-Ontario Rd., Mansfield, Ohio 44903

Division of Ser. No. 887,491, Mar. 17, 1978, Pat. No. 4,231,596. This application Nov. 8, 1979, Ser. No. 92,459

Int. Cl.³ B21D *39/00;* **B23P** *11/02*

U.S. Cl. 29—508 **26 Claims**



1. The method of making a tube joint assembly between inner and outer tubular parts by use of two dies comprising, the steps of,

forming a plurality of peripheral ribs on the outer surface of the inner tubular part with each rib having a laterally extending shoulder and a biting surface,

telescoping the outer tubular part over the inner tubular part,

and laterally compressing the outer part inwardly by two dies having interdigitated teeth to form on the exterior surface of the joint assembly a toothed area of a plurality of circumferentially extending teeth,

said lateral compression causing said biting surfaces to indent the outer part and form a shoulder on the outer part acting longitudinally against said laterally extending shoulder on the inner part to longitudinally retain together the tubular parts,

and said lateral compression establishing a fluid pressure tight seal which includes an annular area at the junction of the parts generally at said biting surfaces.

4,277,880

TRACING MILLING MACHINE WITH AN AUTOMATIC TOOL CHANGER

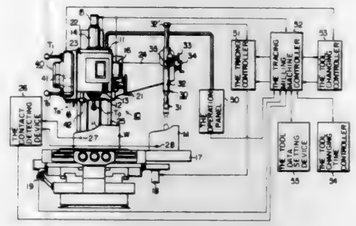
Keizo Utsumi, Kanagawa, Japan, assignor to Makino Milling Machine Co., Ltd., Tokyo, Japan

Filed Jul. 31, 1979, Ser. No. 62,285

Claims priority, application Japan, Aug. 5, 1978, 53/95026

Int. Cl.³ B23Q *3/157, 35/121*

U.S. Cl. 29—568 **15 Claims**



1. A tracing milling machine for duplicating a shape of a model on a workpiece comprising:

a vertical spindle head having a rotatable spindle effective to removably hold a cutting tool;

a tracer portion having a tracer head and a tracer capable of performing a tracing movement over the model;

a work table having a mounting surface on which the model and the workpiece to be machined are fixedly mounted;

means for controlling a servo movement of said work table in vertical and horizontal directions;

an automatic tool changing means for automatically replacing said cutting tool with another cutting tool;

means for defining a predetermined positional relationship between said another cutting tool and said tracer; and

means for automatically establishing said predetermined positional relationship whenever said automatic tool changing means completes its replacement of said cutting tool.

4,277,881

PROCESS FOR FABRICATION OF HIGH DENSITY VLSI CIRCUITS, HAVING SELF-ALIGNED GATES AND CONTACTS FOR FET DEVICES AND CONDUCTING LINES

Gordon C. Godejahn, Jr., Santa Ana, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed May 26, 1978, Ser. No. 909,886

Int. Cl.³ H01L *21/225, 29/78*

U.S. Cl. 29—571 **10 Claims**

1. A process for fabricating very large scale integrated circuits including field effect semiconductor devices and conducting lines on a monocrystalline silicon semiconductor substrate having a first surface on which said integrated circuits are to be formed, comprising the steps of:

forming a field oxide on said first surface surrounding and isolating selected areas of said first surface on which respectively corresponding active devices are to be formed,

thermally growing a silicon dioxide layer on said selected areas of said first surface, of a thickness suitable for the gate insulator layer of an active device,

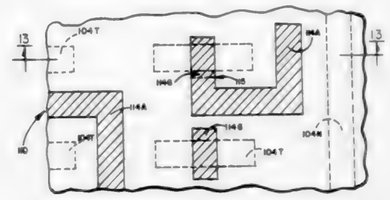
forming a silicon nitride layer on said silicon dioxide layer extending at least over said selected areas,

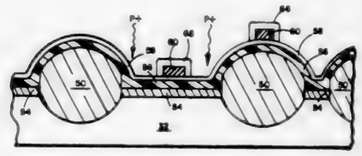
depositing a layer of doped polysilicon on said nitride layer,

delineating said polysilicon layer to define a gate polysilicon layer extending transversely of said selected area for each said active device and to define polysilicon conducting lines of said field oxide, and removing remaining portions of the polysilicon layer, said gate polysilicon layer defining first and second, remaining portions of said selected area corresponding to source and drain regions to be formed for each said active device,

oxidizing the surfaces of said gate polysilicon layer and of said polysilicon conducting lines while retaining the silicon nitride layer over said source and drain regions of each active device to prevent the formation of any substantial amount of thermal oxide on said source and drain regions,

removing exposed portions of the silicon nitride layer by a material selective, batch etch removal process, thereby to





expose the underlying silicon dioxide layer on said source and drain regions,

removing the silicon dioxide layer uncovered by removal of the portions of the nitride layer, thereby to expose the surface of said substrate at said source and drain regions to be formed for at least selected ones of said active devices thereby to provide self-aligned vias for contacts to said source and drain regions to be formed for said selected active devices, and

doping said first and second portions to form said source and drain regions for said selected, active devices.

4,277,882

METHOD OF PRODUCING A METAL-SEMICONDUCTOR FIELD-EFFECT TRANSISTOR

Peter A. Crossley, Garden Grove, Calif., assignor to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed Dec. 4, 1978, Ser. No. 966,182

Int. Cl.³ B01J *17/00;* **H01L** *21/265*

U.S. Cl. 29—571 **4 Claims**

1. A method of producing a Schottky-barrier, field-effect transistor comprising:

providing a semiconductor body of one conductivity type and a low impurity concentration;

forming an ion implantation layer of said one conductivity type through the surface of said body, said ion implantation layer having a higher impurity concentration than said semiconductor body;

oxidizing said surface of the body to provide an electrically insulating oxide layer portion of said body over the ion implantation layer;

masking an area of said insulating oxide layer wherein said area is surrounded by an exposed portion thereof;

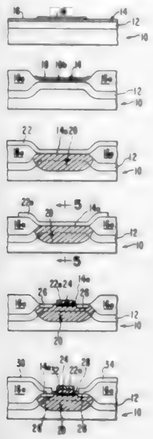
oxidizing the body again at a high temperature to increase the thickness of the exposed portion of said insulating oxide layer to form a field oxide layer;

removing the mask and said thin oxide thereunder to expose a region of higher impurity beneath the area previously covered by the mask;

forming a region of opposite conductivity type opposite to

said one conductivity type in said body in the exposed region and extending the region of opposite conductivity type under a portion of oxide layer and into the semiconductor body beneath the ion implantation layer;

providing a conductive gate forming a Schottky junction



with an exposed portion of the region of opposite conductivity type and extending over the field oxide layer but not in contact with any region of said one conductivity type; and

forming source and drain regions in said region of opposite conductivity type adjacent said gate.

4,277,883

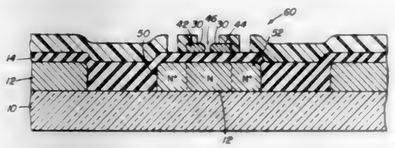
INTEGRATED CIRCUIT MANUFACTURING METHOD

Steven H. Kaplan, Acton, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 864,294, Dec. 27, 1977, abandoned. This application Nov. 8, 1979, Ser. No. 92,612

Int. Cl.³ H01L *21/308*

U.S. Cl. 29—571 **10 Claims**



3. A method for forming a semiconductor structure comprising the steps of:

(a) forming a semiconductor layer on a substrate;

(b) forming an insulating layer over the semiconductor layer;

(c) forming a masking layer over the insulating layer;

(d) masking a portion of the masking layer with a mask;

(e) depositing particles into unmasked portions of the masking layer to form separated regions of such particles;

(f) diffusing the particles into masked portions of the masking layer to extend the separated regions, symmetrically, partially into the masked portions of the masking layer to separate such regions a predetermined width, with such separated regions having a predetermined particle concentration;

(g) forming an aperture in such masking layer having a predetermined width to expose a portion of a surface of the insulating layer comprising the step of exposing the masking layer to a chemical etchant to selectively remove portions of the masking layer which have a particle concentration below the predetermined particle concentration;

(h) bringing an etchant into contact with the entire surface portion of the insulating layer exposed by the aperture, removing the entire portion of the surface of the insulating layer exposed by the aperture and forming an aperture in such insulating layer; and

(i) depositing a metal through the aperture in the insulating layer onto an exposed portion of the semiconductor layer forming a Schottky gate contact between the metal and the semiconductor layer.

4. The method recited in claim 3 including the additional step of concurrently forming an enhancement mode field effect transistor on such substrate.

4,277,884

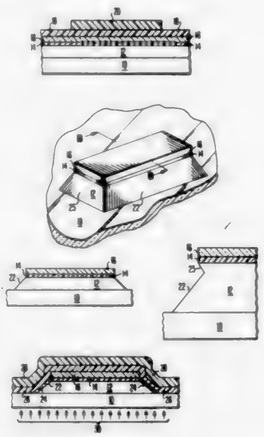
METHOD FOR FORMING AN IMPROVED GATE MEMBER UTILIZING SPECIAL MASKING AND OXIDATION TO ELIMINATE PROJECTING POINTS ON SILICON ISLANDS

Sheng T. Hsu, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 4, 1980, Ser. No. 174,845

Int. Cl.³ H01L *21/205, 21/84*

U.S. Cl. 29—571 **5 Claims**



1. A process for forming an improved gate structure for a metal-oxide-semiconductor device wherein an island of silicon is formed on an insulating substrate, the island having slanted side walls producing a base surface adjacent the substrate that is broader and longer than the top surface thereof and characterized by the presence of an objectionable projecting point at the upper portion of the side walls adjacent the top surface, comprising the steps of:

forming a layer of gate oxide on the top surface of the island;

forming a masking layer over the layer of gate oxide;

forming a layer of silicon oxide on the side walls of the island;

removing portions of the silicon oxide on the side walls to expose the projecting point;

oxidizing the projecting point to form a bird beak portion extending between and joining the gate oxide with the remaining portions of the silicon oxide;

removing the masking layer to expose the gate oxide layer; and

forming a gate member on the exposed layer of gate oxide to extend over the bird beak portion.

4,277,885

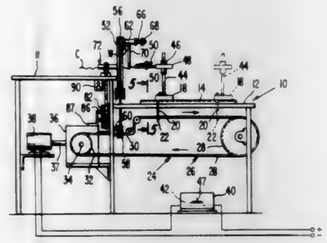
MACHINE FOR MANUFACTURING WREATHS

Monty Scudder, Bordentown-Chesterfield Rd. R.R.#2, Box 192, Trenton, N.J. 08620

Filed Feb. 21, 1979, Ser. No. 13,756

Int. Cl.³ B23P *19/04;* **A46D** *3/04*

U.S. Cl. 29—780 **2 Claims**



2. A machine for making wreaths of the type having a plurality of connected sections each of which is formed of a core element, decorative facings to the core element, comprising:

(a) a support frame;

(b) a carriage mounted for rectilinear movement upon said support frame, said carriage including rotatable gripping means for releasably holding one end of a core element to be wrapped with facing materials;

(c) a wrapping wheel rotatably mounted upon the support frame, said wrapping wheel including an annular member having an open center, and a spool rotatably mounted upon the periphery of the annular member, said carriage being movable upon the support frame in a direction away from the wheel and being adapted to support a core element with the length of the core element extending substantially axially of the wheel, whereby to feed the core element through the wheel responsive to movement of the carriage away from the wrapping wheel and thus spirally wrap said wire about the core element and about facings applied thereto as the core element is fed through the wheel with the wheel being rotated thereabout;

(d) drive means for the wrapping wheel and carriage adapted to be started and stopped under the control of a user, for conjoint starting, stopping, and movement of the wrapping wheel and carriage, said carriage being adapted for releasable engagement with the drive means, whereby to free the carriage for return to a starting position adjacent the wrapping wheel following the wrapping of a core element after the core element has been fed through the wrapping wheel;

(e) a support member for the core element mounted upon the support frame for rotational movement about an axis common to the axis of rotation of said gripping means, said support member having an end-to-end passage in which the core element is freely slidable, said support member and carriage being mounted upon the support frame at opposite sides of the wrapping wheel;

(f) means mounted upon the support frame for rotating the support member, operable independently of the drive means for the wrapping wheel and carriage, at times selected by a user; and

(g) a driving connection from the support-member-rotating means, adapted for imparting rotational movement to the support member responsive to each advancement of the ratchet by the pawl, said driving connection being adapted to rotate the support bar through an angular distance less than 360° upon each one-step advancement of the ratchet, whereby to present, in sequence, different angularly spaced sides of the core element to a user to permit the user to apply facings to said sides of the core element while it is being fed through the wrapping wheel.

4,277,886

METHOD FOR MANUFACTURING AN ENCAPSULATED PROBE ON SHEATHED THERMOCOUPLES

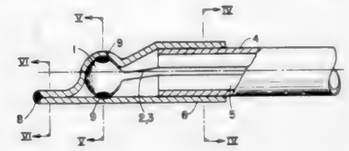
Heinrich F. Bauer, Eichenau, and Ernst Feitzelmayer, Munich, both of Fed. Rep. of Germany, assignors to Motoren-und Turbinen-Union München GmbH, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,894

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1978, 2847296

Int. Cl.³ H01R *43/02*

U.S. Cl. 29—860 **11 Claims**



1. In a method for manufacturing an encapsulated probe on sheathed thermocouples including thermocouple wires embedded in an external metal sheath, an insulating material encasing said wires, and a bead is formed by electrically or autogeneously processing the extreme portions of the thermocouple wires projecting from the metal sheath, the improvement comprising:

(a) positioning a thin-walled sleeve of a material similar to that of the metal sheath for about one-half over the bead and one-half over the metal sheath;

(b) pressing said sleeve onto the bead and the metal sheath so as to form an omega-shaped sleeve section and with the contour of the bead remaining to be at least visually apparent in the outer contour of the sleeve;

(c) squeezing the sleeve end remote from the metal sheath and projecting beyond the bead together around the contour of the bead into a generally duck's foot configuration;

(d) weld sealing the remaining frontal gap at the pinched sleeve end;

(e) welding or soldering the sleeve to the sheath at its face immediately adjacent the metal sheath to form a tight seal wherein the solder is a silver or high-temperature nickel solder selected in conformance with the particular operating temperature of the thermocouple.

4,277,887

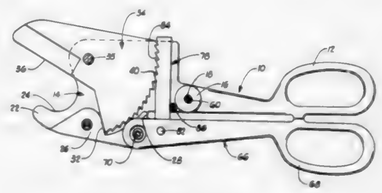
CONDUIT CUTTING APPARATUS

Robert R. Rady, Strongsville, Ohio, assignor to Indian Head Inc., New York, N.Y.

Filed May 10, 1979, Ser. No. 37,692

Int. Cl.³ B26B *13/00*

U.S. Cl. 30—92 **13 Claims**



1. A conduit cutting apparatus comprising:

a first handle;

a conduit-receiving jaw at one end of said first handle;

a shearing blade pivotally mounted on said first handle at a location for pivoting toward and away from said conduit-receiving jaw, said blade having a plurality of ratchet teeth along one edge thereof;

a second handle pivotally connected to said jaw;

an elongated toothed pawl bar having pawl teeth adjacent one end thereof and having a second end pivotally connected to said second handle, said pawl bar having a slot formed therein at a location adjacent said second end, said slot being angled with respect to the longitudinal axis of said pawl bar;

a fulcrum pin secured to said first handle and bearing guidingly against said pawl bar; and

lever means cooperating with said pawl bar and said second handle for pivoting said toothed pawl bar on said fulcrum pin to engage and disengage sand pawl teeth and said ratchet teeth when said handles are pivoted toward and away from each other, said lever means including a lever stud secured to said second arm and extending through said slot in said elongated toothed pawl bar.

4,277,888

KNIFE

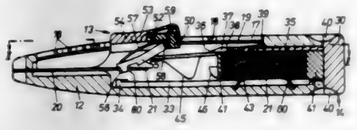
Stephan L. Szabo, Peteracherstrasse 2, CH-8126 Zumikon, Switzerland

Filed May 21, 1980, Ser. No. 151,871

Claims priority, application Switzerland, May 25, 1979, 4875/79

Int. Cl.³ B26B *29/00*

U.S. Cl. 30—162 **12 Claims**



1. A knife comprising a hollow knife handle, a guide slit in one end of the knife handle, a blade pusher advanceable and retractable relative to the knife-handle and arrestable in detent positions defined in the knife handle, a receptacle in the knife handle for receiving a blade magazine containing a stack of blades, a blade-changing device reciprocably movable relative to the blade magazine receptacle into and out of the knife handle, the said blade-changing device having an end projecting out from the knife handle and having its own handle for effecting its reciprocating movement, has first and second entraining members forming part of the blade-changing device and extending along a respective side of the blade magazine receptacle, the first entraining member being effective in use to retract a used blade from the said guide slit into the blade magazine while the second entraining member being effective to advance a new blade from the blade magazine to a predetermined position, said blade pusher being effective to engage said new blade at said predetermined position and push it into an operative position in the said guide slit.

4,277,889

GLASS CUTTING MEANS

Edwin T. Oberg, Padstow, Australia, assignor to West End Glass Co. Limited, New South Wales, Australia

Filed Dec. 3, 1979, Ser. No. 99,737

Claims priority, application Australia, Dec. 7, 1978, PD7044

Int. Cl.³ C03B *33/10*

U.S. Cl. 30—164.95 **6 Claims**

1. A glass cutting device for flat glass comprising a glass cutting head; a guiding frame including a first arm and a second arm which are disposed transversely of one another, said cutting head being slidably positioned along said first arm having a longitudinal axis; and a plurality of rotary rollers having axes of rotation and disposed along said second arm in a spaced relationship, said axes of rotation of said rollers being disposed at an angle of 15° to 75° to said longitudinal axis, said rollers being adapted to engage with an edge of a sheet of glass



to be cut when said cutting head engages with the face of the glass sheet.

4,277,890

DEVICE FOR CUTTING MULTIPLE PLIES OF MATERIAL

Lawrence A. Portnoff, 818 Olive St. #22, St. Louis, Mo. 63101

Continuation-in-part of Ser. No. 891,631, Mar. 30, 1978, abandoned. This application Dec. 3, 1979, Ser. No. 99,912

Int. Cl.³ B26B *7/00*

U.S. Cl. 30—273 **4 Claims**

1. A device for cutting multiple plies of cloth having extended substantially flat surfaces; said devise comprising a base for being placed on a substantially horizontal surface;

a column attached to said base,

means for oscillating a knife for cutting said cloth, said oscillating means being attached to said column;

a knife having an edge for cutting said cloth attached to said oscillating means; and means for inclining said edge of said knife with respect to a vertical axis with respect to said substantially horizontal surface at such an angle whereby said knife edge, in operation, cuts the said multiple plies of cloth at an angle of substantially 90 degrees to the extended surface of each ply.

4,277,891

LENS TAPE CUTTER

Harold R. Dick, West Brookfield, Mass., assignor to American Optical Corporation, Southbridge, Mass.

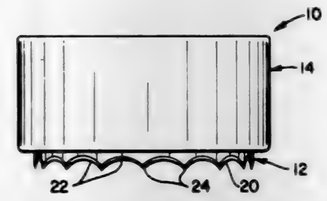
Filed Jun. 13, 1980, Ser. No. 159,316

Int. Cl.³ B26B *3/00*

U.S. Cl. 30—316 **8 Claims**

1. A tape cutter for ophthalmic lenses comprising an annular blade having opposite internal and external sides of substantial width, a sharpened serrated cutting edges and an opposite blunt mounting edge;

an annular internally recessed holder having a circular slot in said recess for receiving said mounting edge of said



blade, said blade being seated in said slot with said cutting edge and a major portion of said internal side thereof exposed, the major portion of width of said external side of said blade resting against said holder.

4,277,892

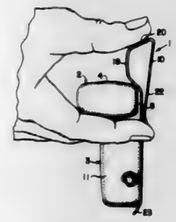
GOLF TEE AWL AND AWL RETAINING SHEATH

Harold E. Rushforth, 1918 Monument Rd., NW., Canton, Ohio 44709

Filed Jan. 25, 1980, Ser. No. 115,398

Int. Cl.³ B26F *1/00*

U.S. Cl. 30—368 **6 Claims**



4. The combination of a golf tee awl for making holes in the ground for inserting golf tees and a sheath comprising:

(A) an awl having;

(1) a handle, and

(2) a shank having one end connected to the handle and the opposite end being pointed for insertion into the ground, and

(B) a sheath comprising;

(1) an elongated clip for attachment to the belt of a person using the awl,

(2) an elongated awl receiving member fixedly attached to the clip in parallel alignment therewith,

(3) said awl receiving member having an axial receptacle therein for receiving the shank, and

(4) an outwardly extending awl retaining means on the clip engaging the handle of the awl to releasably retain the awl in the sheath,

(5) said awl retaining means having a relatively flat portion inclined at an angle with respect to the axis of the receptacle, against which pressure may be applied by the user's thumb to move the awl retaining means out of engagement with the handle portion to permit withdrawal of the awl from the sheath by simultaneously pulling upwardly on the handle.

4,277,893

DRAWING INSTRUMENTS

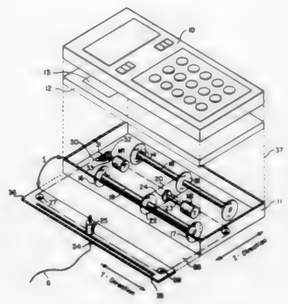
Christian Munther, In den Schliermatten 6, 7813 Staufen, Fed. Rep. of Germany

Filed Feb. 21, 1979, Ser. No. 13,570

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1978, 2809480

Int. Cl.³ B43L *13/00*

U.S. Cl. 33—18 R **13 Claims**



1. A drawing instrument comprising a movable base, transport means on said base, transport drive means for driving said transport means over a sheet, scribing means on said base, scribe driving means for moving said scribing means on said base, control means for controlling selectively said transport drive means and said scribe drive means, an electronic calculator and connection means between said electronic calculator and said control means, said control means and said electronic calculator as well as said connection means being arranged on and moving with said base, and a current supply for said drawing instrument on said base, whereby said instrument is self contained and is a unitary independent mechanism independent of external controls.

4,277,894

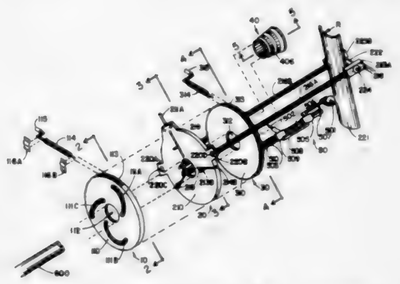
PIPE JOINT INTERSECTION CONTOUR SCRIBER

Lance B. Dube, Box 753 K - 171 E. 17th St., Reserve, La. 70084

Filed Mar. 22, 1979, Ser. No. 22,856

Int. Cl.³ B43L *13/10*

U.S. Cl. 33—21 C **10 Claims**



1. A pipe joint intersection contour scriber comprising:

(a) a replaceable and adjustable template unit;

(b) a circular plate fixedly attached to the template unit and having a central hole formed therein and further having clamping means positioned within the hole and carried by the circular plate for clamping to the pipe to be scribed;

(c) a first rotatable gear unit having a central hole formed therein through which the pipe to be scribed is positioned; the unit being connected to and positioned on one side of

the circular plate and having first means associated therewith for rotatably positioning the first gear unit and the circular plate at a desired position;

(d) a second rotatable gear unit having a central hole formed therein through which the pipe to be scribed is positioned; the unit being positioned on the other side of the circular plate and having second means associated therewith for rotatably positioning the second gear unit;

(e) a collar unit positioned over the pipe to be scribed and through the central holes on the circular plate and the first and second gear units; and

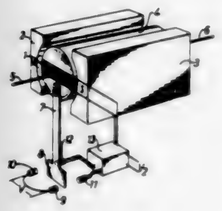
(f) a scriber unit movably attached to the second gear unit and having a circular follower disc thereon for moving over the template and further having a scriber point for scribing the pipe.

4,277,895

APPARATUS FOR INDICATING ANGULAR POSITION IN A VERTICAL DIRECTION

Kiss R. Wiklund, Täby, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

Filed May 8, 1979, Ser. No. 37,105
Claims priority, application Sweden, May 31, 1978, 7806294
Int. Cl.³ G01C *9/06;* **G01P** *15/08*
U.S. Cl. 33—366 **14 Claims**



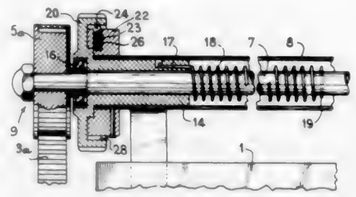
1. An accelerometer for use in vertical angle measurements, said accelerometer comprising a pendulum which is rotatable about an axis and which includes a weight at the free end thereof, rotable means for mounting said pendulum for rotation about said axis, and a control means for rotating the pendulum to the angular position to be measured with respect to a vertical reference of the pendulum, said rotatable means comprising a movable coil mounted on a core and rotatable relative to a magnet arrangement disposed adjacent thereto, said pendulum being mechanically secured to said movable coil and said core being rotatable in a constant magnetic field produced by said magnet arrangement, said control means supplying a current through the coil of such polarity and magnitude that the coil provides a degree of rotation of the pendulum, with respect to a vertical reference position thereof, substantially equal to the angle to be measured, said current through said coil being representative of the angle to be measured, said accelerometer further comprising detector means for detecting the angular position of the pendulum with respect to a vertical reference position, converter means connected to the output of said detector means for producing a digital electrical signal in accordance with the output of said detector means, and a calculating means, including a correcting means having stored correction values corresponding to predetermined digital signal values, for receiving said digital electrical signals and for producing an output directly related to the true angular value to be measured based on the signals from the converter means and the corresponding value stored by the correcting means.

4,277,896

MECHANISM FOR CONTROLLING THE DISPLACEMENT OF A STRAIGHT EDGE ON A DRAWING BOARD

Pierre Denise, 6 Rue de la Vallee, Saint-Nicolas D'Acy, 60302 Senlis, France

Filed Sep. 13, 1979, Ser. No. 75,535
Claims priority, application France, Sep. 19, 1978, 78 26807; Aug. 21, 1979, 79 21053
Int. Cl.³ B43L *13/02*
U.S. Cl. 33—443 **19 Claims**



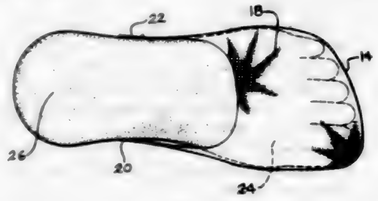
1. A mechanism in combination with a drawing board which has two opposed sides and for controlling the displacement of a straight-edge while maintaining the straight-edge parallel to itself on the drawing board, said mechanism comprising a rotary shaft, support means for maintaining the shaft parallel to the straight-edge, two pulleys respectively carried by the shaft adjacent opposed ends of the shaft, two guide means respectively mounted alongside the two opposed sides of the board, each guide means being cooperative with a respective one of said pulleys, one of two elements consisting of the straight-edge and the board being connected to move in translation with one of the pulleys and the other of said elements being connected to move in translation with the guide means, a device for balancing the straight-edge and comprising a torsion spring wound around the shaft and having a first end portion which is connected to rotate with said shaft and a second end portion, means for regulating the tension of the spring and comprising a sleeve which is interposed between the shaft and the support means and to which sleeve is fixed said second end portion of the spring, the elements consisting of the sleeve and the shaft and the elements consisting of the sleeve and the support means being relatively rotatable, and withdrawable means for releasably rendering the sleeve rigid with the support means.

4,277,897

DANCE/GYMNASTIC FOOTLET

Betty O'Connell, 2122 White Chapel, Toledo, Ohio 43614

Filed Oct. 1, 1979, Ser. No. 80,386
Int. Cl.³ A43B *3/00, 3/18*
U.S. Cl. 36—106 **2 Claims**



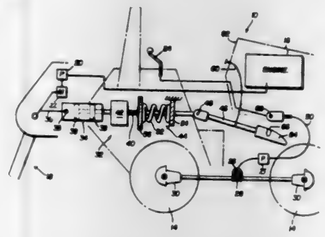
1. A footlet for gymnasts, dancers and the like for providing the wearer with a limited support surface having a coefficient of friction less than that of the wearer's foot and determined by the material of said footlet in the support area thereof, said footlet including a toe section adapted to fit over the bare foot of the wearer having a bottom portion and a top portion joined at their forward and lateral edges to form a pocket for receiving and generally conforming to the forward end of the wearer's foot with said bottom portion covering only the ball area and toes on the bottom of the foot to define said support surface, and a securing strap extending rearwardly around the heel of the wearer.

4,277,898

HYDRAULIC CONTROL SYSTEM FOR EXCAVATING MACHINE

James S. Flippin, Clearwater, Kans., assignor to J. I. Case Company, Racine, Wis.

Filed Dec. 26, 1979, Ser. No. 106,794
Int. Cl.³ A01B *67/00;* **E02F** *5/06*
U.S. Cl. 37—86 **1 Claim**



1. In a hydrostatically operated earth-working machine having separate hydraulic circuits, one of said hydraulic circuits powering a ground drive system for said machine and another hydraulic circuit powering an earth-working implement which is attached to said machine, the improvement comprising:

a hydraulic control system for automatically adjusting the travel speed of said machine in response to load conditions encountered by said attached earth-working implement, said hydraulic control system including a control piston-cylinder which is mounted to said machine, said control piston-cylinder being hydraulically connected to said implement hydraulic circuit at its piston end, said piston including an elongated piston rod;

an adjustable spring mechanism being mounted to said machine outside said control cylinder, said elongated piston rod passing through said spring mechanism and being linearly movable therein, said spring mechanism including a coil spring, said piston rod passing through said coil spring and being linearly movable therein, one end of said coil spring being fixed to said machine and the other end of said spring bearing against an adjustable disk which is threadedly mounted to said piston rod;

a control link pivotally mounted to the end of said piston rod opposite said piston;

cable control means mounted to said machine, one end of said cable control means being connected to a ground drive hydraulic pump and the other end of said cable control means being mounted to said machine adjacent said pivotal control link, said ground drive pump being hydraulically connected to said ground drive circuit;

said spring mechanism being connected to said piston rod and reacting against said piston to keep said piston retracted when there is no pressure in said implement hydraulic circuit, the presence of pressure in said implement circuit causing said piston to extend against the resistance of said spring mechanism;

said piston being extendable a pre-determined distance due to increased hydraulic pressure in said implement circuit when said earth-working implement is under load, means for selectively locking said control link into an engaged position with said cable control means when said piston has been extended said pre-determined distance; and

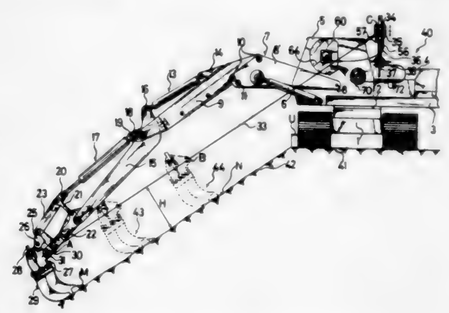
changes in pressure in the implement hydraulic circuit due to increased and decreased load on said implement causing corresponding linear shifting movement of said piston, said shifting movement of said piston being transmitted by said control link in its engaged position to said ground control pump for automatically adjusting the travel speed of said machine in response to the load being encountered by said implement.

4,277,899

EXCAVATING MACHINE WITH POSITION INDICATION OF ITS WORK IMPLEMENT

Wilfried Güthoff, Witten-Annen, Fed. Rep. of Germany, assignor to Friedrich Wilh. Schwing GmbH, Herne, Fed. Rep. of Germany

Filed Nov. 30, 1979, Ser. No. 98,825
Claims priority, application Fed. Rep. of Germany, Dec. 1, 1978, 2851942
Int. Cl.³ E02F *5/02*
U.S. Cl. 37—103 **10 Claims**



1. An excavating machine with position indication of its preferably parallel guided work implement formed, for example, as a back hoe, that by means of a pivoting drive is movable about a pivot point on a dipper stick, said dipper stick being rotatably fastened on a preferably multi-part boom articulated on the upper part of the excavating machine with a further pivoting drive, characterized in that for the position indication an indicator (**64**) is provided, that is controlled by a guide rod **33**, that represents a connection between the swivel joint (**31**) of the work implement (**29**) and a parallel axis base swivel joint (**34**) on the pivotable excavating machine upper part (**3**) and that the position indication is calibratable on the indicator scale for inclination of the excavating machine in the linkage plane and for different distances (U) of the excavating machine from the work plane (**42**) through position adjustment of the axis parallel swivel joint (**34**) on the upper part (**3**) of the excavating machine.

4,277,900

IRON STEAM CHAMBER CONSTRUCTION

Harold W. Gowdy, Asheboro, N.C., assignor to General Electric Company, New York, N.Y.

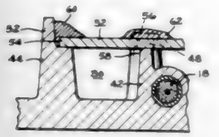
Filed Apr. 4, 1980, Ser. No. 137,122
Int. Cl.³ D06F *75/06*
U.S. Cl. 38—77.83 **6 Claims**

1. In a steam iron with a handle, water tank, and steam generating soleplate with ports and continuous vertical wall enclosing and spaced from an elongated heating element, steam directing ribs within said wall and a coverplate secured to upstanding bosses to form a steam generating and distributing chamber an improvement in said chamber comprising,

said bosses disposed along but spaced inwardly of said wall forming a straight passage along said wall,

a continuous lip along the wall upper outer edge forming a cup-like niche for the coverplate,

said lip extending above the coverplate, and
a high temperature adhesive sealant along and covering the coverplate periphery at said lip,



whereby the coverplate is anchored to the soleplate at said lip and said inward bosses entirely external to the generating and distributing chamber.
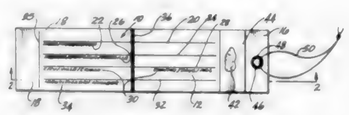
4,277,901
WATERCOLOR PAPER STRETCHER
Hugh M. Williams, 34 NE. 37, Oklahoma City, Okla. 73105
Filed Mar. 26, 1979, Ser. No. 23,820
Int. Cl.³ D05C *1/04*
U.S. Cl. 38—102.2 **6 Claims**



1. A watercolor paper stretcher, comprising:
a one-piece box-like downwardly open sheet material frame having side and end walls joined by a generally horizontal top wall having an upper surface,
said top wall having an elevated central planar portion lying in a plane spaced above the remaining marginal edge portions of said upper surface a distance at least equal to the thickness of the top wall for receiving a sheet of watercolor paper when superposed thereon with its marginal edge portions projecting beyond the perimeter of the elevated portion; and,
sheet material clamp means surrounding said frame elevated portion for impinging the watercolor paper against said upper surface,
said clamp means including a one-piece open clamp frame having side and end walls closely surrounding said frame side and end walls and having an inwardly projecting flange at its upper limit overlying said marginal edge portions of said upper surface in a plane below the plane of said elevated portion.

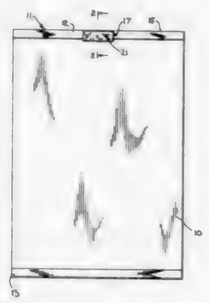
4,277,902
BAGGAGE IDENTIFICATION TAG
Salvatore J. Miniaci, Bronx, and James O. Christiansen, Massapequa Park, both of N.Y., assignors to Avery International Corporation, San Marino, Calif.
Filed Jan. 19, 1979, Ser. No. 4,942
Int. Cl.³ A44C *3/00*
U.S. Cl. 40—2 R **17 Claims**

1. A baggage identification tag comprising:
a paper-like substrate having a first face and an opposite second face;
visual indicia on the first face of the paper-like substrate adjacent a write-in space of said first face having a surface capable of receiving hand-written information from a pencil or pen, such visual indicia including words that indicate passenger name and address information is to be written in said write-in space;
the first face of the substrate having first and second margins on opposite sides of the visual indicia and said write-in space;
adhesive means on the first margin facing away from the first face of the substrate; and



a score line extending across the paper-like substrate between the first and second margins for facilitating folding of the substrate so the second margin contacts the adhesive means on the first margin for obscuring and sealing the visual indicia and the hand-written information provided in said write-in space, inside the folded substrate, the adhesive means permitting the folded substrate to be unsealed for exposing said visual indicia and the hand-written information.

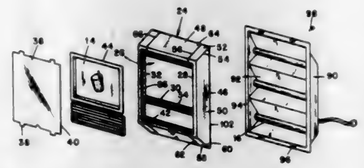
4,277,903
FRAMING AND HANGING ASSEMBLY FOR A SHEET MATERIAL OBJECT
Eugene A. Crossot, 1829 E. Lake Bluff Blvd., Milwaukee, Wis. 53211
Filed Dec. 8, 1978, Ser. No. 967,622
Int. Cl.³ G09F *1/12*
U.S. Cl. 40—152.1 **2 Claims**



1. In an assembly for at least partially framing and thereafter hanging a sheet material object for wall display, a framing member for engaging the upper edge of the object, said framing member comprising a U-section member having opposed forwardly and rearwardly disposed yieldable fingers biased into abutting relation to receive, grasp and retain said object therebetween, and a clip comprising a U-section member having opposed forwardly and rearwardly disposed yieldable fingers biased into abutting relation and having a cross section generally dimensionally identical to that of the framing member, said U-section clip member being oppositely oriented from the U-section framing member such that upon assembly the rearwardly disposed finger of the framing member is received and retained between the fingers of the clip and the forwardly disposed finger of the clip is received and retained between the fingers of the framing member, said forwardly disposed finger of the clip further serving to enhance the retaining pressure of the framing member on the sheet material object, said clip being slidable longitudinally relative to said framing member to provide for centering of the clip relative to the framed

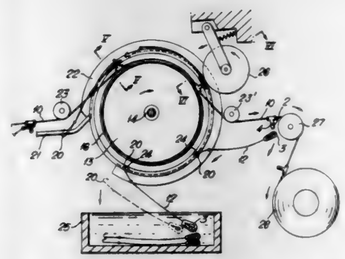
object and including means for supporting the framed object from hanger means on the display wall.

4,277,904
BACK LIGHTED SIGN FRAME
Fred W. Leuthesser, Knoxville, Tenn., assignor to Benco Industries, Inc., Knoxville, Tenn.
Filed Nov. 14, 1979, Ser. No. 93,991
Int. Cl.³ G09F *13/4*
U.S. Cl. 40—564 **5 Claims**



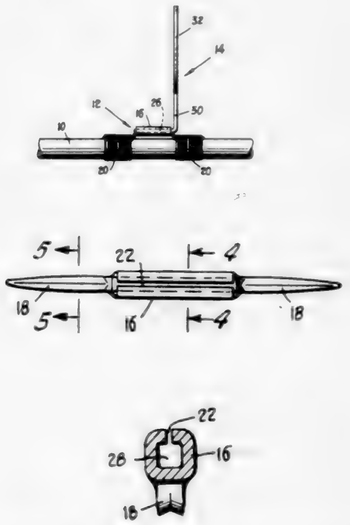
1. A sign comprising
(a) a frame having a rectangular front wall and side walls peripherally joined to the front wall, the side walls extending rearwardly from the front wall to define a rearwardly opening cavity,
(b) means defining an aperture in said front wall including an interior peripheral edge,
(c) ledge means joined to said front wall around said interior peripheral edge and extending rearwardly and inwardly from said interior peripheral edge, and
(d) display panel means having a shape congruent with said aperture defined in said front wall and sized for reception within said aperture and for support by said ledge means,
(e) said frame comprising a pair of side members, each of said side members including an elongated central section, a first end section extending perpendicularly from one end of said central section and a second end section extending perpendicularly from the other end of said central section, said first and second end sections of each said side member being parallel to one another, and means for linearly attaching each first end section of each of said pair of side members to the second end section of the other said pair of side members comprising tab means extending longitudinally from at least one of said end sections of one of said pair of side members for frictional engagement with an end section of the other of said side members.

4,277,905
APPARATUS FOR DETACHING RELEASABLE SNOODS FROM A FISHING LINE
Per Huse, Haslum, Norway, assignor to O. Mustad & Son A/S, Oslo, Norway
Filed Nov. 6, 1979, Ser. No. 91,865
Claims priority, application Norway, Nov. 17, 1978, 783871
Int. Cl.³ A01K *91/00*
U.S. Cl. 43—4 **10 Claims**



1. An apparatus for detaching releasable snoods from a fishing line while at the same time unwinding the snoods from the line, if required, and for depositing the snoods in a storage box continuously as the line is hauled in by means of, for example, a winch positioned in front of the apparatus, said apparatus having or being associated with a hook handling means which orients and guides the hooks being drawn along by the snoods, via hook guides, to one or the other side of the circumference of a wheel provided with a peripheral groove for receiving the line, which is drawn over the wheel by a suitable pulling device and sets the wheel in rotation, said line being provided with releasable snoods whose fastening means comprises a peg, rotatably attached to the line and having small stops in the middle section of the peg, and a radially resilient ring attached to one end of the snood and detachably retained on the peg inward of said stops, the apparatus also including a peg release disk disposed on the side of the wheel from which the line is discharged, said disk lying resiliently against the periphery of the wheel for releasing the said pegs from the said resilient rings, the pegs being pushed partially down through the rings by said peg release disk and down into the said groove in the wheel while the rings remain in contact with the sides of the groove, whereby the stops are guided from a securing position on one side of the ring into a release position on the other side of the ring, characterized by fixed hook guides disposed at each side of the wheel for receiving the said hooks from the said guides which guide the hooks while they are still being pulled along by the snoods carrying the hooks over the wheel to a point on the wheel circumference at which the hooks guides change direction and prevent further forward movement of the hooks, whereby the rings on the snoods are pulled off the pegs during a possible simultaneous unwinding of the snoods from the line owing to the tension produced in the snoods, and the hooks slide down off the ends of the hook guides and are deposited in a storage box.

4,277,906
FISH LINE GUIDE ASSEMBLY
Pierre Nelli, 146 Main St., Westport, Conn. 06880
Filed Feb. 11, 1980, Ser. No. 120,212
Int. Cl.³ A01K *87/04*
U.S. Cl. 43—24 **5 Claims**



1. A fish-line guide assembly having a removable wire loop

member, said assembly being adapted for attachment to a fish rod to confine and guide the fish line along the same and comprising in combination:

(a) a metal mounting clip having an elongate body portion and a pair of attachment tabs integral with the body portion and extending in opposite directions from the ends thereof, said tabs being adapted for placement against the fish rod with the tabs parallel to and overlying the rod for securement thereto by wrappings,

(b) said clip body portion being resilient, essentially tubular, having a cross-sectional configuration adapted to closely confine a single thickness, rod-like member, and having a slit extending between its ends, enabling it to spread apart laterally within limits,

(c) a one-piece wire loop member having an integral supporting rod-like base constituted of a solid, single-thickness wire tine which is of non-circular cross section and is adapted to be frictionally received in the body portion of the mounting clip,

(d) said body portion defining a passage for receiving the single-thickness wire tine of the loop member and at said passage conforming to the non-circular cross section of said tine,

(e) said body portion being adapted to spread slightly and to frictionally grip the inserted tine of the loop member, thereby to hold the loop member against inadvertent removal and also against lateral movement while in its supported position.

4,277,907

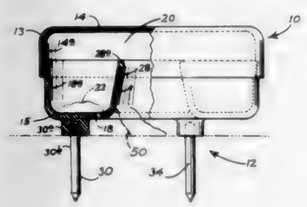
SLUG TRAP

Lorraine D. Ernest, 945 S. 2nd, Coos Bay, Oreg. 97420

Filed Apr. 4, 1980, Ser. No. 137,136

Int. Cl.³ A01M *1/20*

U.S. Cl. 43—131 **5 Claims**



1. A slug trap comprising:

a hollow container body formed of a bottom shell having a bottom and an upwardly projecting skirt and a top shell detachably secured to the bottom shell including a top and a downwardly projecting skirt overlying the exterior of the skirt in the bottom shell;

a slug entering aperture formed in the bottom of said bottom shell and an upstanding wall bounding said aperture projecting upwardly into the interior of said body to approximately the level of the top of said skirt in the bottom shell where the wall bounds a void communicating with the body interior, said bottom shell in a region bounded by said bottom, upwardly projecting skirt, and said wall providing an annular region for the deposit of bait with the top shell removed so as to provide access to said region, and

means joined to the body for supporting said body with the bottom thereof spaced above ground level, said means comprising elongate pegs distributed about said aperture and joined to and projecting downwardly from said bottom shell.

4,277,908

FLOATING TOY

Teruo Nikaido, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Filed May 19, 1980, Ser. No. 151,434

Claims priority, application Japan, Jun. 19, 1979, 54-83776

Int. Cl.³ A63H *23/10*

U.S. Cl. 46—92 **6 Claims**



1. A toy capable of floating on and propelling itself through a body of water which comprises:

a generally streamlined body section including an outside surface generally divisible into at least a back area, a front area and left and right side areas;

said body including a neck region on one end of said body, said neck region including an opening at the end of said body wherein said neck region is located;

a head section pivotally mounted to said body adjacent to said opening in said neck area and capable of pivoting with respect to said body between a first position and a second position;

said head section including at least one distinguishing feature located on said head section at a point that is capable of moving through an arc that is viewable from at least one of the left or right sides of said body, said arc lying on a plane, said plane cutting through both said back and front areas of said body and when viewed from at least one of the left or right sides of said body and as measured along a curved line which is an extension of both ends of said arc, one end of said arc being located closer to said back area and the other end of said arc being located closer to said front area, said distinguishing feature located at the end of said arc closer to said back area when said head is in said first position and located at the end of said arc closer to said front area when said head is in said second position;

said body section capable of floating on said body of water such that said back area is oriented upwardly with respect to the surface of said body of water;

said head section including head flotation means positioned within said head section such that when said toy is floating on said body of water said head section pivots to said first position to locate said distinguishing feature at the end of said arc closer to said back area;

said body including at least one movable appendage movably attached to said body section;

motor means located within the interior of said body section and operatively attached to said appendage with respect to said body, said movable appendage propelling said toy through said body of water when said movable appendage moves with respect to said body.

4,277,909

TOY WITH STAGGERING MOTION

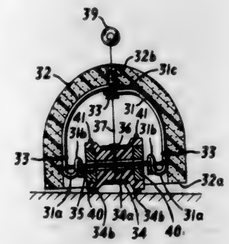
Richard C. Rainwater, Christian IV Gate 3, Stavanger, Norway

Continuation-in-part of Ser. No. 935,765, Aug. 22, 1978, abandoned. This application Sep. 6, 1979, Ser. No. 72,940

Claims priority, application France, May 16, 1978, 78 15003

Int. Cl.³ A63H *11/10*

U.S. Cl. 46—103 **8 Claims**



1. A toy comprising a vertically disposed, transverse, downwardly opening inverted U-shaped rigid frame having an eye in its central upper portion, a hollow body of soft cellular plastic material mounted on said frame and having a hole registering with said eye, said body being of inverted U-shaped transverse cross section conforming to said frame and being open at its bottom with a skirt portion extending down below said frame, said frame being disposed transversely of said body approximately midway between forward and rear ends of said body and conforming to a median transverse cross section of said body, means securing said body to said frame above the lower ends of said frame while leaving lower ends of said frame free of said body, a rubber band extending between the free lower ends of said frame, a spool having an axial bore through which said rubber band extends whereby said spool is rotatably supported by said rubber band, a string wound around said spool and extending up through said eye of said frame and registering hole in said body and a finger grip on said string above said body, whereby if said toy is held above the floor and released while the finger grip is held, the toy drops to the floor and the string in unwinding from said spool rotates said spool to wind-up said rubber band which thereupon rotates the spool in the opposite direction to propel the toy along the floor.

4,277,910

INFANT PACIFIER COMBINATION

Remi T. Kramer, 8661 Delmonico, Canoga Park, Calif. 91304

Continuation-in-part of Ser. No. 921,202, Jul. 3, 1978, Pat. No. 4,188,747. This application Nov. 13, 1979, Ser. No. 93,045

The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.

Int. Cl.³ A63H *3/00*

U.S. Cl. 46—116 **5 Claims**



1. An infant pacifier combination in the form of a doll-like body naturally attractive to and of size for being embraced by a human infant, said combination comprising a body having appendage means, a receptacle formed in part from said appendage means, said receptacle comprising opposing parts of outer ends of said appendage means in juxtaposition when in operation, complementary mutually engageable patches on respective opposing parts adapted to engage each other in a releasable engaging relationship forming in effect a potential outwardly facing opening for the receptacle and open to the exterior, sides of said receptacle comprising the patches being adapted to act as a releasable yieldable holder, a pacifier member having a nipple-like protrusion on one side and a retainer counter-member on the opposite side, at least a part of the retainer counter-member being complementary with respect to the yieldable holder when said retainer counter-member is located within the receptacle, whereby the pacifier member is held releasably in place on the body.

4,277,911

CHANGING THE COLOR OF A DOLL'S EYES

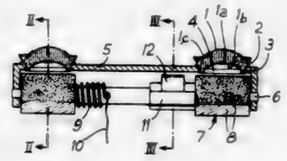
Henri Mizoule, 2 bis rue Lecointre, Sevres, France (92310), and William Gardel, 75, rue de Versailles, Ville d'Avray, France 92410

Filed Dec. 3, 1979, Ser. No. 99,584

Claims priority, application France, Dec. 8, 1978, 78 34679

Int. Cl.³ A63H *13/00*

U.S. Cl. 46—135 R **7 Claims**



1. In combination with a doll's head formed with eye openings, apparatus for changing the color of the eyes in said head comprising:

a frontal spherical segment of a simulated eyeball mounted within each of said eye openings, said eyeballs each having portions of an eye represented thereon and being of a transparent material at the portions corresponding to the irises;

screen members associated with said segments, each said screen member having a plurality of different colored areas which are selectively positionable behind its associated segment whereby said areas are visible through said iris portions to simulate irises of different colors; and

positioning means supported by said doll's head and operatively associated with said screen members to selectively position and retain one of said areas behind each of said segments.

4,277,912

GYROSCOPE-MONOCYCLE

Shou-Chung Hsien, 40 Wan-Chang Rd., Shan-Hwa Chen, Tainan Hsien, China

Filed Sep. 25, 1979, Ser. No. 78,678

Int. Cl.³ A63H *1/00*

U.S. Cl. 46—269 **9 Claims**

1. A flying saucer-shaped gyroscope toy comprising:

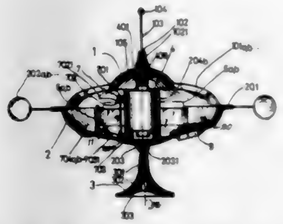
a circular dish-shaped rotor having a circular lower edge surrounding a first axis of rotation at its center and slits therein symmetrically disposed with respect to said first axis of rotation; said slits causing a buzzing sound when said rotor rotates;

a lower circular dish-shaped body having a second axis of rotation aligned with said first axis of rotation, a circular

upper edge having the same diameter as the diameter as said circular lower edge of said rotor and a point edge at its bottom surface along said second axis of rotation;

a d.c. motor mounted in said lower body along said second axis of rotation and having a drive shaft extending along said second axis of rotation and engageable with said rotor along said first axis of rotation for driving said rotor to rotate, said gyroscope being supported on its point edge by gyroscopic action;

means for vertically supporting said rotor and body for rotation about said first axis of rotation when said means is in a first orientation or a second orientation with respect



to said body, said means being rotatable with said body in said first orientation, said body rotating in relation to said means in said second orientation;

electric light means, including a light source mounted in said body, for providing light when said rotor is rotating in response to said motor;

said electric light means including a vibrating switch for turning said light source on and off when said rotor is caused to rotate by said motor; and

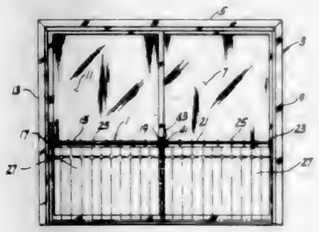
a plurality of satellite bodies fixedly mounted to said lower body adjacent said upper circular edge symmetrically disposed in relation to said second axis of rotation.

4,277,913

CURTAIN ROD FOR SLIDING GLASS DOOR

Ross M. Castle, 100 Castle, Florissant, Mo. 63034

Filed Sep. 19, 1979, Ser. No. 77,004
Int. Cl.³ E06B 7/00
U.S. Cl. 49—70 14 Claims



13. In combination, a glass door assembly in a wall comprising a frame for securement to the wall, a first glass door panel secured to the frame at a first end of the frame and a second glass door panel slideable in the frame toward and away from a closed position at a second end of the frame, and a curtain rod for the glass door assembly, said curtain rod comprising:

a first rod section;

means for mounting the first rod section on the movable door panel in position extending generally horizontally across a face of the movable door panel;

a second rod section; and

means for securing the second rod section to the frame in axial alignment with the first rod section;

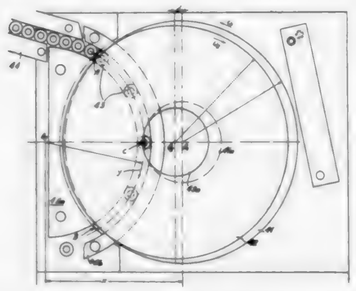
said first rod section being spaced laterally from said face of the movable door panel and said second rod section being spaced laterally from a face of the secured door panel for supporting a plurality of hooks or the like, adapted to support a curtain, said rod sections having a sliding fit with respect to each other and constituting an extensible rod assembly, said rod assembly extending as the movable door panel is moved toward its closed position and retracting as the movable door panel is moved away from its closed position, said rod assembly being adapted to support a curtain extending across the faces of the secured and movable door panels in both closed and open positions of the movable door panel.

4,277,914

APPARATUS FOR GRINDING ARTICLES WITH TWO ROTATING GRINDING DISCS

Yves-Andre Segard, Morges, Switzerland, assignor to Etablissements Sim S.A., Switzerland

Filed May 21, 1979, Ser. No. 41,108
Claims priority, application Switzerland, May 29, 1978, 5836/78; Nov. 20, 1978, 11859/78
Int. Cl.³ B24B 7/16
U.S. Cl. 51—112 4 Claims



1. In a grinding machine, a grinding device for grinding cylindrical articles, such as cylinders and rings, adapted to be ground on opposite end surfaces, comprising a first rotatable grinding disc, a second rotatable grinding disc, means for vertically mounting said first rotatable grinding disc and said second rotatable grinding disc in a substantially parallel spaced relationship to define a spacing adjacent faces of the discs substantially equal to the distance between the opposite end surfaces of the articles to be ground, said adjacent faces being circular, said grinding discs having unequal outside diameters, each disc having a substantially horizontal axis parallel to and disposed at a spaced distance from the horizontal axis of the other disc to define an area of overlap in respect to the adjacent faces, said spaced distance being not more than five percent of the radius of each disc, means for rotating each disc in an opposite direction relative to the other at selected speeds of rotation, means for delivering the articles to be ground to said area of overlap through an entrance apex to the spacing defined by a first overlap of the periphery of each disc relative to the other, said rotating means being operative to oppositely rotate each disc relative to the other at angular speeds which differ from each other by an amount of 1% to 5% of their values, to pass the articles from the entrance apex through a circular arc in said area of overlap and to a discharge apex from the spacing defined by a second overlap of the periphery of each disc relative to the other, and the path being variable as a function of selected speeds, said circular arc having a center lying in the common axial plane of the two discs arranged at a radial distance (x) from the axis of one disc, said radial distance being defined by the equation

$$x = \frac{d \cdot w_2}{w_2 - w_1}$$

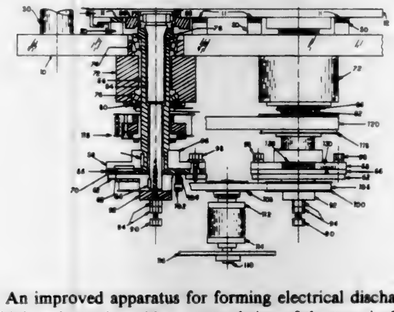
wherein d is the spacing between axes of the discs and w_1 and w_2 are the respective angular speeds of the discs, each disc having a central opening for supplying a cooling liquid into the spacing between said adjacent faces and wherein said circular arc intersects said common axial plane at the vicinity of the point at which the central opening of each disc overlaps relative to the other so that the articles project at this point over the edge of each central opening, and wherein said discs are arranged so that said entrance apex and said discharge apex are located on the same diametrical side of said discs.

4,277,915

APPARATUS FOR SHAPING ELECTRODES

Marten C. Hausermann, and Melvin V. Mues, both of Addison, Ill., assignors to Hausermann Abrading & Process Co., Addison, Ill.

Filed Jul. 6, 1979, Ser. No. 55,683
Int. Cl.³ B24B 19/00
U.S. Cl. 51—157 7 Claims



1. An improved apparatus for forming electrical discharge machining electrodes said apparatus being of the type including a first platen, a second platen mounted in superimposed relation and adapted to be driven vertically with respect to said first platen, a die member having an abrasive surface mounted on one of said platens, a workpiece member mounted on the platen opposite the platen on which said die member is mounted in working alignment with said die member, means for applying horizontal oscillatory rotary motion to said first platen, vertical drive means for infeeding said workpiece member and said die member into contact with each other while said oscillatory rotary motion is being applied to thereby abrasively shape said workpiece member to the form of said die member, and wherein said improvement comprises

a plurality of spindles each having a longitudinal centerline axis of rotation and an axial aperture offset by a preselected distance from said axis of rotation;

a like plurality of crankshafts each rotatably disposed in said axial apertures in said plurality of spindles and having an upper eccentric portion coupled to said first platen;

means for locking each said crankshaft in rotation to its respective spindle such that upper eccentric portion of each said crankshaft is offset from said longitudinal centerline axis of rotation of its respective spindle by substantially the same predetermined distance;

means for driving said plurality of spindles in synchronous rotation about the longitudinal centerline axes thereof to thereby apply horizontal oscillatory rotation motion to said first platen; and

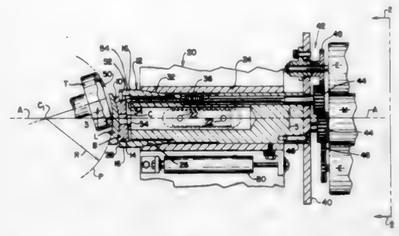
means for simultaneously adjusting all said crankshafts in rotation relative to their respective spindles.

4,277,916

LENS CHUCKING APPARATUS

Rato R. Buhler, Dudley, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 14, 1980, Ser. No. 130,286
Int. Cl.³ B24B 13/00
U.S. Cl. 51—217 L 7 Claims



1. In lens surfacing apparatus, the combination comprising:

a lens block having one side to which a lens may be attached and a spherically contoured edge;

a collet for chucking said block, said collet having a plurality of laterally outwardly biased spring fingers adjacent a work-receiving end thereof, said fingers collectively having an internal spherical seat adjacent said work-receiving end of said collet for intimately receiving said edge of said block when placed therein, said spherical edge of said block and sphericity of said seat being of substantially corresponding curvatures permitting universal tilting adjustment of said block relative to a central axis of said collet;

means for selectively effecting an outwardly directed opening and inwardly directed closing of said spring fingers for respectively seating said block in said seat and ultimately clamping same therein; and

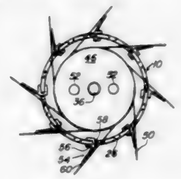
stop means comprising elongated adjustable elements internally of said working end of said collet for establishing a fixed angular adjustment of said block in said collet seat by engagement with a side of said block oppositely of said lens attachment side.

4,277,917

SANDING, BUFFING AND/OR POLISHING WHEEL

Christopher A. Ali, and Frank F. Ali, both of 2973 Pascal Dr., Fairborn, Ohio 45324

Filed Apr. 19, 1979, Ser. No. 31,382
Int. Cl.³ B24B 9/02
U.S. Cl. 51—335 2 Claims



1. A sanding, polishing and/or buffing wheel comprising a housing for a spool of strips of abrasively surfaced material, said housing having a plurality of pairs of longitudinally extending circumferentially spaced slots one slot of each pair acommodating the projection therethrough of one end of a strip of the abrasively surfaced material which is anchored to said spool which is applied within and normally fixed for rotation with said housing, the other slot of each of said pairs being a trailing slot with reference to said one thereof considering the direction of rotation of the housing, said trailing slot

accommodating, in each case, a firm but resilient element slip fit therein to provide a backing device for the projected end of the strip of adhesively surfaced material which is most adjacent thereto and immediately in advance thereof, said resilient element including a channel shaped portion serving as its base, which is slip fit into a trailing slot to fit about the trailing portion of the housing wall at the trailing edge of said slot.

4,277,918

METHOD AND APPARATUS FOR CONTROLLING SHOT-BLASTING MACHINES

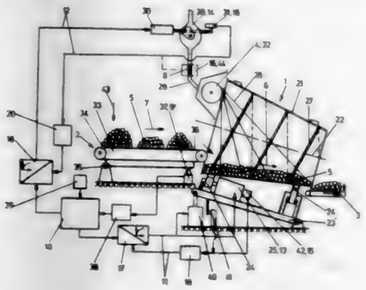
Dieter Bass, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Switzerland

Filed Apr. 17, 1979, Ser. No. 30,824

Claims priority, application Switzerland, Apr. 21, 1978, 4319/78

Int. Cl.³ B24C *3/30, 7/00, 1/00*

U.S. Cl. 51—415 **22 Claims**



1. A process for the regulation of continuously operating shot-blasting machines to which the supplied quantity of workpieces to be processed varies with time, wherein the machines are of the type having a blasting chamber and centrifugal impellers for impelling a blasting medium against the workpieces, comprising the steps of:

determining the quantity of workpieces to be shot-blasted per unit time, and

controlling at least one of the rate of passage of the workpieces through the machine and the supply of blasting medium to the impellers as a function of the determined workpiece quantity to obtain a substantially uniform blasting effect on the processed pieces.

10. An apparatus for the continuous processing of workpieces of the type having a rotatable drum and centrifugal blasting medium impeller means for shot blasting workpieces in the drum, and wherein the supply of the quantity of workpieces to the drum varies with time, the apparatus including

transducer means for measuring the quantity of workpieces to be blasted per unit time and for producing a signal representative of that quantity;

means coupled to the drum for controlling the rate of passage of the workpieces through the drum; and

a regulating circuit coupled to said means for controlling and responsive to the signal from said transducer means for varying the workpiece rate of passage as a function of workpiece quantity whereby a substantially uniform blasting effect on the workpieces is achieved independently of the quantity supplied.

4,277,919

CABIN CONSTRUCTION

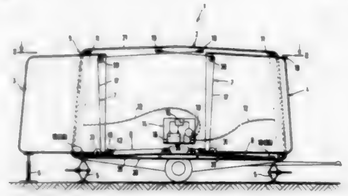
Wolfgang Artweger, and Anton Burger, both of Windischgarsten, Austria, assignors to "Wohn-Art"-Freizeitartikel Gesellschaft m.b.H., Windischgarsten, Austria

Filed Oct. 19, 1979, Ser. No. 86,686

Claims priority, application Austria, Nov. 6, 1978, 7925/78

Int. Cl.³ E04B *1/343, 1/345*

U.S. Cl. 52—2 **33 Claims**



1. A cabin construction defining an interior chamber of changeable size and comprising

(a) a main cabin having two side walls and an upper and a lower wall interconnecting the side walls, at least one end of the main cabin being open and the main cabin having a longitudinal axis extending centrally between the side walls,

(b) an extension cabin having two side walls and an upper and a lower wall interconnecting the side walls, one end of the extension cabin being open and the open end of the extension cabin being telescopingly received in the open end of the main cabin, the respective side, upper and lower walls of the main and extension cabins defining a space therebetween,

(c) a first guide means for glidably carrying and guiding the extension cabin for telescoping movement in relation to the main cabin in the direction of the longitudinal axis, the first guide means including

(1) two flexible tensile elements respectively extending in vertical planes substantially parallel to the side walls, and,

(2) a pair of superposed pulleys mounted in the vicinity of each side wall of the extension cabin near the open end thereof, each flexible tensile element being trained over a respective pair of the pulleys in zigzag arrangement,

(d) a second guide means for guiding the extension cabin parallel to the longitudinal axis, the second guide means including

(1) two flexible guide elements extending horizontally substantially parallel to the upper and lower walls, and

(2) two pairs of pulleys mounted on one of the walls of the extension cabin, the pulleys of each pair being arranged symmetrically with respect to the longitudinal axis, each flexible guide element being trained over a respective pair of the pulleys in zigzag arrangement and the two guide elements being mirror-symmetrical with respect to the longitudinal axis, and

(e) a gasket means arranged in the space and operable to engage the walls for sealing the space.

4,277,920

PORTABLE AND OPERABLE WALL SYSTEMS

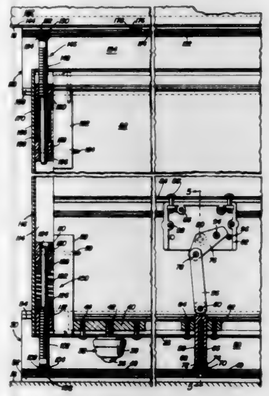
Guy E. Dixon, Miami, Fla., assignor to Panelfold Doors, Inc., Miami, Fla.

Continuation-in-part of Ser. No. 727,605, Sep. 28, 1976, Pat. No. 4,103,463. This application Feb. 18, 1977, Ser. No. 770,064

Int. Cl.³ E04B *2/74;* **E04H** *3/02*

U.S. Cl. 52—64 **7 Claims**

1. In a movable wall system extending generally vertically between a floor and ceiling and including at least one wall panel, that improvement in which the wall panel includes a fixed vertical dimension slightly less than the distance between the floor to the ceiling, a longitudinally continuous floor engaging and seal means on the lower edge of said panel for vertical movement, means for selectively vertically extending and retracing said floor engaging means, a ceiling engaging means at the upper edge of the panel, and spring biased and guiding means connecting the ceiling engaging means with the upper edge of the panel and adjustment means for varying the position of said ceiling engaging means in relation to said spring biased means to provide an initial adjustment of the position of the ceiling engaging means to maintain a substantially constant spring force on the ceiling engaging means within the range of the adjustment means by initially adjusting



the initial position of the ceiling engaging means to a point approximate its final position when the panel is in its floor to ceiling position, said extending and retracting means including means mounted on the panel and forming the sole means for lifting the entire weight of the panel and moving the ceiling engaging means into spring biased engagement with the ceiling with the weight of the panel maintaining the seal means in sealing engagement with the floor, said floor engaging and seal means being in the form of an elongated channel-shaped member having parallel legs telescopically receiving the surfaces of the panel, and adjustable spring biasing and guiding means interconnecting the channel-shaped member and the lower edge of the panel.

4,277,921

THREE-DIMENSIONAL COMPONENTAL MODULE AT "T" MODIFIED FOR THE INDUSTRIAL PREFORMATION OF BUILDINGS

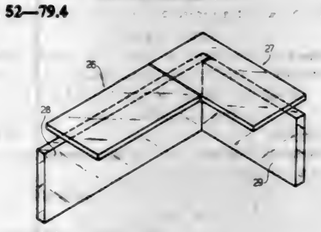
Velo D. Gianfranco, Via Velo, 14, 35014 Fontaniva (Padova), Italy

Filed Dec. 10, 1979, Ser. No. 101,705

Claims priority, application Italy, Apr. 6, 1977, 41568 A/77; Aug. 26, 1977, 41670 A/77

Int. Cl.³ E04H *9/06*

U.S. Cl. 52—79.4 **27 Claims**



1. A building enclosing room spaces comprising a multiplicity of molded precast concrete building modules defining the upright walls and the horizontal overhead ceilings of the room spaces, each of said building modules including an elongate vertical slab and an elongate horizontal slab, the vertical and horizontal slabs being cast integrally in one piece and being rigid with respect to each other, the horizontal slabs having first and second longitudinal side edges, the vertical slab of each module having an upper portion upon which the horizontal slab is supported, and the vertical slab being disposed between the first and second edges of the horizontal slab and significantly closer to the first edge of the horizontal slab than to the second edge thereof whereby to define first and second horizontal flanges respectively extending in opposite directions transversely away from the vertical slab, the second flange being significantly wider than the first flange, the vertical slabs extending vertically throughout the full height of the walls and having a height which many times exceeds the thickness of the vertical slab, the horizontal slab having a width which many times exceeds the thickness thereof, a first one of the building modules having a vertical slab with an end portion extending endwise away from the adjacent terminal end of the horizontal slab, said end portion of the vertical slab having an upper edge which underlies and supports the horizontal slab of a second one of the building modules.

4,277,922

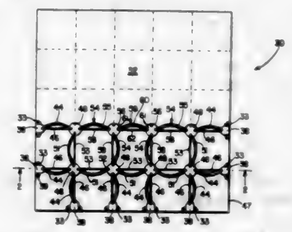
FRAME ASSEMBLY APPARATUS AND METHOD OF MAKING SAME

Jack G. McAllister, P.O. Box 22494, Robbinsdale, Minn. 55422

Continuation-in-part of Ser. No. 857,435, Dec. 5, 1977, Pat. No. 4,190,990, which is a continuation-in-part of Ser. No. 712,351, Aug. 6, 1976, abandoned, which is a division of Ser. No. 255,688, May 22, 1972, Pat. No. 3,973,370. This application Feb. 1, 1980, Ser. No. 117,774

Int. Cl.³ E04B *1/32*

U.S. Cl. 52—81 **45 Claims**



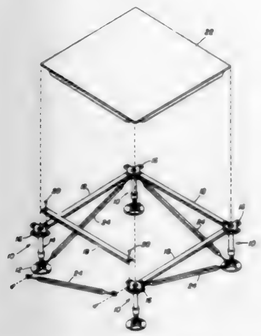
1. A frame assembly located over a surface surrounded by an outer peripheral edge comprising: a plurality of anchor means spaced along said outer peripheral edge, a plurality of strut assemblies located adjacent said surface, means pivotally connecting some of said strut assemblies to the anchor means, hub means connected to adjacent strut assemblies to form a network of strut assemblies and hub means located over the surface, each of said strut assemblies having at least one spring strut that can be biased from an elongated position to a curved contracted position, and holding means retaining the strut in said curved contracted position, said holding means being releasable whereby the spring strut moves from said contracted position to said elongated position thereby moving the frame assembly away from the surface to an erected position.

4,277,923

SUPPORT PEDESTAL ASSEMBLY FOR A RAISED FLOOR SYSTEM

Hugo E. Rebentisch, Garden City, and Ellwood Irish, Wayne, both of Mich., assignors to Unistrut Corporation, Wayne, Mich.

Filed Oct. 18, 1979, Ser. No. 86,207
Int. Cl.³ E04B 5/43
U.S. Cl. 52—126 **12 Claims**



1. A raised floor system comprising:

at least four support pedestal assemblies, said pedestal assemblies each including

a pedestal base,

a vertical, adjustable height support column having a lower end coupled to said pedestal base, and

a pedestal head coupled to an upper end of said support column, said pedestal head including a center region having means for coupling to said support column and four arms, each having an aperture therethrough, extending outwardly from said center region, adjacent arms being at right angles; and

at least one rectangular floor panel having a substantially flat top surface, four edges, four corners each resting over the center of one of said pedestal heads, and a downwardly extending projection near each corner,

said pedestal head being aligned so that said arms form an angle with the edges of said floor panel and said apertures in said arms being located such that the projections in said floor panel mate with said apertures whereby said floor panel is located in relation to said pedestal head and is prevented from moving horizontally.

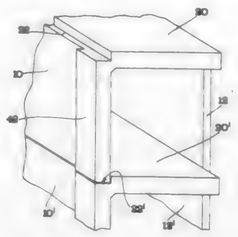
4,277,924

PREFABRICATED BURIAL CHAMBER

Ermenegildo Chimentin, Via Cesare Battisti 54, Lessolo, Turin, Italy

Filed Apr. 10, 1979, Ser. No. 28,746
Claims priority, application Italy, Apr. 12, 1978, 53173/78[U]
Int. Cl.³ E04H 13/00
U.S. Cl. 52—136 **1 Claim**

1. A prefabricated burial chamber in the form of a structure cast integrally of reinforced concrete comprising first and second side walls of a given thickness, said side walls being interconnected to a rear wall of the same thickness and an upper wall of double thickness; an abutment step extending along each of the longitudinal edges of said upper wall and having a width corresponding to said given thickness of said first and second side walls; and a vertical pillar formed on a front edge of said first side wall, said vertical pillar having at least twice the thickness of said side walls and a width greater than said thickness, said width being defined by a front and a rear edge, said front edge of said first side wall being flush with the front edge of said upper wall, and said rear edge of said pillar being aligned with the front edge of said second side



wall, whereby superimposed or laterally adjacent structures can be quickly and easily aligned with similar structures.

4,277,925

SIMULATED LOG BUILDING STRUCTURE

C. Wayne Kinser, 87 W. Oakview Rd., Asheville, N.C. 28806

Filed May 4, 1979, Ser. No. 35,987
Int. Cl.³ E04B 1/10
U.S. Cl. 52—233 **18 Claims**



1. In a building wall structure having outer walls and corners that simulate log-type construction comprising: at least one corner element having a plurality of adjacent wedge-shaped blocks having alternate outer surfaces in angular contact relationship to each other, the outer angular surface in one block projecting beyond the outer angular surface of its adjacent block with each adjacent block at an angle with respect to each other and having an outwardly projecting end face that has an angular top edge and a straight bottom edge, and a plurality of log facing elements spaced one from the other by a mortar joint spacer element, each of said facing elements in each outer wall abutting a side of each of said wedge-shaped blocks, and each of said mortar joint spacer elements in each outer wall abutting only alternate wedge-shaped blocks that project outwardly beyond the surface of said spacer element.

4,277,926

VENTED INSULATION SYSTEM FOR EXISTING STRUCTURE

Morton Sherman, and James A. Berry, both of St. Petersburg, Fla., assignors to The Celotex Corporation, Tampa, Fla.

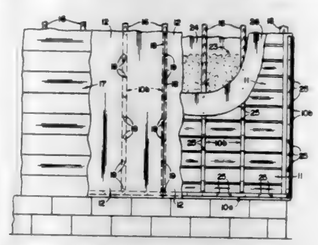
Filed May 30, 1979, Ser. No. 43,871
Int. Cl.³ E04B 1/70
U.S. Cl. 52—303 **99 Claims**

1. An insulating wall structure for installation onto an existing wall of a structure comprising

a layer of insulating material mounted adjacent the exterior surface of said existing wall,

spacing means for separating said layer of insulating material from said existing wall, and

closure means for closing off along the bottom and the side edges of the space between said separated layer of insulating material and existing wall, an opening being provided at the upper edge of said insulating wall structure so as to provide a relief outlet for water vapor from the interface



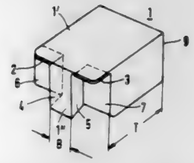
of said existing wall and said insulating wall structure to the outside of said structure.

4,277,927

SPACER FOR THE BRICKS OF A FACING BRICKWORK TO BE PLACED IN FRONT OF AN INNER BRICKWORK

Stefan Richter, Eilswiese 8, 2000 Hamburg 65, Fed. Rep. of Germany

Filed Nov. 7, 1979, Ser. No. 91,952
Claims priority, application Fed. Rep. of Germany, May 30, 1979, 7915579[U]; Jun. 15, 1979, 7917143[U]
Int. Cl.³ E04G 21/16; G01B 3/30
U.S. Cl. 52—749 **10 Claims**



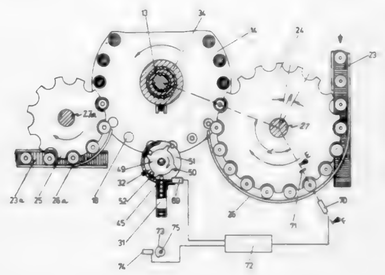
1. Spacer for laying bricks of a facing brickwork to be placed in front of and at a predetermined distance from a previously laid inner brickwork, said spacer comprising a unitary body having a normal use position for placing the facing brickwork in front of an upstanding inner brickwork and in the normal use position said spacer comprising a first horizontal wall including a pair of contact surfaces located in a common horizontal plane with said contact surfaces facing downwardly, a pair of vertically extending width stops each extending perpendicularly downwardly from the common plane of said contact surfaces, said width stops being in spaced relation so that the overall spacing between the surfaces of said stops facing away from one another corresponds to the normal horizontal joint width between two adjacent bricks in the same course, wall means defining at least a pair of distance stops disposed in spaced parallel relation and extending perpendicularly to said contact surfaces and to said width stops, said first wall and said width stops extending perpendicularly from one side of a common vertically extending plane and said wall means extending perpendicularly in the opposite direction from said common vertically extending plane and the spacing between said distance stops in the horizontal direction corresponding to the spacing between the facing brickwork and the inner brickwork.

4,277,928

CONTROL ARRANGEMENT, ESPECIALLY FOR APPARATUS FOR CLOSING CONTAINERS SUCH AS BOTTLES

Egon Ahlers, Bad Kreuznach, Fed. Rep. of Germany, assignor to Seitz-Werke GmbH, Bad Kreuznach, Fed. Rep. of Germany

Filed Nov. 2, 1979, Ser. No. 90,533
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849741
Int. Cl.³ B65B 57/02
U.S. Cl. 53—67 **4 Claims**



1. A control arrangement, especially for apparatus for closing containers such as bottles and the like to which a closure is to be secured, which apparatus includes a magazine for storing a plurality of closures, at least one closure transfer device, at least one channel for communicating a pertaining closure transfer device and said magazine, at least one means for securing a closure to a container, and conveyor means adapted to deliver containers to said at least one securing means, said arrangement comprising:

for each closure transfer device, a control member operatively arranged near the pertaining closure transfer device; and

for each control member an opto-electric sensing means operatively arranged in the vicinity of said conveyor means, adapted to sense the absence of a container on said conveyor means, and thereupon adapted to actuate a pertaining control member in such a way that said control member prevents release of a closure to a pertaining transfer device, with said conveyor means and said at least one securing means prescribing respective pitch circles tangent to one another and with each opto-electric sensing means being positioned at a predetermined distance away from said point of tangency, said conveyor means including a transport wheel having a plurality of circumferential pockets, with a container being adapted to be transported by said transport wheel in such a way that it is nestled in a pocket thereof, each opto-electric sensing means being adapted to emit a sensing beam adapted to intersect an exposed portion of a container conveyed by said transport wheel, a single closure transfer device, wherein the longitudinal central axis of a beam emitted by the pertaining opto-electric sensing means forms one side of an angle α the apex of which coincides with the axis of rotation of said transport wheel and the other side of said angle extends from said apex through said point of tangency, said angle α corresponding to a multiple of the angle of division β defined by an apex which coincides with the axis of rotation of said transport wheel and sides which extend through the centers of two immediately adjacent pockets of said transport wheel, and, when viewed starting from said point of tangency in the direction opposite to the direction of movement of said securing means, the angle α being defined by the product of said angle β multiplied by the number of closures present in the pertaining closure transfer device and on each securing means, at uninterrupted container sequence, said opto-electric sensing

means including a switch to render the opto-electric sensing means operational, means for actuating said switch, said switch actuating means including a shaft and a control cam operatively connectible to said shaft, with said cam being adapted to make one full revolution in conformity with movement of said transport wheel over a distance corresponding to said angle of division β, and being adapted to actuate said switch in the absence of a container in a pertaining pocket which is being monitored by said sensing means.

4,277,929

GRIPPING HEAD FOR SCREWING ON A THREADED CLOSURE

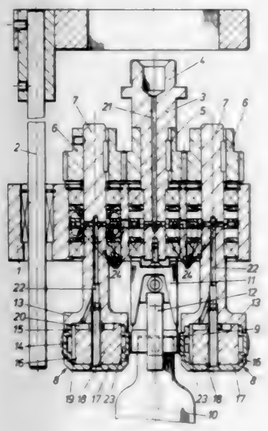
Hugo Schindel, Saulheim, Fed. Rep. of Germany, assignor to Rationator-Maschinenbau GmbH, Hillesheim, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,748

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900713

Int. Cl.³ B67B *3/20*; B65B *7/28*

U.S. Cl. 53—331.5 **2 Claims**



1. In a machine for screwing a threaded closure on a threaded neck of a container, the machine having a frame: a gripping head mounted on the machine frame, the gripping head comprising a pair of spaced-apart gripping spindles rotatably mounted in the machine frame, each gripping spindle having a clamping head comprising a cup-shaped carrier part and including a radially convex membrane, the membranes being arranged and spaced for gripping the closure therebetween, each membrane being an annular element of U-shaped cross section defining an annular chamber for receiving a pressure fluid medium, each gripping spindle defining conduit means for delivering the pressure fluid medium to the annular chamber for pressing the membrane radially outwardly into gripping engagement with the closure, and the clamping head further comprising a support roller mounted inside the annular membrane element and having substantially the same height, the support roller including radial and axial spacing ribs between the annular membrane element and the carrier part, respectively, and a clamping disc clamping the annular membrane element and the support roller to the carrier part, and a drive spindle mounted between the gripping spindles.

4,277,930

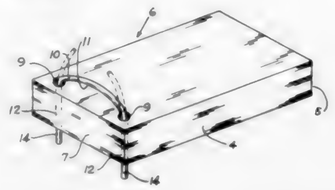
BAGS WICKETED ON A FLEXIBLE BINDING

Joseph A. Nausedas, Chicago, and Harry P. Eichin, Western Springs, both of Ill., assignors to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 808,310, Jun. 20, 1977, which is a continuation of Ser. No. 698,847, Jun. 23, 1976, which is a continuation of Ser. No. 516,240, Oct. 18, 1974. This application Jan. 29, 1979, Ser. No. 7,181

Int. Cl.³ B65B *67/12*

U.S. Cl. 53—396 **2 Claims**



1. In a continuous process for the successive packaging of individual articles in a series of articles delivered sequentially to a packaging station, the improvement comprising the steps of:

providing a stack of flattened flexible packaging sheets held assembled on an elongate flexible binding member extending through registered wicket holes in said sheets, said member defining a hand grippable severable loop between the wicket holes of the topmost sheet of said stack and a shank extending from each wicket hole in the bottommost sheet of the stack,

mounting the stack of sheets on a sheet dispensing wicket base means arranged and disposed to secure the shank portions of the flexible binding member,

severing the flexible binding member at a point on the hand grippable loop and thereby forming upwardly extending free-ended flexible wicket elements holding said sheets in readiness for one at a time removal, and

removing the packaging sheets from the stack over said severed ends of the severed loop of the flexible binding member without tearing said sheets.

4,277,931

PACKAGING TECHNIQUES FOR SEMI-RIGID PACKAGES

Reid A. Mahaffy, Montclair, and Joel A. Hamilton, Englewood, both of N.J., assignors to Mahaffy & Harder Engineering Co., Totowa, N.J.

Continuation of Ser. No. 913,822, Jun. 8, 1978, abandoned, which is a division of Ser. No. 834,429, Sep. 19, 1977, Pat. No. 4,114,348, which is a continuation of Ser. No. 683,256, May 5, 1976, abandoned, which is a division of Ser. No. 384,717, Aug. 1, 1973, Pat. No. 3,972,155, which is a division of Ser. No. 860,590, Sep. 24, 1969, Pat. No. 3,792,181. This application Jul. 9, 1979, Ser. No. 55,765

Int. Cl.³ B65B *61/18, 43/08*

U.S. Cl. 53—412 **2 Claims**

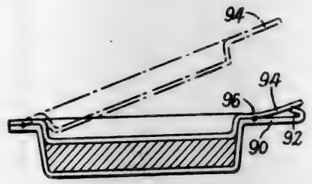
1. The method of packaging food products and the like comprising:

transporting a first continuous web of semi-rigid plastic packaging material along a first line of movement extending past a series of operating stations;

forming said first web at at least one of said stations into a series of receptacles each arranged to receive the product with at least a moderate amount of space between the top of the product and the opening of the receptacle, said receptacle having marginal flange portions around said opening;

transporting a second continuous web of semi-rigid plastic packaging material along a second line of movement which joins said first line of movement at a region of joinder subsequent to said one station, at said region applying said second web such that it overlies said first web to cover said receptacles as the two webs continue to advance together; said second web including marginal outboard portions arranged to overlie said marginal flange portions of said receptacles as the two webs advance together;

before said second web comes into position with said marginal outboard portions overlying said marginal flange portions of said first web, forming at least a part of said



marginal portions of said first web back on itself to present a pocket into which the corresponding edge of a marginal portion of said second web can be inserted, to provide a positive reclosure after the package has been opened to remove a part of the container product;

whereby when said second web comes into position with said marginal outboard portions overlying said marginal flange portions, said marginal outboard portions will remain outside of said formed-back pocket; and

sealing said second web marginal portions to said first web marginal portions with said edge portion overlying the formed-back part of said first web marginal portions.

4,277,932

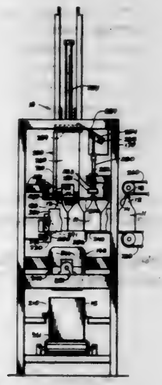
CASE PACKING MACHINE

Barry Campbell, Spokane, Wash., assignor to R. A. Pearson Company, Spokane, Wash.

Filed Oct. 15, 1979, Ser. No. 84,790

Int. Cl.³ B65B *5/08, 39/02*

U.S. Cl. 53—497 **14 Claims**



1. In a case packer for automatically packing bottles into cases, each bottle having an enlarged neck flange adjacent the bottle finish;

a framework;

a first station on the framework;

a second station on the framework below the first station;

conveyor means adjacent the first station for delivering groups of bottles to the first station;

bottle escapement means at the first station for receiving successive groups of bottles from the conveyor means, suspending the bottles by individual engagement of downwardly facing surfaces of the neck flange thereof and for selectively releasing the bottles as a group by disengaging the neck flanges;

bottle ram means adjacent the first station for engaging and moving successive groups of bottles from the first station to the second station;

escapement actuator means fixed on the bottle ram means for operating the escapement means to release a group of bottles in response to movement of the bottle ram means toward the second station;

an open ended holder on the framework at the second station for receiving, slidably supporting, and discharging successive groups of bottles delivered to the holder from the ram means and bottle escapement means; and

guide plates within the holder for urging each successive group of bottles to a defined cluster, for holding the bottles within the cluster, and for guiding the defined cluster of bottles downwardly in response to reception of a subsequent group of bottles from the ram means and bottle escapement means.

4,277,933

RIDING SADDLE

Henri Verdier, 1 Passage Traynes, 65000 Tarbes, France

Continuation of Ser. No. 829,042, Aug. 30, 1977, abandoned. This application Sep. 19, 1979, Ser. No. 77,062

Claims priority, application France, Aug. 25, 1976, 76 2186

Int. Cl.³ B68C *1/02*

U.S. Cl. 54—44 **7 Claims**



1. A riding saddle comprising a saddle-bow integral with a substantially oval cambered part forming a seat and two forward opening, divergent branches orientated in the same direction and separated from each other by a hollowed-out portion forming a gap into which the horse's withers will fit, said branches being freely and mutually unconnected.

4,277,934

CHECKREIN RELEASABLE LATCHING MECHANISM

Kenneth H. Rieck, 531 N. Knight Rd., Bay City, Mich. 48706

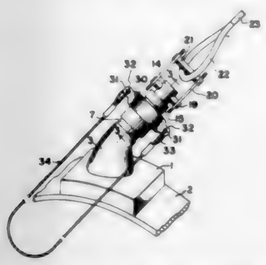
Filed Mar. 21, 1979, Ser. No. 22,524

Int. Cl.³ B68B *5/00*

U.S. Cl. 54—70 **2 Claims**

1. A releasable checkrein latching mechanism comprising a body member having a cylindrical socket therein; means for mounting said body member on a harness; an anchor member having at one end thereof a projection removably accommodated in said socket and having at its other end means for attachment to a checkrein, said socket being formed by an annular wall having a plurality of circumferentially spaced openings therein; a plurality of locking balls corresponding in number to the number of said openings and being loosely accommodated therein, each of said balls having a diameter greater than the thickness of said wall, said projection having

an annular groove therein between its ends in a position to confront said balls when said projection is accommodated in said socket; an annular operating member encircling said body member and being slidable relative thereto between first and second positions, said operating member having an inner surface substantially flush with said projection and in engagement with said balls when said operating member is in said first position thereby causing portions of said balls to project into said annular groove, said operating member having an annular



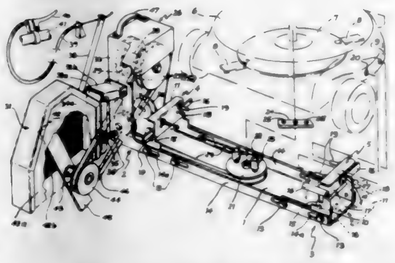
recess in its inner surface and confronting said balls when said operating member is in its second position thereby enabling said portions of said balls to be withdrawn from said annular groove; and flexible drive actuating means connected to said operating means for sliding said operating member from its said first position to its second position from a zone removed from said body member, said projection being removable from said socket and body member solely in response to movement of said operating member to said second position.

4,277,935

POWER TAKE-OFF DEVICE FOR ROTARY LAWNMOWER

John K. Degen, Sydney, Australia, assignor to June Shirley Degen, Forestville, Australia

Filed May 6, 1980, Ser. No. 147,069
Int. Cl.³ A01G *3/06*
U.S. Cl. 56—2 **11 Claims**



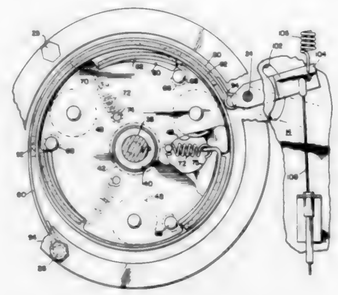
1. A lawn edge trimming appliance in the form of an accessory for a rotary lawnmower which includes a prime mover upon a baseplate surrounding and covering a cutter disc which mounts a plurality of cutting blades and is rotated by a drive shaft from the prime mover, said appliance comprising an elongated frame, means for fixing said frame to opposite parts of the periphery of said baseplate so that said frame is disposed on the diameter thereof, an upright housing upon an extension of said frame, a first rotatable pulley supported by the housing and a second rotatable pulley upon a portion of said frame beneath said baseplate, a driving connection between said pulleys, a driving connection between said second pulley and said cutter disc to cause rotation of said pulleys when the cutter disc is rotated by said prime mover, and at least one lawn edge trimming blade rotatable about the axis of a shaft driven by said first pulley.

4,277,936

COMBINED FLYWHEEL AND CLUTCH DRIVER, AND CONTRCL AND WARNING DEVICE

Stephen J. Hoff, Richmond, Ind., assignor to Hoffco, Inc., Richmond, Ind.

Filed Aug. 13, 1979, Ser. No. 65,951
Int. Cl.³ A01D *69/08, 69/00*
U.S. Cl. 56—11.7 **15 Claims**



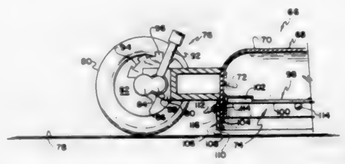
1. Lawn mower mechanism, comprising
a combined clutch and flywheel rotor including a hub adapted for rotation about an axis,
a pair of heavy, generally circular, metal plates mounted on said hub in spaced parallel relation in planes normal to said axis,
a plurality of spacer weights mounted between said plates at angularly spaced points about and adjacent the periphery thereof to add mass at the periphery of the rotor, the plates being secured together at said weights so as to fix the weights in place and to secure the plates against the weights as spacers,
a plurality of centrifugal clutch shoes mounted at angularly spaced positions about the periphery of said rotor, between said spacer weights, and means disposed axially between the plates for connecting the shoes in operative relation with the rotor, and
a vertical axis lawn mower engine having a depending output shaft, the rotor being mounted on the depending shaft, a clutch drum mounted coaxially with said shaft and surrounding the rotor so as to be engaged by said shoes, and a blade carried with said drum, said rotor having large mass sufficient to supply a major portion of the flywheel mass for the engine.

4,277,937

CONVERTIBLE ROTARY MOWER-VACUUM SWEEPER

Woodrow W. Luick, 602 E. Van Buren, Apt. 4, Harlingen, Tex. 78550

Filed Aug. 13, 1979, Ser. No. 66,225
Int. Cl.³ A01D *35/12, 55/18*
U.S. Cl. 56—17.5 **6 Claims**



1. A rotary lawn mower/vacuum sweeper, comprising

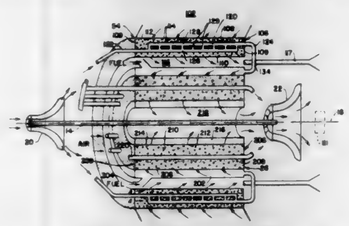
a frame having an imperforate top panel and a depending peripheral wall providing a grass discharge passage therein and providing a grass cutting chamber having a downwardly facing opening defined by the wall;
at least three wheels on the frame for rollably supporting the frame on an underlying surface, the points of contact of the wheels and the underlying surface generally defining a plane;
a motor mounted on the top panel and including a drive shaft extending into the chamber;
a grass cutting blade, in the chamber, affixed adjacent the center thereof to the shaft and including a grass cutting edge rotated by the shaft in cutting relation to grass over which the frame moves, the blade being configured as a fan for forcing air through the discharge passage and for drawing air inwardly under the underside of the peripheral wall and residing above the bottom of the peripheral wall and
means for creating an area of substantial air velocity directed inwardly of the peripheral wall throughout substantially the length thereof, effective for lifting debris off the underlying surface in a generally annular band corresponding to the location of the peripheral wall, including
a skirt substantially the length of the peripheral wall, providing a lower edge and an imperforate portion above the lower edge and
means dependingly mounting the skirt on the frame in generally coaxial relation to the peripheral wall positioning the imperforate portion below the lower edge and spacing the lower edge from the plane but less than about ½" thereabove for drawing air inwardly into the chamber under the lower skirt edge upon operation of the motor;
any obstruction of the chamber opening by the creating means providing an insignificant increase in air velocity under the lower skirt edge.

4,277,938

COMBINATION ROTATING FLUIDIZED BED COMBUSTOR AND HEAT EXCHANGER

William H. Belke, Peoria, and George B. Grim, Washington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00843, §371 Date Oct. 15,1979, §102(e) Date Oct. 15, 1979
This PCT application filed Oct. 15, 1979, Ser. No. 136,654
Int. Cl.³ F02C *3/26;* **F23D** *19/00*
U.S. Cl. 60—39.35 **63 Claims**



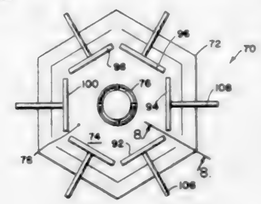
1. A combination rotatable fluidized bed heat exchanger (54) and rotatable fluidized bed combustor (26), said heat exchanger (54) comprising:
a. a first elongated perforated wall (108);
b. a second perforated wall (110) spaced apart and substantially co-extensive with said first perforated wall (108);
c. enclosing walls (109) defining with said first and second perforated walls (108, 110) a first fluidization chamber (112);
d. a first bed of pulverulent solid particles (114) in said first chamber (112);
e. means (111) for rotating said first chamber (112) about an axis (18) to cause the first particles (114) to centrifugally gravitate toward said first perforated wall (108);
f. means (102) for feeding a relatively hot first fluid into said first chamber (112) through said first perforated wall (108) and out of said first chamber (112) through said second perforated wall (110), said first fluid heating said first particles (114) in said first chamber (112);
g. means (102) for feeding a gaseous agent into said first chamber (112) through said first perforated wall (108) and out of said first chamber (112) through said second perforated wall (110), said gaseous agent having flow characteristics suitable for fluidizing said first particles (114) in said first chamber (112);
h. at least one tube (120) in said first chamber (112) extending substantially co-extensively with said walls (108, 110) for passing a relatively cool second fluid therethrough, whereby said second fluid is heated by the heat bed particles and said relatively hot first fluid is cooled; and
i. means (134) for directing said heated second fluid to said rotatable fluidized bed combustor (26) for exothermically reacting said heated second fluid and a fuel; said combustor (26) comprising:
j. a third elongated perforated wall (208);
k. A fourth perforated wall (210) spaced apart and substantially co-extensive with said third perforated wall (208);
l. enclosing walls (209) defining with said third and fourth perforated walls (208, 210) a second fluidization chamber (212);
m. a second bed of pulverulent solid particles (214) in said second chamber (212);
n. means (14) for rotating said second chamber (212) about an axis (18) to cause the second particles (214) to centrifugally gravitate toward said third perforated wall (208);
o. means (202) for feeding said heated second fluid into said second chamber (212) through said third perforated wall (208) and out of said second chamber (212) through said fourth perforated wall (210), said heated second fluid having flow characteristics suitable for fluidizing said second particles (214) in said second chamber (212);
p. means (204, 202) for introducing a combustible fuel through said third perforated wall (208) into said second chamber (212), said fuel reacting with at least a portion of said heated second fluid in said second chamber (212) to form gaseous combustion products;
q. means (216) for receiving said gaseous combustion products and unreacted heated second fluid exiting from said second chamber (212) through said fourth perforated wall (210); and
r. means (218) for directing said unreacted heated second fluid and said gaseous combustion products exiting said fourth perforated wall (210) away from said second chamber (212).

4,277,939

ION BEAM PROFILE CONTROL APPARATUS AND METHOD

Julius Hyman, Jr., Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 9, 1979, Ser. No. 27,971
Int. Cl.³ F02K *9/00;* **F03H** *5/00*
U.S. Cl. 60—202 **16 Claims**



1. An ion source comprising:
a plasma chamber having an axis and having a housing, an

electron source adjacent one end of said axis and ion extraction optics adjacent the other end of said axis, anode means around said axis and around said plasma chamber for applying anode potential to said plasma chamber;

means for supplying ionizable material to said plasma chamber;

a cathode for supplying electrons to said plasma chamber for movement toward said anode means for ionizing the ionizable material as the electrons pass from said cathode to said anode means;

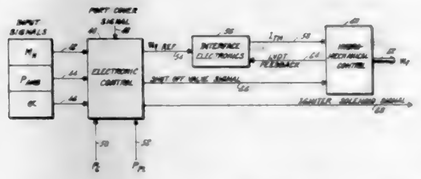
a spoiler positioned between said cathode and said extraction optics, means for biasing said spoiler said spoiler having a plurality of segments and each of said segments of said spoiler being individually connected to said biasing means to individually bias said spoiler segments more positive than said housing so that the reduction of peaking around said axis can be individually controlled by each of said segments to control the uniformity of ion beam flux through said extraction optics.

4,277,940

INTEGRAL ROCKET-RAMJET CLOSED LOOP FUEL CONTROL SYSTEM

Kermit I. Harner, Windsor, and John P. Patrick, South Windsor, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 25, 1979, Ser. No. 60,444
Int. Cl.³ F02K 9/06
U.S. Cl. 60—243 **13 Claims**



1. In an integral rocket-ramjet vehicle having a combustion chamber, a source of ramjet fuel and an inlet supplying air to said combustion chamber, a fuel control for modulating the flow of fuel from said source to said combustion chamber upon termination of the rocket phase of vehicle operation comprising:

means responsive to termination of the rocket phase of operation for producing a first signal indicative of desired fuel-to-air ratio upon ignition of said fuel in said combustion chamber, and indicative of a maximum fuel-to-air ratio after ignition of said fuel;

means responsive to first selected vehicle operating conditions for producing a signal indicative of desired combustion chamber to reference pressure ratio to limit said vehicle maximum Mach number to a value satisfactory with regard to structural or aerodynamic heating characteristics;

inlet margin scheduling means responsive to second selected vehicle operating conditions for scheduling a second signal indicative of desired combustion chamber to reference pressure ratio to maximize pressure recovery of the shock wave produced by airflow through said inlet;

least select means receiving said first and second pressure ratio signals and selecting the one of said first and second signals which produces the lowest fuel-to-air ratio;

means for measuring the pressures from which said pressure ratio signals are derived and producing a signal indicative of actual combustion chamber to reference pressure ratio;

means for comparing the pressure ratio signal passed through said least select means with said actual pressure ratio signal and producing a pressure ratio error signal;

closed loop integrator means for receiving said pressure ratio error signal and producing therefrom a desired fuel-to-air ratio signal which does not exceed said maximum fuel-to-air ratio; and

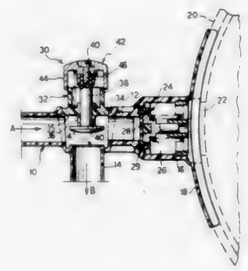
fuel scheduling means including valve means responsive to said desired fuel-to-air ratio signal for metering the desired amount of fuel from said source to said combustion chamber.

4,277,941

DEVICE FOR THE REDUCTION OF THE EMISSION OF POLLUTANT GASES PRODUCED BY INTERNAL COMBUSTION, SPARK-IGNITION, ENGINES FOR MOTOR VEHICLES

Mario Povero, Poirino, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed May 29, 1979, Ser. No. 43,602
Claims priority, application Italy, Jul. 7, 1978, 53526/78[U]
Int. Cl.³ F01N 3/10
U.S. Cl. 60—307 **3 Claims**



1. A device for reducing the emission of pollutant gases from a spark ignition internal combustion engine for motor vehicles comprising an air-feed pipe for connection to exhaust ducts of said engine for the supply of air thereto, said air-feed pipe being comprised of first and second sections of integral one-piece construction disposed at right angles to each other with one end of said first section being adapted to be connected to said exhaust ducts, fitting means secured to one end of said second section for connection to the air intake of said engine and a manually operable interception valve secured in said air-feed pipe adjacent the opposite ends of said first and second sections for controlling communication therebetween, said opposite end of said first section defining a valve seat for cooperation with said valve upon manual operation thereof to prevent communication between said first and second sections and resilient means acting on said valve for normally maintaining said valve spaced from said valve seat to provide communication between said first and second sections.

4,277,942

EXHAUST GAS RECIRCULATION APPARATUS

Rolf A. Egnell, Genarp, and Bengt L. Hansson, Bjärred, both of Sweden, assignors to Kommanditbolaget United Stirling, Malmo, Sweden

Filed Feb. 28, 1979, Ser. No. 16,079
Int. Cl.³ F02G 1/04; F23C 9/02
U.S. Cl. 60—517 **22 Claims**

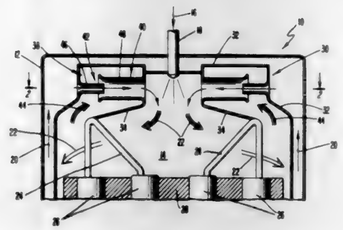
1. Apparatus for recirculating a portion of the exhaust gases from an exhaust gas stream resulting from the combustion of an inlet fuel stream and an inlet air stream in a burner region, the apparatus comprising:

(a) wall means for separating the inlet air stream from the burner region and the exhaust gas stream;

(b) heat exchanger means associated with said wall means for extracting heat values from the exhaust gas stream to cool all the exhaust gases, said heat exchanger means also enclosing in part the burner region; and

(c) ejector means formed in said wall means for admitting

the inlet air stream into the burner region and for entraining and mixing a portion of the cooled exhaust gases from the cooled exhaust gas stream in the air being admitted,



and air/cooled exhaust gas mixture being formed immediately prior to being admitted to the burner region,

the recirculated exhaust gases providing lower combustion temperatures and reduced NO_x formation in the burner region.

4,277,943

METHOD AND APPARATUS FOR SUPPLYING STEAM TO A TURBINE

George J. Silvestri, Jr., Upper Chichester, and Krishnamurthy Kesavan, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 10, 1979, Ser. No. 83,437
Int. Cl.³ F01K 13/02
U.S. Cl. 60—646 **7 Claims**

1. A system for providing fluid having pressures and temperatures which are adjustable within predetermined ranges, said system comprising:

means for successively reducing the pressure and temperature of a first source fluid to respectively produce a regulated fluid and a controlled fluid when the desired fluid temperature is less than the temperature of a higher temperature, second source fluid;

means for heating the vapor component of the controlled fluid with said regulated fluid, said heating means being in fluid communication with a fluid utilizing device;

means for regulating the flow rate of said second source fluid to the fluid utilizing device when the desired fluid temperature is greater than the regulated fluid's temperature; and

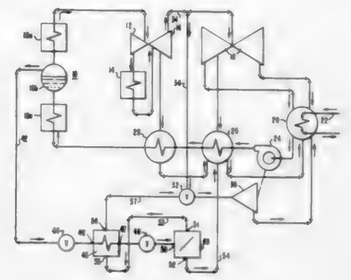
means in fluid communication with said heating means, flow rate regulating means, and fluid utilizing device for mixing the heated controlled fluid vapor with the second source fluid to create a resultant fluid when the desired fluid temperature is greater than said regulated fluid's temperature and less than said second source fluid's temperature:

4,277,944

METHOD AND APPARATUS FOR REGENERATIVELY SUPERHEATING AUXILIARY STEAM

George J. Silvestri, Jr., Aston, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 10, 1979, Ser. No. 83,436
Int. Cl.³ F01K 7/44
U.S. Cl. 60—670 **6 Claims**



1. A system for providing elastic fluid having a pressure and temperature which are adjustable within a predetermined range comprising:

means for regulating a high pressure fluid's pressure to an intermediate pressure;

heat exchanger means for transfering heat from the intermediate pressure elastic fluid to an elastic fluid of low pressure and temperature, said heat exchanger means having an intermediate pressure fluid inlet opening, an intermediate pressure fluid outlet opening, a low pressure inlet opening, and a low pressure fluid outlet opening, said intermediate pressure fluid inlet opening being in fluid communication with said high pressure regulating means, said low pressure fluid exiting said low pressure fluid outlet opening being at the desired pressure and temperature;

means for regulating the pressure of the intermediate pressure fluid to a low pressure, said intermediate pressure fluid regulating means being in fluid communication with said intermediate pressure fluid outlet opening; and

means for separating vapor and liquid phases of the low pressure elastic fluid, said separating means having an inlet port in fluid communication with said intermediate pressure fluid regulating means, a liquid outlet port for expelling separated low pressure elastic fluid liquid, and a vapor outlet port in fluid communication with said heat exchanger means' low pressure inlet opening for transmitting said low pressure vapor thereto.

4,277,945

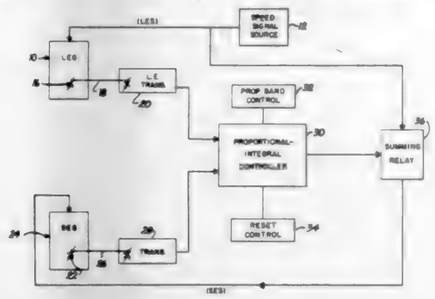
CONTROL SYSTEM FOR EQUALIZING THE TORQUES OF MULTIPLE ENGINES DRIVING A COMMON LOAD

William F. Esthimer, Walpole; Edward H. Morin, Sharon, and Richard E. Trudell, Hingham, all of Mass., assignors to Bird-Johnson Company, Walpole, Mass.

Filed Jun. 28, 1979, Ser. No. 53,087
Int. Cl.³ F01B 21/00
U.S. Cl. 60—710 **8 Claims**

1. A control system for equalizing the torques of a slave engine and a lead engine driving a common load, each engine including a throttle controlled by a governor, comprising means for producing a selected lead engine speed signal and supplying it to the governor of the lead engine, means for detecting the throttle setting of each engine and producing a throttle setting signal indicative of each such setting, means for comparing the throttle setting signals of the lead engine and the slave engine and producing an error signal indicative of the difference in throttle settings, processing means for continuously processing the error signal to produce a control adjust-

ment signal substantially equal to a selected gain times the sum of the instantaneous error signal and the integral of the error signal over a selected reset time, means for adding algebra-



ically the control adjustment signal to the lead engine speed signal to produce a slave engine speed signal, and means for supplying the slave engine speed signal to the slave engine speed controller.

4,277,946

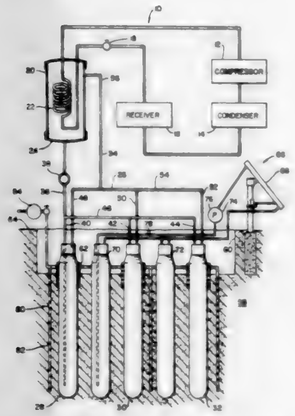
HEAT PUMP

Edward W. Bottum, 9357 Spencer Rd., Brighton, Mich. 48116

Filed Aug. 13, 1979, Ser. No. 66,046

Int. Cl.³ F25B *27/00, 27/02;* F25D *23/12*

U.S. Cl. 62—235.1 **9 Claims**



1. The method of providing heat from an earth type heat pump comprising connecting a heat exchanger, compressor, condenser, receiver and expansion in series, whereby refrigerant in the form of gas received at the compressor is compressed and passed to the condenser wherein heat is given off and the gas is liquefied and passed to the receiver from which it is passed through the expansion valve into the heat exchanger, providing heat to the heat exchanger through heat pickup tubes vertically positioned in the earth to evaporate the refrigerant in the heat exchanger into a refrigerant gas, assisting the heat pickup of the heat pickup tubes by supplying solar heat to the earth through a collector, heater tubes vertically positioned in the earth adjacent the heat pickup tubes and means for circulating a heat transfer medium through the solar collector and heater tubes, and moistening the earth around the heat pickup tubes to increase the heat transfer from the earth to the heat pickup tubes.

4,277,947

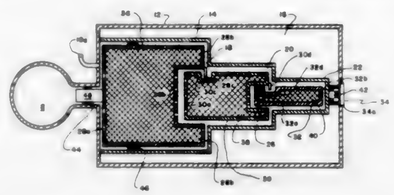
CRYOGENIC COOLER HAVING TELESCOPING MULTISTAGE REGENERATOR-DISPLACERS

Peter Durenec, Annandale, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 16, 1980, Ser. No. 140,939

Int. Cl.³ F25B *9/00*

U.S. Cl. 62—6 **20 Claims**



1. In a closed cryogenic cooling system comprised of a telescoping multistage regenerator-displacer assembly for providing constant low cryogenic temperatures; the system comprising:

a working fluid pressure wave producing means for imparting pressure waves to a working fluid at an input end of said telescoping multistage regenerator-displacer assembly; and

a plurality of regenerator-displacers within a displacer cylinder that is enclosed by a vacuum jacket in which said plurality of regenerator-displacers are progressively smaller from said input end to an output cold end of said telescoping multistage regenerator-displacer assembly wherein each of the progressively smaller adjacent regenerator-displacers of said plurality of regenerator-displacers freely telescope for a limited axial distance within the preceeding larger regenerator-displacer in response to alternating pressure waves imparted to said working fluid by said working fluid pressure wave producing means with the outer surfaces of each of said plurality of regenerator-displacers fitting snugly with the inner surfaces of said displacer cylinder to provide clearance seals therebetween in which a plurality of precooled cold station expansion volumes between adjacent regenerator-displacers are intermittently formed by telescoping action therebetween wherein said plurality of precooled cold station expansion volumes shuttle heat transfer in an axial temperature gradient along the length of said telescoping multistage regenerator-displacer assembly to progressively lower the temperature of the input environments of each regenerator-displacer of said assembly to maintain a constant low cryogenic temperature at said output cold end.

4,277,948

CRYOGENIC COOLER WITH ANNULAR REGENERATOR AND CLEARANCE SEALS

Stuart B. Horn, Fairfax; Mark S. Asher, Woodbridge, and Howard L. Dunmire, Stafford, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 27, 1980, Ser. No. 163,853

Int. Cl.³ F25B *9/00*

U.S. Cl. 62—6 **3 Claims**

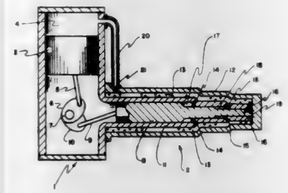
1. In a Stirling Cycle cryogenic cooler having at least a compressor portion and a cold finger expander portion with a cryogenic fluid in said portions whereby the improvement comprises:

a cold finger expander portion including a displacement piston of a nonmetallic material and having segments of different diameters;

a first shell of said material mainly closely surrounding said piston and having different inside and outside diameters

corresponding to the different diameters of said piston whereby different expansion spaces are defined between said piston and said shell;

a second shell surrounding said first shell and having different inside diameters greater than respective outside diame-



ters of said first shell whereby said shells define a regenerator space between them;

bores communicating between said expansion spaces and said regenerator space; and

thermal regenerative material in said regenerative space.

4,277,949

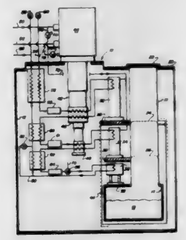
CRYOSTAT WITH SERVICEABLE REFRIGERATOR

Ralph C. Longsworth, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jun. 22, 1979, Ser. No. 51,462

Int. Cl.³ F17C *13/00*

U.S. Cl. 62—54 **11 Claims**



1. A thermal coupling interposed between a source of refrigeration and an object to be cooled comprising in combination:

an elongated fluid-tight housing having first and second ends, said first end adapted to mechanically contact a source of refrigeration and said second end adapted to mechanically contact said object to be cooled;

means within said housing having a flow path whereby a fluid in the form of a gas which remains gaseous at the lowest temperature provided by said refrigeration source and disposed within said housing, can when warmed by giving up refrigeration rise from said second end toward said first end where it is cooled and returned to said second end along a separate path without contacting warmed rising gas.

4,277,950

CRYOGENIC LIQUID TRANSFER TERMINATION APPARATUS

Lester K. Eigenbrod, Indianapolis; Gerald F. Kidder, Speedway, and Robert L. Zeunik, Carmel, all of Ind., assignors to Union Carbide Corporation, New York, N.Y.

Filed Feb. 29, 1980, Ser. No. 125,889

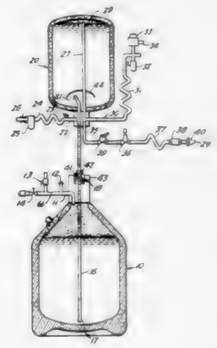
Int. Cl.³ F17C *7/02*

U.S. Cl. 62—55 **7 Claims**

1. In a cryogenic liquid storage-gas supply system including a thermally insulated cryogenic liquid supply container, a thermally insulated cryogenic liquid storage-dispensing container, liquid transfer conduit means with an inlet end terminating in the bottom part of said supply container and a discharge end terminating in said storage-dispensing container, vapor vent conduit means with an inlet end terminating in the upper part of said storage-dispensing container in the liquid transfer position and an outlet end outside the containers and open to the atmosphere: the improvement of a cryogenic liquid transfer termination assembly comprising:

(a) first fluid flow resistance means in said vapor vent conduit means;

(b) a quick-closing plug-type valve in said vapor vent conduit means being positioned between said first fluid flow resistance means and the vapor vent conduit means outlet end, and: (i) being separated from said first fluid flow resistance means by an uninsulated length of said vapor vent conduit, (ii) having a valve seat, (iii) a plug member



contiguously positioned against the upstream surface of said valve seat, (iv) mechanical spring means positioned to urge said plug away from said valve seat, and (v) plug movement means having a first end rigidly joined to said plug and a second end in fluid communication with said first fluid flow resistance means through a higher pressure length of said vapor vent conduit;

(c) said higher pressure length of said vapor vent conduit being arranged and constructed without substantial fluid flow constriction when the plug is urged away from said seat;

(d) second fluid flow resistance means having less fluid flow resistance than said first fluid flow resistance means, and positioned between said plug movement means second end and the vapor vent conduit means outlet end to provide a lower pressure length; and

(e) manual opening means for said quick-closing plug-type valve, positioned within said vapor vent conduit means outside said storage-dispensing container.

4,277,951

CRYOPUMPING APPARATUS

Ralph C. Longsworth, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 10, 1980, Ser. No. 139,032

Int. Cl.³ B01D *8/00*

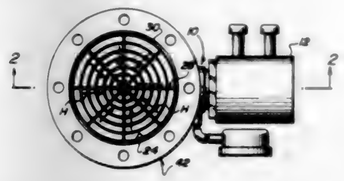
U.S. Cl. 62—55.5 **10 Claims**

1. In a cryopumping apparatus of the type including an elongated source of refrigeration adapted for mounting to a vacuum chamber and capable of producing a warm refrigeration stage of from 40 to 120K and a cold refrigeration stage of from 10 to 30K, the improvement comprising:

a generally open top pan-shaped housing adopted for mount-

ing said refrigeration source to said vacuum chamber whereby said open top of said pan can mate to and close a complementing opening in said vacuum chamber;

a first or warm panel thermally connected to said warm refrigeration stage and adapted to shield said refrigeration source from ambient radiant heat;



a second or cold panel thermally connected to said cold stage of refrigeration; and

a chevron baffle or louver closing a substantial portion of the open top of said housing and in thermal contact with said warm refrigeration stage.

4,277,952

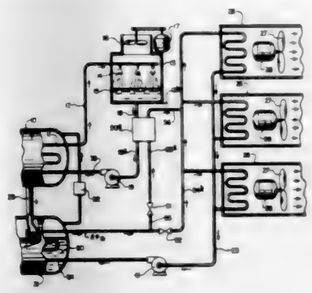
METHOD AND APPARATUS FOR CONSERVING ENERGY IN AN AIR CONDITIONING SYSTEM

George Martinez, Jr., P.O. Box 1141, Gonzales, La. 70737

Continuation-in-part of Ser. No. 928,538, Jul. 27, 1978, Pat. No. 4,201,063. This application Nov. 15, 1979, Ser. No. 94,656

Int. Cl.³ F25B *1/00*

U.S. Cl. 62—115 9 Claims



7. A method for conserving energy in an air conditioning system having condenser means, evaporator means, cooling tower means, cooling unit means, first liquid circuit means for circulating liquids between said evaporator means and cooling unit means, second liquid circuit means for circulating liquids between said condenser means and said cooling tower means, means for conveying liquid refrigerant from said condenser means to said evaporator means, means for conveying refrigerant from said evaporator means to said condenser means, and heat exchanger means, comprising:

a. de-energizing said means for conveying refrigerant from said evaporator means to said condenser means;

b. connecting said first liquid circuit means to said heat exchanger means to permit said liquids in said first liquid circuit means to be conveyed to and circulated through said heat exchanger means;

c. connecting said second liquid circuit means to said heat exchanger means to permit said liquids in said second liquid circuit means to be conveyed to and circulated through said heat exchanger means; and,

d. circulating said liquids in said first and second liquid circuit means through said heat exchanger means.

4,277,953

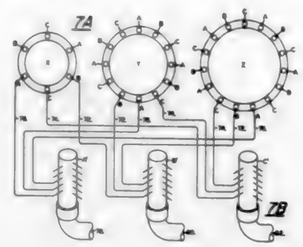
APPARATUS AND METHOD FOR DISTRIBUTING VOLATILE REFRIGERANT

Daniel E. Kramer, 2009 Woodland Dr., Yardley, Pa. 19067

Filed Apr. 30, 1979, Ser. No. 34,777

Int. Cl.³ F25B *5/00*

U.S. Cl. 62—117 18 Claims



1. Conduit means for conveying a first refrigerant flow stream, evaporating means having a refrigerant inlet side and a refrigerant outlet side, flow dividing means positioned entirely between the conduit means and the inlet side of the evaporating means for receiving and for dividing said first refrigerant flow stream into at least two substreams, said flow dividing means comprising: primary distributor means for receiving the first refrigerant flow stream and dividing said first stream into at least three feeder refrigerant flow streams, means for receiving and recombining the feeder streams into at least two substreams.

4,277,954

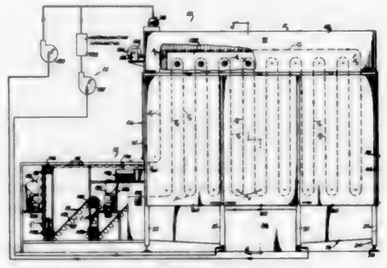
FOOD PRODUCT CHILLER

Russell F. Drummond, 532 Embry La., Marietta, Ga. 30066

Filed Nov. 1, 1979, Ser. No. 90,333

Int. Cl.³ F25D *17/02*

U.S. Cl. 62—375 10 Claims



1. A chiller for edible food products using a heat transfer liquid comprising:

an enclosure having upper and lower portions;

endless conveyor means for conveying the edible food products along a serpentine path through said enclosure, said conveyor means defining a plurality of spaced apart, substantially vertically extending flights within said enclosure, said flights generally parallel to each other and alternating between substantially vertical upward movement and substantially vertical downward movement so that the edible food products are alternately moved substantially vertically upwardly and downwardly along the serpentine path within said enclosure; and

liquid control means for supplying the heat transfer liquid to the upper portion of said enclosure so that the heat transfer liquid is moved toward the lower portion of said enclosure under the influence of gravity and for directing the flow of the heat transfer liquid flowing down through said enclosure in flow paths in registration with the food products moving along said substantially vertical flights by said endless conveyor means so that substantially all of the heat transfer fluid flows down over the edible food products moving along said substantially vertical flights.

4,277,955

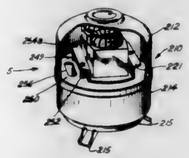
TWIN COMPRESSOR MECHANISM IN ONE ENCLOSURE

Sidney A. Parker, Ft. Worth, Tex., assignor to Lennox Industries, Inc., Ft. Worth, Tex.

Filed Sep. 13, 1979, Ser. No. 75,251

Int. Cl.³ F25B *1/10*

U.S. Cl. 62—510 11 Claims



1. In a refrigerant compressor, an outer casing, at least two separate compression mechanisms joined together by a mounting ring within said outer casing, discharge gas means communicating with said compression mechanisms for forwarding discharge gas from the compression mechanisms, and suction gas means communicating with the outer casing for returning suction gas to said compression mechanisms, baffle means secured within said outer casing dividing the interior of said outer casing into upper and lower compartments, said baffle means having an opening therein through which the compression mechanisms extend, said baffle means separating the suction gas and the discharge gas in the outer casing, and control means for controlling the operation of the separate compression mechanisms including means within the outer casing for preventing flow of discharge gas from one compression mechanism to the other compression mechanism when said other compression mechanism is inoperative.

4,277,956

SPLINE DRIVE ARRANGEMENT

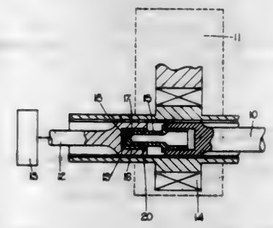
Jeffrey A. Lane, Olton, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Sep. 17, 1979, Ser. No. 76,230

Claims priority, application United Kingdom, Sep. 29, 1978, 38800/78

Int. Cl.³ F16D *3/18*

U.S. Cl. 64—9 R 4 Claims



1. In a system including first and second pumps, a connecting shaft drivingly coupling said pumps and an input drive shaft coupled to said first pump, a splined coupling between said first pump, said input shaft and said connecting shaft, said coupling comprising an internally-splined part drivingly connected to said first pump, external spline portions on said input and connecting shafts respectively, one of said shafts having an axially-extending portion and the other of said shafts having an axial bore, said axially-extending portion and said bore being inter-engaged so as to restrain relative angular movement between the axes of said shafts, the free end of said axially-extending portion and said bore defining therebetween a space within said other shaft, means within said first pump for maintaining said space full of liquid, and flow restricting means through which said liquid can enter and leave said space.

4,277,957

SPLINE DRIVE ARRANGEMENTS

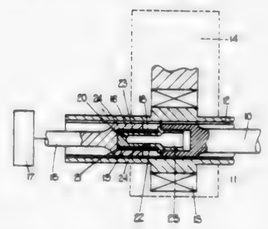
Jeffrey A. Lane, Olton, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Sep. 17, 1979, Ser. No. 76,231

Claims priority, application United Kingdom, Sep. 29, 1978, 38799/78

Int. Cl.³ F16D *3/18*

U.S. Cl. 64—9 R 3 Claims



1. A spline drive arrangement including an internally splined member in driving engagement with first and second axially aligned externally splined members, an axial projection on said first member, an axial bore in said second member, said bore surrounding said projection, an annular elastomeric element surrounding said projection and frictionally engaging said projection and said bore, and means for locating said elastomeric element axially with respect to said first member, said locating means comprising two axially spaced annular parts on said projection, said elastomeric element being located between said annular parts.

4,277,958

FLEXIBLE SHAFT COUPLING

Josef Hackforth, and Jürgen Walter, both of Herne, Fed. Rep. of Germany, assignors to Hackforth GmbH & Co. KG, Herne, Fed. Rep. of Germany

Filed Jul. 26, 1978, Ser. No. 927,958

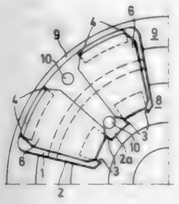
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1977, 2734279

Int. Cl.³ F16D *3/17*

U.S. Cl. 64—11 R 3 Claims

1. In a flexible shaft coupling comprising first and second rigid coupling parts arranged concentrically one within the other about a central axis, first and second annular assemblies, said annular assemblies being concentric with a space between them and each of said annular assemblies including a plurality of members circumferentially spaced apart around the central axis, and transmission means interconnecting said members to transmit torque between said rigid coupling parts, said transmission means including a plurality of elastomeric masses and a plurality of groups of radially directed filament loops, each of said groups being embedded in one of said masses and extending round one of said members in said first annular assembly and round one of said members in said second annular assem-

bly to interconnect said assemblies, said loops including parts between said members and elastic cushion means supporting said parts for displacement inwards into gaps between said members and within said elastomeric masses, the improvement comprising means pivotally mounting each of said groups and each of said masses of elastomeric material whereby said groups and said masses can pivot relative to said rigid coupling parts about axes which are parallel to the central axis of said coupling parts and said pivot means comprises a plurality of groups of pivots, each said group of pivots comprising a first



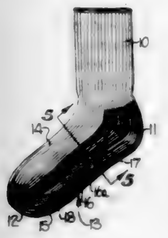
pivot connected to said first rigid coupling part and a second pivot connected to said second rigid coupling part with said first and second pivots in each said group being disposed in radially spaced apart relation along a rectilinear line extending radially outwardly from the central axis, and two of said groups of filament loops extend around each of said members, and said first and second pivots pivotally connect each of said members to one of said coupling parts for movement about an axis parallel to said central axis, and each of said members being in the form of a sector which is circumferentially spaced from adjacent sectors in said annular assemblies.

4,277,959

SOCKS WITH INTEGRALLY KNIT CUSHIONS IN HEEL, ARCH AND BALL

James L. Thorneburg, P.O. Box 5440, Statesville, N.C. 28677

Filed Mar. 24, 1980, Ser. No. 132,784
Int. Cl.³ D04B 9/46; A41B 11/02
U.S. Cl. 66—182 **7 Claims**



1. A knit athletic sock for providing additional cushioning in the heel, ball and inner arch areas of a wearer's foot and particularly adapted for wear with athletic shoes having arch supports which fail to provide suffficient support and cushioning to prevent discomfort to the wearer's heel, ball and arch areas during participation in vigorous athletic activities such as jogging and running, said sock comprising a lower sole including a heel portion adjacent one end of said sole, an arch area in the medial portion of said sole, and a ball portion adjacent the other end of said sole, said arch area including inner and outer arch portions positioned on opposite sides of said sole and extending coursewise from substantially the middle wale of said sole, said inner arch portion including an onegrally knit shock absorber and support cushion formed by a sufficiently greater amount of yarn being knit in the inner arch portion than the amount of yarn being knit in said outer arch portion to provide increased thickness in the inner arch portion which is adapted to underlie the inner arch of the wearer's foot, said heel and said ball portions also including an integrally knit shock absorber cushion of the same types as said shock absorber and support cushion in said inner arch portion, said shock absorber cushions in said heel and ball areas enhancing the cushioning on the heel and ball of the wearer's foot, said shock absorber and support cushion in said inner arch portion enhancing the cushioning and support of the inner arch area of the wearer's foot, and thereby reducing the shock normally imparted to the wearer's foot so that normal acticulation of the bones in the foot takes place during participation in vigorous athletic activities.

4,277,960

SYNCHRONIZATION OF MULTIPLE STREAM LIQUID APPLICATION PROCESSES

George A. R. McKendrick, Port Vila; Ian G. Bartlett, Belmont, and Donald A. Lymer, Highton, both of Australia, assignors to Tybar Engineering Pty. Ltd., Victoria, Australia

Filed Jan. 21, 1980, Ser. No. 113,669
Claims priority, application Australia, Jan. 24, 1979, PD7458
Int. Cl.³ D06B 1/02, 11/00, 23/10
U.S. Cl. 68—205 R **5 Claims**



1. Apparatus for applying liquid such as a liquid dye to a moving strip comprising:

conveyor means for carrying a strip past liquid applications stations;

a plurality of spaced liquid application stations each including an array of multiple openings arranged above and transversely of the conveyor means;

means including a programmable electronic control for selectively controlling the successive application of portions of liquid to the strip in respective sets of multiple streams at the liquid application stations, whereby said portions once applied are complementary so as to give rise to a pattern on the strip;

means at each dye application station for emitting a respective test stream of liquid for the station;

means for detecting each test stream and generating in response thereto an electrical signal indicating the time of its emission;

means for receiving said signals and comparing the time of emission of each test stream with one or more reference times thereby to generate a correction signal indicative of the extent of longitudinal asynchronism; and

means to be coupled to or forming part of said electronic control for modifying said selective control of the multiple streams in response to said correction signal whereby to reduce said asynchronism.

4,277,961

SECURITY LOCK NUT ASSEMBLY FOR PADLOCKS

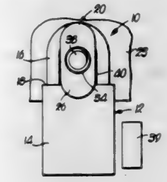
Theodore L. Williams, 1200 E. 101 St., Kansas City, Mo. 64131

Filed Sep. 10, 1979, Ser. No. 73,884
Int. Cl.³ E05B 67/38
U.S. Cl. 70—54 **4 Claims**

1. An assembly for securing a padlock in place adjacent a surface for preventing forced opening of the padlock, said padlock having a base and a shackle operably coupled to the base, said assembly comprising:

a padlock keeper including an elongated, padlock-engaging element, and an elongated shaft connected to said element and configured to pass through a first area towards said surface, said first area being cooperatively defined between said shackle and base when said padlock is closed; and

means for releasably maintaining said keeper proximal to said surface with said keeper being adjacent said padlock



and with the padlock being disposed between said surface and said keeper,

said keeper-maintaining means comprising a threaded bore in said shaft, and complemental screw means operatively secured to and extending from said surface and received within said bore,

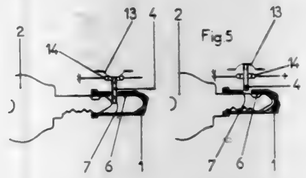
said keeper-maintaining means including structure for permitting release of the keeper only after opening of said shackle.

4,277,962

DEVICE FOR BLOCKING KEY PASSAGE OF A LOCK

Paul Lipschutz, Croissy, France, assignor to Neiman SA, France

Filed May 17, 1979, Ser. No. 39,981
Claims priority, application France, Jun. 6, 1978, 78 17100
Int. Cl.³ E05B 17/14
U.S. Cl. 70—423 **4 Claims**



1. A device for blocking the key passage of a lock, comprising:

(a) a movable abutment which can occupy a first position in which it blocks the key passage and a second position in which it clears the said passage, and

(b) a thermo-deformable element for moving said abutment from the first position to the second position when activated.

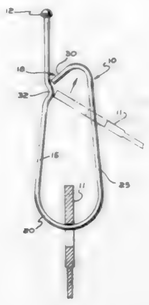
4,277,963

KEY LOOP

Oskar A. Hellwig, Springfield, Mass., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Aug. 31, 1979, Ser. No. 71,790
Int. Cl.³ A47G 29/10
U.S. Cl. 70—456 B **3 Claims**

1. Key loop for releasably mounting keys on a support member disposed within a key case comprising an integral resilient loop which includes an enlarged head for attachment of the loop to the support member, a shank portion extending downwardly from the head, said loop reversibly extending outwardly and upwardly from the lower end of said shank portion with its free end terminating adjacent the shank in spaced coplanar relation defining an access opening adapted for fitting the apertured head of a key onto the free end of said loop, at said free end a retainer portion extending inwardly and downwardly toward the closed end of said loop for preventing the unintentional separation of a key from the loop said shank



portion including a crimp with its convex surface disposed within the loop and adjacent the free end retainer portion thereof.

4,277,964

DOOR LOCK

Elmer R. Crabb, Aurora, and Alta M. Parr, Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00088, §371 Date Feb. 15, 1979, §102(e) Date Feb. 15, 1979, PCT Pub No. WO80/01703, PCT Pub. Date Aug. 21, 1980
This PCT application filed Feb. 15, 1979, Ser. No. 30,242
Int. Cl.³ E05B 55/04
U.S. Cl. 70—484 **20 Claims**

1. A lock assembly for a door (10) for a vehicle having a latch structure (16) for latching and locking said door (10), aligned first and second handle means (20,18) extending outwardly and inwardly from opposite sides of said door (10), locking means (22) carried by said door (10) and having an operator-manipulated lever (22) movable between a locked and an unlocked position, cam means (108) operatively connected to said lever (22) and having one portion (110) engaging with a segment (42) of the first of said handle means (20) for preventing said first handle means (20) from being turned when said lever (22) is in the locked position, said cam means (108) having a second portion (109) engaging with a segment (60) on said second handle means (18) when said lever (22) is in said locked position, said second handle means (18) moving said segment (60) against said second portion (109) of the cam means (108) to simultaneously move the first portion (110) of the cam means (108) out of engagement with the first handle means (20) and to move the lever (22) to the unlocked position, said segments (42,60) of said first and second handle means (20,18) being aligned to engage one another when said first

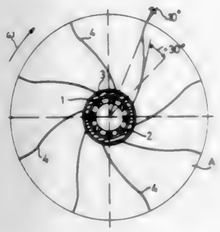
handle (20) is moved, and means (57) for connecting said second handle means (18) to said latch structure (16).

4,277,965

CENTRIFUGAL SHOTTING TURBINE

Leon Ruttes, Liege, Belgium, assignor to Cockerill, Seraing, Belgium

Continuation-in-part of Ser. No. 962,190, Nov. 20, 1978, abandoned. This application Jul. 24, 1979, Ser. No. 60,167
Claims priority, application Belgium, Nov. 24, 1977, 46239
Int. Cl.³ B24C *3/24*
U.S. Cl. 72—53 **6 Claims**



1. A centrifugal shotting turbine comprising:
- a pair of parallel spaced flanges having a common central axis perpendicular to the surfaces thereof, each of said flanges having a plurality of radial grooves extending to the outer rim of said flanges on the inside surface thereof;
- a shot delivery device interposed between said flanges and coaxial with said central axis;
- a plurality of bearing pins, one of said pins being located in each of said radial grooves at the end remote from said central axis;
- a plurality of springs, one of said springs being located in each of said radial grooves at the end nearest said central axis;
- a plurality of blades each having a pair of longitudinal fillets extending from opposite edges thereof, the working face of each of said blades having a longitudinal profile which is convex adjacent said delivery device and concave at greater radial distances from said delivery device, the radial fillets on each of said blades fitting into corresponding grooves on said flanges between said bearing pins and said springs, the pressure of said springs securely holding said blades in position between said flanges, said blades being easily replaced and being shaped so as to project shot at a high rate of ejection in a concentrated jet.

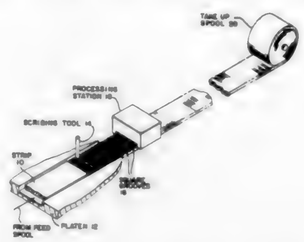
4,277,966

METHOD OF MANUFACTURING A FORAMINOUS PLATE

Werner R. Rambauske, Carlisle, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Jun. 4, 1979, Ser. No. 45,525
Int. Cl.³ B23P *17/00, 25/00*; B21C *47/04*
U.S. Cl. 72—148 **3 Claims**

1. The method of fabricating a channelplate with a plurality of foramina exteading therethrough, each one of such foramina defining an optical path, such method comprising the steps of:
- (a) scribing a strip of a metallic foil to form a plurality of parallel indentations across the width of such strip, the number of such identations being equal to the desired number of foramina, each having a length equal to the width of such foil;
- (b) treating the surfaces of the plurality of indentations and the strip to attain a desired optical characteristic of the walls of each one of the foramina; and
- (c) winding the treated strip on a bobbin of appropriate shape finally to form a coiled channelplate with foramina defined by said parallel indentations extending there-



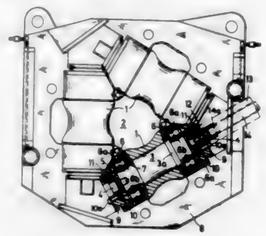
through, such foramina being the only openings in such plate for the passage of optical energy therethrough.

4,277,967

PUSH BENCHES

Karl-Hans Staat, Bad Homberg/Ratingen; Theodor Zacharias, Meerbusch, and Bernhard Terdenge, Düsseldorf, all of Fed. Rep. of Germany, assignors to Kocks Technik GmbH & Co., Düsseldorf, Fed. Rep. of Germany

Filed Jan. 31, 1979, Ser. No. 958,808
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1977, 2753267
Int. Cl.³ B21B *13/10*
U.S. Cl. 72—224 **6 Claims**



1. A push bench for the production of tubular blooms having roller stands arranged axially one behind the other along a pass line for said tubular blooms, a plurality of rollers rotatably journalled at each roller stand, defining a sizing pass, said rollers being axially movable relative to the pass line, means at each rollstand acting on said rollers selectively fixing them axially to prevent axial play, coupling means engaging said rollers for transmitting torque thereto when said rollers are fixed axially, and drive means selectively driving said coupling means and rollers.

4,277,968

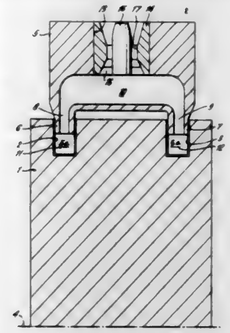
FORMING OF MATERIALS BY EXTRUSION

John A. Pardoe, Lytham St. Annes, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Mar. 6, 1978, Ser. No. 883,663
Claims priority, application United Kingdom, Mar. 16, 1977, 11042/77; Nov. 29, 1977, 49691/77
Int. Cl.³ B21C *23/22, 23/30, 23/02, 25/02*
U.S. Cl. 72—262 **7 Claims**

1. Apparatus for the forming of materials by extrusion, comprising a rotatable wheel member having an endless groove therein, a stationary shoe member overlying part of the length of the groove and having a portion which projects into said part of the length of the groove and is of a width substantially equal to that of the groove so as to form a passageway there-

with, a stationary abutment member associated with the shoe member and projecting into the groove so as to block the downstream end of the passageway, characterised by the improvement that the wheel member has at least one endless groove in its periphery, arranged in parallel planes where more than one groove is provided, the shoe member has as many



projecting portions as grooves, each projecting portion engaging a respective groove, a duct leading from the passageway formed by the shoe member with each groove, through the respective projecting portion into a single chamber formed in the shoe member, and at least one die orifice extending from the chamber to the exterior of the shoe member.

4,277,969

METHOD OF COLD FORMING TUBES WITH INTERIOR THICKER WALL SECTIONS

Joseph A. Simon, 237 Lothrop, Grosse Pointe Farms, Mich. 48236

Filed Oct. 24, 1979, Ser. No. 87,741
Int. Cl.³ B21C *25/06*
U.S. Cl. 72—266 **3 Claims**

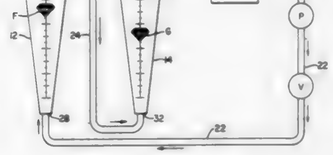
1. A process for extruding a thin wall metal tube having an integral inwardly extending, annular, ring-like thickened portion, comprising the steps of:
- positioning a relatively short, tubular blank within an open ended, tubular die having an inlet end through which the blank is inserted and an opposite extrusion end formed by an annular, inwardly extending shoulder forming a die extrusion throat, through which the blank is extruded;
- inserting a first punch into the die inlet end, with the punch having a portion closely fitted within the die and having an annular ram shoulder engaged against the free, trailing end of the blank, and with the punch also having a punch extension closely fitted within the blank interior wall and extending through the blank to the die throat, with the punch ram shoulder, punch extension, blank and die throat all being arranged co-axially with each other;
- moving the first punch towards the die throat while its extension portion is positioned within the die throat to thereby extrude the leading part of the blank through the space between the die throat and first extension to form a wall tube portion of pre-determined length;
- removing the first punch from the die and inserting a second punch within the die in its place, with the second punch having a first extension portion corresponding in diameter to the extension portion of the first punch, and a second extension portion whose O.D. is smaller than the O.D. of the extension portion of the first punch;
- moving the second punch axially towards the die throat to initially position its second extension within the die throat to extrude a ring-like inwardly thickened formation within the tube, and thereafter, as the punch movement continues, positioning its first extension portion within the die throat to again extrude the tube wall until a pre-determined tube length is reached.

4,277,970

APPARATUS AND METHOD FOR SPECIFIC GRAVITY MEASUREMENT

Paul R. Dawson, 256 Renwick Dr., Ithaca, N.Y. 14850, and Gregg W. Dawson, 1160 S. Madison St., Denver, Colo. 80210

Filed Feb. 6, 1980, Ser. No. 119,033
Int. Cl.³ G01N *9/08, 9/22*
U.S. Cl. 73—32 R **24 Claims**



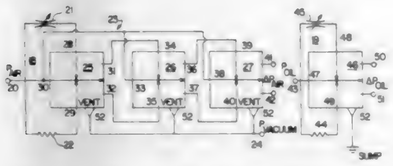
1. Apparatus for measuring the specific gravity of an object, comprising:
- an upright test chamber having a lower end and an upper end, said test chamber adapted for receiving said object to be measured;
- a fluid circuit interconnecting said upper and lower ends of said test chamber;
- circulating means associated with said fluid circuit for circulating a viscous fluid through said test chamber in a direction from said lower to said upper end;
- regulating means associated with said fluid circuit for adjusting the rate of flow therethrough; and monitoring means associated with said fluid circuit for measuring the rate of flow therethrough.

4,277,971

FLUIDIC OIL VISCOMETER

Tadeusz M. Drzewiecki, Silver Spring, and Richard M. Phillippi, Highland, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 10, 1980, Ser. No. 110,958
Int. Cl.³ G01N 11/04, 33/30
U.S. Cl. 73—55 10 Claims



1. A method of detecting the change in viscosity of a first fluid independent of temperature including means for measuring the viscosity of the first fluid to be monitored relative to the viscosity of a second fluid including the steps of:

calibrating the means for measuring so that the viscosity vs. temperature curve of the first fluid is substantially the same as the viscosity vs. temperature curve of the second fluid; and

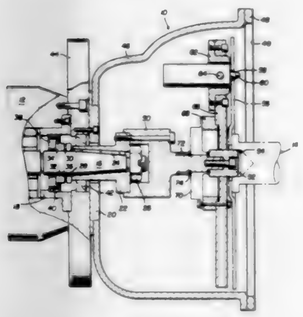
monitoring the relative change in viscosity of the monitored fluid by the difference between the two fluid viscosities such that the relative change in viscosity is independent of temperature.

4,277,972

ENGINE DYNAMOMETER

Gerald J. Wolschlager, Rochester, Mich., assignor to Modular Data Systems, Inc., Utica, Mich.

Filed Dec. 6, 1979, Ser. No. 100,808
Int. Cl.³ G01L 3/20
U.S. Cl. 73—862.16 4 Claims



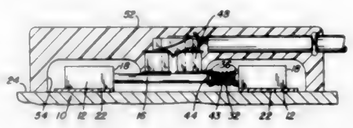
1. In a dynamometer for testing the operation of an engine, the dynamometer having a non-rotating housing in which is rotatably mounted an input shaft adapted to be connected through adapter means to a rotating output element of the tested engine to be rotatably driven thereby, the improvement which comprises axial thrust absorbing means interposed between the adapter means and the dynamometer housing and so positioned and mounted so that any excessive axially-directed loads applied toward the dynamometer from the engine are transmitted through said thrust absorbing means directly into the dynamometer housing rather than onto the dynamometer input shaft.

4,277,973

VIBRATORY WIRE STRAIN GAGE

Ivor Hawkes, 5 Willow Springs La., Hanover, N.H. 03755

Continuation-in-part of Ser. No. 966,324, Dec. 4, 1978, abandoned. This application Jun. 1, 1979, Ser. No. 44,696
Int. Cl.³ G01L 1/10
U.S. Cl. 73—862.41 18 Claims



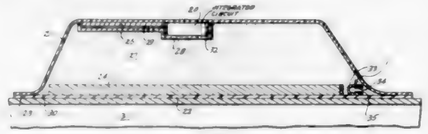
1. A vibratory wire strain gage comprising: an elongated hollow tube; a vibratory wire extending longitudinally through said tube and in spaced apart relationship with the inner periphery thereof; spaced anchor blocks adjacent each axial end of said tube, said anchor blocks supporting said tube adjacent respective axial ends thereof in a manner that said tube is longitudinally slidable with respect to at least one of said anchor blocks; securing means rigidly securing the respective axial ends of said wire to adjacent ones of said anchor blocks; selectively adjustable biasing means having an axial stiffness thereof substantially less than the axial stiffness of said wire; and said biasing means being operable to bias at least one of said anchor blocks away from the other of said anchor blocks to selectively vary the tension in said vibratory wire.

4,277,974

TIME-TEMPERATURE INDICATION

Lawrence J. Karr, 1349 W. Washington Blvd., Venice, Calif. 90291, and Stanton H. Kaye, 108 S. Mansfield, Los Angeles, Calif. 90036

Filed Jul. 12, 1979, Ser. No. 56,955
Int. Cl.³ G01K 3/04; G04F 13/04; G01R 11/44
U.S. Cl. 73—339 R 12 Claims



1. An apparatus for indicating the deterioration of a packaged perishable product that deteriorates at a rate approximately exponentially related to the temperature of the product, the apparatus being adapted to be attached to the package in which said product is contained and comprising:

(a) a substantially planar, label-like, galvanic cell having a consumable electrode, an electrolyte, and a patterned mask positioned between said electrode and the electrolyte and protecting a predetermined portion of said electrode against galvanic erosion to provide a predetermined visual indication when the time integral of the instantaneous currents passed through said cell amounts to a predetermined coulombic total, and

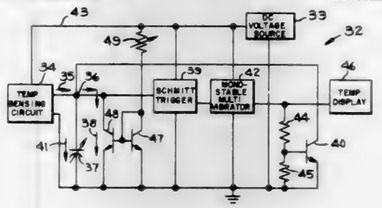
(b) circuit means including a semiconductor device having a temperature dependent current characteristic connected to said cell for controlling the through-put current in a manner such that the instantaneous current amplitude at any given time is a direct and substantially exponential function of the temperature at such time, with said function substantially corresponding to the time rate of deterioration as a function of temperature characteristic of the perishable product to which the apparatus is to be attached, whereby said through-part current consumes that portion of the consumable electrode not protected by said patterned mask, exposing the electrolyte to view through said electrode and providing a visual indication corresponding to the pattern of said mask.

4,277,975

DIGITAL THERMOMETER

Clinton L. Pinkham, New Hartford, N.Y., assignor to General Electric Company, New York, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,841
Int. Cl.³ G01K 7/24
U.S. Cl. 73—362 AR 11 Claims



1. Apparatus for sensing and displaying temperature comprising:

(a) a circuit including a temperature sensor for providing a first current related to the temperature at the site of the sensor;

(b) means for generating a predetermined current;

(c) a capacitor responsive to a second current having a value proportional to the difference between the first current and the predetermined current for generating a voltage;

(d) means responsive to the generated voltage for discharging the capacitor to a predetermined level when the voltage exceeds a selected reference level and for providing a signal indicating each time the voltage exceeds the reference level, whereby said signal is periodic with a frequency related to temperature sensed; and

(e) display means responsive to the frequency of said signal for providing a numerical indication of the temperature sensed.

4,277,976

PROCESS AND APPARATUS FOR MEASUREMENT OF NONUNIFORMITY OF MASS IN A ROTOR

Richard Mueller, Lynchburg, Va., and Guenther Himmler, Darmstadt, Fed. Rep. of Germany, assignors to Gebr. Hofmann GmbH & Co. KG, Darmstadt, Fed. Rep. of Germany

Filed Jul. 6, 1979, Ser. No. 54,947
Int. Cl.³ G01M 1/22
U.S. Cl. 73—457 15 Claims

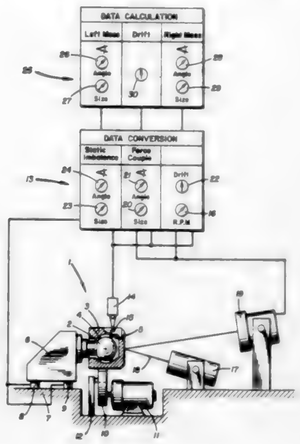
9. An apparatus for measuring the nonuniformity of mass of a gyro rotor, the gyro rotor having a single bearing, the apparatus comprising:

a radially fixed and spherically yielding pivot; means for mounting the gyro rotor in the pivot; means for rotating the mounted rotor to a predetermined rotational speed;

first means operatively associated with the pivot for sensing the magnitude of a force exerted on the pivot by the rotating rotor;

second means for sensing movement of a surface of the rotating rotor at two different times; and

conversion means responsive to said first and said second means for determining the static imbalance, force couple,



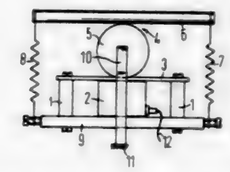
and drift of the gyro rotor resulting from the nonuniformity of its mass.

4,277,977

METHOD AND APPARATUS FOR INSPECTION OF CERAMIC PARTS FOR DEFECTS

Karl Lubitz, Ottobrunn; Jeffrey M. Drew, and Werner P. Schuhmann, both of Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 11, 1979, Ser. No. 47,476
Claims priority, application Fed. Rep. of Germany, Aug. 8, 1978, 2834695
Int. Cl.³ G01N 29/00
U.S. Cl. 73—587 6 Claims



1. A method for inspection of semiconductor ceramic structural members for defects therein comprising the steps of:

applying a test voltage to the member to be inspected, and simultaneously subjecting the member to acoustic emission analysis

whereby structural damage resulting from the application of said test voltage, and the presence of pre-existing damage are determined by examination of acoustic pulse output.

4,277,978

ADAPTIVE INPUT CIRCUIT

Charles M. Puckette, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 17, 1980, Ser. No. 112,852
Int. Cl.³ G01N 29/00
U.S. Cl. 73—632 18 Claims

1. A circuit for variably adapting the dynamic range of an electrical signal to the predetermined dynamic range of a

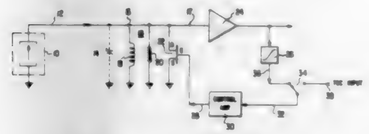
signal receiver, said signal being derived from an ultrasonic signal source for application to the input of said receiver;

said circuit comprising:

a filter coupled to said receiver input, said filter including at least resistive and inductive filter elements adapted to provide a frequency pass band centered substantially on a predetermined operating frequency of the source signal;

means for coupling said source signal to said filter;

an equivalent capacitance presented to said filter substantially in parallel with the latter, said equivalent capacitance including at least the combined capacitance of said source and said coupling means;



said inductive filter element being selected to resonate with said equivalent capacitance substantially at said predetermined operating frequency;

field effect device means including gate means and a drain-to-source path, said drain-to-source path being connected substantially in shunt with said receiver input; and

means for applying a control signal to said gate means adapted to vary the resistance of said drain-to-source path;

whereby said control signal is adapted to limit the amplitude of the signal applied to said receiver input substantially to the dynamic range of said receiver.

4,277,979

SCAN-CONTROL APPARATUS FOR PULSE-ECHO ULTRASONIC IMAGING SYSTEM INCORPORATING OSCILLATED TRANSDUCER

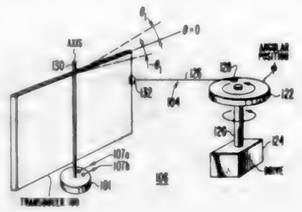
David H. R. Vilkomerson, Princeton, N.J., and Reuben S. Mezrich, Miami, Fla., assignors to RCA Corporation, New York, N.Y.

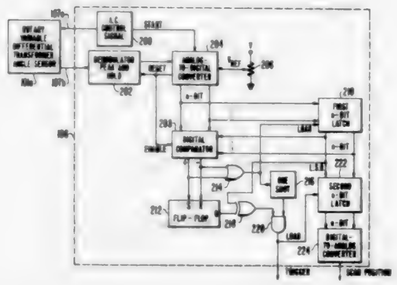
Filed Nov. 23, 1979, Ser. No. 96,825
Int. Cl.³ G01N 29/04
U.S. Cl. 73—633 **5 Claims**

1. In a pulse-echo ultrasonic wave energy imaging system comprising (1) a mechanically-oscillated electro-acoustic transducer responsive to the energization thereof for generating a scanning beam of pulsed ultrasonic wave energy that is propagated through a given liquid toward a remotely-located given structure to be insonified, said structure returning ultrasonic wave energy echoes propagated through said liquid to said transducer for detection and display on a display device of an image of said insonified structure, wherein said transducer is completely immersed in said liquid and is mounted for angular movement about a given axis; (2) an angle sensor for deriving an output signal which is a predetermined function of the angular position of said mechanically-oscillated transducer, and (3) electronic means responsive to said output signal from said angle sensor for energizing said transducer at each of a group of specified angular positions of said transducer during each cycle of oscillation thereof; the improvement therein:

wherein said angle sensor comprises an analog angle sensor immersed in said propagation liquid and directly coupled to said transducer for deriving a continuous output signal having a value which is substantially proportional to the then-existing angular position of said oscillated transducer, and

wherein said electronic means comprises an analog-to-digital converter for producing a multi-bit digital output of the angular position of said oscillated transducer in which the least significant bit corresponds with a predetermined angular incremental change in the angular position of said oscillated transducer, first means for periodically applying a sample of said analog sensor output signal to the input of said analog-to-digital converter at a rate sufficiently high that said analog angle sensor output signal is sampled at least once during each successive angular incremental change of said oscillated transducer, and second means operative during the occurrence of a certain one of the two half-cycles of each oscillation of said transducer for energizing said transducer in response to the occurrence





of each successive odd value of the least significant bit of the digital output of said analog-to-digital converter and operative during the occurrence of the other one of the two half-cycles of each oscillation of said transducer for energizing said transducer in response to the occurrence of each successive even value of the least significant bit of the digital output of said analog-to-digital converter.

4,277,980

APPARATUS AND METHOD FOR INDICATING SOUND LEVELS

Montgomery R. Coats, Oklahoma City, Okla.; Turner C. Pendleton, deceased, late of Oklahoma City, Okla., and Reine H. Pendleton, 1910 N. Indiana, Oklahoma City, Okla. 73106, assignors to Reine H. Pendleton, Oklahoma City, Okla.; Claude A. Peadleton, Dallas, Tex. and Sue Pendleton Coats, Edmond, Okla., a part interest

Filed Mar. 12, 1979, Ser. No. 19,608
Int. Cl.³ G01N 29/00
U.S. Cl. 73—646 **25 Claims**

1. An apparatus for detecting sound, comprising:

means for receiving a sound pressure wave and converting said pressure wave into a proportionate primary electrical signal;

first amplifier means connected to said receiving means for amplifying said primary electrical signal;

second amplifier means connected to said first amplifier means for further amplifying the amplified signal from said first amplifier means;

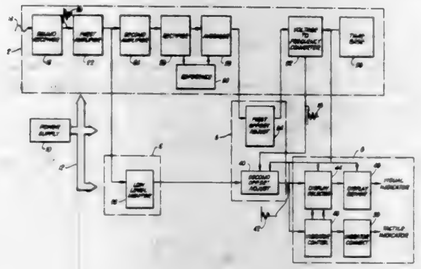
rectifier means connected to said second amplifier means for rectifying said further amplified signal;

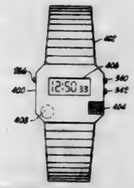
averaging means connected to said rectifier means for obtaining a signal having a magnitude which is an average of the magnitude of the rectified signal;

voltage-to-frequency converter means connected to said averaging means for converting said averaged-magnitude signal to an electrical signal having a frequency proportionate to the magnitude of said averaged-magnitude signal;

means connected to said first amplifier means for monitoring the magnitude of said first amplified signal;

means connected to said voltage-to-frequency converter





means and to said monitoring means for adjusting said signal from said voltage-to-frequency converter means to thereby obtain an adjusted quantifiable signal;

means connected to said adjustment means for quantifying and displaying said adjusted quantifiable signal; and

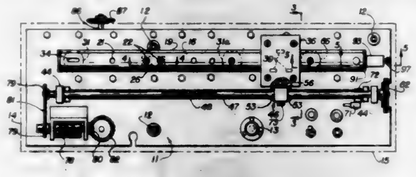
means connected to said voltage-to-frequency converter means, said adjustment means, and said display means for controlling the timing of the operations thereof.

4,277,981

LEAD SCREW ACTUATED FLUID GAUGE

Gene Glassey, San Diego, Calif., assignor to Fluid Data Systems, San Diego, Calif.

Continuation-in-part of Ser. No. 100,937, Dec. 6, 1979. This application Feb. 11, 1980, Ser. No. 120,694
Int. Cl.³ G01L 9/14
U.S. Cl. 73—701 **9 Claims**



1. In a pressure-responsive gauge of the type having a base, a balance beam, a fulcrum pivotally supporting said beam relative to said base, pressure-responsive means interposed between said base and said beam arranged to tilt said beam, a poise slideable along said beam to counterbalance the force of said pressure-responsive means, drive means for moving said poise, and a servo-motor arranged to actuate said drive means, an armature attached to one end of said beam, a differential transformer excited by said armature, an electric circuit including said transformer and said servo-motor functioning to move said poise to null said transformer and a read-out driven by said servo-motor, the improvement wherein said drive means comprises a lead screw parallel to the neutral position of said beam, means interconnecting said screw and said servo-motor, a carriage in threaded engagement with said screw, mounting means mounting said carriage for movement parallel to said beam, and transmission means for transmitting movement of said carriage to said poise, and wherein said guage further comprises temperature responsive means to compensate for temperature variations in a vertical sense comprising a spacer between said pressure-responsive means and said base of a different material than said pressure-responsive means, said spacer and said pressure-responsive means having dimensions and coefficients of expansion such that they expand to the same extent as said fulcrum, a clamp adjustably clamping said transformer vertically relative to said base, the materials of said clamp, armature and spacer being such that the position of the midpoint of said armature relative to the null point of said transformer remains fixed despite temperature variations.

4,277,982

TORQUE TRANSMITTING BODY FOR TRACTION DRIVE TRANSMISSIONS AND NORMAL FRICTION FORCE DEVELOPING METHOD

Yves J. Kemper, Birmingham, Mich., assignor to Vadetec Corporation, Troy, Mich.

Filed Sep. 21, 1979, Ser. No. 77,833
Int. Cl.³ F16H 15/16, 55/34
U.S. Cl. 74—191 **10 Claims**



1. In a continuously variable power transmission including a body having a pair of cone members arranged with the respective large diameter ends thereof adjacent to each other to define oppositely convergent, cone-like rolling surfaces of revolution about one axis and to which torque is transmitted by rolling frictional engagement of said cone-like surfaces at two points of contact with complementing rolling surfaces of revolution about another axis inclined with respect to and intersecting said one axis so that the normal force by which said rolling surfaces are retained in contact may be developed by axial separation of said cone-like surfaces, the output load of the transmission being driven by torque so transmitted to said body, the improvement comprising:

telescopic means connecting said cone members for relative rotary and axial movement;

means connecting the output load of the transmission to one of said cone members; and

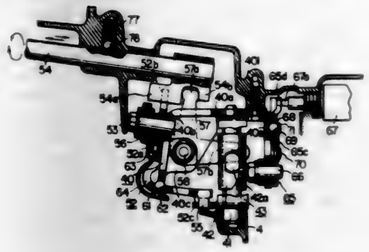
means for developing an axial separating force on said cone members in response to a torque differential between said cone members.

4,277,983

INTERLOCKING DEVICE FOR SHIFT ROD IN POWER TRANSMISSION

Seiji Izumi, Kitaootsumi, and Kiyokazu Ookubo, Wako, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 70,990
Claims priority, application Japan, Sep. 4, 1978, 53-107472; Sep. 4, 1978, 53-120516[U]
Int. Cl.³ G05G 5/10, 9/18
U.S. Cl. 74—477 5 Claims



1. An interlocking device for a power transmission operating rod in a power transmission mechanism of a type, wherein the sliding direction of a shift fork shaft intersects with the axial line of the power transmission operating rod, said interlocking device comprising, in combination:

(a) a supporting frame in the form of a letter "U" fitted at the lower part of a power transmission casing;

(b) a guide shaft fixed on said U-shaped supporting frame with the axis thereof being disposed in the same direction as the sliding direction of said shift fork shaft;

(c) a shift shaft supported on said guide shaft in a slidable and rotatable manner;

(d) a selector having an interlocking mechanism which rotates together with said shift shaft and is rotatably supported on said guide shaft which permits slid-movement of said shift shaft;

(e) a selection lever rotatably supported on said U-shaped supporting frame, one end of which is coupled with said power transmission operating rod and the other end of which is coupled with said selector; and

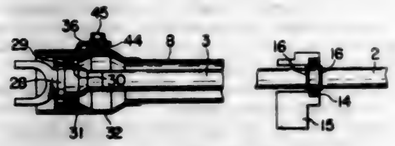
(f) a shift lever rotatably supported on said U-shaped supporting frame, one end of which is coupled with said power transmission operating rod and the other end of which is coupled with said shift shaft.

4,277,984

STEERING SHAFT SUPPORT DEVICE

Akio Numazawa, Nagoya; Taketo Matoba, and Makoto Kida, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 31, 1979, Ser. No. 44,191
Claims priority, application Japan, Feb. 26, 1979, 54/20778; Feb. 26, 1979, 54/20779
Int. Cl.³ B62D 1/18; F16C 35/077
U.S. Cl. 74—492 7 Claims



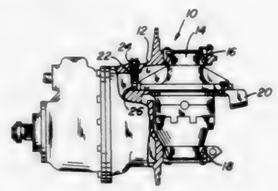
1. A steering shaft support device, comprising a steering shaft accommodated within a column tube, an elongated slot formed in a predetermined axial length in said column tube, a holding member mounted on said column tube for supporting said steering shaft through a bearing, said holding member being extended radially outward of said column tube through said slot, and fixing means for fixing said holding member on the outer periphery of said column tube.

4,277,985

CARBON SPACER

Edward M. Kostello, Troy, Mich., and Kenneth L. Schulte, Jr., Plain City, Ohio, assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Sep. 27, 1979, Ser. No. 79,407
Int. Cl.³ F16H 1/40
U.S. Cl. 74—713 8 Claims



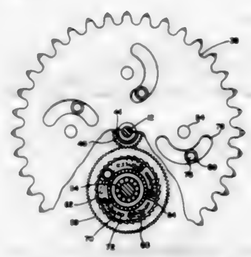
1. A power transmitting device comprising: a housing; a shaft rotatably mounted in said housing; a ring gear mounted on said shaft for rotation therewith, said ring gear being capable of deflecting in an axial direction under load; a stop member fixed to said housing and having one end adjacent one side of said ring gear, said stop member limiting axial deflection of said ring gear; a spacer of a predetermined thickness attached to the end of said stop member adjacent said ring gear and abutting said ring gear; said spacer being formed of a material capable of wearing away when contacted by said rotating ring gear to provide a gap of said predetermined thickness between said one end of said stop member and said ring gear whereby said one end of said stop member will prevent said ring gear from deflecting axially under load a distance greater than said predetermined distance.

4,277,986

STEPLESS, VARIABLE STROKE DRIVE HAVING A NON-ROTATING CAM

Clive Waddington, Stratford, Conn., assignor to Avco Corporation, Stratford, Conn.

Division of Ser. No. 836,727, Sep. 26, 1977, Pat. No. 4,181,043.
This application Sep. 20, 1979, Ser. No. 77,204
Int. Cl.³ F16H 3/44
U.S. Cl. 74—750 B 2 Claims



1. Apparatus for selectively transmitting the motion of a first rotating member to a second rotating member comprising:

a support axle mounted on the first rotating member;

a gear ring mounted for rotation on the support axle and being constructed with an annular channel positioned concentric with the support axle, said channel being formed between radially spaced outer and inner circumferential surfaces;

radially inward extending gear teeth spaced about the outer circumferential surface;

a crank ring mounted within the channel on the inner circumferential surface for concentric rotation relative to the gear ring, said ring having a crank arm operatively connected to the first rotating member which imparts a periodic rotation to the crank ring;

a plurality of pawls mounted on the crank ring and resiliently biased radially outward to engage the gear teeth and drive the gear ring only in a direction consistent with the periodic rotation imparted by the first rotating member; and

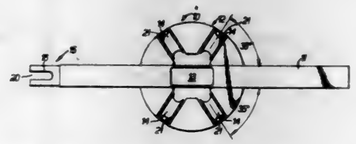
an output member operatively engaging the gear ring to transmit the motion thereof to the second rotating member.

4,277,987

CHAIN SAW SHARPENING APPARATUS

Frederick H. Hyde, Short St., Warwick, Queensland, Australia

Filed Jun. 4, 1979, Ser. No. 45,383
Claims priority, application Australia, Jun. 2, 1978, PD4598
Int. Cl.³ B23D 63/10
U.S. Cl. 76—25 A 7 Claims



1. Chain saw sharpening apparatus including, a support member adapted in operation to locate about a saw chain in predetermined relationship thereto and supporting two guide roller assemblies each including a pair of guide rollers disposed at opposite sides of said support member for rotation about axis disposed, when the apparatus is operatively supported about said saw chain, in a plane substantially at right angles to the face of the saw chain supporting bar and substantially parallel to the longitudinal run portions of said saw chain, each said guide roller having a concave peripheral surface, defining a file seat, and said guide roller assemblies being so made and arranged that a file operatively supported on one said pair of guide rollers and seated on respective said concave peripheral surfaces is disposed at an angle of inclination to said supporting bar face equal to the selected cutting edge angle of one set of saw teeth, while the other said pair of guide rollers operatively supports a file in a similar manner at an angle of inclination to said supporting bar face equal to the selected cutting edge angle of the other set of saw teeth.

4,277,988

METHOD OF MANUFACTURING A CONTOURED STAMPING DIE

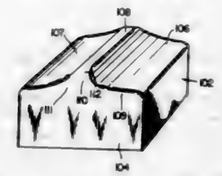
John J. Crowe, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 11,674, Feb. 12, 1979, Pat. No. 4,227,396.
This application Apr. 11, 1980, Ser. No. 139,600
Int. Cl.³ B24B 1/00; B23C 3/20; B21K 5/20
U.S. Cl. 76—107 R 18 Claims

1. A method for making a contoured die, comprising the steps of:

(a) providing a workpiece having a horizontally extending flat top surface, vertically extending side surfaces, and vertically extending front and back surfaces, with each of said side surfaces being parallel to the other side surface and perpendicular to said front and back surfaces, whereby said workpiece has a rectangular cross-section in plan view over its entire vertical extent;

(b) forming depressions in said workpiece extending across said flat top surface from said front surface to said back surface parallel to said side surfaces of said workpiece, with adjacent depressions being spaced-apart from one another to retain flat top surface portions therebetween of rectangular shape having a transverse dimension d as measured in a horizontal plane containing said flat top surface portions, said depressions being formed with a concave elevational contour of constant radius of curvature R_1 as viewed in a vertical plane perpendicular to said side surfaces of said workpiece and with the forming step



being carried out such that the dimensional ratio of said radius of curvature R_1 to the flat top surface portion transverse dimension d is between 0.375 and 30,000; and

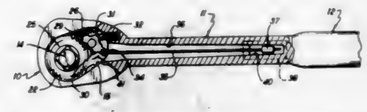
(c) forming smoothly contoured edge surfaces on said workpiece in the regions of intersection of the top surface of said workpiece with the front and back surfaces thereof, including edge surface portions extending between and joining said front and back surfaces with said flat top surface portions each having an inwardly directed elevational contour from a lower extremity adjacent the front or back surface to an upper extremity adjacent the flat top surface portion, as viewed in a vertical plane parallel to said side surfaces of said workpiece and passing through the flat top surface portion.

4,277,989

RATCHET WRENCH HANDLE

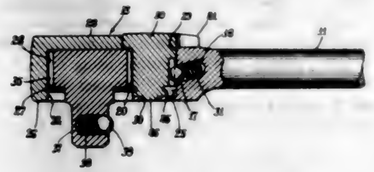
Kurt L. Tracy, Kendrew Rd., Rensselaer Falls, N.Y. 13680

Filed May 1, 1979, Ser. No. 35,103
Int. Cl.³ B25B 13/46
U.S. Cl. 81—62 7 Claims



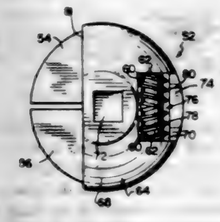
1. A reversible ratchet wrench handle comprising a head portion, a hand grip portion spaced from the head portion, a shank portion rigidly connecting the head and hand grip portions together, a ratchet member in the head portion, a double toothed pawl pivotally mounted in the head portion adjacent the ratchet member, a longitudinally movable switch button on the handle adjacent the hand grip portion, and a longitudinally movable rod element positioned in the shank portion and connecting the switch button to the pawl whereby longitudinal movement of the switch button in one direction operates to move one of the pawl teeth into engagement with the ratchet member and longitudinal movement of the switch button in the opposite direction operates to move the other pawl tooth into engagement with the ratchet member.

4,277,990
RATCHET WRENCH
Roy L. Hall, Hoffman Estates, Ill., assignor to Duro Metal Products Company, Chicago, Ill.
Filed Nov. 14, 1979, Ser. No. 94,213
Int. Cl.³ B25B 13/46
U.S. Cl. 81—63 6 Claims



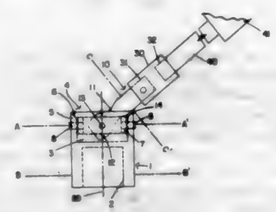
1. A ratchet wrench for driving removable drive sockets having bolt head or nut engaging means, comprising: an elongated handle member, an enlarged housing at one end of said handle member, formed with two internal cylindrical chambers, each closed over at one end by an integral portion of said housing, and having parallel axes and overlapping circumferences whereby said chambers openly communicate at their overlapping areas; one of said chambers having one open end which extends inwardly of an upper wall of said housing and the other of said chambers having one open end which extends inwardly of the bottom wall of said housing; a ratchet pawl member rotatably journaled in said one of said chambers in bearing relation with the walls thereof; a ratchet gear member having a toothed body and an axially depending socket supporting drive tang, rotatably journaled in the other of said chambers in bearing relation with the walls thereof; said pawl member having a pair of arcuately spaced teeth selectively engageable one at a time with the teeth of said gear member, yieldable detent means for maintaining said pawl member in either of two selected operating positions whereby to engage one of said pair of teeth with said gear member to thereby limit ratcheting rotation of the latter in clockwise or counter clockwise directions; and a single retainer means disposed within the confines of said housing and operable for simultaneously locking both said gear and pawl members in their respective chambers.

4,277,991
ADJUSTABLE SOCKET WRENCH
James B. Stubenrauch, 10701 Walmer, Overland Park, Kans. 66211
Filed Nov. 16, 1979, Ser. No. 94,982
Int. Cl.³ B25B 13/16
U.S. Cl. 81—163 5 Claims



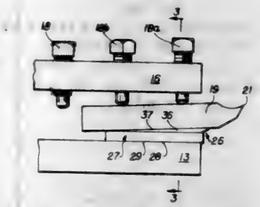
1. An adjustable socket wrench head, comprising:
a main body presenting a top surface, a bottom surface, and structure defining an elongated relieved portion, said structure including
a first surface disposed at a vertical level between and in general parallelism with said top and bottom surfaces and presenting an inner end and outer end;
a second surface extending downwardly from said top surface toward said outermost end of said first surface; and
a third surface extending upwardly from said bottom surface toward the inner end of said first surface;
a pair of jaws disposed partially within said relieved portion and extending outwardly beyond said second surface, each jaw having an inner, elongated workpiece-engaging surface;
means for selective, lateral, back-and-forth movement of at least one of said jaws relative to the other jaw for adjusting the spacing between the jaws;
structure defining an opening through said top surface for receiving the drive block of a socket wrench handle,
said workpiece-engaging surfaces and said first, second, and third surfaces cooperatively defining, when said jaws are opened, a first, inner, workpiece-receiving region bounded on four sides and defined by the inner portions of said gripping surfaces, and said first and third surfaces between the open jaws, and a second, open-ended workpiece-receiving region cooperatively defined by the outer portions of said gripping surfaces beyond said second surface, and the portion of said second surface between the open jaws.

4,277,992
JOINTED TOOL
Arthur O. Koltveit, 1410 S. Sterling St., Streator, Ill. 61364
Filed Jun. 26, 1979, Ser. No. 52,450
Int. Cl.³ B25B 13/00
U.S. Cl. 81—177 UJ 7 Claims



1. A jointed hand tool for use with rotatable, work-piece-contacting tool elements comprising an upper portion for rotatably driving said tool, a lower work-piece contacting portion including a tool element for contacting the work-piece, and a pin-mounted gimbal ring connection joining said upper drive portion and said lower work-piece contacting portion, said gimbal connection between said upper and lower portions being provided by said lower portion having at the top thereof an open-topped tubular section defining an outside ring element of said gimbal connection, and an inside ring element of said gimbal connection is attached to the lower end of said upper drive portion by pin means having an axis located in the same plane as and intersecting at an angle of 90 degrees the axis of the pin means of said gimbal connection connecting said outer and inner ring elements thereof, the lower end of said upper drive portion defining a rectangular periphery and said inner ring element of said gimbal connection having a rectangular opening in the interior thereof into which opening said lower end of said upper drive portion is received and attached by said pin means therefor, whereby, when rotation is imparted to said drive portion, the adjacent walls of said drive portion and said inner ring element abut each other and thereby reduce torque applied to said drive portion-inner ring connection pin means.

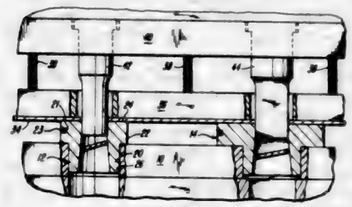
4,277,993
"ADJUSTMENT DEVICE FOR TOOL BIT HOLDERS"
George Engels, 551 Taylor Way, Belmont, Calif. 94002
Filed Apr. 4, 1979, Ser. No. 26,862
Int. Cl.³ B23B 29/06, 29/10
U.S. Cl. 82—37 1 Claim



1. For use in a lathe of the type having a tool and a tool holder, said tool holder having a base, a plate spaced from said base and clamping means operable for securing said tool in said holder between said base and said plate with the distal tip of said tool extending outward from said tool holder to engage the work, the improvement comprising tool height adjustment means entirely separate from said tool and said tool holder, said adjusting means comprising a first member having a planar first surface and an opposed second surface formed with an arcuate concavity, said first and second surfaces extending the entire length of said first member, parallel sides along the longitudinal edges of said first member extending above said second surface with a first space between said sides, the top edges of said sides being of substantially uniform elevation, and a second member having a planar first surface and an opposed convex second surface of the same radius of curvature as said second surface of said first member, said first and second surfaces of each second member extending the entire length of said second member and being substantially the same lengths as said first and second surfaces of said first member, said members being positioned with their second surfaces in contact and one said first surface fitting against said base, said tool resting on the other said first surface, said second member fitting in said first space and being restrained from lateral movement by said sides, said clamping means bearing against said tool, said second surfaces sliding relative to each other about the common center of the radius of curvature of said second surfaces, said tool being capable of rocking about said center so that the distal tip of said tool rises and falls in elevation relative to said base prior to said clamping means securing said tool in fixed position, said clamping means comprising first and second set screws threaded into said plate, each said set screw having an end in the second space between said plate and said base, each said end engaging said tool, said ends spaced longitudinally of said tool whereby when one said set screw is loosened and the other tightened, the angle between said first surfaces is adjusted and the elevation of said distal tip being correspondingly adjusted, said set screws being the sole means for securing said first and second members in desired positions of adjustment relative to each other and thereby adjusting the elevation of said distal tip relative to each base.

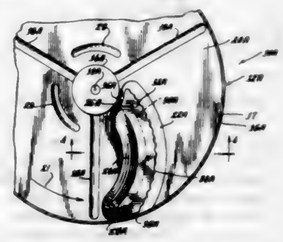
4,277,994
MATRIX ELEMENT
Robert J. Gargrave, 4717 James Hill Rd., Dayton, Ohio 45425
Continuation of Ser. No. 842,526, Oct. 17, 1977, abandoned.
This application May 22, 1979, Ser. No. 41,535
Int. Cl.³ B26F 1/02
U.S. Cl. 83—133 2 Claims

1. A device for providing an easily renewable or replaceable matrix operating surface, or a portion thereof, in connection with a die retainer plate, for use in a die assembly wherein a spring loaded plate unit is applied to hold material to be worked to the matrix operating surface comprising, a body including a mounting segment and a matrix segment, said matrix segment being to one end of and oriented to be generally perpendicular to the longitudinal axis of said mounting segment, the surface of said matrix segment remote from said mounting segment constituting a matrix operating surface forming a base for the material to be worked and said mounting segment being formed for a press fit in an opening in a die retainer plate, said matrix segment being laterally extended with respect to the outer periphery of said mounting segment, the lateral extension of said matrix segment providing a load accommodating portion thereof having one surface for bearing abutment to the adjacent surface of the die retainer plate to which the device is applied, said one surface of said matrix



segment being parallel to said matrix operating surface and arranged to directly transmit loads applied to material thereon into and through the die plate, said lateral extension of said matrix segment having a depth to substantially displace said matrix operating surface from the surface of the die retainer plate to which it is applied and being constructed and arranged to provide for a selective displacement of said matrix operating surface toward said one surface as needs require, a peripheral wall portion of said matrix segment having means inserted therein which define the limit to which the matrix operating surface may be displaced toward said one surface of said matrix segment.

4,277,995
ROTARY SLICING TOOL FOR MAKING NEAT, COMPLETE SLICES IN A FOOD PROCESSOR
Carl G. Southelmer, 14 Gray Oakes La., Greenwich, Conn. 06830
Filed Mar. 5, 1979, Ser. No. 17,450
Int. Cl.³ B26D 1/147
U.S. Cl. 83—150 5 Claims



1. A rotary food slicing tool for rotating at a high rate of the order of 1,000 to 2,000 rpm having a rotatable hub with a horizontal disc-like cutting member secured to said hub for rotation therewith in a predetermined direction of rotation about an axis, said disc-like member having a horizontal area with a flange around the perimeter thereof, said horizontal area having a slot therein extending from near said hub out to the periphery of said disc-like member, said disc-like member having an elevated rim behind said slot, and a slicing blade mounted on said elevated rim behind said slot with a cutting edge projecting forward at an elevation above said horizontal area and facing forward toward said slot for slicing food items fed toward said disc-like member, the improvement for pro-

ducing complete and neatly cut slices from such a food item comprising:

(a) a wide elevated platform extending rearwardly from said elevated rim at an elevation above the level of said disc-like member,

(b) said wide elevated platform having a width near said flange of said disc-like member extending concentrically about the axis more than twice the width of the blade,

(c) said slicing blade having its ends contoured to conform with the general contour of the periphery of said disc-like member on one extremity thereof and with the shape of the hub on the other extremity thereof,

(d) said blade being mounted on the forward edge of said elevated platform with its cutting edge being spaced forward of said edge on both extremities of said blade, and

(e) said wide elevated platform being joined to said disc-like member by an integral gradually sloping shoulder being rounded and contoured to conform with the general contour of the periphery of said disc-like member and with said hub, whereby food items fed toward said disc-like member are cleanly, neatly and uniformly sliced by said blade with the sliced food items gently sliding beneath said elevated platform and said gradually sloping contoured shoulder for forming complete, neat slices without any significant smashing, stripping or splattering of food materials.

4,277,996

FORCE APPLICATION APPARATUS, ESPECIALLY FOR SEVERING MATERIALS

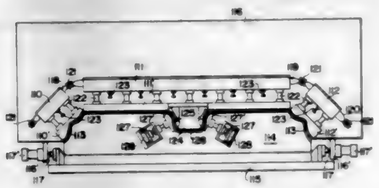
Ernst M. Spengler, Hessenstamm, Fed. Rep. of Germany, assignor to Stanztechnik GmbH R & S, Bergen-Enkheim, Fed. Rep. of Germany

Continuation of Ser. No. 965,907, Dec. 4, 1978, abandoned. This application May 15, 1980, Ser. No. 150,073

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1978, 2824488

Int. Cl.³ B26D *5/12, 7/10*

U.S. Cl. 83—171 Q **19 Claims**



1. An apparatus for applying force to a three-dimensional work piece, comprising a plurality of work performing means each including rigidly supported frame means forming a plurality of hollow housing members, longitudinal, elastically deformable expansion means having a longitudinal axis, said expansion means being operatively supported in said hollow housing members, elongated force transmission means (24) operatively arranged in each housing member for cooperation with said longitudinal, elastically deformable expansion means, pressure means operatively connected to said longitudinal elastically, deformable expansion means for expanding said expansion means along its entire length to perform a work stroke which is applied to said work piece along a line curved in space, at least two power transmitting rods operatively secured to said elongated force transmission means in a row extending substantially in the same plane as said longitudinal axis, whereby all power transmitting rods are operated in synchronism in said row, said power transmitting rods extending through said housing member, guide means secured to said housing member for guiding said power transmitting rods for a back and forth movement substantially perpendicularly to said housing member, reset means operatively arranged to return said power transmitting rods to a rest position when the pressure in said elastically deformable expansion means is released and support means for operatively supporting said plurality of work performing means in a three-dimensional relationship relative to each other for performing work on a three-dimensional work piece.

4,277,997

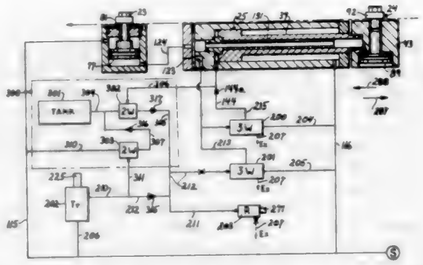
CAPACITANCE CONTROL SYSTEM FOR PNEUMATIC PUNCH PRESS FEEDERS

Albert W. Scribner, 6 Country Club Rd., Darien, Conn. 06820

Filed Mar. 14, 1979, Ser. No. 20,268

Int. Cl.³ B65H *17/36*

U.S. Cl. 83—225 **15 Claims**



1. A pneumatic feeder for intermittently advancing stock into the work station of a punch press or the like; comprising a frame;

stock transport means movably mounted on said frame;

pneumatic motor means for actuating said transport means;

valve means for controlling the operation of said pneumatic motor means;

actuating means for said valve means;

a first control means adapted when actuated to control said valve actuating means so as to cause said stock transport means to partake of a first cycle of movement thereof; and

a second control means adapted when actuated to control said valve actuating means so as to cause said stock transport means to partake of a second cycle of movement thereof;

said second control means including a pneumatic capacitance that is adapted to be charged with pressure fluid and means responsive to the subsequent discharge of said capacitance for causing initiation of said second cycle of movement of said stock transport means.

4,277,998

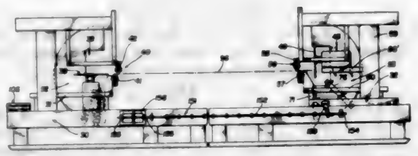
WOOD MEMBER CUTTING APPARATUS

George L. Mayo, Fort Worth, Tex., assignor to Stoddard H. Pyle and Wayne R. Roberts, both of Corvallis, Oreg.

Filed Jan. 16, 1980, Ser. No. 112,530

Int. Cl.³ B27B *5/04*

U.S. Cl. 83—404.1 **16 Claims**



1. A wood member cutting apparatus comprising a base, a first gang of saws and a coacting first wood member conveyor on the base, a carriage on the base movable toward and away from the first gang of saws and first conveyor, a second gang of saws and a coacting second wood member conveyor on the carriage and bodily movable therewith, common driving means for the carriage and for the first and second wood member conveyors, independent vertical adjustment means for each saw in each gang of saws on the base and carriage, and independent 180 degrees rotational movement means for each saw in each gang on the independent vertical adjustment means for each saw, the blades of the saws in each gang rotating around a chord on the saw blade lying in a vertical datum plane common to the saws in each gang.

4,277,999

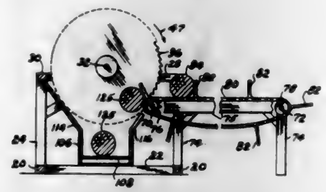
FIREWOOD SAWMILL

Eldon C. Conner, and E. C. Conner, both of Rte. 1, Foster, Okla. 73039

Filed Sep. 6, 1979, Ser. No. 72,941

Int. Cl.³ B27B *31/00, 5/02*

U.S. Cl. 83—425.3 **1 Claim**



1. A firewood sawmill, comprising:

a rectangular saw frame having base members and upstanding posts supporting saw frame end rails at the respective ends of the frame and defining a forwardly open lateral side for the saw frame;

a saw axle longitudinally overlying and projecting horizontally beyond the respective ends of said saw frame,

said frame having downwardly and inwardly converging side walls terminating in a trough-like base forming a sawed firewood hopper extending longitudinally of the saw frame below said axle;

bearings on said saw frame end rails journalling said axle;

a plurality of equally spaced circular saws coaxially secured to said axle;

an engine having a clutch drivably connected with a drive shaft;

V-belts and pulleys drivably connecting said engine drive shaft with said axle;

manually operated control handles connected with said engine and said clutch;

a feed conveyor frame disposed laterally of said saw frame and projecting into its laterally open side between vertical planes defining the end limits of said saw frame for moving logs to be sawed toward said saws,

said feed conveyor frame comprising a pair of elongated supports horizontally secured at one end portion, respectively, to the respective end of said saw frame, and a pair of standards supporting the other end portion of said supports for supporting the upper limit of the feed conveyor frame below the horizontal plane of said saw axle a distance at least equal to the diameter of logs to be sawed;

a feed conveyor drive shaft journalled by the saw frame connected end portions of said feed conveyor frame supports in parallel laterally spaced relation with respect to said axle;

a feed conveyor idler shaft journalled by the other end portions of said feed conveyor frame supports;

a chain support platform extending horizontally between said feed conveyor drive shaft and said feed conveyor idler shaft in cooperative alignment with the respective said saw;

a plurality of pairs of sprockets secured in spaced-apart relation to said feed conveyor drive shaft in cooperative alignment with the respective said saw;

a like plurality of pairs of feed conveyor idler shaft pulleys journalled by said feed conveyor idler shaft in cooperative alignment with said pairs of sprockets;

a feed conveyor chain entrained around the respective aligned sprocket and idler pulley;

a plurality of outstanding stops secured to the respective said chain;

a feed conveyor driving pulley secured to said feed conveyor drive shaft;

a friction drive pulley secured to said axle in cooperative alignment with said feed conveyor driving pulley;

a flat belt idler pulley pivotally supported by said saw frame for movement in a vertical plane toward and away from said friction drive pulley;

a flat belt entrained around said flat belt idler pulley and said feed conveyor driving pulley in contact with said friction drive pulley;

handle and linkage means for moving said flat belt idler pulley;

a flat belt conveyor extending longitudinally of said trough; and,

V-belt pulley and angle gear means drivably connecting said axle with said flat belt conveyor for moving sawed firewood toward one end of said frame.

4,278,000

PIEZOELECTRIC TRANSDUCER FOR ELECTRICAL STRING INSTRUMENTS AND PICKUP MEANS COMPRISING THE SAME

Shigeo Saito, and Tsutomu Tsunooka, both of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed Oct. 26, 1979, Ser. No. 88,622

Claims priority, application Japan, Nov. 5, 1978, 53/136027

Int. Cl.³ G10H *3/18*

U.S. Cl. 84—1.16 **13 Claims**



1. A piezoelectric transducer for electrical string instruments comprising a long and flat outer layer of flexible material, a flexible piezoelectric cable being buried therein and having a center electrode, a piezoelectric layer formed on the outer periphery of the said electrode and an outer electrode formed on the outer periphery of the said piezoelectric layer, the material for the said outer layer having a hardness in the range from 85 to 98 as measured by Spring Type Hardness Test according to JIS K 6301 (1975), thereby increasing the stiffness of the piezoelectric transducer.

4,278,001

SELECTIVE KEYER BIASING TO ENHANCE PERCUSSION EFFECT

Ray B. Schreacongost, Park Ridge, Ill., assignor to Marmon Company, Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 106,725

Int. Cl.³ G10H *1/055, 1/057, 5/07*

U.S. Cl. 84—1.26 **18 Claims**

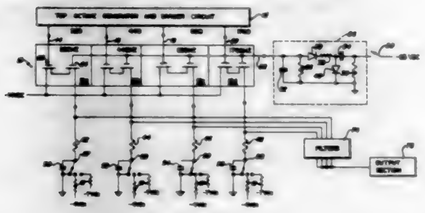
1. A keying system for use in an electronic organ having a top octave generator and divider circuit for providing a plurality of rectangular wave signals at various frequencies and a keyboard for providing a keying signal upon depression of any key, said keying system comprising:

a keying block having a plurality of identical keying sections, each of said keying sections having at least a first and a second semiconductor switching device, all of said semiconductor devices having an input, a control and an output;

a direct current supply having a first potential source and a reference potential, said first potential source being connected to the input of the first semiconductor device of each of said sections;

first conductor means for connecting the output of the first semiconductor device of each section to the input of the second semiconductor device of the same section;

a plurality of load resistors connected individually between the outputs of said second of said semiconductor devices and said reference potential;



circuit means inserted between at least one of said load resistors and said reference potential for controlling the level of potential applied to said at least one of said load resistors;

second conductor means for connecting the rectangular wave signals generated by said top octave generator and divider circuit individually to the controls of one of the semiconductor devices of each section; and

envelope means having a source of keying potential for applying an envelope signal to the controls of the other of said semiconductor devices of each of said sections upon depression of a key on said keyboard whereby the effect of the envelope signal provided to at least one of said keying sections is selectable.

4,278,002

FAST-WIND TUNING MACHINE FOR STRINGED MUSICAL INSTRUMENT

Roger H. Siminoff, 112 Privada Luisita, Los Gatos, Calif. 95030

Filed Aug. 31, 1979, Ser. No. 71,732
Int. Cl.³ G10D *3/14, 7/00;* G05G *1/10*
U.S. Cl. 84—304 11 Claims



1. Apparatus to facilitate rapid winding or unwinding of a string of a musical instrument comprising in combination, tuning machine means for normally providing tension to said string, said tuning machine means including string retaining means for holding said string, shaft means cooperatively coupled to said string retaining means for movement therewith and knob means connected to said shaft means for applying torque thereto, and crank means integral with said tuning machine means and pivotally connected to said knob means for selectively extending the radius of rotation of said knob means with respect to said shaft means.

4,278,003

PEDAL ADJUSTABLE DRUM

Donald L. Hanson, Sylmar, Calif., assignor to Remo Inc., North Hollywood, Calif.

Filed Aug. 20, 1979, Ser. No. 67,747
Int. Cl.³ G10D *13/02*
U.S. Cl. 84—411 A 23 Claims



1. Actuating apparatus for adjustable pitch drums comprising

a foot pedal,

a support stand,

a support rod carried by said support stand and adapted to support a drum,

a pivoted lever arm mounted on said support stand,

a push rod engaged with said pivoted lever arm and adapted to be pushed upward thereby,

a "C" shaped bracket having arms slideably received on said support rod, said bracket resting upon said push rod and adapted to engage drumhead tensioning means associated with said drum, and

means connected to said pivoted lever arm and actuated by said foot pedal for pivoting said lever arm against said push rod upon depression of said foot pedal, thereby urging said "C" shaped bracket against said drumhead tensioning means to tension the drumhead of said drum.

4,278,004

PEDALBOARD

Paul A. Klann, P.O. Box 2398, Waynesboro, Va. 22980

Continuation-in-part of Ser. No. 8,213, Jan. 31, 1979, abandoned. This application Jan. 22, 1980, Ser. No. 114,164
Int. Cl.³ G10C *3/14*
U.S. Cl. 84—434 13 Claims



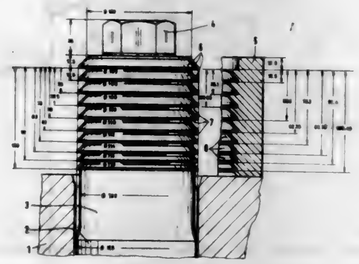
1. A pedalboard for an organ comprising front and rear frame means, at least one key disposed between said front and rear frame means, combined support and return spring means for supporting said key in said pedalboard and normally biasing said key into an elevated position comprising an elongated resilient support strip secured to the undersurface of said key substantially adjacent the midportion thereof, said strip diverging downwardly away from said key with the front end of said strip being disposed in spaced vertical alignment with the front end portion of said key, first connecting means securing the forward end of said strip to said front frame means and second connecting means operatively connecting the rear end of said key to said rear frame means for substantially horizontal movement of the rear end of said key in opposite directions along the length of said key.

4,278,005

CONNECTING BOLT AND COUPLING ELEMENT

Hans Lachner, Herne, and Werner Boer, Castrop-Rauxel, both of Fed. Rep. of Germany, assignors to Klockner-Werke Aktiengesellschaft, Duisburg, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,303
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2825300
Int. Cl.³ F16B *19/00, 21/00*
U.S. Cl. 411—337 6 Claims



1. An elongated connecting device which comprises an elongated connecting bolt and a coupling element,

said elongated connecting bolt including a head and a neck, said neck including a gripping portion comprising a plurality of radially-projecting teeth separated by grooves, the spacing between at least some of the teeth and the depth of at least some of the grooves increasing along said gripping portion in a direction towards said head,

said coupling element including a gripping portion comprising teeth separated by grooves, said teeth and said grooves being dimensioned to correspond generally with said teeth and said grooves of said gripping portion of said neck of said connecting bolt so as to form a gripping portion of said coupling element profiled similarly to said gripping portion of said connecting bolt, the spacing between at least some of the grooves relative to the teeth of said gripping portion of said coupling element being slightly greater and becoming increasingly greater from the groove adapted to engage the tooth of the gripping portion of said connecting bolt nearest the head to the groove adapted to engage the tooth of the gripping portion of said connecting bolt furthest from said head.

4,278,006

EXPANSION SHELL ASSEMBLY

John Lobello, Syracuse, N.Y., assignor to The Eastern Company, Naugatuck, Conn.

Continuation of Ser. No. 903,210, May 5, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,577
Int. Cl.³ F16B *13/06, 13/10*
U.S. Cl. 411—47 1 Claim

1. A mine bolt expansion anchor assembly comprising, in combination:

(a) a one-piece, malleable iron, expansion shell having,

(i) an annular collar at one end with inner and outer surfaces substantially concentric about a central axis and a flat end surface forming the lower end of said shell;

(ii) four identical expansion fingers extending integrally from said collar on the side opposite said end surface symmetrically about said central axis to a free end of each at the upper end of said shell;

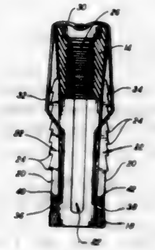
(iii) each of said fingers being laterally spaced from adjacent fingers to provide four open slots at 90° intervals about said shell extending from said free ends to said collar;

(iv) each of said fingers including a toothed outer surface portion extending from said free end for a predetermined part of the total length thereof and a shank portion extending between said toothed surface portion and said collar;

(v) a pair of bridge members extending entirely across two of said slots at 180° to one another adjacent said collar, forming an integral bond between said shank portions of adjacent fingers on each side of said two slots; and

(vi) the surfaces of said bridge members facing inwardly toward said central axis being substantially coplanar with the adjacent surfaces of said shank portions;

(b) a tapered nut having a threaded bore for receiving a mine bolt and placed in engagement with said free ends of said fingers with the small end of said nut oriented toward said shell collar whereby, as said nut is drawn along said central axis into said upper end of said shell by rotation of the bolt as said shell is restrained against rotation, said toothed portions of said fingers are expanded uniformly outwardly from said central axis; and (c) a bail member of generally U-shaped configuration having a medial portion engaging the large end of said tapered nut and leg portions extending from said medial portion through said two slots and having end portions bent to extend into said slots between said collar and said bridge members, thereby retaining said bail member in engagement with said shell, said bridge members being located adjacent said collar at the lower ends of said slots and spaced a sufficient distance therefrom to accommodate said bail member end portions, the length of said leg portions being less than the combined length of said tapered nut and the distance from said bridge members to said free ends of said fingers, whereby said bail serves to retain said nut within the space enclosed by the free ends of said fingers.



4,278,007

HAND LEVER FOR OPERATING THE WEDGE-TYPE BREECHBLOCK OF AN ARTILLERY GUN

Henning von Seidlitz, Neuss, Fed. Rep. of Germany, assignor to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany

Filed Jan. 13, 1979, Ser. No. 48,016
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1978, 2826739
Int. Cl.³ F41F *11/00*
U.S. Cl. 89—24 6 Claims

1. Hand lever system for operating the wedge-type breechblock of an artillery gun, comprising

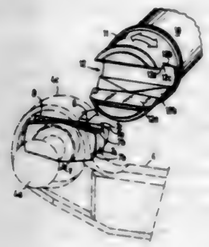
a shaft located at the bottom of the gun and connected with the breechblock;

a hand lever;

a device connecting the shaft and the hand lever, said drive including a socket at the end of said shaft having a two-step locking slot, each step of said two-step locking slot having prismatic surfaces converging toward the side of

the shaft and said slot being open towards the outside at both ends of the slot;

a head at the free end of the hand lever having a two-step bolt with one step of the bolt and the locking slot providing a coupling between the hand lever and the shaft and



the other step of bolt and locking slot having means for releasing the coupling;

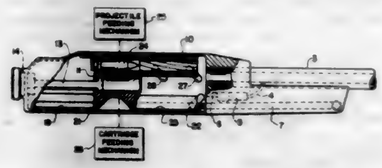
said drive providing a coupling between shaft and hand lever upon actuation of the hand lever and automatically releasing the coupling between shaft and hand lever resulting in dropping of the hand lever upon non-actuation.

4,278,008

SEPARATE LOADING AMMUNITION AUTOMATIC CANNON

William G. Smith, Burnt, Tenn., and Ladd Yuhash, Morris Township, Morris County, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 12, 1979, Ser. No. 84,249
Int. Cl.³ F41D 7/02
U.S. Cl. 89—156 **10 Claims**



1. An automatic cannon adapted for separate loading ammunition including a separate projectile and a propellant cartridge, which comprises:

a relatively fixed main barrel;

a floating barrel adapted to receive the projectile of said ammunition;

a moveable chamber adapted to receive the propellant cartridge of said ammunition, said chamber and floating barrel being coaxially positioned with said main barrel in the battery position;

first means for connecting the forward end of said chamber to the rear end of said floating barrel to enable longitudinal movement thereof in unison while permitting lateral movement of the chamber and the floating barrel relative to each other;

second means, responsive to the firing of said cannon, for moving said chamber and said floating barrel in unison rearwardly relative to the main barrel and said chamber and said floating barrel laterally relative to each other, so as to permit the removal of the spent cartridge case from said chamber and the reloading of a new cartridge case into said chamber, and a new projectile into said floating barrel;

third means for automatically reloading said floating barrel with a new projectile and said chamber with a new cartridge case while said floating barrel and said chamber are laterally displaced relative to each other; and

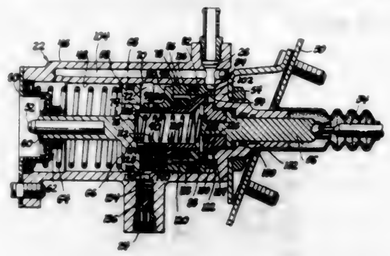
fourth means for returning said chamber and floating barrel to the battery position after reloading.

4,278,009

HYDRAULIC BRAKE BOOSTER

Michael Demido, Troy, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 23, 1979, Ser. No. 68,896
Int. Cl.³ F15B 13/14, 13/10
U.S. Cl. 91—47 **2 Claims**



1. In a hydraulic booster having a power chamber defined by a movable power wall on one chamber side and movable valve piston means on the other chamber side,

an output member moved by said power wall,

an exhaust chamber defined by said movable valve piston means and a fixed wall, a hydraulic fluid inlet opening into said power chamber for introducing hydraulic power fluid therein, and a hydraulic fluid outlet opening from said exhaust chamber to conduct hydraulic power fluid therefrom,

a control valve downstream of said hydraulic fluid inlet and upstream of said hydraulic fluid outlet, said control valve including a valve seat on said valve piston means and a valve control member movable in said exhaust chamber and cooperating with the valve seat to control hydraulic fluid flow from said power chamber to said exhaust chamber, and an input member mounting said valve control member and movable to control booster operation, the improvement comprising:

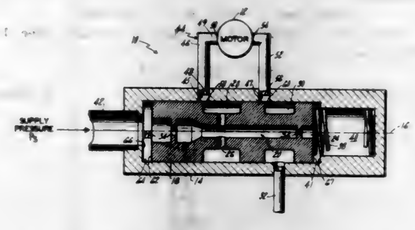
said valve piston means including a valve seat portion and a valve housing portion, said valve seat portion being sealingly and reciprocably received in said valve housing portion for movement relative thereto in directions toward and away from said power wall and said input member, first and second stop means on said valve housing portion respectively limiting movement of said valve seat portion relative to said valve housing portion toward said input member and toward said power wall, and a compression force transmitting cushion member positioned in force transmitting relation between said valve housing portion and said valve seat portion and yieldably permitting movement of said valve seat portion relative to said valve housing portion in the direction towards said power wall during booster hydraulic power operation in accordance with the amount of booster power pressure in said power chamber, said valve seat portion having a net effective area exposed to power pressure in said power chamber so that the power pressure urges the valve seat portion toward said power wall, said second stop means being engaged by and stopping movement of said valve seat portion relative to said valve housing portion at a predetermined power pressure in said power chamber controlled by the yield characteristic of said cushion member.

4,278,010

FLUID FLOW REGULATOR VALVE

Karl H. Wallischeck, Fairfield, Conn., and James H. Smith, Springfield, Pa., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jul. 23, 1979, Ser. No. 60,092
Int. Cl.³ F15B 13/042
U.S. Cl. 91—420 **6 Claims**



1. In combination with a fluid actuated prime mover having a fluid inlet and a fluid outlet, a fluid flow regulator adapted to control fluid flow through said fluid actuated prime mover and comprising:

(A) a hollow cylinder,

(B) a control fluid conduit having an inlet and an outlet communicating with the hollow cylinder interior, and a central portion joining the control conduit inlet to the inlet of said fluid actuated prime mover under control and the outlet of said fluid actuated prime mover back to the control conduit outlet,

(C) a spool positioned within said cylinder for reciprocation therewithin and being selectively shaped to simultaneously establish the area of both the inlet and the outlet of said control fluid conduit, said spool defining opposed pressure chambers with said cylinder, means biasing said spool towards said control fluid conduit inlet,

(D) said spool having a central fluid passage therein connected to said control fluid conduit so that the fluid which passes through the spool central passage is directed therefrom through said control fluid conduit and back to said hollow cylinder, said central fluid passage connecting said opposed pressure chambers,

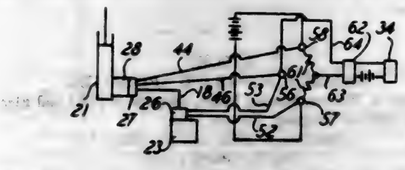
(E) said central passage having a sensor orifice therein so that as flow through the central passage and hence the control fluid conduit varies, the pressure drop across the sensor orifice varies to reposition the spool and thereby simultaneously vary the area of the inlet and the outlet of the control fluid conduit to maintain a constant rate of fluid flow through said control fluid conduit and said fluid actuated prime mover.

4,278,011

AUTOMATIC HYDRAULIC SHUT-OFF SYSTEM

Donald J. Parquet, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Division of Ser. No. 803,686, Jun. 6, 1977, abandoned. This application Sep. 18, 1978, Ser. No. 943,564
Int. Cl.³ F15B 13/044; F16K 17/22
U.S. Cl. 91—445 **1 Claim**



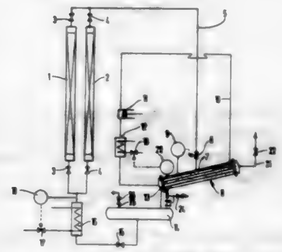
1. A hydraulic safety system comprising a valve housing having fluid passageway therein and a valve spool closure movably disposed therein for opening and closing said passageway, a hydraulic valve unit, a hydraulic responsive apparatus for applying a mechanical force in response to hydraulic pressure applied to said apparatus, hydraulic lines connected between said valve housing and said valve unit and said apparatus, a hydraulic flow sensor fluid-flow connected with each of said valve housing and said valve unit for detecting fluid flow between said valve housing and said valve unit, said sensors each including a movable piston exposed to fluid flow and movable in response thereto, an electrical wheatstone bridge circuit, said sensors each including electrical potentiometer elements consisting of an electrical contact connected with and movable with each said piston and an electrical wiring of said bridge circuit on which said contact is in sliding contact and with said electrical elements arranged to produce an electric resistance in accordance with the flow of fluid through said sensors, and a solenoid unit electrically connected with said electrical elements and operatively associated with said valve spool closure for positioning said valve spool closure in accordance with the differences in the electrical resistance produced by said elements.

4,278,012

PLANT FOR THE EXTRACTION OF HOPS BY EXTRACTION WITH LIQUID CARBON DIOXIDE

Alfred G. Wheldon, and Peter E. Cockerill, both of Dagenham Dock, England, assignors to The Distillers Company (Carbon Dioxide) Limited, Reigate, England

Division of Ser. No. 898,246, Apr. 20, 1978, abandoned. This application Dec. 14, 1979, Ser. No. 103,687
Claims priority, application United Kingdom, Apr. 29, 1977, 18056/77
Int. Cl.³ C12C 3/00
U.S. Cl. 99—278 **11 Claims**



1. A plant for the preparation of an extract of hops by extraction with liquid carbon dioxide, said plant comprising an extraction chamber arranged to contain hops to be extracted, an inlet and an outlet of said extraction chamber; a compressor for compressing carbon dioxide gas; a cooler; a heat exchanger including a primary path for a warmer medium to be cooled said primary path having an inlet and an outlet, and a secondary path for a cooler medium to be warmed, said secondary path having an inlet and an outlet; means connecting said inlet of said secondary path of said heat exchanger to said outlet of said extraction chamber whereby a stream of hop extract dissolved in liquid carbon dioxide emerging from said outlet of said extraction chamber is introduced into said secondary path of said heat exchanger wherein said stream receives heat and wherein carbon dioxide is evaporated; means connecting said outlet of said secondary path of said heat exchanger to said compressor whereby said carbon dioxide vapour leaving said outlet of said secondary path of said heat exchanger is applied to said compressor wherein said vapour is compressed; means connecting said inlet of said primary path of said heat exchanger to said compressor whereby said compressed carbon dioxide vapour warmed by its compression is introduced into said primary path of said heat exchanger wherein it loses heat

to said secondary path and wherein said carbon dioxide vapour changes state and liquifies to re-form liquid carbon dioxide; means connecting said outlet of said primary path of said heat exchanger to said cooler whereby liquid carbon dioxide emerging from said outlet of said primary path of said heat exchanger is further cooled in said cooler; means connecting said cooler to said inlet of said extraction chamber whereby re-formed liquid carbon dioxide is re-cycled to said inlet of said extraction chamber; and, an additional outlet in said secondary path of said heat exchanger for said matter extracted from said hops.

4,278,013

APPARATUS FOR PREPARING A HOT LIQUID MEDIUM, PREFERABLY WARM OR HOT BEVERAGES, SUCH AS TEA AND COFFEE

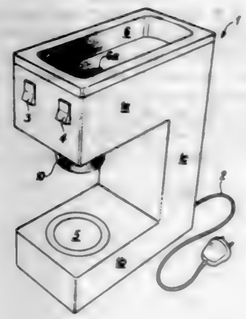
Kurt L. R. Norea, and Lennart N. Norea, both of Paksalagargatan 45, 125 30 Älvsjö, Sweden

Filed Feb. 3, 1976, Ser. No. 654,795

Claims priority, application Sweden, Feb. 14, 1975, 7501649

Int. Cl.³ A47J *31/057*

U.S. Cl. 99—288 **6 Claims**



1. An apparatus for preparing a heated liquid medium, preferably warm or hot beverages in which cold liquid medium is supplied to the apparatus and is heated in passage therethrough, said apparatus comprising:

(a) a first vessel for receiving cold liquid medium to be heated;

(b) first outlet means in said first vessel for permitting passage of cold liquid therethrough;

(c) first heating means for preheating cold liquid medium in proximity to and below said first vessel, said medium passing from said first vessel;

(d) spreading means having inlet means adjacent said first outlet means for permitting passage of cold liquid from said first vessel to said spreading means, said spreading means being arranged to spread cold liquid passing through said first outlet means over said first heating means;

(e) second heating means in proximity to and below said first heating means for further heating preheated liquid medium to a higher, predetermined temperature, wherein the second heating means presents a generally conical surface which tapers downwardly outward and is provided with a plurality of flow passages on said conical surface:

each of said plurality of flow passages forming a labyrinthine channel proceeding from the top of said cone downwardly toward its base;

each of said plurality of flow passages being equally angularly spaced about the downward outward surface of the cone;

(f) second outlet means in said first heating means adjacent said second heating means for permitting preheated liquid medium from said first heating means to flow down to said second heating means.

4,278,014

ARRANGEMENT FOR COVERING A GUIDE CHANNEL

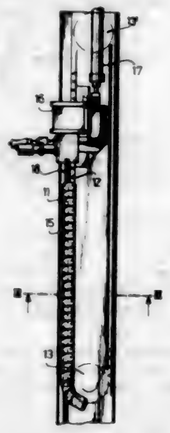
Horst H. Knieps, Wuppertal, Fed. Rep. of Germany, assignor to Hoesch Werke Aktiengesellschaft, Dortmund, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,392

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1978, 2853440

Int. Cl.³ B65B *13/04*

U.S. Cl. 100—26 **4 Claims**



1. An arrangement for covering the guide channel of a strap-applying and tying apparatus having on a first side a bent member adapted to extend into and away from said guide channel for varying the length of said guide channel in conformity with an item about which a strap is to be placed, said arrangement comprising:

channel covers arranged on said first side, each of said channel covers being inherently urged by a spring to cover said guide channel;

a flexible member operatively connectible to said channel covers and said springs for moving said channel covers such that they cover the guide channel opening a predetermined length thereof, said flexible member being adapted to move along the one side of said guide channel;

guide means, operatively connectible to a pertaining base portion of said apparatus, for guiding said flexible member along a pertaining side of said guide channel during movement of said flexible member;

at least one wheel means, operatively connectible to said apparatus, for changing the direction of travel of said flexible member relative to said guide channel; and

means for moving said flexible member and said bent portion simultaneously in the longitudinal direction of said guide channel to effect said change of length of said guide channel.

4,278,015

MATERIAL HANDLING APPARATUS

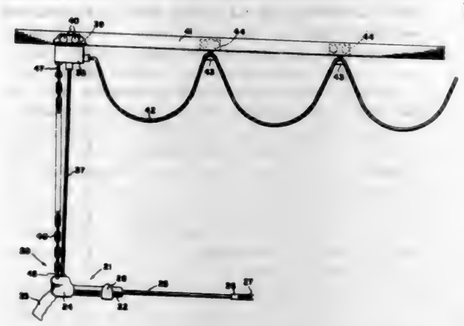
Richard A. Weaver, Linden, Mich., assignor to Fluid and Electric Control Company, Fenton, Mich.

Filed Jun. 5, 1980, Ser. No. 156,557

Int. Cl.³ B30B *15/30*

U.S. Cl. 100—53 **14 Claims**

1. Material handling apparatus for use with a machine of the kind having selectively energizable and deenergizable electrical driving means and control means for selectively enabling and disabling energization of said driving means, said apparatus comprising a manually manipulative arm having at one end thereof means for engaging a workpiece carried by said machine; support means connected to said arm remote from said



one end; and at least a pair of normally open, manually closable electrical switches in circuit with said driving means and carried by said support means, said switches being operable independently of said control means to enable operation of said driving means in response to closing of all of said switches.

4,278,016

APPARATUS FOR MAKING MODULES

Donald J. Haney, San Jose, and Andrew J. Gaudette, Livermore, both of Calif., assignors to Cotton Machinery Company, Inc., Livermore, Calif.

Filed Aug. 6, 1979, Ser. No. 63,947

Int. Cl.³ B30B *9/30*

U.S. Cl. 100—224 **25 Claims**



1. Apparatus for making modules comprising:

(a) a bin in which material is deposited for the forming of a module;

(b) a tamping mechanism mounted on said bin for compacting the material in said bin into a module;

(c) a door for said bin movable between an opened and closed position, said door being closed while a module is being formed and said door being opened for the removal of a module from said bin;

(d) means for opening and closing said door;

(e) a transfer table disposed at the base of said bin on which a module is supported; and

(f) means moving said transfer table to advance successively sections of said transfer table into said bin at the base thereof for forming modules in succession on said sections of said transfer table and to advance successively sections of said transfer table out of said bin for the removal of modules in succession from said transfer table.

4,278,017

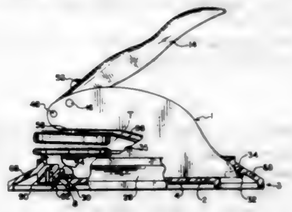
CONVERTIBLE SEAL PRESS

Walter E. Conjura, Berwyn, Ill., assignor to Cosco Industries, Inc., Spring Valley, N.Y.

Filed May 21, 1979, Ser. No. 40,519

Int. Cl.³ B42B *25/06*

U.S. Cl. 101—3 SP **26 Claims**



1. In combination, a pocket seal press having a bottom and a base for supporting the seal press in an upright position, the base having a recess therein adapted to receive the bottom of the seal press with the bottom of the seal press being moved down within the recess toward the bottom of the recess for positioning it in bearing relation thereon, the bottom of the recess having an opening therein, the seal press and base having means for detachably securing the seal press to the base comprising a latch at the opening in the bottom of the recess and integral with said base, the latch normally occupying a first position for holding the bottom of the seal press in the recess in bearing relation on the bottom thereof, being accessible from beneath the base for enabling engagement of the latch by a finger of the user, being movable to a second position by application of force thereto by the finger of the user, and, when in its second position, enabling the bottom of the seal press to be moved upwardly within the recess away from the bottom thereof for removal of the seal press from the recess in the base.

4,278,018

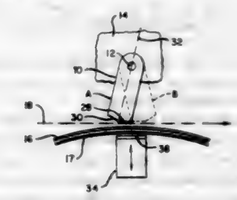
PRINTING MEANS

Brian J. Johannesson, Waterloo, Canada, assignor to NCR Canada Ltd. - NCR Canada Ltee, Mississauga, Canada

Filed Nov. 16, 1979, Ser. No. 95,705

Int. Cl.³ B41J *1/00*

U.S. Cl. 101—93 **9 Claims**



1. Apparatus for printing bar code indicia on record media moving in a path through said apparatus, a bar being selectively printed on the record media to one side or the other of a print area to form a code symbol during each printing operation comprising:

a pivotally mounted platen restricted to movement between first and second positions, one end of said platen consisting of two abutting rectangular flat printing surfaces each disposed at an angle such that it is parallel to the path of movement of the record media on which printing is to be performed when said platen is in one of said two positions, and at an acute angle thereto when said platen is in the other of said positions;

first means for causing said platen to be moved to one of said positions;

second means for causing said platen to be moved to the other of said positions;

hammer means movable between an inactive position and a striking position for effecting printing on said record media in said path by engaging said record media between a face of said hammer means and one of said flat surfaces of the platen; and

means for moving said hammer means between said inactive position and said striking position.

4,278,019

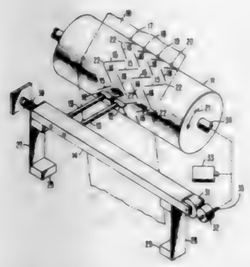
ALL-POINTS ADDRESSABLE DOT PRINTER

Johann H. Meier, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 16, 1979, Ser. No. 58,050

Int. Cl.³ B41J *3/08, 3/12*

U.S. Cl. 101—93.04 **15 Claims**



1. An all-points addressable dot printer apparatus comprising in combination,

a plurality of sloping bar anvils adapted to be individually impacted by a plurality of longitudinal hammer blades, said plural sloping anvils being arranged mutually parallel in a row extending parallel with a print line, and each anvil having a longitudinal span corresponding to a plural dot line segment of a continuous multi-segment longitudinal print line,

said sloping anvils in combination spanning all dot positions of said continuous multi-segment print line,

said plural blades being longitudinally aligned parallel with said print line,

said blades being spaced apart and each having a width less than said longitudinal span of corresponding ones of said sloping anvils,

means for effecting relative motion of said anvils and said blades whereby said anvils in combination scan every dot position of said print line, and

means for shifting said plural hammer blades longitudinally in synchronism with said anvils by at least the differential amount between said span of said anvils and said width of said hammer blades whereby said anvils are impactable by said blades at every addressable dot position of said print line.

4,278,020

PRINT WIRE ACTUATOR BLOCK ASSEMBLY FOR PRINTERS

Albert W. Osten, Boca Raton, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1979, Ser. No. 86,483

Int. Cl.³ B41J *3/10*

U.S. Cl. 101—93.05 **3 Claims**

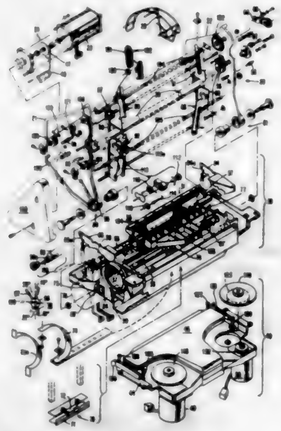
1. Print wire and print wire actuator mounting apparatus for a printer unit, comprising:

a print station incorporating facilities operable during printing operations for feeding and printing on forms at said print station, the printing operations occurring on a line-by-line basis at a print line at said print station, said print station further comprising a ribbon arranged to move past said forms along said print line;

a plurality of print wires, each of said print wires being reciprocable from an inactive to an active state in a predetermined direction of movement into printing contact with said forms;

a corresponding plurality of print wire actuators respectively coupled to said print wires, each of said actuators comprising a number of actuating elements including mounting means generally physically located substantially concentric with or along an extension of the direction of movement of its respectively coupled print wire and each of said actuators having at least one mounting surface that is angled normal with respect to the direction of movement of its coupled print wire, said actuators being operable to selectively reciprocate said print wires in order to print information on said forms along said print line during printing operations; and

an actuator block assembly, said actuator block assembly having a flat mounting surface positioned substantially normal to the direction of movement of said print wires, said actuator block assembly incorporating a guide member, and said print wires and print wire actuators being



mounted on said actuator block assembly in at least one set comprising at least two subsets wherein each of said subsets comprises an equal portion of the print wires and actuators in a set, the actuators in one of said subsets being mounted on the flat mounting surface of said actuator block assembly with their angled mounting surfaces in one angular relationship and the actuators in the other of said subsets being mounted on the flat mounting surface of said actuator block with their angled mounting surfaces in an opposite angular relationship, the two subsets thereby being angled inwardly toward one another and through said guide member as they approach the print line, and said first and second subsets being located in said actuator block assembly so that the ends of the print wires in said first and second subsets are maintained in at least two parallel slanted arrays relative to one another and further that each print wire in one of said subsets is offset with respect to both the preceding and succeeding print wires of another of said subsets whereby said print wires and actuators assume an angled serrated relationship with respect to the print line when in an assembled condition, whereby the printing ends of all of said print wires are held in close proximity with respect to said print line and in precise registration relative thereto and whereby said print wires and print wire actuators may be spaced relatively far apart on said actuator block assembly for ease in servicing.

4,278,021

MAGNETIC INTERFERENCE PREVENTION SYSTEM

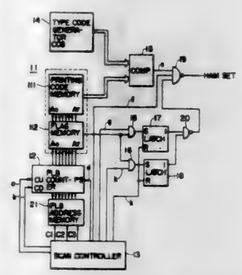
Hiroshige Nakano; Shigenobu Katagiri, and Shinichi Nishino, all of Katsuta, Japan, assignors to Hitachi Koki Company, Limited, Tokyo, Japan

Filed Aug. 23, 1979, Ser. No. 69,131

Claims priority, application Japan, Apr. 13, 1979, 54/45803; May 7, 1979, 54/56192

Int. Cl.³ B41J *9/38*

U.S. Cl. 101—93.29 **16 Claims**



1. In a printing device having a plurality of print hammers whose striking surfaces are arranged along a print line, and print magnets provided adjacent one another for driving said print hammers when excited, the improvement comprising: a magnetic interference preventing system having memory means for storing for columns along said print line whether said print magnet for each column is being excited or not; detection means for reading out of said memory means, when the exciting of each print magnet is started, whether or not both print magnets adjacent to said each print magnet are being excited; and inhibiting means for inhibiting the exciting of said each print magnet between said both print magnets when said both print magnets are being excited.

4,278,022

PHOTOGRAPHIC IMAGE PAINTING PROCESS

John A. Fitzpatrick, and Susan B. Fitzpatrick, both of 7335 Craner Ave., San Valley, Calif. 91352

Filed Jul. 27, 1979, Ser. No. 61,561

Int. Cl.³ B41F *17/22*

U.S. Cl. 101—129 **6 Claims**

1. A method of imprinting a photographic image on a vertical or uneven surface comprising:

transferring a photographic image to a screen having a predetermined minimum mesh, such screen being formed with a blocked border;

forming registration areas in the form of notches in the border of said screen to allow realignment after removal and replacement;

securing said screen to the surface to be painted with said screen in substantially intimate contact with and following the contour of the surface to be painted;

spraying a rapid-drying paint through said screen on to the surface being imprinted in a series of layers, said paint being allowed to dry between applications of each layer;

forming registration marks through said registration areas on the surface to be imprinted to facilitate realignment of said screen;

removing said screen from said surface after a series of paint applications when the paint is dry;

cleaning said screen after removal to remove paint; and

replacing and realigning said screen with said registration areas for one or more additional series of paint applications whereby said photographic image is transferred to the surface desired.

4,278,023

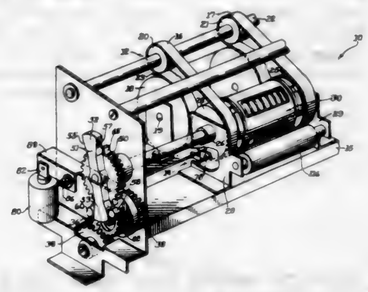
DRIVE SYSTEM FOR ENDORSER

Daniel D. Call, Northbrook, and Mervin W. La Rue, Jr., Barrington, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Mar. 26, 1979, Ser. No. 23,816

Int. Cl.³ B41F *13/24*

U.S. Cl. 101—235 **2 Claims**



1. A drive system for a document endorser comprising:

means to transport documents to be endorsed past an endorsing area at substantially a constant speed,

an endorsing shaft with an endorsing die and an endorsing plate thereon,

intermittent drive means with output means to supply power to rotate the endorsing shaft comprising:

a shaft on which is mounted the endorsing die,

gear means to supply rotative power to the shaft and to maintain the speed of the endorsing die substantially constant during endorsement of the document,

a latching disc having a detent restrained by a solenoid actuated lever arm mounted to restrain movement of the gear means,

clutch means provided between the latching disc and gear means to provide an intermittent output,

document sensing means positioned adjacent the document transport means and before the document endorsing area,

the document sensing means activated by the passage of the document, and providing a signal to release the latching disc and clutch means allowing rotation of the shaft, and

means to reset the latching disc to restrain further rotation of the shaft after endorsement of the documents until the latching disc is rereleased,

means to accelerate the endorsing shaft and endorsing die from a stopped position until the speed of the endorsing plate is substantially equal to the speed of the document in the endorsing area,

the means to accelerate causing the endorsing shaft to rotate at least 5° from its stopped position before the endorsing plate reaches the document speed in the endorsing area,

means to place the endorsing plate in contact with the document in the endorsing area,

means to decelerate the endorsing shaft and endorsing die after endorsing of the document,

the means to decelerate causing the endorsing shaft to rotate at least 5° during deceleration from the document endorsing plate speed to its stopped position,

the means to accelerate and decelerate comprising a cam and accelerating and decelerating rollers mounted on the same body for rotative movement relative to the cam, the cam mounted to the endorsing shaft and having opposite iden-

tical symetrical cam ends, each cam end having substantially flat accelerating and decelerating cam surfaces which are identical to each other, the accelerating roller operatively connected to the output means of the intermittent drive means for driving the accelerating cam surface, the decelerating roller operatively connected to the intermittent drive means for controlled stopping of the decelerating cam surface,

the gear means comprising at least two meshing gears, one gear having a rounded toothless portion substantially following the pitch diameter of the gear, and the other gear having an oversized locking tooth mating with the rounded toothless portion, whereby the gears are rotatably locked relative to each other when the solenoid actuated lever arm restrains the disc from rotating,

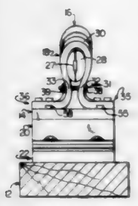
whereby the means to accelerate and decelerate the endorsing die result in reduced shock loading and quieter operation of the system.

4,278,024

QUALITY CONTROL STAMPING HAMMER

Chester R. Pennington, Conyers, Ga., assignor to Timber Products Inspection & Testing Service, Conyers, Ga.

Filed Oct. 30, 1979, Ser. No. 89,303
Int. Cl.³ B41K *1/56*
U.S. Cl. 101—405 **12 Claims**



1. A quality control stamping hammer for printing indicia on a flat article comprising:

a rigid, metallic base plate having top and bottom planar surfaces;

an elongated handle;

means for rigidly coupling said handle to said base plate wherein the longitudinal axis of said handle is at a fixed angle to said base plate top planar surface of greater than 0° and less than about 45°;

a rubber stamp pad having a top planar surface and a bottom surface, said bottom surface having raised characters thereon corresponding to the indicia to be printed onto the flat article;

a resilient, shock-absorbing layer having top and bottom planar surfaces;

means for rigidly coupling said top surface of said shock-absorbing layer to said bottom surface of said base plate; and

means for rigidly coupling said top planar surface of said stamp pad to said bottom surface of said shock-absorbing layer;

said means for rigidly coupling said handle to said base plate including a metallic support,

said metallic support including

a rigid eye portion rigidly receiving an end of said handle,

a rigid central portion extending from said eye portion, and

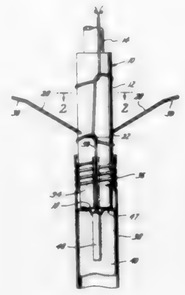
means for rigidly coupling said central portion to said base plate top surface.

4,278,025

SEISMIC EXPLOSIVE CHARGE LOADER AND ANCHOR

Oliver B. McReynolds, 913 N. Perry St., Palestine, Tex. 75801

Filed Feb. 12, 1979, Ser. No. 11,459
Int. Cl.³ F42B *3/20*
U.S. Cl. 181—116 **12 Claims**



1. A sesimic explosive charge loader and anchor for loading and anchoring in a bore hole an explosive charge in a generally cylindrical container, comprising,

a generally tubular body open at its upper end,

the tubular body having outside and inside walls and having an internal diameter sufficient to loosely receive a loading means,

upwardly facing stop means intermediate the ends of the tubular body and extending inwardly from the inside wall,

the body provided with opposed slots adjacent to the stop means,

a spring band shaped anchor having a central portion with arms angling therefrom, both of a size effective to snap into place in the tubular body through the slots with the central portion being supported by the upwardly facing stop means and the arms engaging the inside walls adjacent the slots,

the spring band shaped anchor having portions extending upwardly and outwardly exteriorly of the tubular body effective to engage and dig into the well bore wall and thereby anchor the loader and anchor against upward movement in the well bore,

the body having a groove in its side wall beginning above and extending downwardly and into the central portion of the tubular body's lower end, and

means on the tubular member adjacent the lower end thereof for securing the tubular member to the cylindrical container containing the explosive charge,

whereby the loader and anchor can be connected to the cylindrical container containing the explosive charge,

the spring band shaped anchor snapped into place in the tubular body through the slots,

a lead can be provided extending in the groove and downwardly into the cylindrical container,

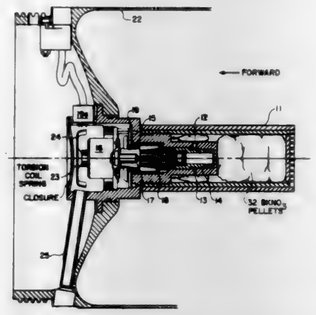
and the loader and anchor can then be pushed downwardly into the bore hole by the loading means and anchored against upward movement therein.

4,278,026

ROCKET MOTOR IGNITER, ARMING FIRING DEVICE

Joseph E. Hibbs; Gerald W. Chalmers, both of Ridgecrest, Calif.; Robert L. Durrell, Columbia, Md., and Walter C. Smith, China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 15, 1979, Ser. No. 84,487
Int. Cl.³ F42C *15/40*
U.S. Cl. 102—254 **12 Claims**



1. A safety-arming device for preventing unintentional ignition of a rocket motor, comprising:

a housing defining a plurality of vent ports;

a pressure sleeve squib assembly attached within said housing and having a plurality of vent ports;

a rotary solenoid located forward of said squib having a rotor with multiple cavities therein;

a barrier located between said rotor and said squib having multiple prongs defined to fit said cavities in said rotor;

said barrier interconnected with said squib;

a solenoid return spring attachably interconnected to said rotor; and

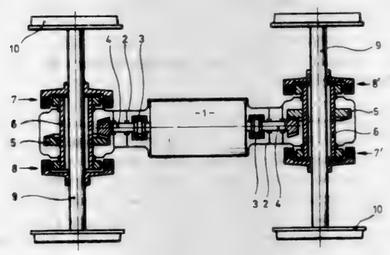
an exterior observation viewer so attached through said housing to afford interior visual inspection of said barrier.

4,278,027

RESILIENT RAILWAY TRUCK DOUBLE AXLE DRIVE

Johann Eichinger, Vaterstetten, and Julius Huebl, Munich, both of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik, Munich, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,964
Claims priority, application Fed. Rep. of Germany, Dec. 13, 1978, 2853839
Int. Cl.³ B61C *9/44, 9/52;* **B61F** *3/04*
U.S. Cl. 105—131 **19 Claims**



1. A double axle drive for rail vehicles, comprising:

rotatably supported first and second longitudinally spaced transversely wheeled axles;

a rotatably supported hollow shaft surrounding each axle;

a drive motor located between said axles having a drive shaft at respective ends;

gear means between each of said drive shafts and said hollow shafts at the respective ends of said motor to rotate said hollow shafts upon rotation of said drive shafts;

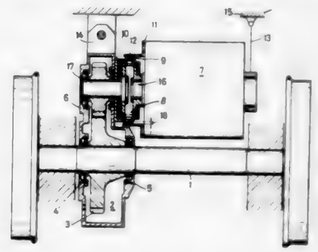
elastic coupling means connected adjacent each end of said hollow shaft to each first and second axle to rotate each of said axles, said elastic coupling means comprising at least three equidistant circumferentially spaced pin means secured to one of said hollow shaft and said axle with the axes thereof projecting radially, means defining at least three equidistant circumferentially spaced openings in the other of said hollow shaft and said axle, the axis of each opening extending radially, each of said openings receiving a pin means therein so that the axes thereof are colinear, the size of said pin means being smaller than the size of said opening to define a space therebetween, an elastically yieldable sleeve means received in said space between said pin means and the interior wall of said opening, said sleeve means being fixedly secured to said pin means and said interior wall of said opening.

4,278,028

RESILIENT RAILWAY TRUCK ARTICULATED SHAFT HOUSING

Hans Eichinger, Putzbrunn, and Julius Huebl, Munich, both of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik, Munich, Fed. Rep. of Germany

Filed Oct. 11, 1977, Ser. No. 841,199
Claims priority, application Fed. Rep. of Germany, Dec. 18, 1976, 2657575
Int. Cl.³ B61C *9/50, 17/00;* **B61F** *3/04;* **F16C** *1/06*
U.S. Cl. 105—136 **12 Claims**



1. A parallel shaft drive mechanism, in particular for driving an axle of rail vehicles, comprising:

a drive motor having an output shaft arranged parallel to said driving axle and substantially next to same;

a toothed coupling having an input member and an output member, said input member being connected to said output shaft;

a gear arrangement in a gear housing connected to said output member for facilitating a driving of said axle, one side of said gear housing being supported on said driving axle, and the other side of both said gear housing and also said motor being each connected to one end of separate pivot levers, the other ends of said pivot levers being connected to a frame member of said vehicle;

a resilient spring device surrounding said coupling means and resiliently connecting said gear housing and said motor to thereby facilitate an absorption of angular deflections between said output shaft of said motor and axle during operation, said resilient spring device being divided into a first means fixedly connected to said gear housing and a second means fixedly connected to said motor and at least two axially aligned and axially spaced elastic material rings, each elastic material ring being fixedly connected on one side thereof to said first means and on the other side thereof to said second means; and

means for effecting an axial pretensioning of said two elastic material rings.

10. A railway motor mounting system comprising:

a truck frame supported on a wheel and axle set;

a gear box comprising a plurality of gears in a drive train coupled to directly drive the axle, said plurality including a pinion gear having an input shaft positioned adjacent one end of the gear box and connected to a drive gear attached to the axle;

means supporting said one end of the gear box from the truck frame, the other end being supported on the axle by anti-friction bearing;

a traction motor having a housing and an output shaft parallel to the axle and a flexibly coupled to drive the pinion gear shaft;

first motor support means mounting the rearward end of the motor housing remote from said output shaft to the truck frame;

second motor support means mounting the forward end of the motor housing adjacent the output shaft to the gear box, said second support means comprising a flexible joint surrounding said shafts and extending between the gear box and the housing of the traction motor, said flexible joint being divided into two parts and consisting of at least two axially aligned and axially spaced elastic material rings, each elastic material ring being fixedly connected on one side thereof to one of two first coupling means, each of which is connected to said gear box and on the other side thereof to one of two second coupling means, each of which is connected to said motor;

means defining an initial axial spacing between said first and second coupling; and

means for drawing said first and second coupling means together to effect an axial pretensioning of said two elastic material rings between the respective ones of said first and second coupling means.

4,278,029

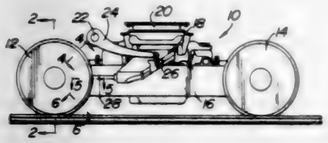
RESILIENT RAILWAY CAR TRUCK SUSPENSION

Walter S. Eggert, Jr., Huntington Valley, Pa., assignor to The Budd Company, Troy, Mich.

Filed Aug. 1, 1979, Ser. No. 62,772

Int. Cl.³ B61F *5/30, 5/50, 15/18*

U.S. Cl. 105—224.1 **10 Claims**



1. In a railway car having a truck with a sideframe for receiving an axle disposed to ride on journal bearings,

a primary suspension system disposed between said axle on journal bearings and said sideframe comprising:

(a) means for attaching said primary suspension system on said side frame,

(b) flexible support means secured to said attaching means,

(c) radial support structure spaced from said journal bearings and having a surface resiliently supported on a journal support of said journal bearings,

(d) said flexible support means having a portion secured to said radial support structure for flexibly supporting said side frame on said axle having said flexible support means in shear.

4,278,030

TRUCK FOR HIGH SPEED RAIL CARS

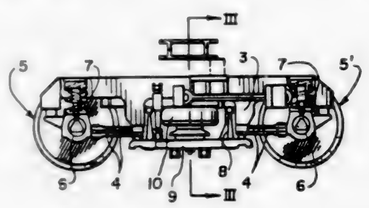
Günther Ahlborn; Eberhard Fiedler; Henry Hübsch, and Rolf Kramer, all of Siegen, Fed. Rep. of Germany, assignors to Waggon Union GmbH, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 705,424, Jul. 15, 1976, abandoned. This application Jan. 8, 1979, Ser. No. 971,218

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1976, 2611924

Int. Cl.³ B61F *5/00*

U.S. Cl. 105—208.1 **2 Claims**



1. A truck for high speed rail cars, comprising an H-shaped truck frame having a central transverse beam portion and a longitudinal beam connected centrally to each side of said central beam portion, first and second wheel axle sets each including an axle and bearing means adjacent each end of said axles for rotatably supporting said axle, primary spring means connected between said truck frame and bearing means for supporting said truck frame on said bearing means, a bracket secured to and depending from said truck frame adjacent each of said bearing means, longitudinally extending leaf spring means secured to each bracket and to said bearing means for additionally supporting said truck frame on said bearing means, spring support troughs, swing hanger means connected between said truck frame and said spring support troughs to support said spring support troughs from said truck frame, a transversal cradle extending between and over said spring support troughs carrying a rail car, connecting rod means pivotally connected to said cradle and to said spring support troughs for limiting the swinging movement of said spring support troughs, said cradle including vertically spaced upper and lower chord members and at least one tubular member secured between said upper and lower chord member enclosing an auxiliary air chamber, and one air spring supported between each of said spring support troughs and said cradle and being connectable to said auxiliary air chamber for providing an additional air chamber for said air springs.

4,278,031

PRECISION ADJUSTABLE TABLE

Holmer Dangschat, Traunwalchen, Fed. Rep. of Germany, assignor to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

Filed Mar. 22, 1979, Ser. No. 22,780

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1978, 2813407

Int. Cl.³ A47F *5/12*

U.S. Cl. 108—4 **19 Claims**

1. A support apparatus for adjustably mounting a tiltable table to a base, said apparatus comprising:

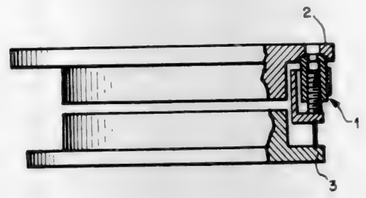
first, second and third support structures arranged symmetrically about a central point of the table, each support structure mounted between a surface on the table and a surface on the base, wherein each support structure includes an adjusting structure comprising:

a carrier body having a centrally positioned prismatic groove;

a setting bolt;

means for mounting the bolt in the groove such that the bolt is adjustable along the axis of the groove; and

means included in the mounting means, for retaining the bolt in the groove substantially without play; each support structure further including a two dimensional joint having an axis of rotation substantially tangential to a circle cen-



tered at the central point and mounted between the adjusting structure and one surface, and a three dimensional joint mounted between the adjusting structure and the other surface.

4,278,032

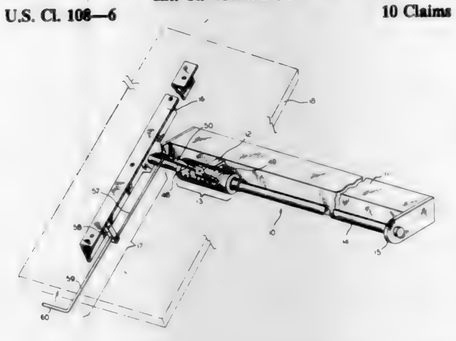
TWO DIRECTION BRAKE FOR A DRAFTING TABLE

Victor J. Kritske, Sheboygan, Wis., assignor to Mayline Co., Inc., Sheboygan, Wis.

Filed Jun. 4, 1979, Ser. No. 44,930

Int. Cl.³ A47B *27/18*

U.S. Cl. 108—6 **10 Claims**



10. Table apparatus of the type adjustably maintaining said table in a selected attitude of rotation, said apparatus comprising:

a stationary central hub,

said stationary central hub having a slot formed therethrough,

a shaft,

said stationary hub surrounding said shaft,

said shaft rotatable with respect to said stationary hub,

said stationary hub having a first end and a second end as viewed along the axis of said shaft;

first and second rotatable collars extending about the periphery of said shaft,

said first rotatable collar affixed to said shaft proximate said first hub end,

said shaft and said first collar rotatable as a unit with respect to the stationary hub,

said second rotatable collar affixed to said shaft proximate said second hub end,

said shaft and said second collar rotatable as a unit with respect to said stationary hub;

first and second spring coils,

each said spring having first and second ends,

said first spring coil positioned to overlap and grip said first collar and said first hub end,

said second spring coil positioned to overlap and grip said second collar and said second hub end,

said first and second spring coils being progressively releasable so as to enable relative rotation of said rotatable collars and thereby said shaft, with respect to said stationary hub;

first and second drums,

said first drum rotatably overlapping said first spring coil,

said second drum rotatably overlapping said second spring coil,

each said drum including means to engage one said second spring end whereby said drum may be rotated to partially uncoil said spring coil,

each said drum having an upstanding peg formed thereon;

a link arm having a first and second end,

said link arm rotatably mounted proximate said stationary hub intermediate said drums;

a bearing sleeve interposed between said central hub and said shaft,

said bearing sleeve surrounding and attached to said shaft;

an arm mount having a first end and a second end,

said first end of said arm mount having rotatably attached to it, said link arm,

said second end of said arm mount passing through said slot in said stationary hub and attaching to said bearing sleeve,

said first end of said link arm being attached to a control arm pivotally attached to said link arm,

said link arm contacts one said peg at its second end,

said link arm contacts the remaining peg intermediate said first and second ends,

said control arm linearly movable to rotate said drums to contact said peg thereby partially uncoiling both of said spring coils and allowing said shaft to rotate with respect to said stationary hub;

a support channel member,

said support channel member positioned substantially parallel to said shaft,

said support channel member being operably affixed to said stationary hub and said shaft;

a bracket positioned substantially perpendicular to said shaft,

said bracket operably affixed to said shaft and supporting said control arm;

said table having a top and bottom,

said table positioned upon and attached to said bracket,

said bottom of said table being positioned above said shaft, said control arm, said link arm, said drums, said stationary hub and said support channel;

said table, said bracket, said control arm, said link arm, said arm mount and said shaft rotatable as a unit with respect to said stationary hub.

4,278,033

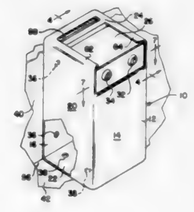
TAMPER RESISTANT SAFE

Marvin Sobel, Lansdale, Pa., assignor to Bona Fide Factory Products, Inc., Huntingdon Valley, Pa.

Filed Mar. 9, 1979, Ser. No. 18,987

Int. Cl.² E05G *1/026*

U.S. Cl. 109—59 R **13 Claims**



1. In a tamper resistant safe of the type comprising an enclo-

sure having a bottom, sides, a front wall and a rear wall rising from the bottom and terminating upwardly in a planar top, an opening communicating with the interior of the enclosure and a lockable member movable between an open position and a locked position to selectively close the opening, the improvement comprising:

the said opening being defined by a part of the enclosure top and by a part of the enclosure front wall,

a right flange formed in the top and defining the right extent of the opening,

the right flange extending in length the entire depth of the opening, the right flange being in planar alignment with the top,

a left flange formed in the top and defining the left extent of the opening,

the left flange extending in length the entire depth of the opening, the left flange being in planar alignment with the top, and

a front flange formed in the front wall and defining the bottom extent of the opening;

the lockable member being an L-shaped cover in sliding engagement with a part of the enclosure,

the cover comprising a sliding leg which slidingly closes that part of the opening defined by the enclosure top,

the sliding leg being bent downwardly at its transverse, marginal edges to provide a pair of spaced, depending lips, each lip being positioned respectively below one of said right and left flanges when the lockable member is in its said locked position, and

a locking leg positioned at substantially ninety degrees to the sliding leg and being adapted to close that part of the opening defined by the enclosure front wall; and

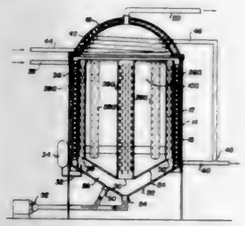
a lock mounted in the locking leg and adapted to secure the cover to the enclosure when the cover is moved to its said locked position.

4,278,034

FURNACE

Lucio V. Reale, 1827-46th St., SE., Calgary, Alberta, Canada T2B 2J9

Filed Sep. 24, 1979, Ser. No. 77,961
Int. Cl.³ F23B 7/00
U.S. Cl. 110—234 **5 Claims**



2. A furnace adapted to burn a low grade granulated fuel, the furnace comprising:

a combustion vessel to receive a fuel and defined by inner and outer walls, spaced from each other;

first pipes to carry liquid, the first pipes being positioned between the inner and outer walls of the combustion vessel and having an inlet for liquid and an outlet for liquid;

a lid positionable on the top of the combustion vessel;

second pipes to carry a liquid positioned within the lid;

an inlet for feed liquid to the second pipes;

an outlet to take liquid from the second pipe;

an exhaust vent in the lid;

a bottom to the combustion vessel, the bottom being sloped towards the center;

an inlet in the bottom for air;

a fan, remote from the furnace, to force air through the inlet;

an ash outlet in the base;

extraction means communicating in the ash outlet;

a false bottom to the combustion vessel spaced above the bottom to define a passageway;

a gas inlet whereby gas can be introduced into the passageway and ignited as a means of starting combustion of the fuel;

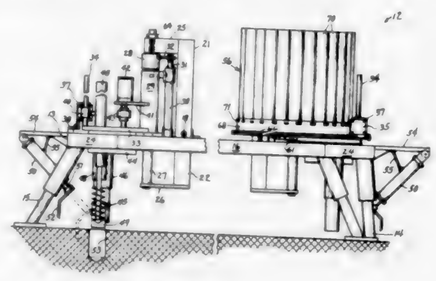
a plurality of openings in the false bottom arranged so that each opening can align with a perforate column positioned in a fuel block to be received in the combustion vessel, said columns extending, when a fuel block is in position, through a combustion vessel to adjacent a lid whereby air may be fed to the fuel but the residue of burned fuel remains supported.

4,278,035

MACHINE FOR PLANTING CONTAINERIZED TREE AND SHRUB SEEDLINGS

Teddy L. Pickett, Redmond, Wash.; Isidro D. Ignacio, Altadena, and Marco Rojas, La Verne, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 14, 1980, Ser. No. 130,634
Int. Cl.³ A01C 11/00
U.S. Cl. 111—2 **17 Claims**



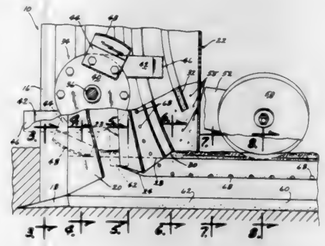
1. A seedling planter comprising portable frame means, vertical bearing shaft means mounted on said frame means, a horizontal index plate rotatably and slidably connected to said vertical shaft means and being movable between two vertically spaced levels on said vertical shaft means, depending auger means carried by said index plate at a radial distance from said vertical shaft means, said index plate having a seedling discharge opening at said radial distance but spaced from said auger means, said index plate being rotatable between a retracted position and an extended position, means to lower said index plate in said retracted position so that said auger means forms a planting hole, means to thereafter raise said index plate and rotate it horizontally to said extended position, said discharge opening being in vertical registry with said planting hole in said extended position of the index plate, carousel seedling tray means mounted to rotate around said vertical shaft means, said tray means being peripherally formed to carry a plurality of evenly spaced vertical tubular seedling containers at said radial distance, means to rotate said tray means in steps such as to cause such vertical containers to respectively communicatively register with said discharge opening when the index plate is brought to said extended position, and means to inject water under pressure into the top end of a registering seedling container responsive to the movement of said index plate to said extended position, whereby to move a seedling downwardly from its container into the planting hole previously dug by the auger means.

4,278,036

ROTARY TILLER SLOT PLANTER AND METHOD FOR USING SAME

Wesley F. Buchele, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Nov. 2, 1979, Ser. No. 90,516
Int. Cl.³ A01C 7/06
U.S. Cl. 111—52 **15 Claims**



1. A method for minimum tillage planting comprising

moving a minimum tillage planter in a first direction over the soil to be planted;

tilling the soil with a pair of spaced apart parallel tiller wheels rotatably mounted on said planter about a horizontal axis, each of said wheels having a plurality of radially extending blades terminating in outer radial ends which are turned inwardly toward the space between said wheels whereby said tiller wheels throw tilled soil inwardly toward said space;

forming a first trench of predetermined depth with a subsoil shank on said planter positioned between said wheels;

freeing said subsoil shank of debris by passing the outer radial ends of said rotating wheels closely adjacent the opposite sides of said subsoil shank and by engaging the soil forwardly of said subsoil shank;

depositing fertilizer in said first trench with a fertilizer tube on said planter having a discharge end positioned behind said subsoil shank;

covering said deposited fertilizer at least partially with soil being thrown into said first trench by said filler wheels as said planter moves in said first direction;

forming a second trench in the soil deposited in said first trench with a seed tube shank positioned on said planter between said tiller wheels and spaced rearwardly of said fertilizer tube;

depositing seed in said second trench with a seed tube located on said planter rearwardly of said seed tube shank and forwardly of the trailing edges of said tiller wheels whereby soil being thrown by said tiller wheels will fall over and cover said seed;

firming the soil thrown by said tiller wheels over said seed.

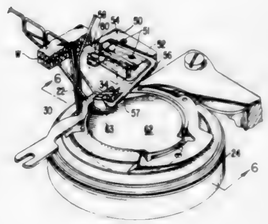
4,278,037

CHAIN STITCH CONVERSION FOR LOCK STITCH SEWING MACHINE

Gerald J. Creed, Rahway; Frank Dudis, Elizabeth; William J. Edwards, Cranbury, and Herbert T. Hurler, Elizabeth, all of N.J., assignors to The Singer Company, Stamford, Conn.

Filed Sep. 14, 1979, Ser. No. 75,445
Int. Cl.³ D05B 1/14, 57/04
U.S. Cl. 112—168 **1 Claim**

1. In a sewing machine having lockstitch forming instrumentalities including a frame having a work support, a throat plate supported in said work support, said throat plate having a needle aperture, a thread carrying eye pointed needle supported above said throat plate for endwise reciprocation through said needle aperture, a circularly moving looptaker carried below said throat plate on an axis substantially parallel to the path of endwise reciprocation of said needle, means for driving said needle and looptaker in timed relation for a seizure of a loop of thread from the eye of the needle bar by said looptaker during each stroke of the needle downwardly through said needle aperture and release of said seized loop by said looptaker during each succeeding upward stroke of the needle, a bobbin supporting case journalled in said looptaker and constrained from circular movement with said looptaker by stop means sustained on said frame, and a linear work feeding mechanism effective to advance work fabric on said work support in one direction from said needle aperture between each needle penetration thereof, said work feeding mechanism including a feed dog rising to an operative position through a slot in said throat plate when said upward stroke of said needle removes said needle from said work fabric and descending through said slot in said throat plate when said needle extends downwardly through said work material, means for sewing chain stitches using thread carried by said needle comprising a stationary thread loop retaining pin carried by said throat plate and having a free extremity, said retaining pin extending in a direction from said throat plate substantially parallel to said path of endwise needle reciprocation and arranged upstream of



said path of needle reciprocation with respect to the advancement of work fabric by said work feeding mechanism, said retaining pin having a groove extending substantially from said throat plate to said free extremity, a thread stripper device supported by said throat plate adjacent said feed dog accommodating slot, said stripper device including a wire form with a first end extending into said groove of said thread loop retaining pin and with a second end extending beneath said feed dog for up and down movement thereby, resilient means for urging said wire form against said feed dog, and means on said throat plate for supporting pivotal movement of said wire form; and an insert for said bobbin supporting case to take the place of the bobbin supported therein during lockstitch sewing, said insert having an aperture in an edge thereof close by said needle for receiving a lower extremity of said thread loop retaining pin, whereby when said needle has extended through a loop from the prior stitch retained on said loop retaining pin and released the loop of thread to said loop-taker, said thread stripper element will have been urged by said feed dog to strip the retained loop from the thread loop retaining pin.

4,278,038

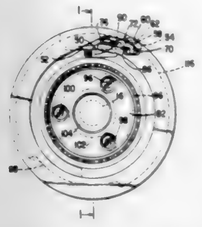
COMBINED NEEDLE GUARD AND HOOK BEAK FOR A SEWING MACHINE HOOK

Ralph E. Johnson, Convent Station, N.J., assignor to The Singer Company, Stamford, Conn.

Continuation of Ser. No. 22,536, Mar. 21, 1979, abandoned. This application Dec. 14, 1979, Ser. No. 103,661

Int. Cl.³ D05B *57/08, 57/06*

U.S. Cl. 112—228 **5 Claims**



1. The combination of claim 1 including torque balancing means operably connected with the combined needle guard and hook beak for counterbalancing the effect of centrifugal force thereon during rotation of the hook body.

4,278,039

DETACHABLE PRESSER FOOT

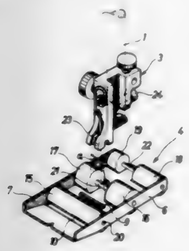
Susumu Hanyu, Hachioji, and Akio Koide, Kokubunji, both of Japan, assignors to Janome Sewing Machine Industry Co., Japan

Filed Aug. 9, 1979, Ser. No. 64,980

Claims priority, application Japan, Aug. 11, 1978, 53/109551[U]

Int. Cl.³ D05B *29/12*

U.S. Cl. 112—240 **3 Claims**



1. A presser foot, for use in combination with a sewing machine having a presser bar axially displaceable relative to a needle plate, and a presser foot holder secured to a lower end of the presser bar, said presser foot comprising:

(i) a frame including a needle dropping hole and a plurality of apertures to receive rollers

(ii) a plurality of rollers journalled on said frame for rotation about respective axes which are transverse to the direction of feed of material past the presser foot when in use, said rollers protruding through the frame apertures, said plurality of rollers including a pair of rollers which are coaxial and which are closely adjacent to the needle hole in the direction of feed of material, said pair of rollers being spaced axially from each other,

(iii) connection means on said frame disposed between said spaced rollers for detachable engagement with the presser foot holder.

4,278,040

BRAKING RUDDER DEVICE

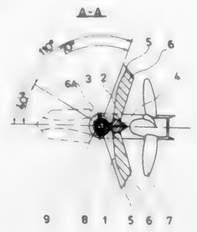
Jerzy Doerffer, Sopot; Jerzy Madey, Gdansk-Wrzeszcz; Jan Kozlowski, Gdansk-Wrzeszcz, and Andrzej Niepiekto, Gdansk-Wrzeszcz, all of Poland, assignors to Politechnika Gdanska, Gdansk, Poland

Filed May 9, 1979, Ser. No. 37,566

Claims priority, application Poland, May 10, 1978, 206679

Int. Cl.³ B63H *25/34*

U.S. Cl. 114—170 **2 Claims**



1. A braking rudder device comprising a pair of hinged members to be pivoted about a common vertical axis behind the propeller of a vessel, each hinged rudder member being independently rotatable from a first position lying in a vertical plane of symmetry and rotatable independently and oppositely outwardly from said plane to a second position through an angle of 110° about said common vertical axis, each said member having a concave forwardly facing surface in said second position, said hinged members being supported for said pivotal movement about said common vertical axis which is located at the leading edge of said rudder members, a vertical post positioned immediately forward of said axis and having a tapered profile in cross-section perpendicular to said common vertical axis and defining the leading edge of said rudder device, support means for each hinged member comprising first reinforcing plates horizontally disposed along the top edge of each hinged member, second horizontal reinforcing plates positioned along the bottom edge of each hinged member and third horizontal reinforcing plates secured to each hinged rudder member in a horizontal plane and coaxial with said propeller when said hinged members are disposed adjacent to each other in said first position, each of said horizontal plates extending forwardly of the concave surface of each corresponding hinged member in said second position, and a pair of vertically elongated rotational control members mounted concentrically with respect to each other and coaxially with respect to said vertical axis, and adapted for independent transmission of turning forces to each hinged member, respectively.

4,278,041

ANCHOR HANDLING GUIDES

Billy W. Williams, Morgan City, La., assignor to McDermott Incorporated, New Orleans, La.

Filed Nov. 7, 1979, Ser. No. 92,014

Int. Cl.³ B63B *21/04, 21/22;* **B66D** *1/38*

U.S. Cl. 114—210 **5 Claims**

1. An apparatus for use by marine vessels in handling anchors and the like, including bringing anchors on board said vessel, said apparatus comprising a pair of pin assemblies, each assembly comprising:

a. a pin;

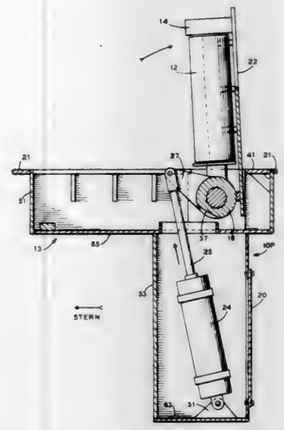
b. a frame providing rotatable support for the pin at both ends of the pin;

c. a rotatable drum to which the frame is attached;

d. a means for rotating the drum;

e. a means for preventing drum rotation;

f. a cover plate attached to the frame and drum, the plate forming a part of the vessel's deck when the rotational axis of the pin is horizontally disposed; and



g. a housing for the pin assembly, said housing being recessed into the deck floor of the vessel in such a way that the top of the housing forms part of the vessel's deck.

4,278,042

CAM CLEAT

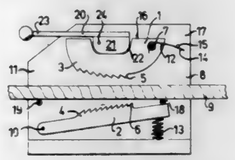
Björn V. Lindquist, Nordhemsgatan 39, 413 06 Gothenburg, Sweden

Filed May 31, 1979, Ser. No. 44,175

Claims priority, application Sweden, Jun. 12, 1978, 7806785

Int. Cl.³ B63B *21/04*

U.S. Cl. 114—218 **4 Claims**



1. A cam cleat for securing a line which is tensioned in one direction comprising:

a housing;

a first part attached to the housing by an axle;

a second part attached to the housing by an axle with the line being receivable between the first and second parts;

the first and second parts being pivotable around their respective axles toward one another to a fixed position and away from one another to a free position, the first and second parts having serrated surfaces facing one another;

the first and second parts when pivoted around their respective axles in one direction approaching one another and in the other direction moving away from one another;

one spring coupled to the first part and the housing so that the first part is spring-loaded to adopt the free position;

another spring coupled to the second part and the housing so that the second part is spring-loaded to adopt the fixed position;

control means for moving the first part to and locking the first part in the fixed position when operated;

the axle of the first part and the serrated surface of the first part being positioned so that when the first part is moved from the free position to the fixed position, the serrations move in the one direction in which the line is tensioned.

4,278,043

SEAT BELT LOAD INDICATOR

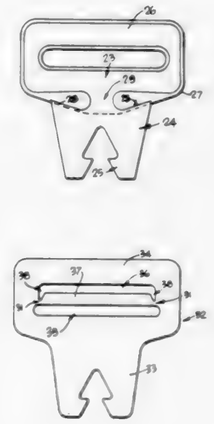
Robert B. Heath, Lonsdale, Australia, assignor to Rainsfords Metal Products Pty. Ltd., Lonsdale, Australia

Filed Nov. 7, 1979, Ser. No. 92,073

Claims priority, application Australia, Nov. 24, 1978, PD6906

Int. Cl.³ B60Q *9/00;* **G01L** *5/06*

U.S. Cl. 116—28 R **3 Claims**



1. A vehicle safety seat belt assembly comprising belt webbing, a mounting bracket, a buckle, and a tongue cooperable with the buckle,

said tongue having a first end providing walls defining a belt webbing receiving slot, a second end for insertion into said buckle, a distortion area of metal in the region of said first end proximate to said second end, and a narrow neck of metal joining said second end and said distortion area,

said distortion area having such length, breadth and depth as to constitute a beam that bends and becomes permanently distorted when the belt assembly is subjected to a first stage of overload and provides an identifiable indication that the belt assembly has been subjected to said first stage of overload, but is not destroyed so that the belt assembly remains operable between said first stage of overload and a second stage of overload which greatly exceeds said first stage.

4,278,044

REMOTE MARKING TOOL

Larry A. French, Newport News, Va., assignor to Davis, French and Associates, Inc., Hampton, Va.

Filed Dec. 11, 1978, Ser. No. 968,304

Int. Cl.³ B05C *1/02*

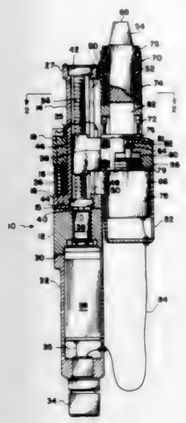
U.S. Cl. 118—256 **23 Claims**

1. A remotely controllable tool for identifying the location of a defective heat exchanger tube within a heat exchanger header compartment comprising:

means for visably marking the location of said defective heat exchanger tube;

means for protecting said defective heat exchanger tube against internal contamination;

means for remotely actuating said means for visably marking said defective heat exchanger tube; and



means for remotely actuating said means for protecting said defective heat exchanger tube against internal contamination.

4,278,045

DISPENSING FOAMABLE MATERIAL

Abu Ahmad, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 25, 1979, Ser. No. 6,953
Int. Cl.³ B05B *1/04, 1/14*
U.S. Cl. 118—323 **3 Claims**



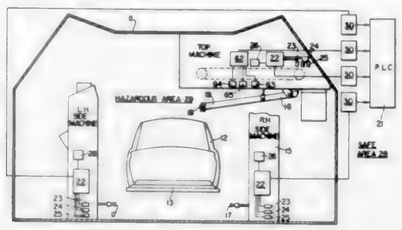
1. Apparatus comprising:
a. a moving surface for receiving foamable material;
b. a chamber for dispensing said foamable material;
c. a plurality of discharge ports positioned through the walls of said chamber, said discharge ports:
(1) being conduits having nonparallel longitudinal axes; and,
(2) being generally coplanar in a plane generally parallel to the direction of movement of said moving surface; and,
(3) having longitudinal axes oriented at different angles with respect to the vertical center line of said chamber so that the streams discharged from said discharge ports are nonintersecting; and,
d. means for oscillating said chamber across the width of said moving surface.

4,278,046

PAINT SPRAYING APPARATUS

Ronald M. Clarke, Brownhills, and Edward Johnston, Chertsey, both of England, assignors to Carrier Drysys Limited, London, England

Filed Jun. 30, 1978, Ser. No. 921,149
Claims priority, application United Kingdom, Apr. 19, 1978, 15495/78
Int. Cl.³ B05B *12/02;* **B05C** *15/00*
U.S. Cl. 118—695 **16 Claims**



1. Apparatus for automatic paint spraying, comprising booth means to contain a hazardous atmosphere in which spraying is effected, said booth means being surrounded externally by a non-hazardous atmosphere, said apparatus further comprising a spray gun for directing paint onto an article to be coated, reciprocating means for effecting a reciprocating stroke of said spray gun, valve means operable to control discharge of paint through said spray gun, and automatic control means for controlling the operation of the valve means during the stroke of said spray gun; said automatic control means comprising: a first part providing programmable control means for determining a desired sequence of operations of said valve means, a second part comprising position indicating means for generating an electrical digital signal representing the position of the spray gun during its stroke, and comparator means for comparing the signal from the position indicating means with reference signals from said programmable control means determining the sequence of operation of said valve means during the stroke and providing an output for use in controlling said valve means in dependence on the position of said spray gun; wherein said reciprocating means, valve means and second part of said automatic control means are located within said booth means and the said first part of said automatic control means is located entirely outside said booth means and connected through a suitable interface to the said second part of the automatic control means, whereby said programmable control means is not exposed to said hazardous atmosphere.

4,278,047

ABSORBENT FOR ANIMAL EXCRETA

Sebastiano F. Luca, Waltharistr. 5 b, D-1000 Berlin 39, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,390
Int. Cl.³ A01K *1/015*
U.S. Cl. 119—1 **11 Claims**

1. An absorbent for animal excreta consisting of vermiculite particles having a particle size smaller than 15 mm and a pouring weight smaller than 200 g/l and particles selected from the group composed of powdered gypsum and powdered clay adhering to said vermiculite particles for weighing down said vermiculite particles so that the vermiculite particles will not adhere to fur of animals.

4,278,048

VETERINARY MEDICINE FACILITY

Edward J. Klein, 1000 B. Manhattan Dr., Tempe, Ariz. 85282

Filed Oct. 11, 1979, Ser. No. 83,578
Int. Cl.³ A01K *1/00;* **A47B** *81/00*
U.S. Cl. 119—15 **15 Claims**



13. An improved veterinary medicine facility especially adapted for the treatment of small animals, said facility comprising:
a. a building structure including,
i. first and second spaced apart side walls, and
ii. first and second spaced apart end walls;
b. a partition intermediate said first and said second end walls including
i. first and second spaced apart panels
said first panel having an outer surface directed toward said first end wall,
said second panel having an outer surface directed toward said second end wall,
ii. a plurality of tubular enclosures having a first open end adjacent said first panel and a second open end adjacent said second panel,
iii. a plurality of first openings extending through said first panel and communicating with the first open end of an enclosure,
iv. a plurality of second openings extending through said second panel and communicating with the second open end of an enclosure,
v. a plurality of first closure members for selectively closing each of said first openings; and
vi. a plurality of second closure members for selectively closing each of said second openings;
said partition dividing said building structure into a reception area adjacent said first end wall and a treatment area adjacent said second end wall.

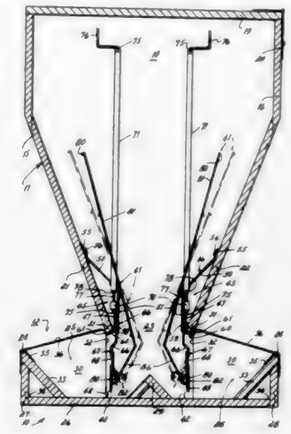
4,278,049

ANIMAL FEEDER

Larry R. Van Dusseldorp, Britt, Iowa, assignor to Marting Mfg. Inc., Britt, Iowa

Filed May 12, 1980, Ser. No. 148,787
Int. Cl.³ A01K *5/00*
U.S. Cl. 119—53.5 **11 Claims**

7. An animal feeder comprising,
a feed hopper having side walls, end walls, a bottom assembly, and an open top,
a movable closure operable to close said open top of said feed hopper,
metering means positioned to extend below the lower edge of at least one of said side walls,
said bottom assembly including a feed trough under said metering means and in communication with said feed hopper,
said metering means including a slide plate housing, a slide plate, and an agitator plate,
said slide plate housing being mounted on the inside surface of said side wall,
said slide plate being supported by said housing for vertical movement relative thereto.
said agitator plate being movably suspended from said slide plate, and
adjustment means for effecting vertical adjustment of said slide plate relative to said housing, said adjustment means



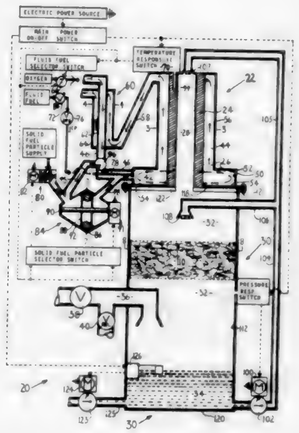
including a rod secured adjacent one end to said slide plate and having the opposite end accessible through the open top of said feed hopper such that movement of said opposite end of said element effects vertical adjustment of said slide plate and of the depending agitator plate.

4,278,050

RAPID RESPONSE STEAM GENERATING APPARATUS

Wellesley R. Kime, 8745 Appian Way, Los Angeles, Calif. 90046

Continuation-in-part of Ser. No. 32,935, Apr. 24, 1979, Ser. No. 50,820, Jun. 21, 1979, Ser. No. 52,779, Jun. 28, 1979. This application Dec. 5, 1979, Ser. No. 100,393
Int. Cl.³ F22B *27/00*
U.S. Cl. 122—39 **22 Claims**



1. A rapid response steam generator comprising:
(a) a combustion chamber having fuel and oxygen intake passage means, fuel ignition means, and an exhaust discharge outlet, for burning fuel and generating heat energy;
(b) a fluid storage container for storing steam and liquid under pressure;

(c) a heat exchanger mounted on and located above the fluid storage container, the heat exchanger having a heat retaining substance, a fluid inlet, a fluid outlet communicating with the fluid storage container, and a fluid heating passage communicating with the fluid inlet and fluid outlet wherein heat is transferred from the heat retaining substance to fluid within the fluid heating passage;
(d) means for transferring heat energy generated in the combustion chamber to the heat retaining substance in the heat exchanger;
(e) means for commencing the burning of fuel for the generation of heat energy in the combustion chamber when temperature at a given location of the heat retaining substance is below a predetermined temperature and terminating the burning of fuel when the temperature of the heat retaining substance has reached a predetermined temperature;
(f) means for moving liquid from the fluid storage container through the fluid inlet of the heat exchanger and into the fluid heating passage for the generation of steam when the pressure within the apparatus is below a predetermined pressure and terminating the movement of the liquid when the pressure within the apparatus is above a predetermined pressure;
(g) means for discharging steam under pressure from the fluid storage container as available steam pressure for operating a load;
(h) means for moving liquid into the apparatus for replacing liquid which has been used by the apparatus for the generating of steam.

13. A method for the rapid generation of steam comprising the following steps:
(a) burning fuel for the generation of heat energy;
(b) transferring the heat energy generated by the burning of fuel to a heat retaining substance in a heat exchanger;
(c) commencing and terminating the burning of fuel by temperature responsive means for maintaining the temperature of a given location in the heat retaining substance at essentially a predetermined temperature;
(d) storing steam and liquid under pressure in a fluid storage container mounted onto and located under the heat exchanger;
(e) moving liquid from the fluid storage container into contact with the heat retaining substance in the heat exchanger for heating the liquid for the generation of steam;
(f) moving the steam produced within the heat exchanger to the fluid storage container;
(g) commencing and terminating the movement of liquid from the fluid storage container into contact with the heat retaining substance in the heat exchanger by pressure responsive means for maintaining the pressure within the apparatus at essentially a predetermined pressure;
(h) discharging steam stored in the fluid storage container as available steam for operating a load;
(i) moving liquid into the apparatus for replacing liquid used by the apparatus in the generation of steam.

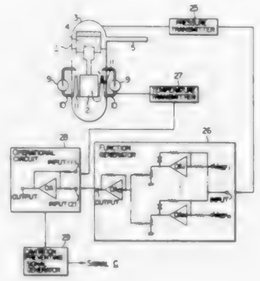
4,278,051

METHOD OF PREVENTING RECIRCULATION PUMP CAVITATION AND FORCED RECIRCULATION PUMP TYPE STEAM-GENERATING APPARATUS USING THE METHOD

Toichi Shida, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 30, 1979, Ser. No. 25,575
Claims priority, application Japan, Apr. 5, 1978, 53-39192
Int. Cl.³ F22D *7/00*
U.S. Cl. 122—406 A **6 Claims**

1. A forced recirculation type steam-generating apparatus in which water therein is circulated forcibly by a pump, comprising:
(a) a steam-generating section;
(b) means for detecting pressure in said steam-generating section;
(c) means for generating a saturation temperature corresponding to the pressure detected by said pressure detector means;
(d) means for detecting a temperature of water at a suction side of said pump; and
(e) means for generating a signal for reducing a rotational speed of said pump when a difference between said detected temperature and said saturation temperature is reduced below a predetermined temperature level, whereby a recirculation flow by said pump is reduced.



5. A method of preventing the recirculation pump cavitation of a steam-generating apparatus, comprising the steps of:
(a) detecting pressure in the steam-generating section of said steam-generating apparatus;
(b) detecting a temperature of water at a suction side of said recirculation pump;
(c) generating a saturation temperature associated with said detected pressure; and
(d) reducing the rotational speed of said recirculation pump to a predetermined level when a difference between said detected temperature and said saturation temperature is reduced below a predetermined value, thereby reducing the recirculation flow by said pump.

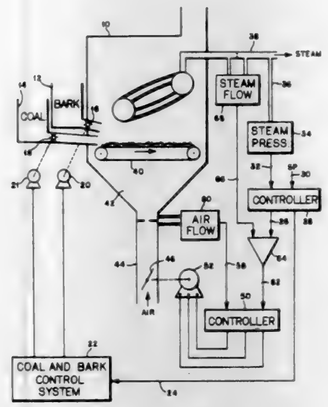
4,278,052

BOILER CONTROL SYSTEM

Everett H. Sharp, Huntington, N.Y., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Sep. 27, 1979, Ser. No. 79,279
Int. Cl.³ F22D *1/28*
U.S. Cl. 122—449 **4 Claims**

4. The method for controlling the fuel supply rate and the combustion air supply rate for a boiler fired by solid fuels which are carried through the combustion zone of the boiler by a traveling grate which comprises the steps of:
controlling the fuel feed rate of the boiler to minimize the deviation of the steam outlet pressure from its desired value;
controlling the flow of combustion air to the undergrate region of said boiler to tend to maintain the air flow in direct proportion to the steam flow in the boiler outlet; and



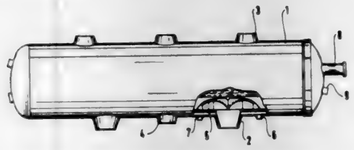
biasing said proportion in response to said deviation to modify the air flow so as to tend to reduce said deviation.

4,278,053

APPARATUS FOR DISTRIBUTION OF A MIXTURE OF VAPOR AND LIQUID IN A SEPARATOR WITH HORIZONTAL AXIS

Roger Bessoust; Jacques Marjollet, both of Paris, and Gerard Palacio, Montmorency, all of France, assignors to Stein Industrie S.A., Velizy-Villac oublay, France

Filed Nov. 21, 1979, Ser. No. 96,264
Claims priority, application France, Nov. 24, 1978, 78 33183
Int. Cl.³ F16T *1/00*; **F22B** *37/26*
U.S. Cl. 122—488 **5 Claims**



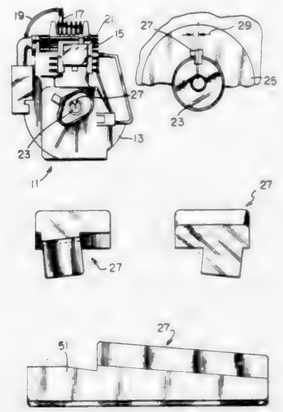
1. Apparatus for distribution and preliminary separation of a mixture of vapour and liquid in a sleeve separator having a horizontal axis, from a tubular neck disposed close to the lower generatrix of the separator sleeve, said apparatus comprising two deflectors in the general shape of portions of cylinders, with axes parallel to one another and perpendicular to that of the separator, said deflectors being symmetrical with respect to the vertical plane of symmetry of said neck perpendicular to the axis of said separator, in which plane of symmetry they have a common generatrix, each deflector being cut by two planes oblique with respect to the longitudinal plane of symmetry of said separator, the projections of the oblique planes in the plane of the entry circle of said neck in the separator lying outside said entry circle, said deflectors being completed by three partitions, one in the plane of longitudinal symmetry of the separator and extending from said common generatrix to the exterior of said entry circle, and the other two being symmetrical with respect to the first and cutting it along a straight line parallel to the axis of said neck, but outside the latter, the edges of said deflectors being provided with troughs for collecting and discharging the liquid deposited on their concave surface, and said troughs issuing into the volume comprised between said other two partitions, into which the mixture of vapour and liquid is unable to penetrate.

4,278,054

IGNITION TIMING

Kenneth W. Campen, Kiel, Wis., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Jul. 12, 1978, Ser. No. 923,997
Int. Cl.³ F22B *7/06*
U.S. Cl. 123—146.5 A **12 Claims**



1. The method of permanently presetting the ignition timing of an internal combustion engine having a rotatable shaft and a wheel supported on the shaft for rotation therewith wherein the engine ignition system includes a relatively fixed portion supported by the engine and a movable portion supported on the wheel for rotation therewith so that the same flywheel and movable ignition portion may be adapted to a selected one of at least two distinct engine types having different relatively fixed ignition portions and requiring dissimilar angular flywheel positions relative to the engine crankshaft to achieve proper engine timing, the method comprising the steps of:
providing a slot in the shaft surface extending generally parallel to the axis of rotation of the shaft;
providing a slot in the wheel along an inner hub thereof and generally alignable with the shaft slot when the wheel is supported on the shaft;
selecting one of a plurality of keys having differing offset amounts with the particular offset selected providing correct ignition timing for the engine; and
assembling the wheel to the shaft with one part of the selected key occupying the shaft slot and another part of the selected key occupying the wheel slot to thereby fix the angular relationship between the shaft and wheel at the angular offset determined by the particular key selected.

4,278,055

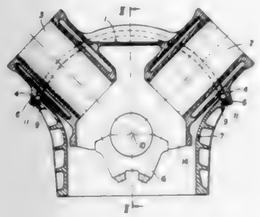
LOW-NOISE-LEVEL INTERNAL COMBUSTION VEE-ENGINES

Hans List, 126 Heinrichstrasse, Graz, Austria; Othmar Skatsche, Graz, Austria; Gerhard Thien, Graz, Austria; Heinz Fachbach, Graz, Austria; Josef Greier, Graz, Austria, and Johann Wagner, Graz, Austria, assignors to Hans List, Graz, Austria

Division of Ser. No. 877,896, Feb. 15, 1978, abandoned. This application Jul. 9, 1979, Ser. No. 55,521
Claims priority, application Austria, Feb. 24, 1977, 1259/77; Oct. 24, 1977, 7600/77
Int. Cl.³ F02B *77/00*
U.S. Cl. 123—195 S **4 Claims**

1. A low-noise-level internal combustion Vee-engine, comprising a crankshaft and crankshaft main bearings which are engine parts directly affected by body resonance and sound vibration, a skeletal engine unit support which supports said

crankshaft main bearings, a cylinder head mounted on said engine unit support, auxiliary units rigidly connected to the engine unit support and to a cylinder head, a crankcase and a flywheel case connected with the crankcase, and at least one sound-absorbing element located above the crankshaft between said engine parts which are directly affected by sound vibration and said crankcase and flywheel case, connection between the skeletal support and the crankcase with the sound-absorbing element being made by means of a supporting sur-



face arranged at and surrounding the skeletal support and a counter surface arranged at and surrounding the crankcase, both areas being plane in the range of the longitudinal sides of the crankcase and the skeletal support, and said supporting surface and said counter surface for the connection of the skeletal support and the crankcase at the front sides of said engine parts being formed as cylinder areas at the crankcase and corresponding cylindrical counter areas at the skeletal support, the axes of said cylinder areas extending in the engine's plane of symmetry and parallel to the crankshaft axis.

4,278,056

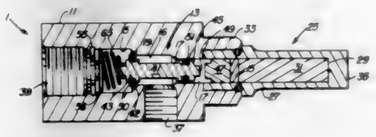
TEMPERATURE SENSOR VALVE

Bill G. Davis, 516 W. Rancho, Phoenix, Ariz. 85013

Filed May 14, 1979, Ser. No. 38,931

Int. Cl.³ F02B *77/00*

U.S. Cl. 123—198 D **5 Claims**



1. In a liquid cooled engine or engine-driven accessory having engine protection means for reducing the engine RPM to a safe level in response to a fluid pressure below an acceptable level, a temperature sensor valve for continuously sensing the operating temperature of the engine or engine-driven accessory and the presence or absence of liquid coolant, the engine or engine-driven accessory including a housing and a coolant-filled chamber, and for reducing the fluid pressure below the acceptable level in response to an over-temperature condition or in response to at least a partial loss of the liquid coolant, said temperature sensor valve comprising in combination:

a. a body having a cylindrical bore;

b. a first radially inwardly extending annular seat dividing said bore into first and second sections;

c. said second section including an intermediate bore portion having a diameter larger than the diameter of the remainder of said section;

d. a fluid pressure port communicating with said intermediate bore portion for connection to a source of fluid under pressure;

e. a fluid outlet port communicating with said first bore section for providing a low pressure fluid drain;

f. temperature sensor means coupled to the housing and protruding into the coolant-filled chamber for receiving heat from the housing and for transferring heat into the coolant, said temperature sensor means including:

i. a temperature sensing tip having an internal, longitudinally extending receptacle; and

ii. a temperature responsive material disposed within said receptacle for expanding and contracting in response to the temperature of said temperature sensing tip;

g. a piston slidably displaceable in said bore between a first position and a second position, said piston including:

i. a first large diameter element extending into said first bore section and having an O-ring for sealing engagement with said annular seat when said piston is in said first position, said O-ring out of engagement with said seat when said piston is in said second position;

ii. a second large diameter element extending into said second bore section and having an O-ring in continuous sealing engagement with said second bore section, said second large diameter element including a face in mechanical communication with said temperature responsive material;

iii. a reduced diameter portion extending between said first and second large diameter elements for substantially the length of said intermediate bore portion to provide fluid communication between said fluid pressure port and said first bore section;

h. biasing means for exerting a predetermined force on said piston to urge said piston into the first position;

whereby an engine over-temperature condition or loss of a predetermined amount of liquid coolant causes said temperature responsive material to expand and displace said piston from the first position to the second position for opening the path between said fluid pressure port and said fluid outlet port for reducing the fluid pressure below the acceptable level and thereby actuating the engine protection means to reduce the engine RPM to a safe level.

4,278,057

METHOD OF BURNING APPLIED-IGNITION FUELS IN AN AIR-COMPRESSING DIRECT-INJECTION INTERNAL COMBUSTION ENGINE

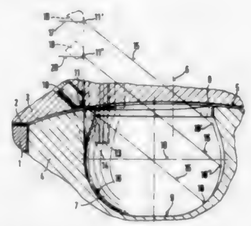
Alfred Urlaub, and Franz Chmela, both of Nürnberg, Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nürnberg, Fed. Rep. of Germany

Filed Dec. 15, 1978, Ser. No. 969,673

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1977, 2755916

Int. Cl.³ F02B *3/04*

U.S. Cl. 123—276 **4 Claims**



1. A method of burning fuels ignited by applied-ignition in an air compressing direct injection internal combustion engine having a piston having a stroke volume with an upper dead center position and having a combustion chamber formed in said piston shaped in the form of a body of revolution including a wall and an edge as well as an upper end and a depth, which includes the steps of: starting a fuel injection cycle and spraying a free fuel current in a stream length directly onto a portion of the wall of said combustion chamber from a point substantially diametrically opposite thereof with the major portion of the fuel deposited on the combustion chamber wall in the form of a film, admitting air into said combustion chamber while imparting thereto a rotary movement to cause the air gradually to detach said film in the form of vapor from the combustion chamber wall and to intermix said air with said vapor, beginning the ignition near the combustion chamber edge at a location downstream in the direction of the rotary movement of said air where the free fuel current begins to traverse the combustion chamber and upstream in the direction of the rotary movement of said air where the fuel current impinges against the combustion chamber wall, selecting a fuel pressure level of the fuel current injection so that the rate of fuel injection into the cylinder lies between 0.7 and 1.3 cubic millimeters per degree angle times liter stroke volume and the fuel impingement point at the starting of the fuel injection cycle is substantially even with the upper end of the combustion chamber wall, and in the upper dead center position of the piston the fuel impingement point lies near the lower end of the combustion chamber wall near the combustion chamber bottom with the fuel impingement point traversing nearly the entire depth of the combustion chamber on the combustion chamber wall.

4,278,058

RPM REGULATOR FOR FUEL INJECTION PUMPS IN INTERNAL COMBUSTION ENGINES

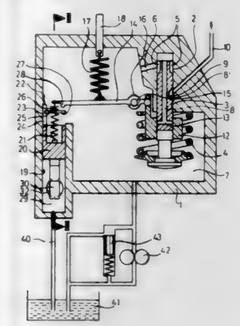
Walter Berner, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 15, 1978, Ser. No. 970,063

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1978, 2802608

Int. Cl.³ F02D *1/06, 1/02*

U.S. Cl. 123—387 **15 Claims**



1. An rpm regulator for fuel injection pumps for internal combustion engines comprising a first housing forming an injection pump suction chamber, an injection pump within said first housing at least one control lever for a control sleeve of said injection pump which doses the injection quantity, a spring loaded piston movable within a second housing in response to rpm-dependent pressure means of a regulator fluid, said piston arranged to cooperate with a stop means which limits the injection quantity, said piston being displaceable against a spring in response to the pressure of the regulator fluid to create a pressure-dependent axial displacement and said piston and having at least one contact surface arranged to roll against a pressure roller means, said pressure roller means being subjected to fluid pressure influences in said suction chamber, to create a pressure-dependent force of said roller means, the movement of said piston within said second housing being responsive to the form of said contact surface, the force of said pressure roller means and the pressure-dependent axial displacement of the piston against the spring.

4,278,059

DEVICE FOR THE CONTROL OF THE TRAVELING SPEED OF A MOTOR VEHICLE

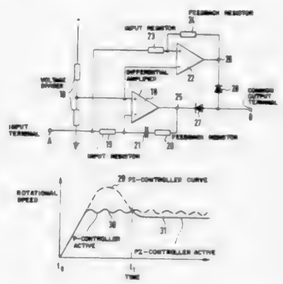
Harald Collonia, Glashütten, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 30, 1979, Ser. No. 71,168

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1978, 2839382

Int. Cl.³ F02D *11/10*

U.S. Cl. 123—399 **6 Claims**



1. In a device for the control of the traveling speed of a motor vehicle with a regulating unit which is actuatable by the vehicle driver, particularly with a gas pedal, with electrical means for the transmission of the movement of the regulating unit to an element which influences the fuel-air mixture, particularly a throttle valve, with an electrical controller, the element which influences the fuel-air mixture being in operative connection with the output of the electrical controller, and including at least one comparator, one of the inputs of the comparator being applied with a voltage which is proportional to the rotational speed of the motor and its other input being applied with an adjustable constant voltage value for the rotational speed limitation, the improvement wherein

the electrical controller includes,

a PI-controller having a proportional-integral time response, and

a P-controller, having a proportional time response, of large amplification connected in parallel with said PI-controller, whereby said electrical controller is active during every change in the rotational speed to achieve a new rotational speed substantially without overshooting and oscillations.

4,278,060

FEEDBACK TYPE AIR FUEL RATIO CONTROLLING SYSTEM

Toshiaki Isobe, Nagoya, and Tatsuo Yokoyama, Kakogawa, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 942,801, Sep. 15, 1978, abandoned. This application Jul. 18, 1980, Ser. No. 169,986

Claims priority, application Japan, May 2, 1978, 53-53086

Int. Cl.³ F02M *7/00*; F02B *3/00, 75/10*

U.S. Cl. 123—440 **21 Claims**

1. A feedback type air fuel ratio controlling system comprising:

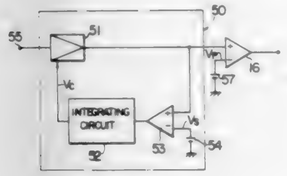
an exhaust gas sensor for supplying a sensor signal representative of an air fuel ratio,

an automatic gain control (AGC) DC level amplifier having a gain changeable at a predetermined time constant in response to said sensor signal of said sensor, including:

a variable gain DC amplifier having a signal input coupled to said sensor signal, an output, and a control input for controlling its gain,

said variable gain DC amplifier being responsive to said sensor signal so as to (a) decrease its gain in accordance with said predetermined time constant when the output of said variable gain DC amplifier is greater than a fixed predetermined reference signal Vs so that a rich to lean change of air fuel ratio is detected earlier than it would be in the absence of such a gain change, and (b) increase its gain in accordance with said predetermined time constant when the output of said variable gain DC amplifier is less than Vs so that a lean to rich change of air fuel ratio is detected earlier than it would be in the absence of such a gain change,

a comparator having a first input coupled to the output of said variable gain amplifier and a second input adapted to be coupled to a source of said reference signal Vs said comparator for producing a first signal whenever the



output of said variable gain amplifier is greater than Vs and a second signal whenever the output of said variable gain amplifier is less than Vs, and

an integrator having an input coupled to the output of said comparator, for generating an output signal Vc, responsive to said first and second signals, said output signal Vc being coupled to said control input of said variable gain amplifier whereby the gain of said variable gain amplifier is controlled in accordance with the time constant of said integrator and the output signals of said comparator,

a deviation detector circuit for comparing the output of said automatic gain control DC level amplifier with a fixed reference signal Vp representing a stoichiometric air fuel ratio to produce a deviation signal, and

an actuator for controlling the air fuel ratio in response to the deviation signal.

4,278,061

METHOD AND APPARATUS FOR ADJUSTING FUEL INJECTION CONTROL

Peter Werner, Stuttgart, and Ulrich Drews, Vaihingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 12, 1977, Ser. No. 859,509

Claims priority, application Fed. Rep. of Germany, Jan. 8, 1977, 2700628

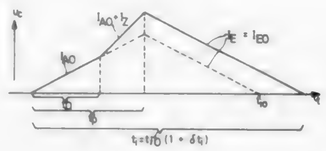
Int. Cl.³ F02D *5/02*

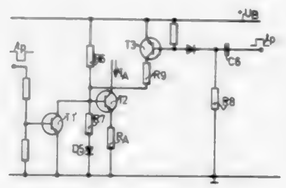
U.S. Cl. 123—483 **3 Claims**

1. In a fuel injection system for an internal combustion engine, said system including means for generating preliminary electrical fuel control pulses "tp" whose pulse length is a function of engine speed and air flow rate and further means to generate from said preliminary pulses "tp" a train of valve-actuating pulses "ti", comprising:

said generating means including a pulse length multiplier circuit for generating valve-actuating pulses "ti" from said preliminary pulses "tp", said multiplier circuit including a timing capacitor and a charging current force therefor for continuously extending the length of said valve-actuating pulses "ti" in dependence on continuously varying engine load conditions, said load conditions being derived from the duration of said preliminary pulses "tp",

a delaying circuit connected to said charging current source and delaying the onset of charging of said capacitor at least with the full charging current in said multiplier circuit by a predetermined amount of time "t_D" beyond the onset of preliminary pulses "tp", said delaying circuit including a timing circuit additionally triggered by said preliminary pulse and increasing the charging current for said capacitor by a predetermined amount "I_z" after a given time delay, said timing circuit including a voltage divider circuit having a tap, a transistor "T3" whose collector-emitter path is connected with said tap of said voltage divider circuit, and





a transistor "T2" having a base constituting said charging current source, said tap being connected to said base of said transistor "T2" and wherein an input to said transistor "T3" is connected to an RC member whose time constant causes said transistor "T3" to increase the current through said charging transistor "T2" after a predetermined amount of time.

4,278,062

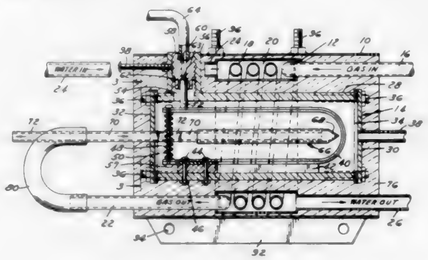
FUEL HEATING DEVICE

Manuel V. DeSilva, 27602 Harper, St. Clair Shores, Mich. 48081

Filed Aug. 17, 1979, Ser. No. 67,292

Int. Cl.³ F02M *31/00*

U.S. Cl. 123—552 **8 Claims**



1. An engine fuel heater for an engine which uses fuel fed to the engine by a fuel line and which exhaust a heated engine medium comprising:

a heat exchanger along the fuel line for transferring heat from the exhaust medium to the fuel;

an insulated vacuum chamber having vent means;

a portion of the fuel line located between the engine and the heat exchanger passing through the chamber;

a temperature sensitive element mounted within the chamber adjacent said fuel line portion and having a portion movable in response to temperature changes in said fuel line portion contacting said vent means;

vacuum means for normally inducing a vacuum within the chamber;

the vent means controlled by movement of said movable portion, the vent means when opened allowing communication of air to the chamber so to eliminate the vacuum normally found therein; and

an exhaust medium control responsive to the presence or absence of a vacuum in the chamber so to control the flow of exhaust medium to the heat exchanger.

4,278,063

INTERNAL COMBUSTION ENGINE WITH AN EXHAUST GAS PURIFYING SYSTEM

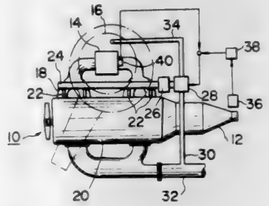
Ken Nakamura, Kawasaki; Kunihiko Sugihara, Takasho, and Shizuo Ishizawa, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Oct. 1, 1979, Ser. No. 80,222

Claims priority, application Japan, Oct. 31, 1978, 53-148892[U]

Int. Cl.³ F02B *47/08*

U.S. Cl. 123—568 **14 Claims**



1. An exhaust gas purifying system for use in an internal combustion engine including at least one combustion chamber connected to an intake port through an intake valve, comprising:

(a) a first passage for passing a portion of exhaust gases discharged from said combustion chamber;

(b) a second passage for passing air;

(c) a fluid passage;

(d) at least one fluid injection nozzle having its one end connected to said fluid passage and the other end extending into said intake port toward said combustion chamber, said fluid injection nozzle adapted to open when said intake valve opens; and

(e) means responsive to engine operating condition for connecting said fluid passage to said first passage to permit injection of exhaust gases through said fluid injection nozzle into said combustion chamber during acceleration and for connecting said fluid passage to said second passage to permit injection of air through said fluid injection nozzle into said combustion chamber during normal operation or idling.

4,278,064

FUEL CONTROL SYSTEM FOR A DUAL-FUELED POWER UNIT

Jose F. Regueiro, Rochester, Mich., assignor to Deere & Company, Moline, Ill.

Filed Mar. 7, 1979, Ser. No. 18,241

Int. Cl.³ F02B *3/12;* **F02M** *13/00*

U.S. Cl. 123—577 **5 Claims**

1. In an internal combustion engine for driving a variable load and adapted for operation on first and second fuels, wherein a predetermined minimum flow of the first fuel is necessary to maintain combustion, means for adjustably controlling the flow of the two fuels comprising:

first means including a first variable position member for controlling the flow of the first fuel to the engine;

means sensing the position of the first member for providing a first electrical signal representative of the first fuel flow to the engine;

means operatively connected to the first member and responsive to engine speed to vary the position of the member and control the speed;

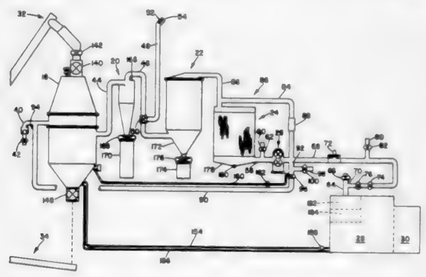
a variable position valve member for controlling the flow of the second fuel to the engine;

means providing a second electrical signal representative of the flow of the second fuel;

means for providing a third electrical signal indicative of the load driven by the engine; and

means for comparing the first and second electrical signals with the third electrical signal and varying the position of the valve member to increase the flow of the second fuel responsive to increases in the flow of the first fuel and in the load.

5. In the combination of an internal combustion engine having a cylinder with first and second inlets connected respectively to sources of first and second fuels so that the cylinder



may be supplied with a mixture of said first and second fuels and an output shaft subject to variable loading, said first inlet having speed-governed means for controlling the flow of the first fuel interposed between the fuel source and the first inlet and including a movable control element, the position of said element varying with output shaft loading, and an adjustable power operated valve interposed between the second fuel source and the second inlet for controlling the flow of the second fuel, the method of electronically controlling the fuel flow comprising the steps of:

measuring the loading of the output shaft and transducing said measurement to a load signal;

sensing the position of the control element and transducing said position to a control element signal;

sensing the power operated valve setting and transducing said setting to a valve signal;

electronically combining the load and control element signals and comparing the combination with the valve signal to generate an error signal; and

transducing the error signal to a power signal for repositioning the valve so as to vary the flow of the second fuel relative to the first in response to changes in output shaft loading.

4,278,065

SLINGSHOT TYPE GUN

Richard L. Wales, Rogue River, Oreg., assignor to Beverly A. Wales and Allen Wilkins, both of Rogue River, Oreg., part interest to each

Filed Apr. 11, 1979, Ser. No. 28,988

Int. Cl.³ F41B *7/00*

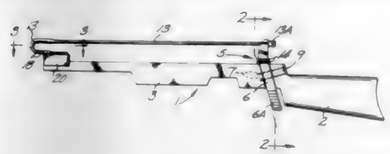
U.S. Cl. 124—20 R **6 Claims**

1. A slingshot type gun comprising,

a gun stock,

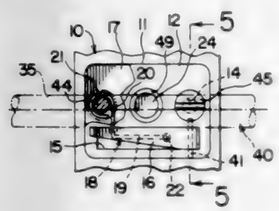
an elongate elastic component mounted to the forward end of said gun stock and adapted to receive a projectile, and

an elastic component release means for momentary retention of a projectile within a doubled back segment of said elastic component, said means including a manually movable member pivotally attached to the gun stock for movement transversely of the longitudinal axis of the gun and said member being elongated and extending above and below the gun stock and swingable relative the remainder



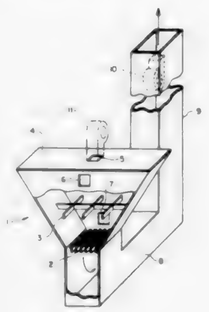
of the means for release of the elastic component and projectile, said manually movable means further including another elongated upright but stationary member also extending above and below the gun stock and coacting with said movable member to retain a projectile and the tensioned elongate component preparatory to release, those portions of said movable and stationary members below the gun stock constituting handgrips.

4,278,066
FLIPPER REST
Alvin G. Zinz, Sr., R.D. #3, Lamberton Rd., Franklin, Pa. 16323
Filed Aug. 8, 1979, Ser. No. 64,840
Int. Cl.³ F41B *5/00*
U.S. Cl. 124—41 A **10 Claims**



1. A support for an arrow supported on a bow comprising,
a rest (**10**),
a block (**11**) having a generally flat side,
a plate (**12**) having a generally flat side,
said plate (**12**) having a first hole (**13**) and a second hole (**14**) formed therein and spaced from each other,
a slot (**15**) formed in said plate and extending through said generally flat side,
said slot being generally parallel to one side of said plate,
a lever (**16**) swingably supported in said slot to swing about one end,
pivot means connecting said lever (**16**) to said plate (**12**),
a recess (**17**) in one side of said block (**11**) in said flat side face,
said recess receiving said plate (**12**) with said generally flat side generally flush with said flat side face,
a spring (**18**),
said spring having an end part (**19**), an intermediate part (**20**), an eyelet (**21**), and spring end (**22**),
the intermediate part (**20**) of said spring (**18**) being disposed at approximately 90° to said end part (**19**),
said eyelet (**21**) being disposed at approximately 30° to said end part (**19**),
said eyelet (**21**) being disposed between said plate (**12**) and said block (**11**) and said end part (**19**) engaging said lever (**16**), urging said lever (**16**) to swing away from said block (**11**) and a screw (**44**) extending through said second hole and through said eyelet (**21**), clamping said plate to said block,
said lever forming a support for supporting one end of an arrow (**40**) on said lever (**30**).

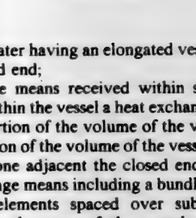
4,278,067
FURNACE
Clinton B. Pike, 21 Willow Rd., Apt. 14, Menlo Park, Calif. 94025
Filed Mar. 15, 1979, Ser. No. 21,163
Claims priority, application New Zealand, Jun. 28, 1978, 186719
Int. Cl.³ F23H *13/00*; F24H *3/06*
U.S. Cl. 126—152 R **2 Claims**



1. A downdraft furnace comprising:
a furnace housing;
over said housing a cover or lid, all or part of which may be removable;
within said housing a coarse upper fuel supporting structure or grate on which combustion of large pieces of fuel is initiated;
below said upper fuel grate a finer lower fuel supporting structure or grate on which combustion is completed of fuel which has partially burned on the upper grate and fallen through to the lower grate, and through which burning fuel gases from the first combustion must pass; there being
at least one air inlet for combustion air supply in the portion of the furnace above the upper grate; and
below the lower grate a duct to convey exhaust gases to a chimney or flue;
wherein the housing is in the shape of a hopper; the coarse upper grate is within the hopper; the lower grate is at the base of the hopper and centered with respect to the upper grate; wherein there is at least one additional air inlet for combustion air in the housing walls between the upper and lower fuel grates.

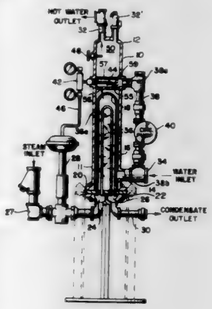
4,278,068
POSI-DRAFT STABILIZER
Anthony W. Buters, 112 Tuthill St., Port Jefferson, N.Y. 11777
Filed Dec. 26, 1979, Ser. No. 107,438
Int. Cl.³ F23J *11/00*
U.S. Cl. 126—307 A **1 Claim**

1. A device to be used in series with the smoke stack of an oil burner which will minimize the adverse effects of downdrafts on the combustion of an oil burner whereby said device also provides the function of an aerodynamic check valve and also can be used in series with the smoke stack of a wood burning, a coal burning, a gas burning stove, or any like duct to stabilize the movement or discharge of gases through said duct, said device comprising of:
an entrance section duct having a substantially circular configuration and of length to fit securely into a flue gas smoke pipe,
said entrance section joined with a transition section comprising of an end plate and four substantially tapered sides to form a converging duct,
said converging duct protruding into a chamber, said chamber consisting of a length of ducking, with end plates, said ends of the chamber being provided with cutouts,



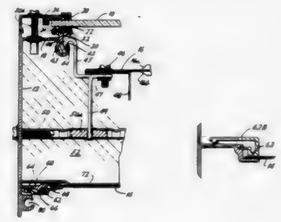
on one end a cutout to accept the converging discharge of the entrance transition and on the other end a cutout to accept an exit section,
whereby said exit section is comprised of a substantially circular duct and is of suitable length to fit securely into an existing flue gas pipe.

4,278,069
WATER HEATER
John A. Clark, Jr., East Stroudsburg, Pa., assignor to Harsco Corporation, Harrisburg, Pa.
Filed Jan. 31, 1980, Ser. No. 117,071
Int. Cl.³ F24H *1/36*; F22G *5/00*
U.S. Cl. 126—366 **8 Claims**



1. A water heater having an elongated vessel having an open end and a closed end;
heat exchange means received within said open end and defining within the vessel a heat exchange zone occupying a major portion of the volume of the vessel and leaving a minor portion of the volume of the vessel for a storage and blending zone adjacent the closed end of the vessel, the heat exchange means including a bundle of elongated heat exchange elements spaced over substantially the full cross-sectional extent of the vessel, said cross section being perpendicular to the direction of elongation of the vessel, and extending from said open end towards said closed end over the major portion of the length of the vessel;
a cold water inlet located adjacent said open end of the vessel;
a hot water outlet located adjacent said closed end of the vessel in the storage and blending zone and remote from the heat exchange zone; and
means for recirculating water through the heat exchange zone of the vessel including a recirculation conduit, the improvement comprising the conduit having an inlet opening horizontally within the vessel closely adjacent an inner end of the bundle of heat exchange elements for drawing water essentially solely from the heat exchange zone of the vessel and an outlet communicating with the vessel and said cold water inlet adjacent said open end thereof for conduction of water into and through the heat exchange zone; and
control means for controlling the input of heat to the heat exchange means in response to temperature changes in the water coming from the heat exchange zone of the vessel and for stratifying and blending the heated water in the storage and blending zone, the control means including an apertured plate above the heat exchange zone dividing the interior of the vessel, a temperature sensor immediately above said plate, a tunnel mounted on said plate over said sensor and extending across the interior of the vessel, and opening into the recirculation conduit, and side outlet openings in the tunnel adjacent the inlet of the recirculating conduit for flow of heated water to the storage zone, such that the sensor is responsive to a flow of water essentially solely from the heat exchange zone of the vessel.

4,278,070
SOLAR ENERGY COLLECTOR ASSEMBLY AND SUB-ASSEMBLIES THEREOF
John C. Bowen, Huntingdon Valley, Pa., assignor to Ametek, Inc., New York, N.Y.
Division of Ser. No. 935,406, Aug. 21, 1978, Pat. No. 4,201,190.
This application Aug. 13, 1979, Ser. No. 65,866
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—417 **3 Claims**



1. In a solar energy collector assembly including elongated side members having a top and bottom edge, a transparent sheet top cover member disposed at the top of said side members, and a bottom closure member disposed at the bottom of said side members, said side members, transparent sheet and closure member together forming an enclosed space housing within which is disposed a solar energy collector means, the improvement consisting of bottom closure member securing means comprising (i) a projection, extending inwardly into said enclosed housing space, along the length of said side members near the bottom thereof, the inner edge of said projection overlapping the outer portion of said closure member along the periphery thereof, said projection including a spring channel retaining tip, along the length thereof, said tip spaced outward from said projection inner edge, and (ii) a spring channel disposed along said inward projection and including a portion abutting said closure member on the surface portion thereof opposite that which overlaps the inner edge of said projection, said spring channel having a mating tip along the length thereof, said tip being disposed outward of said closure member abutting portion, said mating tip engaging and being retained by said inward projection spring channel retaining tip, said engagement comprising a means for preventing inward movement of said spring channel, said spring channel further including a second mating tip outwardly disposed from said

abutting portion and inwardly disposed from said first mating tip, said inward projection also including a second tip engaged with said second mating tip of said spring channel, said spring channel being slightly distended between said engaging tips, said spring channel abutting portion being biased thereby into engagement with said closure member and with the inner overlapping edge of said inward projection.

4,278,071

ROOFING PANELS

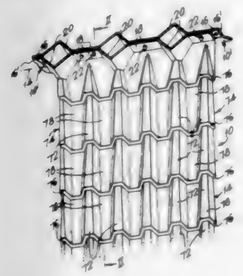
Kenneth O. P. Brill-Edwards, Swansea, Wales, assignor to Crescent Roofing Company Limited, Swansea, Wales

Filed Feb. 23, 1979, Ser. No. 13,511

Claims priority, application United Kingdom, Feb. 24, 1978, 7426/78

Int. Cl.³ F24J 3/00; E04D 13/16

U.S. Cl. 126—428 **18 Claims**



1. A roof structure for a roof including a ridge and eaves and having pitches between said ridge and said eaves, said structure comprising panels each including an outer skin of an inert structural material for spanning said pitches of said roof from said eaves to said ridge; said panels including ridge and eaves ends; said skin including outer and under sides; a fixing formation means at the ridge ends of the panels to engage the panels and to define a ventilation gap between the adjacent ridge ends of the two panels; integral longitudinal stiffening beams on the undersides of each said outer skin and extending at least substantially from the eaves to the ridge; generally flat inner liners of impervious sheet material sealed along a pair of longitudinal lines to each said outer skin and spaced therefrom by engagement with said longitudinal stiffening beam to define a tunnel between said outer skin and said inner liner extending at least substantially from the eaves to the ridge, said liners having ridge and eaves ends, and means for sealing to each other the ridge ends of said inner liners of said panels on said roof pitches.

4,278,072

FORCED AIR SOLAR HEATING SYSTEM

Thomas L. Ryan, and George T. Kalisz, both of Winslow, Ariz., assignors to Rykal Solar Corporation, Winslow, Ariz.

Filed Aug. 21, 1978, Ser. No. 935,654

Int. Cl.³ F24J 3/02

U.S. Cl. 126—429 **10 Claims**

8. A solar panel unit for use in a forced air solar heating system and comprising:

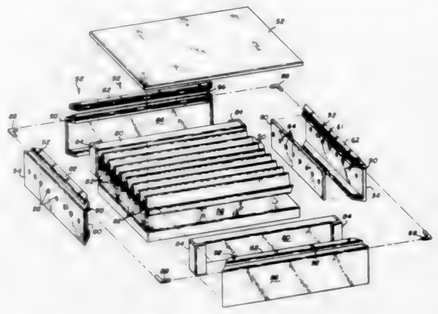
an elongated base member,

an elongated, corrugated absorber member disposed over said base member so that the airspace between said absorber member and said base member forms a plurality of isolated air channels which extend between corresponding first and second ends of said base member and said absorber member,

first end capping means disposed over said first ends of said base and said absorber members, said first end capping means being provided with a first plurality of apertures that are respectively aligned with said plurality of air channels,

second end capping means disposed over said second ends of said base and said absorber members, said second end capping means being provided with a second plurality of apertures that are respectively aligned with said plurality of air channels,

means forming side walls extending upwardly from opposed sides of said base member and along the lengths of both said absorber member and said base member, each end of



said side walls being joined to a corresponding extremity of the first and second end capping means;

a translucent covering means extending between said side walls and said first and second end capping means and covering said absorber member to form a sealed dead airspace member;

whereby when solar energy passes through said translucent covering means to impinge upon said absorber member, said absorber member becomes heated and in turn heats air flowing through said air channels.

4,278,073

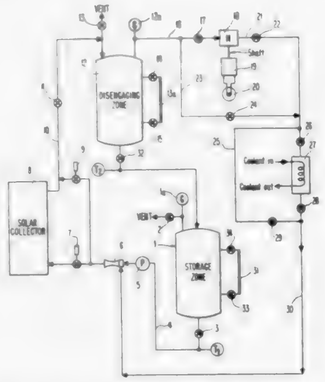
SYSTEM, METHOD AND APPARATUS FOR STORING AND CONVERTING SOLAR ENERGY INTO HEAT AND/OR SHAFT WORK

Pasquale S. Canzano, 31 Candlewicke Rd., Dover, Del. 19901, and Fred D. Canzano, 23 Wall St., Cranford, N.J. 07016

Filed May 7, 1979, Ser. No. 36,833

Int. Cl.³ F24J 3/02

U.S. Cl. 126—437 **20 Claims**



1. A solar energy conversion system comprising: (a) two normally-liquid and non-reactive working fluids in admixture, the first of said fluids having a relatively low boiling point at atmospheric pressure and adapted to being readily vaporized at system operating pressures, and the second of said fluids having a relatively high boiling point at atmospheric pressure and not adapted to being vaporized at system operating pressures; (b) solar energy collection means for heating said fluids therein while exposed to sunlight and converting at least a portion of said relatively low-boiling-point fluid from the liquid state to the vapor state; and (c) a continuous circuit for said heated fluids including said collection means, disengaging means downstream of said collection means for separating said relatively low-boiling-point fluid in hot vapor state from said fluids in hot liquid state, storage means downstream of said disengaging means for receiving and storing said fluids in hot liquid state, energy-utilization means downstreams of said disengaging means for receiving said relatively low-boiling-point fluid in hot vapor state and for utilizing at least a portion of the energy contained therein, pumping means downstream of said storage means for feeding said fluids in hot liquid state from said storage means to the solar energy collection means, and mixing means upstream of said collection means and downstream of said energy-utilization means and of said pumping means for mixing said relatively low-boiling-point fluid from said energy-utilization means and said fluids in hot liquid state from said storage means.

11. A continuous process for converting solar energy into useful shaft work and heat and employing two normally-liquid and non-reactive working fluids in admixture, the first of said fluids having a relatively low boiling point at atmospheric pressure and adapted to being readily vaporized at system pressures, and the second of said fluids having a relatively high boiling point at atmospheric pressure and not adapted to being vaporized at system pressures, and said process comprising:

(a) charging said working fluids, in liquid state, into a solar energy collector while said collector is exposed to sunlight, whereby both fluids absorb heat energy and at least a portion of the heated relatively low-boiling-point fluid is converted to the vapor state while the heated relatively high-boiling-point fluid is retained substantially in the liquid state;

(b) conveying the heated vapor and liquid phases from the solar energy collector to a disengaging zone wherein the heated vapor and liquid phases from the collector are separated;

(c) conveying the hot vapor phase from the disengaging zone through energy utilization means whereby the energy contained in said vapor phase is utilized at least in part;

(d) conveying the hot liquid phase from the disengaging zone to a storage zone;

(e) mixing the hot liquid phase from the storage zone with the fluid from the energy utilization means; and

(f) recirculating the admixed fluids to the solar energy collector.

4,278,074

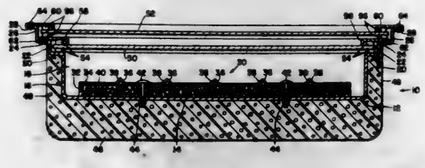
FLAT PLATE SOLAR COLLECTOR

Miroslav Uroshevich, Cincinnati, Ohio, assignor to Alpha Solarco Inc., Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 52,080

Int. Cl.³ F24J 3/02

U.S. Cl. 126—444 **3 Claims**



1. A flat plate solar collector comprising:

a tray formed from low heat conductivity, vacuum formed sheet material of sufficient thickness to form a structural element, said tray including a substantially planar floor portion, integral upstanding, flat wall portions, a flange rim integral with said wall portions and forming a first perimeter frame around said tray, said first perimeter frame including a first outwardly directed flange integral with said first upstanding rim and a second upstanding rim integral with said second outwardly directed flange;

a first pane of glass received in said first perimeter frame and a second pane of glass received in said second perimeter frame to minimize heat losses;

a plate of glass beaded foam insulating material positioned over said planar floor portion;

a layer of relatively thin heat conductive and solar radiation absorbing material positioned on said floor portion of said tray only in direct contact with said glass beaded foam insulating material, said layer being co-extensive with said plate and spaced from said wall portions, said heat conductive material comprising first and second sheets sandwiched together, said sheets having grooves formed therein to form a system of heat transfer fluid passages; and

means extending through said heat conductive material and said glass beaded foam material for securing thin heat conductive material.

4,278,075

PROCESS AND DEVICE FOR THE RECUPERATION OF HEAT FROM SELECTED RANGES OF THE SOLAR SPECTRUM

Werner Heierli, Olten, Switzerland, assignor to Heliotherm AG, Basel, Switzerland

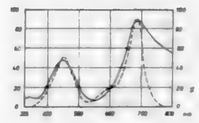
Filed Nov. 13, 1978, Ser. No. 959,877

Claims priority, application Switzerland, Nov. 18, 1977, 14219/77

Int. Cl.³ F24J 3/02

U.S. Cl. 126—445 **6 Claims**





1. Method for the recuperation of heat in a partial range of the solar radiation spectrum between 325 and 800 nm wavelength by means of a hollow body permeable to the radiation, through which a liquid is circulated that selectively absorbs radiation in the chosen partial range comprising adding liquid color pigments to the liquid in soluble form or fine dispersion, concentration and mixing ratio of said liquid color pigments adjusted as best as possible for the transmission range of a given spectral curve, said liquid color pigments selected from an organic red pigment such as Bordeaux red or from an inorganic red pigment such as a derivative of ferric oxide and/or from an organic green pigment such as a chlorophyll extract and/or from an organic blue pigment and/or from an organic violet pigment wherein a mixture of said liquid color pigments added to said liquid is composed of 1 part of an organic green pigment; 4 parts of an organic red pigment; and 2 parts of an organic blue pigment, wherein said liquid color pigments are adjusted to the transmission range of a spectral curve having relative maxima of 50% transmission at 450 nm and 90% transmission at 680 nm, coinciding with the light spectrum required for photosynthesis, so that those parts of the spectrum not

required for the photosynthesis of plants are absorbed, and further comprising the step of admixing to said liquid an anti-freezing medium which is of a non-corrosive character to said hollow body and is photometrically indifferent within said further partial range of permeability.

4,278,076

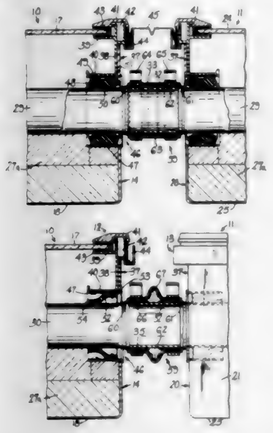
SOLAR COLLECTOR OF A LIQUID HEAT EXCHANGE TYPE

Thomas P. Hopper, Durham, Conn., assignor to Sunworks, Inc., Guilford, Conn.

Continuation of Ser. No. 883,393, Mar. 6, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,693

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—450 **9 Claims**



1. In a solar heat collector of the type comprising a housing with an absorber situated therein, said absorber having headers and heat exchange conduits therebetween, means defining a cylindrical passage having internal walls extending through an opening in said housing, said passage and said opening being of greater diameter than said header, a header extending through said passage and opening, and means for sealing the opening between said internal walls and said header comprising a resilient member having a first portion compressively engaging said internal walls, said member tapering to a second portion compressively engaging said header extending therethrough whereby said header may move laterally and longitudinally in said passage.

4,278,077

MEDICAL CAMERA SYSTEM

Morihide Mizumoto, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

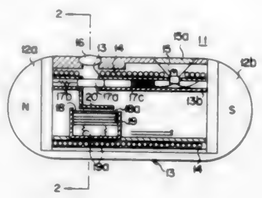
Filed Jul. 24, 1979, Ser. No. 60,008

Claims priority, application Japan, Jul. 27, 1978, 53/91768

Int. Cl.³ A61B *1/00*

U.S. Cl. 128—4 **8 Claims**

1. A medical camera system comprising a capsuleshaped miniature camera being received in a body cavity and a magnetic field generating device including electromagnet means disposed outside a body and a power supply unit for supplying an energizing current to the electromagnet means to permit the electromagnet means to generate a magnetic field, said miniature camera comprising an envelope provided with at least one permanent magnet, a coil disposed in the envelope for inducing an electromotive force from the magnetic field generated by the magnetic field generating device, illumination means provided in the envelope and excited by the electromotive force of the coil for illuminating an object, a shutter device operated by the electromotive force of said coil, a film box disposed in the envelope for containing films, and an optical system for focusing an image of the illuminated object on one of the films contained in the film box.



4,278,078

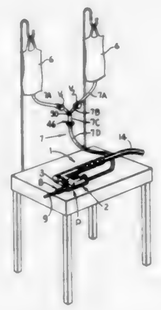
LAVAGE HANDPIECE

William E. Smith, Charleston Township, Kalamazoo Country, Mich., assignor to Stryker Corporation, Kalamazoo, Mich.

Filed Feb. 26, 1980, Ser. No. 124,893

Int. Cl.³ A61H *9/00*

U.S. Cl. 128—66 **10 Claims**



1. A manually manipulable pump unit for effecting a pulsating flow of liquid to a point of treatment in an operating or other surgically related room, the combination comprising:

a housing having an elongated opening therethrough for the reception therethrough of a resilient flexible tubing;

a hollow pedestal upstanding from said housing and a generally elongated tubular handle fixed to the upper end of said pedestal and having its centerline lying in a plane generally parallel with the centerline of the opening in said housing;

a rotary prime mover within said handle and link means within said pedestal driven by said motor for effecting reciprocal motion in a direction generally perpendicular to the centerline of said opening;

a plate within said opening engageable against tubing within said opening and caused to move toward and away from the opposite side of said opening by said link means in response to actuation of said motor;

whereby said tubing will be ultimately squeezed and released for effecting a pulsating flow through said tubing in the manner of a peristaltic pump.

4,278,079

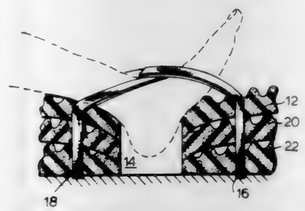
NEGATIVE HEEL PROTECTOR CUSHION

Orit Simhoni, 15455 NE. 6th Ave., North Miami, Fla. 33162, and Doana H. Silver, 42 Perimeter Center, NE., Suite 220, Atlanta, Ga. 30346

Filed Jul. 16, 1979, Ser. No. 57,599

Int. Cl.³ A61B *19/00;* **A61F** *5/30*

U.S. Cl. 128—149 **3 Claims**



1. A therapeutic support device to prevent or assist in the healing of decubitus ulceration on the heel of the foot comprising:

a resilient body, said resilient body formed from a plurality of individual, resilient foam layers, each layer disposed in a stacked array, each of said layers having a substantially central aperture sized to receive the heel area of a foot with sufficient spacing around the heel area so that the heel area does not contact the surrounding surface formed from the aperture disposed within each layer, the layer apertures being stacked to form a single substantially central aperture in said resilient body, each of said layers having first, second and third and fourth strap receiving apertures, said first and second strap receiving apertures being disposed centrally on one side of central aperture, and said third and fourth apertures being disposed essentially on the opposite side of said central aperture in each layer; and

a first strap connected through said first and second apertures in each of said layers and a second strap disposed through said third and fourth apertures in each of said layer, said first and second straps including an adjustable connecting means whereby the ends of said first, second, third and fourth strap can be removably connected to encircle the dorsal part of the foot when the heel is disposed within the central aperture.

4,278,080

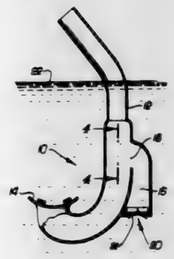
DIVING SNORKEL

Joseph N. Schuch, Scarsdale, N.Y., assignor to Under Sea Industries, Inc., Compton, Calif.

Filed Jan. 15, 1979, Ser. No. 3,509

Int. Cl.³ A62B *7/00*

U.S. Cl. 128—201.11 **5 Claims**



1. In a snorkel structure:

(a) means forming a main snorkel conduit having an unobstructed, unrestricted opening at the top for conducting ambient air to the snorkel conduit when the top of the snorkel conduit projects above the water surface and which allows water to enter when the top of the snorkel conduit is beneath the water surface;

(b) a mouthpiece at the bottom of the snorkel conduit;

(c) a bypass conduit having a first opening connected to the main snorkel conduit at a place spaced substantially from and above said mouthpiece along the snorkel conduit and located between the mouthpiece and the top of the snorkel conduit;

(d) said bypass conduit having a second opening spaced from said first opening located beneath said first opening automatically to drain excess trapped water from the projecting end of the snorkel upon resurfacing following a dive or other maneuver;

(e) a non-return purge valve located at said second opening to block flow of water into said bypass conduit and therethrough to said snorkel conduit; and

(f) said purge valve being located distant from said mouthpiece whereby a burst of purge air is applied to the water entrapped in the snorkel conduit to lift it out of the snorkel before air vents through the purge valve.

4,278,081

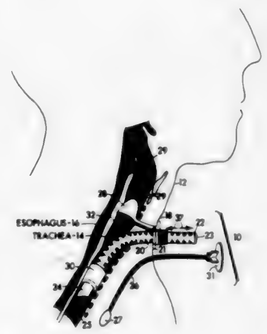
TRACHEAL TUBE

James W. Jones, 4108 James Dr., Metairie, La. 70003

Filed Feb. 21, 1978, Ser. No. 879,078

Int. Cl.³ A61M *16/00*

U.S. Cl. 128—207.15 **32 Claims**



1. A self-inflating and self-deflating tracheal tube apparatus comprising:

a. an elongated hollow tube, said tube having a proximal opening and a distal opening, there being provided a central air conveying bore of uniform unconstricted diameter through said tube from said proximal opening to said distal opening;

b. an inflatable cuff of generally tubular configuration, said cuff having a diameter larger than the diameter of the trachea into which the tube is inserted, said cuff being of a substantially thin flexible film material and further being secured to said tube adjacent the distal end thereof, said cuff being substantially sealed in a fluid-tight fashion to said tube; and

c. air flow control means cooperatively connecting said air conveying bore and said cuff for controlling the flow of air from said bore into said cuff, said means providing a lesser resistance to air flow into said cuff than the resistance of air flow within said air conveying bore, said control means comprising at least one opening connecting said bore and said cuff, said opening having a larger cross sectional area than the cross sectional area of said bore, the flow of air in said tube from said proximal opening to said distal opening so controlled producing a preferred inflation of said cuff, the flow of air in said tube from said

distal end to said proximal end causing said cuff to collapse; and

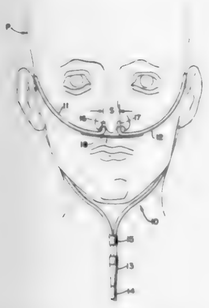
d. means fittable against said tube for restricting the flow of fluids within the trachea, a portion of said means placeable within the trachea above the point of placement of said elongated flexible hollow tube.

4,278,082

ADJUSTABLE NASAL CANNULA

Richard H. Blackmer, 109 Oakwood Dr., Scotia, N.Y. 12302

Filed May 11, 1979, Ser. No. 38,287
Int. Cl.³ A61M *15/08*
U.S. Cl. 128—207.18 **9 Claims**



1. A nasal cannula for delivering gas to a patient, comprising:

a pair of lengths of substantially continuous, constant diameter flexible tubes having opposite ends and means on one of their ends for connection to a supply of gas;

the other ends of the tubes terminating adjacent to one another and being normally curved at an angle relative to the lengths of tubes to define a pair of form-retaining narine tubes for insertion into the nares of a patient; and

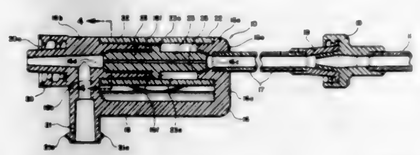
a formable bridge means comprising a length of shape-retaining wire-like material secured to said tubes at said other ends in spanning relationship thereto for holding the narine tubes in predetermined solid angular and spaced relationship relative to one another, said formable bridge means being easily formed to change the angular and spaced relationship between the narine tubes.

4,278,083

FLOW REGULATING DEVICE FOR ARTERIAL CATHETER SYSTEMS

James E. Young, 2080 E. 4675 South, Salt Lake City, Utah 84117; Ralph S. Walker, 9767 N. 6530 West, Highland, Utah 84003, and James R. Chidester, Rte. 1, Box 150 B, American Fork, Utah 84003

Continuation-in-part of Ser. No. 920,500, Jun. 29, 1578, Pat. No. 4,192,303. This application Jun. 7, 1979, Ser. No. 46,234
Int. Cl.³ A61M *5/00*; F16K *51/00*
U.S. Cl. 128—214 R **12 Claims**



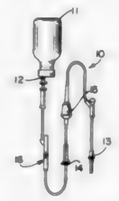
1. A flow regulating device which provides a continuous regulated flow of a medical fluid to an intravenous catheter system used in monitoring arterial functions and in the infusion of medical fluids to an artery or vein, and which also provides for an intermittent, manually controlled, larger flushing flow of fluid to the catheter system, said device comprising a control member having an inlet means adapted to be connected to a source of a medical fluid and an outlet means adapted to be connected to an intravenous catheter; a first passage connecting said inlet and outlet means for fluid communication therebetween, said first passage at least in part comprising a section of flexible conduit fitting coaxially over a cylindrical, hollow extension which extends from said outlet means to about the midsection of said flexible conduit; valve means comprising a substantially cylindrical plug member positioned coaxially within said flexible conduit and having a raised band around the plug member intermediate its ends, said band being positioned adjacent to the extending end of said cylindrical, hollow extension, said band also being of sufficient diameter to form a substantially flow tight seal with the interior wall of said flexible conduit when the flexible conduit is not being squeezed, so that fluid cannot flow around said plug member, and whereby when said flexible conduit is squeezed, it deforms to create the flow channels extending across the band on said plug member, so that said larger, flushing flow of fluid can flow around said plug member and through said first passage; and a second passage by-passing said valve said valve means and connecting said inlet and outlet means, said second passage containing flow restriction means which limits the flow of fluid therethrough, under a given pressure, to a desired amount.

4,278,084

NON AIR-BLOCKING FILTER

J. Lee Pope, Jr., Baltimore, Md., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Oct. 19, 1979, Ser. No. 86,462
Int. Cl.³ A61M *5/16*
U.S. Cl. 128—214 R **4 Claims**



1. A medical fluid filter assembly adapted to be suspended substantially vertically, in-line, in a medical fluid administration set, said assembly comprising:

an elongated housing defining an elongated chamber therewithin;

interior wall means extending from end to end within said chamber and dividing said chamber into a pair of adjacent elongated subchambers;

inlet opening means substantially at one end of said housing communicating with one of said subchambers;

outlet opening means substantially at the other end of said housing and communicating with the other of said subchambers;

said chamber being otherwise closed to the exterior;

said wall means comprising a hydrophobic filter membrane adjacent said one end of said chamber and a hydrophilic filter membrane adjacent said other end of chamber, whereby said filter assembly is position sensitive, such that when said filter assembly is suspended vertically in an administration set, said hydrophobic membrane is located above said hydrophilic membrane to permit the passage of entrained air bubbles and prevent blockage of the hydrophilic filter.

4,278,085

METHOD AND APPARATUS FOR METERED INFUSION OF FLUIDS

Norm Shim, Glenview, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Dec. 13, 1979, Ser. No. 103,041
Int. Cl.³ A61M *5/00*
U.S. Cl. 128—214 F **52 Claims**



1. In a flow system for infusing a fluid from a supply reservoir into the human body, having, in combination:

a length of flexible-walled tubing extending from the supply reservoir to the body, said tubing exhibiting incomplete restoration upon repeated compressive cycling thereof;

metering means continuously including at least one pressure means compressively engaged to the sidewall of said tubing for completely occluding the lumen thereof;

drive means for advancing the point of engagement of said pressure means along a segment of said tubing, the lumen of said tubing being repetitively and progressively compressed and restored along said segment to urge fluid through said tubing;

downline pressurization means for continuously at least partially restricting the lumen of said tubing downline of said tubing segment to increase the pressure of the fluid within said segment downline of said point of engagement; the improvement comprising:

upline pressurization means operatively engaging said tubing for increasing the pressure of said fluid in said segment upline of said point of engagement, the increase in pressure of said fluid at said point of engagement assisting in post-compressive reformation of said tubing for improved metering accuracy.

4,278,086

VARIABLE STOP SYRINGE

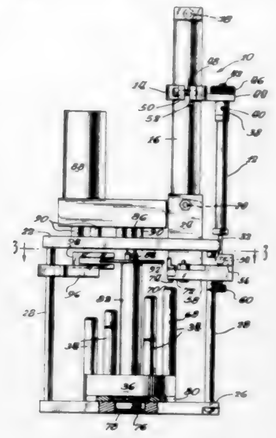
Bruce J. Hodgins, Hialeah; Ivan K. Saltz, Cooper City, and Guenter Ginsberg, Miami, all of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Jan. 28, 1980, Ser. No. 115,624
Int. Cl.³ A61M *3/00*
U.S. Cl. 128—224 **19 Claims**

1. A method of aspirating and dispensing one of a plurality of predetermined fluid volumes from a fluid supply comprising:

selecting one of the fluid volumes; moving a plunger stop corresponding to said selected fluid volume into a fully aspirated position;

driving a syringe plunger coupled to the fluid supply from a rest or fully dispensed position to the fully aspirated position defined by said plunger stop to aspirate said selected fluid volume; and



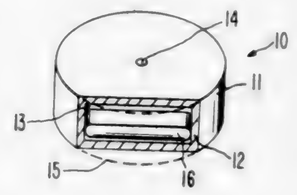
driving said plunger from the fully aspirated position to said fully dispensed position to dispense said selected fluid volume.

4,278,087

DEVICE WITH INTEGRATED OPERATIONS FOR CONTROLLING RELEASE OF AGENT

Felix Theeuwes, Los Altos, Calif., assignor to Alza Corporation, Palo Alto, Calif.

Filed Apr. 28, 1980, Ser. No. 144,211
Int. Cl.³ A61M *7/00*
U.S. Cl. 128—260 **9 Claims**



1. An osmotic device for delivering an agent to an environment of use, said device comprising:

(a) a shaped wall formed of a material that is permeable to the passage of an exterior fluid present in the environment of use, and substantially impermeable to the passage of agent, the wall surrounding and forming;

(b) a compartment;

(c) an osmotic system in the compartment, which system comprises a body formed of depots of agent osmotic solute dispersed in a polymer that is impermeable to the passage of solute and permeable to the passage of fluid, with the depots surrounded substantially individually by a layer of polymer;

and

(d) a passageway in the wall communicating with the compartment and the exterior of the device for delivering agent from the device to the environment of use.

4,278,088

BAG TAMPON CONTAINING DISCRETE PIECES OF ABSORBENT

William G. Reeves, Neenah, and Douglas C. Thomas, Appleton, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 22, 1979, Ser. No. 87,226
Int. Cl.³ A61F *13/20*
U.S. Cl. 128—270 **4 Claims**



1. A tampon comprising discrete pieces of a compressed, rigid dry-shape retaining absorbent paper-like matt primarily containing cellulosic fibers loosely dispersed in a fluid-permeable bag.

4,278,089

WOUND DRAINAGE DEVICE

Charles M. Huck, Oldwick; John E. Studer, Flemington, both of N.J., and Philip H. Sauer, Indian Rocks Beach, Fla., assignors to Howmedica, Inc., New York, N.Y.

Filed Nov. 9, 1978, Ser. No. 959,161
Int. Cl.³ A61M *1/00*
U.S. Cl. 128—278 **17 Claims**



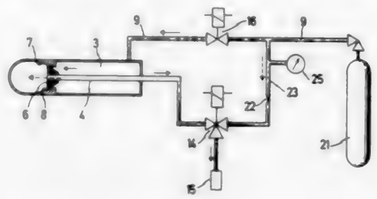
1. A device for removal of fluids from a wound comprising:
a. a housing having side walls and at least one end wall at one end thereof, said end wall having an opening;
b. an airtight and watertight passive bellows disposed within the housing, the passive bellows being collapsible and expandable and having an upper and a lower end;
c. means for communicating with the interior of the passive bellows;
d. means for maintaining the upper end of the passive bellows adjacent said end wall of the housing;
e. means for collapsing the passive bellows within the housing; and
f. constant force expansion means for automatically expanding the passive bellows from its collapsed state such that a substantially constant level of negative pressure is created within the passive bellows so as to provide for the removal of fluids from the wound at a substantially constant rate of suction throughout the range of evacuation, said expansion means including a constant force spring assembly being disposed outside the passive bellows and being secured to the housing and the passive bellows.

4,278,090

CRYOSURGICAL DEVICE

Hans van Gerven, Tübingen, Fed. Rep. of Germany, assignor to Erbe Elektromedizin KG, Tübingen, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 56,961
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831199
Int. Cl.³ A61B *17/36*
U.S. Cl. 128—303.1 **5 Claims**



1. Cryosurgical instrument with a probe for cooling limited zones of biological tissues, including a thermally conductive probe tip having a hollow inner chamber, into which a supply duct leads through a constricted exit gap, through which duct a gas is suppliable for cooling the tip, on the basis of the Joule-Thomson effect resulting from gas flow through the exit gap, a discharge duct having first and second ends, said first end communicating with said inner chamber and said second end being open to the atmosphere, said discharge duct extending within and coaxial with respect to said supply duct, said instrument having also a valve adjustable from the outside for control of the operating temperature of the probe tip, and further comprising the improvement which consists in that
said discharge duct (4) is displaceable in the axial direction relative to the supply duct (3) surrounding it, said first end of said axially movable discharge duct has a conical member arranged symmetrically around the axis of said discharge duct, with the base of said conical member facing in the direction of said inner chamber, the end of said supply duct adjoining said inner chamber having a conically tapered inner wall arranged symmetrically around the axis of the supply duct, said tapered inner wall being narrowed in the direction away from said inner chamber and said gap being formed between the edge of the base of said conical member and said inner wall of said supply duct, the size of said gap being adjustable by moving said discharge duct axially with respect to said supply duct,
said conical member and said tapered inner wall being sized and positioned such that when said duct is moved axially in the direction away from said inner chamber, the edge of the base of said conical member will ultimately come in contact with the tapered inner wall of said supply duct, and
said tapered inner wall narrows more strongly than the taper of said conical member.

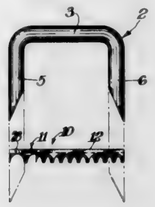
4,278,091

SOFT TISSUE RETAINER FOR USE WITH BONE IMPLANTS, ESPECIALLY BONE STAPLES

Rocco R. Borzone, Emerson, N.J., assignor to Howmedica, Inc., New York, N.Y.

Filed Feb. 1, 1980, Ser. No. 117,685
Int. Cl.³ A61B *17/04, 17/08*
U.S. Cl. 128—334 C **12 Claims**

1. In combination
a bone staple comprising a transverse portion and a plurality of legs integral with said transverse portion, said legs being substantially parallel, and
a tissue retention element separable from said staple and comprising a base having an upper face and a lower face, means receiving said legs so that said retention element can slide upon said legs to a limiting position in which said upper face abuts said transverse portion, and a multiplicity of teeth distributed upon and extending from said lower face,
said teeth being capable of piercing adjacent soft tissue when said staple is driven into the bone structure of a patient, whereby said retention element holds said soft tissue in place relative to said bone structure.

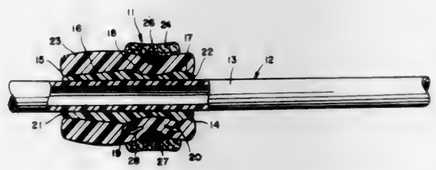


4,278,092

PERITONEAL CATHETER

Alexander S. Borsanyi, Corona del Mar, Calif.; Peter Ivanovich, Wilmette, Ill., and Urte Vaughan, Denver, Colo., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Jul. 5, 1979, Ser. No. 54,709
Int. Cl.³ A61M *25/00*
U.S. Cl. 128—348 **12 Claims**



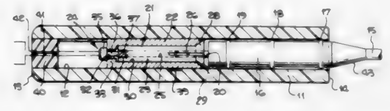
1. A peritoneal catheter including a tube section and a retainer section, said tube section comprising an elongated flexible plastic tube for delivering and withdrawing dialysate and a relatively rigid tubular plug permanently secured to and extending about an intermediate portion of said tube, said plug having tapered longitudinal surfaces adjacent the ends thereof and having an annular recess between said tapered surfaces, said retainer section comprising a resilient sleeve having a bore for sealingly and releasably receiving said plug and having a porous resilient tissue ingrowth ring secured to the outer surface of said sleeve, whereby, following a term of implantation of said catheter, said tube section may be removed from a patient for cleaning or replacement without necessitating removal of said retainer section and without disturbing the ingrowth of tissue into said ring.

4,278,093

INTERCHANGEABLE PACEMAKER CONNECTOR FOR LEADS

Ray Lafortune, Chatsworth, and Waldemar Heeb, Sepulveda, both of Calif., assignors to American Technology, Inc., Northridge, Calif.

Continuation-in-part of Ser. No. 693,943, Jun. 8, 1976, abandoned. This application Apr. 8, 1977, Ser. No. 785,928
Int. Cl.² A61N *1/36*
U.S. Cl. 128—419 P **13 Claims**



1. In a cardiac pacemaker having an electric operating mechanism encapsulated in a case and a bore having opposite ends extending to the exterior of the case, the combination of an electric lead connecting fixture comprising a sleeve adapted to be anchored in said bore intermediate the opposite ends and electrically connected to said operating mechanism, said sleeve having an axial recess with an open end and an end wall at the opposite end, a flared portion in the recess, an opening through the end wall with internal threads, a collet comprising a shank with a sliding fit in said recess, a flared portion on said collet complementary to said flared portion in the recess, and a pocket in said shank for reception of an electric lead, said flared portion of the collet and a portion of the shank having slots providing for relative gripping movement, a hole at the end of the shank adjacent said end wall of the recess having internal threads matching the internal threads of the opening in the sleeve, and a captive collet draw screw comprising a shaft with a head at one end, a free end of said shaft having external threads complementary to said internal threads of the sleeve and the collet and a nonthreaded portion between the head and the external threads longer than the length of the internal threads in said sleeve and of diameter less than the minor diameter of said internal threads whereby said screw is rotatably retained in said sleeve, said collet being releasable and removable for replacement with a collet having a pocket of different inside configuration for reception of an electric lead of corresponding different configuration.

4,278,094

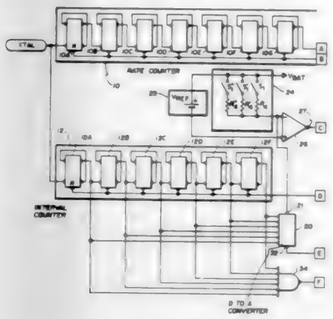
PACEMAKER WITH PULSE WIDTH ADJUSTMENT CIRCUITRY

Don W. Zobel, Mesa, Ariz., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Oct. 10, 1979, Ser. No. 83,374
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 PG **6 Claims**

1. In an electromedical pulse generator used to stimulate a selected portion of an animal body, said generator of the type having terminal means adapted for connection to an electrical lead and having power source means and electrical pulse generating means electrically connected to the power source means for supplying output pulses at a predetermined rate to the terminal means, each pulse having a predetermined nominal pulse width and a predetermined pulse energy, the improvement comprising:
(a) timing means for providing a digital output signal having a value proportional to the elapsed time following generation of the leading edge of an output pulse;
(b) digital to analog converter means connected to said timing means for receiving said digital output signal therefrom and to said power source means to provide an analog output signal representative of said digital output signal which increases with time at a rate inversely proportional to the voltage of said power source; and

(c) comparator means connected to receive the analog output signal from said digital to analog converter means,



said comparator means constructed and arranged for providing a signal to terminate said output pulse when said analog output signal reaches a predetermined level.

4,278,095

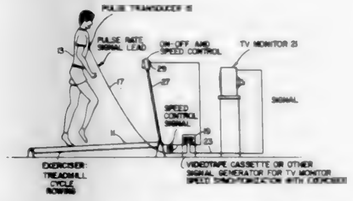
EXERCISE MONITOR SYSTEM AND METHOD

Pierre A. Lapeyre, P.O. Box 430, Houma, La. 70360

Continuation of Ser. No. 831,666, Sep. 12, 1977, abandoned. This application Jun. 5, 1979, Ser. No. 45,627

Int. Cl.³ A61B *5/04*

U.S. Cl. 128—689 **2 Claims**



1. A user controlled exercise monitoring system for user selection of an exercise program within a programmed heartbeat range comprising the combination:

(a) a movable variable speed exerciser powered exercise mechanism movable at a variably controlled speed selectable by the physical activity of an exercising user in an aerobic type exercise program,

(b) a variable speed visible display system providing a scene observable by the user while powering said mechanism to produce a movable pattern related to the aerobic exercise and movable at a variable speed controlled by said exercise mechanism,

(c) manually actuated speed control means accessible to the exerciser for changing the speed of the movable pattern while powering said mechanism connecting the mechanism to the display for variably controlling at the command of the user the relative speed of said movable pattern with respect to the exercise mechanism,

(d) and heartbeat detection means including a sensor for operably coupling to the exercising user and conversion equipment for displaying continuously the heartbeat pulse rate of the exerciser user on said visible display as an auxiliary display visible along with said scene with an alarm indication when the pulse rate departs from a specified target zone, thereby to permit the user at his option by control of his exercise speed to maintain a vigorous exercise program over a sustained time period while observing whether the pulse rate is within said target zone.

4,278,096

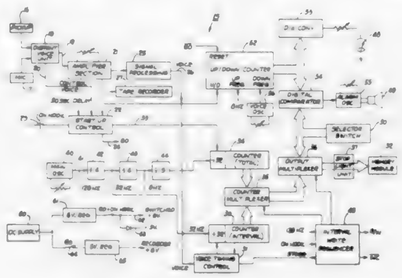
CORONARY ARTERY DISEASE DIAGNOSIS METHOD

Ernest H. Friedman, 1831 Forest Hills Blvd., Cleveland, Ohio 44112; Charles M. Flammer, Brighton, Mass.; Daniel A. Baker, St. Joseph, Mich., and Spiro Vamvakas, Rocky River, Ohio, assignors to Ernest H. Friedman, East Cleveland, Ohio

Continuation-in-part of Ser. No. 851,285, Nov. 14, 1977, Pat. No. 4,156,423. This application May 2, 1979, Ser. No. 35,394

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—695 **8 Claims**



1. The method of diagnosis of the existence of clinical coronary artery disease in a human subject, comprising the steps of:

having the subject utter oral speech,

obtaining from said speech a determination of the hesitation pauses of absence of vocal sounds within the speech uttered by the subject which pauses are in excess of a given time interval in the order of one second of time,

determining the number of such pauses in a period of time of speech of the subject, and

indicating the existence of clinical coronary artery disease where the rate of such pauses is in excess of a value in the order of two pauses per minute.

4,278,097

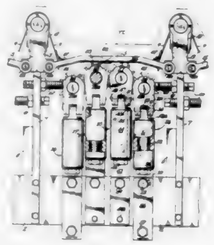
HUSKING MACHINE

Ronald L. Anderson, 1698 Best La., Eugene, Oreg. 97401, and Harry T. Kessler, Jr., 4460 Mill, Eugene, Oreg. 97405

Filed Dec. 4, 1979, Ser. No. 100,247

Int. Cl.³ A01F *7/02*

U.S. Cl. 130—5 D **7 Claims**



1. A husking machine for removing an exterior portion of produce articles and comprising,

a frame,

processing lanes having husking rolls with irregular surfaces and arranged in inclined juxtaposed pairs with each pair having a main and a secondary roll in interengagement with one another, said rolls having corresponding onloading and offloading ends with the onloading ends elevated relative to said offloading ends, the main and secondary roll of each pair driven so as to cause their uppermost surfaces to move toward one another to jointly act on the produce articles, the main rolls of each pair in close juxtaposition to one another, the main rolls of said juxtaposed pairs driven so as to cause their uppermost surfaces to move away from one another so as to move produce articles deposited thereon toward their respective secondary rolls, the produce articles discharged from the offloading ends of the rolls after passage downward therealong,

power transmission means in driving engagement with said rolls,

each of said husking rolls having shaft ends, and

bearing assemblies on said frame each including a bearing receiving a roll shaft end, said bearing assemblies further including a pin having a horizontal axis transverse to the roll axis and about which said bearing may move.

4,278,098

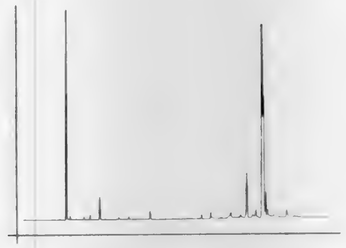
2,6,6-TRIMETHYL-α-(ISO)PROPENYL-1-CYCLOHEXENE-1-METHANOLS AND -1,3-CYCLOHEXADIENE-1-METHANOLS AND ORGANOLEPTIC USES THEREOF

Richard A. Wilson, Westfield; William L. Schreiber, Jackson; Braja D. Mookherjee, Holmdel, all of N.J.; Jacob Kiwala, Brooklyn, N.Y.; Joaquin F. Vinals, Red Bank, N.J.; Manfred H. Vock, Locust, N.J.; Gilbert Stork, Englewood, N.J., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

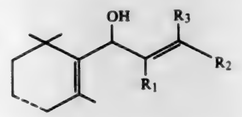
Division of Ser. No. 39,361, May 15, 1979, Pat. No. 4,243,823. This application Feb. 8, 1980, Ser. No. 119,858

Int. Cl.³ A24B *3/12, 15/36*

U.S. Cl. 131—276 **3 Claims**



1. A flavored smoking tobacco comprising smoking tobacco and intimately admixed therewith an organoleptic property augmenting or enhancing quantity of at least one compound defined according to the structure:



wherein one of R_1, R_2 or R_3 is methyl and the other two of R_1, R_2 and R_3 is hydrogen; wherein the dashed line represents a carbon-carbon double bond or a carbon-carbon single bond with the proviso that when R_1 is hydrogen, the dashed line represents a carbon-carbon double bond.

4,278,099

SMOKING DEVICE

Evan Jacobsen, 231 S. Lombard, Oak Park, Ill. 60302

Filed Nov. 30, 1979, Ser. No. 98,744

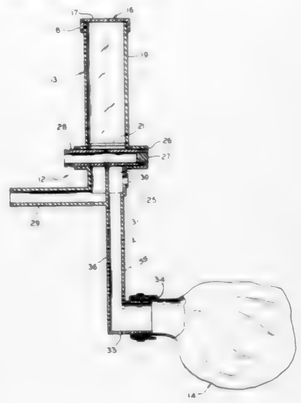
Int. Cl.³ A24F *3/00, 47/00*

U.S. Cl. 131—178 **11 Claims**

1. An improved smoking device comprising smoking material container receiving means,

a viewing compartment juxtaposed to said smoking material container receiving means for receiving smoke from burning, smoking material within said smoking material container receiving means,

stem means for directing air through said smoking material container receiving means to force smoke from said container to said viewing chamber,



storage bag means for storing the smoke after viewing and prior to inhaling, and

connecting means for connecting said viewing compartment to said storage bag means.

4,278,100

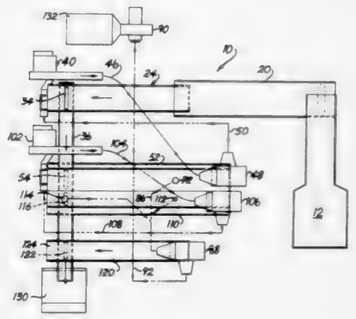
METHOD AND APPARATUS FOR SEPARATING TOBACCO FROM REJECTED CIGARETTES

Richard E. Thatcher, Chesterfield, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Continuation of Ser. No. 953,859, Oct. 23, 1978, abandoned. This application Sep. 5, 1979, Ser. No. 72,646

Int. Cl.³ A24C *5/36*

U.S. Cl. 131—196 **8 Claims**



1. A method for separating shredded cigarette tobacco filler from the wrappings of formed cigarettes to recover such tobacco for further useful processing, said method comprising

subjecting the cigarettes to a ripping operation to break up said cigarettes and rip the wrappings thereof an thereby loosen the tobacco therein,

depositing the cigarettes on a vibrating screen unit sized to pass tobacco shreds therethrough but to retain the wrappings and tobacco therein while flowing two air streams in generally horizontally disposed courses from opposite ends of the screening unit, to maintain an aerodynamically

induced suction lift condition over said screening unit to float the wrapping materials a distance above the surface of said screening unit, the said two streams having a point of merger intermediate said ends from whence said streams flow vertically codirectionally upwardly to carry off wrapping materials entrained therein, and

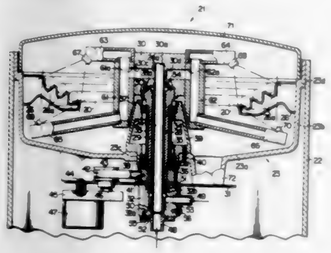
collecting the tobacco passing through said screening unit.

4,278,101

APPARATUS FOR CLEANING ENDOSCOPE

Masahiro Tanaka, Tokyo, and Katunaga Konoshima, Hachioji, both of Japan, assignors to Olympus Optical Co., Ltd., Japan

Filed Aug. 29, 1979, Ser. No. 70,620
Claims priority, application Japan, Nov. 27, 1978, 53-146300
Int. Cl.³ B08B *3/02*
U.S. Cl. 134—167 C **8 Claims**



1. An apparatus for cleaning an endoscope, said apparatus comprising:

a rinse vessel adapted to receive a portion of an endoscope to be cleaned, said rinse vessel having a center and an outer wall;

support means in said rinse vessel defining a conical support plane around said center of said rinse vessel, said support means being for supporting one or more endoscope portions in said conical support plane;

first and second spray heads; said first spray head being disposed in said rinse vessel relatively near said center of said rinse vessel as compared with said second spray head and second spray head being disposed in said rinse vessel relatively near said outer wall as compared with said first spray head; said first spray head including means for spraying the endoscope portion in a first direction generally perpendicular to said conical support plane when the endoscope portion is supported in said support plane, and said second spray head including means for spraying the endoscope portion in a second direction generally perpendicular to said conical support plane when the endoscope portion is supported in said support plane, said first and second directions being directly opposite to each other;

means for feeding liquid to said spray heads; and

drive means for rotating said spray heads about said center of said rinse vessel and said spray heads rotating in respective parallel planes with respect to which said support plane is inclined.

4,278,102

DISASTER ACTIVATED SHUT-OFF VALVE

Charles H. Kelley, 12023 Rock Crest Rd.; Jimmie W. Crane, 11936 Rock Crest Rd., and Albert D. Ray, 12140 Rock Crest Rd., all of Lakeside, Calif. 92040

Filed Mar. 19, 1979, Ser. No. 22,050
Int. Cl.³ F16K *17/36*
U.S. Cl. 137—39 **5 Claims**

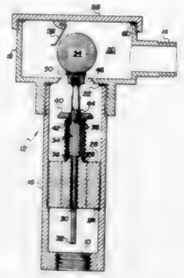
1. A vibration shut-off valve comprising:

(a) a valve body defining a gas flow passageway;

(b) a valve seat disposed in said passageway;

(c) a valve movable between a seated and an unseated position and having means biasing same into a seated position to block said passageway;

(d) a pedestal mounted in said body for limited vertical movement and including a mechanical linkage between said pedestal and said valve head to hold said valve head in said open position when said pedestal is depressed; and



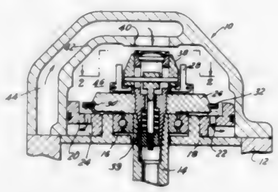
(e) a weight ball balanced on said pedestal within said flow passageway depressing said pedestal to maintain said valve head unseated and capable of being dislodged from said pedestal either by an inordinant surge of gas flow within said passageway by virtue of the disposition of said ball in said flow passageway, or by the vibration of an earthquake, to free said valve head to move into said seat, thus blocking gas flow in said low passageway.

4,278,103

OVERSPEED CONTROL MEANS FOR PNEUMATIC TOOLS

David A. Giardino, Deerfield, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.

Filed Jan. 7, 1980, Ser. No. 109,775
Int. Cl.³ F01C *21/12*
U.S. Cl. 137—50 **6 Claims**



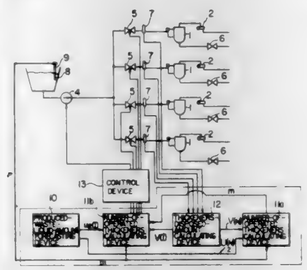
1. An overspeed control means for a pneumatic tool including a valve seat arranged to separate chambers of the tool exposed to pneumatic medium used for motivation of the tool, said valve seat being formed with a plurality of openings allowing flow of pneumatic medium from one chamber to the other chamber, a cage member affixed to a rotor shaft of the tool for rotation therewith, and a plate valve carried by the cage member, said plate valve being arranged to be released from the cage member upon development of a predetermined rotor shaft rotational speed, said plate valve upon release from the cage member being movable to cover said openings to restrict flow of pneumatic medium between the chambers causing termination of shaft rotation, said plate valve being in the form of a flat ring which has a gap allowing radial expansion of the valve.

4,278,104

SYSTEM FOR CONTROLLING THE NUMBER OF WASTE LIQUID DISPOSAL UNITS IN OPERATION

Hiroshi Yajima, Kawasaki; Norihisa Komoda, Yokohama, and Susumu Horiuchi, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 29, 1978, Ser. No. 937,854
Claims priority, application Japan, Sep. 9, 1977, 52-107813
Int. Cl.³ G21F *9/08*
U.S. Cl. 137—118 **3 Claims**



1. A system for controlling the number of waste liquid disposal units in operation, comprising a plurality of the waste liquid disposal units, first means for temporarily storing the waste liquid to be supplied to said waste liquid disposal units, second means for supplying said waste liquid from said waste liquid storage means to said waste liquid disposal units, third means for measuring the amount of waste liquid U_1 stored in said storage means at the present time, fourth means for forecasting the amount of waste liquid $U_2(I)$ flowing into said storage means for the period of time from the present time to each of a plurality of given time points I wherein $I \leqq N$ where N is a predetermined maximum period of time, fifth means for calculating the amount of waste liquid V(I) capable of being disposed of by the presently-operated waste liquid disposal units for the period of time from the present time to each of the given time points I, sixth means for calculating the maximum number m of the disposal units which simultaneously satisfies the following inequality for all of the points I satisfying the relation $0<I<N$,

$$U_1+U_2(I) \geqq V(I)+mV'(I)$$

where V'(I) is the amount of waste liquid processed by each one of said waste liquid disposal units for the period of time from the present time to each of the given time points I, and seventh means for controlling the operation of said plurality of said waste liquid disposal units according to the output of said sixth means.

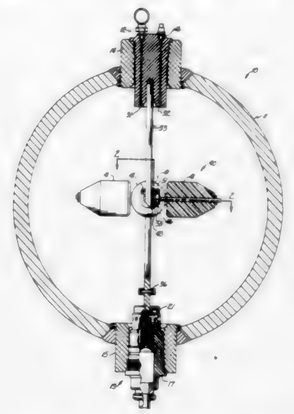
4,278,105

SPHERICAL ACCUMULATOR WITH BUOYANT FLOAT

Paul C. Koomey, Houston, Tex., assignor to Koomey, Inc., Houston, Tex.

Filed Feb. 4, 1980, Ser. No. 118,467
Int. Cl.³ B67D *5/54;* **F16K** *51/00*
U.S. Cl. 137—207 **6 Claims**

1. In a guided-float accumulator comprising a vessel in the shape of a cylinder or sphere adapted to contain high fluid pressures, mouth means for the vessel including at least a fill mouth at the bottom of the vessel, fluid outlet means associated with closure means for the fill mouth for connection of the vessel and its contents to a hydraulic system such as used in an oil well blowout preventer, a normally open shut-off valve associated with the fill mouth in series with the fluid outlet means, and float means movable in the vessel along a vertical guide member according to the liquid level within the vessel to thereby close off the shut-off valve and prevent the escape of pressurized gas from the vessel into the hydraulic system proper when the liquid level within the vessel becomes low, the fluid outlet means and shut-off valve being removable from the association with the fill mouth to open the fill mouth when the system is shut down for repair, the improvement which comprises provision of the float means as a float array comprising a plurality of float elements supported on collar means surrounding the vertical guide member, said float elements being sequentially removable and insertable through said mouth means for the vessel, said collar means and vertical



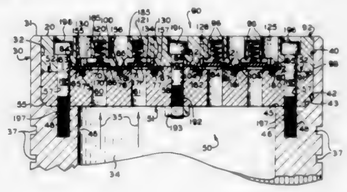
guide member also being removable and insertable through said mouth means, interlock means associated with said collar means and each of said float elements for deploying said float elements as a generally horizontal array radiating from said collar means, said interlock means being manipulatable from the exterior of said vessel through said mouth means to couple said interlock means following insertion of one or more of said float elements and said collar means and vertical guide member, and to uncouple said interlock means for removal and replacement of one or more of said float elements.

4,278,106

PLATE CHECK VALVE

William W. Cunningham, P.O. Box 425, Exeter, Calif. 93221

Filed Sep. 20, 1979, Ser. No. 77,161
Int. Cl.³ F16K *15/08*
U.S. Cl. 137—512.1 **16 Claims**



1. A repairable check valve for refrigeration systems and the like comprising:

A. a housing having a plurality of flat concentric annular faces radially separated by annular spaces through which exhaust ports extend;

B. flat annular seats individually removably fitted against the faces in radially spaced relation to define annular passages therebetween in communication with the ports;

C. flat annular valve plates individual to the annular passages marginally overlapping the seats which define their respective annular passages for movement between posi-

tions in sealing engagement with their respective seats and positions retracted therefrom; and

D. a cage releasably connected to the housing and therewith defining a chamber containing the faces, seats, and plates and the cage providing passages communicating with the annular passages between the seats when the plates are retracted.

4,278,107

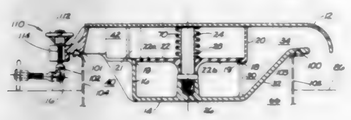
AUTOMATIC VACUUM RELIEF VALVE FOR HOPPER CARS

Richard H. Dugge, St. Louis, and Arnold Schlobohm, Ballwin, both of Mo., assignors to ACF Industries, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 932,796, Aug. 11, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 137,690

Int. Cl.³ F16K *15/02, 45/00*

U.S. Cl. 137—526 **21 Claims**



1. An automatic vacuum relief valve assembly comprising: a top cover plate closing an opening in a container to the atmosphere; a vacuum relief valve mounted horizontally and spaced below said top cover plate; means biasing said valve into closed position engaging a valve seat located below said top cover plate and below said valve; said valve in said closed position closing communication between the inside of the container and the outside atmosphere, and in open position allowing communication between the container and the outside atmosphere; a plurality of first passageways providing fluid communication between the lower surface of the valve and the outside atmosphere; a plurality of second passageways spaced from said first passageways providing fluid communication between the inside of the container and the upper surface of said valve when said valve is in closed position; said first and second passageways being located below said top cover plate; the cross sectional area of said first passageways throughout their length being substantially at least equal to the cross sectional area of said valve and the cross sectional area of said second passageways through their length being at least equal to the cross sectional area of said valve; whereby when the pressure inside the container becomes less than atmospheric pressure, atmospheric pressure will cause the valve to move upwardly away from its seat and allow air to enter the container and whereby when the pressure in the atmosphere and in the tank are substantially equalized, the valve will return to the seated position; and whereby for a given available valve cross sectional area the volume of air flow into the container from the atmosphere is maximized for a given pressure drop from the atmosphere into the container.

4,278,108

CONTROL MECHANISM FOR TWO CUT-OFF DEVICES MOUNTED IN SERIES

Severin Casacci, Corenc, France, assignor to Neyrpic, Corenc, France

Filed Mar. 10, 1980, Ser. No. 128,561

Int. Cl.³ F16K *5/20, 31/12*

U.S. Cl. 137—613 **5 Claims**

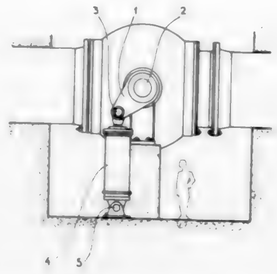
1. A hydraulic valve assembly, particularly for use in a high-drop hydraulic turbine installation, said valve comprising:

dual rotary valves arranged in tandem, said valves each having a casing which is rigidly interconnected with the casing of the other of the valves in series flow relationship;

a rotary valve member within each casing;

a journal associated with the valve member of each valve and which extends diametrically through the casing and terminates at at least one of its ends exteriorly of the casing;

an operating lever rigidly attached at one end to said one exteriorly extending end of each of said journals;



a hydraulic jack journalled at one of its ends to the other end of each of said operating levers; and

a member carried by the other valve casing of each of said valves and which provides a support for an opposite end of each of said hydraulic jacks.

4,278,109

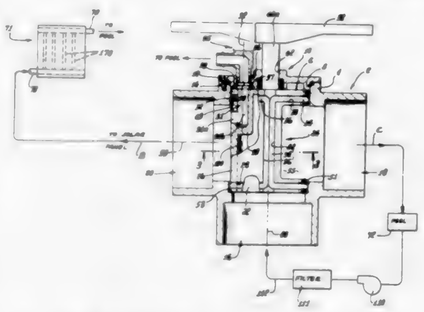
THREE PORT VALVE WITH DRAIN PASSAGE

Robert Ortega, Rancho Mirage, Calif., assignor to Purex Corporation, Lakewood, Calif.

Filed Jan. 28, 1980, Ser. No. 116,033

Int. Cl.³ F16K *11/085*

U.S. Cl. 137—625.47 **6 Claims**



1. In a valve that includes:

(a) a valve body having a cavity, and first, second and third openings communicating with said cavity,

(b) a rotary valve member in said cavity, said valve member having a generally cylindrical exterior surface and an internal hollow with an end opening in alignment with said first opening,

(c) the valve member having a side opening positioned at substantially a right angle with respect to said end opening, the valve member being rotatable to bring the side opening into or out of alignment with said second opening or said third opening so as to establish flow communication between the first and second openings, or between the first and third openings, via said end and side openings in the valve member,

(d) the valve body having an additional opening and located generally in alignment with said first opening,

(e) there being a removable closure member on the valve body and extending over said additional opening, and means for rotating the valve member, said means extending through the closure member, the improvement comprising

(f) a drain passage having a first portion in the closure and a second portion in the rotary valve member, said portions being brought into endwise communication when the side opening in the rotary valve member is in alignment with one of said second and third openings.

4,278,110

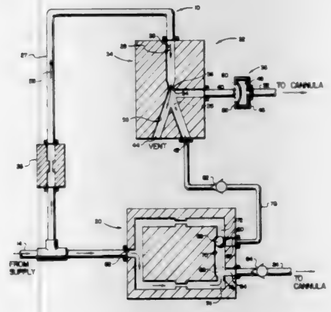
DEMAND RESPONSIVE FLOW CONTROLLER

Ernest H. Price, 1266 Pepper Dr., El Centro, Calif. 92243, and Douglas C. Howard, 3004 Stratford Dr., Chesapeake, Va. 23321

Filed Nov. 13, 1979, Ser. No. 93,919

Int. Cl.³ F15C *1/12*

U.S. Cl. 137—805 **5 Claims**



1. For use in a respiration system for the administration of oxygen from a supply conduit through a delivery conduit and cannula to a patient, a demand responsive flow controller comprising, in combination:

a flow restrictor adapted to be coupled to the supply conduit for conducting a control power stream;

an on/off fluidic valve having an inlet port adapted to be coupled to the supply conduit, an outlet port adapted to be coupled to the delivery conduit, and a valve control port for closing and opening a fluid flow path between said inlet and outlet ports in response to the application and removal of the control power stream to and from the valve control port, respectively;

a fluidic switch having an inlet port coupled to the output of the flow restrictor, a gate control port for receiving a respiration signal, a discharge port coupled to said valve control port through which the control power stream is conducted only in response to a respiration signal at said control port corresponding with expiration, and a vent port communicating to atmosphere through which the power stream is conducted only in response to a respiration signal at said control port corresponding with inspiration; and,

a fluidic transducer adapted to be coupled in fluid communication with the cannula and and including means in movable engagement with the gate control port of the fluidic switch for producing the respiration signals by opening and closing said gate control port to ambient pressure in response to cannula pressure fluctuations corresponding with inspiration and expiration, respectively.

4,278,111

APPARATUS FOR MANUFACTURING A WOVEN SLIDE FASTENER STRINGER

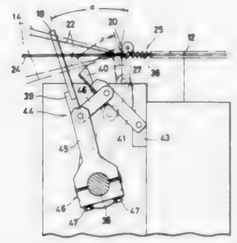
Kihei Takahashi; Seiko Terada, both of Uozu, and Masaatsu Oofusa, Kurobe, all of Japan, assignors to Yoshida Kogyo, K.K., Tokyo, Japan

Filed Oct. 25, 1979, Ser. No. 87,980

Claims priority, application Japan, Oct. 31, 1978, 53-134924

Int. Cl.³ D03D *49/68*

U.S. Cl. 139—35 **4 Claims**



1. An apparatus for manufacturing a slide fastener stringer including a woven stringer tape and a coiled fastener element woven into the stringer tape along a longitudinal edge thereof, said apparatus comprising:

(a) means for weaving the stringer tape of warp threads and a weft thread, said weaving means including means for forming a shed of the warp threads, means for inserting the weft thread through the warp shed, and first reed means including a shaft rockable through a predetermined angle and a first beating member mounted on said shaft for beating the weft thread in the warp shed against the fell of the tape;

(b) a mandrel for extending substantially along the warp threads, said mandrel having a portion to be located adjacent to the fell of the stringer tape being woven,

(c) means for coiling a monofilament on a conical orbital path around said mandrel to form the coiled fastener element to be woven into the stringer tape by the weft thread;

(d) second reed means including a second beating member pivotably between a beat-up position and a retracted position for beating successive coupling heads of the coiled fastener element one after another against a point which is in alignment with the fell of the stringer tape; and

(e) connecting means comprising a rocking arm mounted on said shaft of said first reed means and a link connected at opposite ends to said rocking arm and said second beating member for synchronizing the beating action of said second reed means with that of said first reed means.

4,278,112

YARN FEEDER

Kihei Takahashi, Uozu, Japan, assignor to Yoshida Kogyo, K.K., Tokyo, Japan

Filed Jul. 17, 1979, Ser. No. 58,252

Claims priority, application Japan, Jul. 18, 1978, 53-87980

Int. Cl.³ D03D *47/36*

U.S. Cl. 139—452 **13 Claims**

1. A yarn feeder comprising:

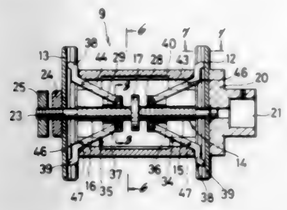
(a) a pair of spaced plates substantially parallel to each other;

(b) a single spindle between said plates rotatably supported on said plates and including a pair of externally threaded portions having opposite thread directions, each of said plates having a plurality of guide slots extending radially of said spindle and angularly spaced from each other, the guide slots in said plates being arranged in axially aligned pairs;

(c) a pair of threaded carriages carried on said spindle hav-

ing respective threads engaging a corresponding one of said pair of threaded portions, respectively, and simultaneously movable toward and away from each other in response to rotation of said spindle;

(d) a plurality of bars extending axially along and disposed radially around said spindle equidistantly spaced in a circumferential direction, each of said bars having a pair



of end portions slidably received respectively in the guide slots in a corresponding one of said axially aligned pairs; and

(e) a pair of link means each operatively connected between one of said carriages and said bars for moving said bars longitudinally parallel to said spindle and radially outwardly from and inwardly toward said spindle in response to rotation of said spindle.

4,278,113

METHOD AND APPARATUS FOR DISTRIBUTING A DISINTEGRATED MATERIAL ONTO A LAYER FORMING SURFACE

Torsten B. Persson, Maarslet, Denmark, assignor to Scan-Web i/s, Risskov, Denmark

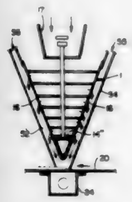
Continuation-in-part of Ser. No. 862,035, Dec. 19, 1977, Pat. No. 4,157,724, which is a continuation of Ser. No. 717,384, Aug. 24, 1976, abandoned. This application Dec. 20, 1978, Ser. No. 971,360

Claims priority, application United Kingdom, Aug. 27, 1975, 35429/75; Sep. 18, 1978, 37205/78

The portion of the term of this patent subsequent to Jun. 12, 1996, has been disclaimed.

Int. Cl.³ B65B *1/14, 1/16*

U.S. Cl. 141—1 **39 Claims**



1. Apparatus for depositing and distributing loose fibers or particles onto a surface of a moving carrier web comprising:

(a) supply means for supplying a flow of fiber or particle laden air;

(b) air separator means for receiving said fiber or particle laden air and separating the air from fibers or particles contained therein, said air separator means having air discharge means and separated fiber or particle discharge means;

(c) a housing having inlet means and outlet means for said fibers or particles, said inlet being in communication with said separated fiber or particle discharge means;

(d) a moving carrier web having a surface positioned adjacent the outlet end of said housing;

(e) screen means within said housing between said inlet and outlet means, at least part of said screen means being arranged so as to extend in a manner which is transverse and non-parallel with respect to the surface of the moving carrier web;

(f) agitator means within said housing for creating a flow of said particles or fibers about an axis extending in a plane that extends normal to said surface and parallel to a direction of movement of said carrier web, and for directing said particles or fibers outwardly against and through said screen means; and

(g) means for directing particles or fibers passing through said screen means to said moving carrier web whereby said particles or fibers are deposited in a layer upon said moving carrier web.

4,278,114

KITCHEN APPLIANCE FOR STORING PERISHABLE GOODS

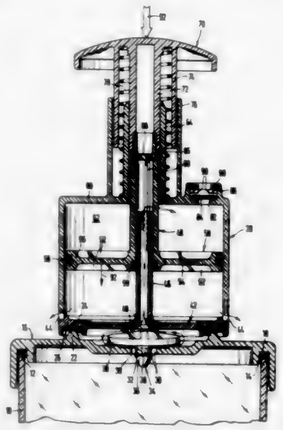
Richardt E. Ruberg, St. Gallen, Switzerland, assignor to Zyliss Zysset AG, Lyss, Switzerland

Filed May 14, 1979, Ser. No. 38,806

Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821852

Int. Cl.³ B65B *31/04*

U.S. Cl. 141—65 **10 Claims**



1. A kitchen appliance comprising

at least one container for perishable goods,

a container lid sealingly connected with said container and provided with a check valve only permitting air flow out of the container, and

a manually operable suction piston pump sealingly engageable with said lid,

wherein the lid has an annular sealing rib embracing said check valve and adapted to engage an elastic sealing ring at the pump, and

wherein the pump is designed such that a suction stroke acting upon its piston enhances the engagement between said sealing ring and said lid rib, the pump having a suction chamber adjacent the piston and progressively increasing in size in response to the suction stroke to draw air from the container, and the pump having a check valve connected with the suction chamber and only permitting expulsion of air to the ambient from the suction chamber.

4,278,115

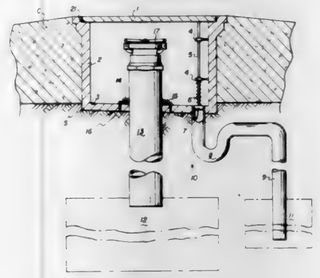
DEVICE FOR CAPTURING AND RETAINING SPILT FLUIDS

Wallace E. Briles, 309 Yoakum Pkwy., Apt. 506, Alexandria, Va. 22304, and Robert W. Dubin, 11508 E. Maple Ave., Beltsville, Md. 20705

Filed Aug. 6, 1979, Ser. No. 63,747

Int. Cl.³ B65B *3/06*

U.S. Cl. 141—86 **9 Claims**



1. A device for capturing and retaining fluid spilled while filling a main storage tank having a fill pipe comprising, in combination, a manhole including a floor having an opening and a side wall defining an interior, said manhole having an open upper end for access to said manhole interior, said fill pipe extending upwardly from said main storage tank into said manhole interior through said floor opening for access through said manhole open end, means for sealing the intersection between said fill pipe and said manhole floor opening, said sealing means being adapted to permit relative movement between said fill pipe and said manhole floor, a holding tank, a drain pipe having a lower end communicating with said holding tank and an upper end opening into said manhole floor whereby fluid spilt onto said manhole floor during the filling of said main storage tank flows into said drain pipe upper end, down said drain pipe and into said holding tank.

4,278,116

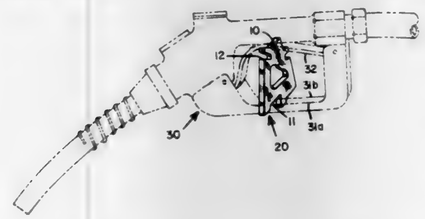
PORTABLE LATCH FOR GASOLINE NOZZLES

Gerald R. Opp, 1231 Hewitt Ave., St. Paul, Minn. 55104

Filed Sep. 20, 1979, Ser. No. 77,318

Int. Cl.³ B65B *3/04;* **B67C** *3/00*

U.S. Cl. 141—392 **3 Claims**



1. A portable gasoline dispensing nozzle trigger latching device adapted for controlling gasoline flow delivery rate in one or more predetermined positions, comprising a member having a recessed portion along a bottom edge for seating against a gasoline dispensing nozzle frame and having a top edge shaped for seating against a gasoline dispensing nozzle trigger to hold said trigger in a first predetermined position, said member having a first side edge notched a predetermined distance away from said top edge, said side notch sized to accept said gasoline dispensing nozzle trigger and to hold said trigger in a second predetermined position.

4,278,117

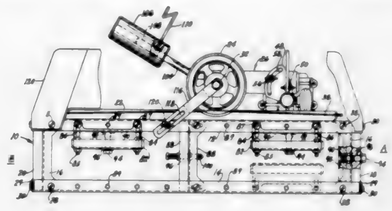
THREE DIMENSIONAL DUPLICATING CARVING MACHINE

Richard L. Mitchell, Florissant; Richard B. Brundage, Ladue, both of Mo., and Donald L. Blachly, Excelsior Township, Sauk County, Wis., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Sep. 10, 1979, Ser. No. 73,744

Int. Cl.³ B27C *5/00*

U.S. Cl. 144—144 R **10 Claims**



1. A three-dimensional carving machine comprising; a frame having an upper horizontal surface, a horizontal shaft movable perpendicular to its axis along said surface, an elongated, rigid, box-like carriage having flat vertical sidewalls extending perpendicular to said shaft, said shaft passing through apertures in said sidewalls near one end of said carriage and said carriage being freely rotatable on and freely slidable along said shaft, a pair of flat plates lying against said flat carriage sidewalls on opposite sides of said carriage and near the other end thereof, a router mounting bracket lying against one of said plates at one side of said carriage, a router mounted in said bracket, a first bolt passing through apertures in said mounting bracket, said plates and said carriage sidewalls and having a nut thereon which when tightened holds said mounting bracket and said plates against said carriage sidewalls and prevents rotation thereof on said first bolt, said plates each having an arcuate slot therein with its center of curvature on said axis of said first bolt, a second bolt passing through said arcuate slots and through apertures in said carriage sidewalls and having a nut thereon which when tightened additionally holds said plates against said sidewalls, said mounting bracket and said plates each further including a portion thereof extending radially from the axis of said first bolt outwardly beyond said carriage sidewalls, a rod fixed at one end in said portion of said mounting bracket and extending therefrom parallel with said first and second bolts and through apertures in said portions of said plates, and a stylus mounted on the other end of said rod whereby said rod and said stylus may be swung in an arc about the axis of said first bolt limited by the length of said arcuate slots when said nuts on said first and second bolts are loosened.

4,278,118

LOG SPLITTER FOR GARDEN TRACTORS

Dennis L. Larson, 8547 Hyde Ave. South, Cottage Grove, Minn. 55016

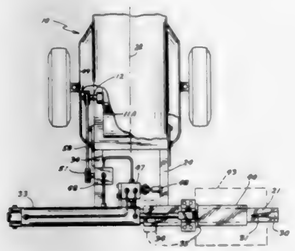
Continuation of Ser. No. 914,667, Jun. 9, 1978, abandoned. This application Jul. 5, 1979, Ser. No. 54,802

Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 A **4 Claims**

1. A self contained log section splitter attachment for a self propelled garden tractor having a tractor support frame extending in fore and aft direction with wheel means for supporting said tractor frame and an engine for normally powering the garden tractor, and including a power take off means, said attachment being mountable and removable from a garden tractor as a unit and comprising a generally horizontal elongated main frame member, support means comprising a pair of spaced plates fixed to the main frame member, said plates being positioned on opposite sides of a tractor support frame on which the attachment is mounted and attached thereto, said

support means mounting said main frame in position extending transverse to the fore and aft direction of said garden tractor support frame and to the direction of normal movement of the garden tractor, said support means positioning the main frame so that the ends of the main frame extend laterally beyond both sides of the garden tractor, a splitting wedge fixedly mounted adjacent a first end of said main frame member, hydraulic cylinder means mounted on said generally horizontal main frame member on an opposite end thereof from said splitting wedge, said hydraulic cylinder means including a movable portion operable under hydraulic pressure and movable toward and away from said splitting wedge, plate means on the upper side of the main frame member forming a support for log sections to be split between said splitting wedge and said hydraulic cylinder means, said plate means forming a support comprising a plate having side edge portions extending out-



wardly beyond the side edges of other portions of said main frame member on both sides thereof, the side edge portions of said plate means forming guide members extending in direction of movement of said movable portion of said hydraulic cylinder means, said movable portion having guideway receiving members slidably mounted over and guided by the side edge portions of said plate means, means mounted in the center portion of said main frame member between the sides of a garden tractor on which it is mounted comprising a hydraulic valve and hydraulic pump operable to operate said hydraulic cylinder to force a log section on the support means against said cutting wedge, means forming a hydraulic fluid reservoir carried by said support means for connection to the hydraulic pump and valve, and drive means operable between the power take off of a garden tractor on which the log section splitter attachment is mounted and said hydraulic pump to drive said pump.

4,278,119

STORAGE MEANS FOR REMOVABLE TIPS FOR HAND TOOL

Charles E. Elmore, Clarkson, Ky., assignor to Vermont American Corporation, Louisville, Ky.

Filed Jan. 7, 1980, Ser. No. 109,831
Int. Cl.³ B25G *1/08*
U.S. Cl. 145—62 **7 Claims**

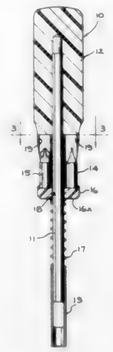
1. In combination with a hand tool including a shaft having on one of its two opposite ends a handle and on the other of its two opposite ends socket means for selectively receiving and holding a removable tool tip, improved means for storing a plurality of removable tool tips, comprising:

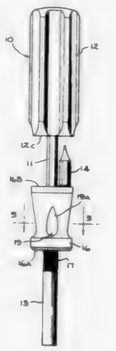
(a) a generally cylindrical storage member having a bore along its long central axis that is mounted on the tool shaft for slideable movement between the tool handle and socket means,

(b) said storage member also having a first surface that faces said socket means and is engaged by yieldable means that encircles the tool shaft and extends between and is compressed between said first surface and the socket means,

(c) said storage member further having a second surface opposite from said first surface that is provided with openings into a plurality of chambers which are radially and angularly spaced apart around said bore and are aligned generally parallel to the long central axis of the tool shaft,

(d) said chambers each having a width and depth sufficient to slideably receive and store any tool tip intended to be removably received and held by the socket means, and





(e) said chambers each extending toward said first surface of said storage member from one of said openings in said second surface thereof, with said second surface being yieldably urged away from the socket means and into engagement with a generally complementary surface of the tool handle by said yieldable means.

4,278,120

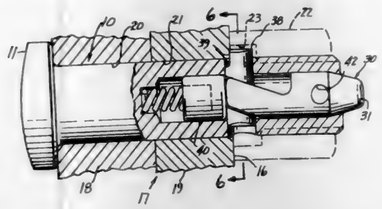
SAFETY BOLT

Dale H. Hart, Seal Beach, and Josef F. Volkmann, Torrance, both of Calif., assignors to Hi Shear Corporation, Torrance, Calif.

Filed Oct. 5, 1978, Ser. No. 948,662
Int. Cl.³ F16B *39/32*
U.S. Cl. 411—190 **13 Claims**

1. A safety bolt comprising: an element having a shank with an axis, the element having a first end and a second end, an axial passage opening onto one of said ends, and a laterally-extending passage in the shank and intersecting the axial passage; a dog in said laterally-extending passage slidably movable between an extended and a retracted position, whereby the dog extends beyond the maximum diameter of the shank in the extended position and retracts entirely within said shank in the retracted position, thereby being adapted to abut the back side of a workpiece into which the shank is inserted; a non-rotatable cam member axially movable in said axial passage and reactive with said dog to retract and to extend the same; bias means

biasing the cam member in its direction which forces the dog toward its extended position, the dog when extended while the shank is fully inserted in the workpiece preventing the removal of the bolt from the workpiece; a retraction attachment which when attached into said open end of said axial passage axially



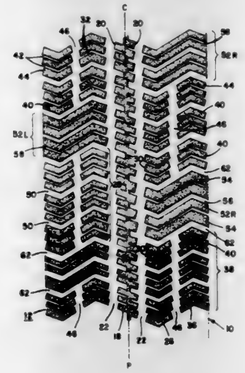
presses the cam member against the dog in axial opposition to the force of said bias means to cause the dog to retract; and attachment means removably to hold the retraction attachment to said safety bolt in said attached condition, said retraction attachment being completely separable from the assembly of said element, dog and cam member.

4,278,121

ALL-SEASON PNEUMATIC TIRE TREAD

Peter McDonald, Hudson, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Nov. 23, 1979, Ser. No. 96,967
Int. Cl.³ B60C *11/06, 11/08*
U.S. Cl. 152—209 R **17 Claims**



1. A tread for a pneumatic tire comprising:

(a) a circumferentially extending central rib;

(b) an intermediate intermittent and an outer intermittent but circumferentially extending rib on each side of said central rib, said intermediate rib being placed so as to provide two continuous circumferentially extending grooves, one on each side of said central rib;

(c) a plurality of laterally continuous cleats placed in circumferentially spaced relation about the tire transversely outward of said central rib and extending laterally outward to the closest respective tread edge, said circumferentially spaced relation of said lateral cleats being such that at least two laterally spaced cleats are in contact with the road surface during every footprint of said tire;

(d) said lateral cleats and intermittent ribs being so placed as to provide a lateral slot adjacent to each of said lateral cleats extending from each of said circumferential grooves laterally outward to the closest respective tread edge;

(e) said intermediate and outer ribs being so placed as to provide a discontinuous partly-circumferentially extending groove therebetween, said latter groove being in communication with said lateral slots adjacent said cleats; and

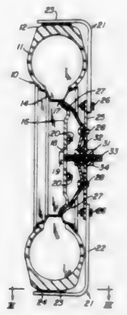
(f) each of said intermittent ribs having circumferentially spaced portions including multiple segments, said segments being so circumferentially spaced as to provide a plurality of lateral slots extending from each of said circumferentially extending grooves transversely outward to the closest respective tread edge.

4,278,122

TRACTION DEVICE FOR A VEHICLE WHEEL

Ernest Vagias, 265 Prospect St., Baden, Pa. 15005

Filed Dec. 3, 1979, Ser. No. 99,781
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—225 C **9 Claims**



1. A traction device for a vehicle wheel assembly which includes a tire with a treadwall portion supported by a rim having spoke portions with spoke openings therebetween and a hub section removably supported by a vehicle axle member, said traction device comprising a plurality of traction arms each having a shank portion carrying an angularly-projecting traction finger for extending transversely to the treadwall portion of said tire, a carrier plate to support the shank portion of said traction arms while extending radially along the side of said rim outwardly from said hub section, a plurality of support arms supported by said carrier plate to extend radially therefrom so that a rim-engaging portion at one end of each support arm projects into said spoke openings, and actuator means between said carrier plate and the vehicle axle member to force said support arms together with said carrier plate into a position where the rim-engaging portion of each support arm engages against said rim within the spoke hole portions thereof, said actuator means being arranged so that the reaction force to the support force developed by the support arms on the rim is applied to said vehicle axle member.

4,278,123

SIMPLIFIED FOUNDRY CORE MAKING MACHINE AND METHOD

Harold R. Goss, Richmond Heights, and Edward J. Rebish, Euclid, both of Ohio, assignors to Acme-Cleveland Corporation, Highland Heights, Ohio

Filed Mar. 12, 1979, Ser. No. 19,424
Int. Cl.³ B22C *13/12, 17/10*
U.S. Cl. 164—28 **17 Claims**

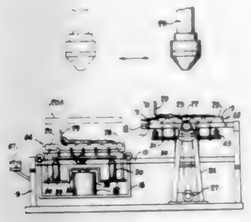
1. The method of making a foundry core in a machine having first and second core boxes, the first core box being pivotally supported on a frame with a vent plate on the side of the pivotable support opposite to the first core box, the first core box being pivotable between first and third stations, and the second core box being movable by booking means into a second station vertically below the first station,

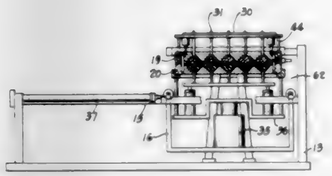
comprising the steps of:

filling the first and second core boxes with a binder-containing hardenable molding mix,

moving the second core box upwardly in the second station by the booking means to press the mix therein against the vent plate and form a vent groove into a surface of the second core box mix,

at least partially hardening the binder in the molding mix in at least the first core box,





inverting the vent plate and first core box to move the first core box from the third to the first station to have the first core box face downwardly,

applying an adhesive on at least one surface between the two core box mixes,

moving the second core box upwardly in the second station by the booking means to adhere together the two core box mixes, and

ejecting the completed core from a core box in one of said first and second stations.

4,278,124

METHOD OF PRODUCING HOLLOW STEEL INGOT AND APPARATUS THEREFOR

Kazuo Aso, Okayama; Takesaburo Nishioka, Tokyo; Takemi Yamamoto; Naomichi Miyai, and Jun-ichi Matsuno, all of Okayama, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

Filed Mar. 26, 1979, Ser. No. 23,892

Claims priority, application Japan, Apr. 11, 1978, 53-42410; Sep. 25, 1978, 53-118376

Int. Cl.³ B22D *27/04*

U.S. Cl. 164—125 **8 Claims**

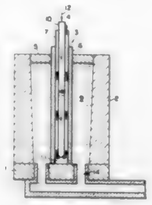
1. A method of producing hollow steel ingots comprising the steps of:

disposing a cylindrical core in a central portion of a cast iron mold installed on a stool wherein said core comprises a first steel pipe disposed in the central portion of said mold, a second steel pipe is disposed within said first steel pipe and concentrically therewith, a cylinder of granular refractory material filling up the space formed between said first and second steel pipes and a third steel pipe further disposed within said second steel pipe and concentrically therewith;

feeding molten steel from below into said mold; and

cooling the inner surface of said core with a gas stream descending into said third pipe from above and ascending inside the second pipe such that the finally solidifying position of the molten steel fed is set at a position which is apart from said core at a distance of 20% to 50% the wall thickness of said steel ingot.

5. A casting apparatus for producing a hollow steel ingot comprising a cast iron mold installed on a stool, a cylindrical core disposed in the central portion of said mold and pouring gates formed through the stool for feeding molten steel at intermediate portions between the inner wall of said mold and the core, wherein said apparatus further comprises: a first steel



pipe disposed in the central portion of said mold; a second steel pipe disposed within said first steel pipe and concentrically therewith; said core made of granular refractory material filled up in a space formed between said first and second steel pipes; a third steel pipe further disposed within said second steel pipe and concentrically therewith; and a gas flow course for cooling the core descending into said third steel pipe from above and then ascending inside said second pipe.

4,278,125

SYSTEM FOR HANDLING PATTERN DEVICES IN A MOLDING PLANT FOR THE PRODUCTION OF MOLD HALVES IN MOLD BOXES

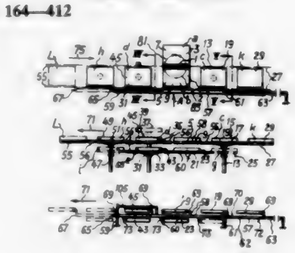
Erwin Bühler, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland

Filed Nov. 14, 1979, Ser. No. 94,115

Claims priority, application Switzerland, Nov. 15, 1978, 11715/78

Int. Cl.³ B22C *25/00*

U.S. Cl. 164—412 **7 Claims**



1. A system for handling pattern devices in molding apparatus for producing mold halves in mold boxes comprising: a rotatable transfer device including a pair of diametrically opposed tables which are periodically shifted between a waiting position and an operating position; and conveyor track means including a portion thereof defined by one of said pair of tables which is in said waiting position; said conveyor track means being formed to define a closed circulation path extending toward opposite sides of said table in said waiting position; said conveyor track means comprise a first and a second conveyor track, wherein said second conveyor track operates to convey said pattern devices in a direction opposite to the direction of said first conveyor track, wherein said second conveyor track contains said table at said waiting position, and wherein said system further includes at least two transfer devices which

connect said first and said second conveyor tracks with each other.

4,278,126

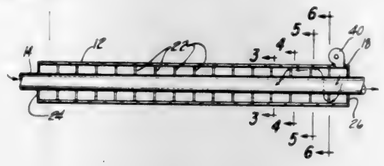
HEAT EXCHANGER FOR FURNACE FLUE

Frank M. Skrzypek, 50682 Bower Dr., New Baltimore, Mich. 48047

Filed May 5, 1980, Ser. No. 146,475

Int. Cl.³ F28D *7/10*

U.S. Cl. 165—122 **9 Claims**



1. A heat exchanger for recapturing and recirculating heat usually lost from a furnace flue, said heat exchanger comprising:

an elongated tubular housing including opposed end walls with an aperture in each end wall dimensioned to receive the furnace flue therethrough, and having an inlet near one end and an outlet near its other end, said housing defining a flow chamber surrounding said flue;

first means for producing an air flow axially through said chamber from said inlet to said outlet;

second means for directing the air flow about the flue, within the chamber as the air flow passes through said chamber; and

wherein said second means comprises a plurality of axially spaced plates extending transversely across said chamber, each of said plates having at least one eccentrically aligned aperture, said at least one aperture of each plate being arcuately displaced by an amount substantially less than 180° and in a predetermined direction of rotation with respect to said at least one aperture of its adjacent upstream plate whereby said air flows through said housing in a substantially helical path around the flue.

4,278,127

APPARATUS FOR RETRIEVING DRILL COLLARS

E. Edward Rankin, Wellheads Ind. Centre Unit D-14, Aberdeen (Dyce), Scotland AB2 OEZ

Filed Feb. 23, 1979, Ser. No. 14,899

Int. Cl.³ F42B *3/00*; E21B *29/00*

U.S. Cl. 166—63 **3 Claims**

1. In combination with an earth boring drill string having drill pipe secured above a number of drill collars, the drill collars having a greater wall thickness than the drill pipe, a sub adapted to be secured between sections of drill collars, comprising:

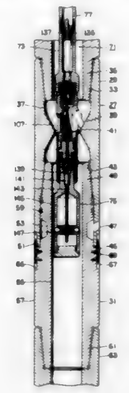
a cylindrical first member adapted to have a first end secured to one of the drill collars and having a set of internal threads located between the first end and a second end; and

a cylindrical second member having a set of external threads on a first end adapted to engage the internal threads of the first member, and a second end adapted to be secured to another drill collar, the second member having an external annular shoulder spaced from the external threads that contacts the second end of the first member when fully made up;

the second member having an annular band located between the external shoulder and the external threads that is of wall thickness sufficiently thin for enabling a radial explosive charge capable of parting drill pipe to be lowered on a wire line adjacent the annular band and initiated to part the drill string at the annular band, allowing the drill collars located above the parted sub to be retrieved; and

a port formed in the first member adjacent the annular band for fluid circulation should perforation of the annular band be desired.

3. A method of retrieving drill collars located in an earth boring drill string above a stuck point, the drill collars being tubular members having greater wall thickness than the wall thickness of the drill pipe, the method comprising:



providing a hollow sub with an annular band of reduced wall thickness capable of being parted by a radial explosive lowered on wireline;

mounting the sub between two of the drill collars as the drill collars are being lowered into the well;

after the drill string has become stuck, lowering on wireline the radial explosive through the drill collars and into the sub adjacent the annular band; and

firing the radial explosive and applying tension to the drill string to part the sub at the annular band, retrieving the drill collars located above the sub.

4,278,128

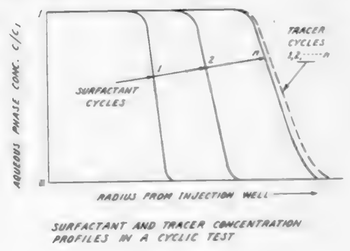
PETROLEUM RECOVERY CHEMICAL RETENTION PREDICTION TECHNIQUE

Abdus Satter; Richard H. Widmyer; Yick M. Shum, all of Houston, and Curtis E. Howard, Porter, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,964

Int. Cl.³ E21B *47/00, 49/00*

U.S. Cl. 166—250 **9 Claims**



SURFACTANT AND TRACER CONCENTRATION PROFILES IN A CYCLIC TEST

1. A method for determining the amount of a chemical that is retained within a core undergoing a chemical flooding operation comprising:

(a) conducting a first injection-soak-production cycle in a

core with a volume of a fluid which comprises the retained chemical and a non-retained tracer material;

(b) obtaining from a produced fluids concentration profile of the tracer the core volume contacted and a dispersion parameter describing the dispersion effects for a non-retained material within the core;

(c) obtaining retention parameters for the retained chemical by history-matching the actual produced fluids concentration profile of the retained chemical with a simulated produced fluids concentration profile of the retained chemical for this cycle obtained from a chemical flood mathematical model of the core;

(d) simulating within the chemical flood mathematical model at least one more injection-soak-production cycle in the well utilizing a fluid of the same volume and comprising the same concentration of the retained chemical as in step (a) until such time as the simulated produced fluid concentration profile of the chemical is essentially the same as the actual produced fluid concentration profile of tracer from step (a);

(e) determining the amount of chemical retained within the contacted core volume by summing the amount of the chemical retained in step (a) and the amounts of the chemical retained in the simulated cycles of step (d); and

(f) determining the amount of the chemical that is retained per unit volume by those portions of the core undergoing the chemical flood by dividing the summed amount of chemical retained in step (e) by the core volume contacted in the cyclic test from step (a).

4,278,129

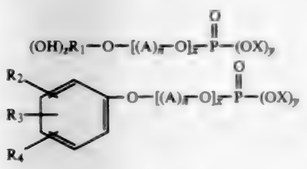
STIMULATION OF OIL AND GAS WELLS WITH PHOSPHATE ESTER SURFACTANTS

William B. Walton, Cleburne, Tex., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed May 30, 1980, Ser. No. 154,651
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—263 **10 Claims**

1. A method of treating oil- and gas-bearing subterranean formations to improve permeability thereof and increase or restore production of oil or gas comprising introducing into said formation through a producing means in fluid communication with said oil- or gas-bearing subterranean formation, a treating fluid comprising:

(A) an aqueous solution of about 5 to about 50 weight percent of an alkyl or aralkyl polyoxyalkylene phosphate ester surfactant having the formulas:



(I)

(II)

wherein R_1 represents an alkyl radical containing from 10 to 18 carbon atoms, R_2 represents an alkyl radical of about 5 to about 27 carbon atoms or a cycloalkyl radical and radicals derived from mineral oils containing alkyl, cycloalkyl and mixed alkyl-cycloalkyl radicals having from about 12 to 27 carbon atoms, R_3 and R_4 represent either hydrogen or alkyl of from about 1 to 22 carbon atoms and the higher alkyls defined by R_1 and cycloalkyls defined by R_2 or radicals derived from mineral oils; A represents the residue of ethylene oxide, ethylene oxide and tetrahydrofuran, or mixed lower alkylene oxides selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, alone or including tetrahydrofuran, wherein the total molecular weight of said ester is about 500 to about 1500, and wherein A can be heteric or block in molecular configuration; n represents the degree of oxyalkylation; x and y are 1 or 2, the sum of x and y is 3 and z is an integer of 0 to 5; X is hydrogen or a monovalent cation selected from at least one of the group consisting of an alkali metal, and ammonium; and thereafter,

(B) injecting a hydrocarbon into the pore space adjacent to the well bore in amounts sufficient to displace the aqueous solution of said phosphate ester out into the formation,

(C) retaining said aqueous solution of said phosphate ester and said hydrocarbon within said formation for a period of not less than 24 hours and

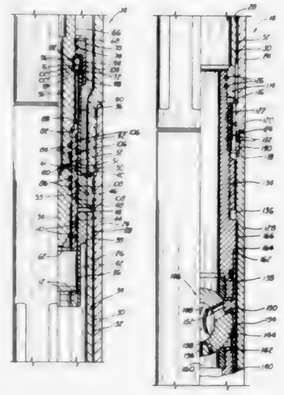
(D) thereafter, pumping and/or displacing said aqueous solution of said phosphate ester and said hydrocarbon from said formation into the well bore by injecting water into said formation by an injection means in fluid communication with said oil-bearing or gas-bearing subterranean formation to produce the desired oil or gas through said producing means.

4,278,130

ACCESS VALVE FOR DRILL STEM TESTING

Robert T. Evans, and Richard L. Giroux, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Oct. 17, 1979, Ser. No. 85,597
Int. Cl.³ E21B *33/12, 49/00*
U.S. Cl. 166—332 **19 Claims**



1. An access valve apparatus for communicating a sensing device with a subsurface formation of a well, said apparatus comprising:

a cylindrical valve casing having a cylindrical inner surface and having an upper end connected to a pipe string;

a cylindrical valve body disposed concentrically within said cylindrical inner surface of said valve casing and held in place relative to said valve casing;

first passage means for communicating said subsurface formation of a well with an inner bore of said valve body;

a valve sleeve having a cylindrical outer surface slidably received within said inner bore of said valve body and having a port disposed therethrough connecting said cylindrical outer surface of said valve sleeve with a cylindrical inner surface of said valve sleeve, said valve sleeve being slidable between a closed position wherein said port is isolated from said first passage means and an open position wherein said port is in fluid communication with said first passage means;

a probe nose member having a cylindrical outer surface adapted for sliding insertion within said cylindrical inner surface of said valve sleeve, said probe nose member including a chamber for receiving said sensing device and a second passage means for communicating said chamber with said port of said valve sleeve; and

a bypass means, disposed radially outward from said inner bore of said valve body, for allowing fluid from said subsurface formation to bypass said valve body, valve sleeve and probe nose member and flow upward through said pipe string to a top of said well;

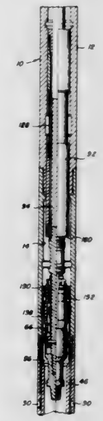
wherein said valve body, first passage means, valve sleeve, probe nose member and bypass means provide a means for communicating said sensing device with said subsurface formation during both shut in and open flow conditions of said well.

4,278,131

PORT APPARATUS FOR WELL PIPING

William Jani, #2 3401-19 St. NE., Calgary, Canada T2E 6S8

Filed Nov. 13, 1979, Ser. No. 93,535
Int. Cl.³ E21B *43/00*
U.S. Cl. 166—332 **26 Claims**



5. An opening tool for use with a well piping port valve, the port valve having a sleeve valve mounted in longitudinally slideable engagement with the bore of an outer housing, the sleeve valve having at least two longitudinal positions and at least one member by which the sleeve valve is engaged for moving the sleeve valve from one of its longitudinal positions to another, the opening tool comprising:

a mandrel housing positionable in the bore of the outer housing and having means for engaging the bore of the outer housing for locating said mandrel housing in a fixed longitudinal position relative to the port valve and preventing longitudinal movement of said mandrel housing toward the port valve during operation of the opening tool;

a mandrel telescopically mounted in said mandrel housing and adapted for longitudinal travel relative to said mandrel housing between an extended position generally extended from said mandrel housing and a retracted position generally within said mandrel housing;

means mounted on said mandrel for attaching said mandrel to a sleeve valve engagement member when said attaching means is adjacent a sleeve valve engagement member, the distance of said mandrel housing from the sleeve valve being such that said attaching means is adjacent a sleeve valve engagement member when said mandrel is substantially at said extended position; and,

means for detaching said mandrel from the sleeve valve engagement member to which said mandrel is attached when said mandrel is substantially at said retracted position;

the point on the travel of said mandrel at which said attaching means attaches a sleeve valve engagement member and said mandrel and the point on the travel of said mandrel at which said detaching means detaches the engagement member and said mandrel defining a distance equal to the longitudinal distance between the longitudinal positions of the sleeve valve;

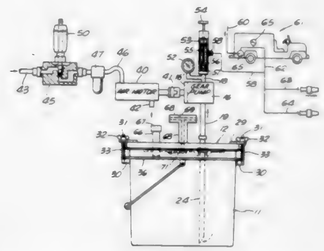
whereby, when the sleeve valve is in a first longitudinal position and said mandrel is extended, said attaching means attaches a sleeve valve engagement member and said mandrel acts to move the sleeve valve from its first longitudinal position to a second longitudinal position.

4,278,132

PROPORTIONING APPARATUS

Morgan D. Hostetter, 2442 James Ave., West Covina, Calif. 91791

Filed May 21, 1979, Ser. No. 40,646
Int. Cl.³ A62C *35/00*
U.S. Cl. 169—13 **24 Claims**



14. That improvement in self-powered mobile fire fighting unit of the type having a motor-driven water pump and a power driven source of pressurized air thereon which improvement comprises:

fluid proportioning means for introducing a fire fighting agent from a non-pressurized container into pressurized water being pumped by said water pump at a regulatable pressure substantially higher than the discharge pressure of said water pump, said fluid proportioning means including positive displacement pump means having an inlet connected to said non-pressurized container and an outlet connected to pressurized water flowing through the outlet of said water pump and including manually adjustable back-flow preventer means on the discharge side of said positive displacement pump means operable to open when the pressure of said fire fighting agent has been increased to any of a range of values greater than the water pressure at the outlet of said water pump and air motor means driving said positive displacement pump independently of the operation of said water pump by pressurized air from said source of pressurized air on said mobile fire fighting unit.

4,278,133

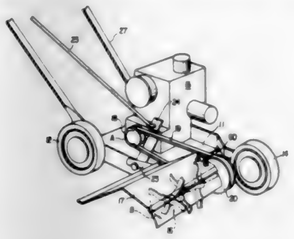
ATTACHMENTS FOR LAWN EDGERS

Roland de Marcellus, 151 Riviera Dr., Riviera Beach, Fla. 33404

Filed Jul. 3, 1978, Ser. No. 921,719
Int. Cl.³ A01B *33/02, 35/28*
U.S. Cl. 172—14 **11 Claims**

1. A wheeled power tool for home yard work and the like, comprising a chassis, a motor supported by said chassis, two rear wheels spaced transversely of the chassis and mounted on either side of said chassis, a drive shaft supported by said chassis at the front thereof on a substantially horizontal axis oriented transversely of said chassis, a multitined rotor having an elongate support shaft coupled at one end to said drive shaft, a plurality of tines affixed to said elongate shaft and spaced axially therealong and extending substantially radially therefrom, said tines being of substantially equal length and including a generally planar mounting portion secured to said elongate shaft, tine portions on opposite diametric sides of said elongate shaft being offset in opposite axial directions and

having terminal end portions twisted about their axes so as to define cylindrical surfaces of revolution substantially greater than tine thickness when said rotor is rotated on the axis of said elongate shaft, and said cylindrical surfaces of revolution of successive tines being substantially contigious, each of said



tines being spaced circumferentially about the elongate shaft axis on a different radius from all other tines, a power take off means on said motor, and means coupling said power take off means with said drive shaft for transmitting motor power thereto and rotating said rotor about the axis of said elongate shaft.

4,278,134

IMPLEMENT FOR SMOOTHING PARTICULATE MATERIAL SURFACES

David B. Johnson, 18 Goldsmith Ave., London NW9 7HB, England

Filed Jul. 9, 1979, Ser. No. 55,623
Claims priority, application United Kingdom, Jul. 14, 1978, 29956/78
Int. Cl.³ A01B *1/00*
U.S. Cl. 172—373 **12 Claims**



11. An implement for smoothing the surface of particulate material, such as, for example, sand in sand bunkers of a golf course, comprising:

handle means adapted to be gripped by a user of said implement and comprising a pair of arms, one end of each arm being substantially fixed relative to the corresponding one end of the other arm, while the opposite end of at least one arm is movable relative to the corresponding opposite end of the other arm as well as to said one end of each arm such that said arms are relatively movable between an expanded, operative state at which said arms diverge with respect to each other, and a collapsed, storage state at which said arms are substantially parallel to each other;

a particulate material-engaging head carried by, and extending laterally between, said opposite ends of said handle means arms, said head comprising a helical coil compression spring in which adjacent turns of said coil are spaced along a common axis for engaging said particulate material, and wherein said coil head is axially expansible and compressible between an expanded, operative state corresponding to said expanded, operative state of said handle means arms, and a contracted, storage state corresponding to said collapsed storage state of said handle means arms; and

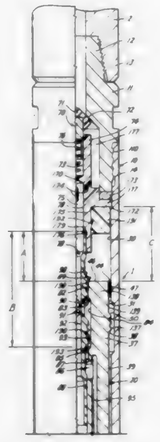
means disposed upon said handle means for retaining said compression coil spring head and said handle means arms in a compressed and contracted, and collapsed state, respectively.

4,278,135

VARIABLE VOLUME PNEUMATIC DRILL

Alfred R. Curington, San Angelo, Tex., assignor to Reedrill, Inc., Houston, Tex.

Filed May 3, 1978, Ser. No. 902,378
Int. Cl.² B25D *9/00*; F01L *1/20*
U.S. Cl. 173—29 **10 Claims**



1. An impact drilling tool for connection in a string of drilling pipe supplied with pneumatic fluid comprising:

an upper sub for connection to said drilling pipe to receive pneumatic fluid therefrom;

a housing with an upper end connected to said upper sub;

an anvil member slidably positioned in the lower end of said housing and having a bit member on its lower end extending outside of said housing;

said anvil member having a passageway extending longitudinally therethrough;

a hammer piston positioned in said housing above said anvil member for reciprocal movement longitudinally of said housing to strike said anvil member repeatedly;

said hammer piston having a first passage way extending longitudinally therethrough;

a feeder tube operatively secured to said sub and extending slidably into the upper end of said hammer piston through its passageway;

an exhaust tube secured in said anvil member passageway and extending slidably into the lower end of said hammer piston passageway;

means including said feeder tube and said hammer piston defining a passageway extending from said upper sub to the upper end of said hammer piston when said hammer piston is in an up position;

means including said feeder tube and said hammer piston defining the passageway extending from said upper sub to the lower end of said hammer piston when said hammer piston is in a down position;

means including said hammer piston and said housing defining a passageway extending from the lower end of said piston to said exhaust tube when said hammer piston is in an up position,

means including said hammer piston and said housing defining a passageway extending from the upper end of said piston to said exhaust tube when said hammer piston is in a down position,

means determining the volume of pneumatic fluid required to operate said hammer piston at any predetermined pressure and comprising an annular plug member removably positioned within said housing and spaced from said hammer piston when in the up position, and

a tubular supporting member secured in the upper end of said housing closing the end space above said hammer piston;

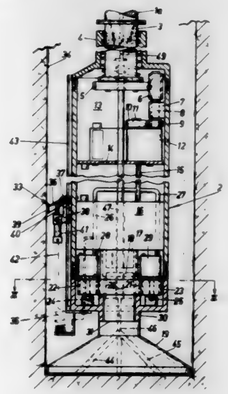
said feeder tube being supported in said tubular supporting member and said annular plug member being positioned on said tubular supporting member.

4,278,136

SINKERDRILL

Göte I. Hansson, Strandvägen 31, S-453 00 Lysekil, Sweden

Filed Mar. 26, 1980, Ser. No. 134,062
Claims priority, application Sweden, Mar. 20, 1979, 7902850
Int. Cl.³ E21B *4/16*
U.S. Cl. 175—93 **4 Claims**



1. An improved rock drill including a percussion drill bit provided at the lower end of a drill rod, and a drive motor positioned above ground and arranged to rotate said drill rod, the improvement comprising

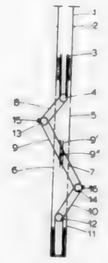
a machine casing positioned between said drill rod and said drill bit and enclosing a hydraulic pump rotatably driven by said drill rod, and a percussion element including a hammer, said hammer arranged to deliver blows at regular intervals against said drill bit, said hydraulic pump driving said percussion element and supplying pressurized liquid thereto, and at least one hydraulic motor housed inside said machine casing and driven by the hydraulic liquid, said hydraulic motor arranged to rotatably drive said drill bit, and hydraulically controllable blocking means provided on said machine casing to prevent said casing from rotating but allow it to sink relative to the wall of the drill hole while said drill bit is in operation, said blocking means controlled by pressurized liquid from said hydraulic pump.

4,278,137

APPARATUS FOR EXTRACTING MINERALS THROUGH A BOREHOLE

Wouter Van Eek, deceased, late of Wassenaar, Netherlands, by Meryl A. M. Van Eek nee Beckett, legal representative, assignor to Stamicarbon, B.V., Geleen, Netherlands

Filed Jun. 18, 1979, Ser. No. 49,407
Claims priority, application Netherlands, Jun. 19, 1978, 7806559
Int. Cl.³ E21B *9/26*
U.S. Cl. 175—267 **12 Claims**



1. Apparatus for extracting minerals through a bore hole comprising a sleeve which is provided with one or more longitudinal slots and a chain of pivotally connected sections, one of the outer ends of said chain being pivotally connected to said sleeve, the other outer end of said chain being pivotally connected to an element that can move along the axis of said sleeve, said chain of sections being fastened in each pivot joint between two sections to means capable of loosening the mineral outside the wall of the bore hole and said chain of sections also being fastened in the middle of each section except the first and last section to means which allow a rotation in the plane of the longitudinal slots and an axial movement of the sections along two opposite longitudinal grooves in the sleeve wherein said chain of sections, when in straight position, is within the sleeve and, when in folded state, projects outwardly through the longitudinal slots in the sleeve, said sleeve being connected to a pipe string by means capable of reciprocating the sleeve in the direction of its longitudinal axis, relative to the pipe string, while the pipe string rests in a stationary position.

4,278,138

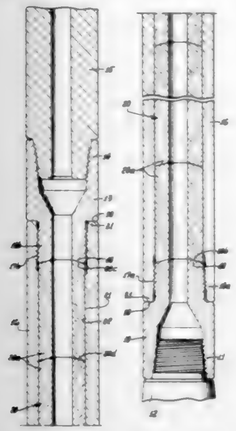
COMPOSITE HEAVY METAL DRILL COLLAR

David S. Rowley; James T. Aumann, and Lothar H. Waldes, all of Salt Lake City, Utah, assignors to Christensen, Inc., Salt Lake City, Utah

Filed Jan. 21, 1980, Ser. No. 113,497
Int. Cl.³ E21B *17/16*; F16L *9/14*
U.S. Cl. 175—320 **9 Claims**

1. A composite drill collar adapted to form part of a drill pipe string used in drilling a bore hole in earth formations, comprising an elongate outer pipe member, upper connector means adapted to secure the upper end of said outer pipe member to an adjacent drill pipe member thereabove, lower connector means adapted to secure the lower end of said pipe member to a drill bit therebelow, a rigid elongate annular member in said outer pipe member having a specific gravity at least twice the specific gravity of said outer pipe member, said annular member being in a solid state when placed in said outer pipe member, means for preloading said annular member in axial compression within said outer pipe member before the composite drill collar is lowered in the bore hole, said outer pipe member having sufficient wall thickness whereby substan-

tially all bending, torsion, compression, tension and impact loads are transmitted from the adjacent drill pipe member



thereabove through said outer pipe member to the drill bit without being imposed on said annular member.

4,278,139

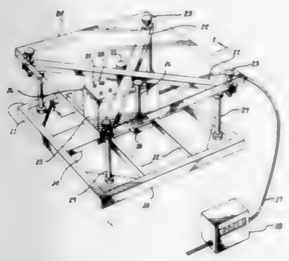
WEIGHING APPARATUS WITH OVERLOAD PROTECTION FOR OFF-CENTER LOADING

Richard F. Caris, Scottsdale, Ariz., assignor to Interface, Inc., Scottsdale, Ariz.

Continuation of Ser. No. 903,561, May 8, 1978. This application Aug. 3, 1979, Ser. No. 63,437

Int. Cl.³ G01G *23/02, 21/10*

U.S. Cl. 177—154 **14 Claims**



1. A weighing instrument of the type utilizing a load cell which comprises:

(a) a frame for engaging a supporting surface;

(b) load cell means having a mounting surface and a load receiving surface, the mounting surface engaging said frame, said load cell means providing an output signal in response to forces applied between the surfaces;

(c) a weighing platform having first and second opposing surfaces, said first surface receiving an article to be weighed;

(d) means for coupling the weighing platform to the load receiving surface of the load cell means;

(e) first overload protective means connected to said frame proximate to the load cell means and extending toward said weighing platform, said first overload protective means being spaced from the second surface of said weighing platform by a first distance; and

(f) second overload protective means mounted on said frame and spaced from said load cell means, said second means being spaced from said weighing platform by a second distance, said second distance being greater than said first distance whereby overload protection of said load cell means is provided which is substantially independent of the location of the article on the weighing platform.

4,278,140

UNDERCARRIAGE FOR ADVERSE TERRAIN VEHICLE

Norman D. Oswald, Duncanville, and Harry S. Mankey, Dallas, both of Tex., assignors to Standard Manufacturing Company, Incorporated, Dallas, Tex.

Division of Ser. No. 835,726, Sep. 22, 1977, abandoned. This application Apr. 6, 1979, Ser. No. 27,754

The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.

Int. Cl.³ B62D *11/02*

U.S. Cl. 180—6.48 **16 Claims**



1. A mobile drilling rig vehicle, comprising:

(a) pair of undercarriage assemblies each including:

an elongate hollow load bearing frame,

at least three axle members each having a wheel receiving member at one end thereof,

at least three wheel members each mounted on and secured to the wheel receiving end of one of the axle members,

means rotatably supporting the axle members at longitudinally spaced points along the frame with each of the axle members extending out of and rotatably supported in at least one side of the frame,

the middle wheel member extending below a plane lying tangent to the bottoms of the endmost wheel members,

a plurality of sprocket means each positioned within the frame and each mounted on and secured to one of the axle members,

drive means comprising motor means and transmission means mounted on the frame between one endmost axle member and the middle axle member,

first drive sprocket means having two sets of teeth thereon positioned with the frame and mounted for rotation by the drive means,

second drive sprocket means mounted on the middle axle member,

first drive chain means constrained around the first drive sprocket means on one set of teeth and the sprocket means on the endmost axle member adjacent the drive means,

second drive chain means constrained around the first drive sprocket means on the other set of teeth and the sprocket means on the middle axle member, and

third drive chain means constrained around the second drive sprocket means and the sprocket means on the other endmost axle member,

the first and second drive chain means drivingly connecting the endmost axle member adjacent the drive means and the middle axle member to the output of the drive means for rotation under the action thereof:

(b) a drilling machine frame;

(c) means supporting the drilling machine frame on the

elongate hollow load bearing frames of the undercarriage assemblies for pivotal movement with respect thereto around a normally vertically oriented axis;

(d) a boom;

(e) means supporting the boom on the drilling machine frame for pivotal movement between a traveling orientation wherein the boom extends substantially horizontally and in operating orientation wherein the boom extends substantially vertically;

(f) means mounted on the boom for effecting rotation of a drilling tool; and

(g) means for moving the drilling tool rotating means axially with respect to the boom from a position adjacent one end thereof to a position adjacent the other end.

4,278,141

UNDERCARRIAGE FOR ADVERSE TERRAIN VEHICLE

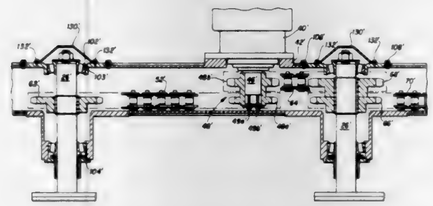
Norman D. Oswald, Duncanville, and Harry S. Mankey, Dallas, both of Tex., assignors to Standard Manufacturing Company, Incorporated, Dallas, Tex.

Continuation of Ser. No. 835,726, Sep. 22, 1977, abandoned, which is a continuation-in-part of Ser. No. 799,328, May 23, 1977, abandoned. This application Jul. 2, 1979, Ser. No. 53,906

The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.

Int. Cl.³ B62D *11/02*

U.S. Cl. 180—6.48 **20 Claims**



1. An undercarriage assembly for supporting and propelling a mechanism, comprising:

an elongate hollow load bearing frame adapted for connection to the mechanism;

at least three axle members each having a wheel receiving member at one end thereof;

at least three wheel members each mounted on and secured to the wheel receiving end of one of the axle members;

means rotatably supporting the axle members at longitudinally spaced points along the frame with each of the axle members extending out of the frame and being rotatably supported in at least one side of the frame;

the middle wheel member extending below a plane lying tangent to the bottoms of the endmost wheel members to facilitate skid steering;

a plurality of sprocket means each positioned within the frame and each mounted on one of the axle members;

drive means comprising motor means and transmission means mounted on the frame between one endmost axle member and the middle axle member;

first drive sprocket means having two sets of teeth thereon positioned within the frame and mounted for rotation by the drive means;

second drive sprocket means positioned within the frame and mounted on the middle axle member;

first drive chain means constrained around the first drive sprocket means on one set of teeth and the sprocket means on the endmost axle member adjacent the drive means;

second drive chain means constrained around the first drive sprocket means on the other set of teeth and the sprocket means on the middle axle member; and

third drive chain means constrained around the second drive sprocket means and the sprocket means on the other endmost axle member;

said first and second drive chain means drivingly connecting both the endmost axle member adjacent the drive means and the middle axle member directly to the output of the drive means for concurrent rotation under the action thereof.

4,278,142

AUTOMATIC GUIDANCE SYSTEM FOR VEHICLES

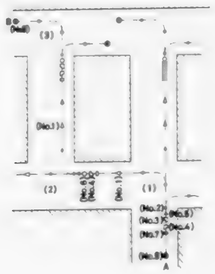
Hidehiko Kono, Musashi-Murayama, Japan, assignor to Agency of Industrial Science and Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Mar. 13, 1979, Ser. No. 20,042

Claims priority, application Japan, May 8, 1978, 53-54194; Sep. 29, 1978, 53-120083

Int. Cl.³ B62D *1/24*

U.S. Cl. 180—168 **7 Claims**



1. An automatic guidance system for a vehicle provided with an automatic steering unit, comprising:

marks of various shape patterns respectively characteristic of specific travel-function information attached to the surface of a route selected for the travel of the vehicle;

an ITV camera mounted on the vehicle and adapted to photograph successively said marks;

means for recognizing the shapes, postural angles and positional deviations of the marks photographed by the ITV camera, comprising,

means for measuring the largest height Ay in the direction of the Y axis of the pattern of the mark photographed by the ITV camera and projected on the X axis in a cartesian coordinate system,

means for measuring the width Ap from the point of intersection between the X axis and a perpendicular line drawn from the point of the largest height of the projected pattern to the X axis to the point on the X axis at which the projected pattern has the smallest value,

means for measuring the largest width Ax of the projected pattern in the direction of the X axis, and

means for measuring the ratio between the width Ap and the largest width Ax; and

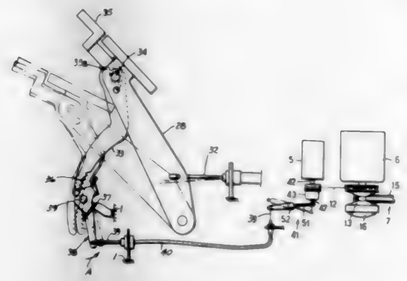
means for conveying a signal corresponding to the ratio obtained to the automatic steering unit for thereby adjusting the postural angle of the vehicle so as to have the vehicle steered accurately along said route.

4,278,143

PARKING BRAKE RELEASE APPARATUS

Hiroshi Nagai, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 955,305, Oct. 27, 1978, abandoned. This application Jan. 9, 1980, Ser. No. 110,673
Claims priority, application Japan, Nov. 4, 1977, 52-132224
Int. Cl.³ B60R *27/00*
U.S. Cl. 180—282 **8 Claims**



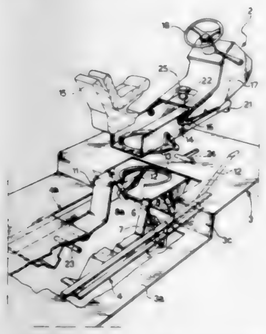
1. Brake release apparatus for a vehicle having a frame, wheels, a parking brake for at least one of said wheels, a parking brake pedal pivotally mounted to said frame to apply said parking brake, said pedal having a braking and a brake released condition, brake return means opposing braking movement of said parking brake pedal, an engine to provide driving power to at least one of said wheels, said engine when operating having a range of possible rotational frequencies, said release apparatus comprising: releasable lock means adapted to lock the parking brake pedal in its braking condition; lock release means adapted selectively to release said lock means and selectively to prevent said lock means from locking; and engine frequency responsive means connected to said lock release means and adapted to require said lock release means to permit said lock means to lock at frequencies below a pre-selected frequency, and to release said lock means if locked at frequencies at and above said pre-selected frequency, and to prevent said lock means from locking if unlocked at frequencies at and above said pre-selected frequency, all in direct and unique response to the frequency of said engine.

4,278,144

REVERSIBLE DRIVING STATION FOR TRACTOR VEHICLE

Philippe Perin, Meudon, France, assignor to Fiat Trattori S.p.A., Modena, Italy

Filed Oct. 12, 1979, Ser. No. 84,344
Int. Cl.³ B60K *26/00*; B60N *1/02, 1/08*
U.S. Cl. 180—329 **3 Claims**



1. In a tractor of the type having a reversible driving station on the frame of the tractor, the improvement comprising an intermediate support member for said driving station, linkage means pivotally mounting said intermediate support member on said frame for movement between a higher level and a lower level, a driving station base member rotatably mounted on said intermediate support member, seat means secured to said base member and control console means pivotally mounted on said base member in front of said seat means for movement between a first position wherein said console means is spaced from said seat means in operative position and a second position adjacent said seat means to facilitate rotation of said driving station within a narrow cab on said tractor.

4,278,145

CONCERT SHELL

Robert A. Eade, 9 Fresh Meadow Rd., Easton, Conn. 06612, and Peter V. C. Quaintance, 1650 Jones, San Francisco, Calif. 94109

Filed Jun. 29, 1979, Ser. No. 53,517
Int. Cl.³ E04B *1/99*
U.S. Cl. 181—30 **7 Claims**



1. A concert shell comprising
a plurality of shell sections,
each of said shell sections being similarly constructed and each shell section including a lower portion and an upper portion, means for readily detachably connecting the upper portion from said lower portion,
a frame having opposed side and end members defining each of said portions,
said opposed side and end members having a circumscribing lip to define a groove circumscribing said frame,
an accoustical panel mounted on said frame whereby the edges of said panel are received in said groove,
means for fixedly connecting said panel to said frame,
and said panel connected to said upper portion having at least one outwardly projecting blister having a curvilinear contour extending longitudinally and transversely of said blister; and said panel connected to said lower portion having a plurality of spaced apart outwardly projecting blisters,
each of said blister having a compound curvilinear contour along the respective x and y axis thereof, and said spaced blisters of said lower section being spaced apart to define a separation therebetween located at the height of a seated musician.

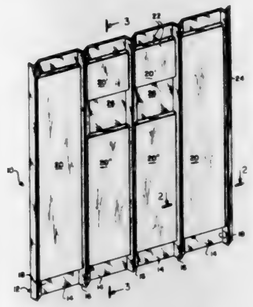
4,278,146

SOUND BARRIER

Armand Lerner, 100 E. Hartsdale Ave., Hartsdale, N.Y. 10530, and Sylvain S. Lerner, 301 E. 79th St., New York, N.Y. 10021

Filed Sep. 28, 1979, Ser. No. 79,784
Int. Cl.³ G10K *11/04*; E04B *1/84, 1/99*
U.S. Cl. 181—210 **13 Claims**

1. A sound barrier for isolating a noise source comprising,
(a) a transparent panel made of sound attenuating material,
(b) said panel comprising a plurality of longitudinally extending side by side co-planar flat sections separated by V-shaped ribs so as to define a plurality of longitudinally extending side by side cavities, said flat sections comprising the major part of said panel,
(c) at least some of said cavities being provided with acoustical absorptive material therein in engagement with the entire transverse extent of the flat sections thereof,



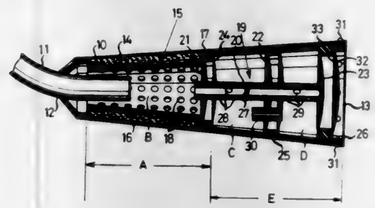
(d) said barrier being disposed so that the open faces of said cavities confront said noise source, and with the plane defined by said co-planar flat sections extending vertically.

4,278,147

MUFFLER FOR ENGINE, PARTICULARLY MOTORCYCLE ENGINE

Junichi Watanabe, Kobe; Takahiko Aoyama, Akashi, and Norio Gotoh, Gifu, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Feb. 6, 1980, Ser. No. 118,880
Claims priority, application Japan, Feb. 8, 1980, 55-15720[U]
Int. Cl.³ F01N *1/24*
U.S. Cl. 181—256 **14 Claims**



1. A muffler for an engine, particularly a motorcycle engine comprising:
(a) a hollow muffler body tapering at least in one portion thereof;
(b) a tapering hollow sound-absorbing member inserted in said muffler body through a major diameter end thereof and fitted in said tapering portion thereof;
(c) a keep body inserted in said muffler body through said major diameter end thereof and fitted in said sound-absorbing member to secure the sound-absorbing member in place, said keep member being of a construction allowing exhaust gases to permeate therethrough to the sound-absorbing member; and
(d) a muffler core inserted in said muffler body through said major diameter end thereof after said sound-absorbing member and said keep member have been inserted therein, said muffler core comprising at least two baffle plates conforming to the inner surface of said muffler body and constructed such that said sound-absorbing member can be forced against the inner surface of the muffler body if the muffler core is pressed axially of the muffler body when the former is inserted in the latter, said at least two baffle plates defining at least two chambers within said muffler body maintained in fluid communication with one another.

4,278,148

SAWHORSE

Philip A. Daley, Rte. 1, Box 33Y, Ragley, La. 70657; Allan R. Mouhot, Rte. 7, Box 732, and Dan C. Felice, Rte. 1, Box 707, Lot 105, both of Lake Charles, La. 70601

Filed Nov. 13, 1979, Ser. No. 93,452
Int. Cl.³ F16M *11/00*
U.S. Cl. 182—181 **1 Claim**



1. A sawhorse comprising a wooden stringer, a metal stringer connectable to said wooden stringer, two A-frames including a pair of outwardly sloping legs and a transverse strut rigidly fixed between said legs, and braces between said frames and stringer, said A-frames having connected at the top thereof a vertical U-shaped first bracket having holes in the sides thereof, said first bracket being adapted to receive said metal stringer, said metal stringer having two holes therein alignable with said holes in said first bracket connected to said A-frame for receipt of a pin or bolt, and said metal stringer and said strut having guide means rigidly connected thereto for receipt of said braces, said guide means on said strut and said metal stringer having holes therein and said braces having holes therein, said holes in said braces and guides being aligned for receipt of a pin or bolt, said metal stringer having a U-shaped bracket means connected thereto, said second bracket means being adapted to receive said wooden stringer, said second bracket means having holes therein for insertion of a pin or bolt, said metal stringer having cap means connected thereto and said legs of said A-frames having foot means connected thereto, two braces connecting each of said A-frames to said metal stringer, each of said braces being connected to one of said struts on one of said A-frames and to said metal stringer.

4,278,149

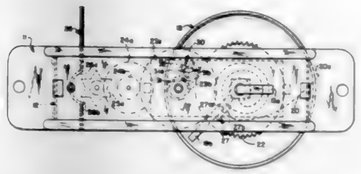
TRANSLATIONALLY MOVABLE IDLER GEAR AS CLUTCH FOR SPRING DRIVEN MOTOR

Max Gittler, Northport, N.Y., assignor to Aladdin Toy Motors, Inc., Brooklyn, N.Y.

Filed May 4, 1979, Ser. No. 36,270
Int. Cl.³ F03G *1/00*
U.S. Cl. 185—39 **4 Claims**

1. A clutch mechanism adapted for use in a spring driven motor including a spring, a drive gear operated by the spring, a power output and a gear train situated between the drive gear and the power output for changing rotational rate of the drive gear, the clutch mechanism comprising
an idler gear interposed between two adjacent gears selected from the drive gear, the gear train and an output gear of the power output, and stationary supporting means for

supporting said idler gear and permitting the idler gear to rotate and to move translationally relative to the supporting means such that the idler gear can move translationally between a position in which the idler gear is in simultaneous driven engagement with said two adjacent gears and a position in which the idler gear is out of said simultaneous driven engagement,



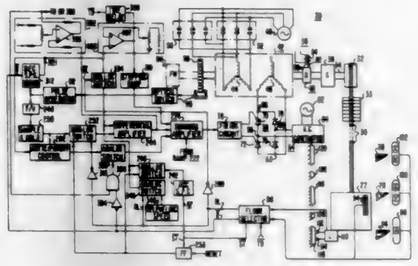
wherein the idler gear has an axial opening extending therethrough and the supporting means comprises a post extending into said opening and being sufficiently smaller in cross section than said opening to permit said rotation and said translational movement.

4,278,150

ELEVATOR SYSTEM

Henry A. Wehrli, III; Dirk J. Boomgaard, both of Monroeville, Pa., and Alvin O. Lund, deceased, late of Little Falls, N.J. (by Helen B. Lund, executrix), assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 22, 1979, Ser. No. 41,449
Int. Cl.³ B66B *1/30*
U.S. Cl. 187—29 R **35 Claims**



1. An elevator drive system for selectively providing motoring and system braking torques which control the starting, driving, and stopping of an elevator car during a run, comprising:

an elevator car,

alternating current motor means disposed to effect movement of said elevator car,

said alternating current motor means including electrically isolated high and low speed components,

first control means for applying a non-adjustable alternating current line voltage to said high speed component, to develop a motoring torque,

second control means for applying a controllable direct current voltage to said low speed component, with said controllable direct current voltage being capable of developing a braking torque in the low speed component which provides a system braking torque sufficient to stop said elevator car when moving, and to prevent said elevator car from moving when stationary, notwithstanding the simultaneous application of the alternating current line voltage to said high speed component,

and third control means for controlling said first and second control means such that the high and low speed components simultaneously develop motoring and braking torques during at least a selected portion of a run, with the system braking torque exceeding the motoring torque at least once during said selected portion of a run.

30. An elevator system, comprising:

an elevator car,

drive means for said elevator car,

pattern generator means providing a deceleration pattern signal indicative of the desired speed of the elevator car,

tachometer means providing a tach signal responsive to the actual speed of the elevator car,

comparator means providing a difference signal responsive to the difference between said pattern signal and said tach signal,

and control means providing a signal for said drive means in response to said difference signal,

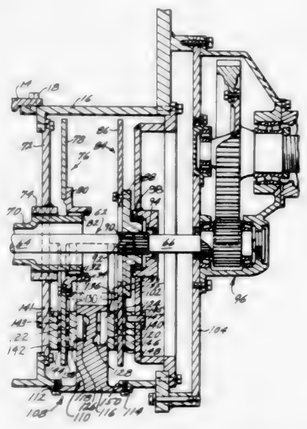
said pattern generator means including a read-only memory having a speed pattern stored therein, and addressing means for addressing the read-only memory in response to movement of the elevator car when the elevator car reaches a predetermined first distance from the desired stopping point, with the car movement increment which changes the address applied to the read-only memory being relatively large until the elevator car reaches a predetermined second distance from the desired stopping point, at which point the car movement increment which changes the address applied to the read-only memory is substantially reduced.

4,278,151

BRAKE ASSEMBLY FOR A VEHICLE

Orville E. Kessinger, Jr., Blue Grass, Iowa, assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation-in-part of Ser. No. 815,113, Jul. 13, 1977, abandoned. This application Dec. 17, 1979, Ser. No. 104,234
Int. Cl.³ F16D *55/00*
U.S. Cl. 188—71.3 **2 Claims**



1. A brake assembly for independently braking a pair of spaced members (**78,86**) rotatably mounted within a vehicle casing portion (**16**) on an axis, the casing portion (**16**) having an access opening (**150**), the brake assembly comprising:

a main body (**110**) having a plate (**112**) and a C-shaped body portion (**116**) having first and second pluralities of bores (**118,120**) opening on the opposite sides thereof, the plate (**112**) being releasably connected to the casing portion (**16**) and the body portion (**116**) extending inwardly through the access opening (**150**);

first and second pluralities of pistons (**122,124**) individually disposed respectively in the first and second pluralities of bores (**118,120**);

a first movable member (**130**) having a C-shape connected to the body portion (**116**) on one side thereof; and

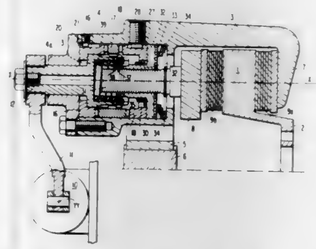
a second movable member (**136**) having a C-shape connected to the body portion (**116**) on another side thereof, the first and second movable members (**130,136**) being independently engagable against a respective one of the spaced members (**78,86**) by axial movement of the respective first and second pluralities of pistons (**122,124**), and the main body (**110**) and the first and second movable members (**130,136**) being of a construction sufficient for release and removal from the casing portion (**16**) in a direction radially away from the axis between the spaced members (**78,86**) and independently of the spaced members (**78,86**).

4,278,152

CONTROL MECHANISM FOR DISC BRAKES

Pierre G. Tosi, Pont-a-Mousson, France, assignor to Pont-A-Mousson S.A., Nancy, France

Filed Aug. 21, 1979, Ser. No. 68,361
Claims priority, application France, Aug. 24, 1978, 78 24755
Int. Cl.³ F16D *65/56*
U.S. Cl. 188—71.9 **14 Claims**



1. A disc brake control mechanism for a brake disc, said mechanism comprising a floating caliper, said caliper comprising a stationary shoe, including a friction pad facing one face of the disc, a mobile shoe carrying a friction pad facing the other disc face, an articulated drive lever, driving means including opposed helicoidal inclined faces operatively coupled to said articulated drive lever for moving at least said mobile shoe friction pad relative to the disc to effect braking, helicoidal needle thrust bearings interposed between said helicoidal inclined faces, and an automatic wear compensation system for said driving means, the improvement wherein said driving means comprises three drum cams defining four paired helicoidal inclined faces, one of said cams being operatively coupled to one of said friction pads by said automatic wear compensation system such that the four paired helicoidal inclined faces function to amplify the axial travel of said brake pads without an increase in pitch of the helicoidal surfaces or the angle of rotation of said lever while permitting the mechanism to be arbitrarily employed as an operating mechanism for a left or right brake of a vehicle.

4,278,153

BRAKE FRICTION MATERIAL WITH REINFORCEMENT MATERIAL

Doulatabad A. Venkatu, Stow, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio

Filed Nov. 24, 1978, Ser. No. 963,621
Int. Cl.³ F16D *69/02*
U.S. Cl. 188—251 M **24 Claims**

1. A brake disk, comprising:

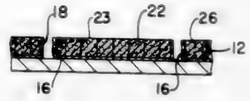
(a) an annular disk;

(b) a multiplicity of cups secured to said disk; and

(c) a multiplicity of frictional modules, one said frictional module residing in each said cup;

each said module comprising a grid of substantially copper-containing reinforcement material and a quantity of copper-containing sintered frictional material reinforced through said entire quantity by said grid, said grid and frictional material being separate and distinct elements of the module;

said substantially copper-containing grid being compatible with said copper-containing sintered frictional material in coefficient of friction properties;



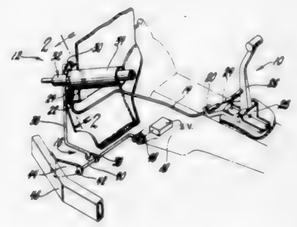
said quantity of copper-containing sintered frictional material having outer surfaces sintered to said cup and both said friction material and said reinforcement grid having upper surfaces exposed from said annular disk cups, said grid being free of direct attachment to said cups.

4,278,154

VEHICLE FLOOR MOUNTED TRANSMISSION SHIFT LEVER WITH STEERING COLUMN BACKDRIVE LINKAGE

William D. Cymbal, Freeland, and Dan R. Kimberlin, Frankenmuth, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 18, 1979, Ser. No. 48,892
Int. Cl.³ F16D *67/00*
U.S. Cl. 192—4 A **2 Claims**



1. An improvement in floor mounted transmission control mechanisms for a vehicle having a steering column backdrive and a locking mechanism, and a transmission shift control, wherein the improvement comprises; a drive transmitting means connected between the floor mounted transmission control mechanism and the steering column backdrive, and another drive transmitting means connected between the steering column backdrive and the transmission shift control, whereby manual input motion must result in motion of the steering column backdrive before the motion is transmitted to the transmission shift control.

4,278,155

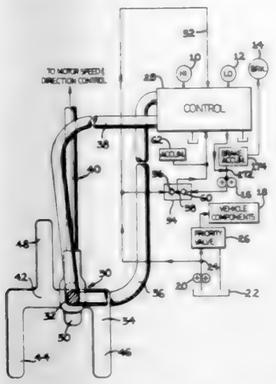
DRAW WORKS TRANSMISSION CONTROL

Kenneth F. Golan, Pekin, and James E. Winzeler, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00293, §371 Date May 2, 1979, §102(e) Date May 2, 1979, PCT Pub No. WO80/02446, PCT Pub. Date Nov. 13, 1980
This PCT application filed May 2, 1979, Ser. No. 89,113
Int. Cl.³ B60K *41/24*; F15B *1/02*
U.S. Cl. 192—4 R **9 Claims**

1. In combination with a control (**28**) for a hydraulically operated draw works or the like having a hydraulically disengaged brake (**14**) a transmission (**10, 12**), a brake control valve (**114, 122**) including an inlet (**156**) and an outlet (**152**), the outlet (**152**) connected to said brake, and a source of fluid (**20**) under

pressure connected to said inlet (156), the improvement comprising:



means (172) for providing modulated application of said brake (14) after said brake (14) has been fully released, and to provide unmodulated brake application of said brake (14) after said brake (14) has been partially released.

4,278,156

CLUTCH ENGAGING AND DISENGAGING MEANS

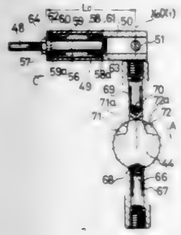
Kazuhiko Yano, Toyonaka, and Kazuhiko Ohtsuki, Takarazuka, both of Japan, assignors to Kanzaki Kokyukoki Mfg. Co., Ltd., Amagasaki, Japan

Filed Oct. 15, 1979, Ser. No. 85,105

Claims priority, application Japan, Oct. 31, 1978, 53-134074

Int. Cl.³ F16D *21/04*; G05G *9/08*

U.S. Cl. 192—48.91 **7 Claims**



1. In a mechanically operated double clutch mechanism of the type in which a movable clutch member is displaced axially from a neutral position into a first or second direction selectively from effecting a first or second engagement of the clutch resulting in an operative connection of one power transmitting member to another first or second power transmitting member and in which once the clutch has been engaged said movable clutch member is forced to displace into a direction of engaging the clutch by the torque transmitted by such clutch, a clutch engaging and disengaging means comprising a control lever which is rotated by push-pull control means to displace said movable clutch member and which is retained in its neutral position by a spring-biased detent means, characterized in that said control lever is operatively connected to said push-pull control means by a coupling including a first coupling member fixedly connected to said push-pull control means, and a second coupling member pivotally connected to said control lever, the first and second coupling members being fitted telescopically and being movable relative to each other within a limited range, said coupling further comprising spring means disposed between the first and second coupling members so that spring force of such spring means is enlarged when the first coupling member is moved relative to the second coupling member by the push-pull control means, the arrangement being such that initial movement of the push-pull control means in either direction moves the first coupling member until the first coupling member becomes engaged mechanically with the second coupling member to enlarge the spring force of the spring means, and further movement of the push-pull control means in that direction moves the first and second coupling members together to rotate said control lever until the lever has been freed, respectively, from detenting force by the detent means when the clutch is operated to engage the same and from the force of engagement of the clutch when the clutch is operated to disengage the same, some additional rotation being further provided to said control lever by the enlarged spring force of said spring means.

4,278,157

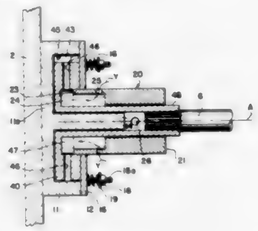
FLUID CLUTCH

Palmer F. King, P.O. Box 867, Lewiston, Me. 04240

Filed Feb. 16, 1979, Ser. No. 12,889

Int. Cl.³ F16D *31/00*

U.S. Cl. 192—58 R **7 Claims**



1. A fluid clutch comprising a cylindrical clutch housing including a cover and connectable to an engine flywheel for rotation therewith about a given axis coincident with the axis of rotation of the flywheel and disposed eccentric to the central axis thereof, fluid impelling means comprising a substantially cylindrical impeller head, cylindrical means centrally disposed concentrically about the central axis of the impeller head for connecting the impeller to a transmission shaft, to be driven by the engine, for rotation therewith, means mounting the impeller head for rotation enclosed in the clutch housing about the central axis thereof and coincident with said given axis to define a periodically varying annular clearance between the inner cylindrical surface of the clutch housing and the outer surface of the impeller head during relative rotation of the two, pumping vanes extending radially outwardly from the impeller head and contacting the inner cylindrical surface of the clutch housing, an annular chamber disposed concentrically around the cylindrical means of said impeller head and opening at the shaft side of the housing and radially extending fluid passages in the impeller head providing fluid communication between the annular clearance and the annular chamber, clutch engaging means extendable into said enclosed clutch housing comprising a cylindrical valve sleeve slidably mounted on the cylindrical means and having an outside diameter at the one end portion thereof nearer the clutch housing configured to be closely received within the annular chamber at the outer surface thereof, the one end portion being movable in the annular chamber between a first position wherein the radial fluid passages are blocked off and a second position wherein the radial fluid passages are unobstructed whereby fluid may circulate within the clutch housing between said annular chamber and said annular clearance and means defining a fluid passage between the valve sleeve and the cylindrical means for providing fluid communication from the annular chamber to without the clutch housing to enable displacement of fluid during movement of the one end portion of the valve

sleeve, and fluid reservoir means for retaining a supply of fluid for the clutch during the operation thereof.

4,278,158

FLUID-FRICTION CLUTCH

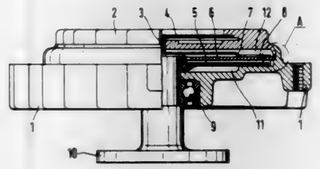
Hans Martin, Stuttgart, Fed. Rep. of Germany, assignor to Sueddeutsche Kuehlerfabrik Julius Fr. Behr GmbH & Co. KG, Stuttgart, Fed. Rep. of Germany

Filed Apr. 5, 1979, Ser. No. 27,327

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1978, 2814608

Int. Cl.³ F16D *35/00*

U.S. Cl. 192—58 B **9 Claims**



1. A temperature-controlled, fluid-friction clutch filled with viscous fluid, comprising:

a drive disk mounted for rotation about an axis, said disk being flexible in the direction of said axis;

first and second clutch-driven plates mounted for rotation about said axis, said plates having respective co-planar drive surfaces facing and spaced apart from respective surfaces of said drive disk, the space between said clutch-driven plates defining a fluid working space;

means defining a fluid storage space adjacent said first clutch-driven plate;

means extending from one said clutch-driven plate into said working space for pumping said viscous fluid from said working space into said storage space; and

temperature-controlled valve means operatively connected for controlling flow of said viscous fluid between said working space and said storage space.

4,278,159

TEMPERATURE CONTROLLED VISCOUS FAN DRIVE

Helmut Roth, Bloomfield Hills, and Terry J. Farrell, Troy, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Nov. 1, 1979, Ser. No. 90,363

Int. Cl.³ F16D *35/00, 43/25*

U.S. Cl. 192—58 B **2 Claims**

1. A variable speed viscous drive mechanism comprising:

A. An input drive shaft;

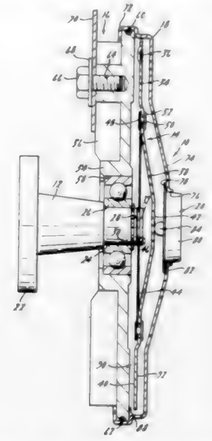
B. impeller means drivingly engaged by said drive shaft and including a generally disc-shaped member having a central generally conical concave projection extending away from an output member;

C. said output member rotatively supported on said drive shaft in axially spaced relationship with said impeller means for relative rotation with respect to said impeller means;

D. a housing member carried for rotation with said output member and surrounding said impeller means;

E. a predetermined quantity of working fluid carried within said housing member through which said output member is driven by said impeller means; and

F. mounting means for said impeller means operative to permit movement of said impeller means axially between a first position remote from said output member and a second position proximate said output member to effect variations in the difference of rotational speeds between said impeller means and said output member, said mounting means comprising a readily flexible disc-like member fixedly secured to said disc-shaped member adjacent the outer periphery of said projection and drivingly engaged with said drive shaft.



4,278,160

VISCOUS FLUID COUPLING

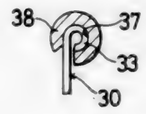
Masaharu Hayashi, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 20, 1979, Ser. No. 77,280

Claims priority, application Japan, Sep. 21, 1978, 53-116322

Int. Cl.³ F16D *35/00, 43/25*

U.S. Cl. 192—82 T **1 Claim**



1. A viscous fluid coupling comprising:

a rotatable casing provided with a fluid operating chamber and a fluid reservoir chamber therein, said chambers being in fluid communication one with the other;

a rotor located in said fluid operating chamber, the rotor being rotatable relative to said casing,

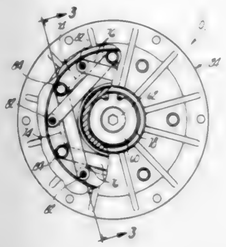
valve means operable to control fluid communication between said fluid operating chamber and said fluid reservoir chamber, and

a bimetal coil located on the exterior of said casing, the inner end of said bimetal coil being operatively connected to said valve means and the outer end of the bimetal coil being pivotally connected to said casing, said bimetal coil including an outer extreme end bent in a circular shape for pivotal connection between said bimetal coil and said casing, the outer extreme end of said bimetal coil being fixedly press-fitted in an opening formed in said casing.

4,278,161
COUPLING ARRANGEMENT FOR AN ELECTROMAGNETIC CLUTCH

Michael L. Mower, Elmira, and William A. Carleton, Pine City, both of N.Y., assignors to Facet Enterprises, Inc., Tulsa, Okla.

Filed Sep. 25, 1978, Ser. No. 945,274
Int. Cl.³ F16D *27/10, 3/60*
U.S. Cl. 192—84 C **6 Claims**



1. A coupling arrangement for providing for a first rotatable hub member axially fixed and adapted to be coupled to a second rotary member, said second rotary member mounted for limited relative axial movement relative to said first rotatable member, the coupling arrangement comprising:

a plurality of elongated leaf spring elements extending in a generally circumferential direction about the axis of rotation of said members, each of said leaf spring elements having one end affixed to said rotary member and an opposite end affixed to said rotatable axially fixed member, whereby said leaf spring elements transmit torque therebetween;

said leaf spring elements extending in a crossing pattern with respect to each other, in which each of said leaf spring elements crosses over adjacent leaf spring elements, said crossing pattern comprising the extension of each of said leaf spring elements over the portions adjacent each of the connected ends of the next adjacent two leaf spring elements in said series, each of said leaf spring elements having said one and other ends connected alternately to said second rotary member and said axially fixed first rotatable member about the circumference thereof and wherein each one end of said leaf spring elements connected to said axially movable second rotary member passes to one predetermined side of the next adjacent spring element having its other end connected to said first rotatable member and thence passes along another predetermined side of the more remote leaf spring element having its one end connected to said second rotary axially movable member;

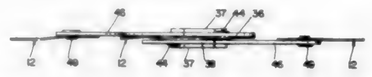
whereby said leaf spring elements are disposed in a crossing pattern without interfering with each other upon relative axial movement of said axially movable member.

4,278,162
FRICTION DISC

Ross S. Frichette, Strongsville; Ronald E. Grambo, Cleveland; Robert W. Biggs, Chagrin Falls, all of Ohio, and Thomas A. Healy, deceased, late of Rocky River, Ohio (by Antoinette M. Healy, executrix), assignors to The S. K. Wellman Corp., Bedford, Ohio

Filed Jun. 18, 1979, Ser. No. 49,140
Int. Cl.³ F16D *13/60*
U.S. Cl. 192—107 C **9 Claims**

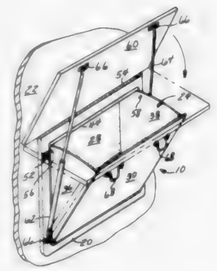
1. A clutch disc assembly comprising a keyed hub, a plurality of separate marcel springs fixed circumferentially about and extending radially from the hub, each marcel spring being formed of resilient sheet material, having a permanent nonplanar set in a free state and being capable of assuming a generally planar configuration when axially compressed, a plurality of friction buttons disposed on each face of the disc, means securing each friction button to at least one marcel spring, said securing means being free of contact with said hub and being arranged to transmit torque forces on said friction buttons to said hub exclusively through said marcel springs while permitting substantially free movement of said marcel springs between their free nonplanar and compressed planar states, each of said friction buttons including a friction surface on one face of the disc being paired in substantially complete superposition with a friction surface of a button on an opposite face of the disc.



4,278,163
WALL MOUNTED LOG CHUTE

Wayne K. Tomich, 6473 Lincoln St., Gagetown, Mich. 48735

Filed Jun. 1, 1979, Ser. No. 44,692
Int. Cl.³ B65G *11/16*
U.S. Cl. 193—34 **7 Claims**



1. A wall mounted chute comprising:

an opening formed in a wall, the wall having an inside surface and an outside surface;

a hopper hinged to the wall including an inside wall, an outside wall, and a closed bottom wall integrally cojoined and having an enlarged open top for the entry and removal of articles through the top from either surface of the wall;

the hopper being movable from a first position where the hopper is open at the outside surface to a second position where the hopper is open at the inside surface and closed at the outside surface of the wall;

an outer frame abutting the outer wall finishing the opening;

an inner frame abutting the inner wall finishing the opening;

said hopper further comprising:

said bottom wall extending from the outer frame to the inner frame;

said outside wall complementary to the outer frame opening and integral with the bottom wall and hinged to the outer frame along a bottom edge thereof;

said inside wall complementary to the inner frame opening and integral with an inner edge of the bottom wall;

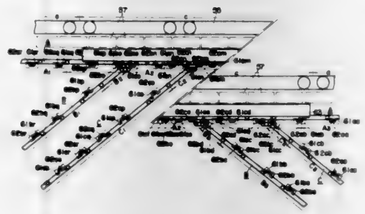
an upper edge of the outer wall and an upper edge of the inner wall being spaced apart a distance wherein when the hopper is in the second position an opening exists between the inner frame and an upper edge of the inner wall; and

a pair of opposed side walls integral with the inside and outside walls and the bottom wall forming an enclosure with an open top.

4,278,164
BELT CONVEYOR TRANSPORTATION SYSTEM UTILIZING MAGNETIC ATTRACTION

Kazumi Matsui, Yokohama; Takashi Takasue, Kawaguchi, and Masami Iwasaki, Tokyo, all of Japan, assignors to Furukawa Electric Co. Ltd., Tokyo, Japan

Division of Ser. No. 791,141, Apr. 26, 1977, Pat. No. 4,197,934. This application Aug. 30, 1979, Ser. No. 71,353
Claims priority, application Japan, Apr. 28, 1976, 51-47880; May 25, 1976, 51-59590; Jun. 15, 1976, 51-69276; Jul. 6, 1976, 51-79426; Aug. 25, 1976, 51-100647; Sep. 30, 1976, 51-116509; Oct. 6, 1976, 51-119313; Oct. 12, 1976, 51-121341; Nov. 10, 1976, 51-134185; Jan. 11, 1977, 52-1133
Int. Cl.³ B65G *17/00;* **B61B** *13/12*
U.S. Cl. 198—334 **5 Claims**

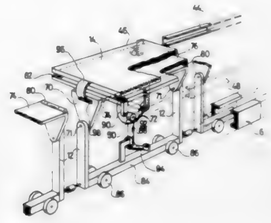


1. A belt conveyor type transportation system by magnetic attraction comprising at least one conveyor line including a plurality of conveyor units arranged successively, each of said conveyor units comprising endless belt means including a magnetic material as a constituent element encircled around on a pair of a driving wheel and idle wheel to be driven thereabout at a respective speed independent of the speeds of the other units, and at least one moving body disposed on said conveyor line, said moving body including magnet means for magnetically attracting said magnetic belts, whereby said moving body is moved forcibly along said conveyor line by following the circulating speed of the magnetic belt means of each of said conveyor units, said magnet means being constantly energized to produce magnetic attraction strong enough to overcome the friction force due to the load added to the magnet belt means by the magnet means, said magnet means being attracted by magnetic force towards the surface of the magnet belt means and being in facing relation therewith at less than a predetermined gap, said magnet means being constructed so that magnetic attraction between two conveyor units is made when the magnet means passes through a portion between the two conveyor units, the ratio of the magnetic attraction between the two units varying gradually with the movement of the magnet means, such that when the velocities of the magnetic belts of both units are different, the velocity of the moving body is varied linearly and gradually from the velocity of one unit to the velocity of the other unit accompanied with slip wherein guide track means is provided along said conveyor line to conform with the traveling path of said moving body, said moving body being provided with supporting means whereby the load of said moving body is transmitted to said guide track means while maintaining the magnetic pole face of said magnet means close to said magnetic belt means and also maintaining supporting means in contact with said guide track means with a relatively small frictional resistance, said conveyor line including a portion in which the surfaces of the magnetic belts of said conveyor units moving in the same direction are arranged parallel to each other with the guide track means interposed therebetween, each of said parallel conveyor units being connected to another conveyor line to provide a diverging portion or merging portion in said parallel portion, said magnet means comprising at least one pair of electromagnets each having the pole surface thereof facing one side of said guide track means whereby said electromagnet facing one side of said guide track means and said electromagnet facing another side of said guide track means are selectively energized to cause said magnet means to produce magnetic attraction with the magnetic belt means of a selected one of said conveyor units in said parallel portion.

4,278,165
TRAY CONVEYOR

Jacob A. Nielsen, Viby, and Ole Prydtz, Silkeborg, both of Denmark, assignors to Kosan Crisplant A/S, Aarhus, Denmark

Filed May 23, 1979, Ser. No. 41,819
Claims priority, application United Kingdom, May 23, 1978, 21379/78
Int. Cl.³ B65G *47/46*
U.S. Cl. 198—365 **12 Claims**



1. A conveyor of the carrier tray type, i.e. comprising an elongated chassis and, a plurality of carrier elements interconnected by a single endless conveyor chain to form a train of carrier elements guided along said chassis, each carrier element comprising a lower support portion supporting a carrier tray operable to convey articles from a loading station past a number of unloading stations in which control means are provided for selectively causing articles to be unloaded from said carrier trays, characterized in that said chassis extend along partial lengths of mutually different linear vertical slopes and that the carrier trays are arranged so as to be tiltable about a transverse horizontal axis, tilting control means being provided adjacent said partial lengths for cooperation with said trays or the support portions thereof in such a manner that the trays are maintained, by tilting relative to the chassis in a substantially horizontal position irrespective of the varying slope of the chassis, wherein the carrier trays are arranged so as to be selectively additionally laterally tiltable for enabling unloading of articles therefrom by lateral tilting of the trays during their passage of respective selected unloading stations along the chassis.

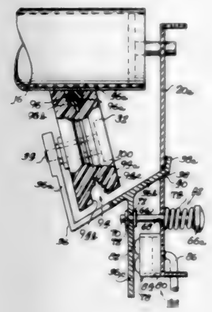
4,278,166
ACCUMULATOR CONVEYOR

Michael S. Pirro, Jr., 9804 Butternut Dr., Crystal Lake, Ill. 60014

Continuation-in-part of Ser. No. 918,512, Jun. 23, 1978, Pat. No. 4,238,029. This application Aug. 27, 1979, Ser. No. 69,878
Int. Cl.³ B65G *13/06*
U.S. Cl. 198—781 **15 Claims**

1. Conveyor apparatus comprising, in combination, frame means, a plurality of carrier rollers supported by said frame means and defining a path of travel along which articles may be conveyed, and drive means operatively associated with at least one of said carrier rollers and adapted to effect rotation thereof in a manner to move an article engaged by said at least one of said rollers along said guide path, said drive means including a drive wheel having a peripheral drive surface in which is formed an annular groove, a drive cable having circular transverse cross section, means supporting said drive cable so as to define a drive reach substantially parallel to said path of travel, and means supporting said drive wheel so that its said peripheral drive surface is adapted for driving engagement with said at least one of said carrier rollers and with said reach of cable disposed between said drive wheel and said carrier

roller and received within said annular groove, said annular groove in said drive wheel having a generally semicircular transverse base configuration adapted for surface engagement with said drive cable passing therethrough, said base surface being spaced generally radially inwardly from said peripheral drive surface a distance less than the diameter of said drive cable such that said drive cable is pressed into said annular



groove to deform said drive wheel about said cable when said peripheral drive surface is in driving engagement with said at least one of said carrier rollers, said means supporting said drive wheel being adapted to selectively move said drive wheel between a first position spaced from said at least one of said carrier rollers and a second position wherein said peripheral drive surface engages said carrier roller so as to effect increased gripping of said drive wheel with said cable.

4,278,167

PACKAGE FOR RADIOPHARMACEUTICAL COMPOSITIONS

Hendrik van Rossem, Sint Maartensburg, Netherlands, assignor to Byk-Mallinckrodt CIL B.V., Petten, Netherlands

Filed May 10, 1979, Ser. No. 37,674

Claims priority, application Netherlands, May 11, 1978, 7805066

Int. Cl.³ B65D *25/54, 25/10, 85/00*

U.S. Cl. 206—45.34 **9 Claims**



1. A package for radiopharmaceutical compositions, which package comprises a transparent holder having a closed bottom and an open top and a labelled vial received in said holder, said holder including holding means for engaging said vial.

4,278,168

ARTICLE CARRIER AND BLANK THEREFOR

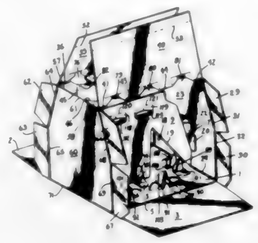
Prentice J. Wood, Hapeville, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Mar. 10, 1980, Ser. No. 129,090

Int. Cl.³ B65D *75/00, 75/06, 75/56*

U.S. Cl. 206—183 **23 Claims**

1. An article carrier comprising a bottom wall, side wall means secured to the side edges of said bottom wall, a pair of end walls secured respectively to the ends of said bottom wall, a top panel secured to the upper edges of said side wall means and said end walls and disposed substantially parallel to said bottom wall, a supplementary bottom panel joined to said bottom wall, and handle means interconnected with said sup-



plementary bottom panel and upstanding from said bottom wall, said handle means being interconnected with one of said end walls.

4,278,169

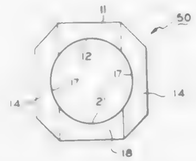
PACKING DEVICE

Boyd T. Skaggs, Louisville, Ky., assignor to Container Corporation of America, Chicago, Ill.

Filed Sep. 10, 1979, Ser. No. 73,672

Int. Cl.³ B65D *85/02*

U.S. Cl. 206—303 **1 Claim**



1. A packing device of the character described for isolating an article having arcuate contours from the walls of a shipping container, said packing device being formed from an elongated strip of paperboard and comprising:

(a) a plurality of connected panel segments each having an arcuately contoured edge adapted to contact an arcuate surface of said article and an edge spaced from said contoured edge at a side of said panel segment remote from said contoured edge and adapted to contact a wall of said container in a plane normal to said wall;

(b) said connected panel segments having the arcuate contoured edge of one segment alternating with the wall contacting edge of an adjacent panel segment;

(c) said panel segments being connected along diagonal fold lines, so that upon folding of said segments at right angles to each other the arcuately contoured edges are in contact with the arcuate surface of said article, and the spaced edge of each segment is in contact with the wall of said container.

4,278,170

CUSHIONING INSERT FOR FRANGIBLE OBJECTS

James F. Nauheimer, Chicago, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Feb. 14, 1980, Ser. No. 122,878

Int. Cl.³ B65D *85/42*

U.S. Cl. 206—422 **12 Claims**

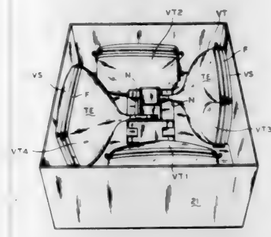
7. An insert for a shipping container for isolating from the walls of said container a plurality of necked articles of commerce such as video tube envelopes having a viewing screen at

one end and a neck at the other end, said insert being formed of a number of cut and scored blanks of paperboard or the like and comprising:

(a) a platform supported in spaced relationship to a support surface;

(b) said platform having openings conforming to contours of said tube envelopes;

(c) a center post extending through said platform;



(d) two opposed sides of said center post having the necks of a pair of tubes extending therealong and resting upon said platform;

(e) a guide supported on said center post for the necks of said tubes and for the necks of other tubes lying in a plane lying above the plane of the first named pairs of necks and extending generally perpendicularly to said necks.

4,278,171

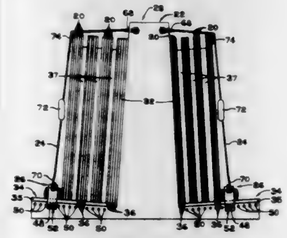
STRAP RETAINER AND COMPRESSION BLOCK

William H. Millhoan, Delaware, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 1, 1979, Ser. No. 62,603

Int. Cl.³ B65D *85/48*

U.S. Cl. 206—451 **7 Claims**



1. A strap and sheet securing assembly for use in combination with a rack of the type have a backwall mounted on a base for supporting sheets in a generally vertical position with bottom edge portion of the sheets supported on the base and strap means for securing the sheets on the rack, said securing assembly comprising:

a shoe having a first sheet engaging surface and a second sheet engaging surface spaced from the first sheet engaging surface;

first means for securing said shoe at a predetermined position on the base with the first sheet engaging surface facing the backwall and spaced a first distance therefrom;

second means for securing said shoe at the predetermined position on the base with the second sheet engaging surface facing the backwall and spaced a second distance therefrom different than the first distance; and

means mounting said shoe for retaining a portion of said strip means.

4,278,172

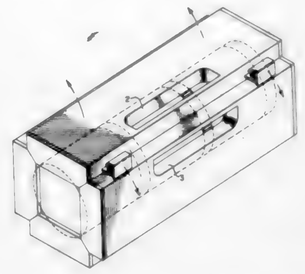
THERMOS JAR CARRIER & LUNCH TRAY

Francesco Ghebresillassie, 3739 Portal Ave., Temple Hills, Md. 20031

Filed Nov. 30, 1979, Ser. No. 98,787

Int. Cl.³ A45C *11/20*

U.S. Cl. 206—544 **3 Claims**



1. A thermos jar carrier and lunch tray comprising: at least of 3 tray portions, each portion having opposite sides of substantially the same height, a bottom wall and a top wall, each tray portion physically connected to each other in a row tray portion, said top wall including recesses for receiving a sandwich, utensils and like articles; each tray portions further including opposite upstanding end walls having a height greater than said side walls, said end walls including chamfered portions at each end of said end walls whereby when said tray portions being folded into an enclosure a space being formed among said tray portions for receiving a thermos jar, the carrier further including integral handles located on the bottom walls of said tray portions and a locking assembly of conventional nature to secure said tray portions shut when said tray portions are folded into an enclosure, each tray portions when in an open position forms a lunch tray.

4,278,173

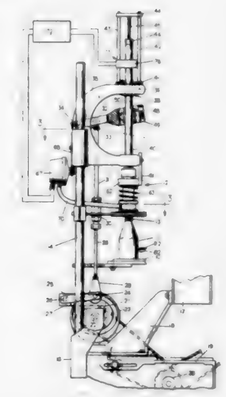
COMBINED PLUG AND AIR WARP NECK FINISH GAUGE

Ernest H. Pemberton; John J. Pezzin, both of Toledo, Ohio; Darius O. Riggs, Ottawa Lake, Mich., and Thomas B. Sorbie, Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Sep. 10, 1979, Ser. No. 73,596

Int. Cl.³ B07C *5/34*

U.S. Cl. 209—522 **7 Claims**



1. Apparatus for simultaneously gauging the internal diame-

ter and detecting the presence of unfilled or warped finishes of glass containers comprising:

a reference surface for supporting a container in an upright attitude;

a gauging head positioned axially above the neck of the container to be gauged;

means connected to said head for raising and lowering the head with a predetermined amplitude of movement;

said gauging head including an elongated plug having a predetermined external diameter adapted to pass through the neck opening of a glass container of acceptable size;

an annular collar surrounding said plug and adapted to move downward into sealing engagement with the top surface of the neck or finish of the container under test;

a first, vertically reciprocated, tube connected to the upper end of said plug;

a second, vertically reciprocated, tube surrounding said first tube;

an annular piston formed at the lower end of said second tube;

a cylinder connected to said annular collar, within which said annular piston is slideable; and

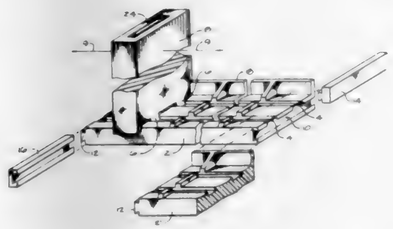
means connected to said cylinder for measuring the pressure produced therein by movement of said piston with the collar sealed to the container finish as an indication of the integrity of the sealing surface of the container.

4,278,174

DISPLAY AND STORAGE ASSEMBLY

Paul L. LeBlanc, 24 Kendra St., Apt. 6, Moncton, New Brunswick, Canada E1C 4J8

Filed Sep. 10, 1979, Ser. No. 73,808
Claims priority, application Canada, Apr. 20, 1979, 326007
Int. Cl.³ A47F *7/00*
U.S. Cl. 211—40 **3 Claims**



1. A storage and display assembly primarily adapted for receiving cassette and eight-track tapes and comprising

an elongate base section having at least one upwardly opening longitudinal groove of female dovetail configuration, and at least one upright partition member having at least one downward projection of male dovetail configuration for sliding engagement within the at least one longitudinal groove,

one end of the base section having a transverse male dovetail configuration and the other end of the base section having a female dovetail configuration whereby identical base members may be joined endwise together to any length,

and complementary end caps to cover the ends of the base section,

the top surface of each upright member having a recess therein, and the bottom surface of each base member having a number of transverse downward projections provided uniformly theralong, the recess being adapted to receive a selected one of the downward projections enabling vertical enlargement of the assembly,

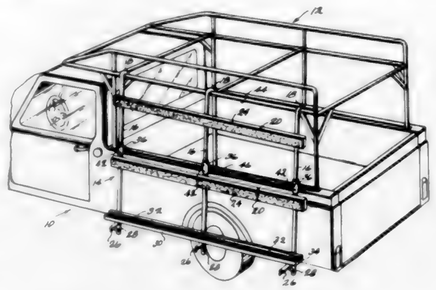
the top surface of the base sections having low transverse dividers to separate and support cassettes carried therebetween.

4,278,175

GLASS CARRYING RACK

Archie A. Jackson, P.O. Box 1332, Silver City, N. Mex. 88061

Filed Nov. 22, 1978, Ser. No. 963,048
Int. Cl.³ A47F *7/00*
U.S. Cl. 211—41 **9 Claims**



1. A glass carrying rack comprising:

a frame adapted to be disposed on a vehicle, said frame including a horizontal member;

a plurality of upright supports;

means for bearing the weight of said rack consisting of a plurality of hook means, one of said plurality of hook means attached to the top of each of said plurality of upright supports, said hook means detachably securing said plurality of upright supports to said frame horizontal member;

means interconnecting said plurality of upright supports for supporting said glass; and

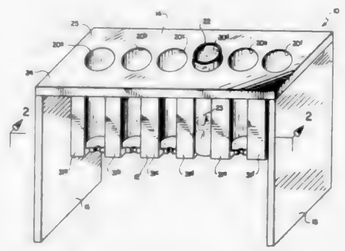
means for biasing said upright supports away from said vehicle and at a small angle with respect to the vertical.

4,278,176

GRADIENT TUBE RACK AND METHOD

Mark B. Adams, Salt Lake City, Utah, assignor to University of Utah, Salt Lake City, Utah

Filed Jul. 2, 1979, Ser. No. 53,876
Int. Cl.³ A47B *73/00*; **G01N** *21/01*
U.S. Cl. 211—74 **10 Claims**



1. A gradient tube rack comprising:

a gradient tube holder comprising a body having a plurality of upwardly-opening, gradient tube receivers therein, each gradient tube receiver including a longitudinal slot therein forming a viewer opening for viewing a substantial portion of the length of a gradient tube placed in the gradient tube receiver, each gradient tube receiver having a shelf in the lower end thereof for receiving an end of a downwardly-inserted gradient tube in abutting relationship;

access means in each shelf for providing access to the bottom of the gradient tube at a location coaxial with the gradient tube;

a stand for supporting the gradient tube holder above a surface, the stand comprising a vertical, planar element secured to each end of the gradient tube holder and extending forwardly therefrom; and

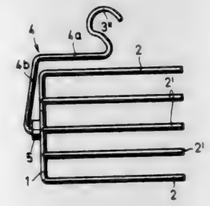
light shield means for shielding the viewer openings in the gradient tube holder against at least a portion of the ambient light said light shield means comprising a horizontal, planar top element extending forwardly from the top of the gradient tube holder and cooperating with the vertical, planar elements of the stand to thereby form said light shield means about said viewer openings.

4,278,177

CLOTHES HANGER WITH MULTIPLE CLOTHES SUPPORTS

Ibrahim Fahmi, Lewrenzstr. 119, 4150 Krefeld, Fed. Rep. of Germany

Filed Aug. 17, 1979, Ser. No. 67,302
Claims priority, application Fed. Rep. of Germany, Aug. 21, 1978, 7824917[U]
Int. Cl.³ A47F *7/19*
U.S. Cl. 211—116 **5 Claims**



1. Clothes hanger with multiple clothes supports comprising a hook for hanging the clothes hanger, a support rod arranged vertically when said hook is positioned for hanging the clothes hanger, a plurality of substantially parallel spaced struts forming the multiple supports for the clothes hanger, said struts formed of a bending-resistant material and secured to and extending horizontally from said support rod and being spaced apart along said support rod and being located in a plane including said hook when said support rod is arranged vertically, said support rod and said struts forming a U-shaped member formed of the bending-resistant material and having a bight portion and two laterally spaced leg portions each having a first end and second end with the first end of each leg portion forming a junction with said bight portion and the second end of each said leg portion being spaced outwardly from said bight portion, said bight portion comprising said support rod and said leg portions comprising an upper and a lower said strut, at least one additional rectilinear said strut secured to said bight between said leg portions and extending outwardly from said bight, and said hook attached to said U-shaped member wherein the improvement comprises a rod forming an angle having a first leg and a second leg with said second leg bent at an oblique angle to said first leg, said first leg having a free end spaced from the junction with said second leg, said hook being formed in a part of said first leg extending from the free end thereof toward and spaced from the junction with said second leg, said second leg having a free end spaced from the junction with said first leg, the free end of said second leg being connected to said bight portion intermediate the connection of said leg portions to said bight portion.

4,278,178

CHILD-RESISTANT CLOSURE AND CONTAINER

Milton L. Geiser, Millersville, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angeles, Calif.

Filed May 21, 1979, Ser. No. 40,694
Int. Cl.³ B65D *55/02*
U.S. Cl. 215—215 **6 Claims**



1. The combination of a plastic container and a pry-off closure therefor comprising:

a container having a body with an upstanding neck,

an annular shoulder of a predetermined diameter on the neck of the container and having a continuous uninterrupted planar surface,

an upstanding annular pouring spout on said container projecting upwardly from said shoulder and terminating in an upper rim about a container opening,

means defining a retaining ring means on said spout adjacent the upper rim for cooperation with the closure,

a closure for said container made of plastic and having a predetermined flexibility,

a top wall on said closure,

an annular depending skirt wall integrally formed with said top wall and having a diameter equal to or less than said predetermined diameter of said shoulder, said skirt wall having an outer cylindrical surface without any projections for prying off of said cap,

an inwardly projecting ring means on the internal wall of said closure for engaging said retaining ring means and for snapping thereover to secure said closure to said container,

said inner wall of said closure has a cylindrical surface without any projections thereon other than said inwardly projecting ring means, allowing said closure to turn to any rotative position relative to said container,

a discrete sealing element disposed beneath said top wall and having a portion for sealing with and adhering to the rim of said container to seal the same with removal of the closure from the container,

said sealing element being separable from said closure after being adhered to said container rim;

a bottom end wall on said skirt disposed closely adjacent to said continuous, uninterrupted planar surface on said shoulder at a predetermined spacing,

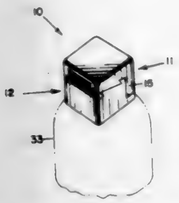
and walls in said skirt defining a slot extending upwardly from said bottom end wall of said skirt to adjacent said inwardly projecting ring means providing a spacing greater than said predetermined spacing with said shoulder to receive a coin or tool therein for flexing the skirt wall for prying off said closure from said container, said slot being sufficiently wide to admit a coin into the slot in wedging relationship when said closure is in rotative position relative to said container.

4,278,179

CONTAINER CLOSURE

Richard L. McWilliams, 1310 McCullough, San Antonio, Tex. 78212

Filed Dec. 10, 1979, Ser. No. 101,643
Int. Cl.³ B65D *51/04*
U.S. Cl. 215—245 **2 Claims**



1. A container closure apparatus, comprising:

a container top portion for mounting on a container opening having an aperture extending there through communicating with the container opening for dispensing material from the container;

said container top portion having a first closure surface inclined downwardly from the front of said container top portion to the rear thereof, and having first and third latch means in the form of serations formed on said first closure surface and extending laterally thereacross, said aperture being disposed between said first and third latch members;

a closure member pivotally secured to the container top portion and having a second closure surface for sealing engagement with the first closure surface;

said closure member having second and fourth latch means in the form of serations formed on said second closure surface and extending laterally thereacross, and in opposing relation to said first and third latch means for releasably latching with said first and third latch means thereby securing the first and second closure surfaces in sealing relationship; and

said closure member having two spaced downwardly extending leg members positioned at opposed sides of said closure member for pivotally engaging said container top portion at pivot points spaced below said first closure surface and at the rear of said container top portion wherein the length of the said two leg members is chosen so as to provide a low arcuate movement of the closure member with respect to the container top portion and to securely latch said first and third latch means and said second and fourth latch means and retain said closure surfaces in sealing relationship.

4,278,180

CONTAINER CLOSURE WITH BREAKABLE ANNULAR RING

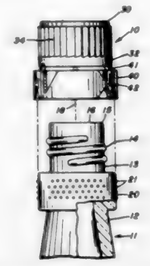
Wilbura C. Willis, Hagerstown, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 24, 1980, Ser. No. 115,027
Int. Cl.³ B65D *41/34*
U.S. Cl. 215—252 **11 Claims**

1. A closure for a container having a neck comprising a distal finish portion terminating in an annular rim defining a mouth opening of the container, said closure comprising

(a) a cap engaging the finish portion of the container,

(b) an annular ring connected to the cap and located contiguous to and radially outwardly of the neck, said ring being free to rotate circumferentially with respect to the neck upon application of torque to the cap in a first direction corresponding to a fastening of the cap onto the container, and said ring being constricted radially inwardly to engage the neck upon application of torque to the cap in a second direction opposed to the first direction and corresponding to a loosening of the cap from the container, thereby frustrating removal of the cap from the container.

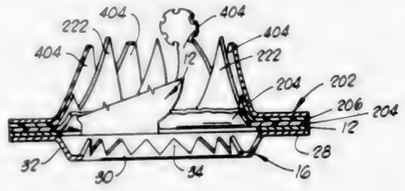


4,278,181

SAFETY PRESSURE RELIEF DEVICE

Loren E. Wood; Jerome D. Allen, both of Tulsa; Miner E. Clift, Broken Arrow; Jerry W. Kays, and Calvin C. Forsythe, both of Tulsa, all of Okla., assignors to BS & B Safety Systems, Inc., Tulsa, Okla.

Filed Aug. 25, 1978, Ser. No. 936,868
Int. Cl.³ F16K *17/40*
U.S. Cl. 220—89 A **5 Claims**



1. A safety pressure relief device comprising:

a flexible sealing member;

a knife means, including:

a cutting blade located about the periphery of a substantially circular opening formed in said knife means;

a flange portion located radially outward of said cutting blade; and

an annular connecting portion between said flange portion and said cutting blade;

a first rupture disk having said flexible sealing member associated with one side thereof and having said knife means located adjacent a side thereof opposite said flexible sealing member so that when said first rupture disk ruptures in response to a predetermined pressure differential caused by a first pressure on the sealing member side of said first rupture disk being a predetermined amount greater than a second pressure on the knife means side of said first rupture disk, said flexible sealing member engages said knife means, said first rupture disk including:

a plurality of arcuate slots located radially outward of said cutting blade and defining a substantially circular blowout portion therein and a retaining hinge thereon, said blowout portion being constructed for dislocation from said first rupture disk and passage through said opening in said knife means so that an opening, through which a portion of said sealing member extends to contact said knife means after rupture of said first rupture disk, is created in said first rupture disk when said first rupture disk ruptures; and

at least one rupture tab located between adjacent arcuate slots and having a notch therein; and

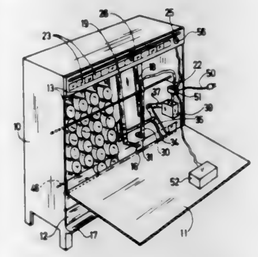
a second rupture disk associated with said flexible sealing member so that said sealing member is located between said first and second rupture disks.

4,278,182

VENDING MACHINE

Allan Ahlström, Mahults Herrgard, Simlangsdalen, Sweden (310 39)

Filed Sep. 7, 1979, Ser. No. 73,325
Claims priority, application Sweden, Sep. 8, 1978, 7809454
Int. Cl.³ G07F *11/24, 11/32*
U.S. Cl. 221—5 **9 Claims**



1. A vending machine comprising a number of separate, vertical compartments arranged to form a flat battery, from the lower end of which items are singularly retrievable under the control of a release mechanism,

each of said compartments being defined by two side walls, a back wall and a bottom,

an opening in the back wall of each compartment adjacent to its bottom,

a selector mechanism including a frame embracing three sides of said battery and comprising a front member, a rear member and a top member interconnecting said rear and front members,

two horizontal guides for carrying said frame while permitting displacement thereof along said battery,

a handle on said top member for manual displacement of said frame,

a sensor carried by said front member,

a feeding-out finger on said rear member adjacent said opening, and

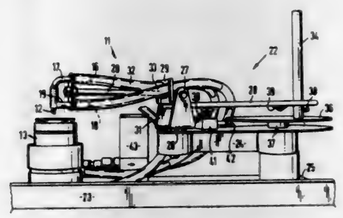
an actuating mechanism for reciprocating said feeding-out finger in and out said opening in the back of a selected compartment.

4,278,183

DISPENSING APPARATUS AND METHOD

William P. Billington, Flitwick, England, assignor to National Research Development Corporation, London, England

Filed Apr. 18, 1979, Ser. No. 31,136
Claims priority, application United Kingdom, May 4, 1978, 17684/78
Int. Cl.³ A01C *19/00*; B65G *47/36*
U.S. Cl. 221—211 **7 Claims**



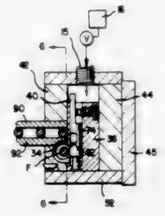
1. A method of dispensing seeds from a liquid comprising the steps of placing discrete seeds in suspension in a liquid having a free upper surface, capturing a seed against a capture orifice by means of a pressure difference across the orifice, producing relative movement between the capture orifice and the said seeds in suspension and positioning the capture orifice with the captured seed at a release location for dispensing the seed, and releasing the captured seed from the capture orifice, the first mentioned step including the step of supplying an upwardly directed flow of liquid in the said suspension of the said discrete objects such as to produce recirculatory movement of seeds in which a stream of discrete seeds is carried upwardly towards the surface of the liquid to produce a fountain of seeds rising slightly above the surface of the liquid, the capture orifice being brought to the fountain for capture of a seed.

4,278,184

ESCAPEMENT MECHANISM FOR AUTOMATIC FASTENER INSERT MECHANISMS

Clyde P. Willis, P.O. Box 335, Conover, N.C. 28613

Filed Aug. 27, 1979, Ser. No. 69,809
Int. Cl.³ B65H *5/22*
U.S. Cl. 221—233 **7 Claims**



7. In an escapement mechanism for automatic fastener devices of the type in which fasteners are removed from a reservoir and transferred one at a time to a fastener inserting device the improvement comprising:

(a) a carrier means positioned in a trackway for receiving fasteners one at a time from said reservoir when in a front position;

(b) said carrier means being moved to a second discharge position in said trackway by the application of air under pressure against the carrier means;

(c) a fastener outlet communicating with said carrier means at said second position to discharge fasteners from said carrier means into a conduit leading to said fastener inserting device; and

(d) said carrier means including at least one air bypass passageway for permitting passage of a portion of said air within said trackway under pressure into said fastener outlet;

whereby the same air that drives the carrier means also transfers the fastener to the fastener insert device.

4,278,185

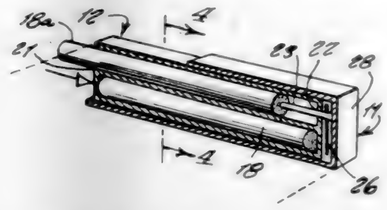
DOUBLE TEN CIGARETTE DISPENSER

Sergio J. Perez, 311 W. 97th St., Apt. 3E, New York, N.Y. 10025

Filed Jul. 19, 1979, Ser. No. 59,042
Int. Cl.³ A24F *15/04*; B60N *3/12*
U.S. Cl. 221—104 **2 Claims**

1. A double ten cigarette dispenser, comprising in combination; a frame for placement on top of an automobile dashboard, and a cigarette case that is slid rearwardly into said frame with either upper opposite or lower opposite side of said case facing upwardly in said frame; said case comprising two compartments, one upon another separated by a partition therebetween; each compartment holding a row of ten cigarettes, and each compartment being accessible for re-loading cigarettes therein by pivoted doors on opposite sides of said case; said

frame comprising a receptacle mounted upon a plate fitted with rubber pads therebeneath for resting upon said dashboard; said receptacle having an opening at a front thereof for slidably receiving said case, and a forwardly extending push rod near one corner of a rectangular rear wall of said receptacle; and said case having a pair of holes near opposite diagonal corners



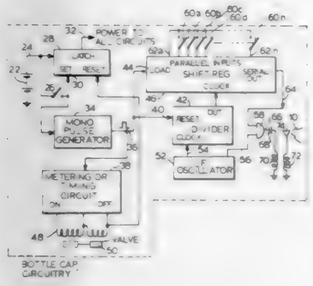
of a rectangular rear wall thereof, and being selectively entered by said push rod when said case is slid in said frame with either said case upper or lower side thereof facing upwardly for alignment with said push rod, and a spring loaded pressure plate in front of said receptacle rear wall, normally urging said case away from said push rod.

4,278,186

METHOD AND APPARATUS FOR BEVERAGE DISPENSING CONTROL AND QUANTITY MONITORING

Robert D. Williamson, 7350 NW. First Ct., Pembroke Pines, Fla. 33024

Filed Sep. 8, 1978, Ser. No. 940,464
Int. Cl.³ B67D *5/08*
U.S. Cl. 222—36 **6 Claims**



1. A method for beverage dispensing control and quantity monitoring comprising the steps of:

setting re-programmable data switches disposed within a given bottle control cap for impressing therein data bits to identify that cap from others in a system of programmable control caps;

opening a valve in the control cap;

activating electronic circuitry disposed within the control cap that both serializes the data bits impressed therein and also transmits a radiated signal containing the serialized data bits;

receiving in a remote location the radiated signal containing the serialized data bits; and

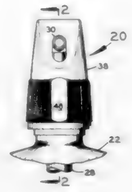
accumulating such radiated signals from all control caps within the system in a data processing device.

4,278,187

TRIGGER LOCK SYSTEM FOR PUMP

Warren J. Luedtke, Fish Creek, Wis., assignor to Security Plastics, Inc., Miami Lakes, Fla.

Filed Dec. 13, 1979, Ser. No. 103,363
Int. Cl.³ B67B *5/00*
U.S. Cl. 222—153 **6 Claims**



1. In a dispensing pump assembly for dispensing product from a container,

a pivotally reciprocable lever for actuating said pump assembly;

said lever having a catch;

and locking means in said pump assembly for releasably engaging said catch to lock said lever in a depressed position;

said pump assembly including a closure and a housing rotatable on said closure;

and said locking means including a lip on said closure having a recess therein for receiving said catch;

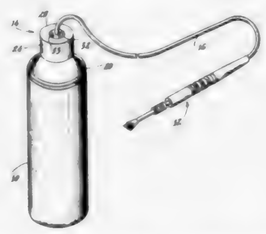
said housing and lever being rotatable to align said lever with said recess, said lever being depressible to insert said catch in said recess, and said housing and lever being further rotatable to engage said inserted catch with said lip.

4,278,188

REMOTE DELIVERY NOZZLE ASSEMBLY FOR PRESSURIZED CONTAINER

George M. Stephenson, 190 Chestnut Ridge, Bethel, Conn. 06801, and David E. Begin, Brookfield, Conn., assignors to George M. Stephenson, Bethel, Conn.

Filed Oct. 1, 1979, Ser. No. 80,589
Int. Cl.³ B67D *5/06*
U.S. Cl. 222—182 **5 Claims**



1. An improved remotely operated pressurized container assembly including the combination of a pressurized container provided with an upstanding rim concentrically surrounding an upstanding hollow valve stem for releasing the pressurized contents therefrom in response to shifting of the valve stem relative to the container from a normal disarmed mode position to a depressed armed mode position, a remote delivery nozzle for selectively controlling the release of said contents from said container, conduit means coupled with said remote delivery nozzle for carrying said contents from said container to said remote delivery nozzle, wherein the improvement comprises:

means for releasably connecting said valve stem with said conduit means,

said connecting means including

(1) cap means for enclosing said valve stem and including an annular peripheral edge frictionally engaging said upstanding rim of said container whereby to removably mount said cap means on said container, said cap means including an aperture therein.

(2) a connector element extending through said aperture in said cap means and secured to the latter, said connector element having a bore therethrough defining first and second openings therein, said first opening being flowably coupled with said conduit means, said valve stem being sealingly received within said bore and extending through said second opening in said connector element, said connector element further including surface portions adapted to engage said valve stem and force the latter to shift from said disarmed mode position thereof to said armed mode position thereof when said cap means is installed on said container, and

(3) means circumscribing said connector element for providing a seal between said cap means and said connector element to prevent escape of the contents of said container from said cap means through said aperture into the surrounding atmosphere,

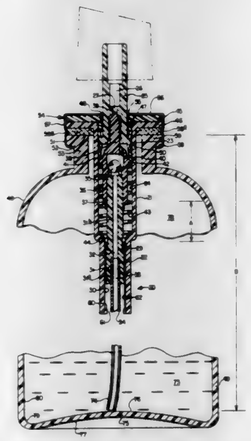
said cap means is formed from a plastic material and is tubular in shape, one extremity of said cap means being enclosed by an end wall, said aperture being disposed in said end wall, said end wall including an annular area of weakness therein curcumscribing said aperture to facilitate flexion of said end wall adjacent said aperture.

4,278,189

ACCUMULATIVE PRESSURE PUMP

Donald C. Kirk, Jr., Naugatuck, Conn., assignor to Ethyl Products Company, Richmond, Va.

Filed Dec. 17, 1979, Ser. No. 104,120
Int. Cl.³ B05B *9/043*
U.S. Cl. 222—321 **15 Claims**



1. In a pump dispenser adapted to be attached to a container holding a liquid to be dispensed, the combination comprising:

(a) means defining a cylindrical pump body having a first section and a second section, said second section being of a smaller diameter than said first section;

(b) a first piston received in said first body section and having an attached first stem means having a fluid passage therein extending out of said body section;

(c) a second piston received in said second body section and having an attached second stem means having a fluid passage in its lower portion and a solid upper portion normally contacting said first stem means to close the fluid passage therein;

(d) a dip tube means having its upper portion passing through an opening of larger diameter than said dip tube that is provided in the lower end of said second body section, the dip tube upper end being coupled to said second piston and movable therewith; and

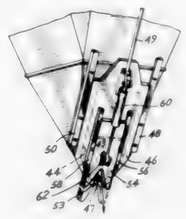
(e) means provided on the wall of said second body section to cooperate with said second piston to permit air entrapped in said first and second body sections to be discharged through the opening in the lower end of said second body section into the air space of said container upon the priming of the pump.

4,278,190

CONCRETE DISCHARGE HOPPER

Robert F. Oory, Hampshire, and Charles J. Arndt, Elk Grove, both of Ill., assignors to Rotec Industries, Inc., Elmhurst, Ill.

Filed Jan. 7, 1980, Ser. No. 109,929
Int. Cl.³ B65G *41/00*
U.S. Cl. 222—561 **12 Claims**



1. A hopper for controlling a flow of concrete to a moving belt comprising:

(a) a plurality of inclined side walls converging toward the bottom of said hopper;

(b) one of said side walls being flat and having a concrete discharge opening therethrough;

(c) primary gate means, slidably mounted on said one of said side walls and capable of moving across said concrete discharge opening, for shearing said flow of concrete, said primary gate means terminating at its lower end in an inverted substantially V-shaped opening;

(d) means for actuating said primary gate means and causing said primary gate means to progressively close said concrete discharge opening; and

(e) stop means connected with said hopper for arresting downward movement of said primary gate means;

(f) a secondary gate mounted on said primary gate means for closing said inverted substantially V-shaped opening.

4,278,191

SPARE TIRE CARRIER

Lynn Mecham, 465 W. 800 South, Alpine, Utah 84003

Filed Dec. 10, 1979, Ser. No. 102,248
Int. Cl.³ B62D *43/04*
U.S. Cl. 224—42.21 **11 Claims**

1. A spare tire carrier comprising,

tube support means for rigid attachment to a vehicle;

lifting means fitted within said tube support means and arranged for moving vertically therein;

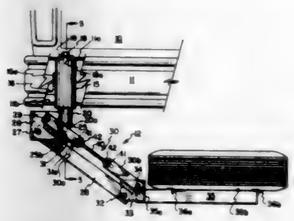
means for operating said lifting means to move it vertically;

chain means secured to said lifting means to move therewith;

a support bar also secured to said chain means and pivotally connected at its ends, respectively, to a lifting pivot block and platform pivot block;

means for maintaining said lifting pivot block in essentially a stationary attitude;

tire platform means secured to extend from said platform pivot block for maintaining a spare tire thereon; and



means arranged between said lifting and platform pivot blocks for limiting rotation of said pivot blocks.

4,278,192

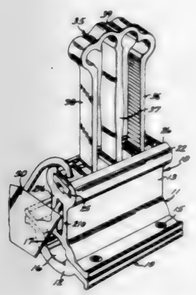
SKI AND POLE CARRYING BRACKET

Frank Sazegar, 1978 Gladwick St., Compton, Calif. 90220

Filed Jan. 2, 1980, Ser. No. 109,142

Int. Cl.³ B60R *9/12*

U.S. Cl. 224—315 **6 Claims**



1. Apparatus for securing various skiing articles to each other and for releasably attaching the collected skiing articles to an automobile, comprising:

a support assembly conformed for attachment to said automobile including a transverse opening of substantially rectangular section communicating through an elongate slot to the exterior thereof;

a base plate of substantially rectangular plan form adapted for insertion on the interior of said transverse opening;

a fork-like bracket assembly having a first and second exterior leg on the distal sides thereof and an interior leg disposed therebetween, said interior leg being shorter than said first and second exterior legs, said first and second exterior legs and said interior leg being dimensioned for receipt in said slot;

pivoting means connected to the free end of said first exterior leg and engaged to said base plate for pivotal engagement of said bracket assembly to said base plate; and

latch means connected to the free end of said second exterior leg for engaging said base plate in a first or second spaced alignment relative said pivoting means.

4,278,193

GLASS BREAKING AND SEPARATING APPARATUS AND METHOD

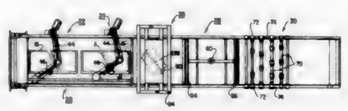
Gordon F. Peremen, Columbus, and John D. Kellar, Pontypool, both of Canada, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 15, 1979, Ser. No. 39,219

Claims priority, application Canada, Feb. 28, 1979, 322445

Int. Cl.³ C03B *33/04*

U.S. Cl. 225—2 **17 Claims**



1. The method of scoring and breaking out glass blanks of predetermined outline shape from a glass sheet comprising:

(a) applying first and second score line patterns to a piece of glass, the first and second score line patterns each including a respective score line segment, which score line segments extend adjacent to one another, said score line patterns defining, at least in part, the outlines of glass blanks to be subsequently broken out from the piece of glass;

(b) applying forces to the piece of glass in such a way as to sever the glass along one of the score line segments and to split the piece of glass into two parts each having a respective one of said patterns thereon;

(c) laterally separating the two glass parts a selected distance away from one another; and

(d) applying break-out forces to the laterally separated glass parts to complete the severing of the parts along their respective score line patterns.

4,278,194

MACHINE FOR THE ATTACHMENT OF BUTTONS, RIVETS OR THE LIKE

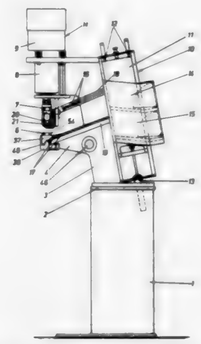
Metin Ersoy, Wuppertal, Fed. Rep. of Germany, assignor to Schaeffer-Homberg GmbH, Wuppertal, Fed. Rep. of Germany

Filed Jun. 14, 1979, Ser. No. 48,420

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826418

Int. Cl.³ A41H *37/00*

U.S. Cl. 227—18 **8 Claims**



1. In a machine for the attachment of fasteners on clothing pieces, the fasteners comprising upper parts and lower parts adapted to be attached together by upper and lower tool stamps on the clothing pieces at an attachment position, with a magazine adapted to store the parts of the fasteners and being oriented laterally relative to the attachment position, a feed rail extending from the magazine up to a vicinity of the attachment position feeds the lower parts to this vicinity, and swingable means for transferring the lower parts from this vicinity into the attachment position, the improvement wherein

said feed rail has an exit mouth at said vicinity and constitutes means for feeding the lower parts to said exit mouth in a substantially edgewise-upright position, said exit mouth is located at an angle offset by about 90 degrees relative to the attachment position,

a slide surface extends from said exit mouth up to the attachment position, said slide surface is circularly arc-shaped, beginning tangentially from said exit mouth and running substantially tangentially into the attachment position,

a rotatable ring section having a bearing surface rotatably running on said slide surface, said ring section on a front end thereof forms a reception pocket constituting means for receiving one of said lower parts, respectively, at said exit mouth with said one lower part substantially oriented in the edgewise-upright position and positioned against said slide surface and running against said slide surface in said reception pocket during rotation of said ring section on said slide surface, directly delivering and transferring said one lower part into the attachment position and simultaneously turning said one lower part via said slide surface from said edgewise-upright position substantially into a horizontal position at the attachment position, and

said ring section on said said front end has a narrow edge, the latter during the rotatable running of said ring section on said slide surface being positioned closingly against the exit mouth of the feed rail.

4,278,195

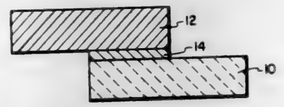
METHOD FOR LOW TEMPERATURE BONDING OF SILICON AND SILICON ON SAPPHIRE AND SPINEL TO NICKEL AND NICKEL STEEL AND APPARATUS USING SUCH A BONDING TECHNIQUE

Guraam Singh, Willow Grove, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 1, 1978, Ser. No. 965,350

Int. Cl.³ B23K *35/28;* **H05K** *5/06*

U.S. Cl. 228—123 **10 Claims**



1. A method for bonding nickel to silicon comprising the steps of providing an aluminum layer between an overlapping area of a nickel layer and a silicon layer, pressing the composite layered structures together under a pressure of approximately 100 psi and subjecting the compressed structure to a temperature of approximately 640 degrees C. in a reducing atmosphere for approximately five minutes.

4,278,196

STORAGE TRAY

Harold H. Ford, Claremont, Calif., assignor to Acme General Corporation, San Dimas, Calif.

Filed Dec. 26, 1979, Ser. No. 106,457

Int. Cl.³ B65D *5/20;* **A47B** *7/02*

U.S. Cl. 229—30 **54 Claims**

1. A tray comprising:

a flat elastically bendable sheet for forming the bottom and sides of the tray without creasing the sheet, each corner of the sheet being notched for overlapping edges of the notch upon elastic bending of edges of the sheet into a plane approximately normal to the plane of the center of the sheet;

a plurality of rigid side rails each having a generally U-shaped cross section for receiving an edge of the sheet between the notches, the rails collectively forming a rim of the tray; and



a plurality of corner connectors, each corner connector including means for gripping each of a pair of adjacent rails at a corner of the tray and means for securing both overlapping edges of a notch at the corner of the tray.

4,278,197

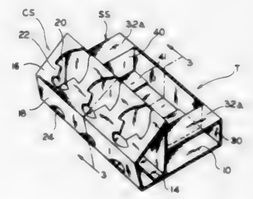
CARRY-OUT TRAY

Marc C. Scheinbaum, Libertyville, and Anne L. Winburn, Lake Forest, both of Ill., assignors to Container Corporation of America, Chicago, Ill.

Filed Feb. 25, 1980, Ser. No. 124,439

Int. Cl.³ B65D *5/36*

U.S. Cl. 229—30 **9 Claims**



1. A collapsible carry-out tray having a pair of adjacent compartments separated from each other and being formed from a unitary blank of foldable paperboard or the like, comprising:

(a) a generally rectangular bottom wall extending under both of said compartments;

(b) a longitudinally disposed, vertical partition wall secured to and extending upwardly from said bottom wall intermediate the front and rear sides thereof;

(c) top and front walls foldably joined to each other and to said partition wall and the front edge of said bottom wall, respectively;

(d) said top and front walls being disposed at acute and obtuse angles to the partition and bottom walls, respectively, to define therewith a tubular first compartment structure of generally trapezium shaped cross-section;

(e) upper and rear walls foldably joined to each other and to said partition wall and the rear edge of said bottom wall, respectively;

(f) said upper and rear walls defining with said partition and bottom walls a tubular second compartment;

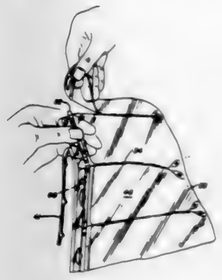
(g) said top and upper walls having openings therein to provide access to respective compartments.

4,278,198

FLEXIBLE COLLAPSIBLE CONTAINER WITH A STIFFENING MEMBER

William W. Norton, Deerfield, and Henry Boehmer, Mt. Prospect, both of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Division of Ser. No. 852,422, Nov. 17, 1977, Pat. No. 4,175,994.
This application Jun. 18, 1979, Ser. No. 49,762
Int. Cl.³ B65D *33/02, 33/14*
U.S. Cl. 229—55 10 Claims



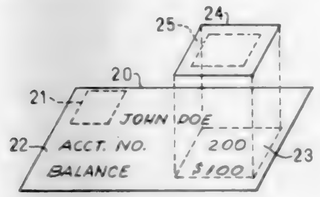
1. A flexible, collapsible container comprising a pair of facing sheet sections sealed together at most of their periphery; a stiffener bar section composed of a material different from said facing sheet sections positioned transversely adjacent one end of said container between said facing sheet sections; seal lines between said sheet sections on each side of, adjacent to and parallel to said stiffener bar section in the container to isolate and retain said stiffener bar section, said stiffener bar section being of less width than said container in its as-made configuration, said sheet sections being made of a plastic material which shrinks on heating, the length of said stiffener bar section being proportioned to be essentially equal to the width of said container after autoclaving.

4,278,199

POST CARD

Yoshio Tanaka, 2-7-6, Shibuya, Shibuya-ku, Tokyo, 150, Japan

Filed Jul. 9, 1979, Ser. No. 56,038
Int. Cl.³ B65D *27/32;* B42D *15/02*
U.S. Cl. 229—92.8 10 Claims



1. A post card mailable at a post card postage rate for sending information, a portion of which normally is viewable and at least a portion of which normally is concealed from view, said post card comprising

a base member of post card size and shape,

an opaque cover member being less than one-half the size of said base member attached to said base member for concealing from view a hidden information area at one of the facing surfaces of the cover and base members,

at least a portion of one of said cover member and base member adjacent said cover being removable for viewing by the recipient of the post card of the normally hidden information areas, and

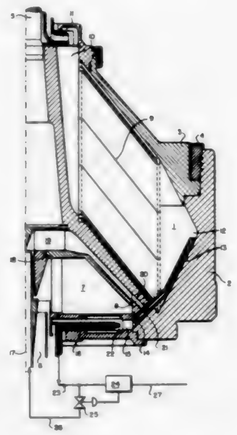
impression transfer means of substantially the same size as said cover member between said cover and base members for producing an image of an impression at one of the facing surfaces of the cover and base members from an impression at an outer face thereof.

4,278,200

CONTINUOUSLY OPERATING CENTRIFUGAL SEPARATOR DRUM FOR THE CONCENTRATION OF SUSPENDED SOLIDS

Hubert Gunnewig, Oelde, Fed. Rep. of Germany, assignor to Westfalia Separator AG, Oelde, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,469
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842967
Int. Cl.³ B04B *11/00*
U.S. Cl. 233—16 4 Claims



1. In a continuously operating centrifugal separator suitable for concentration of suspended solids contained in a liquid feed material, having a drum for separation of the feed material into a concentrated fraction and a clear fraction, a paring chamber for discharge of concentrated fraction, a first passageway for delivery of concentrated fraction from the periphery of the drum to said paring chamber, and a second passageway for receiving concentrated fraction from the paring chamber and discharge of concentrated fraction from the drum, the improvement which comprises conduit means for recycling concentrated fraction which has been conveyed to the paring chamber to the first passageway.

4,278,201

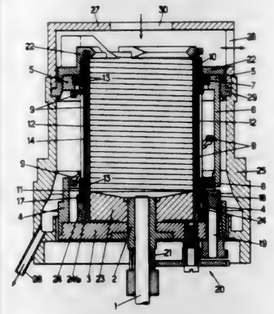
CONTINUOUS CENTRIFUGAL SEPARATOR

Serge Cailliot, 38, Rue du Bois de Boulogne, 9220 Neuilly-sur-Seine, France

Filed Jun. 18, 1979, Ser. No. 49,386
Claims priority, application France, Jun. 19, 1978, 78 18312
Int. Cl.³ B04B *1/00*
U.S. Cl. 233—27 4 Claims

1. In a continuously renewing separator with a rotating cylindrical wall of the type comprising a helicoidal winding with closely adjacent turns of an endless belt which is looped about itself so as to unwind slowly at one end and rewind at the other end while advancing axially at the same time as it is drawn into continuous rotation at a greater speed than the axial advancement, the belt being disposed for this purpose in a rotating first cage turning at the greater speed and comprising

on the one hand a device for supporting and guiding the cylindrical wall having adjoining turns and including progressive unwinding and rewinding guides located fixedly in said cage, with a slow and continuous drive means for moving the belt in relation to said cage, the improvement wherein said supporting and guiding device, as well as said drive means are constituted



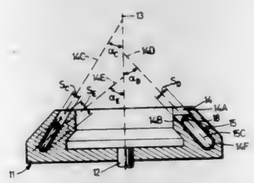
at the same time by a second cylindrical cage coaxial with the first cage and comprising equidistant bars which are integral with two continuous terminal drumheads and which project inside said drumheads, and wherein said belt comprises exterior notches cooperating with the projecting portion of said bars to insure engagement, said second cage being driven at a speed which is slightly different from that of the first cage.

4,278,202

CENTRIFUGE ROTOR AND COLLAPSIBLE SEPARATION CONTAINER FOR USE THEREWITH

Johan E. H. Westberg, Lidingö, Sweden, assignor to Separek Teknik AB, Stockholm, Sweden

Filed Jul. 25, 1979, Ser. No. 60,819
Claims priority, application Sweden, Jul. 25, 1978, 7808129
Int. Cl.³ B04B *1/00, 5/00*
U.S. Cl. 233—27 6 Claims



1. A centrifuge rotor having a recess for receiving a separation container and extending along a circular axis centered on the axis of rotation of the rotor, the radially outer sidewall of the recess being inclined with respect to the axis of rotation of the rotor so that during rotation of the rotor centrifugal separation of liquid contents of a collapsible separation container received in the recess takes place under the influence of the angle effect, the angle of inclination of the radially outer sidewall of the recess increasing from a minimum value at a first point on the circular axis to a maximum value at a second point on the circular axis located near the first point.

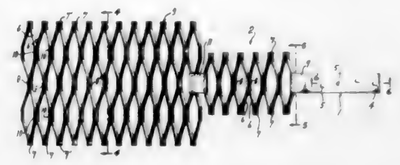
6. A collapsible container for use in a centrifuge rotor having a conical pocket receptive of the container, said container being made of flexible sheet material, and having tubes attached thereto for conveying liquid into and out of the container, said container comprising a length of tube or hose having the opposite ends thereof closed and free of each other, the cross-sectional area of the lumen of the length of tube or hose being enlarged at one of said opposite ends; said tubes for conveying liquid into and out of said chamber including a plurality of outlet tubes communicating with the container at said one enlarged end and an inlet tube entering said container at said one enlarged end but communicating with the interior of said container adjacent the opposite end, all said tubes being secured to said container at said one enlarged end.

4,278,203

ANTISKID TRACTION DEVICE FOR VEHICLE WHEEL

Real Martin, 1206 Saint-Louis, Thetford Mines, Quebec, Canada (G6G 4C6)

Filed Feb. 26, 1979, Ser. No. 14,996
Int. Cl.³ E01B *23/00*
U.S. Cl. 238—14 8 Claims



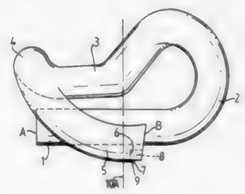
1. An antiskid traction device for a vehicle wheel tire comprising first and second elongated, antiskid traction sections articulated end to end, and a tongue section protruding from the outer end of said second antiskid traction section, said three sections having a common longitudinal axis, said first and second antiskid traction sections having gripping means protruding from both main faces thereof, said first antiskid traction section being relatively wider than said tire, said second antiskid section having a width nearly equal to, but smaller than, the width of said tire and intermediate the width of said tongue section and of said first antiskid traction section, and interposed between the latter and said tongue section, said tongue section being a strip which is resilient, thin and flat both longitudinally and transversely, which is substantially narrower than said tire, has upward projections punched out therein for tractive engagement of said tire thereon, and being without projections at its underside, said tongue section having an upwardly-inclined leading edge and forms a runner element which can be slid under said tire, said tongue section longitudinally taking the circumferentially curved shape of said tire and, when released, resiliently springing back to its longitudinally flat shape.

4,278,204

RAIL CLIP

David W. Miller, Retford, England, assignor to Pandrol Limited, London, England

Filed Nov. 27, 1979, Ser. No. 98,378
Claims priority, application United Kingdom, Nov. 29, 1978, 46519/78
Int. Cl.³ E01B *9/48*
U.S. Cl. 238—349 13 Claims



1. A rail clip, for holding down a railway rail, comprising a rod of resilient metal, at least 8 mm. thick, which has been bent so that it comprises, proceeding from one end of the rod to the other end, a first portion which constitutes a substantially straight leg, a second portion in the form of a reverse bend, a

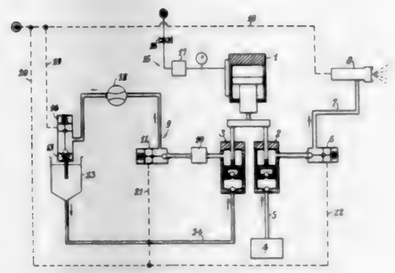
third portion beside the first portion, a fourth portion in the form of a reverse bend and then a fifth portion which terminates at said other end of the rod and is beside the first portion, the configuration being such that when the clip is in a position in which the first portion is horizontal and the lowest points at opposite ends of the first portion lie in the same horizontal plane as one another and the lowest points on the third and fifth portions lie in the same horizontal plane as one another, a section of the fourth portion lies vertically above and crosswise over the axis of the first portion and when the clip is viewed from above the third and fifth portions appear to be on opposite sides of the first portion, the clip further comprising, near said other end of the rod, on the under-side of the clip when the clip is in said position, a step which is at most 2 mm. high, measured vertically, the lowest point on the step, when the clip is in said position, being lower than any other part of the clip which is beyond said step, proceeding from the third portion of the clip to said other end of the rod.

4,278,205

CONSTANT FLOW RATE FLUID SUPPLY DEVICE, PARTICULARLY FOR A SPRAY GUN

Michel Binoche, Stains, France, assignor to S K M, Societe Anonyme, Stains, France

Filed Apr. 25, 1979, Ser. No. 33,302
Claims priority, application France, Apr. 28, 1978, 78 12704; Mar. 16, 1979, 79 06694
Int. Cl.³ B05B *12/10*
U.S. Cl. 239—75 **21 Claims**



1. A device for supplying at a constant and adjustable flow rate a fluid utilizing apparatus with at least one fluid having variable viscosity, comprising a first fluid source delivering said variable viscosity fluid, a first fluid circuit connecting said first fluid source to the fluid utilizing apparatus, a second fluid circuit in which flows a constant viscosity fluid, two volumetric pumps mechanically coupled so that their flow rates are in a fixed relationship, a first one of the two pumps being inserted in the first fluid circuit, whereas the second pump is inserted in the second fluid circuit, and first adjusting means inserted in the second fluid circuit, downstream of the second pump, for adjusting the flow rate of the constant viscosity fluid, said first flow rate adjusting means comprising an adjustable pressure reducer connected to the output side of the second pump, and a first calibrated nozzle of adjustable diameter in series with the pressure reducer.

4,278,206

NON-PRESSURIZED DISPENSING SYSTEM

Samuel B. Prussin, Big Sur, Calif., assignor to AE Development Corporation, Minneapolis, Minn.

Filed Apr. 13, 1979, Ser. No. 29,630
Int. Cl.³ B05B *11/04*
U.S. Cl. 239—327 **23 Claims**

1. A system for dispensing a material to a target comprising in combination:
a container including;
a compartment within the container receiving a body of a water-in-air suspension comprising fine droplets of water stabilized by an interfacial barrier of very fine hydrophobic metal oxide particles as a first phase and air as a second phase, said material being present in either of said phases;
a terminal orifice capable of applying a preselected shear to said suspension in an amount effective to at least partially



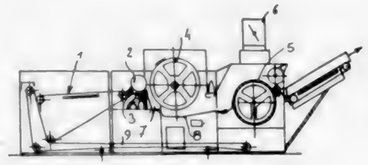
destabilize the suspension and cause coalescence of said droplets;
means communicating the compartment with the outlet orifice; and
means for propelling the suspension through the orifice toward the target.

4,278,207

BREAKING MACHINE WITH AUTOMATIC RECYCLING OF THE FIBRES AND THE PROCESS FOR ITS OPERATION

Andre Morel, La Croix du Mont, Cours (Rhone), France

Filed Mar. 30, 1979, Ser. No. 25,477
Claims priority, application France, Mar. 30, 1978, 78 10003
Int. Cl.³ B02C *13/286, 25/00*
U.S. Cl. 241—4 **12 Claims**



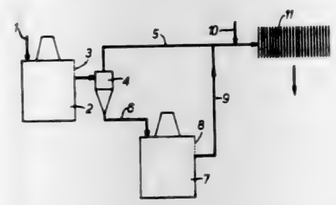
1. A breaking machine for treating fibers, said machine comprising:
means for feeding fibers into said module;
at least one disintegrator module having a spiked disintegrator drum for disintegrating fibers fed into said feeding means;
means for layering said fibers, said layering means located separate from said disintegrator module, said layering means further comprising a perforated drum; and means for suction engaging said perforated drum to maintain a lower pressure inside said drum than outside said drum;
passage means disposed between said disintegrator module and said layering means, said passage means carrying said fibers from said module to said layering means for layering the disintegrated fibers;
storage means positioned adjacent said layering means for receiving said fibers from said layering means;
regulating means positioned near said storage means for receiving fibers from said storage means and regulating said fibers;
means for conveying said fibers, said conveying means disposed between said regulating means and said disintegrator module, said conveying means carrying said fibers from said regulating means to said module; and
control means connected to all of said feeding means, disintegrator module, layering means, passage means, storage means, regulating means, and conveying means for controlling said module and all of said means so as to allow a predetermined number of successive automatic passes of said fibers through said machine.

4,278,208

COMMINUTION OF MATERIALS

Hugh R. Falcon-Steward, St. Austell, England, assignor to English Clays Lovering Pochin & Co., Ltd., St. Austell, England

Continuation-in-part of Ser. No. 865,242, Dec. 28, 1977, Pat. No. 4,166,582. This application Jul. 24, 1979, Ser. No. 60,198
Claims priority, application United Kingdom, Jan. 19, 1977, 2185/77
The portion of the term of this patent subsequent to Sep. 4, 1996, has been disclaimed.
Int. Cl.³ B02C *23/18*
U.S. Cl. 241—16 **15 Claims**



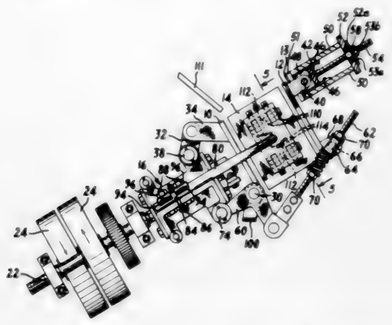
1. A method of comminuting a solid material comprising calcium carbonate to obtain a comminuted solid material which contains at least 60% by weight of particles smaller than 2 microns equivalent spherical diameter, and which is readily redispersible in water to form a high solids fluid suspension, which method comprises the steps of:
(a) forming an aqueous suspension of the solid material which has a solids content in the range of from 5% to 50% by weight of dry solids, is substantially free of particles larger than 10 mm, and contains sufficient dispersing agent to prevent the formation of agglomerates during the subsequent comminution of the solid material;
(b) comminuting the solid material in the suspension formed in step (a) by agitating the suspension in admixture with a particulate grinding medium which consists of particles not larger than about 20 mm and not smaller than about 0.15 mm;
(c) separating from the product of step (b) an aqueous suspension containing comminuted solid material;
(d) subjecting the aqueous suspension containing comminuted solid material to a particle size classification so as to obtain an aqueous suspension of a fine product at least 60% by weight of which consists of particles smaller than 2 microns equivalent spherical diameter, and a coarse product; and
(e) dewatering the aqueous suspension containing the comminuted fine product, while said product is in a flocculated state brought about by counteracting the effects of said dispersing agent, but without the addition of polymeric flocculants; whereby to facilitate both said dewatering and subsequent formation from said comminuted product of a high solids deflocculated suspension.

4,278,209

APPARATUS FOR RECONDITIONING BAGGED MATERIAL

Gustavo Lobo, Jr., Bay Hills, and Charles G. Hallbert, Coral Springs, both of Fla., assignors to Lobo-Kane, Inc., New York, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,323
Int. Cl.³ B02C *1/10*
U.S. Cl. 241—30 **9 Claims**



1. In an apparatus for reconditioning bagged material comprising opposed spaced front and back breaker plates, opposed spaced crusher plates arranged generally at right angles to said breaker plates to define a rectangular space for receiving bagged material, and eccentric means for cyclically moving said breaker plates toward and away from each other and synchronously moving said crusher plates toward and away from each other, wherein said crusher plates move away from each other as said breaker plates move toward each other, the improvement wherein said crusher plates comprise one of a first pair of crusher plates and a second pair of crusher plates, and coupling means between said eccentric means and said crusher plates for rigidly coupling a selected one of said first pair and said second pair to said eccentric means, and means for detachably mounting a selected one of said first and second pairs to said coupling means for rigidly coupling said pair to said eccentric means for moving the crusher plates toward and away from each other, generally at right angles to said breaker plates to define a space for receiving the bags, wherein said selected one of said first and second pairs define a space for receiving bagged material of pre-selected cross sectional area maintained substantially constant during bag-crushing movement of the plates.

4,278,210

FORAGE HARVESTER FEED ROLL MOUNTING MECHANISM

Edward H. Priepke, Stevens, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Feb. 6, 1979, Ser. No. 9,978
Int. Cl.³ B02C *18/22*
U.S. Cl. 241—222 **8 Claims**

1. In a forage harvester having
(a) a housing,
(b) a rotatable cutterhead mounted in said housing,
(c) a shearbar mounted in said housing forwardly of and closely adjacent to said cutterhead and cooperable therewith for comminuting crop material,
(d) front and rear upper rotatable feed rolls generally tandemly-arranged in said housing forwardly of said cutterhead and said shearbar,
(e) lower feed means mounted in said housing generally below and cooperable with said upper feed rolls for conveying crop material to said cutterhead across said shearbar,

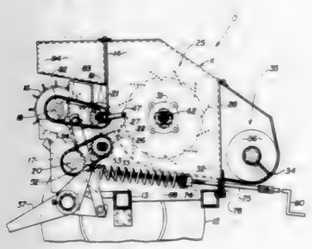
(f) improved means mounting said front and rear upper feed rolls for movement away from said lower feed means from a lower operative feeding position to an upper inoperative position generally above said lower feed means and remote from said cutterhead and shearbar to thereby expose and render said shearbar readily accessible for servicing or the like, said improved mounting means comprising

a torque shaft,

means for rotatably mounting said torque shaft on said housing,

means coupled to said torque shaft for lifting said front and rear upper rotatable feed rolls,

actuatable means for applying rotative force to said torque shaft, said actuatable means being movable to a first



position for placing said torque shaft in a first condition under which said front and rear upper feed rolls are biased downwardly in said lower operative feeding position via said coupling means, said actuatable means also being movable to a second position for placing said torque shaft in a second condition under which said bias on said front and rear upper feed rolls is relaxed for facilitating movement of said front and rear upper feed rolls to said upper inoperative position via said coupling means, and

drive means coupled to said upper rear feed roll under conditions where said upper feed roll is in its operative position and means for detaching said drive means to permit movement of said rear roll from said lower operative position to said inoperative position.

4,278,211

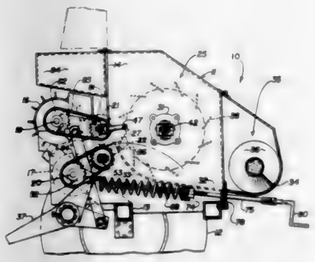
TENSIONING MECHANISM FOR FORAGE HARVESTER FEED ROLL ASSEMBLY

Joe E. Shriver, East Earl, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Feb. 6, 1979, Ser. No. 9,982

Int. Cl.³ B02C *18/22*

U.S. Cl. 241—222 **3 Claims**



1. In a forage harvester, the combination comprising:

(a) a housing,

(b) a rotatable cutterhead mounted in said housing,

(c) a shearbar mounted in said housing forwardly of and closely adjacent to said cutterhead and cooperable therewith for comminuting crop material,

(d) an upper rotatable feed roll generally arranged in said housing forwardly of said cutterhead and said shearbar,

(e) improved tensioning means for biasing said upper feed roll to a lower operative feeding position,

(f) lower feed means mounted in said housing generally below and cooperable with said upper feed roll for conveying crop material to said cutterhead across said shearbar under conditions where said upper feed roll is in said lower position,

(g) means for lifting said upper feed roll away from said lower feed means to an upper inoperative position generally above said lower feed means and remote from said cutterhead and shearbar to thereby expose and render said shearbar readily accessible for servicing or the like,

(h) said lifting means comprising a torque shaft mounted on said housing, and linkage means coupled to said torque shaft for maintaining said feed roll in a non-askew relationship thereto,

(i) wherein said improved tensioning means comprise

a spring connected to said lifting means,

elevating means for providing tension to said spring, said elevating means being movable to a first position for applying rotative force via said spring under tension to said torque shaft which is movable to a first condition in which said upper feed roll is biased downwardly in said lower operative feeding position, said elevating means also being movable to a second position in which said spring is fully compressed and said torque shaft is moved to a second condition under which said bias on said upper feed roll is fully relaxed permitting said upper feed roll to be moved to said upper inoperative position by means of force transferred via said compressed spring to said lifting means.

4,278,212

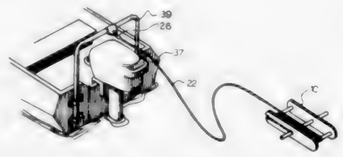
WATER SKIING TOW APPARATUS

Ronald E. Wesley, 11364 Klinger, Hamtramck, Mich. 48212

Filed Dec. 13, 1976, Ser. No. 749,829

Int. Cl.³ B65H *75/00, 75/06*

U.S. Cl. 242—54 R **1 Claim**



1. In combination with a water skiing tow apparatus of the type wherein a reel, adapted to be held by the two hands of a user, is rotatable about an axis during release of a towline wound onto said reel, the improvement wherein a boat hitch is attached to the end portion of the towline opposite said reel and said reel comprises a reel structure configured to provide a point of departure of the towline from said structure, such that, when a force is applied to the towline, the distance of the line of action of the force from said axis varies and passes approximately through said axis at least once per revolution of said reel, and a handle structure, aligned with said axis and non-rotatably affixed to said first mentioned structure, such that, each of the user's hands, during release of the towline, are disposed on opposite sides of said handle structure, whereby said hitch may be attached to the stern of a boat and the handle structure of said reel may be held by the two hands of a water skier for controlling the release of said towline.

4,278,213

CONTROL ARRANGEMENT FOR A ROLL CARRIER

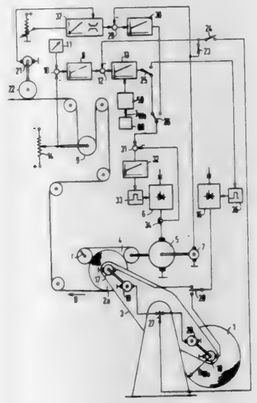
Manfred Rubruck, Igelsdorf, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 14, 1980, Ser. No. 139,752

Claims priority, application Fed. Rep. of Germany, May 13, 1979, 2917868

Int. Cl.³ B65H *23/08, 25/22*

U.S. Cl. 242—75.1 **5 Claims**



1. In a control arrangement for rotating a roll held in a carrier and supplying a web under predetermined web tension, the roll being coupled to an electric driving and braking machine and the machine being coupled to a speed controller responding to optimized control valves continuously determined from system parameters, the improvement comprising:

means for generating a signal representing an initial value of the moment of inertia of a new roll during start-up of the new roll;

means for generating a signal representing the instantaneous radius of the roll at the point of unwinding of the web; and

means responsive to said signals for regulating at least one of the optimized control gain and the optimized integral-action time of the speed controller.

4,278,214

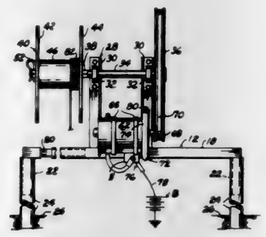
PORTABLE ELECTRIC WIRE REEL

Benton B. Caldwell, 405 Circle Dr., Fredrick, Okla. 73542

Filed Sep. 12, 1979, Ser. No. 74,630

Int. Cl.³ B65H *75/40*

U.S. Cl. 242—106 **8 Claims**



1. A wire reeling device, comprising:

an inverted substantially U-shaped base having a horizontal elongated telescopically adjustable bight portion and having relatively short depending legs;

base support means having upwardly open sockets for receiving said base legs;

upstanding frame means mounted on said bight portion;

elongated shaft means journalled by said frame means parallel with the longitudinal axis of said bight portion;

a wire reel means releasably secured to said shaft means;

an electric motor having a drive shaft;

means connecting said motor with said frame for vertical pivoting movement about a horizontal axis toward and away from said shaft means; and,

belt and pulley means drivably connecting said motor with said shaft means.

4,278,215

WEBBING LOCK MECHANISM

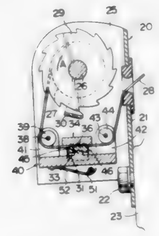
Junichi Nakaho, Ichinomiya, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki Kaisha Tokai Rika Denki Seisakusho, both of Aichi, Japan

Filed Oct. 26, 1979, Ser. No. 88,360

Claims priority, application Japan, Mar. 27, 1979, 54-404661[U]

Int. Cl.³ A62B *35/02*; B65H *75/48*

U.S. Cl. 242—107.2 **6 Claims**



1. A webbing lock mechanism comprising:

a frame;

a wind-up shaft pivotably supported by said frame for winding up a webbing for restraining an occupant;

a fixed base fixed on the frame;

a lock lever pivotably supported by the frame to be pivotably moved by tensile force of the webbing exceeding a predetermined value in a direction of approaching the fixed base;

a window provided in said frame;

guiding portions provided in said window;

a lock member to be guided by said guiding portions of said window of the frame due to pivotal movement of the lock lever so as to approach the fixed base to clamp the webbing; and

approach limiting means provided at both sides of the fixed base and located at the end portion of the fixed base remote from the wind-up-shaft, said approach limiting means projecting toward the lock member for limiting a distance where the lock member approaches the fixed base nearly equal to the thickness of the webbing.

4,278,216

DOUBLE-SAFETY EMERGENCY LOCKING BELT RETRACTOR

Juichiro Takada, 3-12-1, Shinmachi Setagayaku, Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 107,132

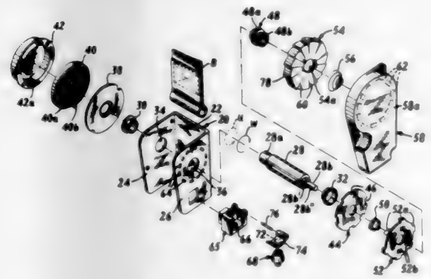
Claims priority, application Japan, Apr. 19, 1979, 54-47237; Jun. 27, 1979, 54-87040

Int. Cl.³ A62B *35/02*; B65H *75/48*

U.S. Cl. 242—107.4 A **13 Claims**

1. An emergency locking belt retractor comprising a frame having spaced-apart side members; a belt reel mounted between the frame side members for rotation, and having a shaft

portion extending outwardly beyond one of the side members relative to the space between the frame members; a flange affixed on said shaft portion adjacent the side member and rotatable with the reel and having a multiplicity of circumferentially spaced-apart latch-receiving notches; a latch disc received on the shaft portion adjacent and outwardly of the flange, relative to the side frame member, for movement axially of the shaft portion toward and away from the flange and having a multiplicity of latch teeth extending inwardly through the flange latch-receiving notches; means on the said one side frame member defining locking shoulders corresponding to and selectively engageable by the latch teeth on the latch disc for selectively latching the reel to the side frame member by way of the reel flange when the latch disc is moved toward the reel flange; latch spring means for urging the latch disc axially away from the reel flange; an inertia wheel received on the shaft portion adjacent and outwardly of the latch disc, relative to the side frame member, for both rotation and axial movement on the shaft portion; cam means on the inertia wheel and latch disc for moving them axially of the shaft portion away from each other upon rotation of the latch disc in the belt unwinding direction relative to the inertia wheel; a member affixed to the retractor frame and having a wall portion adjacent and outwardly of the inertia wheel, relative to the frame; locking ratchet means on the inertia wheel and wall



portion selectively engageable upon outward axial movement of the inertia wheel by the cam means for preventing rotation of the inertia wheel in the direction of belt unwinding; an inertia wheel spring urging the inertia wheel in a direction away from the wall portion, whereby the latch spring and inertia wheel spring normally urge the latch disc and inertia wheel toward each other for conjoint rotation with the latch teeth out of engagement with the latch shoulders on the frame side member but upon rapid acceleration of the reel in the belt-unwinding direction the inertia wheel lags behind the latch disc and is cammed outwardly by the cam means and locked to the wall portion against rotation, whereupon the latch disc is cammed away from the inertia wheel toward the frame side member and the latch teeth lock to the latch shoulders on the frame side member to prevent further unwinding of the belt reel; a circumferential row of spaced-apart ratchet teeth on the inertia wheel having shoulders facing in the direction of belt unwinding rotation; pawl means selectively engageable with any one of the ratchet teeth; and inertia sensing means responsive to an abrupt change in the velocity of the retractor for engaging the pawl means with a ratchet tooth, whereby the inertia wheel ceases to rotate with the latch disc and reel and is cammed axially outwardly toward the wall portion, whereupon the latch disc is cammed toward the frame side member to engage the latch teeth with the latch shoulders and stop rotation of the reel in the belt unwinding direction.

4,278,217

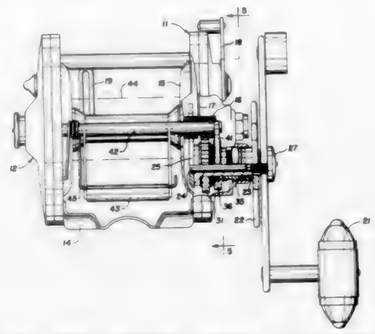
FISHING REEL WITH AUTOMATIC VARIABLE DRAG

Roy N. Blackwell, 5716 Monterrey, Fort Worth, Tex. 76112

Continuation-in-part of Ser. No. 965,682, Dec. 4, 1978, abandoned. This application Jul. 25, 1979, Ser. No. 60,592

Int. Cl.³ A01K *89/02*

U.S. Cl. 242—217 **19 Claims**



12. In a fishing reel having a housing, a spool and associated drive gear rotatably mounted in said housing, and a friction mechanism for producing variable friction drag on said drive gear;

means for detecting the reeling radius of the spooled line reeling on or off said spool; said detecting means comprising a follower arm pivotally mounted on said housing for engagement with the line reeling off or onto said spool; means urging said follower arm into engagement with said line, whereby said arm pivots in response to change in the reeling radius of said spooled line;

said friction mechanism including an extension assembly of a rotatable threaded member threadedly mounted on a rotatably fixed threaded member, said rotatable threaded member advancing and retracting axially to vary the friction drag applied to said drive gear;

means coupling said detecting means to said friction mechanism, to effect reduction of the friction applied to said drive gear in relation to a decrease in said reeling radius, and to effect increase of the friction applied to said drive gear in relation to an increase in said reeling radius;

and said coupling means coupling said follower arm to said rotatable threaded member, to effect rotation of said rotatable member in response to pivotal movement of said follower arm.

4,278,218

SEAL

Klaus-Jürgen Uhrner, Leingarten, Fed. Rep. of Germany, assignor to KACO GmbH & Co., Heilbronn, Fed. Rep. of Germany

Filed May 29, 1980, Ser. No. 154,530

Claims priority, application Fed. Rep. of Germany, May 29, 1979, 2921669

Int. Cl.³ F16J *15/34*

U.S. Cl. 277—40 **20 Claims**

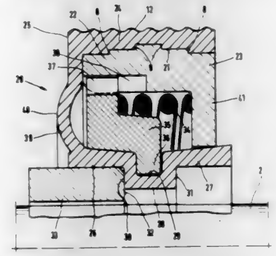
1. A seal, especially for dishwashers, for sealing a shaft, said seal comprising:

a slide ring for placement on said shaft;

an elastic bellows adapted to at least partially overlappingly engage said slide ring, said bellows being located substantially radially outwardly of said slide ring, and being provided with a radially outer wall portion extending substantially parallel to said shaft and having a radially outer peripheral surface and a radially inner peripheral surface, said peripheral surfaces extending approximately parallel to one another;

a support housing located radially inwardly of said outer wall portion of said bellows and being provided with a radially outer circumferential wall portion extending substantially parallel to said shaft and having a radially outer peripheral surface which is adapted to be at least partially overlappingly engaged by said inner peripheral surface of said outer wall portion of said bellows; and

a pressure spring for operation between said support housing and said slide ring, said outer peripheral surface of said



circumferential wall portion of said support housing, and said inner peripheral surface of said outer wall portion of said bellows, having a corresponding profiling, said profiling including support surfaces arranged on said circumferential wall portion transverse to the force of said pressure spring, and corresponding counter-surfaces arranged on said outer wall portion, said support surfaces and said countersurfaces being arranged in axial sequence for engagement with one another.

4,278,219

DEVICE FOR DETECTING HARD LANDINGS

Robert J. Finance, Toulouse, France, assignor to Etat Francais represented by the Delegue General pour l'Armement, Paris, France

Filed Feb. 12, 1979, Ser. No. 11,543

Claims priority, application France, Feb. 20, 1978, 78 04675

Int. Cl.³ B64C *25/00*; **G01P** *15/04*

U.S. Cl. 244—100 R **7 Claims**



1. A device mounted on an aircraft landing gear for detecting hard landings of the aircraft, comprising detection means for indicating a hard landing and memorization means for storing a detected indication of a hard landing, whereby the detection means determines that an excessive vertical acceleration has been produced by the impact of the aircraft on the ground at the time of landing and is formed of a torsion pendulum comprising a rotary pendulum arm having a weight at one of its ends, its other end being attached to the aircraft landing gear by means of a swivel pin, and elastic means cooperating with the pendulum arm to produce a calibrated trigger threshold for the device, whereby said pendulum arm is biased by paid elastic means to a first position until a predetermined acceleration is effected, said pendulum arm then pivoting about said swivel pin in response to said predetermined acceleration, and whereby said memorization means retains said pendulum arm in a second position when a hard landing occurs.

4,278,220

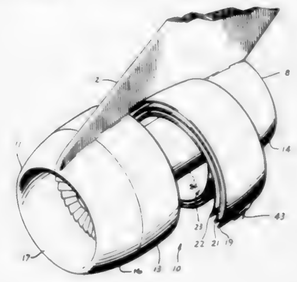
THRUST REVERSER FOR A LONG DUCT FAN ENGINE

Everett A. Johnston, and Edward W. Ryan, both of Mason, Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 30, 1979, Ser. No. 25,301

Int. Cl.³ B64C *25/68*; **B64F** *1/02*

U.S. Cl. 244—110 B **18 Claims**



1. An improved fan engine thrust reverser of the type having a nacelle outer cowl, a translatable cowl sleeve, a fixed cascade, and a fan duct blocker door wherein the improvement comprises:

(a) means for movably positioning the cowl sleeve and the blocker door in their stowed positions between two axially spaced fixed cowl sections;

(b) linkage means located entirely within the nacelle outer cowl for moving the cowl sleeve and the blocker door from their stowed positions to their thrust-reversing positions; and

(c) said positioning and linkage means includes a drive link having a pair of opposing ends, one of the opposing ends being coupled to the blocker door, means attached to and translatable with the cowl sleeve for exerting a rearward force on said drive link, said rearward force exerting means including a unison ring attached to the other end of said drive link and engageable by a bumper extending from the cowl sleeve.

4,278,221

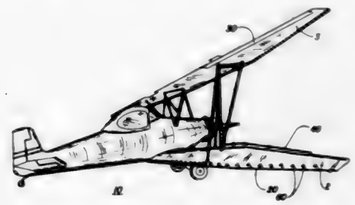
AGRICULTURE SPRAY PLANE

Weldon D. Wilson, Boise, Id., assignor to Eagle Aircraft Co., Boise, Id.

Filed Nov. 19, 1979, Ser. No. 95,778

Int. Cl.³ B64D *1/18*

U.S. Cl. 244—136 **7 Claims**



1. An improved agricultural spray plane of the biplane type wherein the improvement comprises:

a pair of spray booms, each boom mounted on each of the

lower wings defining a continuous trailing edge of each of the lower wings for substantially the length of each wing;
at least one spoiler mounted on the upper surface of each lower wing forward of said spray booms;
at least one aileron mounted on each of the upper wings; and
means for simultaneously controlling ailerons and spoilers located on wings on opposing sides of the plane.

4,278,222
MUSICAL INSTRUMENT STAND
Alan G. Siegel, 7811 N. Fairchild Rd., Milwaukee, Wis. 53217
Filed Apr. 6, 1979, Ser. No. 27,861
Int. Cl.³ F16L *3/00*
U.S. Cl. 248—121 **9 Claims**



1. A stand for musical instruments, comprising:
an inner shaft,
said inner shaft having internal threads on its upper end and having an external diameter less than the internal diameter of a first hollow musical instrument, and having a hollow interior portion,
and outer hollow tubular shaft,
said outer shaft telescopically receiving said inner shaft and having external threads on its upper end,
a clutch collar at the upper end of said outer shaft and with internal threads that mate with said external threads of said outer shaft,
said clutch collar being adapted, upon tightening thereupon, to grip said inner shaft to a preselected adjustable region along its length, to firmly set the height of said inner shaft, and
said clutch collar including an upper annular surface for supporting one end of said first hollow musical instrument, and
a top member, including an elongated extension protruding upward from said inner shaft, said extension having a diameter sized to fit within said hollow interior portion of said inner shaft and less than the internal diameter of said second hollow musical instrument,
in the region of union of said inner shaft and said extension there being an upwardly exposed portion enlarged relative to said extension, said enlarged portion having an annular surface for supporting one end of said second hollow musical instrument, and
means at the lower end of said outer shaft for connecting said outer shaft to a base,
whereby, when playing said first and second hollow musical instrument,
said second instrument can be supported on said elongated extension and annular surface of said enlarged portion while said first instrument is played
said first instrument can be supported on the protruding end of said inner shaft and said annular surface of said collar while said second instrument is played,
said elongated extension of said top member has a diameter less than the internal diameter of said inner shaft and the interior of said innershaft is shaped to receive said elongated extension and
the interior of said outer shaft can telescopically receive substantially all of said inner shaft,
whereby, for compact storage,
said top member can be stored inside said inner shaft and
said inner shaft containing said top member can be stored inside said outershaft by releasing said collar and telescopically sliding said inner shaft inside said outer shaft.

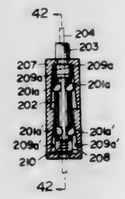
4,278,223
SELF SUPPORTING STAND FOR HAND HELD HAIR DRIER
Denis J. Fauteux, No. 8426 Riverside Dr. E., Windsor, Ontario, Canada (N8S 1E9)
Filed Aug. 10, 1979, Ser. No. 65,639
Int. Cl.³ A47G *29/00*; A45D *20/04*
U.S. Cl. 248—125 **1 Claim**



1. An upright stand for removably attaching a normally hand-held hair drier to the top thereof, for the purpose of freeing a person's hands for various other cosmetic purposes, while drying the hair, comprising in combination, a somewhat heavy circular base, from the center of which extends upwardly a long tube containing therein a smooth sliding round rod, for the purpose of extending or reducing the height of said stand; means for holding said stand to a required height, comprising several springs located within, and near the bottom of said rod, said springs being in compression, and the ends of which press against the interior of said tube; and means for attaching the said hand-held hair drier to the top of said round rod, comprising a bow-shaped yoke the base of which is centrally and permanently attached to the top of said rod; each of the two vertical arms of the yoke having a threaded bolt passing therethrough, said bolts being on the same centerline; a knurled knob attached to the outer end of each of said bolts, for manually rotating them; and a concave plate attached to the inner end of each of said bolts for partly enclosing the body of the hand-held hair drier firmly between them, said concave plates being free to rotate upon the ends of said bolts.

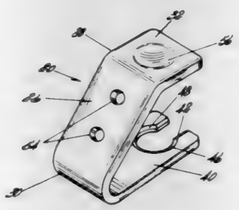
4,278,224
WEDGING ACTION FIXTURE
Hideo Arakawa, Tokyo, Japan, assignor to Arakawa, Co. Ltd., Japan
Filed Jun. 26, 1978, Ser. No. 918,949
Claims priority, application Japan, Jun. 30, 1977, 52-78250; Sep. 24, 1977, 52-115007; Dec. 29, 1977, 52-159022
Int. Cl.³ A47G *29/02*
U.S. Cl. 248—246 **8 Claims**

1. Apparatus capable of being fixed by wedging action to an elongated support member at a desired position thereof and for receiving and supporting at said fixed position an external force applied in a direction substantially parallel to the longitudinal axis of said elongated support member, said apparatus comprising:
external force receiving means for receiving said external force;
wedging action means adapted to receive said external force transmitted through said external force receiving means and for effecting by said external force a wedging action, said wedging action means including a wedging action member for generating a pair of wedging forces substantially in a perpendicular direction to said longitudinal axis of said elongated support member and wedging force receiving member having wedging force receiving surface for receiving said pair of wedging forces from said wedging action member;
biasing means adapted to engage said wedging action means and for exerting a biasing force thereon to normally keep said wedging action member in contact with said wedging force receiving surface of said wedging force receiving member;
holding means for holding said elongated support member, said holding means including a pair of first and second pressing members, each being adapted to receive a respective one of said pair of wedging forces and for exerting on



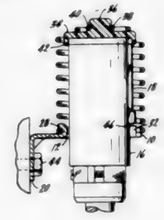
said elongated support member a pair of pressing forces having the same directions and opposite orientations with respect to each other;
wedging force transmitting means adapted to receive said pair of wedging forces and for transmitting the same to said holding means;
wedging action releasing means adapted to receive an external releasing force and for effecting a release of said wedging action of said wedging action means
wherein said wedging action member includes a casing having formed therein at least one pair of interior opposed surfaces which taper towards each other in the longitudinal direction and adapted to make contact with said wedging force receiving member, said casing having a longitudinally extending open side formed between said tapered surfaces receiving therethrough said elongated support member so that a longitudinally extending portion thereof is located between said first and second pressing members.

4,278,225
INCLINED VIAL HOLDER
Dennis B. Phelps, 4517 Vieja Dr., Santa Barbara, Calif. 93110
Filed Sep. 4, 1979, Ser. No. 72,015
Int. Cl.³ A47K *1/08*
U.S. Cl. 248—311.3 **16 Claims**



1. A holder for supporting a vial having a top, neck, shoulder and bottom and which has a fluid therein, said vial being held in an inverted position with the top thereof being held at an inclined angle, said holder comprising
a vertical backplate having a top edge and a bottom edge and being adapted to be fastened to a vertical supporting surface;
a relatively flat top support fastened to the top of said vertical backplate and extending therefrom at a predetermined acute angle, as measured from a horizontal plane normal to the intersection of the top edge of the vertical backplate and the relatively flat top support, said flat top support having a length which is greater than the width of a vial to be supported thereby;
a relatively flat bottom support fastened to the bottom edge of said vertical backplate and extending therefrom at substantially said acute angle from a horizontal plane normal to the intersection of the vertical backplate and relatively flat botton support, said flat bottom support having a length which extends from the intersection of the flat bottom support with the edge of the vertical backplate to an outer edge located at the intersection of the flat bottom support with a plane which is normal to the end of the flat top support, said flat bottom support having an elongated slot with a width adapted to receive a neck of a said vial and which extends from the outer edge of the flat bottom support to substantially the center of the planar flat bottom support, said flat bottom support having an aperture which extends through the flat bottom surface and which has the center thereof in alignment with the center of the planar flat top support and a diameter which is slightly greater than the diameter of a top of a said vial adapted to be supported thereby, said aperture communicating with the elongated slot to enable a top of a vial to be passed through the aperture wherein a top of a said vial is adapted to extend therethrough and be freely supported at said acute angle beyond the surface of the flat bottom support, said flat bottom surface having means defining inwardly sloping walls around the periphery of the apertures and elongated slot on the side of the flat bottom support adjacent the flat top support;
said flat top support and said flat bottom support being adapted to removably receive a vial inserted therebetween in an inverted position with a said neck of a said vial being first positioned in the elongated slot and urged toward the vertical backplate until a said neck of a said vial communicates with said aperture whereupon the flat top support and flat bottom surface cooperate to a clamping force between a said bottom and a shoulder of a said vial to hold a said vial in a fixed inclined angle with a top of a said vial freely extending therefrom and adapted to have a user insert a syringe therein to remove fluid from said vial being held in an inclined angle.

4,278,226
ELECTRICAL CONNECTOR MOUNTING BRACKET
Charles Horowitz, Niles, Ill., assignor to Sloan Valve Company, Franklin Park, Ill.
Filed Aug. 6, 1979, Ser. No. 63,680
Int. Cl.³ A47F *5/00*
U.S. Cl. 248—314 **6 Claims**



1. In a holder for an electrical connector having a cylindrical body and an axially-extending key on the exterior thereof, a bracket for use in attaching the holder to a support, an opening

in said bracket of a size and shape to receive the cylindrical body and key, a coil spring attached to said bracket and coaxially aligned with said opening, a cap held by said coiled spring and positioned to cover the end of an inserted electrical connector cylindrical body, and locking means on said bracket cooperating with said key to hold an electrical connector cylindrical body within the holder.

4,278,227

VEHICLE REAR-VIEW MIRRORS

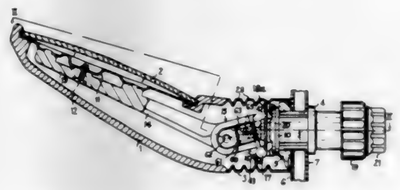
Kenneth P. Davis, Harlington, and Charles A. Boughtflower, Bourne End, both of England, assignors to Magnatex Limited, Middlesex, England

Filed Aug. 2, 1978, Ser. No. 930,311

Claims priority, application United Kingdom, Sep. 20, 1977, 39037/77

Int. Cl.³ B60R *1/02*

U.S. Cl. 248—487 **8 Claims**



1. A vehicle rear view mirror assembly comprising in combination:
(a) a mirror having a backing member,
(b) a protective mirror shroud of a resilient and flexible material comprising,
(i) a rim portion in which the mirror is fitted,
(ii) a body portion which extends from the rim portion with which it is integral and covers the back of the mirror, said body portion having an outer surface which extends continuously over the mirror backing member, and
(iii) a part which projects beyond the mirror edge and defines an opening therein,
(c) a tubular extension gaiter of flexible material of bellows-like construction which is continuous with the said part of said shroud and which has a free end,
(d) a mirror support arm assembly, and
(e) a mounting part carrying the mirror support arm assembly and adapted to be secured to the bodywork of the vehicle,
(f) said mirror support arm assembly extending through the opening in the said part of said shroud and through said extension gaiter and comprising
(i) a mirror support arm which is fixed at its end region to the backing member inside the shroud, and
(ii) at least one movable joint connecting said mirror support arm to said mounting part,
(g) said gaiter extension having at its free end an inwardly extending flange which is adapted to be clamped between the outer surface of the vehicle bodywork and the mounting part and which is in sealing relation with at least one of the mounting part and the vehicle bodywork when the mirror assembly is mounted thereon,
(h) the material of the gaiter extension having a thinner cross-section than that of the rim and body portions of said shroud, and
(i) said rim and body portions of said shroud having a predetermined rigidity which enables both said rim and body portions to move together with the mirror when the mirror support arm moves about said at least one movable joint yet permits the material of said shroud to yield resiliently when hitting, and being hit by, an object.

4,278,228

COLLAPSIBLE SUPPORT STRUCTURES

Hugo E. Rebentisch, Garden City, and Thomas Tuday, Dearborn, both of Mich., assignors to GTE Products Corporation, Stamford, Conn.

Filed May 12, 1980, Ser. No. 148,886

Int. Cl.³ F16M *13/00*

U.S. Cl. 248—548 **20 Claims**



1. A support structure comprising:
a first collapsible assembly and a second collapsible assembly, each comprising
an elongated base member,
an elongated support member having a hole therethrough proximate one end, and
a support connector fixture for connecting said support member to said base member, said support connector fixture including
a support connector frame coupled to said base member and including portions on opposite sides of said support member,
a support pivot pin passing through said hole in said support member and secured to said support connector frame portions on opposite sides of said support member, and
support shear pin means secured to said support connector frame and located adjacent said support member so as to hold said support member in a vertical orientation and prevent rotation of said support member about said support pivot pin in either direction, said first and second collapsible assemblies being spaced apart and aligned so that the base members of said first and second collapsible assemblies are substantially parallel;
an elongated cross member having a hole therethrough proximate each end; and
first and second cross member connector fixtures for coupling the ends of said cross member to said support members of said first and second collapsible assemblies, respectively, each of said cross member connector fixtures comprising
a cross member connector frame coupled to said support member and including portions on opposite sides of said cross member,
a cross member pivot pin passing through said hole in said cross member and secured to said cross member connector frame portions on opposite sides of said cross member, and
cross member shear pin means secured to said cross member connector frame and located adjacent said cross member so as to hold said cross member substantially perpendicular to said support members and to prevent rotation of said cross member about the cross member pivot pins in either direction,
whereby the application to said support members of an impact having a component perpendicular to a plane defined by said first and second support members, sufficient to fracture said support shear pin means, causes said support members to rotate about said support pivot pins away from said impact to a horizontal position, and whereby the application to said support members of an impact having a component parallel to the plane defined by said first and second support members, sufficient to fracture said cross member shear pin means, causes said cross member to rotate about said cross member pivot pins thereby causing said first and second collapsible assemblies to rotate about said base members to a horizontal position.

4,278,229

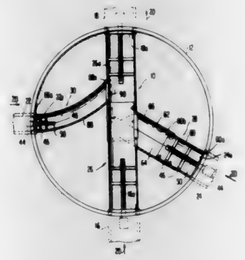
FULL HEIGHT SEWER SYSTEM MANHOLE INVERT FORM ASSEMBLY WITH ANGULARLY ADJUSTABLE INTERSECTING FLOW PATH

Frederick E. Burlett, Benson, Vt.

Filed Jul. 11, 1979, Ser. No. 56,673

Int. Cl.³ B28B *7/02*

U.S. Cl. 249—11 **8 Claims**



1. An improved, full pipe height manhole invert form assembly for creating an open top, troughlike flow path formed of poured concrete between at least an inlet and an outlet pipe within a manhole, said invert form assembly comprising:
a straight through primary flow invert form for connecting diametrically opposed axially aligned inlet and outlet pipes opening to the interior of the manhole,
said form comprising telescoping, U-shaped, upwardly open, slidable invert form sections having a height and width approximately equal to the diameter of the aligned inlet and outlet pipes,
means for locking the slidable sections in positions such that the opposite ends of the form abut projecting ends of the opposed inlet and outlet pipes,
laterally opposed invert side tabs fixed to the ends of respective sections and projecting beyond the ends thereof and being received within the interior of respective inlet and outlet pipes, and invert bottom tabs fixed to the interior of the sections at their ends and having a portion projecting longitudinally thereof beyond the edge of said sections and contacting the interior of the pipes at their bottoms, respectively, so as to center the invert form with respect to said aligned pipes, and
a longitudinally adjustable slide guide mounted at respective ends of said invert form at the top thereof and bearing a retainer tab centered transversely of said invert form section and projectable interiorly of said pipes to contact the inner surface of the pipes at the top thereof to prevent lifting of the invert form during pouring of the concrete to form U-shaped trough flow paths between said pipes upon hardening of the concrete, and
wherein said means for supporting said slide guide at respective ends of said straight through invert form comprises laterally extending, spaced struts, said slide guide being slotted longitudinally, bolts projecting through said struts and being received within said slots, nuts threadably carried by said bolts, whereby, upon loosening of said nuts, said slide guide may be slid longitudinally to project said retainer tab at a variable distance into the open end of pipe in contact therewith, whereupon said nuts can be tightened down to lock said retainer tab at a given distance from said struts.

4,278,230

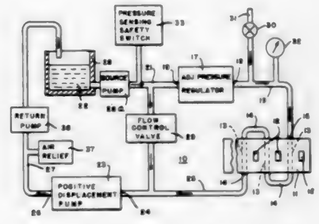
COOLING SYSTEM FOR PLASTIC MOLDS

Paul E. Allen, Newtown, Conn., assignor to Logic Devices, Inc., Bethel, Conn.

Continuation-in-part of Ser. No. 671,043, Mar. 29, 1976, abandoned. This application Oct. 19, 1976, Ser. No. 733,812

Int. Cl.³ B22D *27/04*; **F28F** *11/00*

U.S. Cl. 249—81 **4 Claims**



1. A system for controlling the flow of cooling liquid in a cooling duct of a plastic mold having a feed port and an exit port comprising a source of cooling liquid, inlet piping means adapted to be connected to the feed port, pressure reducing means connected between the source and the inlet piping means for providing cooling liquid through the inlet piping means at the feed port at a pressure no more than essentially atmospheric, discharge piping means adapted to be connected to the exit port for receiving fluid flowing through the cooling duct, means for receiving cooling fluid and a positive displacement pump means having an inlet connected to the discharge piping means for providing a negative pressure at the exit port and an outlet connected to the means for receiving cooling fluid from the outlet, said pressure reducing means and said pump means having a maximum capacity for fluid flow greater than the desired flow of cooling liquid through the mold whereby the cooling duct of the mold basically determines the quantity of cooling fluid that flows therethrough and in which the system includes minimum flow means connected between the source and the pump means for providing to the pump means at least a constant minimum quantity of cooling liquid.

4,278,231

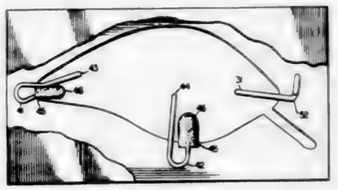
MOLD FOR FABRICATING FISHING LURES ETC.

Welbourne D. McGahee, Melbourne, Fla., assignor to Loop-A-Line, Inc., Melbourne, Fla.

Division of Ser. No. 905,738, May 16, 1978, Pat. No. 4,228,611, which is a division of Ser. No. 760,927, Jan. 21, 1977. This application Jul. 23, 1979, Ser. No. 59,951

Int. Cl.³ B29C *6/00*; **B29F** *1/00*

U.S. Cl. 249—95 **2 Claims**



1. An injection molding die for fabricating a molded fishing lure having a hook hanger with a first end segment secured

within the molded lure, a center segment external to the lure and a second end segment within a bore in the lure body, comprising:

a first female mold half incorporating a channel adapted to receive said center segment of said hook hanger and said first mold half further incorporating a recess for receiving a two piece removable male mold;

a two piece removable male mold, having a mirror image facing side of each piece including a groove dimensioned to form a channel therebetween to encompass said second end segment of said hook hanger and thereby hold said hook hanger in position during molding operations and provide a void about said second end segment in the finished molded product;

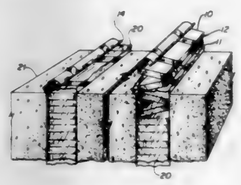
said two piece male mold parting along the longitudinal axis of said second end segment of said hook hanger held by said two piece male mold; and a second female mold half formed as a mirror image of said first female mold half, said first and second female mold halves cooperating so that said female mold half channels form a receptacle therebetween for receiving said center segment of said hook hanger and an end section of said two piece male mold, for holding said hook hanger and said two piece male mold in position relative to said female mold during molding operations.

4,278,232

REMOVABLE SEISMIC GAP FILLER

Gustav Szabo, c/o Progress Unlimited, 200 Madison Ave., New York, N.Y. 10016

Filed Feb. 22, 1980, Ser. No. 123,511
Int. Cl.³ B28B *7/30*
U.S. Cl. 249—183 **12 Claims**



1. A removable seismic gap or expansion joint filler, comprising a continuous strip, said strip being adapted to form a zig-zag filler in poured concrete that is easy to remove from the seismic gap, or joint after the poured concrete sets.

4,278,233

ARRANGEMENT FOR ACTUATING GAS-CHANGE VALVES

Hansjürgen Zürner, Ammerndorf, and Wolfgang Fuhrmann, Nürnberg, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nürnbert, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,321
Int. Cl.³ F16K *31/122;* **F01L** *1/04*
U.S. Cl. 251—57 **7 Claims**

1. A hydraulic system for actuating a gas-change valve, especially gas-change valve for combustion engines and compressors, said gas-change valve being inherently urged to its closed position by a spring, said system including a source of control fluid and comprising in combination:

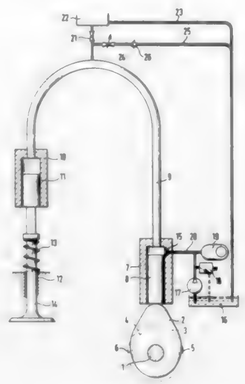
a cam having a pre-ramp and a post-ramp;

an input piston actuatable by said cam and operatively connectible to the source of control fluid;

an output piston for opening said gas-change valve;

conduit means for communication between said output piston and said input piston relative to each other and relative to said source of control fluid; and

infinitely adjustable throttle means as well as a permanent venting means operatively connected to said conduit means for controlling the quantity of said control fluid during operation of said system free of oscillations; and



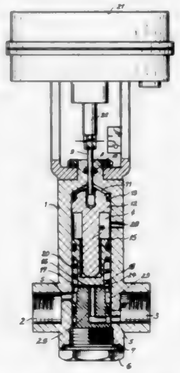
said permanent venting means being operatively connected to said conduit means at the highest point thereof and also to said source of control fluid said infinitely adjustable throttle means directly adjusting the specific lift of the gas-change valve.

4,278,234

MINUTE FLOW REGULATING VALVE

Hans D. Baumann, 35 Mirona Rd., Portsmouth, N.H. 03801

Filed May 5, 1980, Ser. No. 146,630
Int. Cl.³ F16K *31/12*
U.S. Cl. 251—57 **3 Claims**



1. Apparatus for controllably restricting the flow of fluid therethrough which comprises:

(a) a housing having inlet and outlet ports, a longitudinal bore having a terminating end wall portion and at least one additional port opening connecting externally with said longitudinal bore;

(b) means for creating a frictional flow path located within said longitudinal bore having opposed parallel and engaging flat surfaces having outer peripheries spaced interior of said longitudinal bore, and consisting of a pair of piston type elements, one of said piston type elements being fixed and the other of said piston type elements being slidable within the longitudinal bore for engaging said longitudinal housing bore and where at least one of these piston like elements has sealing means disposed at its outer cylindrical periphery, said sealing means being slidingly engaged within said bore, the space between the sliding piston type element and the terminating end wall portion retains hydraulic fluid therein;

(c) a deformable element interspaced between said means for creating a frictional flow path;

(d) a central bore penetrating at least one of the flat surfaces of said means to provide fluid access to either the inlet or the outlet port of said housing;

(e) means for conducting fluid from either the inlet port or the outlet port to the outer periphery of said flat surfaces;

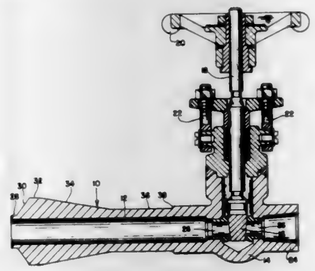
(f) hydraulic means to effectively position at least one of said slidingly engaged means for creating a frictional flow path within said longitudinal bore in respect to its opposite member, said hydraulic means includes an external actuating device having a stem-like extension penetrating slidably into said hydraulic fluid filled space to allow volumetric displacement of the hydraulic fluid to in turn oppose the force of the deformable element to affect the distance between the opposed parallel and engaging flat surfaces, wherein the cross-sectional area of said stem-like extension is significantly smaller than the cross-sectional area of said sliding piston type element.

4,278,235

MALE ENDED VALVE

Peter W. Smith, 204 Engle St., Tenafly, N.J. 07670

Continuation-in-part of Ser. No. 907,710, May 19, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 109,828
Int. Cl.³ F16K *51/00*
U.S. Cl. 251—144 **1 Claim**



1. In a valve having a one piece valve body consisting of a main housing section defining a valve chamber and supporting a valve bonnet, with male and female members extending longitudinally in opposite directions from the housing section, said male and female members being provided with axial bores communicating with the valve chamber, and the male member being adapted to be butt welded to a support surface with its bore in communication with an opening in said surface, the improvement comprising:

a cylindrical axially protruding centering ring at the distal end of said male member, said centering ring being adapted to enter into the opening in the support surface and to cooperate therewith in locating the valve,

said male member having a first portion with a truncated conical outer surface leading from said centering ring to a second portion having an outer diameter greater than the outer diameter of said centering ring, said second portion in turn being connected by a third portion having a truncated conical outer surface to a fourth portion, said fourth portion being joined to said housing section and having a maximum outer diameter smaller than that of said second portion,

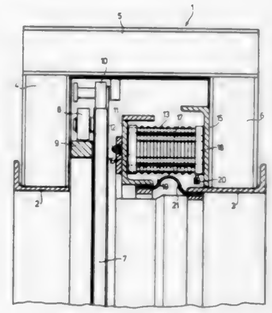
the bore extending through the centering ring and at least said first, second and third portions having a uniform diameter, the circle defining the intersection between said centering ring and said first portion being spaced from said support surface with said centering ring being at least partially within said surface opening, when said centering ring is butt welded to said support surface.

4,278,236

SLIDE VALVE FOR PIPELINES

Hans-Jurgen Janich, Regelkamp 12, 4720 Beckum, Fed. Rep. of Germany

Filed Mar. 8, 1979, Ser. No. 18,622
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1978, 2813655
Int. Cl.³ F16K *25/00*
U.S. Cl. 251—159 **2 Claims**



1. A slide valve for gas pipelines comprising an upstream and a downsteam pipeline section, said sections being spaced apart and rigidly connected by stays, a valve plate that is movable into a valve-closing position between said sections, and a floating annular sealing member connected to the upstream section by a flexible sleeve-like seal, wherein the improvement comprises a plurality of springs which are distributed around the annular sealing member and which act between the upstream section and the annular sealing member, and a plurality of pressure-medium actuated bellows which are distributed around the annular sealing member and are separate from the springs, each bellows having one end connected to the upstream section and having its other end more remote from the annular sealing member and connected to the annular sealing member by at least one pull-rod, both the valve plate and the downstream section having an annular seating surface for sealing engagement with the annular sealing member, and both the bellows and the springs having a stroke sufficient so that the bellows, when actuated by the pressure medium, move the annular sealing member clear of the valve plate, and so that when the valve plate is then removed from between the sections and the pressure in the bellows is relieved, the springs move the annular sealing member into sealing engagement with the annular seating surface on the downstream section.

4,278,237

APPARATUS AND METHOD OF THREADING A CLOSED FRAMED OPENING BY HELICOPTERS

Fred S. Bergman, Delta, and Reginald P. Radelet, Maple Ridge, both of Canada, assignors to Lindsey Manufacturing Co., Azusa, Calif.

Filed Nov. 29, 1979, Ser. No. 98,382
Int. Cl.³ B66D *1/36*
U.S. Cl. 254—134.3 PA **30 Claims**

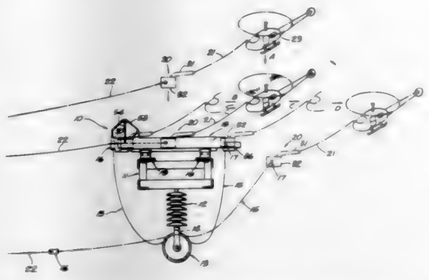
1. That improved method of inserting a loop cable between the two halves of a coupling in a main cable being towed by an aircraft comprising:

providing a loop cable equipped with a male and a female coupling means on a respective end thereof;

supporting said male and female coupling means in spaced

apart relation on the opposite sides of means for uncoupling said main cable coupling;

advancing said main cable coupling to a position between said male and female coupling means and then uncoupling said main cable coupling by retrograde movement thereof against said uncoupling means, thereby releasing the rear



part of said main cable coupling for rearward movement into automatic coupling engagement with the coupling at one end of said loop cable; and

thereafter moving the forward part of said main cable coupling forwardly into automatic coupling engagement with the coupling on the other end of said loop cable.

4,278,238

CABLE FEEDING TOOL

Andrija Vugrek, Madison, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,839
Int. Cl.³ B05C 3/02; G01F 11/02; B65H 59/00
U.S. Cl. 254—134.3 FT **5 Claims**



1. A cable feeding tool comprising, a pair of horizontally spaced wire rope lengths grouped together to constitute part of a horizontally elongated support frame resiliently warpable in the vertical plane into arcuate shapes, cable receiving and cable discharging sleeve units disposed mostly beneath and at opposite ends of said lengths in coupled relation with said lengths to be supported thereby and to form part of said frame, and a plurality of collar units disposed mostly beneath said lengths between said sleeve units in spaced relation therefrom and from each other and in coupled relation with said lengths to be supported thereby and to form part of said frame, said sleeve units and collar units having respective longitudinal passages therein for movement of a cable through said passages.

4,278,239

VEHICLE WINCH

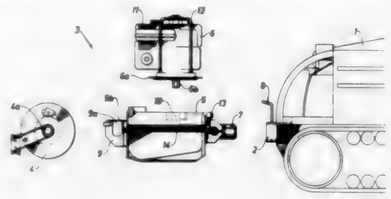
Gunnar S. S. Peterson, Vasabro, Sweden, assignor to Sepson Aktiebolag, Vasabro, Sweden

Filed Feb. 2, 1979, Ser. No. 8,938
Claims priority, application Sweden, Feb. 15, 1978, 7801765
Int. Cl.³ B66D 1/00
U.S. Cl. 254—323 **5 Claims**

1. A vehicle mountable winch that is readily separable into three main units for ease in manually moving said units individually and subsequent reassembly in relocating said winch comprising:

a line drum provided with support means for rotatably supporting said drum incident winding of a line on or off said drum;

a driving unit provided with a laterally extending mounting part of an attachment device to enable mounting said winch on a vehicle and having carrier means detachably cooperable with said support means of said drum to fixedly mount said drum on said driving unit, said driving unit defining an upwardly facing motor support surface and having therewithin detachably engagable upwardly opening input driven means and output drive means;



a motor having rotatable output shaft means drivingly cooperating with and extending downwardly into said input driven means within said driving unit, said motor being detachably mounted on said support surface of said driving unit to bear on the upper surface of said driving unit and transmit driving power from said motor into said driving unit; and

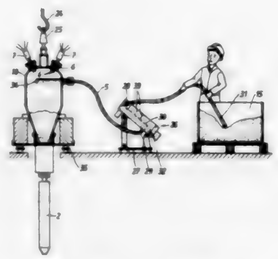
drive transmitting means rotatable with said line drum and drivingly engaged with said output drive means within said driving unit when said support means of said drum is cooperably attached with said carrier means of said driving unit, said drive transmitting means being easily disengaged from said output drive means when said support means is detached from said carrier means of said driving unit.

4,278,240

POWDER INJECTION APPARATUS WITH SIEVING APPARATUS

Ake Archenholtz, Vesteras, Sweden, assignor to Asea Aktiebolag, Vesteras, Sweden

Filed Aug. 16, 1979, Ser. No. 67,020
Claims priority, application Sweden, Aug. 22, 1978, 7808832
Int. Cl.³ C21C 7/00
U.S. Cl. 266—216 **7 Claims**



1. Apparatus for injection of powder into a metal melt, comprising a charging container; an injection device for injecting powder into said charging container; a storage container for powder; at least one filling pipe for transporting powder from said storage container to said charging container, at least one sieve for separation of grains of an undesirable grain size and for transporting grains of a desired grain size from said storage container; a lance; an ejector device for providing said lance with pressurized gas; and a throttle valve for feeding powder from said charging container through said lance to said metal melt.

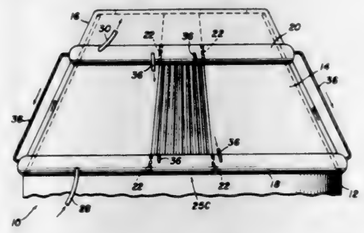
7. Apparatus for injection of powder into a metal melt, comprising, a charging container; an injection device for injecting powder into said charging container for subsequent injection into said metal melt; a storage container for powder; at least one filling pipe for transporting powder from said storage container to said charging container; at least one sieve for separation of grains of an undesirable grain size, suction pump means transporting powder through said sieve and forwarding grains of a desired grain size from said storage container to said charging container through said at least one filling pipe, said charging container being connected to a lance device for feeding powder to the melt.

4,278,241

TOP CONE COOLING SYSTEM FOR BASIC OXYGEN FURNACE

Fahim E. Shadid, Downers Grove, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Jul. 18, 1980, Ser. No. 169,978
Int. Cl.³ C21C 5/42
U.S. Cl. 266—241 **11 Claims**



1. In a molten metal refining vessel having an internally insulated metal shell, said shell having a bottom, wall and top conical portion, the improvement comprising:

a plurality of cooling liquid metal walled heat-exchange passages, adjacent the top conical portion exterior surface, substantially aligned like element lines of a conical surface;

means to supply a cooling liquid so that it flows upwardly in all of the passages; and

means to withdraw cooling liquid, from the upper end of all the passages, away from the surface which is being cooled.

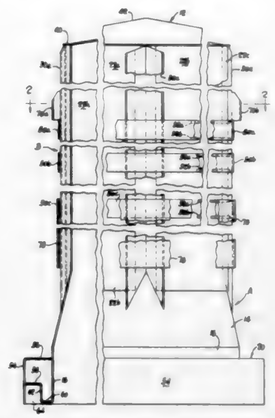
4,278,242

BELL-TYPE COIL ANNEALING FURNACE INNER COVER

William P. Freund, Lakewood, and Stephen R. Hulvey, Medina, both of Ohio, assignors to The Alloy Engineering Company, Berea, Ohio

Filed Feb. 11, 1980, Ser. No. 120,655
Int. Cl.³ C21D 1/12, 9/00
U.S. Cl. 266—263 **5 Claims**

1. A heat resistant stainless steel or alloy inner cover for a bell-type metal processing furnace comprising a generally cylindrical tubular body section including a plurality of circumferentially spaced longitudinally extending parallel angle iron members each extending the length of the generally cylindrical tubular body section and having their apexes orientated towards the center of the generally cylindrical tubular body section and a panel between each circumferentially spaced pair of angle iron members extending the length of the generally cylindrical tubular body section and connected to the flanges of the angle iron members at about their longitudinally extending centers, a member integral with and closing one end of said generally cylindrical tubular body section, and a plurality of



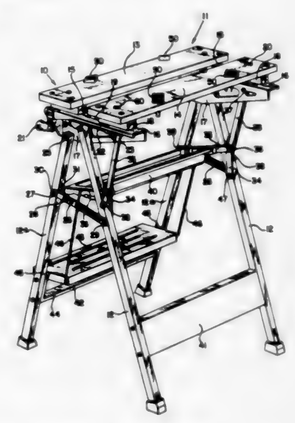
metal bands spaced lengthwise of and surrounding said generally cylindrical tubular body section and welded to the free edges of the flanges of said angle iron members.

4,278,243

FOLDABLE WORKBENCH

Lorenzo E. Alessio, Cairoli, Italy, assignor to Black & Decker Inc., Newark, Del.

Division of Ser. No. 765,296, Feb. 3, 1977, Pat. No. 4,155,386.
This application Mar. 7, 1979, Ser. No. 18,384
Claims priority, application Italy, Feb. 19, 1976, 20341 A/76
Int. Cl.³ B25B 1/10
U.S. Cl. 269—16 **17 Claims**



1. A foldable workbench comprising:

an integral clamping vise defining a top workbench surface; and

a support structure for supporting the vise, the support structure including a pair of mutually spaced leg assemblies, each of said leg assemblies including:

first and second legs pivotally connected to said clamping vise so as to be pivotally movable from a collapsed position wherein the workbench is in a folded condition to an open position wherein said legs diverge from one

another in a downward direction and the workbench is in the erected condition;

said first and second legs being pivotally connected to said clamping vise at first and second pivot axes, respectively; said first pivot axis being at a lower elevation than said second pivot axis whereby said clamping vise, said first leg, and said second leg are all juxtaposed one to the other to form a flat stack of mutually parallel elements when the workbench is in the folded condition;

articulating means pivotally connected to each of said legs and said clamping vise for coacting therewith to simultaneously articulate the movement of said legs and said clamping vise between said collapsed position wherein said legs and said clamping vise are folded to form said flat stack and said open position wherein the outer ends of said legs are spread apart a predetermined distance; and

means for bracing the integral clamping vise with respect to at least one of said legs while at the same time limiting the spread of said legs to a predetermined distance;

said articulating means including:

a set of articulating linkages pivotally interconnecting, respectively, the pair of legs to each other and at least one of the legs to the integral clamping vise, said articulating linkages being connected so that the integral clamping vise and leg structures are stacked in juxtaposition to each other when the workbench is in its folded position and, so that the other ends of the legs are spread apart from each other with the integral clamping vise substantially transverse to the leg structures when the workbench is in the erected position;

said bracing means including structure means extending from one of said linkages and configured for engaging one of said legs in said erected position thereby limiting the spread of said legs to said predetermined distance.

4,278,244

PIVOTABLE DOLLY FOR HOLDING TRANSPORTING AND HANGING A DOOR

Charles E. Carter, 921 Beach Rd., Hampton, Va. 23664

Filed Oct. 22, 1979, Ser. No. 87,436
Int. Cl.³ B25H *1/08*
U.S. Cl. 269—17 **11 Claims**



1. A pivotable dolly for securedly holding a heavy rectangular member by one edge comprising:

an elongated member;

means fixed to said elongated member for releasably holding the rectangular member with the held edge of the rectangular member substantially parallel to said elongated member;

roller means attached to one end of said elongated member for permitting the rolling of the dolly and the pivoting of the elongated member between horizontal and vertical positions, said elongated member holding the lower surface of the rectangular member at a selected level when said elongated member is in a vertical position; and

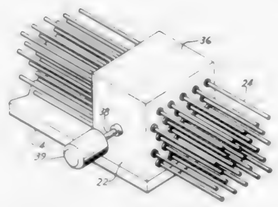
means for steadily supporting said elongated member when said elongated member is in the horizontal position, said means including a first handle secured to said elongated member, said first handle including portions projecting outwardly from said elongated member opposite to said holding means and a second handle secured to said elongated member proximate to said rolling means, said second handle including portions projecting outwardly from said elongated member opposite to said holding means and beyond said roller means.

4,278,245

APPARATUS FOR CLAMPING A PLURALITY OF ELEMENTS

Dante P. DiBattista, Lynn, and Robert H. Kuhn, Topsfield, both of Mass., assignors to General Electric Company, Lynn, Mass.

Filed Nov. 23, 1979, Ser. No. 97,010
Int. Cl.³ B25B *11/00*
U.S. Cl. 269—22 **8 Claims**



1. Apparatus for clamping a plurality of electrodes, said apparatus comprising:

a housing defining a cavity, said plurality of electrodes extending through said cavity;

a medium adapted for pressurization disposed within said cavity;

means disposed within said cavity comprising a hollow cylindrical rigid member for receiving and surrounding each said electrodes and disposed between each electrode and said medium, said cylindrical rigid member including a relieved portion having an insert therein, said insert being movable against said electrode toward said rigid member in response to said pressurization of said medium for thereby clamping said electrode between said insert and said rigid member.

4,278,246

CLAMPING DEVICE

John B. Blake, 103 Oak Ave., Park Ridge, N.J. 07656

Filed Dec. 13, 1979, Ser. No. 103,185
Int. Cl.³ B25B *1/10*
U.S. Cl. 269—220 **11 Claims**

1. A clamp comprising

first and second oppositely-disposed arms, said arms having

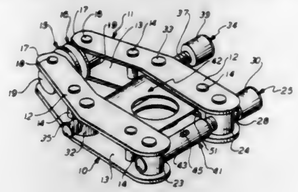
a pair of oppositely-disposed clamping jaws at one end of the arms;

first and second force applying means for moving said arms towards and away from each other,

said first force applying means being pivotally connected to said arms at first pivot points spaced a distance from said one end of the arms, so that said clamping jaws are adapted to open and close when said arms are rotated about said first pivot points,

said second force applying means being pivotally connected to said arms at second pivot points disposed intermediate said first pivot points and said one end of the arms, so that said clamping jaws are also adapted to open and close when said arms are rotated about said second pivot points,

whereby said first force applying means is adapted to open and close said jaws by rotating said arms about said



second pivot points and said second force applying means is adapted to open and close said jaws by rotating said arms about said first pivot points; and

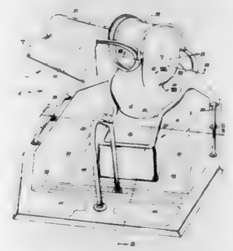
slideable support means interconnecting said first and second force applying means to permit relative lateral movement therebetween and prevent relative axial movement therebetween, to thereby limit skewing of said arms when said jaws are open.

4,278,247

WATER SLIDE

R. Brent Joppe, 1547 Parkhurst, NW., Grand Rapids, Mich. 49504, and Leonard F. Postema, R.R. #7, Morganton, N.C. 28655

Filed Feb. 26, 1979, Ser. No. 16,359
Int. Cl.³ A63G *21/18*
U.S. Cl. 272—56.5 R **13 Claims**



1. A water slide comprising:

a trough for slidingly conveying individual riders on a stream of water from an entry end of said trough to an exit end of said trough; said entry end being elevated with respect to said exit end; said trough having a generally U-shaped cross-section for retaining the riders therein;

means for introducing water into the entry end of said trough;

a loading platform positioned adjacent said entry end of said trough and having a seat with at least two sides from which a rider can load, and another side communicating with said trough entry end;

a starting pool reservoir defined by a floor located below said seat at an elevation which permits the rider to sit down onto said seat from a standing position; said reservoir further including sides extending at a level above said seat for containing water therein above the level of said seat, and means for introducing water into said reservoir; said reservoir surrounding said seat on at least said two sides, whereby the water in said reservoir flows over said seat two sides into said trough to at least contribute to said means for introducing water into the entry end of said trough and also allow riders easy entry onto said seat from multiple positions in said reservoir; and

an exit ramp located at said exit end of said trough.

10. A water slide comprising:

a trough for slidingly conveying individual riders on a stream of water from an entry end of the trough to an exit end of said trough; said entry end being elevated with respect to and forward of said exit end;

means for introducing water onto the entry end of said trough;

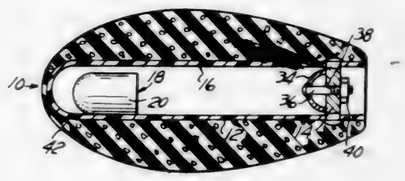
a multiple position exit ramp adapted to be located in a recovery pool, and being connected with said exit end of said trough, whereby the water running through said trough flows over said exit ramp; said exit ramp being adapted to extend partially above the level of water in the recovery pool, and having a substantially linear body with a slide surface with a curvilinear cross-section adapted to extend above the level of water and which cross-section slopes transversely of the longitudinal axis of said exit ramp body in a downward direction, for causing riders to exit said slide by sliding transversely over the surface of said exit ramp at different longitudinal positions therealong, depending upon the weight and speed of the rider to prevent riders from being dumped on each other at the end of the slide.

4,278,248

RHYTHM INDICATING EXERCISERS

Harry P. Kifferstein, 27250 Harvard Rd., Southfield, Mich. 48076

Filed Jun. 22, 1979, Ser. No. 51,113
Int. Cl.³ A63B *21/00*
U.S. Cl. 272—68 **30 Claims**



1. An exercising device comprising an elongated circularly cylindrical tubular member of appropriate outer diameter as to be gripped by a hand, said tubular member having a bore of substantially constant diameter extending from end to end of said tubular member, a freely movable weighted mass within the bore of said tubular member, said weighted mass having at least one dimension greater than one-half the diameter of said tubular member and being adapted to be slidably displaceable from end to end therein, and a rigid stop member disposed at an end of said tubular member for impacting by said weighted mass and for emitting an audible sound upon impact shock with said weighted mass.

4,278,249

NECK EXERCISING DEVICE

Charles P. Forrest, 1306 St. Stephens Rd., Mobile, Ala. 36603

Filed Oct. 23, 1979, Ser. No. 87,518
Int. Cl.³ A63B *21/00*
U.S. Cl. 272—94 **23 Claims**

1. A neck exercising device comprising:

a top assembly secured at the approximate height of a trainee's neck to a suitable supprt, said top assembly having:

a fixed portion,

a first movable portion pivotally mounted to said fixed portion on a horizontal first pivot axis generally corresponding in height to the position of the trainee's neck,

a first mechanical resistance device arranged to resist pivotal movement of said first movable portion relative to said fixed portion,

a second movable portion having head gripping members and pivotally mounted to said first movable portion on a second pivot axis generally perpendicular to the horizontal first pivot axis and generally in alignment with an imaginary axis passing through the trainee's neck and through the top of the trainee's head when gripped, and



a second mechanical resistance device arranged to resist pivotal movement of said second movable portion relative to said first movable portion;

whereby the trainee may exercise the neck muscles through resisted pivotal movement on the horizontal first pivot axis effected, for example, by either side-to-side or front-to-back head motion depending on the precise orientation of the trainee with respect to said top assembly, as well as through resisted pivotal movement on the second pivot axis effected by head twisting motion.

4,278,250

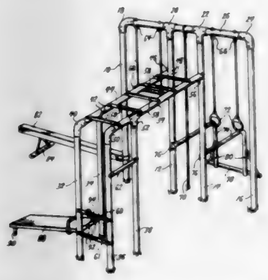
GYMNASIUM SET

William R. Baynes, DuQuoin, and Donal D. Hock, Herrin, both of Ill., assignors to Turco Manufacturing Co., DuQuoin, Ill.

Filed Aug. 13, 1979, Ser. No. 65,922

Int. Cl.³ A63B *9/00*; A63G *9/00*

U.S. Cl. 272—113 **1 Claim**



1. A supporting frame, for use by gymnasts, which comprises a first plurality of vertically-directed columns, a first horizontally-directed spacing and connecting member which interconnects the upper ends of said columns to hold said upper ends of said columns in fixed, spaced-apart relation, said columns having lower ends adapted to be held in fixed, spaced-apart relation by being secured to the ground or other supporting surface, a second plurality of vertically-directed columns which are displaced horizontally from said first plurality of vertically-directed columns, a second horizontally-directed spacing and connecting member which is displaced from said first horizontally-directed spacing and connecting member, said second horizontally-directed spacing and connecting member being secured to one of said first plurality of vertically-directed columns intermediate the top and bottom of said one column and extending to and being secured to one of said second plurality of vertically-directed columns, a third horizontally-directed spacing and connecting member which is displaced from said first horizontally-directed spacing and connecting member, said third horizontally-directed spacing and connecting member being secured to a second of said first plurality of vertically-directed columns intermediate the top and bottom of said second column and extending to and being secured to a second of said second plurality of vertically-directed columns, rung-like connectors which extend between and rigidly interconnect said second and said third horizontally-directed spacing and connecting members, whereby said one and said second of said first plurality of vertically-directed columns and said one and said second of said second plurality of vertically-directed columns constitute end support for an overhead horizontally-directed exercise ladder, said first plurality of vertically-directed columns including at least three vertically-directed columns, a third column of said first plurality of vertically-directed columns acting through said first horizontally-directed spacing and connecting member to provide lateral stability and stiffening for said one and said second of said first plurality of vertically-directed columns and also acting through said first horizontally-directed spacing and connecting member and through said one of said first plurality of vertically-directed columns and through said second horizontally-directed spacing and connecting member to provide lateral stability and stiffening for said one of said second plurality of vertically-directed columns, said third column of said first plurality of vertically-directed columns also acting through said first horizontally-directed spacing and connecting member and through said second of said first plurality of vertically-directed columns and through said third horizontally-directed spacing and connecting members to provide lateral stability and stiffening for said second of said second plurality of vertically-directed columns, said columns of said first plurality of vertically-directed columns being aligned in a row, said second horizontally-directed spacing and connecting member and said third horizontally-directed spacing and connecting member being substantially parallel to each other, a third of said second plurality of vertically-directed columns being intermediate, and being aligned with, said one of said first plurality of vertically-directed columns and said one of said second plurality of vertically-directed columns, said third of said second plurality of vertically-directed columns being secured to said second horizontally-directed spacing and connecting member, said third of said second plurality of vertically-directed columns acting through said second horizontally-directed spacing and connecting member to help provide lateral stability and stiffening for said one of said first plurality of vertically-directed columns and also for said one of said second plurality of vertically-directed columns, and a swinging support for a person that is supported by, but can swing relative to, that portion of said first horizontally-directed spacing and connecting member which is intermediate said second and said third columns of said first plurality of vertically-directed columns, said third column of said first plurality of vertically-directed columns being displaced from said second of said first plurality of vertically-directed columns a distance great enough to accommodate said swinging support for said person, said third horizontally-directed spacing and connecting member being substantially normal to said row of aligned columns of said first plurality of vertically-directed columns, whereby said swinging support for said person can swing in a plane which is parallel to a plane that is defined by said second of said first plurality of vertically-directed columns and by said second of said second plurality of vertically-directed columns and by said third horizontally-directed spacing and connecting member, whereby said second plurality of vertically-directed columns and said third horizontally-directed spacing and connecting member coact to help said second of said first plurality of vertically-directed columns resist the forces which will be applied to it when a person swings on said swinging support, and whereby said second plurality of vertically-directed columns and said second horizontally-directed spacing and connecting member and said one of said first plurality of vertically-directed columns and said first horizontally-directed spacing and connecting member coact to help said one of said first plurality of vertically-directed columns resist the forces which will be applied to it when a person swings on said swinging support, said swinging support for said person being movable through an arcuate path, said second of said first plurality of vertically-directed columns and said second of said second plurality of vertically-directed columns and said third horizontally-directed spacing and connecting member being located to one side of, and being laterally spaced away from, said arcuate path, said third column of said first column of said first plurality of vertically-directed columns being located at the opposite side of, and being laterally spaced away from, said arcuate path, said third column of said first plurality of vertically-directed columns being the only vertically-directed portion of said supporting frame which is at said opposite side of said path, all of the vertically-directed columns of said second plurality of vertically-directed columns being displaced substantial distances horizontally from said second column of said first plurality of vertically-directed columns to define a space which is devoid of vertically-directed columns, whereby both sides of said swinging path are substantially free of vertically-directed columns.

4,278,251

RACKET FRAME FOR BALL GAMES

Paul Lafourcade, 23, rue de la Paix, 65 600 Semeac, France

Continuation of Ser. No. 793,554, Apr. 4, 1977, abandoned. This application Mar. 5, 1979, Ser. No. 17,631

Claims priority, application France, May 5, 1976, 76 13881; Sep. 30, 1976, 76 29987; Mar. 1, 1977, 77 06548

Int. Cl.³ A63B *49/12, 49/08*

U.S. Cl. 273—73 G **20 Claims**



1. A racket frame comprising:

(a) a generally round head having an open bottom portion and opposed openings positioned adjacent to said bottom portion;

(b) two parallel longitudinal branches extending downwardly from said head and forming a portion of a racket handle, said head and said branches being a one-piece unit comprising a hollow beam having a cavity of generally rectangular cross section with opposed webs and opposed flanges;

(c) a central bow attached to said head for closing said open bottom portion, said bow being a one-piece unit comprising a longitudinal channel having openings at its ends, said channel openings cooperating with said opposed openings; and

(d) a molded material extending through said cavity, said channel and all of said cooperating openings.

4,278,252

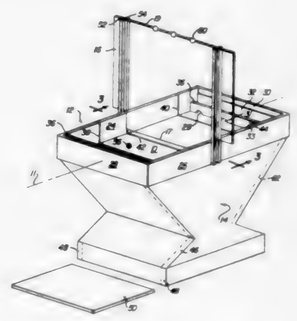
BALL AND PADDLE GAME AND EXERCISE APPARATUS

Robert A. Lyons, 295 Tucson St., Aurora, Colo. 80012

Filed Mar. 3, 1980, Ser. No. 126,669

Int. Cl.³ A63F *7/00*

U.S. Cl. 273—118 R **7 Claims**



1. Game apparatus for two players comprising:

a planar playing surface having a predetermined length and width within which a relatively dense ball is put in play;

support means for rigidly supporting said playing surface in a fixed position at approximately elbow level of said players;

retaining means, on the periphery of said playing surface retaining the ball on said playing surface;

a pair of spaced apart goal boards extending along the width of said playing surface for deflecting said ball when said ball strikes one of the goal boards;

said goal boards defining a plurality of goal openings through which said ball may pass; and

a transparent shield extending across the playing surface midway between said goal boards and extending in height from a lower edge above said playing surface a distance slightly greater than the diameter of said ball to an upper edge from about eighteen inches to about four eet from the playing surface.

4,278,253

GAME HAVING A SPIRALLY TRAVERSING CHANNEL

Tomiyuki Hirose, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Filed Oct. 3, 1979, Ser. No. 81,397

Claims priority, application Japan, Oct. 11, 1978, 53-139506[U]

Int. Cl.³ A63F *9/02*

U.S. Cl. 273—121 R **15 Claims**

1. A game which comprises:

a housing including a playing surface located within the interior of said housing;

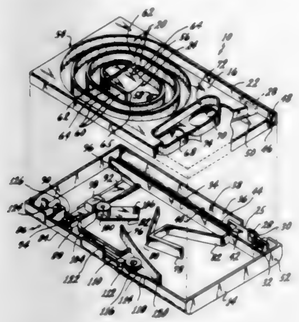
said playing surface including a spirally winding object guide means, said guide means having a launching end and a target end;

at least one object located within said housing and capable of fitting and moving within said guide means;

an object launching means located in said housing and operatively connecting to said launching end of said guide means and capable of launching an object into said guide means so as to cause said object to travel within said guide means from said launching end to said target end;

a target means located at said target end of said guide means;

a target activation means controlled by the operator of said game, said target activation means operatively associated with said target means and capable of activating said



target means for a finite period of time in response to control by said operator, the operator of said toy capable of coordinating the activation of said target means with the arrival of said object at said target means such that when said object travels through said guide means and concurrently arrives at said target end of said guide means during said finite period of time when said target is activated by said target activation means said target is capable of capturing said object.

4,278,254

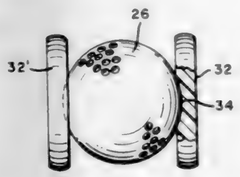
GOLF PUTTING DEVICE

Luther G. Simjian, 1750 S. Ocean La., Fort Lauderdale, Fla. 33316

Continuation-in-part of Ser. No. 89,613, Oct. 29, 1979, abandoned. This application Jul. 31, 1980, Ser. No. 174,195

Int. Cl.³ A63B *69/36*

U.S. Cl. 273—183 C **4 Claims**



1. A golf putting device comprising:

a pair of spaced concentrically rotating wheels having a crown diameter approximating that of a golf ball and being spaced from each other by a distance for being addressed by a putter;

a sighting device in the form of an actual or simulated golf ball concentrically mounted between and to said wheels, and

the diameter of said wheels being slightly greater than that of said ball for causing said ball to be free of rolling contact with an underlying surface upon which said wheels roll.

4,278,255

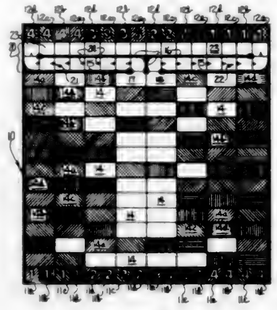
BOARD GAME APPARATUS

Harold J. Gilbert, 1900 Randolph Rd., Ste. 402, Charlotte, N.C. 28207

Filed Oct. 29, 1979, Ser. No. 89,232

Int. Cl.³ A63F *3/00*

U.S. Cl. 273—248 **8 Claims**



1. A game apparatus for a plurality of players comprising, in combination,

a playing board having four sides and a playing surface,

means along one side of the playing board defining on said playing surface a plurality of individual starting spaces for each of the players, the number of starting spaces for each player being the same,

means along the opposite side of the playing board defining on the playing surface a plurality of individual destination spaces for each of the players, said destination spaces corresponding in number to the number of starting spaces,

means defining a visually discernible first characteristic associated with the respective starting spaces and destination spaces of each player for identifying the starting spaces and destination spaces as belonging to a particular player while distinguishing such starting spaces and destination spaces from those belonging to the other players,

means defining distinctive visually discernible second characteristics associated with the respective individual starting spaces of each player for identifying each individual starting space of a player and distinguishing it from the other starting spaces of that same player,

means defining corresponding visually discernible second characteristics associated with the respective destination spaces of each player for identifying a corresponding destination space for each starting space,

a set of playing pieces for each player, said playing pieces corresponding in number to the number of individual starting spaces,

said distinctive visually discernible first characteristic being associated with the playing pieces of each set for identifying the playing pieces as belonging to a particular player while distinguishing such playing pieces from those of the other players,

said distinctive visually discernible second characteristic also being associated with the playing pieces of each set of identifying each individual playing piece and distinguishing it from the other playing pieces of that same player and for also identifying the particular starting space and destination space applicable to that playing piece,

means on said playing surface defining a grid of longitudinally and laterally contiguous playing spaces between said starting spaces and said destination spaces,

partition means located on said playing surface between said starting spaces and said destination spaces and having a pair of openings therein through which the playing pieces must pass in order to reach said destination spaces,

respective individual pathways leading from each of said openings to said destination spaces,

said distinctive visually discernible first characteristic for each player also being associated with certain ones of said playing spaces and serving to define those playing spaces as safe spaces for a player whose playing piece is of that same first characteristic but which is not a safe space for players whose playing pieces are of a different first characteristic, and

a chance device for indicating the number of playing spaces for a player to move his playing pieces in attempting to advance the playing pieces from the starting space to the destination space.

4,278,256

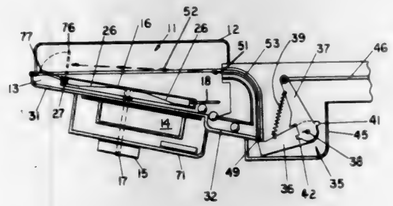
TARGET GAME

Raymond J. Lohr, 5043 Sterrettania Rd., Erie, Pa. 16506

Filed Aug. 10, 1979, Ser. No. 65,565

Int. Cl.³ A63F *9/02*; **F41J** *9/00*

U.S. Cl. 273—368 **11 Claims**



1. A target game (10) comprising,

a toy gun (72,73) adapted to be held in the hand and carried about a play area in use,

an enclosed target area (11) rigidly attached to said gun adjacent the muzzle thereof and extending forwardly therefrom,

targets (18) supported in said target area,

means for moving said targets,

means for firing supported in said gun,

projectiles,

said firing means being adapted to impart velocities to the projectiles and to direct said projectiles into the target area,

said targets being moved through the path of the directed projectiles at a point in the target area opposite the point of attachment of the target area to the gun.

4,278,257

SOCCER KICKING AID

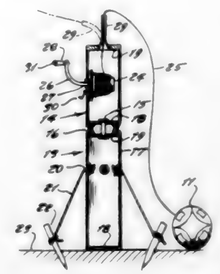
Juan M. Garcia, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Feb. 7, 1980, Ser. No. 119,384

Int. Cl.³ A63B *69/00*

U.S. Cl. 273—411 **3 Claims**

1. A soccer kicking aid, comprising in combination, a vertical goal post including a hollow base and a hollow extension swivelled thereupon, said hollow extension containing a reel therein, a nylon cord wound around said reel, said cord extending outward through a flexible hose on top of said extension and being tethered to a soccer ball.



4,278,258

CONTAINER FOR HOLDING AT LEAST ONE RECORDING DISK AND DISK PLAYING SYSTEM

Makoto Fujita, Kadoma; Shoji Omiya, Shijonawate, and Izumi Hino, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 17, 1979, Ser. No. 76,128

Claims priority, application Japan, Sep. 27, 1978, 53/119586; Sep. 27, 1978, 53/119587; Mar. 15, 1979, 54/30745; Mar. 15, 1979, 54/30746; Apr. 11, 1979, 54/44698; Apr. 13, 1979, 54/45643; May 8, 1979, 54/55986; May 16, 1979, 54/60189; May 16, 1979, 54/60190; May 18, 1979, 54/61820

Int. Cl.³ B65D *85/57*; **G11B** *17/04*

U.S. Cl. 369—36 **16 Claims**

1. A container for a recording disk having at least on one surface thereof a signal recording surface on which signals are recorded, said container comprising:

a container base made of rigid material, including a circular opening at least on one surface thereof and having a diameter greater than the diameter of the recording disk, a surrounding portion around said circular opening, a plurality of guide grooves each having one end opened to said circular opening and the other end terminated in said surrounding portion, and at least one disk holding space in the interior thereof and communicating with said circular opening; and

a plurality of engaging and holding members made of flexible material, each having a forward end portion and a rear end portion, and being disposed in said each guide groove so as to be selectively movable between a first position in which said forward end portion projects into the circular opening to lock the recording disk in said disk holding space and a second position in which said forward end portion withdraws to release the recording disk from the disk holding space through the circular opening, thereby said engaging and holding member being arranged to be

bent in said rear end portion in the vicinity of the other end of said guide groove when moved from said first position to said second position so that the engaging and holding member is partly withdrawn from the guide grooves in moving in sliding motion.

4,278,259

DEVICE FOR SEALING SPINNING ROTOR IN AN OPEN-END SPINNING APPARATUS

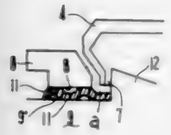
Kinpei Mitsuya, Aichi; Noriaki Miyamoto, and Masao Shiraki, both of Kariya, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Nov. 5, 1979, Ser. No. 91,689

Claims priority, application Japan, Nov. 6, 1978, 53-152609[U]

Int. Cl.³ D01H *1/12;* **F16J** *15/16*

U.S. Cl. 277—12 **8 Claims**



1. A rotor sealing device used on an open-end spinning apparatus having a spinning rotor which forms therein air-discharge apertures, the opening in said spinning rotor being openably closed by a body member which has a fibers delivery aperture formed therein; said rotor sealing device being characterized in that a sealing member which is supported on said body member by means of an elastic or resilient material member is inserted into the space located between said rotor opening and said body member positioned in opposite relation thereto.

4,278,260

SEAL UNIT

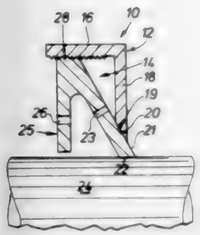
John E. Brown, Mansfield Woodhouse, England, assignor to West & Sons (Engineers) Limited, Nottinghamshire, England

Filed Oct. 15, 1979, Ser. No. 84,734

Claims priority, application United Kingdom, Mar. 11, 1978, 09739/78

Int. Cl.³ F16J *15/32*

U.S. Cl. 277—110 **4 Claims**



1. A seal unit for providing a seal between a shaft and a housing through which the shaft projects, the unit including an annular casing having a cylindrical portion and an inwardly directed flange portion, an annular seal element having an outer peripheral edge for contacting the inner face of the cylindrical portion and an inner peripheral edge for sealingly engaging the shaft, the outer peripheral edge of the seal element and the inner face of the cylindrical portion each having a screw thread formation so that on rotation of the seal element relative to the casing the seal element is placed under an axial compressive loading which causes the inner edge to move radially inwardly to engage the shaft.

4,278,261

SEALING DEVICE

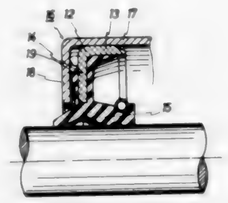
Takeshi Miura, and Yasuo Yamamoto, both of Fukushima, Japan, assignors to Nippon Oil Seal Industry Co., Ltd., Tokyo, Japan

Filed Jun. 21, 1979, Ser. No. 50,526

Claims priority, application Japan, Aug. 23, 1978, 53-115309[U]

Int. Cl.³ F16J *15/32*

U.S. Cl. 277—153 **1 Claim**



1. In a sealing device for a rotating shaft having a reinforcement ring with an axial portion and a radial portion, an annular lip element made of rubber secured to the inner end of said radial portion and adapted for sealing engagement on its inner surface with the shaft, a cap having a cylindrical portion and a radial flange being positioned in use so that the inner surface of said cylindrical portion engages the outer surface of said axial portion of said ring and an annular space is provided between said flange and said radial portion of said reinforcement ring, and a lip-like annular rubber seal extending radially from said lip element in said annular space, the improvement comprising an annular groove in the radially outermost surface of said lip-like annular seal and a stepped portion in the surface of said lip-like annular seal adjacent the inner surface of said flange forming a reduced thickness toward the radially inner portion of said seal, said radially outer portion of said seal being tightly compressed between said radial flange of said cap and said radial portion of said reinforcement ring.

4,278,262

RUBBER BOOT FOR USE IN UNIVERSAL JOINT

Hitoshi Mizutani, Aichi; Zenji Nakajima; Yoshito Horikiri, both of Toyota; Hiroshi Harada, Takaishi, and Yasushi Yokotsuji, Hirakata, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota and The Toyo Rubber Industry Co., Ltd., Osaka, both of, Japan

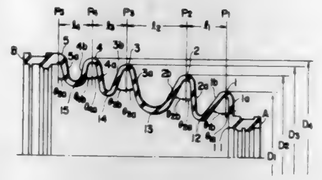
Filed Aug. 27, 1979, Ser. No. 70,084

Claims priority, application Japan, Aug. 25, 1978, 53-104206

Int. Cl.³ F16J *3/00*

U.S. Cl. 277—212 FB **9 Claims**

1. A boot having one end formed with a small diameter portion adapted to be connected to a drive shaft and having the other end formed with a large diameter portion adapted to be connected to universal joint casing, said boot comprising a bellows structure having alternating ridges and valleys with valleys adjacent to said large diameter portion having diameters larger than those of valleys adjacent to said small diameter portion, the ridges adjacent to said small diameter portion having ridge planes facing toward said small diameter portion and opposite ridge planes facing toward said large diameter portion wherein the angles of each of said ridge planes relative to corresponding diametrical planes which pass through each of said ridges are in a range of 0° to 6° and angles of corresponding opposite ridge planes relative to said diametrical planes are in a range of 30° to 38°, the ridges adjacent to said large diameter portion having ridge planes each facing toward said small diameter portion and opposite ridge planes each



facing toward said large diameter portion wherein the angles of each of said ridge planes relative to corresponding diametrical planes which pass through each of said ridges are in a range of 11° to 17° and angles of corresponding opposite ridge planes relative to each of said diametrical planes are in a range of 0° to 35°, and the distance between two neighbouring ridges positioned at a longitudinally center portion of said boot being 1.5 to 1.8 times greater than the distance between adjacent ridges in remaining portions thereof.

4,278,263

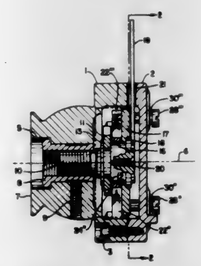
QUICK-RELEASE CLAMP FOR MICROTOMES

Julius S. Rosen, Buffalo, N.Y., assignor to American Optical Corporation, Southbridge, Mass.

Filed Oct. 24, 1979, Ser. No. 87,903

Int. Cl.³ B23B *31/00*

U.S. Cl. 279—1 R **5 Claims**



1. A clamp comprising a main body and retaining means for releasably holding an object against one end of said main body, said body having a cavity with an internally threaded bore on an axis and extending away from said one end a rotatable member threadably engaging said threaded bore for axial movement when said member is rotated, said retaining means including a plurality of object gripping fingers, said rotatable member being connected to said fingers to provide movement in a direction normal to said one end during said axial movement, and means adapted to cooperate with said rotatable member for laterally moving said fingers relative to each other and to said one end.

4,278,264

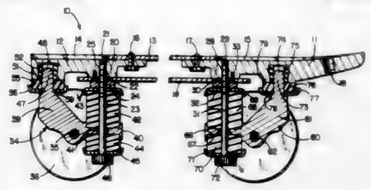
SKATE

Brent L. Lenz, 610 S. Lake St., Long Prairie, Minn. 56347

Filed Jul. 6, 1979, Ser. No. 55,175

Int. Cl.³ A63C *17/02*

U.S. Cl. 280—11.28 **25 Claims**



1. A skate comprising: first plate having a first pocket, a second plate having a second pocket, each pocket having a bottom, an open end, and a generally cone-shaped side wall that converges from the bottom of the pocket toward the open end of the pocket, said first and second plates adapted to be connected to a foot supporting structure, jump bar means connected to the first and second plates, means attaching the jump bar means to said first and second plates, a first truck mounted on the first plate, a second truck mounted on the second plate, wheel means rotatably mounted on each of said first and second trucks for supporting the skate on a skating surface, said first truck having an upright first finger means having a vertical axis, said finger means having a first portion located in the pocket of the first plate, first resilient collar means located in said first pocket, said first collar means having a side wall engageable with the cone-shaped side wall of the first pocket and a central hole accommodating a first portion of said upright first finger means, first annular resilient means surrounding a second portion of said first finger means engageable with said first plate, means supporting the first annular resilient means on said first truck whereby the first collar means and the first annular resilient means yieldably retain the first finger means in an upright position, said second truck having upright second finger means having a vertical axis, said second finger means located in the pocket of the second plate, second resilient collar means located in said second pocket, said second collar means having a side wall engageable with the cone-shaped side wall of the second pocket and a central hole accommodating a first portion of said upright second finger means, second annular resilient means surrounding a second portion of the second finger means engageable with the second plate, and means supporting the second annular resilient means on said second plate whereby the second collar means and second annular resilient means yieldably retain the second finger means in an upright position, first means yieldably connecting the first truck on the first plate, said first means including an upright bolt extended generally parallel to said first finger means connected to said first plate, and second means yieldably connecting the second truck on the second plate, said second means including a second upright bolt extended generally parallel to the second finger means connected to the second plate.

16. A skate comprising: a first plate, a second plate, said first and second plates adapted to be connected to a foot supporting structure, jump bar means connected to the first and second plates, means attaching the jump bar means to said first and second plates, said jump bar means comprising a plurality of bars connected to the first and second plates, one of said bars having end portions located in engagement with the first and second plates, said means attaching the jump bar means to said first and second plates including bolt and nut means connecting said end portions to the first and second plates, pin means spaced from the bolt means located in aligned holes in said first and second plates and said end portions to align the one of said bars on the first and second plates and reduce bending and shearing forces of said one of said bars on said bolt means, a

first truck mounted on the first plate, a second truck mounted on the second plate, wheel means rotatably mounted on each of said first and second trucks for supporting the skate on a skating surface, first means yieldably mounting the first truck on the first plate, second means yieldably mounting the second truck on the second plate.

4,278,265

REAR HUB FOR A BICYCLE HAVING IMPROVED SPOKE PROTECTOR MOUNTING

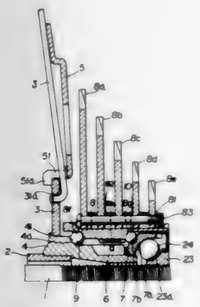
Masashi Nagano, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Apr. 3, 1979, Ser. No. 26,694

Claims priority, application Japan, Apr. 14, 1978, 53/49837[U]

Int. Cl.³ B60R *19/00;* **B62J** *13/00*

U.S. Cl. 280—160.1 **3 Claims**



1. A rear hub for a bicycle, comprising:

a hub shaft;

a hub shell having first and second hub flanges at respective ends thereof rotatably supported to said hub shaft;

a bearing cone extending from one axial end of said hub shell axially outwardly of said first hub flange;

a driving member having at least one sprocket rotatably supported to said bearing cone, a sprocket of said driving member being located adjacent said fist hub flange;

a unidirectional rotary transmission mechanism inserted between said bearing cone and said driving member for transmitting the driving force from said driving member to said bearing cone; and

a disc-shaped spoke protector larger in outer diameter than said sprocket mounted to and adjacent said first hub flange, such that the outer surface of said spoke protector opposes the teeth of said sprocket located adjacent said hub flange; said spoke protector having a central disc portion which is elastically deformable relative to an outer peripheral disc portion thereof, said central portion defining a center bore and having a plurality of retainers attached to and emanating from said central portion at a location adjacent said center bore, said plurality of retainers extending toward said first hub flange and having hook-shaped retaining portions which elastically deform to lockingly engage with said first hub flange when pressure is applied to said central portion axially of said protector toward said first hub flange, said spoke protector contacting at a position radially outward from said center bore with spokes carried by said first hub flange and being elastically deformed at said central portion relative to the outer portion when said retaining portions are lockingly engaged with said first hub flange whereby said spoke protector is fixed to said first hub flange and retained against said spokes.

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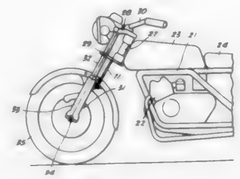
FRONT FORK CONSTRUCTION FOR MOTORCYCLE

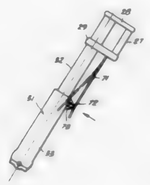
Hidehiko Inoue, Ooi; Masao Nishikawa, Tokyo, and Nobuo Anno, Urawa, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,286

Int. Cl.³ B62K *21/02, 25/04*

U.S. Cl. 280—276 **3 Claims**





1. A front wheel suspension assembly for a motorcycle comprising, in combination: parallel telescoping forks of the hydraulic type which straddle the front wheel and which are inclined downward in a forward direction, thereby producing a bending moment in said forks with the motorcycle supported in an upright position upon a horizontal surface, each fork comprising an upper tube telescopically mounted within a bottom tube and containing a body of oil, said tubes having continuous cylindrical surfaces in sliding contact and lubricated by said body of oil, upper and lower bridges fixed to the upper portions of said upper tubes, means mounting said front wheel for rotation on said bottom tubes, an element fixed to the upper end of each of the bottom tubes, and means including leaf springs fixed to said lower bridge for applying a generally forwardly and upwardly directed resultant force to said elements in opposition to forces creating said bending moment to thereby reduce sliding friction between said telescoping tubes, said leaf springs being positioned rearward of a vertical plane containing the axis of the front wheel and positioned below the upp:r ends of said upper tubes.

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EQUIPMENTS FOR ATTACHING TRAILERS

Gilbert M. Vasseur, La Compte par Houdain, France, assignor to Societe Anonyme Etablissements Vasseur & Cie, Champigny, France

Filed Aug. 10, 1978, Ser. No. 932,456

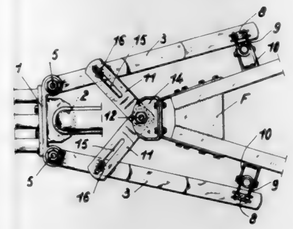
Claims priority, application France, Sep. 9, 1977, 77 27286

Int. Cl.³ B60D *1/00;* **B60T** *7/20*

U.S. Cl. 280—406 R **6 Claims**

1. In a coupling for connecting a trailing vehicle having a coupling seat to a tractor vehicle, said coupling including a coupling fitting mounted on said tractor vehicle, an inertial braking system mounted on said coupling seat, a spherical joint pivotally connecting said braking system to said coupling fitting, a pair of elastically deformable stabilizing bars, forward ends of said bars being pivotally connected to said coupling fitting about vertical axes at opposite lateral sides of said spherical joint, respectively, and means connected to said coupling seat for tensioning rearward ends of said bars upwardly so as to provide for equilibration of forces affecting the tractor vehicle,

the improvement comprising means for eliminating the effect of said tensioning of said bars on said braking system, said eliminating means comprising a pair of elastically deformable arms, first end portions of said arms being pivotally connected



to said coupling seat about a common vertical axis, and second end portions of said arms being in constant permanent abutment with said pair of bars respectively, said arms exerting a downward force on said bars in opposition to the force of said tensioning means.

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SKI BRAKE

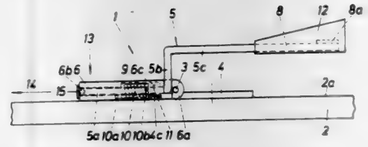
Tibor Szasz, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland

Filed Sep. 12, 1979, Ser. No. 74,623

Claims priority, application Austria, Sep. 19, 1978, 6739/78

Int. Cl.³ A63C *7/10*

U.S. Cl. 280—605 **10 Claims**



1. A ski brake, comprising:

base plate means adapted to be mounted on an upper surface of a ski;

pedal means pivotally secured to said base plate means and pivotal between a first position generally parallel to said upper surface of said ski and a second position inclined at an angle to said upper surface of said ski;

first resilient means for continually urging said pedal means toward said second position;

means defining at least one bearing opening in said pedal means;

brake blade means rotatably mounted in said bearing opening and being movable between first and second locations, said brake blade means comprising a first wire segment rotatably received in said bearing opening, a second wire segment, in said first location thereof, extending generally parallel to the longitudinal axis of and above said upper surface of said ski when said pedal means is in said first position, said second wire segment being offset from said first wire segment and, in said second location thereof, extending alongside of a lateral edge of said ski and projecting below the under surface of said ski when said pedal means is in said second position, and a third wire segment connecting said first and second wire segments;

second resilient means for urging said brake blade means toward said first location thereof; and

connecting means coupled to said brake blade means and said base plate means for effecting a movement of said brake blade means toward said second location against the urging of said second resilient means and in response to a movement of said pedal means toward said second position under the urging of said first resilient means.

4,278,269

COMBINED SKI BOOT AND SAFETY BINDING

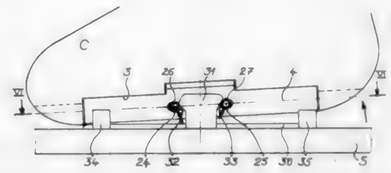
Jean J. A. Beyl, Nevers, France, assignor to Look, Nevers, France

Filed Jul. 12, 1979, Ser. No. 57,081

Claims priority, application France, Jul. 13, 1978, 78 21053

Int. Cl.³ A63C *9/08*

U.S. Cl. 280—613 **14 Claims**



1. An assembly comprising a combined ski boot and a safety ski binding embedded in the boot sole and adapted to releasably retain the boot on the ski by cooperating with a complementary member secured to the top surface of a ski, wherein the boot sole has formed therein a recess dimensioned for receiving a flat elonagated case rotatably mounted on a pivot member rigid with said boot sole and projecting from the bottom of said recess at right angles to the top surface of the ski, said case including boot retaining means on each lateral side thereof for engaging said complementary member to normally hold said case on the ski, resilient means within said case for insuring engagement of said retaining means and said complementary member and acting on said pivot member to urge said boot to its normal position relative to said case on the ski, such that any rotational movement of said boot and said pivot member which tends to move said boot away from its normal position will release said boot retaining means from its normal operative position in relation to said complementary member rigid with the ski, and conversely that in case of a forward or backward fall, a movement of said retaining means will release the action of said resilient means on said pivot member and enable said pivot member and said boot to rotate on the ski, whereby in each case said boot and said case may be released from said complementary member.

4,278,270

SPRUNG VEHICLES

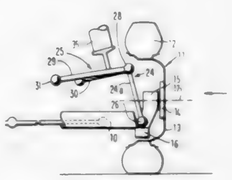
Timothy S. Fry, Dunchurch, England, assignor to GKN Group Services Limited, Great Britain

Filed Aug. 2, 1978, Ser. No. 930,176

Claims priority, application United Kingdom, Aug. 13, 1977, 34080/77; Aug. 13, 1977, 34081/77

Int. Cl.³ B60G *3/20*

U.S. Cl. 280—675 **8 Claims**



1. A vehicle comprising a chassis, a rigid axle, and a link assembly at each end of the axle, each such assembly comprising a first rigid link, means providing a pivotal connection

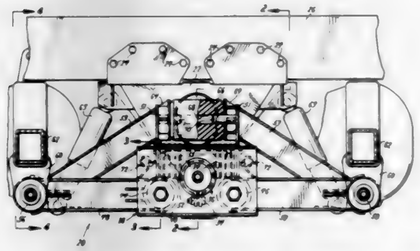
between one end of said first rigid link and the axle, a second rigid link, means providing a pivotal connection between one end of the second rigid link and the chassis and means providing a pivotal connection between the other end of the second rigid link and the other end of the first rigid link and for stabilising said pivotal connection relative to one of the axle and the chassis, and spring means connected between the second link and the chassis resiliently to support the chassis and axle relative to one another, the pivotal connection between said one end of the first rigid link and the axle lying substantially on the centre line of the road wheel to be supported at the respective axle end so that the displacement of the spring means due to a displacement, perpendicular to a reference surface on which the vehicle stands, of the wheel in roll is substantially equal to the displacement of the spring means due to an equal displacement of the wheel in bump.

4,278,271

SUSPENSION SYSTEM WITH CENTRAL ELASTOMER SPRING

John E. Raidel, Rte. 9, Box 400-M, Springfield, Mo. 65804

Filed Jan. 21, 1980, Ser. No. 113,472
Int. Cl.³ B60G *5/00*
U.S. Cl. 280—687 **17 Claims**



1. A vehicle suspension assembly for a tandem axle vehicle including a pedestal adapted to be suspended from said vehicle's chassis and between said axles, a compensator pivotally connected to said pedestal, a first torque beam pivotally connected at an end to the fore axle and pivotally connected at its other end to said compensator, a second torque beam pivotally connected at an end to the rear axle and at its other end to said compensator, a central, horizontally disposed, principal load-bearing spring means extending between said first and second torque beams, the compensator including a spring means extending between each of said first and second torque beams and said compensator to resist pivoting movement of said torque rods caused by vertical deflection of said axles.

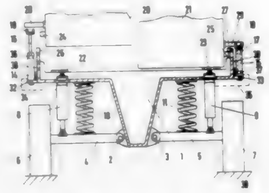
4,278,272

HYDROPNEUMATIC SPRING SUSPENSION DEVICE FOR VEHICLES

Heinz Leibeling, Siegburg, Fed. Rep. of Germany, assignor to Boge GmbH, Eitorf, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,560
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843436
Int. Cl.³ B60G *11/26*
U.S. Cl. 280—708 **7 Claims**

1. In a hydropneumatic spring suspension, especially for automotive vehicles with a load bed, comprising a hydropneumatic spring element that produces gaseous elastic forces and damping forces with a work piston slidable in an oil-filled work chamber that is loaded by a gas cushion whereby the pressure of the gas cushion determines a variable bearing force and spring characteristic of the spring element, and a shunt chamber from which a pressure medium is supplied to the spring element to vary the bearing force and spring characteristic of the spring element, the improvement wherein said shunt chamber comprises an auxiliary cylinder for connection with a laid bed, and an auxiliary piston slidable in said auxiliary cylinder and provided with receiving devices for a load unit to be mounted on the load bed, the auxiliary piston and cylinder being so constructed and arranged that when the load unit is positioned on the load bed the auxiliary piston is automatically



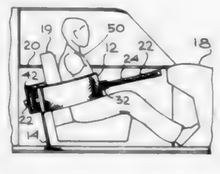
forced by the weight of the load unit from an extended position into a retracted position so as to force pressure medium from the auxiliary cylinder to said spring element to increase the pressure of the gas cushion therein and hence increase the bearing force and change the spring characteristic of said spring element.

4,278,273

PERSONAL SAFETY RESTRAINT ASSEMBLY FOR VEHICLE OCCUPANTS

Robert D. Schiff, 3370 Wrightwood Dr., Studio City, Calif. 91604

Filed Sep. 4, 1979, Ser. No. 72,150
Int. Cl.³ B60R *21/10*
U.S. Cl. 280—802 **6 Claims**



1. A personal safety restraint assembly for occupants seated in a vehicle, comprising in association with a seat in the vehicle:

a broad band of flexible material adapted to cover a portion of the occupant's pelvic region and rib cage;

first attachment means mounted to the floor of the vehicle at the rear of the innermost side of the seat and extending above the level of the seat, one end of said band being secured to said attachment means at an elevation above the floor substantially level with the occupant's mid-section;

a guide fixed to the vehicle door adjacent the seat at an elevation above the floor substantially level with the occupant's mid-section;

second attachment means slidably mounting the other end of said band to said guide;

manually operable positioning means associated with said second attachment means for selectively positioning said second attachment means on said guide and in cooperation with said first attachment means thereby positioning said band transversely across the occupant's pelvic region and lower rib cage; and

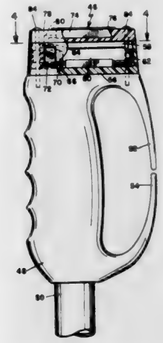
locking means associated with said positioning means for releasably locking said second attachment means to said guide in selected positions thereon.

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SKIER'S WARNING DEVICE

Gene S. Ray, 1360 Forest Ave., Carlsbad, Calif. 92008

Filed May 21, 1979, Ser. No. 40,757
Int. Cl.³ A63C *11/22*
U.S. Cl. 280—821 **1 Claim**



1. A skier's warning device comprising in combination:

a ski pole grip having an outer surface formed into a hand fitting configuration, and including a cylindrical bore for detachably mounting said grip on the upper end of a ski pole, a housing detachably mounted on the top of said ski pole grip and including an upwardly opening battery cavity therein,

a detachable cover mounted on said housing covering said battery cavity,

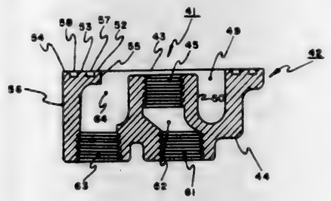
an audible warning device carried in said housing and comprising a source of electrical power including a battery mounted in said battery cavity in said housing, a sound generating transducer mounted in said cover and directed generally upward along the axis of said bore in a generally forward direction when a pole on which said grip is mounted is held in a normally horizontal position pointing behind a skier, an electrical circuit including a normally open switch disposed on one side of said housing for activation by a thumb for selectively connecting said electrical power to said transducer and including a leaf spring conductor in said battery cavity for defining a portion of said circuit and wherein said switch includes a push button for biasing said leaf spring conductor into engagement with another conductor.

4,278,275

UNIVERSAL COUPLING ADAPTER FOR REMOTE FLUID COOLING OR FILTERING

Paul W. Diederich, Jr., 633 Hunters Trail, Glendora, Calif. 91740

Filed Oct. 22, 1979, Ser. No. 87,101
Int. Cl.³ F16L *39/00*
U.S. Cl. 285—12 **5 Claims**



1. An adapter for coupling a remotely-located fluid circulation device to the fluid reservoir of a hydraulic system in place of a fluid filter, comprising in combination:

(a) a generally disk-shaped body having first and second end surfaces, the first end surface being adapted for abutment adjacent the outlet surface of the fluid reservoir in place of a fluid filter;

(b) a centrally-located bore extending into said disk-shaped body from said first end surface;

(c) a cavity extending partially into said disk-shaped body from the first end surface;

(d) first, second, and third spaced-apart concentric ridges of different diameters formed at the first end surface of said disk-shaped body, said first ridge being adjacent to the outer peripheral surface of said cavity, said third ridge being adjacent to the outer peripheral edge of said disk-shaped body;

(e) an inner circular groove situated between said first and second concentric ridges and extending partially into said disk-shaped body from the first end surface;

(f) an outer circular groove situated between said second and third concentric ridges and extending partially into said body from the first end surface, said outer circular groove having a larger diameter than said inner circular groove, one of said inner or outer diameter grooves being adapted for receiving a single O-ring when the adapter is to be attached to the fluid reservoir of a hydraulic system, said inner circular groove receiving an O-ring having a first diameter size when the adapter is used to provide a fluid-tight seal between the first end surface of said disk-shaped body and a fluid reservoir whose outlet surface is of a first diameter size, said outer circular groove being adapted for receiving an O-ring having a second and larger diameter size when the adapter is used to provide a fluid-tight seal between the first end surface of said disk-shaped body and a fluid reservoir whose outlet surface is of a second and larger diameter size;

(g) an inlet port extending from the second end surface of said disk-shaped body, said inlet port having a passageway extending into said disk-shaped body and interconnected with said centrally-located bore; and

(h) an outlet port extending from the second end surface of said disk-shaped body, said outlet port having a passageway extending into said disk-shaped body and interconnected with said cavity, said outlet port being situated near the edge of said disk-shaped body and the passageway interconnecting said outlet port with said cavity being situated beneath said first and second concentric ridges and said inner circular groove, said inlet and outlet ports being adapted for coupling the adapter to a remotely-located fluid circulation device.

4,278,276

DEVICE FOR A COUPLING UNIT HAVING CONNECTABLE AND DISCONNECTABLE PARTS

Kjell R. Ekman, Zug, Switzerland, assignor to Ekman Engineering AG, Switzerland

Continuation-in-part of Ser. No. 740,520, Nov. 10, 1976, abandoned. This application Jul. 6, 1978, Ser. No. 922,266
Claims priority, application Sweden, Nov. 12, 1975, 7512669; Feb. 16, 1976, 7601674
Int. Cl.³ F16L *11/12*
U.S. Cl. 285—49 **10 Claims**

1. A coupling device for transporting fluid from a source of fluid to an output conduit without fluid leakage even during extreme vibration of said coupling, and comprising:

a first tubular coupling member having a fluid passageway extending therethrough;

a second tubular coupling member having a fluid passageway extending therethrough;

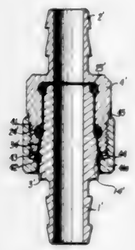
said first and second tubular coupling members each having on a respective first end portion means for permitting contact-free insertion of said first tubular coupling part

into said second tubular coupling part, thereby aligning said flow passageways extending therethrough;

a first circumferentially extending recess formed in an interior surface portion of said second tubular coupling member both radially and axially confronting a first circumferentially extending sealing surface countersunk adjacent an end surface of said first tubular coupling member and a second circumferentially extending recess formed in a further interior surface portion of said second tubular coupling member longitudinally spaced from said first recess and radially confronting a second circumferentially extending sealing surface countersunk in an exterior surface portion of said first tubular coupling member longitudinally spaced from said first countersunk sealing surface;

separate sealing ring means positioned in each pair of radially aligned recesses and countersunk sealing surfaces for suspensing said first tubular coupling member out of contact with said second tubular coupling member, to supress the transmission of vibrations therebetween, while limiting the insertion of said tubular coupling members into one another;

a hollow nut assembly surrounding a portion of said second tubular coupling member and including attachment means engaging complimentary attachment means formed on said second tubular coupling member for fixedly attaching



said hollow nut assembly to said second tubular coupling part;

said hollow nut assembly including a portion overlapping and facing a substantially radially extending end wall of said second tubular coupling member to define a circumferentially extending slot therebetween;

said slot being spaced from said second circumferentially extending recess formed in said tubular coupling member a longitudinal distance less than the longitudinal distance between said first and second recesses to maintain proper journalling support between said first and second tubular coupling members irrespective of bending forces which affect the coupling device;

a resilient locking ring extending partially into said slot and confronting stop means formed on an exterior surface portion of said first tubular coupling member; and

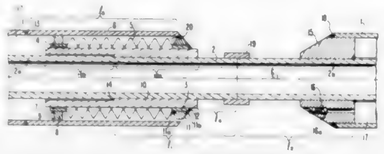
said hollow nut portion having wall means positioned for engaging and basing said resilient locking ring into tight frictional contact with said stop means, thereby biasing said first tubular coupling member into fluid-tight engagement with said separate sealing ring means, whereby one of said sealing ring means is compressed between said first recess and said first countersunk sealing surface to prevent further insertion of said first tubular coupling member into said second tubular coupling member.

4,278,277

STRUCTURE FOR COMPENSATING FOR DIFFERENT THERMAL EXPANSIONS OF INNER AND OUTER CONCENTRICALLY MOUNTED PIPES

Pieter Krijgsman, P.O. Box 68, 8050 AB, Netherlands

Filed Jul. 26, 1979, Ser. No. 60,998
Int. Cl.³ F16L *35/00*
U.S. Cl. 285—93 **8 Claims**



1. A structure for sealing the annular space between an inner pipe and an outer pipe, coaxially mounted, with an annular space between them comprising:

a first pipe section for concentrically overlying said inner pipe, said first pipe section having a first end and a second end, said first end of said first pipe section being adapted to be attached to one end of the inner pipe;

first annular-shaped ring means joined circumferentially around and to the outer surface of the first end of said first pipe section;

second annular-shaped ring means slidably formed around the outer surface of the second end of said first pipe section;

a second pipe section having substantially the same inner and outer diameters as said outer pipe, said second pipe section having circumferentially attached to its inner surface said second annular-shaped ring means;

an annular-shaped bellows diaphragm one end of which is circumferentially, joined to said first annular-shaped ring means and the other end of which is joined to said second annular-shaped ring means, said annular-shaped bellows diaphragm extending concentrically and longitudinally along the outside of said first pipe section and inside said second pipe section and being adapted to expand or contract in the direction of the longitudinal axes of said inner and outer pipes; and

said second pipe section being adapted to be joined to the outer pipe in said pipe string thereby to seal said annular space, said second annular-shaped ring means being adapted to move longitudinally relative to said first pipe section attached to said inner pipe.

4,278,278

MEANS FOR TENSIONING TUBING IN A WELLHEAD ASSEMBLY

Joe G. Chambless, and Paul E. McGlasson, both of Shreveport, La., assignors to W-K-M Wellhead Systems, Inc., Shreveport, La.

Filed Aug. 30, 1979, Ser. No. 71,213
Int. Cl.³ F16L *39/00*
U.S. Cl. 285—143 **7 Claims**

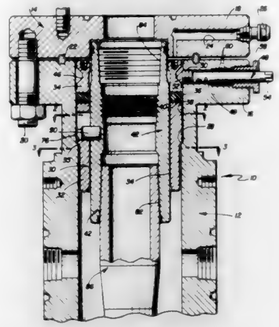
1. In a wellhead assembly having an outer tubing head, an intermediate hanger bowl supported on the tubing head, and an inner hanger having a tubing string supported therefrom; an improved means for tensioning the tubing string after anchoring the lower end of the tubing string comprising:

a plurality of cam slots in said hanger bowl extending upwardly from the lower end thereof, each slot being of a generally inverted "J" configuration having a relatively wide mouth portion at its lower end and being defined by a pair of spaced side surfaces converging from said mouth portion to a relatively narrow throat portion, one of said side surfaces of each slot having an upwardly directed portion extending from said mouth portion to an upper

arcuate corner and a downwardly directed portion extending from the arcuate corner to a pin support;

said hanger having a plurality of pins secured to and extending outwardly from the outer periphery of the hanger for fitting within said cam slots and seating within the pin supports;

said pins upon lifting of the hanger and supported tubing string from a position below the hanger bowl being guided



by the converging side surfaces of the cam slots to the throat portions and then to the upper arcuate corners at which location upward movement of the hanger and tubing string is stopped;

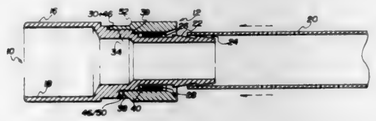
then upon a subsequent lowering of the hanger and tubing string, the pins ride along said downwardly directed portions and are seated in the pin supports for supporting the hanger and tubing string.

4,278,279

CAM-LOCK FITTING

Harry M. Zimmerman, 5708 Baltimore Dr. #399, La Mesa, Calif. 92041

Filed Jun. 7, 1979, Ser. No. 46,342
Int. Cl.³ F16L *33/22*
U.S. Cl. 285—255 **11 Claims**



1. A tube connector comprising:

(a) a hollow generally tubular body comprises a shank, a nipple of outside diameter less than that of said shank, and a central portion intermediate said shank and said nipple and being of outside diameter less than that of said nipple such that the end of a flexible hose can be received over said nipple and central portion;

(b) a collar engaged on said body around said central portion and being axially movable from a position in axial abuttment with said shank toward said nipple, said collar having an interior surface with a taper which expands toward the nipple end of said body such that axial advancement of said collar along said body toward said nipple creates a decreasing clearance between said nipple and said interior surface, the dimensions of said nipple and interior surface being such that advancement urges said collar into increasing circumferentially pinched relation with a hose received over said nipple to securely lock same thereon;

(c) said tubular body defining a coaxial helical ramp along the edge of said shank abutting said collar and said collar defining a ramp follower surface to slide along said ramp such that when said collar is rotatably adjusted in one direction it is axially advanced into said increasing circumferentially pinched relation with a hose on said nipple, whereby alternatively rotatation or direct non-rotational axial advancement of said collar will similarly effect locking engagement of a hose on said nipple with or without a mechanical advantage, respectively, and reverse axial displacement of said collar on said body disengages same from a hose on said nipple.

4,278,280

LOCKABLE AUTOMOBILE TRUNK EXTENSION

Abraham Rashbaum, 199-29 22nd Ave., Whitestone, N.Y. 11357

Filed Oct. 4, 1979, Ser. No. 81,643
Int. Cl.³ E05C *17/32*
U.S. Cl. 292—263 **3 Claims**



1. A lockable extension device for use with an automobile having a trunk or deck compartment member and a hinged trunk lid member shiftable between an open position and a locked compartment sealing position, one of said members including a key actuated latch bolt and the other said member including a generally horizontally disposed strike adapted to be coupled with said latch bolt, said device comprising a rigid strut member, extension means on said strut member for axially extending and contracting said strut member, pivot means including a first pivot joint adjacent one end of said strut member, a second pivot joint adjacent the other end of said strut member, said pivot joints having parallel pivot axes normal to the longitudinal axis of said strut for enabling articulation of said member in a single plane, clamp means at the lower end of said strut member adapted to be engaged with said strike responsive to tilting movements of said strut member in a direction normal to the plane of articulation of said strut member and to be fixedly connected against removal from said strike when said strut member is disposed in a vertical plane, latch bolt receiver means at the other end of said strut member adapted to be lockingly engaged with said latch bolt, said latch bolt receiver means comprising a bar member disposed in an essentially vertical plane aligned with the longitudinal axis of said strut member in the applied position of said device, the connection between said latch bolt and latch bolt receiver means locking said latch bolt receiver means against movements of said strut member from a vertical plane, thereby to prevent tilting of said clamp means relative to said strike.

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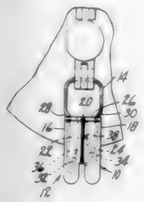
SEAL

Sigurd M. Moberg, Etlan, Va., assignor to E. J. Brooks Company, Newark, N.J.

Continuation-in-part of Ser. No. 847,551, Nov. 1, 1977, abandoned. This application Feb. 1, 1979, Ser. No. 8,417
Int. Cl.³ B65D *33/34*
U.S. Cl. 292—320 **5 Claims**

1. A seal of the padlock type, comprising a shackle and a

body having two portions, each portion having an aperture for receiving a shackle end, said shackle and said apertures being provided with cooperating means for locking the shackle ends in the apertures, said body portions being joined only by a thin flexible web portion disposed between the apertures which is



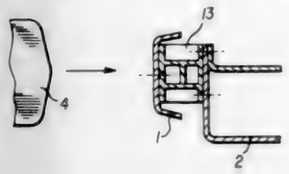
easily breakable manually, and said shackle having a medially disposed weakened portion whereby the seal may be readily released from a closure fastener with which it is installed by being separable along the easily breakable portion of the body and at the weakened portion of the shackle into two portions, each comprising a body portion and a shackle portion.

4,278,282

ELASTIC GUARD BRACES FOR ATTACHING BUMPERS TO AUTOMOBILES

Pierre Roubinet, Rueil-Malmaison, and Marcel Goupy, Saint-Cloud, both of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Jan. 24, 1980, Ser. No. 115,096
Claims priority, application France, Jan. 26, 1979, 79 02015
Int. Cl.³ B60R *19/04*
U.S. Cl. 293—132 **10 Claims**



1. A guard brace for the attachment of an automobile bumper to an automobile, said brace comprising in combination:

at least one relatively thick elastic element fixed to said bumper and to said automobile, said elastic guard element being oriented so that the direction of elastic deformation thereof is parallel to the direction of a force acting on said bumper; and

at least one relatively thin inelastically deformable element fixed to at least one of said at least one elastic elements:

the relative thickness of said relatively thick elastic element and said relatively thin inelastically deformable element being such that the elastic resilience of said elastic element substantially returns said bumper to an initial shape following the inelastic deformation of said inelastically deformable element,

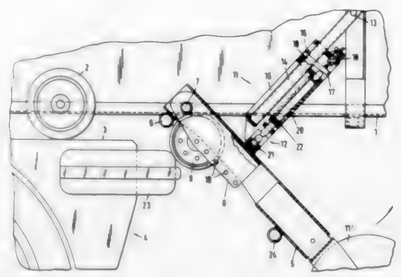
whereby said at least one inelastic element buckles to absorb the energy of said force while the elasticity of said at least one elastic element minimizes the deformation of said inelastic element.

4,278,283

LOAD TRANSPORT CARRIAGE

Karl Fels, Albert-Stolte-Str. 35, D-4290 Bocholt-Suderwick, Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 52,061
Int. Cl.³ B62C *1/06*
U.S. Cl. 296—26 **8 Claims**



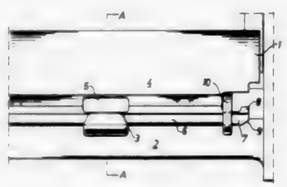
1. A load transport carriage which is carried by a truck, the load transport carriage comprising: a carriage frame; a front pair of wheels at an upper level and being journaled to the carriage frame; a lower rear pair of wheels; a pair of legs behind the front pair of wheels hingedly attached to the carriage frame at one end and holding the lower pair of wheels at the other end, the legs being pivotable and lockable in an upright position; releasable locking mechanism for holding said legs in the upright position, the legs being movable upwardly to a position in which the front wheels and the rear wheels support the load transport carriage, said locking mechanism comprising a pair of struts each adjustable in length and hinged at one end to each leg and at its other end hinged to the carriage frame behind the pair of legs, each strut including means for locking the strut against extension as the strut becomes reduced in length and being operable independently of the other strut; and feeler wheels for releasing the locking mechanism of the legs, said feeler wheels being secured to the legs adjacent their upper ends and projecting downwardly to engage the truck as the carriage frame is moved forward to swing the legs up to an upper level similar to the level of the front pair of wheels.

4,278,284

ARRANGEMENT FOR SUSPENDING A PIVOTED SIDE-BOARD

Kjell F. Ohlson, Tallmovägen 2B, 752 45 Uppsala, Sweden

Filed Jul. 18, 1979, Ser. No. 58,559
Int. Cl.³ B62D *27/00*
U.S. Cl. 296—36 **5 Claims**



1. A side-board suspension arrangement for a vehicle comprising a platform having a first end, a second end and an attachment portion including at least one upwardly-outwardly open hook,

a side-board having corresponding first and second ends and an attachment portion including at least one attachment member which is removeably coupled to said upwardly-outwardly open hook such that said side-board may be removeably coupled to said platform and may be pivoted to raised and lowered positions relative to said platform,

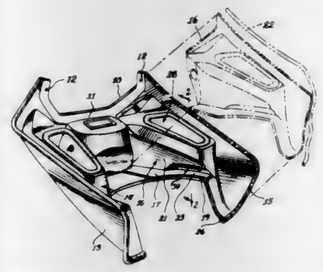
first affixation means positioned at said first end of said platform, and second affixation means positioned at said first end of said side-board and removeably coupled to said first affixation means, for providing a swinging pivot which retains said first end of said side-board at said first end of said platform while said second end of said side-board is pivoted away from said second end of said platform during attachment and removal of said side-board relative to said platform.

4,278,285

POCKETS FOR A FAIRING STRUCTURE

Kenneth W. Cummings, San Luis Obispo, and Charles M. Perethian, Arroyo Grande, both of Calif., assignors to First Champaign Corporation, Rantoul, Ill.

Filed Nov. 19, 1979, Ser. No. 95,409
Int. Cl.³ B62J *17/00*
U.S. Cl. 296—78.1 **8 Claims**



1. An improved internal pocket and support structure for a motorcycle fairing of the type having a generally concave, hollow, rearwardly opening configuration including sides which partially enclose the rider and a horizontal bottom adapted to be attached to the front portion of a motorcycle forward of the rider's position, the improved pocket structure comprising:

two independent, generally convex inner pockets, each pocket being attached around its periphery to overlapping portions of one of said sides and said bottom of said fairing thereby forming a cavity between said one concave fairing side and said convex pocket;

each said pocket being shaped such that all portions of said pocket form an angle of less than ninety degrees to a selected plane containing that portion of the periphery attached to said side.

4,278,286

DEVICE FOR MOUNTING THE MOLDING OF A BONDED TYPE WINDSHIELD

Gunji Kiba, and Hiroyuki Mizuno, both of Nai No. 2, Kiriharocho, Fujisawa-shi, Kanagawa-ken, Japan

Filed Mar. 14, 1976, Ser. No. 665,659
Claims priority, application Japan, Mar. 10, 1975, 50-31148; Dec. 19, 1975, 50-170520
Int. Cl.³ B60J *1/02*
U.S. Cl. 296—93 **10 Claims**

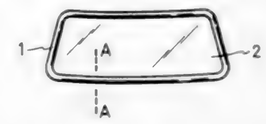
1. A device, for mounting a windshield molding of a bonded-type windshield, comprising:

(i) an interposing member including

(a) a holding portion adapted to support a windshield glass and to be secured to a window frame by a bonding agent, and

(b) a snug fit portion integrally formed with the holding portion

(ii) a fixing member including a first groove which receives said snug fit portion of said interposing member as a snug fit thereby to secure the fixing member to the interposing



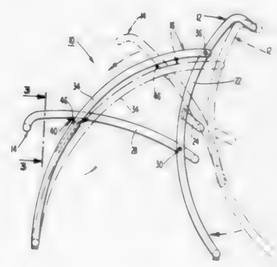
member, said fixing member including second groove means to receive and securely hold a windshield molding.

4,278,287

FOLDING SEATING PIECE

Peter W. Homestead, San Clemente, Calif., assignor to Scott Paper Company, Philadelphia, Pa.

Filed Sep. 4, 1979, Ser. No. 72,325
Int. Cl.³ A47C *4/00*
U.S. Cl. 297—59 **3 Claims**



1. A folding seating piece including pivotally interconnected frames forming a seat, backrest and armrests; characterized in that a frame member of the seat adjacent to each side of the seating piece includes a unitary snap fastener thereon, each of said fasteners including a laterally extending guide section overlying an adjacent frame member of the seating piece for engaging, and being adapted to move along said adjacent frame member as the seating piece is being pivoted into its open position, each of said snap fasteners including a clip section that generally aligns with an additional frame member of the seating piece when its respective guide section is closely positioned to the adjacent frame member it overlies and the chair is in its desired open position, said clip section including a downwardly facing entrance orifice that is narrower than the additional frame member and an extension providing an inclined surface directly downwardly and outwardly from said entrance orifice, whereby a downard force applied to the seat directs the additional frame member along the inclined surface of the extension into the entrance orifice to cause said clip section to expand and snap around the additional frame member to which it connects.

4,278,288

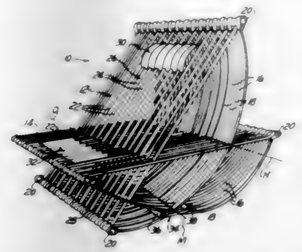
CHAIR PROVIDED WITH INTERLACING AND INTERMESHING SEAT AND BACK PORTIONS SUPPORTED BY ARCUATE SUPPORT MEMBERS

Sacha Thebaud, P.O. Box 446, Port-au-Prince, Haiti

Filed Jun. 26, 1979, Ser. No. 52,186
Int. Cl.³ A47C *5/00*
U.S. Cl. 217—118 **56 Claims**

1. A chair made of a pair of substantially identical modular units nested within each other, each of said modular units comprising at least a pair of rigid substantially parallel disposed bowed arcuate support members in the general form of a circu-

lar arc, a pair of substantially parallel cross-bar members each rigidly interconnecting said bowed arcuate members at each end, and a plurality of spaced apart substantially parallel strips of relatively thin pliable material defining chordal straps extending substantially along a chord of said circular arc formed by each of said bowed arcuate members and each attached at



an end to one of said cross-bar members, the width of the space between adjacent chordal straps being uniform and substantially at least equal to the width of each of said chordal straps, wherein said modular units are disposed one within the other in such manner that the chordal straps of one modular unit are each disposed within a space between adjacent chordal straps of the other modular unit.

4,278,289

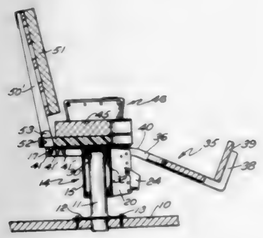
FISHING CHAIR

John W. Esposito, 505 Shore Acres Ave., North Kingstown, R.I. 02852

Filed Aug. 23, 1979, Ser. No. 69,123

Int. Cl.³ B63B *29/04*; A47C *7/62*

U.S. Cl. 297—188 **6 Claims**



1. A fishing chair which comprises in combination a supporting column, a chair unit rotatable with respect to the column, a foot rest for said chair unit and a fishing rod butt holder, said chair unit having an integral seat plate and support means that provides an anchor for the butt holder for the fishing rod together with a support for said foot rest, said seat plate having an integral anchor for the foot rest whereby all of the forces created by a fighting fish and the forces of the fisherman whose legs push against the foot rest are concentrated on the chair unit.

4,278,290

MOTOR-DRIVEN ADJUSTABLE SEAT, PARTICULARLY A MOTOR VEHICLE SEAT

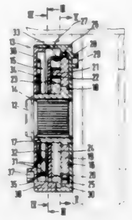
Paul Werner, Remscheid, and Willibald Strowik, Remscheid-Lennep, both of Fed. Rep. of Germany, assignors to Keiper Automobiltechnik GmbH, Remscheid, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 57,011

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1978, 2831314

Int. Cl.³ A47C *1/025*

U.S. Cl. 297—362 **20 Claims**



1. In a power driven adjustable seat, particularly a motor vehicle seat having a position adjuster including a servomotor with a driving shaft, a potentiometer coupled to the driving shaft via reduction gears, and an electronic data processing and storing device electrically connected between the potentiometer and the servomotor to store and process the measured value delivered by the potentiometer and to control the position of the seat via the servomotor, a combination comprising

a housing common both to said potentiometer and said reduction gears, the said reduction gears having an input member coupled to said driving shaft and also having an output member; and

said potentiometer having a rotary slider coupled to said output member.

4,278,291

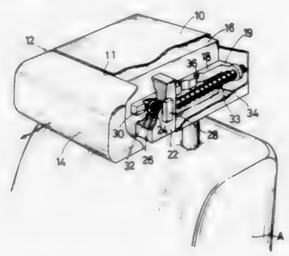
ADJUSTABLE HEADREST

Kozo Asai, 5-7, Matsuekita 7-chome, Wakayama, Wakayama, Japan

Filed Jan. 23, 1979, Ser. No. 5,866

Int. Cl.³ A47C *7/38*

U.S. Cl. 297—391 **5 Claims**



1. An adjustable headrest abutment device comprising:

(a) a housing having right and left side walls, upper and lower walls, and a rear wall, each being connected with each other to define a box-like configuration with an open front end,

(b) right and left block means restricting said open front end, said right block means being connected to said right side wall and said left block means being connected to said left side wall, said right and left block means being connected

to said upper and lower walls at the open front end of said housing,

(c) a slider means having right and left side walls, upper and lower walls each being connected with each other to define a box-like configuration, slider walls being dimensioned to slide in the restricted open front end of said housing, where the dimensions of said slider being slightly less than said restricted open front end, and a headrest means on one end of said slider means covering the open end of said housing defined by said right and left side walls and said upper and lower walls,

(d) a right side space defined by said housing right side wall, said rear wall, said upper and lower walls, said right block means and said right side wall of said slider means,

(e) a left side space defined by said housing left side wall, said rear wall, said upper and lower walls, said left block means and said left side wall of said slider means,

(f) a pair of internal slide guide bar means positioned along the direction of sliding of said slider means in said right and left spaces where one of said slide guide bar means is secured to said rear wall and to said right block means, and the other of said slide guide bar means is secured to said rear wall and said left block means,

(g) a pair of engagement locking means on said side walls of said slider means and slidably connected to said slide guide bar means to lock said slider means at a selected desired position, one of said engagement locking means being mounted to said right side wall and the other of said engagement locking means being mounted to said left side wall,

(h) means on said pair of slide guide bar means to urge said slider means in a desired direction.

4,278,292

CLAY STABILIZATION IN URANIUM LEACHING AND RESTORATION

Tsoung-yuan Yan, Philadelphia, Pa., and Wilton F. Espenscheid, DeSoto, Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 19, 1979, Ser. No. 21,400

Int. Cl.³ E21B *43/28*; E02D *3/12*

U.S. Cl. 299—5 **4 Claims**

1. In a method for the recovery of uranium from a subterranean uranium deposit containing unstable clays wherein a fresh lixiviant is introduced into said deposit via an injection system to solubilize uranium from said deposit to form pregnant lixiviant which is then produced from said deposit via a production system, the improvement comprising:

employing as at least a portion of said fresh lixiviant an aqueous solution of a carbonate leaching agent having a pH within the range of 6–10 and containing aluminum in an amount effective for the stabilization of said clays.

4,278,293

APPARATUS FOR ADVANCING A LOW-HEIGHT DRIFT THROUGH A SUBTERRANEAN STRUCTURE

Friedrich-Wilhelm Paurat, Kasselweg 29, 4230 Wesel, and Roland Paurat, Lippestr. 32, 4223 Voerde 2, both of Fed. Rep. of Germany

Filed Nov. 2, 1979, Ser. No. 90,621

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1978, 2847909

Int. Cl.³ E21C *27/24, 29/02*

U.S. Cl. 299—31 **7 Claims**

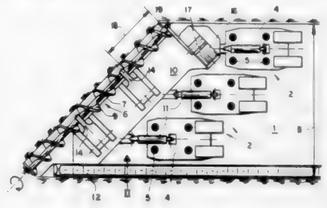
1. An apparatus for advancing a cross-cut having a roof and a floor in a subterranean structure and for excavating material from said structure with the advance of the cross-cut, said apparatus comprising:

bracing means including a plurality of bracing units spaced apart transversely of the direction in which the cross-cut is to be advanced, each of said bracing units comprising a floor-engaging shield, a roof-engaging shield and fluid pressure means for bracing said shields against said floor and said roof, respectively;

cutter means adapted to be shifted in a direction of advance relative to said bracing means and including:

an elongated support frame parallel to said shields and connected to each of said bracing units by a respective fluid-pressure cylinder arrangement, said frame being inclined to said direction of advance,

at least one cutter worm journaled on said support frame and inclined to said direction of advance, said cutter worm being formed with a generally helical formation



provided with picks engaging said structure for removing said material therefrom,

means for rotating said worm about a generally horizontal worm axis and inclined to said direction of advance, and

a plurality of arms swingable on said support frame about horizontal axes parallel to said worm axis and rotatably carrying said worm;

and

a material-removal conveyor extending into said cut past said bracing means to the region of said cutter conveyor for leading material away from said cutter conveyor, said material-removal conveyor resting upon said floor.

4,278,294

GUIDE-RAIL ASSEMBLY FOR LONGWALL MINING APPARATUS

Gert Braun, Hofackerstr. 12a, 4300 Essen-Heisingen, Fed. Rep. of Germany

Filed Nov. 9, 1979, Ser. No. 92,658

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856117

Int. Cl.³ E21C *27/34*

U.S. Cl. 299—34 **10 Claims**



1. A mining apparatus comprising:

A plurality of rail sections having longitudinally abutting rail-section ends and each having a predetermined longitudinal rail-section length, said rail sections together forming a longitudinally force-transmitting and extending guide rail having a longitudinally extending passage;

a longitudinally extending chain in said passage;

a cutter-loader displaceable along said guide rail and secured to said chain;

respective conveyor trough sections carried on said rail sections and each having a trough-section length substantially shorter than the respective rail-section length, said trough sections being longitudinally spaced by predetermined spacings so as to be out of longitudinal force-transmitting engagement with one another and together forming a longitudinally extending trough, whereby substantially all longitudinal forces are transmitted by said rail and chain; and

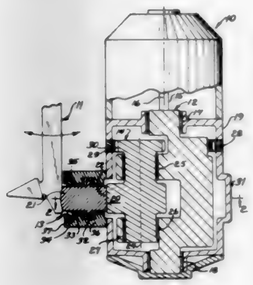
a chain conveyor extending longitudinally along said trough.

4,278,295

IMPACTING ROCK BREAKER

Delwin E. Cobb, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/01087, §371 Date Dec. 13, 1979, §102(e) Date Dec. 13, 1979
This PCT application filed Dec. 13, 1979, Ser. No. 145,065
Int. Cl.³ E21C *27/28*; A01B *35/00*
U.S. Cl. 299—69 **8 Claims**



1. In an impactor (10) having fracturing means (11), a crank (12) driven rotatively about a crank axis (16), and a force transfer means (13) for reciprocatively impacting said fracturing means, improved means for hammering said force transfer means as an incident of rotation of said crank comprising:

a hammer (14) rotatively mounted to said crank (12) for concurrent revolution about said crank axis and rotation about a hammer axis (24) parallel to said crank axis, said hammer defining a rounded contacting portion (20); and

means (28) for rotating said hammer in synchronization with the crank rotation to move said contacting portion (20) reciprocatively toward and from said force transfer means (13) and cause said contacting portion (20) of the hammer (14) to impact against said force transfer means (13) with a rotational engagement free of rolling movement therebetween, said contacting portion (20) of the hammer (14) defining a right circularly cylindrical surface portion (22) engaging the force transfer means (13), said hammer surface portion (22) defining a center point (P) reciprocated rectilinearly diametrically of said crank axis (16) and in linear alignment with the rectilinear movement of said force transfer means (13) as a result of the concurrent rotation and revolution of said hammer (14) about said axes (16,24).

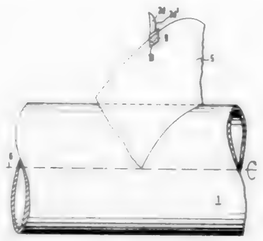
4,278,296

COAL MINING DRUM WITH ADJUSTABLE LINIER EDGE CUTTERS

Karl Bortz, Bottrop; Heinrich Thesing, Gelsenkirchen-Buer, and Friedrich Eichbaum, Velbert, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Jul. 13, 1979, Ser. No. 57,379
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831197
Int. Cl.³ E21C *35/18*
U.S. Cl. 299—87 **16 Claims**

1. In a coal winning machine having a mechanical tool, a combination comprising a tool body having a first axis about which it rotates and a surface spaced from and surrounding said first axis; at least one projecting flange on said surface helically surrounding said first axis lengthwise thereof; a plurality of cutting tools each having a linear cutting edge and a second axis; and means mounting said cutting tools on said



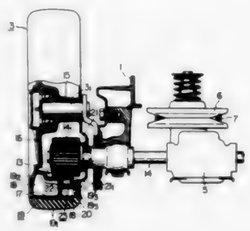
flange for assumption of the respective second axis of at least two different positions relative to said first axis, in each of which positions the linear cutting edge of the respective tool defines a different cutting angle with said first axis.

4,278,297

WHEEL FOR AN ELASTIC U-SHAPED TIRE

Hitoshi Suzuki, Kawagoe, and Masaharu Omagari, Shiki, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 22, 1979, Ser. No. 68,594
Claims priority, application Japan, Aug. 30, 1978, 53/118800
Int. Cl.³ B60B *19/00*
U.S. Cl. 301—6 D **5 Claims**



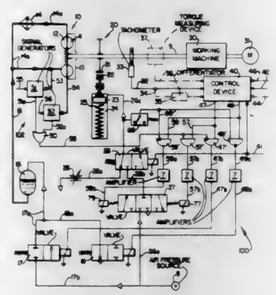
1. In a wheel for a light-weight vehicle, said wheel having an outboard side to be oriented away from said vehicle and an inboard side to be oriented toward said vehicle, the improvement comprising a central boss; a disc, substantially circular in side elevational view, extending radially outwardly from said boss and having a first part extending radially from said boss along the outboard side of said wheel, a second part, radially spaced from said boss, extending axially inboardly from said first part, a third part, radially offset outwardly from said second part, projecting in the axially inboard direction, said third part having an axially inboard free edge with a seat in it, a fourth part, intermediate the axially inboard and outboard edges of said second and third parts, extending radially outwardly, and a fifth, axially extending, rim part, on and extending both outboardly and inboardly from the radially outer edge of said fourth part, said rim part having a broad outer peripheral surface, and a tire of elastic material, asymmetrically U-shaped in transverse cross-section with an outboard side wall and an inboard side wall, the outboard side wall being higher than the inboard side wall and both side walls having peripheral brims, said tire being mounted on and around the broad outer surface of said rim, said peripheral brim of said inboard side wall being seated in the seat in the free edge of the third part of said disc.

4,278,298

BRAKING SYSTEM UTILIZING BOTH A DYNAMIC AND A MECHANICAL BRAKE

Klaus Sauka, Crailsheim, Fed. Rep. of Germany, and Horst Muschelknautz, deceased, late of Crailsheim,, Fed. Rep. of Germany (by Ingeborg Muschelknautz), assignors to Voith Turbo GmbH & Co. K.G., Fed. Rep. of Germany

Filed Jun. 1, 1979, Ser. No. 44,456
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824923
Int. Cl.³ B60T *13/74*; F16F *11/00*
U.S. Cl. 303—3 **14 Claims**



1. A braking system for controlling the speed of a moving member, said braking system comprising:

a dynamic brake, the maximum value of the dynamic braking moment which said dynamic brake can apply to said moving member being defined by a limiting characteristic curve which varies as a function of the rotary speed of said dynamic brake;

a first control means for adjusting the dynamic braking moment said dynamic brake applies to said moving member as a function of a first adjustment signal applied thereto;

a mechanical brake;

second control means for adjusting the mechanical braking moment said mechanical brake applies to said moving member as a function of a second adjustment signal applied thereto;

signal generating means for generating an out-of-range signal when said dynamic braking moment applied to said moving member by said dynamic brake reaches said maximum value; and

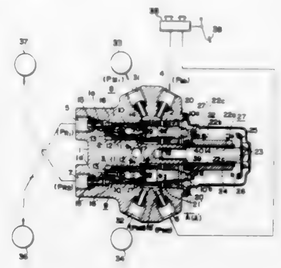
central control means for generating said adjustment signals as a function of the difference between the actual value of the total braking moment applied to said moving member by both said dynamic and mechanical brakes and a desired value of the total braking moment to be applied to said moving member by both said dynamic and mechanical brakes, said central control means applying said first and second adjustment signals to said first and second control means, respectively, in such a manner that said dynamic braking moment applied to said moving member by said dynamic brake is increased or decreased when the actual value of said dynamic braking moment applied to said moving member is less than said maximum value and such that the mechanical braking moment applied to said moving member by said mechanical brake is increased or decreased only when the actual value of the braking moment applied to said moving member by said dynamic brake is equal to said maximum value.

4,278,299

PRESSURE CONTROL VALVE ASSEMBLY FOR AN AUTOMOTIVE SPLIT BRAKE SYSTEM

Yoshitaka Tsuda, Tokyo; Kaoru Sodeyama, Kokubunji, and Naomasa Tsunada, Hachioji, all of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Mar. 13, 1980, Ser. No. 129,855
Claims priority, application Japan, Mar. 20, 1979, 54-35926[U]
Int. Cl.³ B60T *13/00*
U.S. Cl. 303—6 C **5 Claims**



1. In a pressure control valve assembly for an automotive split brake system having a master cylinder and a brake cylinder, the pressure control valve assembly including a housing having a stepped bore and a wall section defining part of said bore, a differential piston slidable within said bore and having a hollow section, said hollow section cooperating with said bore to form part of a fluid passage providing communication between said master cylinder and said brake cylinder, said wall section being abuttingly engageable with said piston to determine an extreme position of same, biasing means for urging said piston into said extreme position and having a spring seat movable toward and away from said housing while bearing on said piston, and valve means mounted in said hollow section of said piston for selectively opening and blocking said fluid passage in accordance with the positions of said piston, said piston being exposed to the fluid pressures in the master cylinder and the brake cylinder and assuming its position in accordance with said fluid pressures such that the rate of the pressure increase in said brake cylinder to the pressure increase in said master cylinder is reduced when the fluid pressure in said master cylinder is increased beyond a predetermined switch-over point pressure, the improvement comprising an abutment member interposed between said housing and said spring seat at a location such that upon movement of said piston into said extreme position, said spring seat will contact said abutment member before said piston contacts said wall section.

4,278,300

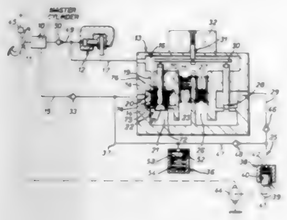
HYDRAULIC BRAKING CIRCUIT FOR AN AUTOMOBILE VEHICLE

Michel Bacher, Garges-les-Gonesse, France, assignor to Societe Anonyme Francaise du Ferodo, France

Filed Jul. 17, 1979, Ser. No. 58,255
Claims priority, application France, Jul. 24, 1978, 78 21817
Int. Cl.³ B60T *8/02, 11/28*
U.S. Cl. 303—115 **11 Claims**

1. A hydraulic braking circuit for a motor vehicle, said braking circuit comprising a transmitter device for transmitting brake fluid under pressure to a wheel cylinder for a wheel brake, a modulation device controlled by a pickup sensitive to the speed of rotation of the associated wheel, said modulation device comprising at least two valves including an isolation valve for normally establishing communication between said transmitter device and said wheel cylinder and a pressure drop regulation valve which when open establishes communication between said wheel cylinder and discharge means of said cir-

cuit, said discharge means in cooperation with a high pressure accumulator being operable to replace said transmitter device for transmitting fluid under pressure to said wheel cylinder during the operating cycle of said modulation device, and pump means associated with said discharge means for pumping



brake fluid to said high pressure accumulator, the improvement comprising a nonreturn valve disposed between said transmitter device and said modulation device for isolating said transmitter device from said modulation device and said high pressure accumulator in the course of the operating cycle of said modulation device.

4,278,301

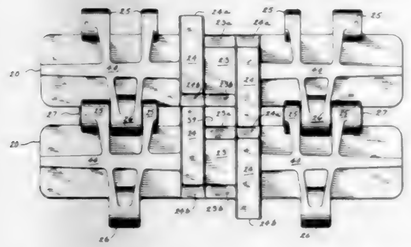
TREAD BELT AND DRIVE HAVING INVOLUTE GEAR DRIVE

Robert A. Gregor, and Ned L. Morgan, both of New Berlin, Wis., assignors to Bucyrus-Erie Company, South Milwaukee, Wis.

Continuation-in-part of Ser. No. 863,880, Dec. 23, 1977. This application Oct. 4, 1979, Ser. No. 81,776

Int. Cl.³ B22D *55/20*

U.S. Cl. 305—11 **6 Claims**



1. A tread belt link includes a link body having a ground engaging bottom surface and a top having a cog positioned medially of the link ends, said cog having fore and aft driving surfaces, a pair of longitudinally extending tumbler rim engaging surfaces on top of the link, one on each side of the cog and above the driving surfaces of the cog, one of said tumbler engaging surfaces extending from the cog forward of the main body of the link and the other extending from the cog to the rear of the main body of the link and connection fingers extending fore and aft of the main body of the link, said fingers having connecting pin receiving openings so that a plurality of links can be aligned and joined together by inserting connecting pins into the interdigited fingers of adjacent links to form an endless chain in which the tumbler rim engaging surfaces form tracks in which the spaces between the tumbler rim surfaces of adjacent links are staggered so that a tumbler rim rolling over said tracks will not pass over a space between adjacent links on both sides of the cog simultaneously.

4,278,302

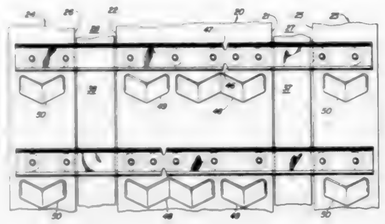
GROUSER BAR TRACK ASSEMBLY FOR SNOWMOBILE

David A. Westimayer, and Stephen C. Scholten, both of Horicon, Wis., assignors to Deere & Company, Moline, Ill.

Filed Sep. 4, 1979, Ser. No. 72,153

Int. Cl.³ B62D *55/24*

U.S. Cl. 305—35 EB **9 Claims**



1. A continuous grouser bar track for a snowmobile comprising: a central relatively wide continuous belt having opposite edges and a pair of narrow continuous outer belts having inner edges transversely spaced from the respective opposite edges so as to define therewith a pair of parallel grooves; a series of transverse grouser bars fixed to and projecting outwardly from the external surfaces of the belts extending across the grooves and having a transverse expanse substantially equal to the transverse expanse of said belts, each of said grouser bars having predetermined flex points and successive grouser bars having their respective flex points at different transverse locations; transversely elongated surface cleats integral with and projecting from the outer surfaces of the belt assembly, said cleats being located in advance of but closely adjacent the flex points of respective grouser bars and extending transversely to opposite sides of the respective flex points so as to afford transverse stiffness to the belt at said flex points.

4,278,303

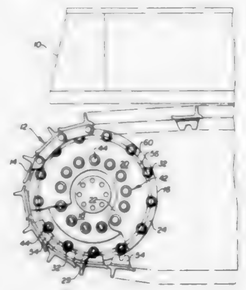
FORCE AND NOISE ISOLATING APPARATUS FOR CONTINUOUS TRACK SYSTEM

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation-in-part of Ser. No. 909,757, May 26, 1978, abandoned. This application Oct. 23, 1979, Ser. No. 88,193

Int. Cl.³ B62D *55/12*

U.S. Cl. 305—57 **9 Claims**



1. In a continuous track assembly (**12**) having a track (**14**) and a wheel (**16**) having a hub (**18**) and a rim (**20**) connected to the hub (**18**), the improvement comprising:

said rim (**20**) having first and second end portions (**22**,**24**) and first and second spaced apart elements (**26**,**28**), said second end portion (**24**) having an opening (**34**) positioned in said spaced apart elements (**26**,**28**);

a drive pin (**32**) positioned in said opening (**34**) of said second end portion (**24**) for engaging and driving said track (**14**);

biasing means (**30**) for moving said drive pin (**32**) relative to said rim (**20**) in response to forces exerted on said drive pin (**32**) by said track (**14**); and

connecting means (**42**) for mounting said rim (**20**) on and in movable relationship relative to said hub (**18**), said rim (**20**) being movable relative to said hub (**18**) in response to forces exerted on said wheel (**16**).

4,278,304

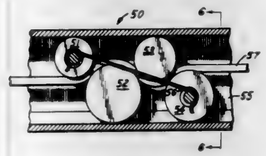
LINEAR BEARING DEVICES

Earl W. Traut, 8040 Palm Lake Dr., Orlando, Fla. 32811

Filed Jun. 14, 1979, Ser. No. 48,348

Int. Cl.³ F16C *29/04*

U.S. Cl. 308—6 R **1 Claim**



1. A linear rolling contact bearing comprising:

two linear surfaces,

said linear surfaces being parallel and joined to each other,

rotating means,

said rotating means including a plurality of rollers,

said rollers being located between said linear surfaces,

every other said roller being in rolling contact with one of said linear surfaces,

all other said rollers being in rolling contact with second said linear surface,

first and last of said rollers including axial extensions,

retaining means,

said retaining means being connected between said axial extensions to prevent said rollers from moving apart,

a linear actuator,

said rollers having waists upon which said linear actuator rolls,

the thickness of said linear actuator and the thickness of the waists of said rollers preventing adjacent said rollers from contacting each other.

4,278,305

LINEAR MOTION BEARING

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eussenheim; Lothar Walter, Schweinfurt, and Horst M. Ernst, Eltingshausen, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

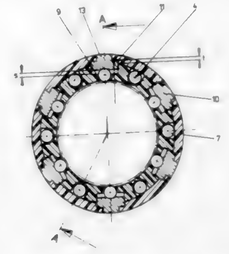
Filed Nov. 19, 1979, Ser. No. 95,225

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1978, 2855199

Int. Cl.³ F16C *29/06*

U.S. Cl. 308—6 C **6 Claims**

1. In a linear motion bearing operable with a central shaft, the bearing including an outer sleeve with a bore-surface, a cylindrical cage situated within said bore and having an outer surface adjacent said bore surface, a plurality of rolling elements formed in endless rows distributed circumferentially around said cage, said cage defining for each endless row a main guideway for loaded rolling elements, a return guideway for nonloaded rolling elements, and reversing zones connecting the ends of said guideways, and a race plate having an inner side adjacent and engaging the rolling elements in each of said main guideways and an opposite outer side; the improvement wherein said outer sleeve bore surface defines therein a depression extending radially outward for accommodating each of said race plates, said cage defines in its outer surface a recess extending radially inward, being coextensive with a main guideway, and defining a floor for receiving a race plate, each race plate being positionable in a radially inward position where it engages at least in part the floor of a recess while its outer surface does not extend radially beyond the cage's outer surface, and each race plate also being movable radially out-



ward to an outward position where it extends radially into one of said depressions by a depth t therein with a clearance depth s defined between the race plate's inner surface and said recess floor, depth s being at least as great at depth t whereby said cage and race plates in their inward positions are axially insertable into said bore until each recess is adjacent one of said outer sleeve depressions, and whereby said race plates in their outward positions permit said rolling elements to be inserted between each race plate's inner surface and said central shaft.

4,278,306

LOAD SUPPORTING ROLLER ASSEMBLIES

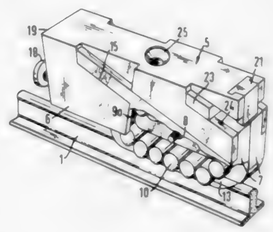
Jack E. Douglas, Walsall, and Richard J. Bigley, Telford, both of England, assignors to Arthur Shaw Manufacturing Limited, West Midlands, England

Filed Jan. 17, 1980, Ser. No. 112,743

Claims priority, application United Kingdom, Jan. 24, 1979, 02556/79

Int. Cl.³ F16C *29/06*

U.S. Cl. 308—6 C **2 Claims**



1. A roller assembly for mounting on an element for sliding movement on a rail, said assembly comprising:

a roller housing having two complementary parts, each said part being formed with a respective complementary groove of oval configuration defining an oval continuous path;

a plurality of short rollers of right-cylindrical configuration located in said housing for rolling movement along and around said path with their opposed ends each being located in said respective complementary groove; and

an elongate slot in said housing opening to a substantially linear portion of said path whereby a plurality of rolling contact faces being central portions of said short rollers are presented for rolling engagement with said rail in use.

4,278,307

CAGE FOR A ROLLING BEARING

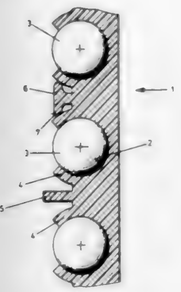
Armin Olschewski; Heinrich Kunkel, both of Schweinfurt; Manfred Brandenstein, Aschfeld, and Rainer Schurger, Schwanfeld, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Jun. 26, 1978, Ser. No. 919,364

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1977, 2731584

Int. Cl.³ F16C 33/41

U.S. Cl. 308—201 16 Claims



1. In a rolling bearing cage with pockets for receiving rolling elements, in which the rolling elements are held by spreadable holding projections, the holding projections being elastic and having recesses for receiving the rolling elements the improvement comprising spreadable cage portions on said cage between the holding projections of pairs of adjacent cage pockets said cage portions being positioned to be spreadable to positions for supporting the adjacent holding projections of the cage after the insertion of the rolling elements, to inhibit separation of said cage from said rolling elements.

4,278,308

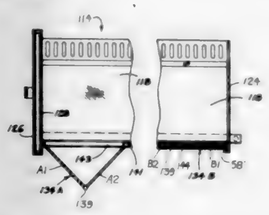
DRAWER ASSOCIATING CONSTRUCTION

John Gotberg, Franklin, Mich., assignor to Gotbert Patent Company, Farmington Hills, Mich.

Filed Oct. 6, 1978, Ser. No. 949,076

Int. Cl.³ A47B 88/00

U.S. Cl. 312—330 R 50 Claims



1. A drawer, having:

two opposed side walls, an upstanding front wall and an upstanding rear wall, and

a trap-door floor constituted by at least one floor section hingedly secured along an outer edge thereof to a respective one of said upstanding walls,

the aforementioned hinged securement being provided by hinge means which permit said at least one floor section, unless otherwise releasably held up in a generally horizontal relation for use as a bottom wall for said drawer, to hang down below said upstanding walls;

ganging means on said trap door floor, operable only when said bottom wall is hanging down below said upstanding walls, for connecting said drawer, as an upper drawer, with an underlying drawer, so that said upper drawer if pulled-out and pushed-in will cause the underlying drawer to be correspondingly pulled-out and pushed-in and so that said upper drawer, in effect then operates as an upward wall extension means of the underlying drawer to make the underlying drawer effectively deeper.

4,278,309

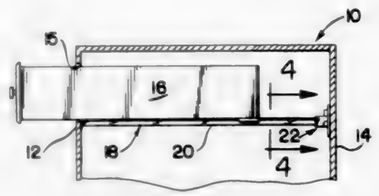
ALIGNMENT BRACKET FOR DRAWER-GUIDE SYSTEMS

Sebastian E. Dreiling, 2040 Conejo La., Fullerton, Calif. 92633

Filed Dec. 31, 1979, Ser. No. 109,228

Int. Cl.³ A47B 88/00

U.S. Cl. 312—343 4 Claims



1. A bracket assembly for aligning drawer-guide systems comprising:

a first rear-bracket member adapted to be fixedly secured to a fixed drawer-support structure, said first bracket member including a recess vertically disposed in the rear surface thereof, and a slot vertically disposed on the front surface thereof centrally positioned with respect to said recess and communicating therewith, to allow vertical adjustment of said bracket assembly;

a second front-bracket member adapted to be selectively coupled and positioned relative to said first bracket member, said second bracket member including a slot horizontally disposed therein and positioned to be juxtaposed with said slot of said first bracket member, thereby allowing said second bracket to be fixedly positioned vertically, horizontally, or angularly, with respect to said first fixed bracket;

a socket member integrally formed on said second bracket member for adjustably mounting a guide-track member; and

a nut member adapted to be movably received in said recess of said first bracket member, having a threaded securing member adapted to be received in said slots to engage said nut member, whereby the simple tightening of said threaded securing member locks said second bracket member in aligned placement with respect to said drawer-guide systems.

4,278,310

METHOD OF MAKING A PERCUSSIVELY-IGNITED PHOTOFLASH LAMP

John F. Waymouth, Marblehead; Andre C. Bouchard, Peabody; Richard A. Fowler, Ipswich, and Harold H. Hall, Jr., Marblehead, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Division of Ser. No. 893,223, Apr. 4, 1978, Pat. No. 4,201,540. This application Dec. 5, 1979, Ser. No. 100,590

Int. Cl.³ H01J 9/395

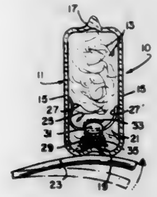
U.S. Cl. 316—24 11 Claims

1. A method of making a percussively-ignited photoflash lamp said member comprising:

providing a light-transmitting envelope having at least one open end;

positioning a quantity of filamentary combustible material within said envelope;

disposing a percussively-actuated ignition means including a resilient member located between opposed walls of said envelope for engagement therewith, and a quantity of primer material located on said resilient member in contact with an internal surface of the wall of said envelope to receive the percussive force within said envelope through said open end, said ignition means adapted for



igniting said filamentary combustible material in response to the application of a percussive force to the external surface of said envelope;

providing a combustion-supporting atmospheric within said envelope;

hermetically sealing said open end of said envelope.

4,278,311

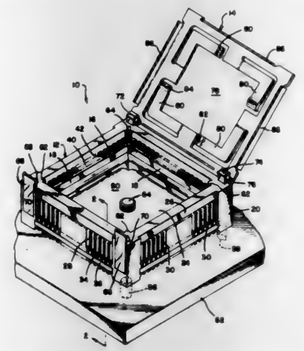
SURFACE TO SURFACE CONNECTOR

William S. Scheingold, Palmyra, and Frank C. Youngfleish, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 27,567, Apr. 6, 1979, Pat. No. 4,220,383, which is a continuation-in-part of Ser. No. 971,629, Dec. 20, 1978, abandoned, which is a continuation of Ser. No. 851,338, Nov. 14, 1977, abandoned. This application Jan. 21, 1980, Ser. No. 113,926

Int. Cl.³ H01R 23/72

U.S. Cl. 339—17 CF 1 Claim



1. An electrical connector for electrically connecting a semi-conductor chip carrier or the like to a printed circuit board, comprising:

a. a frame of insulating material having four sidewalls defining a central carrier-receiving compartment, each sidewall containing a plurality of conductive, contact-carrying spring members adapted to provide an electrical path between the semi-conductor chip carrier which may be positioned in the central compartment and the printed circuit board on which the frame may be mounted said frame further having a U-shaped hinge invertedly mounted at each end of one side with a first leg inserted into the frame and the second leg spaced outwardly therefrom; and

b. a cover, formed from a spring material and having an opening at each end of one edge through which the second legs on the hinge may slide for hingedly mounting the cover to the frame and adapted to close over the top thereof, the cover further having an opening in the center with a plurality of L-shaped spring fingers integrally attached to and positioned around the edges of the opening such that each finger is attached to an edge and extends around a corner with the free ends being parallel to an adjacent edge, said free ends adapted to bias a carrier which may be positioned in the central compartment downwardly against the contact-carrying spring members when the cover is closed over the top of the frame.

4,278,312

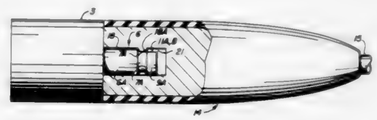
SAFETY PLUG FOR ARC WELDER CONNECTORS

Albert L. Buffa, 121 La Canada, Goodyear, Ariz. 85338

Filed Nov. 13, 1979, Ser. No. 93,067

Int. Cl.³ H01R 3/00

U.S. Cl. 339—38 3 Claims



1. A safety device for preventing electrical shorting of a female connector of an arc welding machine, the female connector including

i. a conductive core electrically connected to the arc welder by means of a flexible cable, the conductive core having an exposed end, a cylindrical hole for receiving a male connector being disposed in the exposed end of the conductive core, a chord member being disposed in the cylindrical hole a predetermined distance from the exposed end of the conductive core of the cylindrical hole,

ii. a layer of electrically insulative material covering all of the conductive core except the exposed end, the electrically insulative material having an edge surface which is approximately coplanar with the exposed end of the female connector,

said safety device comprising in combination:

(a) a cylindrical shaft for insertion into the cylindrical hole of the conductive core, said cylindrical shaft having a main section;

(b) a tip portion of said cylindrical shaft, said tip portion being separated from the main portion by a circumferential groove disposed in said shaft, said tip portion being bounded by a semicylindrical surface and by a first plane approximately parallel to a cylindrical axis of said cylindrical shaft, said first plane passing approximately through the bottom of said circumferential groove for allowing said tip portion to move past the chord member; and

(c) an insulative body attached to said cylindrical shaft, said insulative body covering the exposed end of the female connector when said cylindrical shaft is inserted sufficiently far into said cylindrical hole that said circumferential groove is aligned with said chord member, said insulative body and said cylindrical shaft being integrally formed of a unitary piece of insulative material, the distance from said insulative body to an edge of said circumferential groove being substantially equal to said predetermined distance, a shaft receiving hole being disposed in an end of said insulative body opposite to the end thereof from which said cylindrical shaft extends, said shaft receiving hole being capable of receiving an entire cylindrical shaft of another safety device idential to said safety device to allow nesting of a plurality of said safety devices;

said safety device being rotatable with respect to the female connector to cause the chord member to engage said circum-

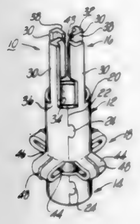
ferential groove, locking the safety device to the female connector.

4,278,313

ELECTRICAL CONTACT WITH LOCKING DEVICE

Roland F. Blakesley, Canton, Ohio, assignor to The Bendix Corporation, Southfield, Mich.

Filed Sep. 12, 1979, Ser. No. 74,637
Int. Cl.³ H01R *13/28, 13/428*
U.S. Cl. 339—49 R **12 Claims**



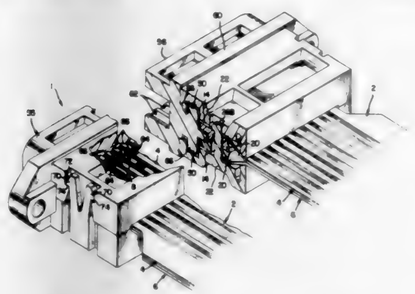
1. An electrical contact comprising a tubular body having a wire receiving end and a mating end, said mating end having plural contact fingers extending axially of the body, each contact finger having a substantially flat radially inwardly extending blade terminating in bevelled edges which form a wedge, the spacing between the bevelled edges of adjacent blades being about the same size and shape as a blade at its bevelled edge, the bevelled edges of each of said blades of said contact being adapted to mate with like bevelled edges of an identical contact with the mating end of said contact being axially inserted into the mating end of said identical contact with the bevelled edges of said contact wedging between and against adjacent bevelled edges of the blades of the identical contact.

4,278,314

CONNECTOR ASSEMBLY FOR FLAT CABLE CONDUCTORS IN MULTIPLE ROWS

Jesse L. Moser, Highpoint, and John R. Shoemaker, Reidsville, both of N.C., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 31, 1979, Ser. No. 89,834
Int. Cl.³ H01R *9/07*
U.S. Cl. 339—99 R **6 Claims**



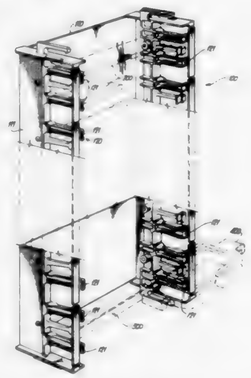
1. A connector for flat cable conductors, comprising:
an inner connector body of all plastic construction assembled with an outer connector body of all plastic construction,
a flat cable having a row of flat conductors clamped between said bodies, said cable having a row of first windows alongside said flat conductors,
an electrical connector having a row of electrical contacts providing slotted plate electrical terminals separated by partitions,
said outer body having stuffer means supporting the conductors of said cable and pressing said conductors into said slotted plate terminals upon assembly of said outer body over said partitions and said terminals, said partitions entering said first windows,
said cable having second windows, and means on at least one of said bodies passing through said second windows and frictionally engaging the other of said bodies to clamp said bodies together over said cable.

4,278,315

SYSTEM FOR INTERCONNECTION OF MULTIPLE INSULATED WIRES

Brian T. Osborne, Kanata, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Aug. 20, 1979, Ser. No. 55,217
Int. Cl.³ H01R *9/00*
U.S. Cl. 339—113 B **7 Claims**



1. A module for releasably supporting a plurality of connector blocks comprising a channel-like base member of sheet metal adapted to be secured to a flat surface, two molded plastic support members secured one to each side of the channel-like member and having fanning apertures for inserting wires for connection to connector blocks releasably held between said support members across said base member by means of paired, opposite, cantilever spring retainers in said support members.

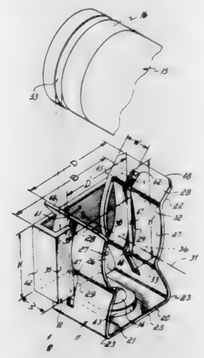
4,278,316

REJECTOR FUSE CLIP ASSEMBLY

Raymond R. White, Cincinnati, Ohio, assignor to Ilsco Corporation, Cincinnati, Ohio

Filed Apr. 21, 1976, Ser. No. 678,977
Int. Cl.³ H01C *1/02*
U.S. Cl. 339—258 R **7 Claims**

1. A rejector fuse clip assembly comprising:
a fuse clip having opposed spring legs, each of said spring legs defining a vertically oriented slot; and
a rejector clip having opposed ears located in coplanar, but separate, relation one with the other, one of said coplanar ears being receivable in each of said vertically oriented slots, and having connector structure rigidly connecting said ears one with the other, said connector structure partially surrounding said fuse clip exteriorly thereof to positively limit outward movement of said fuse clip spring legs beyond a specified point, and said connector structure cooperating with said ears to establish an open-ended slot between said ears, said ears and connecting structure collectively operating to prevent, independently of said fuse clip legs, insertion of a nongrooved fuse terminal between said fuse clip legs, said fuse clip legs contributing



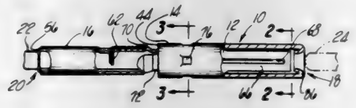
nothing to said nongrooved fuse terminal insertion prevention.

4,278,317

FORMED SOCKET CONTACT WITH REENFORCING RIDGE

David O. Gallusser, Oneonta; David L. Frear, Binghamton, and Charles P. Fischer, Sidney, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Aug. 31, 1979, Ser. No. 71,638
Int. Cl.³ H01R *11/22*
U.S. Cl. 339—258 R **5 Claims**



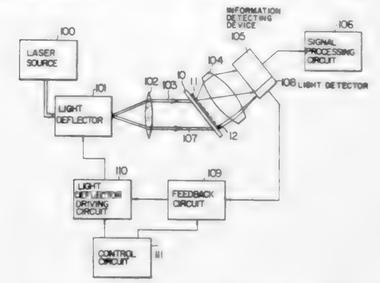
1. In a separable electrical connector of the type including first and second connector members, one of said members being a receptacle and the other being a plug adapted to mate with the receptacle, each of said members including a dielectric insert, at least one socket contact mounted in the insert, at least one socket contact mounted in the insert of one member, the socket comprising a contact sleeve of resilient metal and having a mating end and a wire receiving end, a pin contact corresponding to the socket contact and being mounted in the insert of the other member and adapted for telescopic engagement with the mating end of the socket contact when the plug and receptacle are in mated relationship, the improvement wherein the wall of said contact sleeve defines plural slots extending axially from the mating end thereby providing plural contact fingers with each contact finger extending as a cantilever beam from its root in the contact sleeve adjacent the ends of the slots and terminating at a free end, each of said fingers including a radially inwardly directed ridge which extends axially of the respective contact finger whereby each contact finger is stiffened by said ridge, each ridge on each respective contact finger extending from a point spaced from the free end of the contact finger to a point past the ends of said slots, each free-end of said contact finger being inwardly concave for engaging said pin, the ridge deflecting so that it is positioned laterally opposite of the inserted pin and out of contact therewith.

4,278,318

HOLOGRAPHIC RECONSTRUCTING APPARATUS

Yoshikazu Nakayama; Fumikazu Tateishi, both of Hirakata, and Katsuyuki Fujito, Higashiosaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 18, 1978, Ser. No. 970,439
Claims priority, application Japan, Dec. 19, 1977, 52-153232; Sep. 14, 1978, 53-113166
Int. Cl.³ G03H *1/30*
U.S. Cl. 350—3.78 **13 Claims**



1. A holographic reconstructing apparatus comprising
(a) a laser beam source,
(b) a hologram memory plate containing at least one hologram group, each group including a number of holograms,
(c) means for dividing a laser beam into a plurality of laser beams provided near said hologram group,
(c) an optical means including a light deflector normally directing said laser beam to a selected hologram of said group and intermittently directing said laser beam to said dividing means,
(e) means for intermittently controlling said light deflector to temporarily cause said light beam to be directed to said dividing means instead of said selected hologram,
(f) a light detecting means including a plurality of light detecting elements for respectively receiving the laser beams divided by said dividing means,
(g) means responsive to the output of said light detecting means for controlling said light deflector to correct the position of said laser beam to a predetermined desired position relative to said dividing means, whereby the light flux from said laser beam is accurately directed to a selected hologram when a selected hologram is irradiated, and
(h) means for detecting the information from a selected irradiated hologram.

4,278,319

PROCESS AND APPARATUS FOR THE DETERMINATION OF THE PHYSICAL CHARACTERISTICS OF DISPERSED SYSTEMS BY HOLOGRAPHY

Judit Timko born Jozsa; Tibor Blickle; Oszkar Borlai, all of Budapest, and Aurel Ujhidy, Veszprem, all of Hungary, assignors to Magyar Tudomanyos Akademia Muszakikemiai Kutato Intezete, Hungary

Filed Feb. 14, 1979, Ser. No. 12,112
Int. Cl.³ G03H *1/30*
U.S. Cl. 350—3.78 **1 Claim**

1. In an in-line holographic method for the examination optically of at least partially transparent dispersed systems, in which a dispersed system is trans-illuminated by a laser beam and the through-going laser beam is directed to a surface region of a photosensitive recording means, the improvement being characterized by the steps of producing a reference laser beam from the trans-illuminating laser beam before it passes through said dispersed system, directing said reference laser beam directly to a portion of said surface region, optically recording the resulting interference pattern on said surface

region, whereby said surface region comprises an off-line holographic record of said dispersed system in said portion in which both the through-going and the reference laser beams are recorded and an in-line holographic record of said dispersed system in the parts of said region other than said portion; and reconstructing said in-line and said off-line holographic records on disjunct fields of said region to provide appropriate, separately evaluable images of said dispersed system.

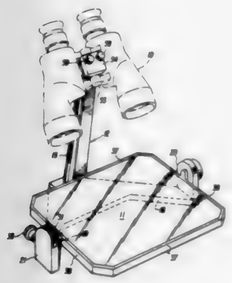


4,278,320

BINOCULAR STAND FOR ASTRONOMICAL OBSERVATIONS

Emmanuel M. Carreira, Sr., University Heights, Ohio, assignor to Thomas A. Dobbins, Lyndhurst, Ohio

Filed Nov. 28, 1979, Ser. No. 98,245
Int. Cl.³ G02B *23/18*
U.S. Cl. 350—26 **5 Claims**



1. A portable optical instrument for astronomical observations, comprising in combination:

a binocular;

a base for providing a substantially stable, horizontally extending platform;

a strut attached to the base and extending upwardly therefrom;

obliquely extending clamp means positioned at the top of the strut for retaining the binocular on the strut at an oblique angle with respect to the strut and the horizontal extent of the base;

mirror support means secured beneath said obliquely extending clamp means;

a mirror secured to said mirror support means with the reflecting surface of the mirror facing upwardly and being intersected by the optical axes of the binocular when the binocular is secured to the clamp, and

an uninterrupted space between the reflecting surface and the binocular,

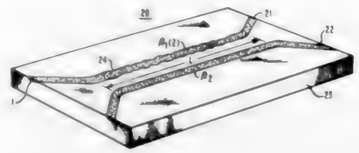
whereby, the base is horizontally disposed with respect to a stable surface, the binocular secured by the oblique clamp is disposed at an oblique angle with respect to the vertical and the mirror reflects astronomical observations through the binocular without an observer having to support the binocular and with the observer having his hands free.

4,278,321

POWER DIVIDER WITH RANDOMLY VARYING INCREMENTAL POWER TRANSFER

Iris M. Mack, Berkeley, Calif.; Harrison E. Rowe, Rumson, N.J., and Ronald V. Schmidt, Woodside, Calif., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 28, 1979, Ser. No. 80,092
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.12 **7 Claims**



1. A power divider comprising:

at least two coupled wavepaths (**21**, **22**) (**40**, **41**);

CHARACTERIZED IN THAT:

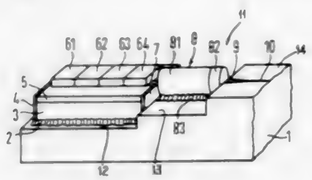
a parameter of at least one of said coupled wavepaths varies randomly as a function of distance along said wavepaths.

4,278,322

COUPLING DEVICE FOR COUPLING OF TWO WAVEGUIDES

Hans F. Mahlein, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 6, 1979, Ser. No. 45,946
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828802
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.18 **10 Claims**



1. A coupling device for coupling two optical waveguides having different cross sections, in particular for coupling a layer conductor to a strip conductor, said device comprising a telescope system of lenses for narrowing the beam cross section of an incident light and a tapering optical waveguide being positioned to receive the light emerging from said system and having a decreasing cross section extending away from said means.

4,278,323

OPTICAL FIBER SLIP RING

Steven B. Waldman, Morganville, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 12, 1979, Ser. No. 11,279
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.20 **11 Claims**

1. A system for communication of signals from a moving member to a relatively fixed member, including:

a hollow rotatable tubular support means connected to said moving member to be movable therewith,

drum means mounted coaxially on said tubular support means for rotation therewith,

an optic fiber ring mounted on said drum to communicate light signals, said optic fiber ring including a plurality of periodic alternating projections and spaces formed in the surface of said ring and distributed around the outer circumference, an optic fiber block means secured to said fixed member and positioned around and proximate to said optic fiber ring and forming a gap between said optic fiber block means and said projections on said outer circumference of said optic fiber ring,



a first solid state electronic-photo transducer means connected to said optic fiber block means and a second solid-state electronic-photo transducer means connected to said optic fiber ring,

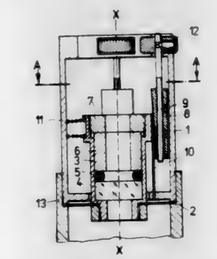
first means for communicating signals through said hollow tubular support means to said fiber optic ring transducer means, and second means for communicating signals to said fiber optic block transducer means, said first and second transducer means being adapted to communicate across said gap by light signals.

4,278,324

ADJUSTABLE MOUNT FOR OPTICAL COMPONENTS

Lothar Zipfel, JENA, 2, Werner-Seelenbinder-Str., District of Gera, German Democratic Rep.

Filed Oct. 22, 1979, Ser. No. 84,529
Claims priority, application German Democratic Rep., Oct. 31, 1978, 208776
Int. Cl.³ G02B *7/00*
U.S. Cl. 350—288 **2 Claims**



1. An adjustable mount for optical components, particularly for use in laser arrangements, including a tightly sealed optical component comprising

an outer tube,

an interior tube coaxially arranged within said outer tube,

a spring disc,

said interior tube supporting said optical component in encompassing the latter, said spring disc for pivotally seating said interior tube in said outer tube,

an optical axis, coinciding with the tube axes of said interior and outer tube,

two wedges, each having two wedge faces,

two guide springs,

two spindles, each being seated in the wall of said outer tube, said two wedges being arranged between said outer tube and said interior tube staggered at right angles to each other, said two wedges being frictionally connected via the one of said two wedge faces and via said guide springs to the outer wall of said interior tube and with the other of said wedge faces to the interior wall of said outer tube,

said two wedges being provided with a means for receiving said two spindles,

said two wedges being displaced by operation of said two spindles in parallel to said optical axis,

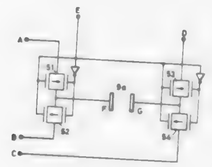
said interior tube axis including an angle with the optical axis when displaced.

4,278,325

ELECTRONIC TIMEPIECE

Kenichi Kondo; Ryuichi Kuronuma, and Noboru Kaneko, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Dec. 11, 1978, Ser. No. 967,980
Claims priority, application Japan, Dec. 12, 1977, 52/149495
Int. Cl.³ G02F *1/133*
U.S. Cl. 350—331 T **3 Claims**





1. In an electronic timepiece having a liquid crystal display including liquid crystal display electrodes and a dynamic driving circuit for producing a display driving signal having an effective driving voltage to drive the liquid crystal display electrodes to display time information, the improvement wherein the dynamic driving circuit comprises means for producing a periodic sampling signal defining a periodic sampling period, means including at least some of said liquid crystal display electrodes used to display time information for detecting the capacitance of the liquid crystal in response to the periodic sampling signal to sense a change in ambient temperature only during the sampling periods, and means for adjusting the effective driving voltage of the display driving signal in response to changes in the detected capacitance corresponding to changes in the ambient temperature to thereby compensate for temperature changes.

4,278,326

LIQUID CRYSTAL DISPLAY ELEMENT

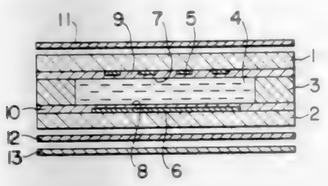
Hiromitsu Kawamura; Tokuyoshi Nakajima; Yoshimichi Shibuya, all of Mobara, and Hisao Yokokura, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 28, 1978, Ser. No. 973,814
Claims priority, application Japan, Mar. 15, 1978, 53-28704
Int. Cl.³ G02F *1/133*
U.S. Cl. 350—343 **8 Claims**

1. In a liquid crystal display element comprising two electrode substrates, each of which is a transparent substrate, an electrode having the desired patterns formed on the inner surface of at least one of said transparent substrates, and a liquid crystal molecule orientation controlling film formed on

the inner surface of said electrode, said two electrode substrates being placed in parallel with a certain distance therebetween and sealed therearound by a sealant, and a nematic liquid crystal being enclosed in the space thus produced, the improvement which comprises using as the liquid crystal molecule orientation controlling film a film of a polymer having imide rings and as the sealant a calcined product of low-melting point glass obtained by adding 1 to 5 parts by weight of either SiO_2 or Al_2O_3 or both of SiO_2 and Al_2O_3 to 100 parts by weight of a base composition comprising:

B_2O_3—7.5–14.5% by weight,
PbO —71.5–81.2% by weight,
ZnO —0–14.0% by weight,
CuO —0–3.0% by weight, and
Bi_2O_3—1.5–3.0% by weight.

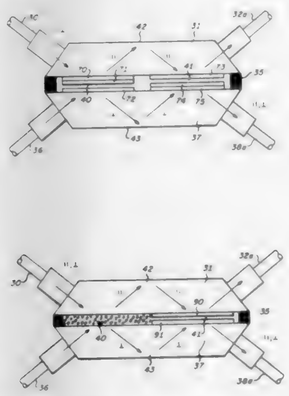


4,278,327

LIQUID CRYSTAL MATRICES

Donald H. McMahon, Carlisle, and Richard A. Soref, Newton Centre, both of Mass., assignors to Sperry Corporation, New York, N.Y.

Filed Nov. 26, 1979, Ser. No. 97,294
Int. Cl.³ G02F *1/133*
U.S. Cl. 350—347 V **39 Claims**



1. An optical switching matrix comprising:

first port means for propagating an input light beam having components in first and second linearly polarized states so as to intersect, at a predetermined angle and at a first location, a confined layer of electrooptically active nematic material for reflection of said first polarized state component and for transmission therethrough of said second polarized state component for forming respective second and third divergent light beams,

polarization converter means for interchanging the respective polarizations of said respective second and third divergent light beams, and

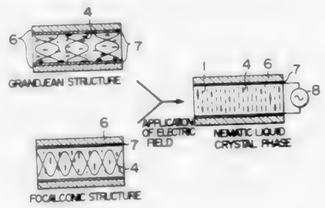
reflector means for redirecting said second and third light beams so as to intersect, at said predetermined angle and at a second location, said confined layer for redirecting said second and third light beams to form a combined light beam, said combined light beam propagating through second port means in substantially the same direction as said input light beam.

4,278,328

GUEST-HOST LIQUID CRYSTAL DISPLAY DEVICE

Akio Mukoh, Hitachi; Hidetoshi Abe, Katsuta; Hideaki Kawakami, Mito; Yoshiharu Nagae, Hitachi; Hirosada Morishita, Hitachi, and Eiji Kaneko, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 27,839, Apr. 6, 1979, abandoned. This application Aug. 15, 1980, Ser. No. 178,598
Claims priority, application Japan, Apr. 10, 1978, 53-41183
Int. Cl.³ G02F *1/137*
U.S. Cl. 350—349 **11 Claims**



1. A guest-host liquid crystal display device having a guest-host liquid crystal layer sandwiched between a pair of substrate each provided with an electrode for applying an electric field to said liquid crystal layer, in which said electrode and said substrate include surfaces in contact with said liquid crystal layer being subjected to a perpendicular orientation treatment for orienting liquid crystal molecules in contact with said surfaces of said electrode and said substrate with longitudinal axes thereof perpendicular to said surface of said electrode; and said liquid crystal layer includes

(a) a nematic liquid crystal having a positive dielectric anisotropy,

(b) an optically active material for imparting to said nematic liquid crystal a phase transition into a cholesteric condition, and

(c) a pleochroic dye for absorbing light incident on said liquid crystal layer in the absence of an electric field applied to said liquid crystal layer;

wherein a pitch of said cholesteric condition is substantially equal to the thickness of said liquid crystal layer.

4,278,329

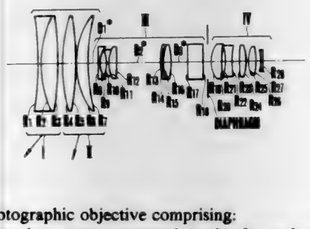
ELECTROCHROMIC DEVICE WITH TRANSMISSIVE COUNTER ELECTRODE

Kenzi Matsuhiro, Sagamihara, and Yasushi Masuda, Yamato, both of Japan, assignors to Ashai Glass Company, Ltd., Tokyo, Japan

Filed Jun. 5, 1979, Ser. No. 45,664
Claims priority, application Japan, Jun. 20, 1978, 53-73741; Jun. 20, 1978, 53-73742; Jun. 30, 1978, 53-78723
Int. Cl.³ G02F *1/17*
U.S. Cl. 350—357 **6 Claims**

1. In an electrochromic device comprising two transparent substrates, each having formed thereon a transparent conductive film which face each other; first and second electrochromic films which are formed on the transparent conductive films; an electrolyte containing ions capable of changing the optical properties of the electrochromic film and a sealant for sealing the electrolyte between the two substrates, wherein the improvement comprises:

said first electrochromic film being formed of a substance whose optical properties in the range of visible light change in response to the injection and extraction of said ions; and



said second electrochromic film being formed of a substance whose optical properties in the range of visible light do not change in response to the injection and extraction of said ions.

4,278,330

CATADIOPTRIC VIRTUAL-ZOOM OPTICAL SYSTEM

Richard A. Buchroeder, Tucson, Ariz., assignor to Applied Systems Corporation, Vienna, Va.

Filed May 14, 1979, Ser. No. 38,953
Int. Cl.³ G02B *15/16, 17/08*
U.S. Cl. 350—411 **15 Claims**



1. A zoom optical system comprising a main light gathering objective mirror and a virtual object zoom relay system optically coupled to said main light gathering objective mirror.

4,278,331

PHOTOGRAPHIC OBJECTIVE WHICH PREVENTS VARIATION IN ANGULAR FIELD OF VIEW DURING FOCUSING

Kazuo Tanaka, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1979, Ser. No. 93,989
Claims priority, application Japan, Nov. 17, 1978, 53-141807
Int. Cl.³ G02B *15/18*
U.S. Cl. 350—411 **3 Claims**

1. A photographic objective comprising:

a focusing lens group arranged at the front thereof and including at least two lens members movable for focusing independently of each other;

a lens group arranged to the rear of said focusing lens group and stationary during focusing; and

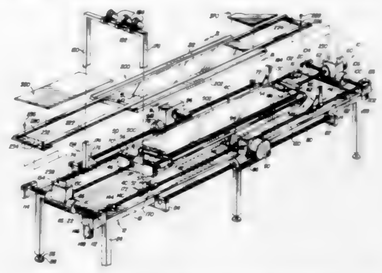
said focusing lens group having focusing means and means for preventing variation of the angular field of view of said objective during focusing.

4,278,332

TABLE APPARATUS FOR HOLDING AND MOVING CELS FOR PRODUCING ANIMATED MOTION PICTURES

Joshua Eliscu, Tucson, Ariz., assignor to Elisoln Enterprises, Inc., Tucson, Ariz.

Filed Jun. 5, 1979, Ser. No. 45,784
Int. Cl.³ G03B *21/32*
U.S. Cl. 352—87 **26 Claims**



1. Table apparatus for holding and moving animation cels and background or filler for the cels, comprising, in combination:

table means, including a bed and a plurality of legs supporting the bed;

slide box means secured to the table means and movable relative to the bed, including

a slide box,

first shaft and support means secured to the table means for supporting the slide box and for moving the slide box in a first direction relative to the bed,

second shaft and support means secured to the table means for supporting the slide box and for moving the slide box in a second direction relative to the bed.

fixed rail means secured to the first shaft and support means and movable with the slide box in the second direction for holding a cel;

light box means secured to the slide box and to the fixed rail means and movable with the slide box and the fixed rail means in the second direction and movable with the slide box relative to the fixed rail means in the first direction, including,

a frame,

a lamp chamber secured to the frame, and lamp means in the lamp chamber for providing illumination; and

movable rail means secured to the light box means, and including a pair of rails spaced apart from each other and disposed adjacent and parallel to the fixed rail means, and movable relative to each other and to the light box means, for holding and moving cels.

4,278,333

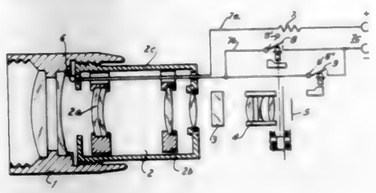
CAMERA WITH ACTION INDICATOR

Johann Roth, Schwabhausen, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,851
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2853942
Int. Cl.³ G03B *1/60*
U.S. Cl. 352—170 **11 Claims**

1. In a camera having a shutter, particularly a motion-picture camera, a combination comprising a picture-taking objective including lens means; a light-source mounted in said objective and viewable through said lens means at least from the front of the camera; an electrical circuit connecting said light source

with a source of energy; and means cooperating with a movable camera-mechanism component, for completing said elec-



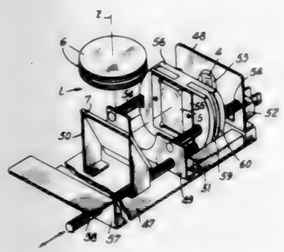
trical circuit only when the camera shutter is in closed position.

4,278,334

ILLUMINATION CONTROL APPARATUS FOR PROJECTION DEVICE

Masahiro Maeda, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 26, 1979, Ser. No. 97,608
Claims priority, application Japan, Dec. 1, 1978, 53-149205; Dec. 12, 1978, 53-154376
Int. Cl.³ G03B *21/20*
U.S. Cl. 353—85 **25 Claims**



9. An illumination control apparatus for a device which projects an image of an object at a variable magnification onto a projection plane, said apparatus comprising:

a light source for illuminating the object;

condenser lens means provided between the light source and the object for condensing light from said light source onto the object;

means for supporting the light source for movement along the optical axis of the condenser lens means in accordance with the magnification variation so as to vary the distance between the light source and the condenser lens means;

means for controlling the power supplied from a power source to the light source, the control means including a variable resistor for varying the power in accordance with the resistance of said resistor; and

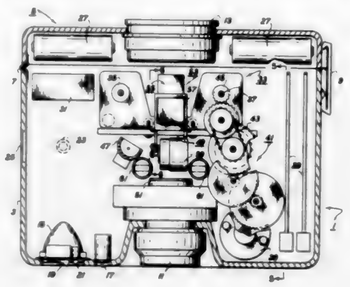
means for intercoupling the variable resistor of the control means and the light source so as to control the power supplied to the light source in accordance with the movement of the light source.

4,278,335

CAMERA WITH DEVELOPMENT AND VIEWING MEANS

Paul S. Vincett, Grand Valley; Arnold L. Pundsack, Oakville, both of Canada; Robert K. Hunter, Jr., Northridge, and Wylee D. McCrary, Pasadena, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 25, 1980, Ser. No. 115,578
Int. Cl.³ G03B *17/50, 17/55, 27/32*
U.S. Cl. 354—3 **15 Claims**



1. A camera comprising in combination:

(a) a light-tight case;

(b) a lens and aperture means in said case to admit a controlled amount of light focussed on an image plane within said case;

(c) means to forward and hold a supply of migration imaging film along a path in said image plane;

(d) means to electrostatically charge said film surface supplied to said image plane;

(e) means to develop a latent image in said film by application of heat to said film, said means including a supporting substrate mounted on a support arm, a thermally insulating layer on said substrate, and an electrically heated arcuate heated surface on said thermally insulating layer; and

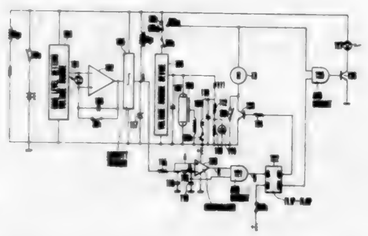
(f) means to view the developed image on said film through said case.

4,278,336

OPERATION DETECTING DEVICE FOR CAMERA

Fumio Ito; Isao Harigaya, both of Yokohama; Tetsuya Taguchi, Kawasaki; Shuichi Tamura, Yokohama; Michio Hirohata, Kawasaki, and Mutsuhide Matsuda, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 23, 1979, Ser. No. 5,702
Claims priority, application Japan, Jan. 31, 1978, 53/9669
Int. Cl.³ G03B *7/081, 9/08, 17/20;* **H01H** *47/00*
U.S. Cl. 354—51 **22 Claims**



1. An operation detecting circuit for a control member of a camera, the control member being electromagnetically actuated, comprising:

(a) an operation control member within the camera for controlling the operation of the camera, said member being movable between a first position and a second position;

(b) a switching circuit for providing an output current;

(c) a magnet coupled to said switching circuit for holding said operation control member at said first position when said output current is provided by said switching circuit, said magnet being arranged to attract a part of the operation control member to form a closed magnetic circuit when the operation control member is at said first position, said magnet releasing said operation control member for movement to said second position when said output current provided by said switching circuit is cut off,

said magnet being operative to produce an output signal including a first electrical signal when said output current is cut off and a second electrical signal when said closed magnetic circuit is opened by movement of said part of said operation control member to said second position; and

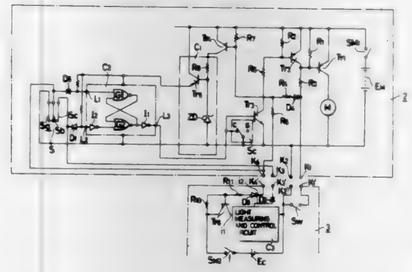
(d) an operation detecting device for detecting the operation of said operation control member, said detecting device including a delay circuit coupled to said magnet for delaying said output signal from said magnet for a certain time and a comparison circuit for comparing the output of said delay circuit with said output signal from said magnet to provide a signal representing the operation of said operation control member.

4,278,337

ELECTRIC MOTOR DRIVE DEVICE FOR CAMERA

Yukio Mashimo, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 1, 1979, Ser. No. 8,512
Claims priority, application Japan, Feb. 7, 1978, 53-12745
Int. Cl.³ G03B *1/18, 7/26*
U.S. Cl. 354—60 R **7 Claims**



1. An electric motor drive device for a camera which includes a light measuring circuit and an electromagnetic release device, comprising:

starting operation means having a depressing movement and a returning movement which depressing movement has a first stage depression range and a second stage depression range in the operation thereof, said means being provided with switching means arranged to produce an electrical signal at each of said ranges first for actuating the light measuring circuit and then for actuating the electromagnetic release device;

a memory circuit responsive to the output of said starting operation means for producing a first output signal indicating a first state in response to an electrical signal produced in the second stage range and a second output signal indicating a second state in response to an electrical signal produced in the first stage range when said starting operation means returns, wherein said memory circuit successively memorizes the first and the second states; and

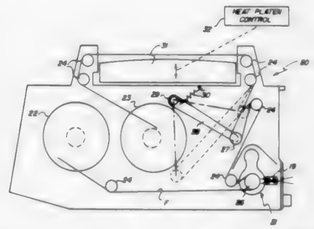
an electric motor control circuit which is connected to an electric motor which performs a winding action of the camera and is connected also to said memory circuit, said motor control circuit being arranged to inhibit driving of the motor in response to said first output signal from said memory circuit and to drive the motor in response to said second output signal from said memory circuit.

4,278,338

CAMERA-PROCESSOR APPARATUS

Charles W. Baker, Rochester; Robert J. Wilson, Webster, and Dale F. Kempf, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 21, 1980, Ser. No. 170,488
Int. Cl.³ G03B *17/50, 27/32*
U.S. Cl. 354—83 **7 Claims**



1. In camera-processor apparatus of the type having spaced film supply and take-up means, means defining a film feed path between the supply and take-up means and recording means and heat-developing means spaced along the film feed path, the improvement wherein:

(a) said heat-developing means is selectively activatable to heating and non-heating conditions with respect to film on said feed path so that, for all portions of a multi-image film segment, the commencement and termination of heat development occur respectively at substantially the same time; and

(b) said film path defining means is selectively activatable to extend and contract the path length between said recording means and said heat-developing means in timed relation with the activation of said heat-developing means, whereby moving film can be recorded while recorded film is developed in a stationary condition.

4,278,339

PENTAGONAL PRISM MODULE FOR CAMERA VIEWFINDER

Isamu Uchida; Yasuo Yamazaki, both of Kawachinagano, and Takeshi Egawa, Osaka, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed May 12, 1980, Ser. No. 148,596
Claims priority, application Japan, May 18, 1979, 54-67148[U]; May 18, 1979, 54-67149[U]
Int. Cl.³ G03B *19/12, 13/08*
U.S. Cl. 354—155 **10 Claims**

1. A pentagonal prism module for use in a viewfinder of a single lens reflex camera, comprising:

a pentagonal prism adapted to totally reflect viewfinder light flux at effective optical path regions on its pair of roof surfaces; and

a protection cover including a pair of roof walls accomodated to said roof surfaces of said pentagonal prism, said roof walls having recessed portions corresponding to said effective optical regions on said roof surfaces and peripheral portions corresponding to portions on said roof surfaces out of said effective optical path regions, and said protection cover being attachable to said pentagonal prism for protection of said roof surfaces with said peripheral portions contacted on said portions on said roof sur-

faces out of said effective optical path regions so that an air space is left between said effective optical regions on



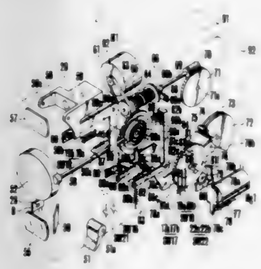
said roof surfaces and the inner surfaces of said recessed portions.

4,278,340

CAMERA HAVING AN AUTOMATIC FOCUS ADJUSTING DEVICE

Masamichi Toyama, Machida; Noritsugu Hirata, Yokohama; Hideto Iwama, Kawasaki; Hidekazu Okajima, Naka, and Akimasa Nishimura, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1980, Ser. No. 171,378
Claims priority, application Japan, Jul. 25, 1979, 54-94600
Int. Cl.³ G03B *3/10*
U.S. Cl. 354—195 **3 Claims**



2. A camera having an automatic focus adjusting device comprising:

shutter means;

means for controlling the position of the focusing lens;

an automatic focus detecting circuit;

means for presetting the adjusting position of the focusing lens by means of the output of the automatic focus detecting circuit;

an electric motor;

clutch means for selectively transmitting the driving power of the motor to the shutter means or the lens position control means; and

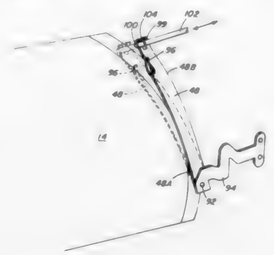
spring means for driving the preset means, said means connecting the lens position control means to the adjusting position preset means so as to be energized with the driving power by means of the rotation of the motor.

4,278,341

SHEET STRIPPING APPARATUS

Francis P. Burgess, Westboro, Mass.; Raymond G. Cormier, Nashua, N.H.; Jacques Guiguizian, Haverhill, Mass., and Leo O. Lutz, Hollis, N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed Jul. 9, 1979, Ser. No. 55,523
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 SH **14 Claims**



1. In a copying apparatus having:

a rotating drum having a reusable photosensitive surface,

means for scanning an original to produce a latent electrostatic image on said surface,

means for developing said latent image, and

a transfer station for transferring said developed image onto a transfer material, said transfer station having:

means for conveying a sheet of transfer material into contact with said photosensitive surface at said transfer station for transferring said developed image from said surface to said sheet, portions of said sheet successively contacting said surface,

means for stripping said sheet from said surface, and

means for transporting said stripped sheet from said transfer station,

a sheet stripping apparatus comprising:

a guide member having a sheet contacting portion,

means for moving said guide member between a first position interposed between said drum surface and said sheet being conveyed to said surface in which said sheet contacting portion overlays a marginal portion of said surface at said transfer station for engaging a corner of a leading edge of said sheet conveyed to said transfer station, preventing said corner from contacting said photosensitive surface, and guiding said leading edge to said transport means, and a second position in which said sheet contacting portion is removed from its overlaying position with respect to said surface whereby said sheet can, at said transfer station, contact said surface at said marginal portion, and

said moving means including means for moving said member at least in a direction parallel to said photosensitive surface from said first to said second position while said sheet is being conveyed to said transfer station.

4,278,342

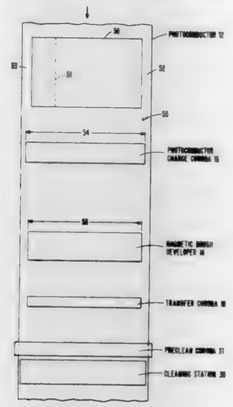
XEROGRAPHIC CHARGING

Jerry C. Andrew, and Roberta R. Tanner, both of Longmont, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,384
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 CH **7 Claims**

1. In an electrophotographic device wherein a reusable photoconductor is sequentially subjected to a photoconductor charging source of a first polarity, means for discharging a portion of said photoconductor to form an electrostatic latent image of said first polarity, a developing source having carrier beads of said first polarity which transport toner of an opposite polarity to said latent image to tone said image, a transfer station whereat a portion of said toned image is transferred to copy medium, a preclean charging source of said opposite polarity, and a cleaning station operable to remove toner from said photoconductor, the improvement comprising:

a photoconductor charging source spanning a width of said photoconductor greater than the similar width spanned by said developing source, so as to ensure the absence of an



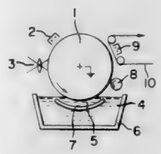
opposite polarity carrier-bead-attracting-voltage on the extremities of said photoconductor which is subjected to development, and said photoconductor charging source having a width less than the width of the photoconductor spanned by said preclean charging source, so as to ensure that all toner on said photoconductor has been subjected to said opposite polarity preclean charging source prior to entering said cleaning station.

4,278,343

INVERSION DEVELOPING METHOD FOR ELECTROPHOTOGRAPHY AND RELEVANT APPARATUSES

Junji Kurokawa, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 788,663, Apr. 18, 1977, abandoned.
This application Jan. 15, 1979, Ser. No. 3,197
Claims priority, application Japan, Apr. 22, 1976, 51-46010; Apr. 22, 1976, 51-46011
Int. Cl.³ G03G *15/10*
U.S. Cl. 355—10 **3 Claims**



1. In a method for forming a positive development image by developing an electrostatic latent negative image on the photosensitive layer of an electrophotographic element with a liquid developer whose toner particles have the same polarity as said negative image whereby the toner particles adhere to the non-negative image areas on said photosensitive layer, the improvement which comprises:

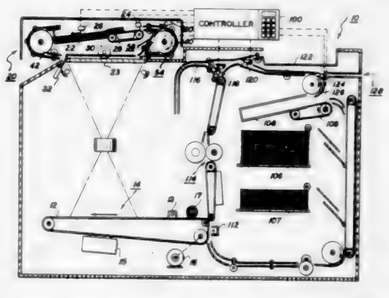
in the developing step, positioning a developing electrode in the liquid developer and in close proximity to the photosensitive layer of the electrophotographic element and maintaining said developing electrode electrically insulated from the base of the electrophotographic element so that a potential is induced on said developing electrode to create an electric field between said developing electrode and the non-negative image areas of said photosensitive layer effective to cause the toner particles to migrate to and adhere to said non-negative image areas in order to form the positive developed image thereon, then moving the photosensitive layer carrying the positive developed image thereon past a squeegee member which is electrically insulated from the base of the electrophotographic element and is electrically insulated from any source of electrical potential whereby to remove excess liquid developer from the photosensitive layer, and then transferring the toner image on the surface of the photosensitive layer to paper to form a positive developed image on the paper.

4,278,344

RECIRCULATING DUPLEX DOCUMENTS COPIER

Ravi B. Sahay, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 31, 1979, Ser. No. 71,613
Int. Cl.³ G03B *15/00, 27/32*
U.S. Cl. 355—14 SH **12 Claims**



1. In the method of pre-collation copying of both sides of a set of duplex document sheets by plurally recirculating and inverting said documents and serially copying said documents during said plural circulations, wherein the number of said plural circulations is determined by the number of pre-collated copy sets being made from said document set, the improvement comprising:

copying only one side of said documents in a first succession of contiguous plural documents circulations, and then copying only the other side of said documents in a second succession of contiguous plural document circulations, and alternating repeating said first and second successions of document circulations,

wherein the number of said document set circulations in said first and second successions of document circulations are substantially equal to one another but vary in number depending upon the number of documents in said document set,

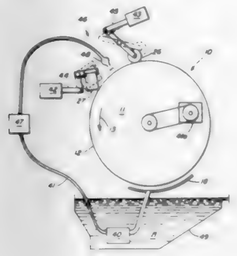
wherein said documents in both said first and second successions of plural document circulations are circulated in a continuous loop with a constant and even total number of document sheet inversions so that the same sides of said documents are copied in each said document set circulation within each said succession, and wherein there is provided a single document set inversion circulation between each of said first and second successions so that the sides of the documents copied in said second successions are opposite from the sides copied in said first successions.

4,278,345

DRUM CLEANING APPARATUS

Austin E. Davis; Raymond G. Cormier, and Christopher A. Caggiula, all of Nashua, N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed Sep. 17, 1979, Ser. No. 75,980
Int. Cl.³ G03G *21/00, 15/10*
U.S. Cl. 355—15 **4 Claims**



1. A photocopy apparatus having:
a rotatable drum bearing thereon a photosensitive surface;
means for creating on said surface an electrostatic latent image;
means for contacting said photosensitive surface with a liquid developer at a developing station for developing said latent image;
means for transferring the developed latent image to a copy medium;
means for cleaning residual developer from said photosensitive surface after transfer of said developed image to the copy medium;
said cleaning means having at least a cleaning blade and a cleaning roller,
means for moving said blade and said roller between an inoperative position spaced away from said photosensitive surface and an operative position in contact with said photosensitive surface;
means for rotating said rotatable drum,
said contacting means and said moving means cooperatively adapted to move said blade and said roller from the inoperative position to the operative position a predetermined time after the initiation of drum rotation whereby said blade and said roller when they are in their operative position contact a said photosensitive surface which has been wetted with said liquid developer at said developing station; and
means for supplying said liquid developer directly to said cleaning means only when said blade and said roller are in their operative position in contact with said photosensitive surface.

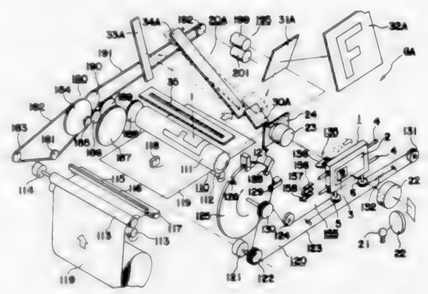
4,278,346

READING AND PRINTING APPARATUS

Shiro Toriumi, Zama; Takao Saijo, Matsudo; Hiroshi Endo, Fuchu; Kuniaki Kamimura, Kawasaki, and Takanori Saito, Musashino, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Jun. 26, 1979, Ser. No. 52,916
Claims priority, application Japan, Jul. 1, 1978, 53/80200; Jul. 1, 1978, 53/80201; Jul. 7, 1978, 53/83289; Jan. 19, 1979, 54/5884
Int. Cl.³ G03B *13/28*
U.S. Cl. 355—45 **11 Claims**

1. A reading and printing apparatus operable as a reader for projecting image information contained on a film onto an observation screen and as a printer for scanning and projecting said image information onto a photosensitive member through optical means, said reading and printing apparatus comprising:
carrier means for holding said film in a flat state, first positioning means including a first positioning member for contacting and positioning said carrier means at a screen projecting position with the central portion of the image on said film aligned with the optical axis of said optical means so as to project said image information on said film onto the observation screen during the operation as a reader, second positioning means including a plurality of selectively operable second positioning members for selectively contacting and positioning said carrier means at a scanning starting position for scanning and projecting said image information on said film onto the photosensitive member during the operation as a printer, and scanning means for causing said carrier means to scan in one direction from said scanning starting position, return spring means connected to said carrier means for urging said carrier means in the other direction for returning said carrier means to said scanning starting position, said first positioning member and said plurality of selectively operable second positioning members each having fine adjusting means for precisely adjusting the position thereof with respect to said carrier means, each of said first positioning member and said plurality of selectively operable second positioning members having a set of a stop plate member and a stop adjusting plate member placed one upon the other and a screw member coupling said plate members and serving for producing fine adjusting relative movement therebetween, a shaft member on which said sets are mounted for simultaneous rotation about the axis of said shaft member, each set of said stop plate member and said stop adjusting plate member having shock absorbing spring means connected to one end and stop spring means connected to the other end for



being normally urged in one direction about said shaft member, a contact member mounted on said carrier means, a solenoid means operatively associated with said first positioning member for selectively moving said first positioning member into or out of the path of movement of said contact member mounted as said carrier means is scanned in said one direction by said scanning means, operating means coupled to said plurality of selectively operable second positioning member for selectively bringing said second positioning member into or out of the path of movement of said contact member on said carrier means as said carrier means is scanned in said one direction by said scanning means, said operating means including stop cam members each having a pin member on the peripheral portion and fixedly mounted on said rotatable shaft member in positions corresponding to said second positioning members, said pin members on said cam members being offset circumferentially relative to each other so that upon contact of said second stop members by the peripheral edges of said cam members by the urging force of said stop spring means, said second positioning members are spaced from said path of movement of said contact member of said carrier means, and said second positioning members are moved into said path of movement of said contact member of said carrier means again for contact with said contact member by the urging force of said stop spring means upon contact of any one of said cam members with a corresponding one of said second stop members, the spring force of said shock absorbing spring means of said first

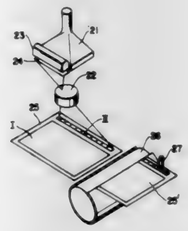
positioning member and said second positioning member being larger than that of said return spring means of said carrier means, and a threaded bolt member connected to each of said shock absorbing springs for adjusting the spring force thereof.

4,278,347

CATHODE-RAY TUBE IMAGE RECORDING DEVICE

Yoshihiko Okamoto; Tamotu Yoshizawa; Takahiro Ohta, all of Asaka, and Koichi Murata, Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Feb. 7, 1980, Ser. No. 119,594
Claims priority, application Japan, Mar. 13, 1979, 54-28915
Int. Cl.³ G03B *27/72*
U.S. Cl. 355—68 **7 Claims**



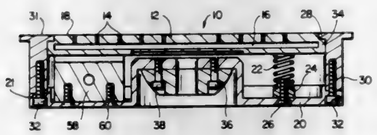
1. A device for recording an image on a cathode-ray tube on a photosensitive thermal development recording medium which comprises: means for exposing a recording medium sensitivity determining density wedge; means for sensing a developed sensitivity determining density wedge for producing a density identification step number; means for controlling at least one of the brightness and light emission time of said cathode-ray tube in response to said density identification step number.

4,278,348

LOCKING MECHANISM FOR USE IN A CHUCK FOR AN OPTICAL ALIGNMENT AND EXPOSURE APPARATUS

Ernest J. Funk, Cupertino; Thomas Wing, Woodland Hills; Jack C. Lane, and Edward S. Westbrook, IV, both of Saratoga, all of Calif., assignors to Quintel Corporation, San Jose, Calif.

Filed Nov. 26, 1979, Ser. No. 97,331
Int. Cl.³ G03B *27/60*
U.S. Cl. 355—73 **19 Claims**



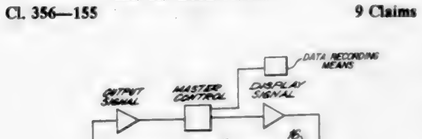
1. In a chuck for use in an optical alignment and exposure apparatus having a chuck plate supported in a base member and means for urging the chuck plate away from the base member, a locking mechanism for maintaining a fixed relationship between the chuck plate and the base member comprising:
flexible blade means fastened to one of the chuck plate and base member;
a brake element fastened to the other of the chuck plate and base member, and having a surface slidably in contact with a surface of the flexible blade means; and
force applying means for urging the contacting surfaces of flexible blade means and the brake element together with sufficient force to prevent the flexible blade means and the brake element from sliding with respect to each other and to maintain a fixed separation between the chuck plate and the base member in response to an input stimulus.

4,278,349

FIBER OPTICAL TEMPERATURE SENSORS

Lars Sander, Vesteras, Sweden, assignor to Asea Aktiebolag, Vesteras, Sweden

Filed Jun. 22, 1979, Ser. No. 51,458
Claims priority, application Sweden, Jun. 26, 1978, 7807199
Int. Cl.³ G01J *5/28, 5/60;* G01K *11/12*
U.S. Cl. 356—44 **14 Claims**



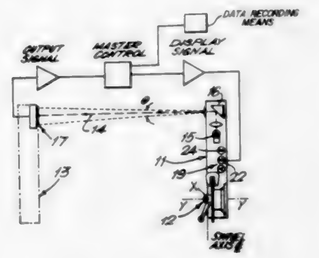
1. Temperature measuring apparatus, comprising:
material forming a sensor and including a coloring pigment having spectral absorption characteristics with a temperature-dependent transition from a high to a low absorption characteristic over a range of optical wavelengths, said material being subjected to the temperature to be measured;
optical fibers for transmitting light at least at two wavelengths, with at least one of said wavelengths being within said range of optical wavelengths, to said temperature-dependent material and for transmitting light representative of said temperature-dependent transition at each of said at least two wavelengths from said material;
means for optically sensing said transmitted light from said temperature-dependent material by said optical fibers and generating signals representative thereof; and
means for determining temperature from said signals, and including means for comparing the optically sensed temperature transition signals of said at least two wavelength ranges to compensate for variable transmission characteristics in said optical fibers.

4,278,350

HUB ALIGNMENT

Michael D. Rawle, Abingdon, and Peter E. G. Marshall, Haddenham, both of England, assignors to BL Cars Limited, London, England

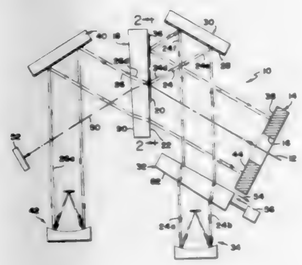
Filed Jul. 27, 1979, Ser. No. 61,401
Claims priority, application United Kingdom, Jul. 28, 1978, 31492/78
Int. Cl.³ B01B *11/275*
U.S. Cl. 356—155 **9 Claims**



1. Apparatus for measuring the alignment of a road wheel hub on a production line, comprising:
light transmitting means for transmitting a beam of light

between a pair of road wheel hubs of a vehicle; each of said road wheel hubs pivoting about a respective axis for alignment, and each hub having a rotational axis;
means for connecting said light transmitting means to a first of said hubs in predetermined alignment therewith;
a photo-sensitive receiver;
means for connecting said photo-sensitive receiver to the other of said hubs with said receiver substantially in the plane of the pivoting axis perpendicular to the rotational axis of the hub, and radially of the pivoting axis of the hub;
a master control unit remote from said hubs to receive signals from said photo-sensitive receiver;
said light beam and said photo-sensitive receiver cooperating to determine the state of alignment of said first hub; and
said master control unit emitting a signal indicative of said alignment.

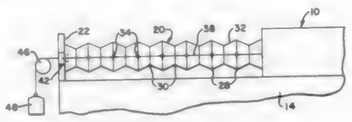
4,278,351
INTERFEROMETER
Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of James B. Breckinridge, Robert H. Norton, both of La Canada, Rudolf A. Schindler, Sierra Madre, all of Calif.
Filed May 9, 1979, Ser. No. 37,560
Int. Cl.³ G01B 9/02
U.S. Cl. 356—345 **12 Claims**



1. An interferometer comprising:
first and second retroreflectors which return a beam reversed in orientation from the incoming beam;
a beamsplitter for receiving a light beam directed along a predetermined input path, to split it into first and second beam components;
means for directing each of said beam components along a corresponding path leading into a corresponding one of said retroreflectors, and for recombining beam components from said retroreflectors to form an interference pattern;
said directing means including two mirror arrangements, each associated with one of said retroreflectors and each including at least one flat mirror positioned to direct a corresponding beam component leaving said beamsplitter to the corresponding retroreflector and to also reflect the beam component returned by the retroreflector, whereby to make the interferometer insensitive to slight tilting of the flat mirrors.

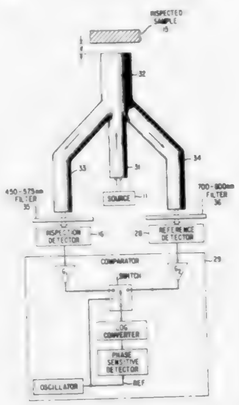
4,278,352
SUPPORT SYSTEM FOR EXTENSIBLE BELLOWS
Bruce E. Keller, Federal Way, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Oct. 24, 1979, Ser. No. 88,204
Int. Cl.³ G01B 9/02
U.S. Cl. 356—358 **9 Claims**

1. A horizontally-extending tubular means for enclosing a light beam or the like comprising a generally cylindrical extensible and collapsible bellows having alternate large and small diameter rigid circular elements interconnected by flexible material such that the circular elements can move toward or away from each other, grommet means attached to at least



some of said circular elements and aligned along straight-line paths of travel, cable means extending through said grommet means, and means for tensioning said cable means to prevent sagging of the bellows when extended in a horizontal direction.

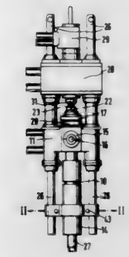
4,278,353
OPTICAL INSPECTION OF GOLD SURFACES
Frederick W. Ostermayer, Jr., Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 11, 1980, Ser. No. 139,172
Int. Cl.³ G01J 3/48; G01N 21/55
U.S. Cl. 356—416 **10 Claims**



1. A method of making an article comprising the step of determining the condition of a gold surface on said article by steps comprising directing illumination from a source toward the inspected gold surface and detecting reflected light therefrom by means of an inspection detector, with said illumination thereby traversing an optical path between said source, said surface, and said detector, characterized in that the reflected light detected by said inspection detector is substantially in the wavelength range of 450 to 575 nanometers, and further characterized in that the amount of reflected light detected in said wavelength range is substantially determined by the degree of scattering of said illumination by said gold surface.

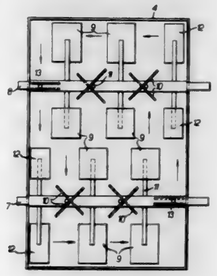
4,278,354
INJECTION UNIT WITH ADJUSTABLE PLASTIFICATION CYLINDER
Karl Hehl, Arthur-Hehl-Strasse 32, 7298 Lossburg 1, Fed. Rep. of Germany
Filed Feb. 26, 1980, Ser. No. 124,847
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1979, 2907557
Int. Cl.³ B29B 1/06
U.S. Cl. 366—78 **8 Claims**

1. An improved injection unit which is adapted for use with an injection molding machine for plastic materials and which comprises an elongated tubular plastification cylinder defining a longitudinal axis for the unit, a plastification screw occupying the bore of said cylinder, including means for rotating the plastification screw in a plastification stroke and means for axially advancing the plastification screw in an injection stroke, and means for supporting and positioning the plastifica-



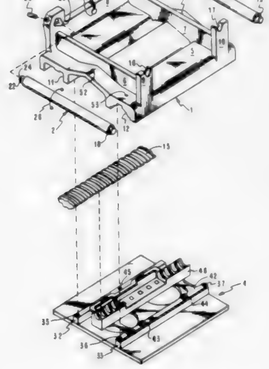
tion cylinder, including a cylinder carrier member engaging the rear portion of the plastification cylinder, the improvement in said injection unit comprising:
means for adjusting the longitudinal position of the plastification cylinder in relation to said cylinder carrier member, in a continuous manner; and
means for clamping the plastification cylinder to the cylinder carrier member in any adjustment position.

4,278,355
METHOD OF MIXING PARTICULATE COMPONENTS
Halvor G. Forberg, Hagabakken 2, 3250 Larvik, Norway
Filed Jul. 16, 1979, Ser. No. 58,092
Claims priority, application Norway, Jul. 25, 1978, 782550
Int. Cl.³ B01F 7/04
U.S. Cl. 366—300 **8 Claims**



1. An apparatus for mixing particulate components comprising a mixing chamber, first and second shafts supported in said chamber in substantially the same horizontal plane for rotation about parallel axes, means for rotating said shafts in opposite directions so that both shafts move upwardly at their adjacent sides, first blade means extending radially of said first shaft and disposed at an angle relative to its axis and operable upon rotation of said first shaft to transport said particulate components in a first axial direction through a transport zone disposed below said shafts, second blade means extending radially of said second shaft and disposed at an angle relative to its axis and operable upon rotation of said second shaft to convey said particulate components in a second axial direction opposite to said first axial direction through said transport zone, said first and second blades moving toward each other and upwardly in the region between said shafts and operable to move said particulate components through a mixing zone which is above and between said shafts, said first and second blade means being shaped and angled, and said rotating means causing said first and second blade means to rotate at a speed whereby said particulate material is fluidized and floats in said mixing zone, third blade means extending radially of said first shaft and disposed adjacent the downstream end thereof in the first axial direction, said third blade means being non-parallel to said first blade means and operable upon rotation of said first shaft to convey said particulate material toward said second shaft, and fourth blade means extending radially of said second shaft and disposed adjacent the downstream end thereof in the second axial direction, said fourth blade means being non-parallel to said second blade means and operable upon rotation of said second shaft to convey said particulate material toward said first shaft.

4,278,356
DAISY WHEEL PRINTER CARRIER
Adolph B. Habich, and Ronald E. Hunt, both of Austin, Tex., assignors to International Business Machins Corporation, Armonk, N.Y.
Filed Jun. 29, 1979, Ser. No. 53,646
Int. Cl.³ B41J 11/20
U.S. Cl. 400—59 **9 Claims**



1. A daisy wheel printer carrier for carrying both a selection motor and a carrier for print element and ribbon cartridges, said printer carrier comprising:
(a) a number of adjustable eccentric rails upon which said selection motor and cartridge carrier are mounted for translation toward and away from a platen; and
(b) means mountable on a number of escapement rails for escapement along said platen, said means including means for accepting said eccentric rails, said eccentric rails (1) extending perpendicular to the direction said escapement rails extend, and (2) having an end portion having an axis of rotation offset from the axis of rotation of the remainder of said eccentric rails.

4,278,357

APPARATUS FOR CONTROLLING IMPRESSION IN A DAISY WHEEL PRINTER

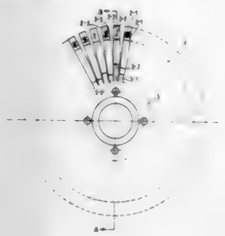
Arno Matla, and Horst D. Matthaei, both of Waldenbuch, Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 15, 1979, Ser. No. 48,920

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 2832338

Int. Cl.³ B41J 1/26, 1/60

U.S. Cl. 400—144.2 9 Claims



1. An apparatus for controlling impression in a daisy wheel printer for printing characters of different sizes, said daisy wheel printer including a print element having radially extending petals with said characters on the outer extermities thereof, said apparatus comprising radially extending spring petals associated with said element petals for which impression is to be controlled, the lengths of said spring petals being inversely proportional to the sizes of said characters.

4,278,358

TYPE CARRIER WITH IMPRESSION CONTROL FORMATION

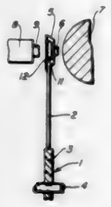
Peter Zahner, Schwabhausen, and Diethelm Puch, Nurnberg, both of Fed. Rep. of Germany, assignors to Triumph Werke Nurnberg A.G., Nurnberg, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 56,057

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2831009

Int. Cl.³ B41J 1/30

U.S. Cl. 400—144.2 3 Claims



1. In combination, a print wheel having a plurality of flexible radial spokes extending from a common center, said spokes on one side adjacent the ends thereof carrying types of varying print area, and an axially moveable constant energy print hammer for impacting a positioned spoke on the side directly opposite the type carrying side to effect printing, the improvement comprising

a resilient energy absorbing formation on each of said spokes on the side opposite the type carrying side and directly opposite said types, said formations having a resilience related to the print area of associated type for absorbing an amount of hammer energy related to the spring area of a type thereby to obtain substantially uniform print density for all said type.

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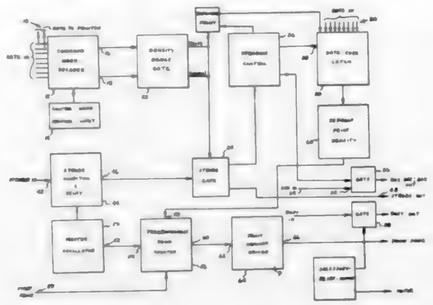
CONTROL CIRCUIT FOR USE WITH A DOT MATRIX PRINTER

David S. Weikel, Fort Wayne, Ind., assignor to Weikel Associates, Inc., Fort Wayne, Ind.

Filed Apr. 16, 1979, Ser. No. 30,120

Int. Cl.³ B41J 19/32

U.S. Cl. 400—303 10 Claims



1. A control circuit for use with a dot matrix printer and a data source which generates parallel binary coded data signals including a predetermined command word signal and density code signals comprising: A manual control word signal generating means for generating a parallel binary coded control word signal, gate means including a plurality of logic gates each having one input connected to said data source to receive a predetermined one of the bits of said parallel binary coded data signal and another input connected to said manual control word signal generating means to receive a predetermined one of the bits of said control word signals for generating a control circuit enabling signal in response to a logical correspondence of said command and said control word sigals, density latch gates means connected to said data source to receive density code signals and to said command word gate means for generating a density code output signal in response to said command word signal and said density code signals received from said data source, and a variable frequency printer signal generating means connected to receive said density code output signals for generating printer control signals having a frequency proportional to said density code signal, said printer being connected to said printer signal generating means to receive said printer control signals, the ratio of the printing frequency of the printing hammers and the lateral velocity of the printing head being proporational to changes in the frequency of said printer control signals, whereby the horizontal dimension each alpha-numeric character produced by said printer may be varied.

4,278,360

CONTAINER FOR STORING AND METERING LIQUIDS

Willy Lorscheid, Pulheim, and Ludwig Wingen, Cologne, both of Fed. Rep. of Germany, assignors to Joachim Czech, Donaustauf, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 40,500

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1978, 2827585

Int. Cl.³ B43K 5/10

U.S. Cl. 401—151 1 Claim

1. A container having a reservoir for storing liquid and an intermediate storage space of variable volume which is above the reservoir and communicated therewith and into which liquid from the reservoir can be drawn by increasing the volume thereof to produce a vacuum therein, said container being characterized by:

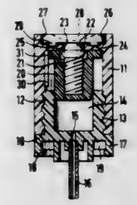
(A). a tube having a lower end near the bottom of the reservoir and having an upper end opening to said intermediate storage space to communicate said space with the reservoir, said tube having an inside diameter so related to the viscosity of liquid in the reservoir as to be

(1) small enough for a column of liquid to be present in said tube at substantially all times when pressure in said intermediate storage space is equal to pressure in the reservoir, and

(2) large enough for liquid to flow into said intermediate storage space when pressure therein is lower than pressure in the reservoir;

(B). the portion of the container that defines said intermediate storage space comprising an upper side wall having a substantially cylindrical inner surface and a threaded external surface;

(C). an inverted-cup-shaped closure cap for said container having a side wall that is internally threaded for engage-



ment with said threaded external surface and having an end wall;

(D). a piston having a cylindrical surface that can sealingly oppose said inner surface of the upper side wall, said piston being cooperable with said side wall to close the top of the intermediate storage space and to vary the volume thereof; and

(E). means providing a coaxial, substantially rigid, axially adjustable connection between the piston and said end wall of the closure cap whereby the piston, in every position of its adjustment relative to said cap, is constrained to partake of axial motion of said cap, so that upon installation and removal of said cap the piston decreases and increases, respectively, the volume of said storage space by an amount that depends upon the position of axial adjustment of the piston relative to said cap.

4,278,361

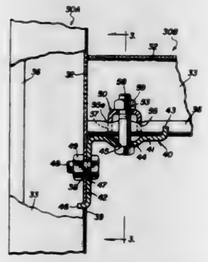
CHANNEL INTERCONNECTION APPARATUS

Mark H. Steinke, North Aurora, Ill., assignor to Lyon Metal Products, Incorporated, Aurora, Ill.

Filed Apr. 11, 1979, Ser. No. 28,977

Int. Cl.³ F16B 7/04

U.S. Cl. 403—189 3 Claims



1. The combination comprising a channel member having a rear wall and a pair of side walls and a pair of front walls and a pair of flanges, said side walls extending forwardly from said rear wall, said front walls extending toward each other from the forward ends of said side walls and defining a slot therebetween, said flanges respectively extending at an acute angle from the front walls in the region of said slot rearwardly and toward the associated side walls, the distal ends of said flanges being unattached, a connector dimensioned to be within said channel member transversely across said slot, said connector having two substantially U-shaped deforming surfaces which respectively define two notches that respectively encompass said flanges, the width of each of said notches being less than the width of each of said flanges and means for drawing said connector against said channel member to cause said flanges to be bendingly deformed respectively toward said front walls while being trapped by said notches.

4,278,362

METHOD FOR LIFTING AN IMMERSED DEVICE AND RETURNING IT INTO POSITION, AND FOR CARRYING OUT SAID METHOD

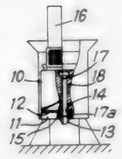
Norbert Scherrer, St. Just, France, assignor to Societe Europeenne de Propulsion, Puteaux, France

Filed Mar. 6, 1979, Ser. No. 18,058

Claims priority, application France, Mar. 10, 1978, 78 07048

Int. Cl.³ B63C 11/00

U.S. Cl. 405—191 16 Claims



1. A method for lifting and returning into position at least one immersed device mounted on a base and equipped with a locating buoy and a guide line wound or folded on itself and connected at one end to the buoy and at its other end to a locking member connected to the base, said method comprising:

releasing said buoy to cause it to rise to the surface and establish said guide line between the base and the surface,

lowering a lifting tool along said guide line,

separating the immersed device from the base and from said locking member and lifting said immersed device to the surface by means of the lifting tool,

providing a device to be returned into immersed position with a fresh buoy, a new locking member and a new guide line connecting said fresh buoy to said new locking member,

lowering said device to be returned into immersed position along the established guide line,

connecting said new locking member to the base, and

severing the previously established guide line.

4,278,363

ROCK BOLT AND INSTALLATION SYSTEM

Dai S. Choi, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Jun. 21, 1979, Ser. No. 50,586

Int. Cl.³ E21D 20/02

U.S. Cl. 405—260 7 Claims

1. A method of installing a rock bolt in a mine roof comprising:

(a) providing a rock bolt having an axial fluid passage therethrough, a nozzle at one end of said passage having a diameter less than one third the diameter of the bolt, and a groove in the outer surface of the bolt providing a return fluid passage;

(b) pumping fluid through said nozzle under a pressure of 70 to 1400 kg/cm², said fluid impinging on said mine roof and

forming a bore therein having a diameter less than the diameter of said bolt;

(c) applying force to said bolt to cause it to move into said bore as the bore is formed;



(d) discontinuing the pumping of said fluid; and

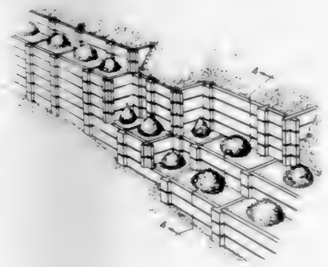
(e) disconnecting the source of said fluid from said bolt whereby said bolt is retained in said bore to provide support to said mine roof.

4,278,364

RETAINING TIES

Stanford Frehner, c/o S. & F. Sales, P.O. Box 15338, Salt Lake City, Utah 84115

Filed Aug. 23, 1979, Ser. No. 68,903
Int. Cl.[3] E02D *17/00*
U.S. Cl. 405—273 4 Claims



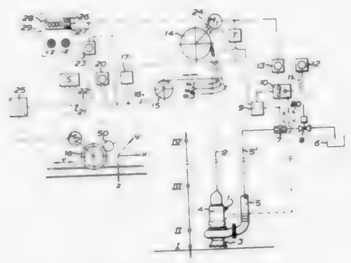
1. A block retaining wall system including elongated first course blocks, second anchor blocks, third and fourth course blocks, each of said blocks being of the same heighth, said first blocks being of the same first predetermined length, said second blocks being of the same second predetermined length, said third blocks being of the same third predetermined length and said fourth blocks being of the same predetermined fourth length, said third and fourth blocks including half heighth downwardly and upwardly opening transverse notches, respectively, formed therethrough adjacent corresponding first sets of ends thereof, said first, third and fourth blocks including longitudinal inner and outer upstanding sides and longitudinal top and bottom horizontal surfaces, said inner sides including longitudinal notches formed therein opening through one set of corresponding surfaces and longitudinal projections projecting outwardly from the other set of corresponding surfaces with the projections of tiers of vertically stacked first, third and fourth blocks seated in the longitudinal notches of adjacent blocks of the corresponding tiers of blocks, said second anchor blocks including forward and rearward ends including small and large transverse dimension horizontally transversely enlarged heads, respectively, the rear ends of said second blocks including upstanding rear sides and horizontal upper and lower surfaces, said rear sides including notches formed therein and extending longitudinally therealong opening through one set of corresponding upper and lower surfaces thereof and projections extending longitudinally therealong projecting outwardly from the other set of corresponding upper and lower surfaces thereof with the last mentioned projections of the tiers of vertically stacked second blocks seated in the longitudinal notches of the adjacent large transverse dimension heads of corresponding tiers of second blocks, said second blocks being arrangeable with said small transverse dimension heads disposed forward of and lengthwise overlapping the outer sides of spaced ends of adjacent course blocks between which the forward ends of said second anchor blocks project, adjacent third and fourth blocks of each course of blocks having their half heighth notched ends interfitted with each other with the third and fourth blocks disposed generally at right angles to each other and in the same horizontal plane.

4,278,365

CONTROL SYSTEM FOR CONTROLLING A PLANT INCLUDING A MOBILE SUCTION DEVICE FOR SUCKING SUSPENDIBLE MATERIAL

Nils A. Sandberg, Hässleholm, Sweden, assignor to Ingenjorsfirman N. A. Sandberg Industrikonstruktioner AB and Trelleborg AB, both of, Sweden

Filed Mar. 29, 1978, Ser. No. 891,275
Claims priority, application Sweden, Mar. 31, 1977, 7703749
Int. Cl.[3] B65G *53/66*
U.S. Cl. 406—30 5 Claims



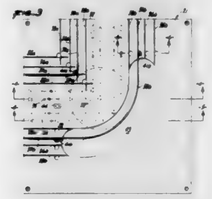
1. Method of controlling a device for sucking a material suspendible in air or liquid having a suction nozzle connected to a pump through a conduit by means of a sensor connected to said conduit, the suction nozzle being supported via a flexible supporting means by a hoisting device which is carried by said device for moving the hoisting device and the nozzle along at least one horizontal axis at adjustable velocity, while the nozzle is vertically adjustably carried by the hoisting device, wherein the hoisting device for vertically adjusting the nozzle is controlled by means of a control device by signals from the sensor in such a way that said sensor is preset to supply a control signal to the hoisting device for raising or lowering the nozzle to thereby restore the quantity per unit time in the conduit when the quantity per unit time exceeds or falls below a predetermined value which lies below a maximum value, and wherein the control device to which the sensor is connected, is adapted, when the quantity per unit time exceeds or falls below a certain upper and lower threshold level therefor as a function of time and working depth of the nozzle, to send the control signal from the sensor to control the quantity per unit time within definite limits the steps comprising: determining a maximum quantity by running the pump and nozzle in air or liquid which is free of the suspended material, assigning a limit range for the sensor that is less than the maximum quantity, selecting a time interval for a time relay within which deviations from the limit range of the sensor will not alter control of the device but in excess thereof will alter control, switching the control circuit from control of the working depth of the nozzle by regulating the hoisting device to control the pump rate of the control valve depending on signal strength, time and certain nozzle depth sensed, moving the hoisting device and the nozzle with regard to the quantity sensed, which is pumped through the conduit, moving the hoisting device in dependence on the inclination of the flexible supporting means at definite limits of inclination angle and in combination with time, controlling the quantity in dependence on signals supplied by a device for sensing the weight load carried by the movable supporting means or the tension of said means.

4,278,366

AUTOMATIC WAFER PROCESSING SYSTEM AND METHOD

W. L. Loveless, Saratoga; Richard J. Trott, Los Gatos; Robert H. Heath, Campbell, and William L. Glick, San Jose, all of Calif., assignors to GCA Corporation, Sunnyvale, Calif.

Filed Mar. 18, 1977, Ser. No. 779,074
Int. Cl.[3] B65G *51/02*
U.S. Cl. 406—88 2 Claims



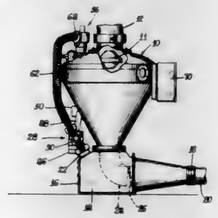
2. An automated wafer processing system comprising: a plurality of units including wafer treatment units, wafer storage units, and air bearing wafer transport track units, all of the foregoing units having either a common predetermined module size or being an integral multiple thereof and each track unit including a plurality of parallel slot pairs in the surface of said unit each pair corresponding to a predetermined wafer size, a pair of flexible guide strips extending from the surface of said track unit for guiding wafers said strips being inserted and retained in one pair of said plurality of parallel slot pairs; and means for selectively retaining said units in a substantially operatively interconnected configuration to provide at least one automated flow path for treating said wafers.

4,278,367

FEEDER APPARATUS FOR PNEUMATIC CONVEYING LINES

Wayne M. Jacobson, York, Nebr., assignor to Cyclonaire Corporation, Henderson, Nebr.

Int. Cl.[3] B65G *53/40*
U.S. Cl. 406—109 7 Claims



1. A feeder apparatus for cyclically receiving particulate material and for injecting the same into a conveying line under fluid pressure, comprising:

a substantially closed transfer vessel having a material inlet, a material inlet valve, a material outlet and a pressure and material responsive vessel outlet valve, said pressure and material responsive vessel outlet valve being normally closed and automatically operating in response to the force of fluid pressure and material in said vessel relative to the fluid pressure in an outlet chamber in which said outlet valve is located;

an outlet chamber adjacent the material outlet for receiving the material, said chamber communicating with the conveying line and having an inlet for receiving positive fluid pressure therein:

a first valve having a first port operatively connected to the interior of said vessel and second and third ports, said first valve operating between fully opened and fully closed positions and connecting said first port only with said second port when opened and said first port only with said third port when closed;

a single source for providing fluid at a positive first predetermined pressure level;

a housing means having a first port to which said source is operably connected, a venturi throat having a downstream portion operably connected to said outlet chamber inlet, a second port operably connected to the second port of said first valve via a first flow path, a third port operably connected to the third port of said first valve via a second flow path, said second flow path having a second valve and a pressure restricting means therein;

means for controlling said first, second and material inlet valves to cycle between loading and unloading modes, said loading mode having said material inlet valve open, said first valve open and said second valve closed, so that said venturi throat creates a negative fluid pressure in said first path and in said transfer vessel, the unloading mode having said inlet valve closed, said first valve closed and said second valve open so that fluid is provided to said vessel through said second valve, said pressure restricting means and said first valve at a second pressure level that is less than said first pressure level, the positive pressure at said second level urging the materials through the material outlet into the outlet chamber, said first fluid pressure being communicated through said venturi throat to said chamber fluid inlet and providing positive fluid pressure in said outlet chamber that approximates said first pressure level, the difference between said second pressure level and said approximate first pressure level provided in said outlet chamber being effective to modulate the flow of material entering said chamber through said vessel material outlet valve to maximize material flow during unloading while substantially preventing clogging of the conveying line, all of the fluid generated by said source being driven through said transfer vessel and said chamber to said conveying line during unloading of said vessel.

4,278,368

APPARATUS AND METHOD FOR COMPACTING MATERIAL

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00495, §371 Date Jul. 11, 1979, §102(e) Date Jul. 11, 1979
This PCT application filed Jul. 11, 1979, Ser. No. 94,255
Int. Cl.[3] E01C *19/38*
U.S. Cl. 404—117 15 Claims

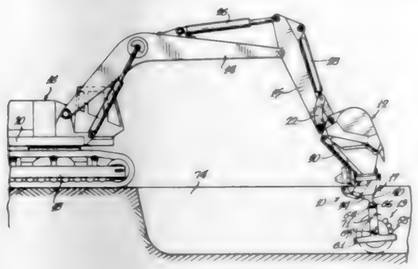
8. In a compacting apparatus for a work vehicle (**16**) having a boom (**14**), a stick (**15**) and a bucket (**12**), an impact apparatus (**17**) carried by said bucket (**12**), a shank (**34**) pivotally mounted on said apparatus, an impacting adapter (**40**) on said shank (**34**) extending away from said apparatus (**17**), an impact-receiving portion (**42**) on said shank (**34**), and means (**44**) on said apparatus (**17**) for intermittently engaging said impact-receiving portion (**42**), the improvement comprising:

a roller compactor (**19**) having a yoke (**52**) supporting a roller portion (**50**) which has means (**56**) engaging the earth;

a socket (**66**) on said yoke (**52**);

said impacting adapter (**40**) of the impact apparatus (**17**) engaging said socket (**66**) on said roller compactor (**19**); and

said intermittently engaging means (44) driving said impact-receiving portion (42) and said shank (34) for providing



intermittent impacting forces to the compactor (19) and to the roller portion (50).

4,278,369

DEVICE FOR ROUGH TURNING AND SHAFT TURNING

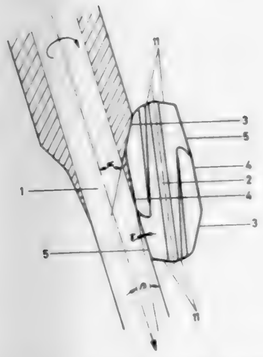
Ewald Jakobs, and Gernot Lang, both of Schwalbach, Fed. Rep. of Germany, assignors to Röchling-Burbach Weiterverarbeitung GmbH, Völklingen-Saar, Fed. Rep. of Germany

Filed Jun. 11, 1979, Ser. No. 47,112

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1978, 2825748

Int. Cl.³ B26D *1/00*

U.S. Cl. 407—113 5 Claims



1. Device for rough turning and shaft turning an axially extending workpiece including a cutting insert having a cutting edge comprising a main cutting edge and an auxiliary cutting edge said main cutting edge having a first end leading in the cutting direction as said device moves relative to the workpiece and a second end spaced from the first end, wherein the improvement comprises that said cutting edge being asymmetrical, said main cutting edge comprises a first main cutting edge extending from the first end thereof toward the second end with said first main cutting edge spaced from the second end, and a second main cutting edge extending from the end of said first main cutting edge spaced from the first end to the second end of said main cutting edge and said auxiliary cutting edge extending from said second main cutting edge at the second end of said main cutting edge, said first main cutting edge and said second main cutting edge intersecting and forming a first obtuse interior angle and said second main cutting edge and said auxiliary cutting edge intersecting and forming a second obtuse interior angle with said second obtuse interior angle being greater than said first obtuse interior angle, said cutting insert being positionable relative to the workpiece for effecting turning so that said first main cutting edge is set at an angle α relative to the axis of the workpiece, said second main cutting edge is set at an angle β relative to the axis of the workpiece and said auxiliary cutting edge is set at an angle γ relative to the axis of the workpiece, and the angle α of said first main cutting edge being greater than the angle β of said second main cutting edge and the angle β of said second main cutting edge being greater than the angle γ of said auxiliary cutting edge, and the length of said first main cutting edge between the first and second ends of said main cutting edge being less than the length of said second main cutting edge between the first and second ends of said main cutting edge and said auxiliary cutting edge having a length at least as long as the length of said second main cutting edge.

4,278,370

CUTTING TOOL

Gilmore M. Spear, Rochester, N.Y., assignor to The Gleason Works, Rochester, N.Y.

Filed May 25, 1979, Ser. No. 42,685

Int. Cl.³ B26D *1/12*

U.S. Cl. 407—115 4 Claims



1. In a gear cutting tool of the type formed from a length of bar stock having a generally rectangular cross-section and having a cutting face formed into a front wall portion of the bar stock at a desired rake angle for at least a part of the length of said tool, said tool further having a base end and a cutting end, said cutting end having a profile formed thereon for defining a cutting edge between said cutting face and one side of the tool, the improvement comprising

a first part of said cutting edge serving to cut at least a portion of a side of a tooth slot of a gear,

a second part of said cutting edge serving to cut at least a portion of a bottom of a tooth slot of a gear, and

a chip breaking surface formed between said first and second parts of the cutting edge, said chip breaking surface being defined between parallel plane surfaces formed on the cutting face of the tool for substantially the full length of the cutting face so that the cutting end of the tool can be resharpened without disturbing the function of said chip breaking surface.

4,278,371

SAFETY INTERLOCK FOR ELECTRO-MAGNETIC DRILL STAND

Gary D. Meyer, Waukesha, Wis., assignor to Milwaukee Electric Tool Corporation, Brookfield, Wis.

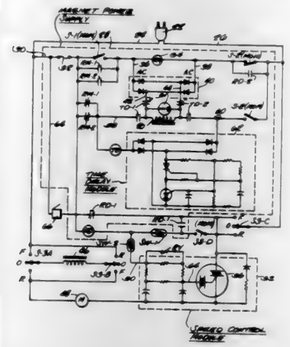
Filed Feb. 29, 1980, Ser. No. 125,967

Int. Cl.³ B23B *39/00*

U.S. Cl. 408—76 6 Claims

1. The combination with an electromagnetic drill stand of the type having a drill driven by an electric motor and mounted on a stand provided with an electromagnetic coil in the bottom of the stand to secure the stand to ferromagnetic material when the coil is energized, of safety means preventing operation of the motor when the coil is not energized comprising,

switch means mounted in proximity to said coil and responsive to the magnetic flux of the coil for controlling the



power supply to the motor and operative to interrupt the power supply in absence of a predetermined flux density.

4,278,372

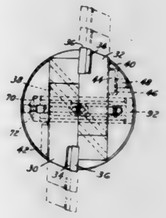
ADJUSTABLE BORING BAR MECHANISM

Marvin M. Heisner, Howeel, Mich., assignor to Fansteel Inc., North Chicago, Ill.

Filed Nov. 30, 1979, Ser. No. 98,936

Int. Cl.³ B23B *29/034*

U.S. Cl. 408—183 7 Claims



1. A boring bar comprising:

(a) a body having a mounting end and a working end, said working end having a transverse slot for receiving slidable tool blocks, and having a cartridge recess axially spaced from but in communication with said slot and disposed at an angle to said slot,

(b) a pair of elongate tool blocks slidable in said boring bar body slot in the direction of the longitudinal axis of said slot and having means to carry a cutting insert at one end, each of said blocks having a slot extending transversely of the longitudinal axis of the block,

(c) a cartridge actuator in said cartridge recess comprising an elongate body having an elongate slot opening to said transverse slot in said body,

(d) a pair of actuator pin slides in said cartridge slot having pins extending respectively into said transverse slots in said tool blocks, and

(e) means movable to actuate said pin slides in equal and opposite directions to cause said tool blocks to move in equal and opposite directions in said transverse slot of said boring bar body.

4,278,373

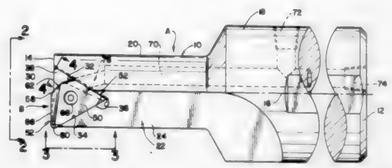
INDEXABLE INSERT DRILL

John R. Wolfe, III, Fayetteville, Ark., assignor to TRW Inc., Euclid, Ohio

Filed May 3, 1979, Ser. No. 35,606

Int. Cl.³ B23B *51/00*

U.S. Cl. 408—188 10 Claims



1. An indexable insert drill comprising:

an elongated generally cylindrical body having a longitudinal axis extending between first and second terminal ends with a portion of said body adjacent said first end comprising a drilling portion; at least one groove extending axially of said body along at least a section of said drilling portion and terminating in an insert receiving pocket at said first end, said insert receiving pocket having a generally triangular configuration with a pair of side walls extending generally axially inward into said body from said first end, the base of said receiving pocket being open at said first end, the radial innermost side wall of said insert receiving pocket defined by a reverse taper to provide an undercut inwardly from the outermost edge thereof for defining an insert receiving area; and

a hard cutting insert having opposite generally parallel faces and a generally triangular periphery defined by connecting sides and fixedly retained in said insert receiving pocket, said cutting insert including at least first and second cutting edges extending generally along said opposite faces thereof and each being defined by first and second intersecting surfaces with the first cutting edge disposed to extend radially of said body from said longitudinal axis axially outward of said body first end with neutral radial and positive axial rake, said cutting insert being further configured and disposed so that another side thereof is tapered in a manner substantially compatable with said reverse taper of the radial innermost sidewall to be captured by said insert retaining area for protecting said second cutting edge and providing greater insert stability during a drilling operation.

4,278,374

APPARATUS FOR SCREW-THREADING

Alexandre Wolosianski, 5815 Plantagenet, Montreal, Quebec, Canada

Filed May 7, 1979, Ser. No. 36,699

Claims priority, application United Kingdom, May 16, 1978, 19911/78

Int. Cl.³ B23C *3/28*

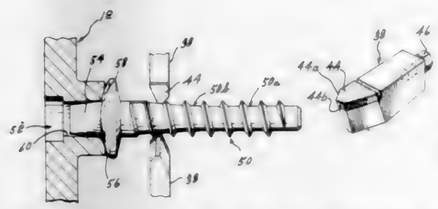
U.S. Cl. 409—74 8 Claims

1. In combination with a lathe having attachment means for holding and slowly revolving, about its longitudinal axis, a work-piece to be screw-threaded with a tapering portion and a cylindrical portion, an apparatus for screw-threading said work-piece comprising:

a tool holder ring eccentrically mounted around said work-piece;

drive means for rapidly rotating said ring around said work-piece, said tool holder ring rotating in the same direction as said work-piece but at a relatively higher speed;

a plurality of cutting elements radially secured in said tool holder ring, said cutting elements being disposed in a series of adjacent planes, the number of planes being equal to the length of said tapering portion divided by the pitch of said thread plus one, and said cutting elements having cutting edges and the distance of said cutting edges to the longitudinal axis of said work-piece decreasing from a first cutting element adjacent the head of said work-piece; and



means for advancing said tool holder ring longitudinally of said revolving work-piece so that said cutting edges intermittently and successively tangentially contact said work-piece during each revolution of a cutting element, and so that the depth of the thread is accomplished by the continuous chipping of subsequent cutting elements set on said adjacent planes of said tool holder ring as said tool holder ring advances along said work-piece toward the head of said work-piece.

4,278,375

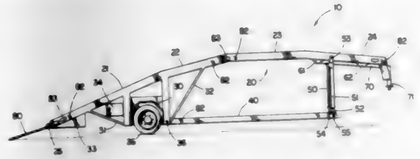
TRAILER

Jerry D. Drake, Rte. 4, Box 345A, Sullivan, Ind. 47882, and Thomas L. Drake, Rte. 2, Shelburn, Ind. 47879

Filed Mar. 13, 1980, Ser. No. 130,000

Int. Cl.³ B60P *3/06*

U.S. Cl. 410—26 **4 Claims**



1. A trailer useful for transporting vehicles, said trailer comprising:

(a) an upper track and a lower track, said upper track having a rear end ramp portion which is downwardly extending toward the ground;

(b) hitch means for connecting said trailer to a transporting vehicle, said hitch means being attached to the front end portion of said upper track and extending downwardly therefrom;

(c) a central body portion, including a wheel assembly;

(d) said lower track being pivotally connected to said central body portion at the rear of said lower track; and

(e) power actuated telescoping means for connecting the front end portion of said lower track with said upper track, said means being extensible between a first position in which said trailer can be towed at said hitch with said trailer riding on said wheel assembly, and a second, extended position in which said trailer is supported by the front end of said lower track and the rear end of said upper track, and in which said said upper track is pivoted upwardly, allowing free access to said lower track for loading onto and unloading off of said lower track.

4,278,376

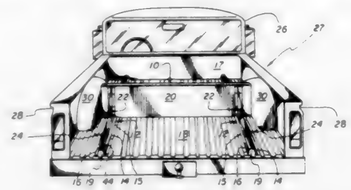
LOAD RESTRAINING PANEL

Mike E. Hunter, 6347 Acorn Forest Dr., Houston, Tex. 77088

Filed Jun. 11, 1979, Ser. No. 47,289

Int. Cl.³ B60P *7/14;* **B61D** *45/00;* **B62P** *33/02*

U.S. Cl. 410—130 **14 Claims**



1. Load restraining apparatus for cargo vehicles having a generally rectangular load space defined by side walls, one fixed end and a flat bed, comprising

a pair of elongated slotted-rails, each of said rails comprising a pair of elongated rail members each having a generally Z-shaped cross-section and disposed in an opposed closely-spaced parallel relationship to define an inner longitudinal channel and a longitudinal slot,

fastening means for attaching said pair of slotted-rails to the flat bed of the vehicle within the defined generally rectangular load space in a spaced parallel relationship,

a pair of elongated slide members each adapted for free slidable movement longitudinally within each of said slotted-rails inner channel,

a pair of generally triangular plates, one of which is vertically fixed to each of said slide members for projecting upwardly through said rail slot for defining an upright bracket member, one projecting edge of said bracket member extending generally perpendicularly above each of said slotted-rails,

a mounting flange projecting generally transversely from said generally perpendicular edge of said bracket member,

a generally rectangular rigid panel member adapted for closely-spaced transverse disposition between a pair of opposing side walls of the vehicle load space, one surface of said panel member adapted for contact with cargo carried in said defined load space for acting as a cargo restraining member,

fastening means cooperating with said mounting flanges of said spaced bracket members for attaching said panel member to said pair of slide means transversely to said pair of spaced slotted-rails, and

locking means attached to each of said slide members and adapted for movement in said rail member slots and cooperating with said slotted rails to secure said slide members in said rails to position said cargo restraining member along said rail members.

4,278,377

METHOD OF AND APPARATUS FOR STACKING CHANNEL BARS

Hubert Elineau, Versailles, France, assignor to MecanARBED S.a.r.L., Luxembourg, Luxembourg

Filed Sep. 4, 1979, Ser. No. 72,470

Claims priority, application France, Sep. 5, 1978, 78 25513

Int. Cl.³ B65G *57/081, 57/18*

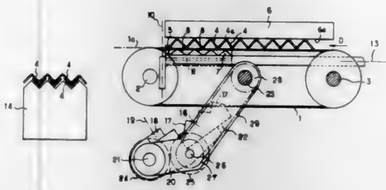
U.S. Cl. 414—30 **14 Claims**

1. A method of stacking elongated bars whose widths are equal at most to a predetermined maximum bar width, said method comprising the steps of:

feeding a succession of said bars to a pickup station with said bars generally coplanar, parallel, and in edge contact in said pickup station;

picking up a group of said bars from said station;

arraying the picked-up bars of said group parallel to one another and on centers spaced apart substantially by said maximum bar width by first supporting said bars on at least two combs each having a plurality of formations complementary to said bars with each bar resting on one such formation of each comb and second by pivoting said



combs about respective axes generally perpendicular to said group with said combs extending generally parallel to said group but transverse to the bars of said group; and

depositing the picked-up and arrayed bars in a stacking station substantially without changing the spacing between them.

4,278,378

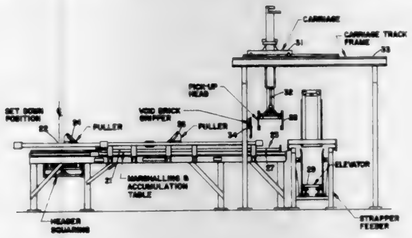
BRICK STACKER HAVING AUTOMATIC VOID ROW FORMING

William F. Milholen, Siler City, N.C., assignor to AMI Industries, Inc., Downey, Calif.

Filed Aug. 13, 1979, Ser. No. 65,898

Int. Cl.³ B65G *57/26*

U.S. Cl. 414—32 **15 Claims**



1. A brick stacker comprising a stacking platform on which grids of brick are sequentially stacked, conveyor means operable to receive arrays of rows of superposed pairs of brick at a receiving position and to move said arrays to a transfer position to produce groups of rows of grids having a predetermined number of abutting rows of superposed pairs of brick having upper and lower layers, and void forming means associated with said conveyor means cooperating therewith to remove as a unit the upper layer portion of selected rows leaving the lower layer thereof to produce a first void in said upper layer at a first location and to insert as a unit said upper layer portion into said lower layer at a second location spaced from said first void to produce a second void in said upper layer spaced from said first void, and transfer means to sequentially transfer grids from said transfer position to said stacking platform.

4,278,379

BALE WAGON

Donald M. Grey, Selma, Calif., assignor to Sperry Corporation, New Holland, Pa.

Filed Aug. 8, 1979, Ser. No. 64,971

Int. Cl.³ B65G *57/32*

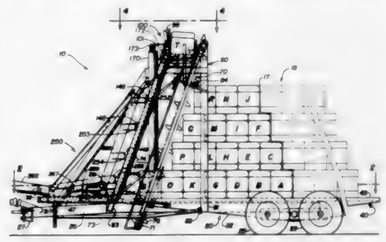
U.S. Cl. 414—44 **9 Claims**

9. Bale wagon for picking up bales of crop material from the ground, forming them into a stack, and depositing the stack in a selected location, said apparatus comprising:

(a) a mobile frame adapted for movement across a field;

(b) an elongated generally flat bed having a forward end and an opposing rear end defining therebetween a longitudinal dimension and two opposing side edges defining therebetween a transverse dimension, said bed pivotally affixed to said mobile frame about an axis parallel to said transverse dimension;

(c) bale support and transfer means affixed to said mobile frame and including a bale delivery tray above said bed adjacent said forward end thereof and extending generally between said opposing side edges parallel to said transverse dimension, a bale conveying means for conveying bales onto said bale delivery tray in an end to end relationship, and a guide means inclined in a fore-and-aft direction



for guiding the movement of said bale delivery tray such that said bale delivery tray is operable to receive a row of bales end to end when in an upper neutral position and to then move downwardly and forwardly toward a delivery position closer to said bed and deposit the row of bales and return to said neutral position;

(d) pickup means affixed to said frame for engaging bales on the ground and depositing them end to end on said bale delivery tray;

(e) pusher means affixed to said frame for selectively engaging the bales deposited by said bale delivery tray and moving same from adjacent said forward end towards said rear end of said bed; and

(f) control means operably connected to said pusher means to coordinate the activation thereof with said bale delivery tray.

4,278,380

LOCK AND ELEVATOR ARRANGEMENT FOR LOADING WORKPIECES INTO THE WORK CHAMBER OF AN ELECTRON BEAM LITHOGRAPHY SYSTEM

Nicholas Guarino, Arlington, Mass., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Apr. 30, 1979, Ser. No. 34,504

Int. Cl.³ B65B *21/02*

U.S. Cl. 414—217 **2 Claims**

1. A lock and elevator arrangement for loading workpieces into the work chamber of an electron beam lithography system in which the workpieces are to be treated by an electron beam in a high vacuum, a combination comprising:

an inner chamber positioned adjacent said work chamber and having a capacity for storing a plurality of either treated or untreated workpieces;

an outer chamber positioned adjacent said inner chamber;

vacuum means for evacuating and maintaining a high vacuum in said inner and outer chambers;

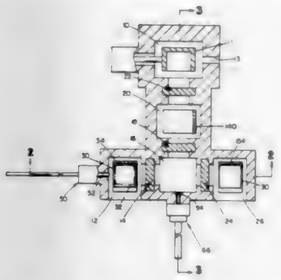
a first valve for effecting a vacuum seal between said work chamber and said inner chamber;

a second valve for effecting a vacuum seal between said inner and said outer chamber;

a third valve for effecting a vacuum seal between said outer chamber and the atmosphere, to thereby form an entrance lock;

loading means positioned adjacent said outer chamber for loading workpieces through said entrance lock into said outer chamber from the atmosphere, said loading means including elevator means for holding multiple workpieces and a pinion and rack means for precision movement of an individual workpiece through said entrance lock;

transfer means for transferring individual workpieces through said second valve means between said inner and



outer chambers, and for transferring individual workpieces through said first valve between said inner chamber and said work chamber, said transfer means including rack and pinion means; and

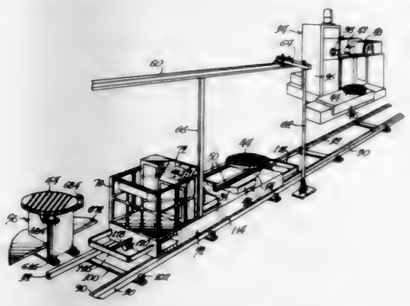
a fourth valve for effecting a vacuum seal between said outer chamber and the atmosphere, said fourth valve being positioned on said outer chamber on the opposite side of said outer chamber from said third valve, said fourth valve forming an exit lock.

4,278,381

PALLET SHUTTLE SYSTEM

Robert E. Blomquist, and Charles R. Reynolds, both of Rockford, Ill., assignors to White-Sundstrand Machine Tool, Inc., Belvidere, Ill.

Filed Oct. 8, 1976, Ser. No. 731,022
Int. Cl.³ B25J 9/00
U.S. Cl. 414—349 **23 Claims**



1. A pallet shuttle system for transporting pallets capable of carrying workpieces thereon between a plurality of spaced pallet handling stations, comprising:

a trackway extending adjacent the plurality of pallet handling stations,

a vehicle movable along the trackway to each of the pallet handling stations and having a fixed frame,

a platform rotatably mounted on the fixed frame and connected to index motive means for rotating the platform by at least 180° with respect to the fixed frame and actuable to rotate the transfer rail means by 90° to an intermediate travel position in which the transfer rail means extend parallel to the trackway, and a latch assembly for maintaining the rotatable platform at the intermediate travel position during travel of the vehicle along the trackway,

transfer rail means slidably mounted to the rotatable platform and having at opposite ends a pair of pallet supports for retaining a pair of pallets thereon, rail motive means actuable to extend the transfer rail means outward from the vehicle to locate one of the pair of pallet supports in pallet interchanging relationship with an adjacent pallet handling station and then to retract the transfer rail means to a center position on the vehicle, the index motive means being actuable to rotate the platform by 180° to allow the rail motive means to extend the other of the pair of pallet supports outward in pallet interchanging relationship with the same adjacent pallet handling station, and

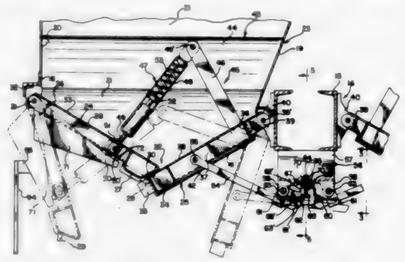
the latch assembly includes a pair of latch bars each movably mounted to a block slidably mounted on the fixed frame, the pair of latch bars each being biased to deflect out of the path of travel of a stop member carried by the rotatable platform when struck by the stop member while rotating toward the intermediate travel position but being nondeflectable when struck by the stop member while rotating in the opposite direction, and retract means mounted between the fixed frame and the block for moving the block so that the pair of latch bars are retracted out of the path of the stop member when the indexing motive means is rotating the platform by 180°.

4,278,382

DOOR LATCH MECHANISM FOR BOTTOM DUMP HOPPER CAR

Willis H. Knippel, Palos Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed May 31, 1979, Ser. No. 43,990
Int. Cl.³ B61D 7/30
U.S. Cl. 414—388 **10 Claims**



1. In a railway hopper car including an underframe,

a hopper structure supported on said underframe and including a hopper discharge opening,

closure means for said opening including inner and outer door assemblies,

each assembly including spaced interconnected longitudinal and transverse frame members and a material support panel,

hinge means supporting said doors on said car for inward and outward movement relative to said opening,

linkage means connecting said inner and outer doors providing for conjoint movement of said doors, the improvement of a locking mechanism for said doors comprising:

an arm connected to said inner door,

a support bracket connected to said underframe,

means movably connecting said arm to said support bracket,

a locking member pivotally connected to said support bracket,

said locking member including a stop in one position engaging said arm to maintain said doors in a closed position,

a cam member on said locking member,

an actuating bar including a cam surface,

said cam member being in sliding engagement with said cam surface, and

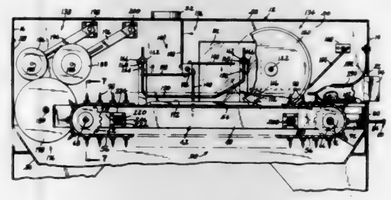
means for reciprocating said actuating bar whereby said cam member is moved on said cam surface to a position wherein said stop is disengaged from said engagement with said arm and said doors are free to move to their open position.

4,278,383

BAG OPENING AND EMPTYING APPARATUS

Edward E. Mueller, Tonka Bay; Michael K. Harrod, Prior Lake, and Frederick C. Hagemeister, Isanti, all of Minn., assignors to Whirl-Air-Flow Corporation, Minneapolis, Minn.

Filed Oct. 18, 1978, Ser. No. 952,316
Int. Cl.³ B65G 65/34
U.S. Cl. 414—412 **6 Claims**



1. Apparatus for automatically opening and emptying bags comprising:

(a) a substantially enclosed housing having a bag inlet end and a bag outlet end, said housing having a cutting zone proximate said inlet end, a bag ejection zone proximate said outlet end, and a bag emptying zone generally between said cutting and ejection zones;

(b) conveyor means disposed in said housing for carrying bags in a generally horizontal plane between said inlet and said outlet, said conveyor means comprising

(i) first and second conveyor tracks spaced apart horizontally within said housing and extending generally between said inlet and outlet ends thereof,

(ii) first and second endless conveyor members disposed on said first and second tracks and mounted for travel thereon in a generally horizontal plane,

(iii) means on said first and second conveyor members for positively engaging the opposite lateral edges of the bags.

(iv) means on said tracks in said emptying zone for tilting said first and second conveyor members from said generally horizontal plane inward toward each other and at an angle with respect to said generally horizontal plane, and

(v) means for driving said endless conveyor members;

(c) means disposed within said cutting zone for cutting through opposite sides of the bags between said opposite lateral edges thereof; and

(d) means in said ejection zone for removing the cut bag from said conveyor members and ejecting the bag from said housing,

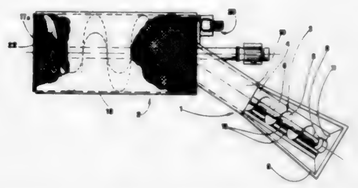
wherein said first and second conveyor carriages have substantially planar top surfaces on which said endless conveyor members travel in a generally horizontal plane and wherein said means for tilting said first and second conveyor members comprise first and second ramp portions mounted on said planar surfaces and having surfaces slanted inwardly with respect to a central elongation axis of said apparatus.

4,278,384

APPARATUS FOR SEVERING PACKAGES CONTAINING GRANULAR OR POWDER-LIKE MATTER AND SEVERING THE MATTER THEREFROM

Wainer Marchesini, Carpi, Italy, assignor to WAM dei Fratelli Marchesini s.n.c., Modena, Italy

Filed Jul. 24, 1979, Ser. No. 60,405
Claims priority, application Italy, Jan. 10, 1979, 28903/79[U]
Int. Cl.³ B65B 69/00
U.S. Cl. 414—412 **2 Claims**



1. Apparatus for removing and separating granular or powder-like matter from severable packages, said apparatus mounted on a support surface, said apparatus comprising:

(a) conveyor means including a channel supported at an incline with respect to the support surface and having inlet means disposed at a relatively low position with respect to the support surface and an outlet means disposed at a relatively high position with respect to the support surface, a conveyor screw rotatively mounted within said channel and having an edge, motor means coupled to said conveyor screw for rotating said conveyor screw whereby packages disposed within said inlet means are severed and the severed packages and their matter are conveyed by said conveyor screw to said outlet means and wherein there is included a plurality of foils disposed longitudinally along the length of said channel and spaced from each other for coacting with said edge of said conveyor screw for preventing the severed packages from winding themselves about said conveyor screw and for facilitating the conveyance of the severed packages from said inlet means to said outlet means; and

(b) means disposed at said outlet means for receiving and separating the matter from the severed packages and including a housing having a plurality of matter discharge openings therein, each of said matter discharge openings being of a size large enough to enable the matter removed from the packages to pass from said housing but small enough to prevent the empty packages from passing therethrough, an enlarged exit opening and means disposed within said housing for removing the empty packages from said housing and through said exit opening, while permitting the matter to pass through said plurality of said matter discharge openings.

4,278,385

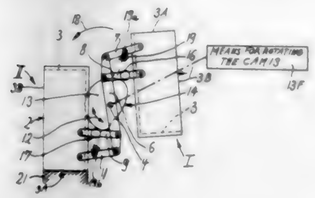
APPARATUS FOR TRANSFERRING CIGARETTES OR THE LIKE FROM TRAYS INTO MAGAZINES OF PACKING MACHINES OR THE LIKE

Dietrich Bardenhagen; Wolfgang Raschka; Josef Glösmann, all of Hamburg, and Gerhard Tolasch, Wentorf, all of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG., Hamburg, Fed. Rep. of Germany

Filed Oct. 26, 1979, Ser. No. 88,473
Claims priority, application Fed. Rep. of Germany, Oct. 30, 1978, 2847131; May 3, 1979, 2917818
Int. Cl.³ B65B 19/02
U.S. Cl. 414—419 **26 Claims**

1. Apparatus for transporting filled trays from a first station to a second station at which a filled tray is located on top of a magazine and its contents are transferred into such magazine, and for thereupon transporting the thus obtained empty trays

from said second station back to said first station, comprising holder means turnable about a substantially horizontal axis; first and second carriers turnable with said holder means and each arranged to temporarily store a filled tray or an empty tray; means for turning said holder means about said axis to thereby invert that one of said carriers which moves with a filled tray therein from said first to said second station and to simultaneously return to non-inverted position the other carrier which moves with an empty tray therein back to said first station; and means for pivoting said carriers relative to said holder means while said holder means turns to move the carriers between said stations, said pivoting means including means for lowering an inverted carrier with a filled tray therein on top of said magazine during the last stage of movement to said second station and for lifting such carrier with an empty tray therein off the top of the magazine during the initial stage of movement from said second station.



4,278,386

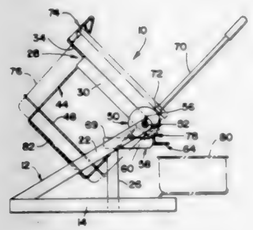
STRUCTURE FOR SUPPORTING COOKING POT FOR RE-FRIED BEANS

John Eranosian, deceased, late of Woodside, Calif. (by Florence Eranosian, executrix)

Continuation of Ser. No. 894,751, Apr. 10, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 137,621

Int. Cl.³ B65G *65/34*

U.S. Cl. 414—421 **10 Claims**



1. Apparatus for cooking and dispensing food comprising:

a base having a pair of side members, a pair of connecting members fixed to said side members to form a rectangle, a pair of angled members each having one end fixed to one end of a respective side member and extending upwardly therefrom and a pair of structural members each interconnecting a respective side member and angled member intermediate their ends for positive support thereof;

a support frame pivotally mounted on the other ends of said angled members and configured to support a hot food carrying body for tilting movement about an axis which is above and to one side of the center of a hot food carrying body supported thereby; and

a ratchet mechanism comprising a toothed wheel rigidly connected to one of said base and support frame and an arm pivotally mounted to the other of said base and support frame for allowing free pivotal movement of the support frame about said axis to raise the center of gravity of a hot food carrying body supported thereby relative to the base by tilting movement while holding the support frame against pivotal movement in the opposite direction about said axis to maintain the center of gravity of a hot food carrying body supported thereby in a variety of elevated positions relative to the base.

4,278,387

DEVICE FOR TRANSFERRING AN INVALID FROM HIS INVALID CHAIR INTO A MOTOR VEHICLE AND CONVERSELY

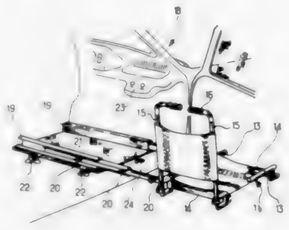
Marie-Claude J. Seguela, 14, Rue de Beausejour; Rene F. Beton, 26, Rue de la Viguerie, and Claude A. Gonzalez, 16, Rue de Beausejour, all of, 31650 St. Orens de Gameville, France

Filed Jun. 22, 1979, Ser. No. 51,242

Claims priority, application France, Jun. 22, 1978, 78 19065

Int. Cl.³ B60N *1/12*

U.S. Cl. 414—462 **4 Claims**



1. A device for transferring an invalid from an invalid chair to a motor vehicle, and conversely, while staying on a seat of the chair, said invalid chair being equipped with a removable seat mounted on an undercarriage provided with two bearing back-wheels and two steering front-wheels, and said vehicle being equipped with a pair of outwardly extensible and inwardly retractable arms, said arms being also vertically movable, wherein said pair of arms comprise two telescopic male slippers parallely fitted in a horizontal plane and movable in a backward and forward direction transverse to the longitudinal axis of the motor vehicle, said male slippers fitting inside two female slippers integral with the removable seat, in a plane perpendicular to the plane of symmetry of the invalid chair.

4,278,388

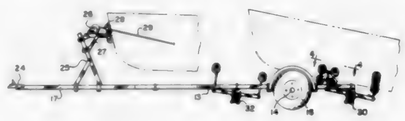
PIVOTAL ROLLER MOUNTING SYSTEM

Lawrence N. Johnson, West 130 Highdrive, Spokane, Wash. 99203

Filed May 29, 1979, Ser. No. 43,501

Int. Cl.³ B60P *3/10*

U.S. Cl. 414—534 **14 Claims**



1. A boat support assembly for use on a boat trailer having a cross bar extending transversely across the longitudinal axis of the trailer comprising

pivotal connection forming means adapted to engage the cross bar of a trailer for forming a pivotal connection thereat for boat hull engaging means such that the boat hull engaging means can pivot relative to a longitudinal axis of the trailer about the point of pivotal connection with the cross bar,

boat hull engaging means carried by said pivotal connection forming means for supporting a boat thereupon, and

support arm means interconnecting said pivotal connection forming means and said boat hull engaging means,

said support arm means being pivotally connected to said pivotal connection forming means for free pivotal movement of said support arm and said boat hull engaging means connected thereto in a plane transverse to the longitudinal axis of the trailer at the pivotal connection with the cross bar.

4,278,389

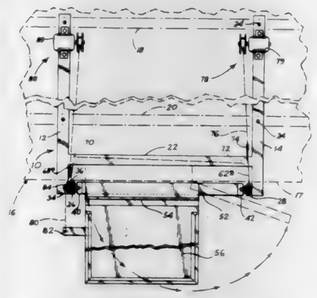
MOBILE VEHICLE INVALID LIFT ASSEMBLY

John H. Konkle, 37238 Immigrant Rd., Pleasant Hill, Oreg. 97401

Filed Oct. 11, 1979, Ser. No. 83,869

Int. Cl.³ B60P *1/46*

U.S. Cl. 414—540 **4 Claims**



1. In combination with a vehicle including a longitudinally extending beam means forming the main supporting frame of the vehicle, and cabin structure disposed over and supported on said beam means, including a doorway in the side of the structure providing access to the interior of the structure, a lift assembly comprising:

a pair of spaced uprights positioned outwardly of and unjoined to said side of said structure, and adjacent opposite sides, respectfully, of said door, having upper ends above the sill of the door,

a support arm for each upright joined to the base of the upright and extending under the vehicle and transversely of said beam means, and mounted on said beam means, said support arms providing the sole support for the uprights,

an elongate riding arm extending parallel to each upright and mounted for relative movement along the length of the upright between a lowered position where the base of the riding arm is below the base of the upright and adjacent ground level, and a raised position where the base of the riding arm is at the level of the sill of the door,

a platform operatively interconnected between the bases of the riding arms for relative pivotal movement about a horizontal axis extending transversely of said riding arms, between horizontal and vertical positions,

first and second cable training means mounted on and adjacent the top and bottom, respectively of each upright, and

powered means for raising said riding arms in unison from their lowered to their raised positions to move the platform from ground level to the elevation of the sill of the door, said powered means including cables for said riding arms extending from connections with the riding arms over said first and then said second training means and thence under the vehicle, and powered take-up means under the vehicle actuatable to take up said cables by retracting such over said training means.

4,278,390

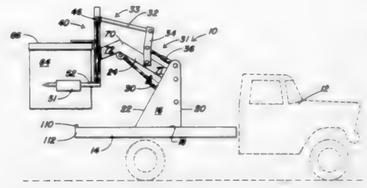
GARBAGE CONTAINER TRUCK

Thomas M. Ahearn, 845 Burnett Rd., Chicopee, Mass. 01020

Filed Sep. 4, 1979, Ser. No. 72,437

Int. Cl.³ B65F *3/02*

U.S. Cl. 414—549 **19 Claims**



1. A container-handling vehicle comprising:

a vehicular bed supported substantially in a horizontal position and extending longitudinally between a front end and a rear end and transversely between two sides thereof;

a single mast disposed on said bed generally in the transverse center thereof and extending generally vertically from said bed, said mast being horizontally slidable in a longitudinal direction on said bed from said front end to said rear end;

a boom extending from said mast towards said rear end of said bed;

means for raising and lowering said boom;

a fork lift assembly mounted onto the distal end of said boom and having arms adapted for grasping a container for raising and lowering thereof and for placing said container on said vehicular bed;

means adapted for maintaining said fork lift assembly at a predetermined attitude during raising and lowering of said container and during placement of said container on said vehicular bed; and

means adapted for moving said mast longitudinally along said vehicular bed selectively in both directions between said rear end and said front end to permit said container to be lifted over said rear end and onto said vehicular bed at said rear end and to permit said container to be subsequently lifted from said vehicular bed.

4,278,391

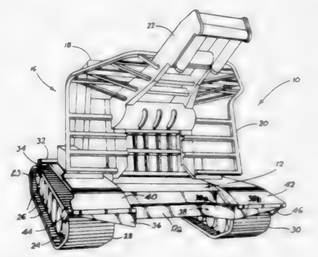
PROTECTION MEANS FOR TRACKS IN A TRACK-LAYING VEHICLE

Joseph E. Dagenais, 3712 17th Ave., Vernon, B.C., Canada

Filed Mar. 2, 1979, Ser. No. 16,897

Int. Cl.³ B66C *1/42;* **B60R** *19/04*

U.S. Cl. 414—559 **3 Claims**



1. Apparatus for use in a vehicle having a pair of laterally spaced endless tracks, a frame member extending laterally between rear portions of the tracks, and a rear load-hauling assembly for pulling a load of logs and the like at an elevated

position toward the rear of the vehicle, said apparatus comprising,

bumper means adapted to be mounted on the frame member and including, for each track, a bumper portion extending substantially horizontally across the rear of the track, and a mounting portion extending along an inner side of the track,

a fender mounted on each of said bumper portions and extending from that bumper portion rearwardly over a rear portion of the associated track and terminating forwardly adjacent the load-hauling assembly, each fender defining a log-support surface which is curved upwardly progressing forwardly, and which is disposed above said mounting portion, and

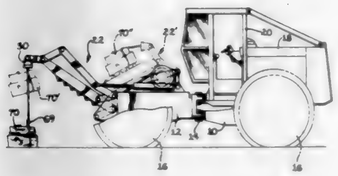
a track guide mounted on each of said bumper portions, outwardly of the associated fender, and cooperating with the associated mounting portion of confine the rear portion of the track to a lateral position therebetween.

4,278,392

LOG SKIDDER WITH FOLDING ARCH

Thomas C. Meisel, Jr., Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed May 19, 1978, Ser. No. 907,454
Int. Cl.³ B66C *23/06*
U.S. Cl. 414—569 **6 Claims**



3. A log skidder or the like comprising:

a vehicle including a frame having front and rear ends;

ground engaging means on said frame whereby said vehicle may traverse the underlying terrain;

an elongated boom;

means pivotally mounting said boom to said frame adjacent said rear end for rotation about a generally horizontal axis;

a bellcrank horizontally pivoted to said boom at a location spaced from said horizontal axis and having a shorter length than said boom;

moving means interconnecting said boom and said frame for pivoting said boom on said frame;

load carrying means connected to one end of said bellcrank;

a link horizontally pivotally connected to the other end of said bellcrank and to said frame; and

said pivotal mounting means comprising two tag links, one horizontally pivotally connected to said boom intermediate its ends and to said frame, and the other horizontally pivoted to said boom and to said frame at locations different from said one link.

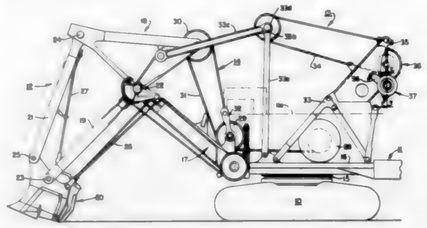
4,278,393

SLACK PREVENTION SYSTEM FOR A CROWD ROPE OF A POWER SHOVEL

George B. Baron, Marion, Ohio, assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Dec. 4, 1978, Ser. No. 966,336
Int. Cl.³ B66D *1/48*
U.S. Cl. 414—690 **36 Claims**

1. In a power shovel having a main frame, a front end assembly operatively connected to said main frame and a rope crowd system including a rope drum supported on said main frame, drive means supported on said main frame drivingly connected to said rope drum, a brake operatively connected to said rope drum and a rope wound on said drum and operatively connected to said front end assembly, a system for preventing said rope from becoming slack comprising means responsive to an



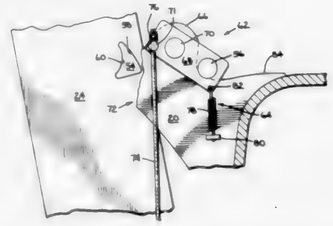
impending slack condition of said rope for actuating said brake drum thereby preventing continued pay out of said rope by said drum.

4,278,394

RELEASABLE BOOM LOCK

Stephen D. Johnson, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Jun. 4, 1979, Ser. No. 44,922
Int. Cl.³ E02F *3/32*
U.S. Cl. 414—694 **1 Claim**



1. In an earth-working implement having a boom pivoted on a boom support about a horizontal axis, a member pivoted about a horizontal axis on the free end of the boom, a hydraulic ram pivoted at one of its ends to the boom and at its opposite end pivoted to said member so that extension and retraction of the hydraulic ram pivotally rotates said member and pivots that end of the hydraulic ram pivoted to the boom, and a releasable lock means between said boom support and said boom, wherein the improvement comprises: releasable lock means having

a first element carried by said boom and defining an inclined camming surface disposed towards the boom support and an adjoining vertically disposed locking surface on the opposite side of said first element as said camming surface,

a lug attached to said boom support,

a link pivoted to said lug,

a second element at the free end of said link,

biasing means, carried by the boom support, for normally maintaining said second element adjacent to an abutment on the boom support, said first element being positioned on said boom relative to said second element such that pivotal movement of the boom towards the boom support drives the second element into engagement with the camming surface on the first element,

the camming surface being disposed relative to the second element such that it overcomes the biasing means and drives the second element toward the adjacent locking surface as the boom is rotated towards the boom support,

the locking surface of said first element being disposed relative to the camming surface such that the biasing means drives the second element across the locking surface and

towards the abutment on said boom support when the second element passes over the end of the camming surface, thereby juxtaposing the second element between said abutment and said locking surface and preventing rotation of the boom away from the boom support, and

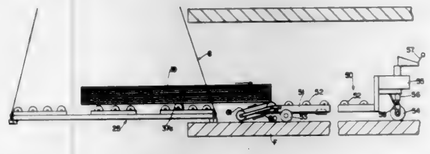
means carried by said link for releasing said second element from its position between the first element on said boom and the abutment on said boom support by pivoting said second element around said first element, thereby freeing said boom to rotate away from said boom support.

4,278,395

METHOD FOR STOCKING WALLBOARD INTO A BUILDING

Charles R. Thunell, Oakton, Va., assignor to Fairfax Investment Corp., Vienna, Va.

Filed Dec. 13, 1978, Ser. No. 969,266
Int. Cl.³ E04G *21/14*
U.S. Cl. 414—786 **14 Claims**



1. A method of stocking a building under construction with material such as a stack of wallboard comprising:

(a) lifting a load of said material from a support by the tines of a fork lift truck,

(b) depositing said load of material onto rollers of a pallet from said fork lift truck,

(c) elevating said pallet with said load of material thereon to the level of a floor of a multi-story building under construction,

(d) positioning a material transporter including a material supporting bed, provided with rollers, and support means therefor on the said floor in position directly to receive material from said elevated, loaded pallet,

(e) transferring said load of material directly from said pallet to said transporter with the load moving on the said rollers,

(f) transporting said load of material to a desired location on said floor by moving said transporter, and

(g) unloading said load of material from said transporter.

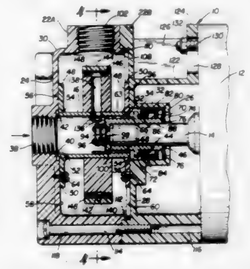
4,278,396

HUB SEALS FOR THRUST-ASSISTED CENTRIFUGAL PUMP

John Vander Horst, 28153 War Admiral Trail, Evergreen, Colo. 80439

Filed May 15, 1978, Ser. No. 905,798
Int. Cl.³ F04D *29/22*
U.S. Cl. 415—63 **6 Claims**

1. In a centrifugal pump: an impeller having a hub open at one end to receive fluid to be pumped from a supply thereof, a wheel-like body mounted on said hub in encircling relation thereto; and connecting fluid passages within said hub and body adapted upon rotation of the latter to receive fluid from the open end of the hub at one pressure and discharge same at the periphery of the body due to centrifugal action at a relatively higher pressure; a housing having a pair of spaced end walls and a partition wall therebetween cooperating with one another and with first and second circumferential wall members bridging the gaps between the latter to define a pair of chambers arranged in end-to-end relation, the first of said chambers being larger than the second and sized to receive the impeller for rotation therein, the second of said chambers being generally cylindrical in shape and positioned to receive the end of the impeller hub opposite the open end thereof for rotational movement therein in substantially coaxial relation, the partition wall having an oversize opening therein positioned to loosely pass the end of said impeller hub opposite its open end from the first chamber into the second, the end wall of said second chamber having a central opening therein positioned and adapted to receive the drive shaft of a motor for driving the impeller upon being operatively coupled to the hub thereof so as to prevent relative axial movement therebetween, the end wall of said first chamber having a fluid-intake opening therein registering with the open end of the impeller hub for delivering fluid to the latter, a first annular abutment carried by that portion of the impeller hub within the second cavity; a second abutment depending from a wall of the second cavity arranged in axially-spaced opposed relation to said first abutment; and a



thrust seal subassembly positioned within said second cavity between said first and second spaced abutments, said assembly including an O-ring within said second cavity encircling the impeller hub in circumferentially spaced relation, a first rigid ring abutting the O-ring between the latter and the second abutment, a second rigid ring between the O-ring and first annular abutment, and compression spring means between the first ring and second abutment biasing said second ring into essentially fluid-tight annular face-to-face engagement with said first annular abutment, and said spring also cooperating with said annular abutments and rings to squeeze the O-ring axially so as to expand the latter circumferentially into continuous annular fluid-tight sealed contact with the inner cylindrical surface of said second cavity while leaving unconfined that portion of said O-ring remote from the seal thus formed.

4,278,397

FLUID FLOW MACHINE

Herbert Bachl, Munich, Fed. Rep. of Germany, assignor to Getwent Gesellschaft fur Technische und wissenschaftliche Energieumsatzehtwicklungen m.b.H., Kaufbeuren-Neugablonz, Fed. Rep. of Germany

Filed Mar. 12, 1979, Ser. No. 19,842
Claims priority, application European Pat. Off., Jan. 29, 1979, 79100255.3; Fed. Rep. of Germany, May 16, 1978, 2821233
Int. Cl.³ F01D *1/06*
U.S. Cl. 415—83 **17 Claims**

1. In a fluid flow machine having at least one substantially disc-shaped rotor provided with a quantity of flow channels for a flow medium, the intake and exit openings of said channels opening through axially facing parts of said rotor, all of said intake openings being located at a predetermined distance from the axis of rotation different from the respective distance of said exit openings from said axis, each said flow channel having a radially outer and a radially inner deflector elbow formed with two legs extending at an angle of about 90° relative to one another, one leg of one elbow leading to the intake opening and extending in the direction of the relative velocity of the intake flow of the flow medium prevailing thereat, and one leg of the other elbow leading to the respective exit opening and extending in the direction of the relative velocity of the exit flow, the respective other legs of said elbows being aligned

with a common substantially radial connecting section interconnecting the two deflector elbows, the improvement comprised in that the intake openings as well as the exit openings are located at the same axial surface of said rotor, said one legs having wall surfaces facing circumferentially of said rotor, which wall surfaces are curved from said elbows to the respective intake and exit openings, said curvature appearing in cutting planes extending perpendicular to the radial extent of the corresponding flow channel, said one legs extending toward their respective intake and exit openings in directions which, when projected on a plane containing the axis of the rotor and perpendicular to the radial extent of the corresponding flow channel, subtend substantially equal angles with said rotor axis,



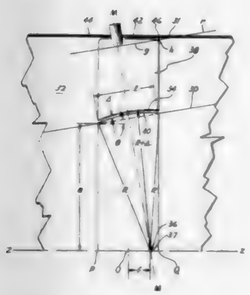
said angles each being approximately halfway between zero and a right angle, said rotor being a solid disc-like body wherein the wall thickness of said flow channels varies in dependence on the location of portions of said flow channel in said body, said same axial surface of said rotor being a common radially planar first side of said rotor, said disc-shaped rotor having a radially planar second side coextensive with and parallel to said first side and extending from a central opening to the peripheral wall of said disc, so as to permit axial stacking of additional radially planar sided bodies carrying additional flow channels flush on both sides of said rotor for flow communication between flow channels in said rotor and at least one additional body.

4,278,398

APPARATUS FOR MAINTAINING VARIABLE VANE CLEARANCE

Peter R. Hull, Ipswich, Mass., assignor to General Electric Company, Lynn, Mass.

Filed Dec. 4, 1978, Ser. No. 966,304
Int. Cl.³ F01D *17/16*
U.S. Cl. 415—160 **3 Claims**



1. For use in a gas turbine engine having an axially extending flow path disposed circumferentially about the axial centerline of said engine, the invention comprising:

a first axially extending wall disposed circumferentially about said center line, said wall comprising a surface of revolution about said axial center line, said wall disposed with respect to said center line such that the distance between said wall and said center line is non-constant, said wall having a circumferentially and axially extending radially facing spherically contoured face having a first center of curvature disposed at a first location on said centerline;

a second axially extending wall disposed circumferentially about said center line, said second wall comprising an entirely non-spherical second surface of revolution about said axial center line, said second wall disposed with respect to said center line such that the distance between said second wall and said center line is substantially constant;

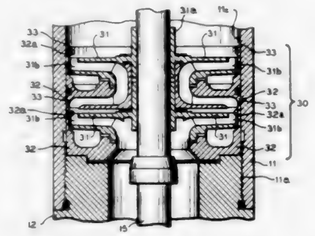
a variable position airfoil residing in and extending across said flow path between said first and second wall and having a radially contoured end face having a second center of curvature disposed at a second location, said end face disposed in spaced apart confronting facing relationship with said spherically contoured face of said first wall, said airfoil adapted to rotate about an axis of rotation intersecting said center line at an angle less than 90° at said first location.

4,278,399

PUMPING STAGE FOR MULTI-STAGE CENTRIFUGAL PUMP

John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., City of Commerce, Calif.

Filed Jun. 21, 1979, Ser. No. 50,915
Int. Cl.³ F04D *1/06, 13/10, 29/24*
U.S. Cl. 415—199.1 **2 Claims**



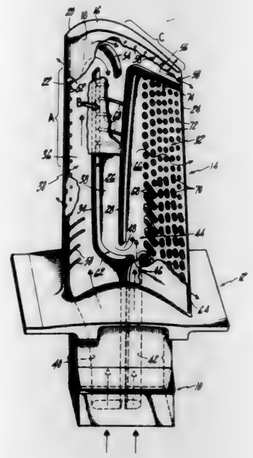
1. A centrifugal pump stage for a multi-stage oil well pump wherein all stages are driven by a common shaft and are axially stacked upon each other and axially clamped together within a fixed diameter cylindrical housing insertable within a well casing, comprising, in combination: a pump impeller securable to said shaft and having generally radially extending vanes; an annular diffusion bowl adjacent said impeller, said bowl having an annular casing portion snugly fitting within the housing wall and surrounding the impeller vanes, the radial thickness of said annular casing portion supporting the effective axial load imposed on the pump stage, said vanes extending radially to terminate closely adjacent the inner wall of said annular casing portion, whereby the pressure developed by the pump stage is maximized, the radially outermost portion of each of said vanes be chamfered in a direction to impart an axial force on the fluid being pumped.

4,278,400

COOLABLE ROTOR BLADE

George J. Yamarik, Vernon, and James L. Levengood, West Hartford, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Sep. 5, 1978, Ser. No. 939,767
Int. Cl.³ F01D *5/18*
U.S. Cl. 416—97 R **3 Claims**



1. A coolable rotor blade structure of the type including an airfoil section having a leading edge and a trailing edge and having a pressure side wall and a suction side wall forming a leading edge flow region and a trailing edge flow region therebetween, and including a root section having means extending therethrough for flowing cooling air to the leading edge flow region and means extending therethrough for flowing cooling air to the trailing edge flow region, wherein said leading edge flow region and said trailing edge flow region are communicatively joined at a point such that at least a portion of the cooling air flowable to said leading edge flow region is dischargeable into said trailing edge flow region, wherein the improvement comprises:

an ejector at said point of communicative juncture between the leading edge flow region and the trailing edge flow region for drawing the flow of cooling air through the leading edge region.

4,278,401

BLADE FOR WIND MOTORS

Gabriele Martinelli, Piossasco, Italy, assignor to Fiat Societa Per Azioni, Turin, Italy

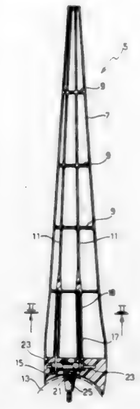
Filed Nov. 21, 1978, Ser. No. 962,731
Claims priority, application Italy, Dec. 5, 1977, 69727 A77
Int. Cl.³ F03D *1/06;* **F04D** *29/34*
U.S. Cl. 416—230 **4 Claims**

1. Blade for a wind motor, comprising, in combination:

a hollow blade shell of plastics material having a number of internal transverse reinforcing ribs and at least two internal longitudinal reinforcing ribs interconnecting said transverse reinforcing ribs;

a metal reinforcement and attachment member embedded in said plastics material adjacent the radially inner end of the blade;

said metal member having at least two metal arms completely embedded in said longitudinal reinforcing ribs respectively, a metal cross-piece interconnecting said arms completely embedded in said plastics material, and



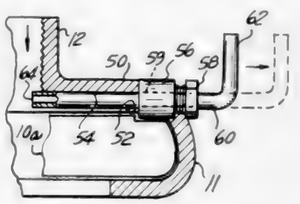
a metal root member attached to said metal cross-piece and projecting longitudinally beyond the radially inner end of the blade for anchoring the blade to a rotor hub.

4,278,402

ADJUSTABLE LIQUID LEVEL CONTROL FOR PUMPS

Axel L. Nielsen, 1316 Elza, Hazel Park, Mich. 48030

Filed Aug. 13, 1979, Ser. No. 66,187
Int. Cl.³ F04B *49/10*
U.S. Cl. 417—38 **14 Claims**



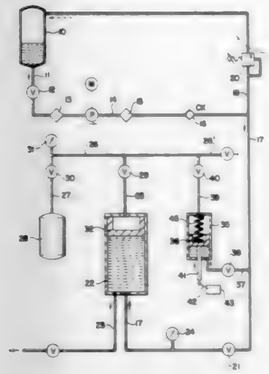
1. An impeller pump and conrol system comprising an impeller-type pump having a housing of circular cross-section for receiving a rotary motor driven impeller, said housing having a central liquid intake opening and a peripheral outlet opening in which while the pump is in operation there is a pressure gradient from a suction condition at the central intake opening to a pressure condition at the peripheral outlet opening of the housing, a pressure responsive switch for controlling the pump motor, and means for communicating pressure as sensed within said housing at different radially selected points along the pressure gradient to said pressure responsive switch comprising a tube having a pressure sensing port adjacent its inner end, said housing having a generally radially facing opening in its peripheral wall in which said tube is longitudinally slidable radially of said housing to position its pressure sensing port at a selected location with reference to said pressure gradient, and conduit means connecting the outer end of said tube to said pressure sensitive switch whereby longitudinal adjustment of said tube produces a corresponding linear adjustment of its pressure sensing port along the pressure gradient existing within said housing between its central inlet and its peripheral outlet.

4,278,403

CONTROL FOR HYDRAULIC ACCUMULATOR SYSTEM

Jon L. Shafer, 13719 Cricket Hollow Dr., Houston, Tex. 77069

Filed Sep. 6, 1979, Ser. No. 72,903
Int. Cl.³ F04B 49/02
U.S. Cl. 417—38 **5 Claims**



1. In a hydraulic accumulator system having an accumulator tank for storing hydraulic fluid under a piston biased by pressurized gas and a pump for supplying fluid to said tank, a control tank connected at one end to said fluid supply and at the other end to said pressurized gas, a pressure-movable partition element in said control tank having differential areas exposed to said fluid and said gas, and a switch operatively connected to said pump, said partition element having means for actuating said switch to stop the pump immediately when the accumulator tank becomes filled with pressurized hydraulic fluid and to start the pump immediately when said fluid begins to discharge from said accumulator tank.

4,278,404

AUTOINDUCTIVE ELECTROMAGNETIC PUMP AND AUTOINDUCTIVE DIRECT CONVERTER FOR CONDUCTING FLUIDS, PARTICULARLY LIQUID METALS

Pier G. Avanzini, Genoa, Italy, assignor to Nira Nucleare Italiana Reattori Avanzati, Genoa, Italy

Filed Mar. 5, 1979, Ser. No. 17,331
Claims priority, application Italy, Mar. 30, 1978, 12537 A/78
Int. Cl.³ H02K 44/06
U.S. Cl. 417—50 **10 Claims**

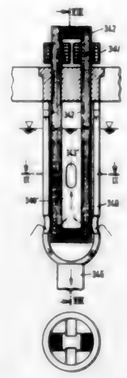
8. An autoinductive electromagnetic pump for pumping electrically conductive fluids, comprising:

a generally toric shell for containing in use an electrically conductive fluid to be pumped;

a magnetic core having a straight portion extending through said toric shell and coinciding with an imaginary axis of revolution of said toric shell;

means for developing an alternating magnetic field within said straight portion of said magnetic core;

means for introducing an electrically conductive fluid into said toric shell; and



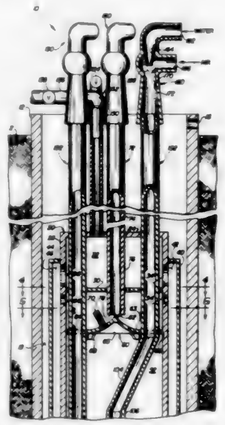
means for defining an outlet for electrically conductive fluid within said toric shell in regions deep within said shell.

4,278,405

ENERGY AMPLIFIER APPARATUS

Lonnie L. Angle, 6204 N. 15th Ave., Phoenix, Ariz. 85015

Filed Jan. 22, 1979, Ser. No. 5,210
Int. Cl.³ F04F 3/00, 5/08
U.S. Cl. 417—150 **22 Claims**



1. Energy amplifier apparatus, comprising in combination:

a flow of water;

eductor means for entraining air in the flow of water;

first pipe means connected to the eductor means for transporting the flow of water and entrained air from the eductor means;

cylinder means connected to the first pipe means for receiving the flow of water and entrained air and spaced apart downwardly from the eductor means to allow the flow of water to compress the entrained air as the water flows in the first pipe means to the cylinder means;

separator chamber means disposed in the cylinder means and into which the first pipe means extends for receiving the flow of water and the compressed entrained air and having a cylinder wall and a first bulkhead and a second bulkhead secured to the cylinder wall;

cone means disposed adjacent the first pipe means in the separator chamber means and spaced apart from the first bulkhead and the second bulkhead and from the cylinder wall and the water and entrained and compressed air flows onto the cone means for separating the entrained and compressed air from the water;

second pipe means for transporting the compressed air from the cylinder means; and

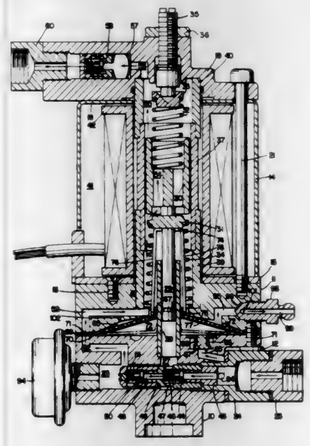
aperture means in the separator chamber means through which the water flows out of the separator chamber means.

4,278,406

ELECTROMAGNETIC PUMP

Myron T. Cooperrider, North Royalton, Ohio, assignor to R. W. Beckett Corporation, Elyria, Ohio

Filed Nov. 7, 1979, Ser. No. 92,221
Int. Cl.³ F04B 23/10
U.S. Cl. 417—199 A **16 Claims**



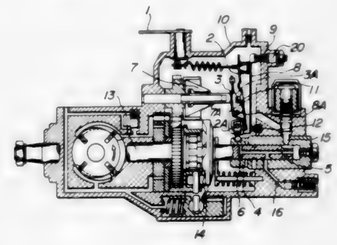
1. In a pump comprising a cylinder, a piston, means for reciprocating the piston within the cylinder, an inlet passage, and a discharge passage associated with the cylinder, an inlet check valve and a discharge check valve controlling said inlet and discharge passages, respectively, whereby fluid in said inlet passage is pumped to said discharge passage when said piston is reciprocated, the improvement which comprises the provision of a diaphragm, means providing a chamber in which said diaphragm is disposed, said chamber being divided by said diaphragm into an intake portion and a discharge portion, valve means permitting flow of fluid from said intake portion to said discharge portion while preventing fluid from flowing from said discharge portion to said intake portion, a diaphragm actuator adapted to move said diaphragm only in the direction in which the volume of the discharge portion is increased and the volume of the intake portion is decreased, a spring adapted to move said diaphragm in the opposite direction in which the volume of said intake portion is increased and the volume of said discharge portion is decreased to discharge fluid therefrom, means providing communication between said discharge portion and said discharge passage associated with said cylinder whereby the diaphragm is subjected to the discharge pressure created by operation of said pump, the diaphragm remaining substantially stationary at a balanced position where force exerted on the diaphragm by the normal discharge pressure of the fluid being pumped by the piston is balanced by the force that the spring exerts on the diaphragm in the opposite direction, the displacement per stroke of the diaphragm being substantially greater than the displacement per stroke of the piston in the cylinder, whereby the pump is capable of pumping at low discharge pressure a volume of fluid equal to the sum of the displacements of the diaphragm and of the piston on each stroke thereof, the diaphragm becoming substantially inactive and the pump discharging only the fluid displaced by the piston when the diaphragm becomes substantially stationary as aforesaid.

4,278,407

DEVICE FOR CONTROLLING AN AMOUNT OF FUEL INJECTION IN A DIESEL ENGINE

Seishi Yasuhara, Yokosuka; Tsuyoshi Tamazawa, and Katsuto Yamauchi, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Aug. 7, 1979, Ser. No. 64,433
Claims priority, application Japan, Oct. 27, 1978, 53-148102[U]
Int. Cl.³ F04B 49/00
U.S. Cl. 417—292 **4 Claims**



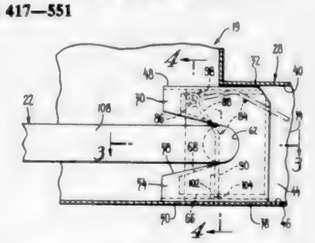
1. A device for controlling an amount of fuel injection in a diesel engine comprising a distribution type fuel injection pump having a pump plunger including a sleeve for controlling the amount of fuel injection being displaced by a lever, and an adjusting screw portion for adjusting an initial position of said lever, wherein the improvement comprises a heat sensitive element for responding to fuel temperature mounted on a mechanical coupling mechanism between said adjusting screw portion and the lever, wherein the amount of fuel injection is adjusted as a function of temperature rise.

4,278,408

MANURE TRANSFER PUMP

William L. Rammer, and Paul D. Swanson, both of Kaukauna, Wis., assignors to Badger Northland Inc., Kaukauna, Wis.

Filed Sep. 10, 1979, Ser. No. 74,203
Int. Cl.³ F04B 21/04
U.S. Cl. 417—551 **2 Claims**



1. A manure transfer pump including a pump cylinder mounted in the bottom of a manure collection hopper in the floor of a livestock confinement area, a pump cylinder inlet end opening into the manure collection hopper and a pump cylinder exit end, a pipe with an inlet connected to the pump cylinder outlet and an outlet capable of discharging manure into a manure storage facility characterized by a piston slideably mounted in the pump cylinder and including a top wall, side walls and a bottom wall, on open rod end, an open head end, trunnion surfaces on the piston walls, a connecting rod pivot-

ally connected to the piston and in contact with the trunnion surfaces, a pump drive connected to the connecting rod, a gate assembly pivotally connected to the inside of the piston walls in the center section of the piston, a stop surface on the piston walls operable to hold the gate assembly in an open position and a stop surface on the piston walls operable to hold the gate assembly in a closed position and wherein the trunnion surfaces on the piston walls have a transverse axis in the center section of the piston and the pivotal connection for the gate assembly is located adjacent one wall of the piston and between the transverse axis of the trunnion surfaces and the rod end of the piston.

4,278,409

COMPRESSOR

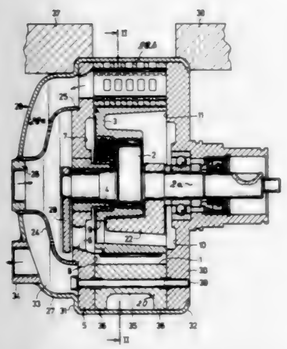
Dankwart Eiermann, Lindau, Fed. Rep. of Germany, assignor to Borsig GmbH and Wankel GmbH, both of Berlin, Fed. Rep. of Germany, a part interest

Continuation of Ser. No. 867,770, Jan. 9, 1978, abandoned. This application Sep. 25, 1979, Ser. No. 78,681

Claims priority, application Fed. Rep. of Germany, Jan. 7, 1977, 2700522

Int. Cl.³ F04C *29/00*

U.S. Cl. 418—61 A **9 Claims**



1. A rotary piston compressor which includes: a main housing part composed of a plurality of interconnected components, one of said components having a trochoidal two-arc shaped inner surface forming a race way, a rotatable eccentric shaft provided with an eccentric, a triangular piston rotatable on said eccentric and having its corners in continuous sliding engagement with said race way, and a counter weight mounted on said eccentric shaft and located within said piston, a capsule housing, and a dome-shaped cover, said capsule housing on one side of said compressor having a pressure connection arranged in said dome-shaped cover, said compressor having a high pressure section and a low pressure section, said cover comprising a hood having at least its major portion arranged within said cover and separating said high pressure section from said low pressure section, said cover including a central member forming a connection for an inlet conduit.

4,278,410

ROTATABLE PNEUMATIC GEAR MOTOR HAVING A DEFORMABLE ADJUSTABLE SEALED CHAMBER

Alain de Gaillard, Paris, France, assignor to Umicum S.A., St. Etienne Loire, France

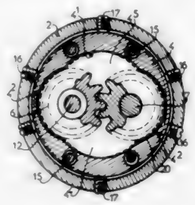
Filed May 24, 1979, Ser. No. 42,033

Claims priority, application France, May 30, 1978, 78 16949

Int. Cl.³ F01C *5/06, 1/18, 19/00*

U.S. Cl. 418—168 **10 Claims**

1. A pneumatic rotary gear motor comprising a body or casing, a bracer bushing secured to said casing, a cover closing said bracer bushing, a deformable internal bushing freely housed within the bracer bushing and interposed between the cover and the casing, said internal bushing having a bore and two opposed longitudinal circular recesses extending from said bore, two intermeshed rotary gears extending longitudinally in said internal bushing and centered in a respective recess, said gears having teeth sealably contacting the internal bushing along said circular recesses, said gears having shafts respectively supported for rotation in said cover and casing to form opposed working chambers in said internal bushing disposed on either side of the recesses and in communication with openings provided in the cover for the intake and exhaust of a fluid; adjusting means integral with the bracer bushing for abutting



against the internal bushing to produce deformation thereof at the recesses for effecting sealed contact with said teeth; fixed abutment means, said abutment means being adapted to cooperate with said freely housed internal bushing through said bracer bushing for limiting the deformation of the internal bushing; an assembling means for the cover, bracer bushing, and casing including screws which are passed freely through holes provided in the internal bushing so that the deformation thereof will not be interfered with; and frictional means interposed between the ends of the gears, the ends of the deformable bushing and the cover and casing on the one hand, and between the circular recesses of said internal bushing in contact with the teeth of said gears on the other hand.

4,278,411

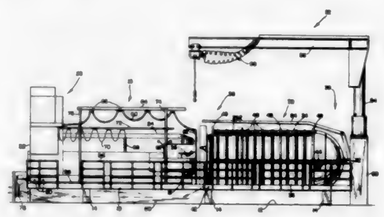
APPARATUS FOR MAKING LARGE FIBERGLASS STRUCTURES

Stephen W. Anderson, 1441 S. Monaco St. Pkwy., Denver, Colo. 80224

Filed Dec. 30, 1977, Ser. No. 866,013

Int. Cl.³ B29D *23/03*

U.S. Cl. 425—100 **66 Claims**



1. Apparatus for making a larger fiberglass structure, which comprises:

a mold having an open end;

carriage means for accommodating an operator and which includes means for applying raw materials to the interior surface of said mold;

means for selectively reciprocating said carriage means and said operator into and out of said mold; and

means for rotating said mold.

4,278,412

EXTRUSION DIE ASSEMBLY FOR FORMING HONEYCOMB STRUCTURES

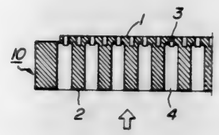
Sei Ozaki, Nagoya, and Shuichi Otsu, Konan, both of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Continuation of Ser. No. 880,129, Feb. 22, 1978, abandoned. This application Jun. 12, 1979, Ser. No. 47,864

Claims priority, application Japan, Feb. 24, 1977, 52/18634

Int. Cl.³ B29F *3/04*

U.S. Cl. 425—198 **7 Claims**



1. In an extrusion die assembly for forming honeycomb structures comprising a die including a discharge surface provided with grid-shaped slits for discharging honeycomb structures composed of interconnecting thin partitions and an inlet surface provided with a plurality of independent feed inlets communicating with the grid-shaped slits and a mask having an orifice of a given diameter, by which an outer shape and a dimension of the honeycomb structure are determined, said mask being adjacent to the grid shaped slits in a discharge direction and surrounding a periphery of the discharge surface, the improvement comprising providing at least one ring having an orifice of a given diameter surrounding a periphery of the inlet surface, said orifice of the ring restraining the supply of a batch material to the feed inlets at the periphery of the inlet surface and the ring and the mask being aligned with each other in the discharge direction, wherein said ring contacts the inlet surface and closes the feed inlets at the periphery of the inlet surface, and wherein the strength of the periphery portion of the honeycomb structure varies according to the diameter difference of the orifices of the mask and the ring.

4,278,413

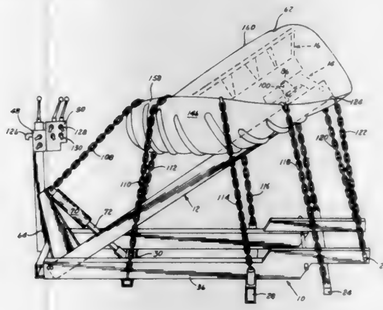
APPARATUS FOR INVERTING TIRES

Meriyn R. Hilt, St. Francis, Kans., assignor to Hilt Tire Feedbunk, Inc., St. Francis, Kans.

Filed Sep. 20, 1979, Ser. No. 76,970

Int. Cl.³ B29C *17/00, 21/00*

U.S. Cl. 425—383 **14 Claims**



1. Apparatus for inverting a tire having a first side and an axially spaced second side, comprising:

tire holding means for holding said tire on said first side;

grappling means for circumferentially holding an edge of the second side of the tire relative to movement of said tire on said tire holding means, said grappling means being fixed relative to the tire molding means;

first tire moving means for moving said tire, on said tire holding means, in a first direction relative to said grappling means to axially displace a first edge portion;

second tire moving means for moving said tire, on said tire holding means, in a second direction relative to said grappling means to axially displace a second edge portion;

said first edge portion and said second edge portion together constituting the entire edge, whereby the edge is axially displaced relative to the first side to invert the tire.

4,278,414

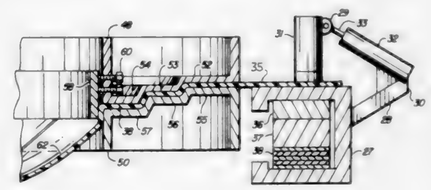
APPARATUS FOR MAKING PLASTIC SKYLIGHTS

Kent A. Weisner, Orlando, and Lester L. Walls, Jr., Deltona, both of Fla., assignors to Kennedy Sky-Lites, Inc., Orlando, Fla.

Filed Feb. 16, 1979, Ser. No. 12,822

Int. Cl.³ B29C *17/00*

U.S. Cl. 425—388 **6 Claims**



1. Apparatus for molding skylights from polycarbonate polymer sheets comprising:

heated clamping means for clamping the perimeter of a polycarbonate polymer sheet and for preheating said perimeter to a first selected temperature;

a loading station means for temporarily receiving said heated clamping means to permit insertion of a polycarbonate polymer sheet into said heated clamping means and for clamping and preheating the perimeter of said sheet to thereby form a skylight flange;

heating station means adjacent said loading station means for receiving said heated clamping means subsequent to preheating of said perimeter and for heating said polycarbonate polymer sheet and said perimeter to a second selected temperature higher than said first selected temperature;

forming station means adjacent said heating station means for receiving said heated clamping means subsequent to heating of said sheet and said perimeter to said second selected temperature;

a pair of coacting perimeter molds within said heated clamping means, each of said molds having a plurality of coacting steps therein to form steps in a skylight dome perimeter within said flange, said molds forming an open dome-forming area in the center of said sheet for vacuum forming a dome therein;

a push member removably mounted to said mold around the inner edge thereof and extending along the mold edge for driving a pushed area along said dome perimeter when said molds are closed; and

vacuum forming means for applying a vacuum to one face of said open dome-forming area to produce a dome in said center of said heated sheet;

whereby said apparatus molds a skylight having a flat outer flange, a stepped perimeter within said flange, a push within said stepped perimeter and a dome above said push.

4,278,415

APPARATUS FOR MELT SPINNING HOLLOW FIBERS

Ronald E. Pfeiffer, Pensacola, Fla., assignor to American Cyanamid Company, Stamford, Conn.

Filed Feb. 21, 1979, Ser. No. 13,353
Int. Cl.³ A01J *21/00*
U.S. Cl. 425—466 **2 Claims**



1. A spinnerette assembly for spinning hollow fibers which comprises in combination

a. a spinnerette plate containing a plurality of orifices with a counterbore for each orifice and,

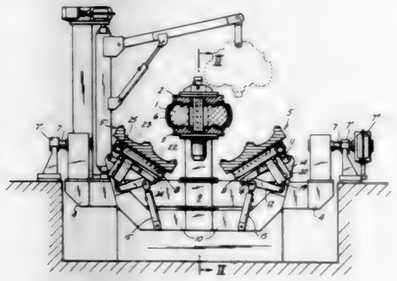
b. removable pins positioned within each orifice-counterbore combination, each pin being of solid construction and having an upper portion positioned within said counterbore and a lower portion positioned within said orifice, said upper portion occupying a fixed position within said counterbore and enabling spinning composition to flow through the counterbore to the orifice at operative back pressure and said lower portion being spaced from the orifice wall to provide a hollow extrudate.

4,278,416

APPARATUS FOR MOLDING TIRES OF MOTOR VEHICLES

Erich Grünner, Voltagasse 43/23/1, 1210 Wien, Austria

Filed Jul. 17, 1978, Ser. No. 925,464
Claims priority, application Austria, Jul. 15, 1977, 5151/77
Int. Cl.³ B29F *1/00*; **B29H** *5/02*
U.S. Cl. 425—577 **7 Claims**



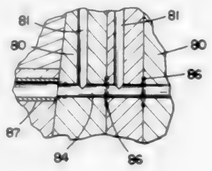
1. In an apparatus for molding tires of vehicles, especially motor vehicles, a combination comprising support means; a multi-part mold mounted on said support means and comprising a stationary rigid core having an axis and opposite ends and being shaped in accordance with the inner surface of the tire to be molded and a plurality of mold parts shaped in accordance with the outer surface of the tire and including a pair of mold end parts coaxially arranged with said axis of said core and abutting with surface portion thereof respectively against said opposite ends of the latter, at least one of said end parts being movable in axial direction relative to said core, and a plurality of mold segment means about said core shaped to define with said end parts the outer surface of said tire to be molded; a plurality of segment carriers respectively carrying said mold segment means; first moving means connected to said segment carriers for moving the same in radial direction relative to said core; and second moving means connected to said segment carriers for tilting the same toward and away from said core, said first and second moving means operating independent from the movement of said at least one mold end part.

4,278,417

INTERNALLY LOCKED CORE CENTERING MOLD ASSEMBLY

Robert W. Wilds; Robert E. Meyer, both of Indianapolis; Walter A. Grannen, III, Bargersville, and Dannie Bryant, Greenwood, all of Ind., assignors to E. W. Mold & Tool Co. Inc., Indianapolis, Ind.

Filed Dec. 31, 1979, Ser. No. 108,517
Int. Cl.³ B29C *1/06*; **B29F** *1/022*
U.S. Cl. 425—577 **8 Claims**



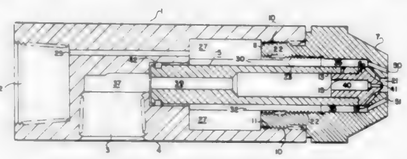
1. In a mold assembly particularly adapted for the injection molding of thin-walled multi-partitioned containers requiring a relatively lengthy cantilever-mounted array of cores extending into the cavity member and having means adjacent the free ends of said cores for injection of plastic material into the space between the cavity member and the cores, wherein the improvement comprises internal core locking members reciprocally moveable in transverse bores formed in certain of the cores intermediate their ends, said members being moveable within their bores from a retracted position substantially flush with the side faces of their respective cores to an extended position in locking engagement with the side faces of the next adjacent cores, a longitudinal bore in the cores intersecting the corresponding transverse bore therein and actuating means within said longitudinal bore cooperating with said locking members for moving them between their retracted and extended positions to place the cores in transverse compression at predetermined times during the injection molding cycle.

4,278,418

PROCESS AND APPARATUS FOR STOICHIOMETRIC COMBUSTION OF FUEL OIL

Lynn A. Strenkert, 16 Azalea La., Wilton, Conn. 06897

Continuation of Ser. No. 640,978, Dec. 15, 1975, abandoned. This application Aug. 24, 1979, Ser. No. 69,362
Int. Cl.³ F23C *5/00*
U.S. Cl. 431—8 **22 Claims**



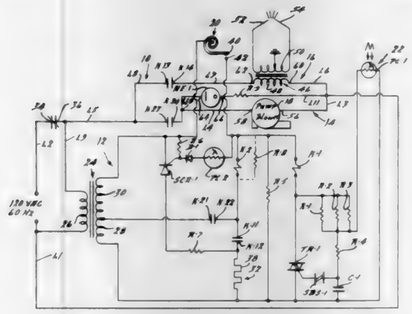
1. In a process for the combustion of liquid fuel wherein the liquid fuel is atomized prior to combustion, the improvement therein including carrying out the atomization of the fuel in at least two stages comprising mixing the fuel and atomizing gas such as air within an atomization nozzle to obtain primary atomization, causing the atomized fuel and air mixture to exit the nozzle as an extending conically shaped stream containing fuel droplets, directing a plurality of individual jets of further atomizing air originating at locations which are in a plane which also contains the location where the atomized fuel and air mixture exits the atomization nozzle to converge on the conically shaped atomized fuel stream and intersect therewith downstream of the location where the atomized fuel and air mixture exits the atomization nozzle to obtain secondary atomization causing the fuel droplets therein to be reduced in size the convergence angle of the air jets with the atomized fuel stream, as measured between the axis of the air jets and the longitudinal axis of the conically shaped atomized fuel stream, ranging from 3.5° to 7° and controlling the size of the air jets and the angle and point of convergence of the air jets with the atomized conical stream and the fuel feed in accordance with a predetermined relationship including varying the convergence angle inversely with the fuel feed rate.

4,278,419

PRIMARY OIL BURNER SAFETY CONTROL AND INTERMITTENT IGNITION SYSTEM

Jon H. Bechtel, and Frederick J. Geary, both of Holland, Mich., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Apr. 30, 1979, Ser. No. 34,643
Int. Cl.³ F23N *5/00*
U.S. Cl. 431—24 **7 Claims**



1. A primary safety control system for an oil burner, said system comprising, in combination, a high voltage circuit connected to said oil burner, a low voltage control circuit including a relay having contacts in said high voltage circuit controlling the energization of said oil burner, thermostatic switch means in said low voltage control circuit controlling the energization of said relay, means monitoring the open and closed state of said relay contacts with respect to the open and closed state of said thermostatic switch means, and means effective to open said high voltage circuit when the state of said relay contacts differs with respect to the state of said thermostatic switch means, said monitoring means including an optical coupler comprising a light source and a photoelectric cell, said light source being connected to said high voltage circuit in parallel with said oil burner, said photoelectric cell being connected in said low voltage control circuit.

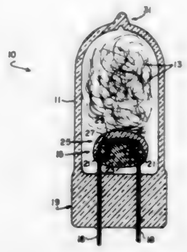
4,278,420

PHOTOFLASH LAMP, METHOD OF MAKING SAME, AND PHOTOFLASH CIRCUIT

Andre C. Bouchard, Peabody, and Naila S. Jirmanus, Somerville, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jul. 16, 1979, Ser. No. 57,770
Int. Cl.³ F21K *5/02*
U.S. Cl. 431—362 **22 Claims**

1. In a photoflash lamp including a hermetically-sealed, light-transmitting envelope having a combustion-supporting atmosphere and a quantity of filamentary combustible material therein, and an ignition means for igniting said combustible material including a pair of spaced electrical conductors and a primer mass, each of said conductors sealed within said envelope and projecting therefrom and having an end portion having access to the interior of said envelope, the improvement wherein said primer mass comprises:



a first quantity of pulsed, substantially non-ignitable primer material positioned in electrical contact with both of said end portions of said electrical conductors; and

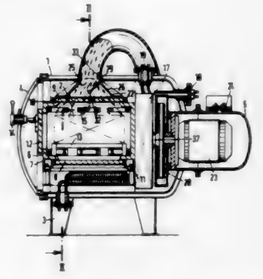
a second quantity of readily ignitable primer material located in physical contact with at least a portion of said first quantity of primer material.

4,278,421

INDUSTRIAL FURNACES FOR THE HEAT TREATMENT OF METALLIC WORKPIECES

Ferdinand Limque, Berg en Dal, Netherlands, and Hans Bertrand, Goch, Fed. Rep. of Germany, assignors to Ipsen Industries International Gesellschaft mit beschränkter Haftung, Kleve, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 85,083
Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844843
Int. Cl.³ F27B *9/04*
U.S. Cl. 432—152 **12 Claims**



1. An industrial furnace, particularly a single-chamber vacuum furnace, for heat treatment of metallic workpieces, comprising

a furnace housing formed with a heating chamber inside said furnace housing,

means comprising heating elements for heating said heating chamber,

a bottom and a top of said heating chamber is formed with a closable chamber opening directly exposed to said heating chamber for the passage of a quenching gas,

means including a blower and connections for circulating the gas substantially vertically downwardly through said chamber opening and said heating chamber,

said chamber opening in said top being a gas entrance chamber opening for the incoming flow of gas,

a closing slide disposed above the gas entrance chamber opening and constituting means for closing said gas entrance chamber opening,

means comprising a flap swingably mounted adjacent the gas entrance chamber opening, said flap means for cooperating with said gas entrance opening to alternately open and close different cross-sections thereof for controlling the incoming flow of gas in the vicinity of an exposed cross-section of the gas entrance chamber opening.

4,278,422

DIFFUSION TUBE SUPPORT COLLAR

David L. Thompson, Orange, Calif., assignor to David M. Volz, Santa Ana, Calif.

Filed Dec. 31, 1979, Ser. No. 108,553
Int. Cl.³ F27B *7/00*; **B65D** *53/00*; **F02F** *11/00*
U.S. Cl. 432—188 **16 Claims**



1. An annular collar for supporting and positioning a diffusion tube in a furnace relative to the walls of the furnace, said furnace being used in the manufacture of semiconductors, integrated circuits and the like, the collar comprising:

a resilient core capable of withstanding high temperatures normally used in the furnace, and

an outer resilient sheath covering the core and being made of a material capable of withstanding high temperatures normally used in the furnace, the collar being dimensioned to tightly fit around the circumference of a predetermined diffusion tube and to fit within an aperture provided in a support member of the furnace.

4,278,423

HEATING AND VENTILATING SYSTEM FOR POULTRY HOUSES

Frank J. Siccardi, 2850 Inwood La., Fayetteville, Ark. 72701

Filed Nov. 27, 1979, Ser. No. 97,612
Int. Cl.³ F24H *1/00*; **F27B** *9/14*
U.S. Cl. 432—222 **8 Claims**

1. A heating-ventilating system for a poultry house comprising

an air duct having an air intake and an exhaust opening,

a fan mounted therein,

a fuel burner mounted in said duct,

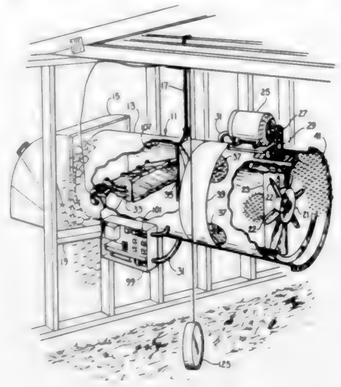
a starter fuel jet and an electric igniter therefor,

a first temperature sensor adapted to be placed in said poultry house out of the direct air flow from said fan,

means for controlling said starter fuel jet and electric igniter to operate only in response to a low temperature condition of said first temperature sensor,

means for controlling said fan to operate in response to said first temperature sensor,

a flame sensor in proximity to said starter fuel jet, and



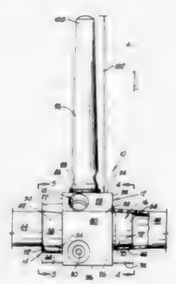
a valve for said fuel burner and control means for opening said valve responsive to said flame sensor.

4,278,424

SOCKET HEAT FUSION APPARATUS

Charles S. Villyard, 8 NW. 8th St., Oklahoma City, Okla. 73102

Filed Nov. 19, 1979, Ser. No. 95,246
Int. Cl.³ F24J *3/00*; **F27D** *5/00*
U.S. Cl. 432—224 **17 Claims**



1. An apparatus for simultaneous heating one end portion of a thermoplastic conduit and one end portion of a thermoplastic coupler utilizing a heat source such that the heated end portion of the thermoplastic conduit can be disposed in the heated end portion of the coupler and provide a substantially fluid-tight union therebetween, the apparatus comprising:

a body member having a first heat communication opening and a second heat communication opening, the first heat communication opening adapted to receive heat from the heat source, the second heat communication opening extending between one side of the body member and another side of the body member, the first heat communication opening intersecting the second heat communication opening such that fluid communication is established therebetween;

a first receptacle disposed on the one side of the body member, the first receptacle adapted to receive the one end portion of the thermoplastic conduit, the first receptacle opening communicating with the second heat communication opening; and

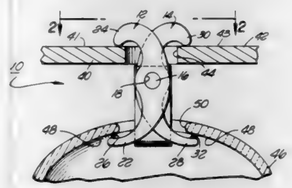
a second receptacle disposed on the other side of the body member, the second receptacle adapted to receive the one end portion of the second thermoplastic coupler, the second receptacle opening communicating with the second heat communication opening.

4,278,425

CERAMIC KILN SUPPORT APPARATUS

Farrokh Hirbod, 149 N. Rexford Dr., Beverly Hills, Calif. 90210

Filed Apr. 21, 1980, Ser. No. 141,859
Int. Cl.² F27D *5/00*
U.S. Cl. 432—259 **4 Claims**



1. A ceramic support apparatus for supporting and holding a ceramic article having a support lip in a kiln having an elevated first support flange and an elevated second support flange horizontally spaced from the first support flange while the ceramic article is being fired, the ceramic support apparatus comprising:

a first bowed ceramic member having a first hooked end for engaging the support lip of the ceramic article at a first region, a second hooked end for hooking over the first support flange and a first orifice through the first bowed ceramic member at a location between the first and second hooked ends;

a second bowed ceramic member having a third hooked end for engaging the support lip of the ceramic article at a second region opposite the first region, a fourth hooked end for hooking over the second support flange, and a second orifice through the second bowed ceramic member at a location between the third and fourth hooked ends; and

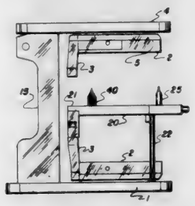
a ceramic rod extending through the first and second orifices for pivotally mounting the first and second bowed members to the ceramic rod, with the direction of bowing of the first bowed ceramic member being opposite to the direction of bowing of the second bowed ceramic member.

4,278,426

RELATOR ASSEMBLY

Robert Schwartz, 1271 Westfield Ave., Rahway, N.J. 07065

Filed Mar. 7, 1980, Ser. No. 128,046
Int. Cl.³ A61C *11/00*
U.S. Cl. 433—54 **4 Claims**



1. A relator assembly useful for making maxillary denture materials comprising:

(a) a stand member;

(b) a vertically disposed support means having an upper and lower portion, said upper and lower portions being in a fixed vertical relationship relative to each other, said lower portion connected to said stand member;

(c) an occlusal base member having a horizontally disposed upper surface and adapted to be located above said stand member;

(d) an arch locator, removably positionable on said upper surface of the occlusal base member, adapted to locate artificial teeth, denture elements or bite block elements in a fixed position and in an arch-shaped arrangement on said occlusal base member;

(e) adjustment means associated with said occlusal base member adapted to movably locate said arch locator on the upper surface of said occlusal base member;

(f) a maxillary base member having an upper and lower surface, connected to the upper portion of said support means, the lower surface of said maxillary base member adapted to be positioned in substantial vertical alignment with said occlusal base member; and

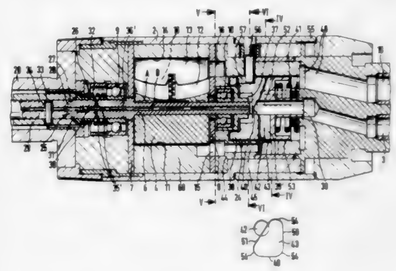
(g) cast positioning means located on the lower surface of said maxillary base member.

4,278,427

COMPRESSED-AIR DENTAL MOTOR

Bernhard Lingenhöle, Biberach, and Ernst Strohmaier, Bad Schussenried, both of Fed. Rep. of Germany, assignors to Kaltenbach & Voight GmbH & Co., Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,294
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839632
Int. Cl.³ A61C *1/02*
U.S. Cl. 433—100 **5 Claims**



1. A compressed-air dental motor comprising: a housing; a rotor; a compressed air inlet conduit supplying compressed-air for placing said rotor into rotation; a rotor shaft in said rotor connectable with a work tool, such as a drill; valve means in said housing associated with said compressed-air inlet conduit for varying the inlet of compressed air per unit of time; and adjusting means for controlling said valve means; the improvement comprising: said rotor shaft including an axially displaceable first component (**26**) arranged intermediate said rotor (**4**) and the end of said rotor shaft proximate the work tool (**5**) for controlling said valve means (**24**) in direct mechanical dependence upon the torque at said work tool (**5**) so as to form said adjusting means into a torque-dependent adjusting means, said axially displaceable component (**26**) including first contact surfaces or cam tracks (**27**), and a further component (**29**) arranged on said rotor shaft (**6**) for limited rotation but which is not axially displaceable including complementary contact surfaces or cam tracks (**28**) cooperating with said first contact surfaces or cam tracks to effect axial displacement of said first component (**26**) and to transmit the rotation of said rotor shaft (**6**) to said work tool (**5**); said rotor shaft having a control air passageway (**36'**) extending from the end opposite said work tool to the region of said rotor shaft covered in the engaged position of said first component (**26**) and said further component (**29**); said control air passageway (**36'**) including at least one radial outlet passageway (**35'**) in said region whereby the

outlet of said outlet passageway (35') in the engaged position is adapted to be covered by said first component (26) for venting the control air into the atmosphere and in the disengaged position of said components for actuating said valve means (24), said valve means comprising an axially movable piston-like valve member (38) having a displacement chamber (37), said control air passageway (36') communicating with said displacement chamber (37), said valve means (24) including a compressed air inlet conduit communicating with the work space of said motor and being constantly connected with a compressed-air inlet conduit of said motor; and a branch passageway (40) of said compressed-air inlet passageway for said valve member which is in communication with the control air passageway (36') when the outlet of said radial outlet passageway (35') is open, and when the opening of said radial passageway (35') is covered, compressed air from branch passageway (40) fills said displacement chamber (37) so as to effect an axial movement of said piston-like valve member (38) to increase the compressed air delivered to the work space of the motor per unit of time.

4,278,428

DENTAL HANDPIECE

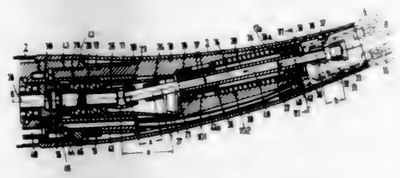
Reinhard Straihammer, Einhausen; Hans J. Klose, Hamsbach, and Werner Schuss, Heppenheim, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,000

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855797

Int. Cl.³ A61C *1/08*

U.S. Cl. 433—105 **26 Claims**



1. In a dental handpiece having a drive motor, an acceptance socket for a tool being mounted for rotation in the head part of the handpiece, and a drive means for transmitting the rotary motion of said drive motor to said acceptance socket, said drive train means including at least two drive shaft sections with the axis of a pair of said sections being arranged at an angle to one another, the first drive shaft section of the pair having a first and second coaxial drive gears with each gear having a different number of teeth, the second drive shaft section of said pair having at least one gear, and means for selectively forming a first coupling and a second coupling between the first and second shaft sections, said first coupling having the first gear of the first shaft section being in engagement with a gear on the second shaft section and the second gear being out of engagement and the second coupling being formed by the second gear of the first shaft section being in engagement with a gear on the second shaft and the first gear being out of engagement, said first coupling having a different drive ratio between the first and second shafts than the drive ratio for the second coupling, the improvements comprising said means for selectively forming the first and second couplings including means for mounting one of said first and second shaft sections for axial movement between a first position forming the first coupling and the second position forming the second coupling, and means for axially displacing said one shaft section between said first and second position, said one shaft section being arranged between a drive shaft section coupled to the drive motor and the head part of the handpiece and having at least one gear at each of the two ends, each of said gears at each end of the one shaft section being in engagement with a gear during at least one of said first and second coupling positions.

4,278,429

DENTAL HANDPIECE

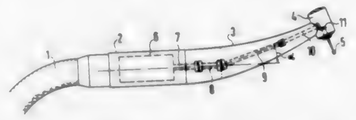
Reinhard Straihammer, Einhausen, and Werner Schuss, Heppenheim, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 18, 1979, Ser. No. 104,979

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855720

Int. Cl.³ A61C *1/08*

U.S. Cl. 433—126 **10 Claims**



1. In a dental handpiece having a drive motor part with a drive motor, a handpiece housing connected to the drive motor part, a head part with a socket for supporting a tool for rotation being releasably secured on the housing and drive train means received in the housing for transmitting rotary motion of the drive motor to said socket, the improvement comprising the handpiece housing being composed of a first housing member supporting a first drive shaft section and a second housing member supporting a second drive shaft section, each of said drive shaft sections being part of the drive train means and having gears disposed at their ends for engagement with adjacent drive shaft sections, means for interconnecting said first and second housing members for swivel movement between a first position with the first and second drive shaft sections having their gears in engagement and extending at an angle to each other and a second position with the first and second drive shaft sections having their gears in engagement and being axially aligned, means for selectively holding said housing members in a selected one of the first and second positions, and said head part having a sleeve of a configuration to telescopically cover the second housing member and the majority of the first housing member while the members are held in one of said first and second positions, said sleeve having and interior engaging a portion of the means for holding to activate said means for holding so that by changing the head part with another head part having a sleeve with a different configuration, said handpiece can be converted between an angled handpiece and a straight handpiece.

4,278,430

SIGNAL SIMULATOR

Siegfried Bauer, Heidelberg, and Dieter Burckhart, Wiesloch, both of Fed. Rep. of Germany, assignors to Eltro GmbH Gesellschaft Fur Strahlungstechnik, Heidelberg, Fed. Rep. of Germany

Filed Jul. 13, 1977, Ser. No. 818,991

Int. Cl.³ G09B *9/00*

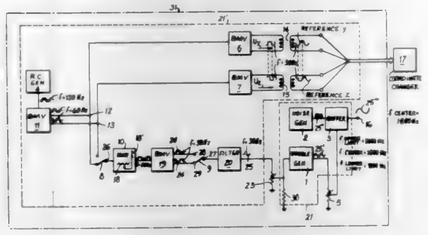
U.S. Cl. 434—2 **12 Claims**

1. A simulator for simulation of signals of a target radiator comprising:

first free-running frequency generator means operating at a first frequency for simulating the intensity fluctuations of a target radiator;

amplitude regulation means connected to said free-running generator means for controlling the amplitude of said first frequency;

second free-running generator means operating at a second frequency lower than said first frequency for simulating the amplitude and phase of a vectorial target representation means; and



frequency divider means for coupling said first generator means to said second generator means.

4,278,431

HYDRO-JET PROPULSION DEVICE FOR DRIVING AND CONTROLLING OF PARTICULARLY FLAT-BOTTOMED WATERCRAFTS

Franz Krautkremer, Spay, and Gerd Krautkraemer, Boppard-Buchenau, both of Fed. Rep. of Germany, assignors to Schottel-Werft. Josef Becker GmbH & Co. KG, Spay, Fed. Rep. of Germany

Filed Dec. 11, 1978, Ser. No. 968,430

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1977, 2757454

Int. Cl.³ B63H *11/02*

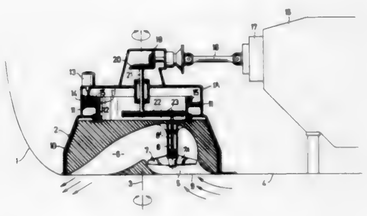
U.S. Cl. 440—42 **7 Claims**

1. A hydro-jet propulsion device for driving and controlling shallow draught watercraft, comprising:

hull means;

means defining a downwardly opening recess in a bottom surface of said hull means, said opening having a central vertical axis and an inner surface contour over the entire axial extent thereof which is concentric with said central vertical axis;

elbow means and support means for rotatably supporting said elbow means in said downwardly opening recess and for movement about an axis of rotation which is coaxial with said central vertical axis, said elbow means having a bottom surface which is generally flush with the outer surface of said hull means, said elbow means additionally having a radially outer surface contour conforming to the contour of said inner surface of said downwardly opening recess and being spaced slightly radially inwardly therefrom, said elbow means having means defining a passageway therethrough, said passageway having first and second segments, each of said segments having a longitudinal axis inclined to said axis of rotation of said elbow means, each of said first and second segments opening outwardly of said bottom surface of said elbow means and at locations whereat the central axes of the two openings in said bottom surface of said elbow means are spaced radially outwardly from said axis of rotation of said elbow means; and



propeller pump means and drive means therefor, said propeller pump means being mounted in said first segment of said passageway for drawing in water through one of said two openings in said bottom surface and ejecting water from the other of said two openings in said bottom surface, the axis of rotation of said propeller pump means being inclined to said axis of rotation of said elbow means, said drive means including means facilitating a drive of said propeller pump means about said inclined axis of rotation thereof.

4,278,432

SOAKING METHOD

Rolf Monsheimer, and Ernst Pfleiderer, both of Darmstadt, Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Jul. 11, 1980, Ser. No. 167,709

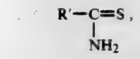
Claims priority, application Fed. Rep. of Germany, Jul. 23, 1979, 2929844

Int. Cl.³ C14C *1/04*

U.S. Cl. 8—94.18 **4 Claims**

1. A method for soaking skins or hides which comprises soaking said skins or hides in an acid bath containing at least one compound selected from the group of compounds having one of the formulas

R—SH and



wherein R is alkyl having 2 to 3 carbon atoms, alkyl having 2 or 3 carbon atoms mono-substituted with a thiol or OH group, or R is $-(CH_2)_n-(CHR_1)-COOH$ wherein R_1 is hydrogen or alkyl having 1 to 6 carbon atoms or is an amino group and n is an integer from 0 to 6, or R is R_2CO wherein R_2 is alkyl having 1 to 6 carbon atoms or phenyl, and wherein R′ is hydrogen, alkyl having 1 to 6 carbon atoms, or amino.

4,278,433

RESIST PRINTING PROCESS

Adolf Blum; Siegmar Lukas; Hermann Schwab, all of Ludwigshafen, and Rolf Strobel, Niederkirchen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 18, 1980, Ser. No. 141,404

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1979, 2916673

Int. Cl.³ D06P *5/12*

U.S. Cl. 8—449 **9 Claims**

1. In an improved process for the production of resist prints under reactive dyes on textile materials which consist of cellulose fibers or of blends of these with other fibers, by padding, pre-printing or overprinting the textile material with a padding liquor or print paste which contains a resist, the improvement which comprises said resist being the reaction product of a bisulfite adduct of an aldehyde of 2 to 6 carbon atoms, or of a ketone, with ammonia or a primary or secondary amine, in the molar ratio of from 3:1 to 1:1.

4,278,434

TRANSFER PRINTING PROCESS AND PRINTING INKS AND TEMPORARY SUPPORTS FOR CARRYING OUT THIS PROCESS

Friedrich W. Kröck, Cologne; Rütger Neeff, Leverkusen, and Robert Kuth, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

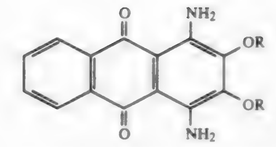
Filed Feb. 11, 1980, Ser. No. 120,190

Claims priority, application Fed. Rep. of Germany, Feb. 28, 1979, 2907724

Int. Cl.³ B41M *5/26*

U.S. Cl. 8—471 **10 Claims**

1. Process for printing materials, preferably synthetic or partially synthetic polymeric materials, in accordance with the transfer printing principle, characterised in that dyestuffs of the formula



wherein R represents a straight-chain or branched alkyl radical which has 1 to 5 carbon atoms and can optionally be substituted by 1 to 3 fluorine or chlorine atoms or hydroxyl or methoxy groups, are used.

4,278,435

PROCESS FOR THE PARTIAL METALLIZATION OF TEXTILE STRUCTURES

Harold Ebneth, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 28, 1980, Ser. No. 125,411

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1979, 2910460

Int. Cl.³ D06Q *1/04;* **B41M** *5/26*

U.S. Cl. 8—471 **1 Claim**

1. A process for the production of a partially metallized textile structure of synthetic polymers, which comprises rendering the particular side of the fabric which is not to be metallized hydrophobic or inactive by printing it with thermodiffusion dyes before the metal treatment by currentless metal deposition.

4,278,436

DYEING PROCESS

Werner Marschner, and Heinz Minwegen, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 6, 1979, Ser. No. 17,951

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1978, 2809675

Int. Cl.³ C09B *62/00;* **D06P** *3/66*

U.S. Cl. 8—549 **8 Claims**

1. Process for dyeing and printing cellulose fibre materials with reactive dyestuffs having a halogen leaving group or sulphonyl leaving group on a heterocyclic radical, characterised in that the process is carried out in the presence of a cyanamide of an unsaturated amide in a weakly acid to neutral medium.

4,278,437

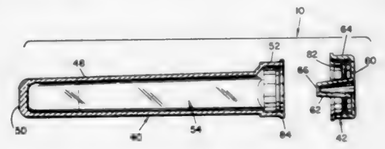
FLUID SPECIMEN HOLDER FOR BIOLOGICAL FLUID TESTING

Jan Haggar, 7056 Little Harbor, Huntington Beach, Calif. 92648

Filed Apr. 9, 1979, Ser. No. 28,545

Int. Cl.³ G01N *33/48, 31/00, 33/16;* **B01L** *3/00*

U.S. Cl. 23—230 B **3 Claims**



1. A fluid specimen holder for a biological fluid test apparatus, which comprises:

(a) an elongate, transparent specimen tube, having a closed end and an open end, said tube being formed having a generally polyhedral cross section with at least first, sec-

ond and third sides, the intersecting region of the first and second sides defining a fluid specimen flow channel for limiting side flow of a fluid specimen contained in the tube when the tube is rocked to alternately raise and lower opposite ends thereof during specimen testing, said third side being formed having a flat width several times greater than that of said channel; and

(b) a removable end cap for closing the open end of the tube, said end cap being formed having a generally tubular central portion including a transverse diaphragm having a thickness easily pierced by a hypodermic needle to enable introduction of a fluid sample into the closed tube, said central portion being formed having a cross-sectional diameter no more than about one third the corresponding cross-sectional diameter of the tube and having a length which is at least about twice the length of the edge portion of the cap, thereby providing containment of the fluid specimen in the tube when the tube is rocked and the specimen introduced into the tube comes into contact with the cap.

4,278,438

METHOD AND APPARATUS FOR ANALYSIS OF SACCHARIDES

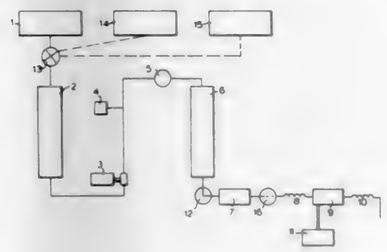
Willem Walraven, P. Lammekenastraat 6, Breda, Netherlands

Filed Apr. 17, 1979, Ser. No. 30,734

Claims priority, application Netherlands, Apr. 20, 1978, 7804208

Int. Cl.³ G01N *21/00, 31/04, 33/00*

U.S. Cl. 23—230 M **11 Claims**



1. A process for separating and analyzing saccharides said process comprising,

forming a second mixture comprising a mixture of saccharides possibly including oligosaccharides and at least one buffer and a reagent,

flowing said second mixture through a separating column, and maintaining the temperature of said second mixture below 80° C. whereby premature reactions between said saccharides and said reagents are inhibited,

hydrolyzing any oligosaccharides present in said second mixture to form monosaccharides,

reacting with said reagent any monosaccharides originally present in said first mixture and also monosaccharides formed from said hydrolyzing step, and

detecting the reaction products of said step of reacting.

4,278,439

SENSITIZERS FOR PEROXIDATIVE ACTIVITY TESTS

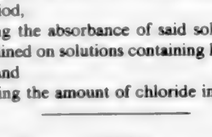
William I. White, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Dec. 17, 1979, Ser. No. 104,086

Int. Cl.³ C09K *3/00;* **G01N** *33/48, 31/22*

U.S. Cl. 23—230 B **7 Claims**

1. A test composition for detection of peroxidatively active substances in body fluids, body excreta, and the like, including an indicator capable of being oxidized in the presence of a peroxidatively active substance to provide a color change, an oxidizing agent effective to oxidize said indicator, and an effective amount of a sensitizing agent selected from the class of compounds having the formula:



wherein R_1 and R_2 are independently selected from hydrogen and C_1-C_4 alkyl.

4,278,440

REAGENT AND METHOD FOR DIRECT DETERMINATION OF CHLORIDE IN SERUM

Wai-Tak Law, Rye, N.Y., and Gerhard Ertingshausen, Greenwich, Conn., assignors to Union Carbide Corporation, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,215

Int. Cl.³ G01N *33/52*

U.S. Cl. 23—230 B **8 Claims**



1. A process for the direct quantitative determination of chloride in blood serum which comprises the steps of:

(a) contacting a sample of said serum with a reagent to form a solution, said reagent containing:

(i) from about 0.01 N to about 2.0 N perchloric acid in deionized water,

(ii) from about 0.01 N to about 1.0 N ferric perchlorate in deionized water, and

(iii) from about 0.1 to about 20 percent by weight of an aqueous solution of a non-ionic surfactant, capable of minimizing protein precipitation while not interfering with absorbance measurement of the chloride complex;

(b) measuring the absorbance of said solution after an incubation period,

(c) comparing the absorbance of said solution with absorbance obtained on solutions containing known amounts of chloride, and

(d) determining the amount of chloride in said serum.

4,278,441

FLAME SAMPLING APPARATUS AND METHOD

Hartwell F. Calcote, Princeton, and Douglas B. Olson, Lawrenceville, both of N.J., assignors to Aerochem Research Laboratories, Inc., Princeton, N.J.

Filed Feb. 14, 1980, Ser. No. 121,295

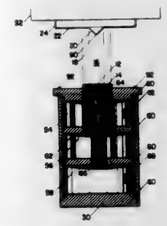
Int. Cl.³ G01N *21/72*

U.S. Cl. 23—232 E **10 Claims**

8. A method for sampling ions in a flame comprising the steps of:

producing a first flame containing the ion samples to be analyzed, said first flame having a velocity V_1;

producing a second flame located adjacent to said first flame and having a velocity V_2 close in magnitude to V_1, said first and second flames defining a relatively stable boundary therebetween; and,



sampling said ions of said sample with an analyzing means having a charged orifice located in said second flame and positioned at a distance close enough to said boundary to attract ion samples of a polarity opposite to the charge on said orifice thereby drawing the sample ions into said orifice for analysis by said analyzing means.

4,278,442

METHOD FOR REDUCING CAKING PROPERTY OF COAL

Minoru Matsuda, 1-11-806, Kawauchi-Jutaku, Kawauchi Mubanchi, Sendai, Miyagi; Hirotsugu Iwasaki, 11-5, Kinoshita, 2 Chome, Sendai, Miyagi; Yasukatsu Tamai, 1-11-401, Kawauchi-Jutaku, Kawauchi Mubanchi, Sendai Miyagi; Masashi Iino, 2-5, Kunimi 2 Chome, Sendai Miyagi, and Hiroshi Fukutome, 413, Kitamemachi Bldg., 2, Kitamemechi 4 Chome, Sendai, Miyagi, all of Japan

Filed Nov. 29, 1979, Ser. No. 98,448

Claims priority, application Japan, Nov. 30, 1978, 53-148132

Int. Cl.³ C10L *5/00*

U.S. Cl. 44—1 R **7 Claims**

3. A method for treating coal to reduce the caking property and to increase the friability thereof, which comprises the steps of: in a closed vessel, mixing and intimately contacting coal particles with liquid or gaseous sulfur dioxide, at a temperature of from 120° to 200° C., at an autogenous pressure corresponding to the absolute saturated vapor pressure of sulfur dioxide at said temperature, wherein the weight ratio of SO_2/coal is from 0.5/1 to 10/1, until the CSN index value of the coal particles is reduced to about 1.5 or lower; and then separating the coal particles from the sulfur dioxide.

4,278,443

ENERGY GENERATING PROCESS AND NOVEL FUEL THEREFOR

Harold Beuther, Chesnick, and Johann G. Schulz, Pittsburgh, Both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jun. 7, 1979, Ser. No. 46,442

Int. Cl.³ C10L *1/02*

U.S. Cl. 44—56 **12 Claims**

1. A novel fuel composition comprising (1) a mixture of polycyclic, polycarboxylic acids obtained by oxidizing an aqueous coal slurry containing from about 40 to about 95 weight percent water with aqueous nitric acid having a concentration of about five to about 90 percent at a temperature of about 5° to about 200° C. and a pressure of about atmospheric to about 1000 pounds per square inch gauge over a period of about 0.5 to about 15 hours, separating from the resulting product an aqueous phase and a solid phase and then extracting the solid phase with a solvent to recover said mixture and (2) an organic component selected from the group consisting of methanol, ethanol, normal propanol, isopropanol and a liquid hydrocarbon fuel, said novel fuel composition containing from about five to about 75 weight percent of said polycyclic, polycarboxylic acids.

4,278,444

LIQUID HYDROCARBONS CONTAINING A FLUORESCENT COMPOUND

Robert E. Beyer, Pennington, and John P. Magoulas, Belle Mead, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 22, 1980, Ser. No. 142,799

Int. Cl.³ C10L *1/18*

U.S. Cl. 44—59 **5 Claims**

1. A method for detecting the presence of regular unleaded or super unleaded gasoline and a mixture of these gasolines, or in mixtures of one or more of these with leaded gasolines or other fuels, the method comprising the steps of adding to one of the unleaded gasolines, prior to mixing, a minor amount, up to about 0.3 ppm, of an alkylated isodibenzanthrone and then determining the presence of said alkylated isodibenzanthrone by spectrographic means, after the unleaded gasoline is mixed with other gasolines.

4,278,445

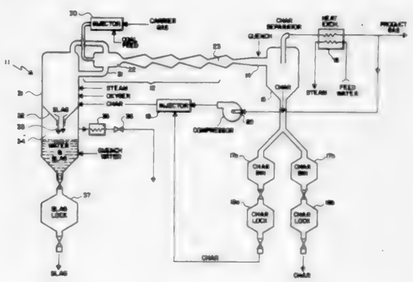
SUBSONIC-VELOCITY ENTRAINED-BED GASIFICATION OF COAL

David B. Stickler, Carlisle; Charles W. Von Rosenberg, Jr., Belmont, and Richard E. Gannon, Andover, all of Mass., assignors to Avco Everett Research Laboratory, Inc., Everett, Mass.

Filed May 31, 1979, Ser. No. 44,020

Int. Cl.³ C10J *3/46*

U.S. Cl. 48—197 R **12 Claims**



1. A process for the gasification of solid carbonaceous fuel comprising:

(a) combusting carbonaceous matter and an oxidizer in a combustion stage whereby said carbonaceous matter and oxidizer are reacted and hot products of combustion including hot combustion gas are formed;

(b) introducing steam into said combustion stage to provide an ingredient of said combustion gas;

(c) introducing said combustion gas into a mixing stage through which said combustion gas flows at subsonic velocity and at a predetermined level of turbulence;

(d) introducing and dispersing finely divided solid carbonaceous fuel in said combustion gas in said mixing stage to form a mixed flow of particles of dispersed solid carbonaceous fuel entrained in surrounding hot combustion gas;

(e) introducing said mixed flow into a gasification stage having a duct and through which said mixed flow flows at subsonic velocity with a mean gas flow rate of 10–500 m/sec.;

(f) providing one or a plurality of fluid-dynamic bulk gas accelerations and decelerations to said mixed flow whereby said particles are strongly moved with respect to said surrounding hot gas by forcing a velocity differential between said particles and said gas using the inertia of said

particles and accelerations of said gas, said mixed flow having accelerations and decelerations and said hot gas having an initial temperature sufficient that said particles are subjected to an average heating rate of at least about 10^5 degrees Kelvin per second, said particles are at least partially gasified and reduced to char and a product gas is formed;

(g) withdrawing from said gasification stage a product stream comprising said char and product gas;

(h) separating said char from said product stream; and

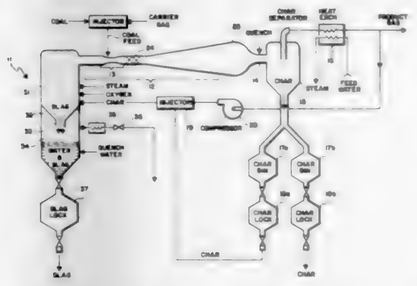
(i) returning at least part of said separated char to said combustion stage to provide carbonaceous matter for combustion.

4,278,446

VERY-HIGH-VELOCITY ENTRAINED-BED GASIFICATION OF COAL

Charles W. Von Rosenberg, Jr., Belmont; David B. Stickler, Carlisle, and Richard E. Gannon, Andover, all of Mass., assignors to Avco Everett Research Laboratory, Inc., Everett, Mass.

Filed May 31, 1979, Ser. No. 44,354
Int. Cl.³ C10J *3/46*
U.S. Cl. 48—197 R **13 Claims**



1. A process for the gasification of solid carbonaceous fuel comprising:

(a) combusting carbonaceous matter and an oxidizer in a combustion stage whereby said carbonaceous matter and oxidizer are reacted and products of combustion including combustion gas are formed;

(b) introducing steam into said combustion stage;

(c) introducing said combustion gas and steam under pressure to a gasification stage having a nozzle through which said combustion gas and steam flow at at least sonic velocity;

(d) introducing and dispersing finely-divided solid carbonaceous fuel comprising particles in said combustion gas at said nozzle;

(e) selectably controlling characteristics of said flow of said combustion gas and steam containing said dispersed solid fuel to provide relative movement of said particles of said fuel with respect to said combustion gas and stream by using the inertia of said particles and a plurality of accelerations and decelerations of said combustion gas and steam, provided by at least one shock wave and expansion in said flow, said combustion gas and steam having an initial temperature and said selected flow characteristics providing sufficient relative movement to provide an average heating rate of said fuel of at least about 10^5 degrees Kelvin per second whereby said fuel is partially gasified and reduced to char and a product gas is formed;

(f) withdrawing from said gasification stage a product stream comprising said char and product gas;

(g) separating said char from said product stream; and

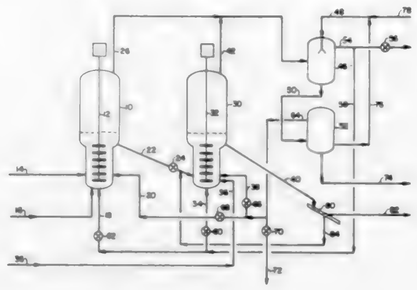
(h) returning at least part of said separated char to said combustion stage to provide carbonaceous matter for combustion.

4,278,447

METHODS FOR PRODUCING FEEDSTOCK FOR A FIXED BED GASIFIER FROM FINELY-DIVIDED COAL

Philip J. Dudt, Scenery Hill, Pa., assignor to Conoco, Inc., Stamford, Conn.

Filed Nov. 16, 1979, Ser. No. 95,022
Int. Cl.³ C10J *3/00*
U.S. Cl. 48—210 **13 Claims**



1. A process for gasifying a feedstock, produced from finely divided coal, in a fixed bed gasifier comprising:

(a) charging said finely divided coal to a first stirred semi-fluidized carbonizer reaction zone;

(b) charging a free oxygen containing gas to said first reaction zone in an amount sufficient to maintain a temperature from about 950° to about 1200° F. in said first reaction zone;

(c) passing an inert sweep gas upwardly through said first reaction zone at a rate sufficient to provide a linear gas velocity in said first reaction zone from about 0.1 to about 0.5 feet per second;

(d) recovering a gaseous stream from said first reaction zone;

(e) recovering a first particulate coal derived solids stream from said first reaction zone said first particulate coal derived solids stream having a larger average particle size than said finely divided coal;

(f) charging said first particulate coal derived solids stream to a second semi-fluidized stirred carbonizer reaction zone;

(g) charging said finely divided coal to said second reaction zone;

(h) passing an inert sweep gas upwardly through said second reaction zone at a rate sufficient to provide a linear gas velocity in said second reaction zone from about 0.1 to about 0.5 feet per second;

(i) recovering a gaseous stream from said second reaction zone;

(j) recovering a second particulate coal derived solids stream, from said second reaction zone, said second particulate coal derived solids stream having an average particle size greater than ¼ inch and larger than said first particulate coal derived solids stream; and

(k) charging the portion of said second particulate coal derived solids stream of a size consist larger than about ¼ inch to the fixed bed gasifier.

4,278,448

DIAMOND ABRASIVE GRITS

Hiroshi Ishizuka, 19-2 Ebara 6-chome, Shinagawa-ku, Tokyo, and Kazuo Suzuki, 931 Kagawa, Chigasaki, Kanagawa, both of Japan

Continuation of Ser. No. 805,157, Jun. 9, 1977, abandoned. This application May 31, 1979, Ser. No. 44,067
Int. Cl.³ C09K *3/14*
U.S. Cl. 51—295 **13 Claims**

1. An abrasive tool for grinding a combined workpiece of a steel with an ultrahard alloy, comprising a grinding wheel comprising a resinoid binding material and synthetic diamond abrasive grits held therein, said abrasive grits being selected from one of the combinations of the grit size, bulk density and grit strength as listed in the following:

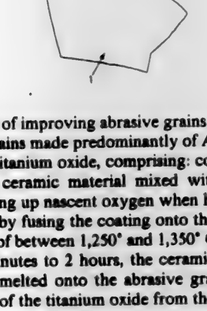
Combination	Grit Size mesh/in	Bulk Density g/cc	Grit Strength % by wt./sec
1	60 to 80	1.80 to 1.88	38 to 50/45
2	80 to 100	1.80 to 1.88	38 to 50/60
3	100 to 120	1.80 to 1.88	38 to 50/75
4	120 to 140	1.78 to 1.88	38 to 50/90
5	140 to 170	1.78 to 1.88	38 to 50/120
6	170 to 200	1.78 to 1.85	38 to 50/150
7	200 to 230	1.78 to 1.85	38 to 50/180
8	230 to 270	1.75 to 1.83	38 to 50/210
9	270 to 325	1.75 to 1.83	38 to 50/230
10	325 to 400	1.72 to 1.80	38 to 50/270

4,278,449

METHOD FOR IMPROVING THE QUALITY OF ABRASIVE GRAINS

Harald Helletsberger, Wattens; Anton Aichhorn, Thaur, and Erich Boguach, Schwaz, all of Austria, assignors to Tyrolit-Schleifmittelwerke Swarovski K.G., Austria

Filed Dec. 6, 1979, Ser. No. 101,004
Claims priority, application Austria, Feb. 7, 1979, 901/79
Int. Cl.³ B24D *3/02, 3/14*
U.S. Cl. 51—309 **16 Claims**



1. A method of improving abrasive grains of a grinding disc, the abrasive grains made predominantly of Al_2O_3 with impurities including titanium oxide, comprising: coating the abrasive grains with a ceramic material mixed with metallic oxides capable of giving up nascent oxygen when heated, coating the abrasive grain by fusing the coating onto the abrasive grain at a temperature of between 1,250° and 1,350° C. over a period of between 15 minutes to 2 hours, the ceramic coating being at least partially melted onto the abrasive grain simultaneously with a change of the titanium oxide from the trivalent into the quadrivalent degree of oxidation.

4,278,450

METHOD FOR THE RECOVERY OF CLEAN PYROLYSIS OFF-GAS AND A ROTARY RECYCLING MEANS THEREFOR

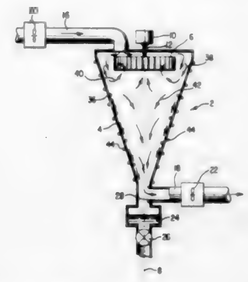
David R. Hurst, Norcross, and Lewis W. Elston, Atlanta, both of Ga., assignors to Georgia Tech Research Institute, Atlanta, Ga.

Filed Oct. 9, 1979, Ser. No. 82,857
Int. Cl.³ B01D *50/00*
U.S. Cl. 55—80 **17 Claims**

1. A method for cleaning off-gas having particulate solids and organic vapors entrained therein, said method comprising the steps of:

introducing said off-gas into the upstream end of a substantially closed chamber;

utilizing a rotor rotating about an aixs which is parallel to the overall direction of off-gas flow, to radially deflect said off-gas so that said off-gas impinges upon a wall of said chamber and to draw off-gas only from adjacent the downstream side of said rotor and force said off-gas in a substantially radial direction so as to impinge upon the walls of said chamber whereby a portion of said vapors are condensed and recovering purified gas.

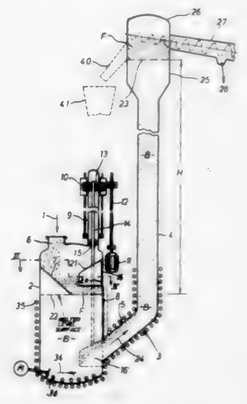


4,278,451

APPARATUS FOR EXTRACTING GRANULAR OR FINELY DIVIDED SOLID MATERIALS FROM A GAS UNDER PRESSURE

Rolf van der Piepen, Bochum-Stiepel, and Frohmut Vollhardt, Siegen-Bürbach, both of Fed. Rep. of Germany, assignors to Gutehoffnungshütte Stockrade AG, Oberhausen, Fed. Rep. of Germany

Continuation of Ser. No. 762,575, Jan. 26, 1977, abandoned. This application Jul. 5, 1979, Ser. No. 54,804
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1976, 2603274
Int. Cl.³ B01D *47/00*
U.S. Cl. 55—227 **5 Claims**



1. An apparatus for collecting solid, particulate material in a gas under pressure, comprising means forming a gas-tight, primary chamber having an inlet at the top of said primary chamber connected to a source of gas and particulate matter under pressure, for deposit of said particulate matter into said

chamber, and a secondary chamber interconnected by a passage between the lower ends of said chambers, the secondary chamber extending upwardly to a substantially greater height than said primary chamber, and said passage being inclined upwardly toward said secondary chamber, molten liquid metal of higher specific gravity than said particulate matter being disposed in said chambers and passage and extending upwardly in said secondary chamber to a higher level than in said primary chamber, the difference in height representing the difference in pressures above the liquid in the two chambers, an inclined surface in said primary chamber below said inlet to guide particulate matter fed through said inlet toward one side of said primary chamber to float on said molten liquid in said primary chamber, and a conveying means in said primary chamber movable through said liquid for forcing said particulate matter on the surface of said molten liquid metal downwardly through said liquid to said passage for floating movement through said liquid up said inclined passage to said secondary chamber and upwardly to the surface in said secondary chamber, and means to remove said particulate matter from the surface of said molten liquid metal in said secondary chamber.

4,278,452

CYCLONE SEPARATOR

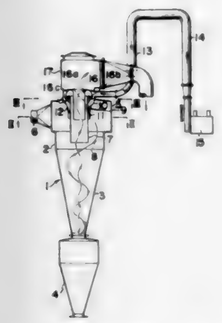
Kazuo Ido, Hino; Yukio Sogo, Atsugi; Kozo Taneda, Kodaira; Katzuji Sakai, Chiba, and Yoichiro Sato, Matsudo, all of Japan, assignors to Snow Brand Milk Products Co., Ltd., Hokkaido, Japan

Filed Aug. 23, 1979, Ser. No. 68,953

Claims priority, application Japan, Aug. 28, 1978, 53-117527[U]; Sep. 29, 1978, 53-134551[U]

Int. Cl.³ B01D *45/12*

U.S. Cl. 55—261 **6 Claims**



1. A cyclone separator comprising a separating tower defining a separating chamber therein, inlet means for introducing particle laden gas into the separating chamber at an upper portion thereof in such a manner that the introduced gas forms a spiral downward flow along an inner wall surface of the separating tower and then it is turned in its direction of flow to form a spiral upward flow substantially along a center portion thereof, and outlet pipe means disposed in the upper portion of the separating chamber for allowing the spiral upward flow of gas to pass therethrough, comprising at least two co-axial outlet pipes radially separated from each other and disposed to form an annular passage therebetween, the innermost outlet pipe of the at least two outlet pipes extending upwardly and then outwardly and downwardly to surround the upper portion of the outermost outlet pipe of the outlet pipes and the portion of said innermost outlet pipe which surrounds said outermost outlet pipe having suction port means which communicates with the annular passage between each pair of adjacent outlet pipes and which is in flow communication with the inflowing particulate laden gas so that the outermost portion of the spiral upward flow which has entered into the outlet pipe means is drawn into said annular passage and returned back through said port means to said separating chamber while disturbing the outer surfaces of said outlet pipe means.

5. A cyclone separator comprising a separating tower defining a separating chamber therein, inlet means for introducing particle laden gas into the separating chamber at an upper portion thereof in such a manner that the introduced gas forms a spiral downward flow along an inner wall surface of the separating tower and then it is turned in its direction of flow to form a spiral upward flow substantially along a center portion thereof, and outlet pipe means disposed in the upper portion of the separating chamber for allowing the spiral upward flow of gas to pass therethrough, comprising at least two co-axial outlet pipes radially separated from each other and disposed to form an annular passage therebetween, the innermost outlet pipe of the at least two outlet pipes extending upwardly and then outwardly and downwardly to surround the upper portion of the outermost at least two outlet pipe of the outlet pipes and to form between its lower end and said outermost outlet pipe a port which communicates with the annular passage between each pair of adjacent outlet pipes and which is adapted to be subjected to a suction force when a stream of fluid flows before said port, accelerating gas discharging means located on the upper outer surface of said outermost outlet pipe, and connected to a pressurized gas supplying means to discharge accelerating gas along the outer surface of said outermost outlet pipe, said outer lower end of said innermost outlet pipe extending into said accelerating gas discharging means so that when the accelerating air is injected through said accelerating air discharging means a suction force is created at said port by aspiration effect and the outermost portion of the spiral upward flow which has entered into the outlet pipe means is drawn into said annular passage and returned back through said port means to said separating chamber while disturbing the outer surfaces of said outlet pipe means.

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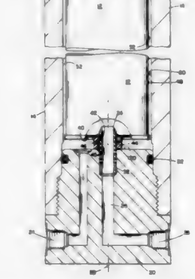
GAS PURIFICATION

Jordan N. Klein, Summerfield, Fla., assignor to Mako Compressors Inc., Ocala, Fla.

Filed Feb. 25, 1980, Ser. No. 124,307

Int. Cl.³ B01D *46/00*

U.S. Cl. 55—275 **10 Claims**



1. In gas purification apparatus having a purification cartridge mounted in a housing having an inlet and an outlet, said cartridge containing chemicals for removing contaminants and moisture from gas, the interior of said cartridge communicating with said housing inlet, said cartridge having at least one end wall with a restricted opening therethrough to permit gas flow from the interior to the exterior of said cartridge, that improvement comprising

a removable indicator plug mounted in said housing adjacent to said cartridge and having at least a portion spaced from and facing said restricted opening in said end wall thereby defining a gas flow zone communicating with said opening, said flow zone also communicating with said housing outlet,

said indicator plug having a replaceable visual indicator for at least one expected pollutant of said gas mounted in said plug, wherein turbulent gas flow from said restricted opening in said cartridge reaches said indicator in said plug and

a window mounted in said plug to permit observation of said indicator from outside said housing,

said plug having gas flow space communicating between said indicator and said zone.

4,278,454

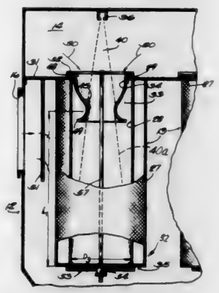
FILTER APPARATUS WITH REVERSE FLOW CLEANING

Stephen A. Nemesi, Louisville, Ky., assignor to Wehr Corporation, Milwaukee, Wis.

Filed May 29, 1979, Ser. No. 42,963

Int. Cl.³ B01D *46/04*

U.S. Cl. 55—302 **9 Claims**



1. Filter apparatus comprising, in combination,

a hopper,

an exhaust chamber,

at least one filter assembly disposed in said hopper and having a gaseous medium flow opening communicating with said exhaust chamber, said filter assembly including a filter medium having inner walls,

said hopper being generally sealed from said exhaust chamber except through the filter medium of said filter assembly,

means defining an inlet into said hopper for introducing contaminated gaseous medium into said hopper so that said contaminated gaseous medium is caused to flow to said exhaust chamber through said filter medium and contaminants are accumulated on said filter medium,

a generally hollow inductor unit positioned at the opening of said assembly to said exhaust chamber and through the interior of which gaseous medium passes in flowing between said hopper and said exhaust chamber,

means for selectively directing a reverse stream of air into said inductor unit from the exhaust chamber side thereof so that said reverse stream of air enters said filter assembly and flows through said filter medium in the reverse of the direction of contaminated gaseous medium flow to remove accumulated contaminants from said filter medium,

said inductor unit including,

a bell-mouth section at the opening of said filter assembly to said exhaust chamber,

a throat spaced from said bell-mouth section away from said exhaust chamber and having a diameter less than that of said bell-mouth section,

and means defining a wall extending from said bell-mouth section to a generally arcuate shoulder adjacent said throat and having a major diameter which is generally greater than the diameter of said throat so that said reverse stream entering said inductor unit does not impinge directly on said wall until it reaches said shoulder and said stream aspirates gaseous medium into said inductor unit which combines with said reverse stream and flows into said filter assembly and through said filter medium, said throat having a minimum diameter area, said filter medium having a minimum inner diameter,

and the distance from said minimum diameter throat area to said minimum filter medium diameter area and the relationship of said minimum throat area diameter to said minimum filter medium diameter are such that the airstream being discharged from said throat area does not impinge directly on the inner walls of said filter medium.

4,278,455

AIR FILTER AND AIR FILTER CONTAINER

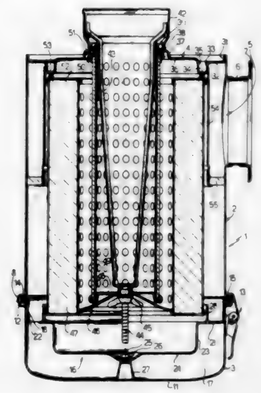
Giovanni Nardi, Pisa, Italy, assignor to Gilardini S.p.A., Turin, Italy

Filed Nov. 27, 1979, Ser. No. 97,679

Claims priority, application Italy, Nov. 30, 1978, 53934/78[U]

Int. Cl.³ B01D *50/00*; B65D *51/16*

U.S. Cl. 55—337 **12 Claims**



1. A container for air filters adapted to selectively house one of at least two different primary filter elements having different diameters and lengths, said container having a cylindrical body closed at one end by a fixed cap and at its opposite end by a removable cap, an air inlet in said container body and a centrally disposed air outlet in said fixed cap, said fixed cap having a plurality of concentric annular sealing surfaces surrounding said air outlet, each such sealing surface forming a seat for a different size primary filter element, an adjustable means for securing a selected one of the said primary elements in said container with its end in sealing contact with the corresponding sealing surface, each of said sealing surfaces being surrounded by an annular wall to center the selected filter element on its corresponding sealing surface, and including centering means within the container at the end opposite said fixed cap to center the selected filter element with respect to its corresponding sealing surface, said centering means comprising a plurality of annular walls corresponding in diameter to the diameters of said different primary filter elements, each of said annular walls of said centering means being in axial alignment with a corresponding annular wall surrounding said sealing surfaces, whereby to center the selected filter element both at the top and at the bottom of said container.

10. The container claimed in claim 1 in combination with a primary filter element of a size to seat on one of said annular sealing surfaces, said primary filter element having an annular

gasket in contact with said one of said sealing surfaces, whereby said primary filter is hermetically sealed to said one sealing surface.

4,278,456

VACUUM CLEANER

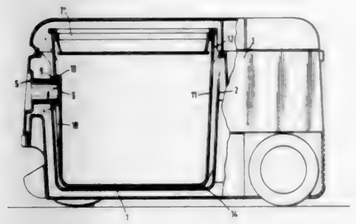
Niklaus Hug, Romanshorn, Switzerland, assignor to Rommag P. Wörwag & Co., Romanshorn, Switzerland

Filed Dec. 26, 1979, Ser. No. 106,483

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856102

Int. Cl.³ B01D *46/04*

U.S. Cl. 55—429 **7 Claims**



1. A vacuum cleaner for professional, commercial, and household use, comprising:

a housing having a longitudinal axis and interior provided with inlet means including an opening that projects into and communicates with the interior of said housing for admitting dust-laden air thereto;

a removable dust collecting container including a filter and having an upper edge region and a bottom surface as well as an outer surface facing the inlet means, said container being inserted and received in said housing interior and being provided with an inlet flow opening communicating with said inlet means for receiving dust-laden air;

a seal arranged between said inlet flow opening of said container and said opening of said inlet means for establishing an airtight and dust-tight connection therebeteen;

rib means on said housing for facilitating insertion of said dust collecting container in said housing interior, and for producing, along with said seal, a sealing fixation located between said inlet flow opening of said container and said opening of said inlet means;

said dust collecting container on that outer surface thereof which faces said inlet means, being provided with a guide groove which is arranged to engage said opening of said inlet means with nominal play; and

at least one inlet rib provided with said dust collecting container on the outer surface thereof located across from said inlet flow opening, said rib engaging against said housing of the vacuum cleaner and having an inclined mounting surface and an engagement surface adjoining the mounting surface with which the inserted dust collecting container engages against said housing of the vacuum cleaner.

4,278,457

HYDROCARBON GAS PROCESSING

Roy E. Campbell, and John D. Wilkinson, both of Midland, Tex., assignors to Ortloff Corporation, Midland, Tex.

Filed Jul. 14, 1977, Ser. No. 815,542

Int. Cl.³ F25J *3/02*

U.S. Cl. 62—24 **7 Claims**

1. In a process for the separation of a feed gas containing methane and ethane into a volatile residue gas containing a major portion of said methane and a relatively less volatile fraction containing a major portion of said ethane, said feed gas containing hydrocarbons and at least 0.02 mole percent carbon dioxide, wherein methane and ethane together comprise a major portion of said feed gas, in said process

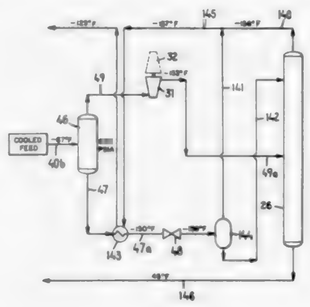
(a) said feed gas being cooled under pressure to provide a cooled feed stream;

(b) said cooled feed stream being expanded to a lower pressure whereby it is further cooled; and

(c) said further cooled feed stream is fractionated at said lower pressure in a fractionation column, the overhead temperature of said fractionation column being maintained at a temperature whereby the major portion of said ethane is recovered in said relatively less volatile fraction;

the improvement wherein prior to cooling said feed gas is divided into a first gaseous stream and a second gaseous stream prior to said step (a) and

(1) said first stream is cooled to condense substantially all of it, and is thereafter expanded to said lower pressure;



(2) said second stream is cooled under pressure to provide a cooled feed stream and is thereafter expanded to said lower pressure; and

(3) said expanded first and second streams are thereafter supplied to said fractionation column at first and second feed points, respectively, said first feed point being the top liquid feed to said column, and said second feed point being at a mid-column feed position,

the proportion of said feed gas comprising said second stream, and the temperature of said second gas stream prior to expansion being controlled sufficiently that the temperature and amount of the expanded vapor will be effective to reduce the risk of carbon dioxide icing in said fractionation column.

4,278,458

OPTICAL FIBER FABRICATION METHOD AND APPARATUS

Paul B. O'Connor, Plainfield, and Arthur D. Pearson, Bernardsville, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 7, 1979, Ser. No. 9,935

Int. Cl.³ C03B *37/07*

U.S. Cl. 65—2 **20 Claims**

12. A method of fabricating optical fibers comprising, producing a glass precursor vapor;

combining the vapor with a stream of carrier gas at a temperature greater than T_c;

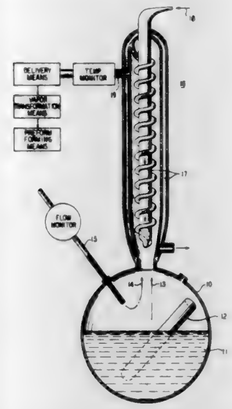
monitoring the quantity of carrier gas combined with the vapor;

passing the combination of vapor and carrier gas through a substantially constant temperature region at a temperature T_c, where condensation occurs, to obtain a stream of carrier gas saturated at temperature T_c with the vapor;

adjusting the temperature T_c, the amount of vapor initially produced, the amount of carrier gas introduced, or combinations thereof, so as to maintain condensation in the T_c temperature region;

monitoring the temperature of the saturated gas stream;

delivering the resulting vapor to a vapor transformation means without substantial condensation of the glass precursor vapor;



transforming the delivered vapor into an appropriate glass; and

forming the glass into an optical fiber preform.

4,278,459

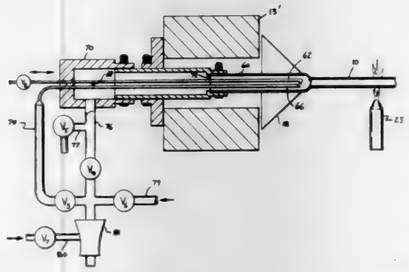
METHOD AND APPARATUS FOR EXHAUSTING OPTICAL FIBER PREFORM TUBES

Fred P. Partus, Atlanta, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Mar. 3, 1980, Ser. No. 126,605

Int. Cl.³ C03C *25/02*; C03B *37/00*

U.S. Cl. 65—18 **16 Claims**



1. A method of exhausting reaction products from an optical fiber preform tube into which through an upstream tube end vapors are introduced entrained with a carrier gas for chemical reaction and deposition, and with the method comprising the steps of providing an exhaust tube with an entry end located adjacent and in fluid communication with a downstream end of the preform tube; applying suction to the exhaust tube; and introducing a stream of reaction product agitating gas substantially free of vapor deposition reaction products into the exhaust tube at a location adjacent the exhaust tube entry end.

4,278,460

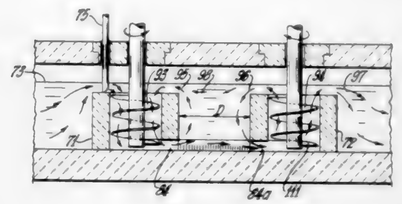
METHOD AND APPARATUS FOR MIXING AND HOMOGENIZING MOLTEN GLASS

Max G. Chrisman, Granville; Gary W. Ganzala, Columbus, and Ralph L. Tiede, Granville, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation of Ser. No. 735,487, Oct. 26, 1976, abandoned. This application Apr. 18, 1979, Ser. No. 31,263

Int. Cl.³ C03B *5/187*

U.S. Cl. 65—134 **22 Claims**



1. Apparatus for homogenizing molten glass flowing through a forehearth channel comprising, a flow restricting block projecting upward from the channel floor and extending across the width of said channel adapted for causing molten glass flowing through said channel to flow over the upstream top surface of said block, an internal passageway formed in said block descending from the block's top surface and communicating with the downstream forehearth channel, stirrer means positioned within said internal passageway for simultaneously stirring and pumping molten glass downward through said passageway at a flow rate greater than the average forehearth flow rate and thereby causing a back flow of molten glass from the downstream forehearth channel over the top downstream surface of said block to be recycled through said passageway.

9. Method for operating a glass melting furnace having a melting zone and at least one processing zone disposed adjacent to said melting zone and which is connected by a passage thereto, the method which comprises causing molten glass to flow from said melting zone to said processing zone, withdrawing a portion of the molten glass from the top of said processing zone laterally in a surface flow, recirculating the withdrawn portion of molten glass to said processing zone or to a separate refining zone by flowing the recirculated portion of molten glass into the passage connecting the melting zone and the processing zone and applying a submerged, downwardly directed impulse to the recirculated glass.

4,278,461

HERBICIDAL AGENTS

Gerhard Salbeck, Hofheim; Hubert Schönowsky, Urbersch; Gerhard Hörlein, Frankfurt am Main; Peter Langelüddeke, Diedenbergen, and Helmut Köcher, Hofheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

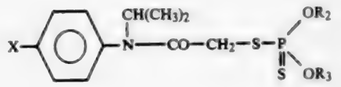
Continuation of Ser. No. 764,963, Feb. 2, 1977, abandoned. This application Sep. 13, 1978, Ser. No. 942,069

Claims priority, application Fed. Rep. of Germany, Feb. 4, 1976, 2604224

Int. Cl.³ A01N *57/14*; C07F *9/40*

U.S. Cl. 71—87 **11 Claims**

1. A compound of the formula



wherein

X is halogen and

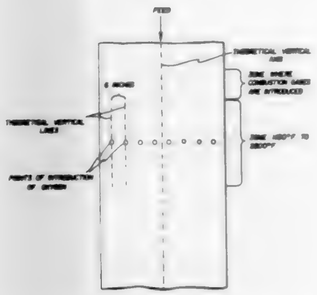
R_2 and R_3 are selected from methyl and ethyl.

4,278,462

PROCESS FOR UPGRADING IRON ORE PELLETS

Kazuo Kiyonaga, Tarrytown, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Aug. 6, 1976, Ser. No. 712,259
Int. Cl.³ C22B *1/214*
U.S. Cl. 75—5 **7 Claims**



1. In a process for hardening oxidizable green iron ore pellets in a vertical shaft furnace adapted therefor, said process comprising passing the pellets through the furnace wherein said pellets are heated by contact with hot combustion gases and air, the furnace having a zone which is downstream of the introduction of the combustion gases, said zone having an average temperature in the range of about 1100° F. to about 2200° F.,

the improvement comprising

directing a plurality of gas streams consisting essentially of oxygen at the pellets passing through the periphery of said zone in such a manner that

(a) each stream penetrates into the furnace about one to about six inches measured from the inside surface of the furnace wall along a line perpendicular to the theoretical vertical axis of the furnace;

(b) the velocity of each stream is sufficient to substantially prevent the stream from flowing up the furnace wall;

(c) the points of introduction of the streams are on the inside surface of the furnace wall located in the zone; and

(d) any theoretical vertical line, which is parallel to the vertical axis of the furnace and along which line any point of introduction is located, is no more than about 12 inches from any other such theoretical line along which any other point of introduction is located.

4,278,463

PROCESS FOR RECOVERING COBALT

Clarence D. Vanderpool; Martin B. MacInnis, both of Towanda; Robert P. McClintic, Monroeton, and Richard G. W. Gingerich, Towanda, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 28, 1980, Ser. No. 135,050
Int. Cl.³ C22B *23/04*
U.S. Cl. 75—0.5 A **4 Claims**

1. An improvement in the process for producing cobalt, the basic process comprising the steps of forming cobalt ions in solution by digesting scrap tungsten carbide in hydrochloric acid to form a solution comprising cobalt chloride and dissolved cations selected from the group consisting of iron, copper, and manganese and mixtures thereof, complexing said cobalt ions with ammonia in the presence of chloride ions to form a cobalt ammine chloride solution, forming a cobalt containing precipitate, separating said cobalt containing precipitate from the resulting solution containing dissolved cations, wherein the improvement comprises contacting the resulting solution containing dissolved cations at an acid pH with a sufficient amount of aluminum metal for a sufficient period of time to form cobalt metal as a precipitate.

4,278,464

METHOD FOR PREVENTING SLOPPING DURING SUBSURFACE PNEUMATIC REFINING OF STEEL

Roland P. Bury, Marcimelle, Belgium; Stewart K. Mehlman, Tarrytown, and Rockne J. Andreini, New York, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 27, 1979, Ser. No. 107,535
Int. Cl.³ C21C *7/00, 5/30*
U.S. Cl. 75—51 **5 Claims**

1. A method for preventing slopping during subsurface pneumatic refining of a steel melt which requires fuel additions, while simultaneously controlling the temperature of the melt, comprising:

adding an oxidizable fuel material to the melt in an amount sufficient to obtain the desired tap temperature at the end of the refining period, at a time after the melt has been decarburized to substantially the specification carbon content or after the carbon content has fallen below about 0.50%.

4,278,465

CORROSION-RESISTANT ALLOYS

John H. Culling, Kirkwood, Mo., assignor to Carondelet Foundry Company, St. Louis, Mo.

Filed Nov. 2, 1979, Ser. No. 90,572
Int. Cl.³ C22C *30/02*
U.S. Cl. 75—122 **3 Claims**

1. An air meltable, workable, weldable, castable alloy resistant to sulfuric acid solution and hardenable by heat treatment to impart hardness and resistance to abrasion and erosion, said alloy consisting essentially of between about 25.00 and about 28.00% by weight nickel, between about 35.00 and about 38.00% by weight chromium, between about 1.50 and about 3.0% by weight molybdenum, between about 2.8 and about 3.8% by weight copper, between about 3.0 and about 4.5% by weight manganese, between about 0.25 and about 0.85% by weight niobium, between about 20.0 and about 34.2% by weight iron, up to about 1% by weight titanium, up to about 1% by weight tantalum, up to about 0.010% by weight boron, up to about 0.5% by weight cobalt, up to about 1.0% by weight silicon, up to about 0.08% by weight carbon, up to about 0.6% by weight of a rare earth component selected from the group consisting of cerium, lanthanum and misch metal, and up to about 0.15% by weight nitrogen.

4,278,466

TITANIUM ALLOY COMPOSITION AND METHOD FOR THE STORAGE OF HYDROGEN

Olivier de Pous, Geneva, Switzerland, assignor to Battelle Memorial Institute, Geneva, Switzerland

Filed Nov. 9, 1979, Ser. No. 92,656
Claims priority, application Switzerland, Nov. 14, 1978, 11674/78
Int. Cl.³ C22C *30/00*; C01B *6/02*; F17C *11/00*
U.S. Cl. 75—175.5 **10 Claims**

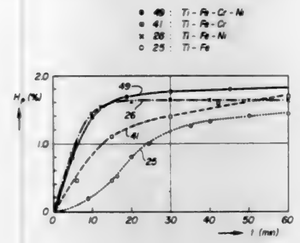
1. A titanium-iron based alloy for the storage of hydrogen having the formula:

$$Ti_wFe_xM'_yM''_z$$

wherein

M′ is a metal selected from the group consisting of chromium and vanadium and having an ability to render a titanium-iron based alloy substantially nonoxidizable in the presence of oxidizing impurities in the hydrogen to be stored;

M″ is a metal selected from the group consisting of nickel and manganese but is nickel where M′ is chromium and is capable of promoting absorption of hydrogen in the alloy;



y and z are each 0.01 to 0.2; and

w is at least equal to the sum of x, y, and z.

4,278,467

SUBSTITUTIVE ADDITIVES FOR ISOPROPYL ALCOHOL IN FOUNTAIN SOLUTION FOR LITHOGRAPHIC OFFSET PRINTING

Thomas A. Fadner, Pittsburgh, Pa., assignor to Graphic Arts Technical Foundation, Pittsburgh, Pa.

Continuation of Ser. No. 941,059, Sep. 11, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 87,692
Int. Cl.³ C09K *3/18, 13/06*
U.S. Cl. 106—2 **2 Claims**

1. An isopropyl alcohol-free fountain solution consisting essentially of, between about 0.5 and 5 percent by volume of one or more compounds selected from a group of non-ionic compounds having less than about 20 percent solubility in water at from about 15°–35° C., the solubility of water in said compounds being not less than about equal to said compounds solubility in water, said non-ionic compounds being miscible with printing inks and having a surface tension value less than about 40 to 50 dynes/cm and having a vapor pressure value less than about 5 mm Hg at 15° to 35° C., said non-ionic organic compounds being present within about 5 weight percent of said non-ionic organic compound water solubility limit at the dampening solution temperature, said non-ionic compounds having a molecular weight of between 100 and 300 gm/mole, said non-ionic organic compounds having a solubility in water to transport sufficient quantities of water to inked surfaces and efficiently renew the water at the surfaces of an inked plate, and

between one-tenth of 1 percent to about 5 percent by weight of a lithographic fountain solution etch concentrate.

4,278,468

GYPSUM FIRE BARRIER FOR CABLE FIRES

Rexford L. Selbe, Palatine; Vincent M. Waropay, Naperville; Paul S. Quigg, Barrington, and William S. Reily, Des Plaines, all of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Sep. 10, 1979, Ser. No. 74,204
Int. Cl.³ C04B *11/00*; E04B *1/74*
U.S. Cl. 106—111 **11 Claims**

1. A gypsum cement composition adapted for use in electrical cable fire barrier operations having pseudo-plastic flow in aqueous slurry, having a dry density of about 25 to 35 pounds per cubic foot and having a dry compressive strength when set below 300 pounds per square inch, which comprises by weight:

about 30 to approximately 80% calcium sulfate hemihydrate;

about 10 to approximately 40% diatomaceous earth aggregate having an apparent bulk density in the range from about 5 to approximately 16 pounds per cubic foot and a water carrying capacity in the range from about 1.5 to approximately 4 times its weight of water;

about 10 to approximately 30% of a second aggregate having a dry bulk density in the range from about 5 to approximately 20 pounds per cubic foot, and a water carrying capacity from about 0.7 to approximately 4 times its weight of water;

and by weight based on the weight of hemihydrate about 0.05–1.25% glycerine and about 0.05–0.7% boric acid.

9. A settable pseudo-plastic mass comprising an aqueous slurry of the composition of claim 1.

4,278,469

PROCESS FOR REPAIRING ASPHALT PAVEMENT

Tsoung Y. Yan, Philadelphia, Pa., and Costandi A. Audeh, Princeton, N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,480
Int. Cl.³ C08L *95/00*
U.S. Cl. 106—278 **4 Claims**

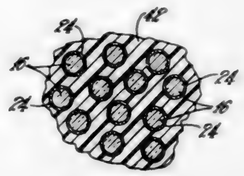
1. A ductile asphaltic composition adapted for repairing and surfacing distressed asphalt pavements which comprises a blend of (1) between about 30–80 weight percent of an asphalt component selected from marginal asphalt materials having a viscosity-penetration index lower than about 2.5×10^5; (2) between about 10–60 weight percent of a highly aromatic petroleum refinery residuum solvent component having a boiling range above about 650° F. and having a hydrogen content distribution in which the H_A, proton content is between about 30 and 50 percent, the H_α proton content is at least 30 percent and the H_α/H_β proton ratio is above about 1.4; and (3) between about 1–20 weight percent of a polymeric component which is substantially asphalt-soluble; wherein the said asphaltic composition has a ring and ball softening point in the range between about 110°–185° F., a ductility of more than 100 centimeters at 77° F., and a penetration value in the range between about 70–300.

4,278,470

BITUMINOUS COMPOSITE REINFORCED WITH A FILLER COATED WITH THE REACTION PRODUCT OF BITUMEN AND AN ORGANOSILICON COMPOUND

Alfred Marzocchi; Michael C. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 43,065, May 29, 1979, which is a continuation-in-part of Ser. No. 970,774, Dec. 18, 1978, abandoned, which is a continuation of Ser. No. 852,778, Nov. 18, 1977, abandoned. This application Mar. 31, 1980, Ser. No. 135,802
Int. Cl.³ B32B *11/00*; C08L *95/00*
U.S. Cl. 106—281 R **3 Claims**



1. A reinforced composite comprising a bitumen as a continuous phase and, as reinforcement in the bitumen, a filler selected from the group consisting of natural and synthetic fillers having a coating thereon, said coating comprising the reaction product of bitumen and an organo silicon compound containing at least one organic group bonded to the silicon atom, with the organic group being substituted with a functional group reactive with the bitumen, and at least one readily hydrolyzable group.

4,278,471

PROCESS FOR EXTRACTING SUGAR FROM CELLULOSE AND CELLULOSIC MATERIALS

Barron S. Whittingham, Los Angeles, Calif., assignor to Carl Eugene Dodlow, Venice, Calif.

Filed Oct. 5, 1979, Ser. No. 82,159
Int. Cl.³ C13K 1/02
U.S. Cl. 127—37 4 Claims

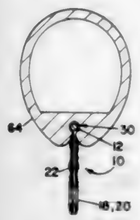
1. A process for producing glucose from pulp cellulose which comprises the following steps: dispersing paper or wood into a solution comprising water, a non-ionic surfactant and trisodium phosphate to form a pulp; washing the pulp free of chemicals until a pH of the order of 7.0 is achieved; dewatering the pulp to a selected degree of moisture; placing the pulp in a closed vessel with water to form an aqueous mixture; adding sulphur dioxide (SO_2) to the aqueous mixture within the vessel at ambient temperature; raising the pressure of the aqueous mixture in the vessel to a selected increased pressure of between two and four atmospheres; agitating the aqueous mixture in the vessel at the selected increased pressure and at ambient temperature to reduce the cellulose fibers of the pulp in the aqueous mixture; releasing the sulphur dioxide (SO_2) from the vessel; adding sulphuric acid (H_2SO_4) to the aqueous mixture in the vessel; raising the pressure within the vessl to 15 psi by heating, and subsequently increasing the pressure to 30 psi and finally increasing the pressure to 40 psi, each increment of increased pressure being maintained for a preselected time, thereby to cause the sulphuric acid (H_2SO_4) to hydrolyze the cellulose in the mixture to a hydrolysate containing dissolved cellulose fibers; and neutralizing the hydrolysate to a pH of the order of 7.0 to produce a syrup containing -D glucose.

4,278,472

METHOD AND APPARATUS FOR CLEANING SAILBOAT BOLT LINE TRACKS

Thomas A. Swanson, 20919 Bloomfield, Apt. 74, Lakewood, Calif. 90715

Filed Dec. 3, 1979, Ser. No. 99,559
Int. Cl.³ B08B 1/00, 9/00
U.S. Cl. 134—8 9 Claims



6. A method of cleaning elongated bolt line tracks on a sailboat using a short cleaning implement having a nappy fabric covered track insertion core, a rigid backing extending parallel to said insertion core, a flexible sheet folded over to define an edge return at which said insertion core is located and a skirt narrower than said insertion core enveloping said rigid backing and in which longitudinally separated grommets are defined, and means for immobilizing said insertion core and said rigid backing within said flexible sheet, comprising engaging said fabric covered insertion core in a bolt line track and repetitively moving said implement reciprocally therealong within said track to dislodge material therefrom.

4,278,473

MONOLITHIC SERIES-CONNECTED SOLAR CELL

Peter G. Borden, Menlo Park, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Aug. 24, 1979, Ser. No. 69,462
Int. Cl.³ H01L 31/04
U.S. Cl. 136—249 10 Claims



1. A monolithic series-connected solar cell having a plurality of individual cells fabricated in spaced-apart relation in semiconductor material on an insulating substrate, said individual cells being separated by breaks which extend through said semiconductor material to said insulating substrate, said individual cells being electrically interconnected in series by leads which extend from the top region of one cell to the base region of an adjacent cell, the improvement comprising:

said lead extending from the top region of one cell over an insulating layer which covers the exposed edges of said one cell to a contact ledge formed in the exposed edge of the base of an adjacent cell, said contact ledge providing a surface for positive termination of said lead.

6. A fabrication sequence for providing a monolithic series-connected solar cell from a single junction cell fully formed in semiconductor material on an insulating substrate, comprising the steps of:

providing a fully formed solar cell of semiconductor material on an insulating substrate;

forming breaks in said semiconductor material, said breaks extending to said insulating substrate to separate individual cell regions;

forming a contact ledge in the exposed edge of the base region of those individual cells which are to be electrically interconnected to the top region of adjacent cells;

forming a layer of insulating material over the exposed edges on the sidewall opposite to said contact ledges; and

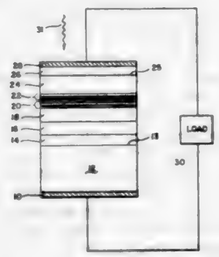
forming an electrically conductive interconnection lead over said layer of insulating material from the top region of said adjacent cell to said contact ledge.

4,278,474

DEVICE FOR CONVERSION OF ELECTROMAGNETIC RADIATION INTO ELECTRICAL CURRENT

A. Eugene Blakeslee, Golden, and Kim W. Mitchell, Indian Hill, both of Colo., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 25, 1980, Ser. No. 133,702
Int. Cl.³ H01L 31/06
U.S. Cl. 136—249 20 Claims



1. A device for direct conversion of electromagnetic radia-

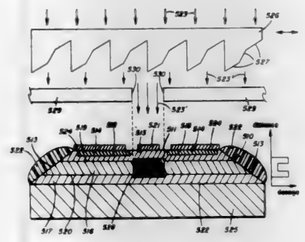
tion to electrical energy comprising, a first ohmic contact, a second ohmic contact, semiconductor means for absorbing electromagnetic radiation positioned between said contacts and including at least first and second portions each of which absorbs electromagnetic radiation in a certain energy spectrum and converts the radiation to electrical energy, with said first portion having a first characteristic electromagnetic energy gap and said second portion having a second characteristic electromagnetic energy gap, said second portion having a lattice structure mismatched to the lattice structure of said first portion, layer means positioned between said first and second portions to substantially block propagation of dislocation defects from one portion to another by substantially preventing the dispersion of said dislocation defects through said layer means, and means for effectuating low resistance electrical contact between said portions.

4,278,475

FORMING OF CONTOURED IRRADIATED REGIONS IN MATERIALS SUCH AS SEMICONDUCTOR BODIES BY NUCLEAR RADIATION

John Bartko, Monroeville, and Earl S. Schlegel, Plum Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 4, 1979, Ser. No. 936
Int. Cl.³ H01L 21/263, 7/54, 21/22
U.S. Cl. 148—1.5 110 Claims



1. A method of forming an irradiated region of a desired thickness, dosage and dosage gradient in a material a desired distance from a selected surface thereof comprising the steps of:

A. providing a radiation beam from a given radiation source radiating particles with molecular weight of at least one (1) capable of penetrating a material wherein an irradiated region is to be formed through a selected surface to greater than a maximum desired depth of the irradiated region from the selected surface;

B. modifying the beam with a beam modifier of a given material and non-uniform shape to modify the energy of said radiation beam on transmission therethrough to form a transmitted radiation beam capable of forming an irradiated region of a desired thickness and dosage gradient in the material a given distance from the selected surface on irradiation of the material through the selected surface with the transmitted radiation beam;

C. positioning the material with said selected surface thereof to be exposed to the radiation beam from the radiation source on transmission through the beam modifier modifying the energy of the beam; and

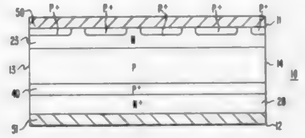
D. thereafter irradiating the material through the beam modifier and through the selected surface to form in the material an irradiation region of desired thickness, dosage and dosage gradient a desired distance from the selected surface.

4,278,476

METHOD OF MAKING ION IMPLANTED REVERSE-CONDUCTING THYRISTOR

John Bartko, Monroeville, and Earl S. Schlegel, Plum, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 5, 1979, Ser. No. 100,680
Int. Cl.³ H01L 21/265
U.S. Cl. 148—1.5 4 Claims



1. In a process for preparing a pnpn thyristor in a body of silicon in which the p-type anode emitter region is electrically shorted to the n-type anode base region, the step of;

implanting boron atoms through the n-type cathode emitter whereby a p^+ type region is formed between the n-type cathode emitter region and the p-type cathode base region, said p^{30} type region being doped to concentrations of from 5×10^{17} to 5×10^{18}.

4,278,477

METAL TREATMENT

Earl R. Reinhold, Levittown, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Filed Mar. 19, 1980, Ser. No. 131,609
Int. Cl.³ C23F 7/00
U.S. Cl. 148—6.14 R 18 Claims

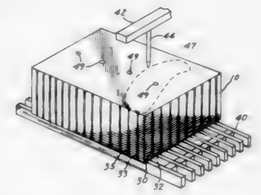
1. An aqueous alkaline coating solution which is effective in forming corrosion-resistant coatings on surfaces of zinc or alloys of zinc, said solution having a pH of no greater than about 10.2 and consisting essentially of one or more of the following metals in solution: cobalt, nickel, iron and tin, the total amount of said metal or mixture of said metals in the solution being about 0.01 to about 1 g/l; and a complexing material in an amount effective to maintain the metal in solution, said complexing material being selected from the group consisting of pyrophosphate, nitrilotriacetic acid, a salt of nitrilotriacetic acid, and a mixture of two or more of said complexing materials.

4,278,478

METHOD OF STACK CUTTING

Quinton Tidquist, 2200 Magnolia, Denver, Colo. 80207

Filed Feb. 21, 1979, Ser. No. 13,549
Int. Cl.³ B23K 7/00
U.S. Cl. 148—9 R 6 Claims



1. A method of forming a stack of thin metal sheets ready for torch cutting into a stack of individual and separate shapes without warping comprising:

(a) forming a stack of clean, thin rectilinear metal sheets of the same size and shape, one above the other,

(b) placing a cover plate on the top and bottom of said stack of thin metal sheets, said cover plates being substantially

thicker than said sheets and essentially resistant to warping under torch cutting, and the edges of said sheets and plates being in general alignment,

(c) pressing said stack of thin metal sheets and cover plates in very close face-to-face engagement without bonding the sheets together and excluding air from between the sheets

(d) welding said sheets and plates together by a series of narrow perpendicular weldments along the edges of the stack, each weldment extending from cover plate to cover plate and welded to all said sheets, said weldments being closely spaced and extending around the periphery of the stack to hold said plates in close face-to-face non-bonding engagement so that said stack may be torch cut inside the edges of the stack to produce a stack of non-bonded, individual shapes free from each other and

(e) torch cutting shapes from said stack interiorly of said weldments.

4,278,479

ORGANIC ACID ACTIVATED LIQUID SOLDER FLUX

Edward A. Anderson, Yorba Linda; Rose M. Rawls, and James A. Tull, both of Los Angeles, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Jun. 18, 1980, Ser. No. 160,716
Int. Cl.³ B23K *35/34*
U.S. Cl. 148—23 **8 Claims**

1. An improved solder flux comprising a flux base and an organic acid activator dissolved in sufficient solvent to form a liquid solder flux, characterized in that the organic acid activator consists essentially of a carboxylic acid derivative of a condensed nuclear hydrocarbon.

4,278,480

SLURRY TYPE EXPLOSIVE

Gerald E. Johannes, 565 Frank Ave., S.E., Huron, S. Dak. 57350

Filed Aug. 6, 1979, Ser. No. 63,688
Int. Cl.³ C06B *45/00*
U.S. Cl. 149—2 **9 Claims**

1. A slurry type explosive comprising polyisobutylene containing a dispersed mixture of one or more particulate explosive materials selected from the group consisting of ammonium nitrate, pentaerythilol tetranitrate, cyclotrimethylenetrinitramine, pentolite, aluminum powder and powdered trinitrotolyene admixed with a minor amount of a oxidizable fuel selected from the group consisting of hydrocarbon oils and carbon in particle form.

4,278,481

METHOD OF CONSTRUCTING SIMULATED VEGETATION FOR MODELS

David L. Osmeni, 9904 W. 70th Ter., Shawnee Mission, Kans. 66203

Division of Ser. No. 871,392, Jan. 23, 1978, Pat. No. 4,202,922.
This application Oct. 15, 1979, Ser. No. 84,737
Int. Cl.³ A41G *1/00*
U.S. Cl. 156—61 **5 Claims**

1. A method of constructing simulated vegetation for models comprising:

providing a substrate of non-ferrous, light-penetrable, fibrous material, said material having loose separable fibers with the ability to be pulled and stretched over the limbs of an artificial model tree structure,

said material presenting a substantially continuous substrate with a light penetrability of at least 50%; applying an adhesive to said substrate; and at least partially covering said substrate



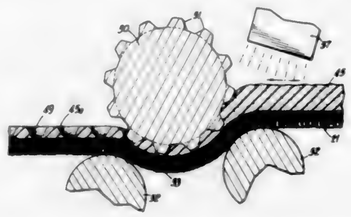
with a non-ferrous, leaf-simulating material comprising ground rubber-like foam particles.

4,278,482

APPARATUS AND METHOD FOR PRODUCTION OF POLYURETHANE CARPET BACKING

William C. Poteet, Chatsworth; Claude E. Terry, Armuchee; Glen F. Hamrick, Tunnel Hill, and Francis G. Walls, Dalton, all of Ga., assignors to Custom Coating, Inc., Dalton, Ga.

Filed Jun. 26, 1979, Ser. No. 52,092
Int. Cl.³ B32B *31/20*
U.S. Cl. 156—78 **28 Claims**



1. In a method of producing a cushion backing on a substrate, the steps of advancing a substrate and applying directly to one surface thereof an exothermically reactive foamable composition adapted to blow unconfined into a cellular layer on the substrate during a blowing cycle to a thickness greater than the final desired maximum thickness of the cellular layer, and regauging the blown cellular layer after the blowing cycle thereof and while the walls of the internal cells of said layer are tacky to thereby regauge the cellular layer to a permanently reduced and highly uniform thickness across the breadth of said substrate.

4,278,483

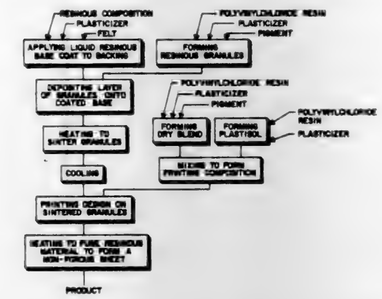
PROCESS FOR PRODUCING DECORATIVE SURFACE COVERING

Robert D. Mansolillo, Bloomfield, N.J., assignor to Congoleum Corporation, Kearny, N.J.

Filed Aug. 31, 1979, Ser. No. 71,454
Int. Cl.³ B32B *31/26, 5/20*
U.S. Cl. 156—79 **10 Claims**

1. In a process for producing a non-porous decorative surface covering having an inlaid decoration comprising depositing very fine granules of resinous composition in a layer at least 0.015 inch in thickness on the surface of a backing sheet, heating to sinter the granules into a porous mass of uniform porosity without complete coalescence thereof, applying a design on the surface of the sintered layer with sufficient printing composition to permeate into the porous structure to a substantial depth at the points of application and then fusing the printed sintered layer into a non-porous sheet by the application of

heat, the improvement which comprises utilizing as said printing composition a uniform mixture of a pigmented dry blend of at least two colorations and a transparent or pigmented plastisol so that the resulting product has transparent areas dispersed throughout the fused multicolored dry blend in the areas of printing composition application.

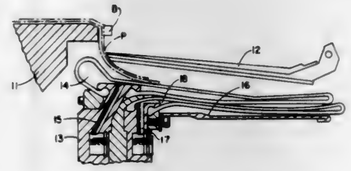


4,278,484

PNEUMATIC SIDE WALL BONDING IN RADIAL TIRE MANUFACTURE

Robert S. McGaughey, Indiana, Pa., assignor to McCreary Tire & Rubber Company, Indiana, Pa.

Filed Dec. 26, 1979, Ser. No. 107,265
Int. Cl.³ B29H *17/18*
U.S. Cl. 156—123 R **3 Claims**



1. In the manufacture of pneumatic tires on a mandrel wherein the underlying tire body is built up on the mandrel, bead rings are applied to that body at the ends of the mandrel and the ply ends are turned up around the bead rings and over the tire body by inflating retractable bladders, the improvement comprising applying sidewall stock to the tire body over and beyond the ply ends while the mandrel is rotating so as to form a cylindrical layer thereon, stopping the mandrel, and while the mandrel is stationary again inflating the bladders to extend them over and against the sidewall beyond the turned over ply ends on the mandrel, thereby bonding the sidewall onto the underlying plies without the use of other means.

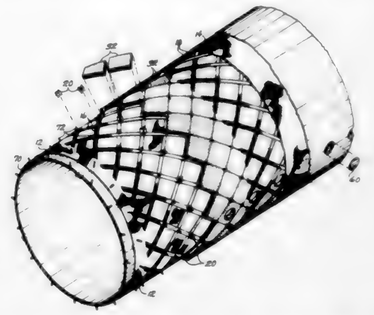
4,278,485

METHOD OF FORMING COMPOSITE WOUND STRUCTURE

Robert A. Hamm, Bellevue, and Philip C. Whitener, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Division of Ser. No. 930,457, Aug. 2, 1978, Pat. No. 4,230,293.
This application May 14, 1980, Ser. No. 149,890
Int. Cl.³ B65H *81/04*; B64C *1/00*
U.S. Cl. 156—173 **7 Claims**

1. A method of preparing a composite fuselage, the steps comprising: utilizing a collapsible mandrel having a plurality of outwardly extending index pins, covering the mandrel with a layer of resin impregnated filaments wound with fiber orientation $\pm 10°$ and at $\pm 80°$ while setting the windings around the index pins so that the pins protrude through, reinforcing the covering with cap strips of resin impregnated filaments wound with fiber orientation at about $\pm 45°$ and the filaments intersect at and settle around the index pins, placing a recessed spacer plug over each index pin, positioning contoured panels with corners of each panel located by adjacent plugs and edges of



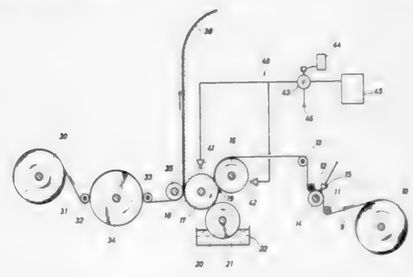
the panels abutting to cover the surface, winding cap strips with resin impregnated filaments and intersecting the strips over each plug, covering with a layer of resin impregnated filaments wound with fiber orientation at $\pm 10°$ and at $\pm 80°$, curing the resins to form a composite structure, and removing the mandrel with indexing pins.

4,278,486

METHOD AND APPARATUS FOR CORRUGATING PAPERBOARD

Edward H. Schrader, 306 Ross, Mart, Tex. 76664

Filed Apr. 29, 1976, Ser. No. 681,732
Int. Cl.³ B32F *1/36*
U.S. Cl. 156—231 **8 Claims**



1. A method for manufacturing faced corrugated paperboard which comprises the following steps:

continuously supplying a web of single-faced corrugated medium,

continuously supplying a web of linerboard,

applying a solid lubricant in a carrier medium and in a manner effective to transfer at least a portion of said solid lubricant to one face of said linerboard without transfer of said carrier medium to said one face,

applying an adhesive to crests of the flutes of said corrugated medium,

securing said linerboard to said corrugated medium to form faced corrugated paperboard,

passing said faced corrugated paperboard through a hot plate section for curing said adhesive and drying said faced corrugated paperboard, said lubricated one face of said linerboard contacting the stationary surface of said hot plate section for reducing the coefficient of friction therebetween.

4,278,487

METHOD OF ENGAGING A SELF-CLAMPING SEALING STRIP ON A RETAINING FLANGE

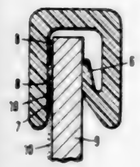
Rolf Hormanns, Hamburg, Fed. Rep. of Germany, assignor to Schlegel GmbH, Fed. Rep. of Germany

Filed Feb. 21, 1979, Ser. No. 13,054

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1978, 2807115

Int. Cl.[3] **C09J** *5/02;* **B32B** *3/04;* **C09J** *7/02*

U.S. Cl. 156—305 **13 Claims**



1. A method for improving the adherence of a sealing strip onto a retaining flange in which the sealing strip has a self-clamping channel-section body portion of a first material upon which a solvent has little if any dissolving effect comprising the steps of:

securing, onto the body portion, flange engaging surfaces of a second material upon which the solvent has a greater dissolving effect;

applying the solvent on one of the flange or flange engaging surfaces; and

mounting the sealing strip onto the flange whereby the solvent in engagement with the flange engaging surfaces produces surface or shallow dissolution therein for adhereing the flange engaging surfaces to the flange, the solvent further engaging the body portion slightly if at all so as to have little if any dissolving effect on the body portion which thereby retains its full clamping strength.

4,278,488

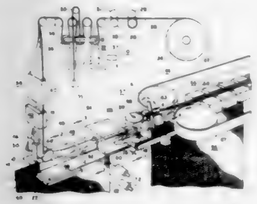
TAPE DELIVERY SYSTEM

Thomas J. Kopacz, Omro, and Charles J. Jacoby, Appleton, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 1, 1979, Ser. No. 80,881

Int. Cl.[3] **B26D** *5/20;* **B32B** *31/10, 31/18*

U.S. Cl. 156—351 **4 Claims**



1. A tape delivery system for use in forming a plurality of extremely flexible and somewhat flimsy plastic bags from sequentially provided lengths of plastic tube stock and plastic tape; wherein a tube stock source supplies a predetermined length of tube stock systematically and in consecutive order to said tape delivery system; and wherein an initial length of tape is threaded through said tape delivery system to initiate the bag forming operation, said system comprising:

(a) a tape supply source;

(b) a tape accumulator for accumulating sequentially a predetermined length of tape from said supply source, said accumulator including tension control means for controlling the tension of the tape so as to prevent tape stretching and tape overrun;

(c) vertical guide means disposed to receive each length of tape from said accumulator during the advancement of the tape, said vertical guide means providing means for the removal of particles and/or debris collected on the tape;

(d) a first electric eye unit disposed to sense tape movement between said tape accumulator and said vertical guide means for generating an electrical signal to said tape supply source to cause another length of tape to be supplied to said accumulator;

(e) tape forming means for shaping the tape in an inverted U-shape and for aligning a bottom edge of the tube stock along a longitudinal axis of the shaped tape, the shaping and aligning being performed in a manner as to smooth out creases and folds in the tape during advancement of the tube stock, the tape and tube stock being kept spatially separated during the alignment; said tape forming means including, (1) an adjustable tape guide spool disposed between said vertical guide means and said tape forming means for guiding the tape from said vertical guide means to said tape forming means and for adjusting the tension of the tape being advanced; (2) a first L-shaped tape guide plate; (3) a second L-shaped tape guide plate having a leg extending parallel to a leg of said first guide plate and a base extending parallel but opposed to a base of said first guide plate, said second guide plate being spatially separated from said first guide plate providing a guide passage for the bottom margin region of the tube stock as each length of tube stock is advanced through said tape forming mean; (4) a half-round, primary tape forming rod disposed upon a top surface of said first and second tape guide plates, said rod having one end bent to extend vertical and in-line with the path of the tape advancing from said tape guide spool, said rod being used to form the curvature of the tape and to oppose undesirable creasing and folding of the tape during tape transfer; (5) a tape forming wire disposed about said half-round rod for guiding the tape over the rod and against the base and leg of said first and second guide plates; and (6) a tape forming block disposed adjacent to another end of said half-round and about said first and second L-shaped tape guide plates to further shape the tape before the tape is applied to the bottom region of the tube stock; and

(f) means for applying the tape around the edge of the advancing tube stock which is in alignment with the longitudinal axis of the tape.

4,278,489

WEB SPLICING APPARATUS

John K. Horsley, High Wycombe, England, assignor to Molins Limited, London, England

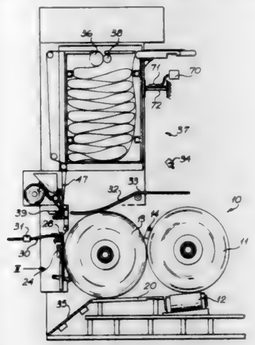
Filed Dec. 3, 1979, Ser. No. 99,826

Claims priority, application United Kingdom, Dec. 2, 1978, 46990/78

Int. Cl.[3] **B31F** *5/06;* **B65H** *19/12, 25/08*

U.S. Cl. 156—361 **10 Claims**

1. A bobbin changer for use in producing a continuous web from a succession of reels, including a storage arrangement for storing a number of reels, a reel unwinding station arranged to receive successive reels from the storage arrangement, means for initially rotating each new reel at the unwinding station in a reverse direction which is opposite to the direction of rotation during unwinding, a suction head which is mounted adjacent to the reel and is arranged to pull the leading end portion of the web away from the reel as it approaches the suction head, and end detecting means for detecting when the leading end portion of the web reaches a predetermined position and for discontinuing the reverse drive on the reel in response thereto, and means responsive to said end detecting means for initiating a splicing operation.



4,278,490

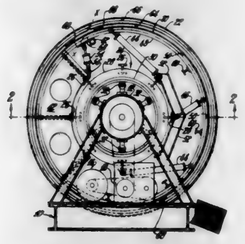
SLEEVE FOR CHANGING DIAMETER OF COLLAPSIBLE MANDREL

Robert G. Pistole; Walter A. Stoll, both of Toledo, Ohio, and Leo A. Oswald, Huntingdon, Pa., assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Dec. 21, 1979, Ser. No. 106,135

Int. Cl.[3] **B65H** *81/00;* **B29C** *1/00*

U.S. Cl. 156—425 **3 Claims**



1. For use with a mandrel having an elongated longitudinally slit collapsible tubular shell rotatable about a horizontal axis and providing a molding surface for pipe of one diameter, the mandrel being supported from only one end and having an opposite end unobstructed at all times for ready removal of pipe axially of the mandrel, an elongated longitudinally slit tubular sleeve removably mountable on the mandrel shell concentrically therewith to provide a molding surface for pipe of a larger diameter than said one diameter, the sleeve being collapsible simultaneously with the mandrel shell when mounted thereon.

4,278,491

MACHINE FOR MAKING RESIN PANELS

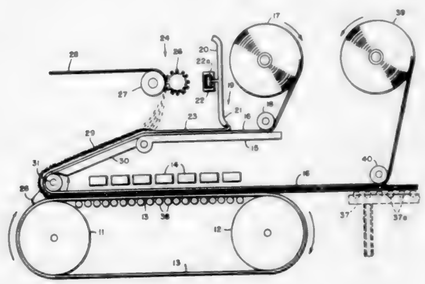
Donald B. Morse, Joliet, Ill., assignor to Kemlite Corporation, Joliet, Ill.

Continuation of Ser. No. 626,105, Oct. 28, 1975, abandoned, which is a continuation of Ser. No. 474,372, May 30, 1974, abandoned. This application May 13, 1977, Ser. No. 796,674

Int. Cl.[3] **B29B** *7/14*

U.S. Cl. 156—501 **7 Claims**

1. A machine for making a resin impregnated glass fiber panel comprising a substantially horizontal support, a carrier film on said support, means for depositing on said carrier film a layer of liquid thermosetting resin, means for depositing a layer of glass fibers on said resin whereby the lowermost of the fibers of said glass fiber layer are embedded in said resin thus to form a laminated structure having said film on its one side, a liquid resin layer next to said film and said glass fiber layer on its other side, a pair of spaced rolls, one above the other, an endless belt about the lower roll of said pair, said belt extending between said rolls and being of a material which is impervious to liquid resin, the spacing between said rolls providing a nip therebetween, means for passing said structure along said support across the top of the upper roll of said pair down the side of said upper roll and under said upper roll with its film side next to said upper roll and with its glass fiber layer on the outside, said means being effective also for passing said structure to said nip with its glass fiber layer in contact with said belt to press resin from said resin layer into said glass fiber layer, said structure containing resin in liquid form as it is



passed by said means about said upper roll and to said nip, means for heating the resulting structure after it emerges from said nip and while it is on said belt and while it has the same form and thickness as it has when it emerges from said nip, to cure said resin, said resulting structure including said film and a layer of combined resin and glass fibers with said layer of combined resin and glass fibers next to said belt, means including a horizontal section of said belt, for supporting said resulting structure thereon from the time it emerges from said nip until it passes said heating means and said resin is cured, a pivoted leaf support for receiving said structure from said first mentioned support, said pivoted leaf support having its movable end connected with the axis of said upper roll whereby said end may move up and down along said upper roll and about the pivot of said support, and means for elevating or lowering said upper roll with respective said lower roll whereby to adjust the spacing between said rolls and correspondingly to adjust the inclination of said pivoted support.

4,278,492

FREQUENCY TRIMMING OF SURFACE ACOUSTIC WAVE DEVICES

Peter S. Cross, Palo Alto, and William R. Shreve, Sunnyvale, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

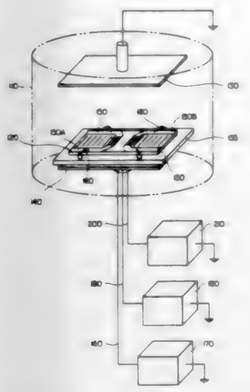
Filed Jan. 21, 1980, Ser. No. 113,832

Int. Cl.[3] **B44C** *1/22;* **C03C** *15/00, 25/06;* **C23F** *1/00*

U.S. Cl. 156—627 **12 Claims**

1. A method of trimming an acoustic device fabricated with a substrate of piezoelectric material and a deposit thereon of

electrode material, comprising the step of dry etching selectively one of the electrode material and the substrate material



between the electrodes to alter the center frequency of said device.

4,278,493

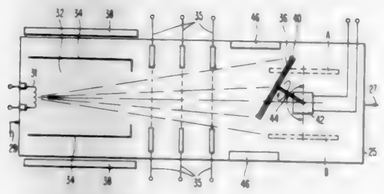
METHOD FOR CLEANING SURFACES BY ION MILLING

Steve J. Petvai, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,461

Int. Cl.³ B08B *3/12, 6/00, 7/00;* **B44C** *1/22*

U.S. Cl. 156—643 **5 Claims**



1. A method for cleaning a substrate having an uneven topographical surface comprising providing an electron beam having a solid angle source of ions with a center line, exposing a planar substrate having an uneven top surface to said solid angle ion beam path, said substrate being located at a predetermined angle with respect to said center line of said ion beam, and continuously revolving said substrate about an axis normal to the plane of said substrate during said exposure.

4,278,494

IMMERSION EVAPORATOR

Launo L. Lilja; Valto J. Mäkitalo, both of Pori, and Timo T. Koivunen, Ulvila, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

Filed Apr. 2, 1980, Ser. No. 136,525

Claims priority, application Finland, Apr. 2, 1979, 791094

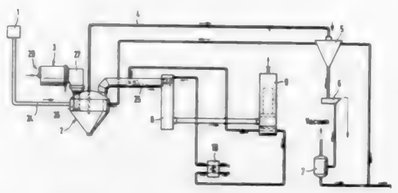
Int. Cl.³ B01D *1/14*

U.S. Cl. 159—16 A **12 Claims**

1. An immersion evaporator of the type comprising:

(a) an evaporation vessel and connected thereto;

(b) a combustion chamber having at one end thereto a burner for liquid or gaseous fuel, the burner comprising a cylindrical combustion gas turbulence chamber for an oxygen-bearing combustion gas, one end of which is convergent in order to increase the angular velocity of the combustion gas before the fuel discharging from the dispersion pipe is mixed with it, the opposite end having a substantially tangential combustion gas inlet conduit connected to a mantle which surrounds at least in part the burner and the combustion chamber, there being, at the opposite end of the mantle, a fuel inlet conduit for preheating the fuel, and



the convergent end of the turbulence chamber continues into the combustion chamber as a cylindrical leveling conduit coaxial with the turbulence chamber, and a fuel dispersion pipe extending coaxially into the turbulence chamber, and having at least such a length that it extends to the distance defined by the formula

$$\frac{H}{D} = \frac{\sqrt{(\frac{d}{D})^2 + \cos\alpha}}{\sin 2\alpha} - \frac{d}{2D}\tan\alpha - \frac{1}{2\tan\alpha}$$

from the inner end of the leveling conduit, in which formula H is the distance between the inlet end of the leveling conduit and the dispersion pipe, α is the angle of convergence of the opposite end of the turbulence chamber, d is the outer diameter of the dispersion pipe, and D is the inner diameter of the leveling conduit;

(c) means for feeding a solution to be concentrated into the evaporation vessel;

(d) means for removing the concentrated solution and any crystals from the evaporation vessel;

(e) means for removing flue gases and vapors from the evaporation vessel; and

(f) an immersion pipe extending substantially vertically inside the evaporation vessel, for directing the hot flue gases below the surface of the solution in the evaporation vessel, and having an upper end which is connected, by means of an angle joint piece to the outlet of the combustion chamber, so that the combustion chamber and the immersion pipe are at an angle in relation to each other.

4,278,495

SEPARATOR APPARATUS FOR EVAPORATOR PLANT

Ulrich Regehr, Susterfeldstrasse 63, D-5100 Aachen, Fed. Rep. of Germany

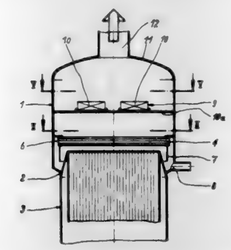
Continuation-in-part of Ser. No. 911,873, Jun. 2, 1978, abandoned. This application Oct. 26, 1979, Ser. No. 88,562

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1977, 2725119

Int. Cl.³ B01D *1/06*

U.S. Cl. 159—27 A **9 Claims**

1. A separator apparatus for an evaporator plant, said apparatus including a housing having an inlet opening connected to heat exchanger means to receive a liquid/vapor mixture therefrom, drop separator means in said housing downstream of said inlet opening, liquid outlet means in said housing upstream of said drop separator means, vapor outlet means in said housing downstream of said drop separator means, liquid-separating means in said housing between said liquid/vapor inlet means and said drop separator means, said liquid-separating means having a substantially vertical throughflow direction, said liquid-separating means comprising fin deflector means including a plurality of fins disposed in the path of the flowing liquid/vapor mixture, said fins including a plurality of double reverse bent sections arranged parallel to one another, each set



of adjacent sections defining a substantially vertical inlet and outlet and a pair of substantially reverse flow portions between said inlet and said outlet.

4,278,496

METHOD FOR BLEACHING PULP WITH OZONE

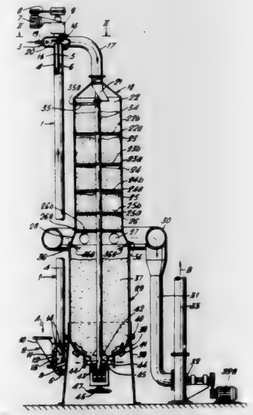
Bjorn H. Fritzvold, Hosle, Norway, assignor to Myrens Verksted A/S, Norway

Continuation of Ser. No. 900,098, Apr. 26, 1978, abandoned. This application Jul. 13, 1979, Ser. No. 57,325

Claims priority, application Norway, Apr. 27, 1977, 771473; Apr. 27, 1977, 771474

Int. Cl.³ B21C *9/10*

U.S. Cl. 162—19 **11 Claims**



1. A method of treating finely divided fibrous pulp comprising the sequential steps of the continuous flow process of:

(a) supplying a finely divided fibrous pulp having a solids content of from about 35 to about 50 percent and a pH of about 5;

(b) treating the pulp with ozone until its pH decreases to from about 2 to 4 while maintaining its solids content;

(c) alkalizing the pulp by mixing it with alkali until the pH is temporarily increased to from about 8 to 12 and the solids content is reduced to from about 15 to about 30 percent; and

(d) permitting the pulp to mature by diffusion, and without further mixing, until it reaches a stable pH of from about 6 to 7, the solid content of from about 15 to about 30 percent remaining unchanged.

4,278,497

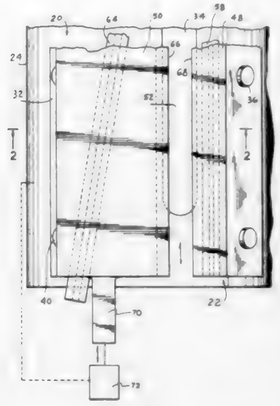
SUCTION DEWATERING SYSTEM WITH AUTOMATICALLY ADJUSTING SUCTION SLOT

Jerre L. Mellen, Glens Falls, N.Y., assignor to Albany International Corp., Menands, N.Y.

Filed Feb. 14, 1980, Ser. No. 121,400

Int. Cl.³ D21C *1/48, 1/52*

U.S. Cl. 162—252 **7 Claims**



1. A suction dewatering system comprising; a suction device adapted to be connected to a source of suction and having at least one longitudinal opening therein to which suction can be applied and the opening being positioned substantially perpendicular to the direction of a material travelling across the suction device for dewatering thereof, a cover including a base, means on said base for mounting the base to the suction device in fixed position, surfaces on said base forming spaced longitudinal lands and defining a longitudinal slot between each pair of adjacent lands in alignment with said suction device opening, a wear strip removably positioned on each of the lands for engagement with the material passing thereover, at least one of the wear strips being automatically adjustable with respect to the direction of material travel, adjustment means responsive to change in material conditions which results in automatic adjustment of the position of the adjustable wear strip and variance in the slot width accordingly, one of the land and the adjustable wear strip mounted thereon having an oblique slot therein and said oblique slot being angularly directed with respect to the longitudinal slot; and the other of the land and adjustable wear strip thereon having a rail extending therefrom at an oblique angle with respect to the longitudinal slot and extending into and mating with the oblique slot so that when the adjustable wear strip is slidably moved longitudinally it will be shifted laterally with respect to the longitudinal slot thereby changing the width of the longitudinal slot opening.

4,278,498

EARTHQUAKE-PROOF MOUNTING SUPPORT FOR CONTROL-ROD DRIVES OF NUCLEAR REACTORS

Gert Uhlmann; Konrad Schramm, and Georg Kohler, all of Erlangen, Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Nov. 3, 1978, Ser. No. 957,326

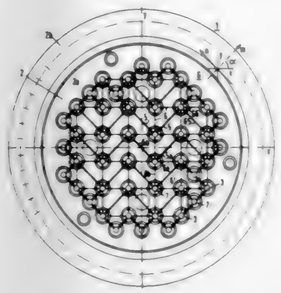
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1977, 2749488

Int. Cl.³ G21C *7/08*

U.S. Cl. 176—36 R **12 Claims**

1. Earthquake-proof mounting support for control rod drives of nuclear reactors having a generally cylindrical reactor pressure vessel formed with a convex wall at least at one

end thereof and including control rods with control rod drive shafts coupled thereto and mounted so as to be movable in axial direction thereof within tubular drive housings extending pressure-tightly through the end convex wall and sealed against the outside, the control rod drive shafts having free ends, and means for connecting the free ends of the control rod drive shafts to one another, the tubular drive housings com-



prising tube members forming respective feed-through passageways for the control rod drive shafts, said tube members having respective portions thereof extending with respectively varying lengths outside and beyond the convex wall to a given horizontal plane, the connecting means comprising a support grid formed of a plurality of grid bars articulatingly connecting said tube members at respective free ends thereof outside the convex wall, respectively, to one another.

4,278,499

APPARATUS FOR THE PURIFICATION OF A LIQUID METAL FOR COOLING IN THE CORE OF A FAST NEUTRON REACTOR

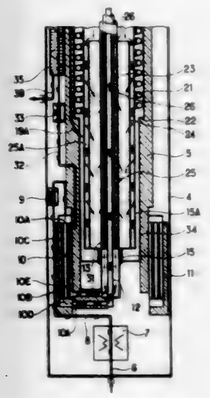
Roger Abramson; Jean-Paul Delisle, both of Manosque; Xavier Elie, Aix en Provence; Guy Salon, Le Chesnay, and Jean-Pierre Peyrelongue, Issy les Moulineaux, all of France, assignors to Commissariat a l'Energie Atomique and Stein Industrie S.A., both of, France

Filed Jun. 16, 1978, Ser. No. 916,149

Claims priority, application France, Jun. 22, 1977, 77 19082

Int. Cl.³ G21C *19/30, 15/24;* **B01D** *27/00*

U.S. Cl. 176—37 **7 Claims**



1. An apparatus for the purification of coolant liquid metal in a fast neutron nuclear reactor of the type comprising a vessel, a core and coolant liquid metal contained in the vessel, and an upper protective slab closing said vessel, said protective slab having a first removable plug and a second removable plug provided within said first plug, said apparatus comprising:

a vertical elongate insulating envelope suspended from said first plug at an upper end thereof, said envelope being located within said vessel and having inlet means for introducing said liquid metal into said envelope from said vessel,

outlet means for re-introducing purified liquid metal into said vessel,

cooling means for cooling said liquid metal introduced into said envelope to a temperature which ensures the solidification of impurities,

filtering means for purifying said liquid metal cooled by said cooling means,

means for directing the purified liquid metal from the filtering means towards said upper end of said envelope,

valve means suspended from said second plug and located in said upper end of said envelope for regulating the purified liquid metal flow prior to its re-introduction to said vessel through said outlet means,

heat exchange means for at least partial heating of the purified liquid metal prior to its re-introduction to the vessel through said outlet means, and

means for directing the flow of liquid metal to be purified from said inlet means through said heat exchange means, there being provided a triple envelope axial tube, the inner zone of said tube being connected with said heat exchange means for circulating the liquid metal to be purified in an upwards direction after it is partly cooled in said heat exchange means, the intermediate zone of said tube being connected with said valve means for circulating the purified liquid metal coming from said valve means in a downwards direction, and the outer zone of said tube being in communication with said filtering means for circulating the purified liquid metal coming from said filtering means in the upwards direction.

4,278,500

PRESSURIZED WATER REACTOR

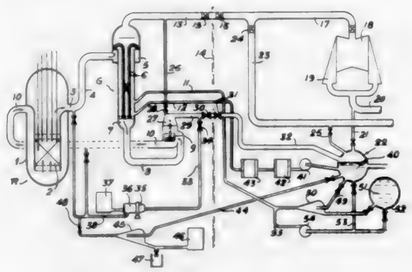
Jean Ailloud, Verrieres le Buisson, and Marcel Monteil, Paris, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Feb. 2, 1979, Ser. No. 8,968

Claims priority, application France, Feb. 6, 1978, 78 03207

Int. Cl.³ G21D *5/12*

U.S. Cl. 176—37 **4 Claims**



1. A pressurized water reactor comprising: a primary fluid circuit, at least one circulating pump for circulating primary fluid within at least one primary loop of said primary circuit, said primary circuit including a steam generator, a pressure vessel which contains a reactor core, and a bundle of tubes in said steam generator, a secondary fluid circuit containing fluid which enters the steam generator in a liquid state and is discharged therefrom in the form of steam which is returned into the generator after expansion within main turbines and recovery in a condenser, said primary circuit including a driving turbine supplied with steam taken from the steam generator,

and fluid circulating pumps each driven by said driving turbine, a feed tank of a water supply unit, an auxiliary turbine, a storage tank and a pump drivingly connected to said auxiliary turbine, each main turbine having an outlet connected to said feed tank by means of conduit means provided with isolating valves and by means of bypass conduit means, for permitting a flow of steam for driving said auxiliary turbine in the event of closure of said isolating valves, and means for injecting high-pressure emergency water into said primary circuit from said storage tank by means of said pump.

4,278,501

SPRING ELEMENT FOR HOLDING DOWN NUCLEAR REACTOR FUEL ASSEMBLY

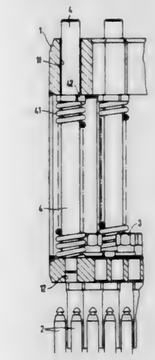
Alexander Steinke, Erlangen, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim an der Ruhr, Fed. Rep. of Germany

Filed Sep. 22, 1978, Ser. No. 944,707

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1977, 2742946

Int. Cl.³ G21C *3/30*

U.S. Cl. 176—78 **4 Claims**



1. Spring element for holding down and bracing a fuel assembly against a hold-down plate upwardly limiting the reactor core of a nuclear reactor, comprising a spring-loaded rod-shaped member formed independently of the fuel assembly and being slidable axially into the fuel assembly, said rod-shaped member having a plurality of parts telescopically slidable together, and including a compression spring engaging two of said parts and, in neutral position of the rod-shaped member, urging said parts away from one another and forming said rod-shaped member into the greatest possible assumed length thereof, said rod-shaped member, in installed condition thereof, being mounted, at one end thereof, in at least one bore formed in a head of the fuel assembly and engaging the hold-down plate, at the other end thereof.

4,278,502

CHEMICAL RECOVERY APPARATUS

Christopher Stevens, and John B. Stevens, both of Spirella Bldg., Cambridge Rd., Harlow, Essex, England

Continuation of Ser. No. 911,041, May 30, 1978, abandoned. This application Nov. 27, 1979, Ser. No. 97,652

Claims priority, application United Kingdom, May 30, 1977, 22827/77

Int. Cl.³ B01D *3/42;* **F25B** *29/00*

U.S. Cl. 202—206 **4 Claims**

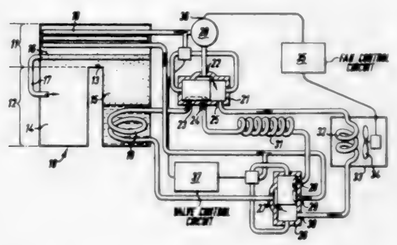
1. An apparatus for purifying liquid in a container comprising:

an enclosed container, said container having first and second adjacent compartments, said first compartment storing a liquid to be purified, said compartments vertically opening into a third compartment above said first and second compartments, said first, second and third compartment forming an enclosure;

a drip tray located within said container above said first and second compartments, said tray having a conduit for directing condensation incident thereto to said second compartment;

a refrigeration means having a coil disposed in said third compartment constituting an evaporator, and a second coil disposed in the bottom of said first compartment constituting a condenser, said refrigeration means further comprising

a second condenser;



a capillary coil;

and a control means for selectively directing a refrigerant through a first circuit of elements and subsequently through a second circuit of elements, said first circuit comprising said condenser, second condenser, capillary coil and evaporator coil during the purification of a liquid in said first compartment, and said second circuit of elements comprising said first condenser, capillary coil, second condenser, and evaporator coil, whereby said control means provides for selectively changing the pressure of the refrigerant entering said evaporator.

4,278,503

LOW BROMINE CONTENT GLACIAL ACETIC ACID

Martin A. Zeitlin, and Jon J. Harper, both of Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 106,669

Int. Cl.³ B01D *3/14;* **C07C** *51/44, 51/16*

U.S. Cl. 203—28 **3 Claims**

1. The method of preparing an acetic acid product from the liquid reaction effluent obtained from the oxidation of liquid n-butane with oxygen gas at a temperature of from 120° C. up to 235° C. and a gauge pressure from 35 up to 210 kg/cm^2 in the presence of an acetic acid solution of the system of catalysis comprising bromide ions in combination with ions of cobalt or cobalt and manganese which liquid effluent in addition to the contaminants comprising unreacted butane esters and ketones boiling lower than acetic acid; formic propionic acid and butyric acid as well as catalyst metal salts; and oxides of carbon, methane and ethane; also contains 3-bromo-2-butanone as a contaminant; which method comprises decompressing such liquid reaction effluent to a gauge pressure of from 28 down to 0 kg/cm^2 to remove unreacted n-butane and coproduct gases; heating the decompressed liquid to and maintaining said liquid at a temperature of from 150° C. for at least 40 minutes up to a temperature of 200° C. for at least 40 minutes whereat 3-bromo-2-butanone is converted to 1-butene-3-one and one or more inorganic bromides; distilling such heat treated decompressed liquid to remove (a) water and organic materials boiling at a temperature below acetic acid as a first fraction, a second fraction comprising an acetic acid-water fraction containing formic, propionic and butyric acid and 3-bromo-2-butanone not converted to 1-butene-3-one and leaving a third or residue fraction containing inorganic bromides mainly as catalyst metal salts together with other high boiling materials dissolved in acetic acid and liquid at a temperature of from

116° to 150° C.; and subjecting the second distillation fraction to one or more steps of continuous fractional crystallization wherein the crystalline magma formed is washed by countercurrent flow of acetic acid mother liquor, and withdrawing therefrom as product acetic acid, the melt of the last washed crystals.

4,278,504

ISOLATION OF A CONJUGATED DIOLEFIN FROM A C_4- OR C_5-HYDROCARBON MIXTURE

Klaus Volkamer, Frankenthal; Klaus Bröllos, Seeheim; Alfred Lindner, Bobenheim-Roxheim; Ulrich Wagner, Limburgerhof; Hans-Martin Weitz, Bad Duerkheim, and Klaus-Jürgen Schneider, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 126,903

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1979, 2911393

Int. Cl.³ B01D *3/40*; C07C *7/08*

U.S. Cl. 203—53 **3 Claims**

1. A process for isolating a conjugated diolefin from a C_4- or C_5-hydrocarbon mixture containing the diolefin, by extractive distillation using a selective solvent, wherein the selective solvent is a solvent mixture which comprises

(a) from 50 to 98 percent by weight of an N-alkyl-substituted lower aliphatic acid amide or of an N-alkyl-substituted alicyclic acid amide having 5 ring members and

(b) from 2 to 50 percent by weight of

an aliphatic ether boiling at from 30° C. to 200° C. of the general formula R—O—R′, where the aliphatic radical R is a hydrocarbon radical of 1 to 6 carbon atoms and the aliphatic radical R′ is a hydrocarbon radical of 2 to 6 carbon atoms, or

a dialkyl ether of a dihydric alcohol boiling at from 30° C. to 200° C. of the general formula R^1—[OCH_2—CHR—]$_n$ OR, where R is hydrogen or CH_3, R^1 and R^2 are each a hydrocarbon radical of 1 to 5 carbon atoms, and n is an integer from 1 to 3, or

an alicyclic ether boiling at from 50° C. to 125° C.

4,278,505

PROCESS OF RECOVERING AN N-HEXANE PRODUCT WHICH IS FREE FROM AROMATIC COMPOUNDS

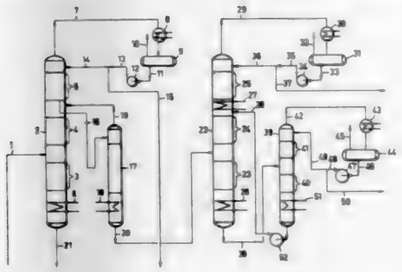
Hans F. Dassler, Frankfurt am Main; Kamar P. John, Bad Homburg; Helmut Klein, Hanau, and Stephen Lukatsch, Dietzenbach, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 10, 1978, Ser. No. 949,467

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1977, 2745672

Int. Cl.³ B01D *3/40*

U.S. Cl. 203—59 **9 Claims**



1. A process of recovering an n-hexane product which is substantially free from aromatic compounds by extractably distilling the same from a mixture of aromatic and non-aromatic compounds, consisting essentially of distilling a feed mixture of aromatic and non-aromatic compounds in a two column system to recover a hexane cut consisting of hexane, benzene and small quantities of non-aromatic compounds which boil in the same range as hexane and benzene, which distillation is effected by feeding the mixture of non-aromatic compounds to a first distillation column approximately in the middle thereof and distilling the same therein, withdrawing a benzene-containing sump product and an overhead product consisting of low-boiling non-aromatic compounds from the first distillation, and withdrawing a distillate laterally from the first distillation, at a point disposed above the feeding point of the feed mixture of aromatic and non-aromatic compounds and transferring the same to the upper portion of a second distillation column, withdrawing a sump product consisting of hexane, benzene and small amounts of non-aromatics boiling in the range of both of said components from the second distillation column and feeding the same to an extractive distillation column approximately in the middle thereof and extracting the same therein with an extractive solvent by feeding into the extractive distillation column above the feeding point of the hexane cut consisting of the sump product of the second distillation column, withdrawing a sump product containing the selective solvent from the extractive distillation column, withdrawing vapors overhead from the extractive distillation column and condensing the same and withdrawing the condensate as an N-hexane product of a purity sufficient for use in food processing.

4,278,506

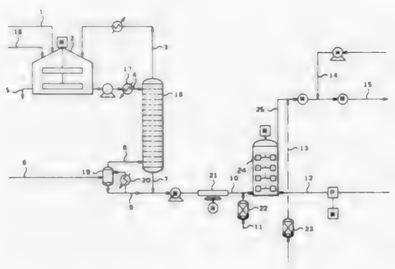
POLYMER SOLUTION PURIFICATION

Howard B. Irvin, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 21, 1979, Ser. No. 106,199

Int. Cl.³ B01D *3/36, 3/40*

U.S. Cl. 203—68 **7 Claims**



1. A process for purifying a polymer-solvent mixture which contains undesirable volatile components including water lower boiling than the solvent for further reaction comprising the steps of

passing a polymer-solvent mixture which contains undesirable volatile components including water lower boiling than the solvent to an upper portion of a fractionation-stripping zone and allowing said polymer-solvent mixture to flow downwardly through said zone with separation of the undesirable components as overhead and recovery of the polymer-solvent mixture as bottoms,

adding vaporized, purified dry solvent obtained from another drying operation and which is the same as the solvent used in said mixture and which is free of said polymer to the kettle portion of the fractionation column to act as a stripping vapor for the undesirable volatile components including water, whereby the problem of reboiler fouling due to the presence of polymer in the stripping solvent is substantially avoided, and passing said polymer-solvent mixture substantially freed of water and other undesirable components recovered as bottoms to said further reaction.

4,278,507

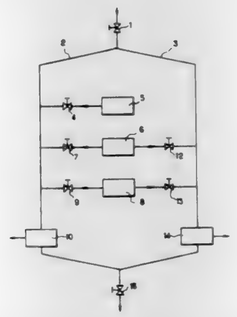
METHOD FOR AMPEROMETRIC MEASUREMENT OF THE FREE-CHLORINE CONTENT IN A SOLUTION

Antoine Derreumaux, 19, bd de Beausejour, 75016 Paris, and Bernard Saunier, 16, rue Gros Malhon, 35000 Rennes, both of France

Continuation-in-part of Ser. No. 860,268, Dec. 13, 1977. This application Oct. 19, 1979, Ser. No. 86,620

Int. Cl.³ G01N *27/46*

U.S. Cl. 204—1 T **5 Claims**



1. Method of measuring the free chlorine content in a solution containing chlorine both in free and combined form, comprising the steps of adding an amount of water-soluble iodide to a portion of the said solution to establish in said portion an iodine concentration stoichiometrically equivalent to the amount of total chlorine within said portion; of subsequently introducing said portion between the electrodes of amperometric detecting cell means; of measuring a first current flow through said amperometric detecting cell means as indicative of the total chlorine concentration in the solution; of adding to a further portion of the said solution a nitrite which reacts selectively with free chlorine to transform it into a chloride; of subsequently adding to said further portion an amount of water-soluble iodide to establish in said further portion an iodine concentration which is stoichiometrically equivalent to the amount of combined chlorine within said further portion; of subsequently introducing said further portion between the electrodes of amperometric detecting cell means; of measuring a second current flow through amperometric detecting cell means provided with one copper and one gold electrodes respectively, as indicative of the combined chlorine concentration in the solution; and of obtaining the difference between the said first and second current flows as indicative of the free chlorine concentration in the solution.

4,278,508

METHOD OF DETECTING A CATHODIC CORROSION SITE ON A METALLIZED SUBSTRATE

Lawrence K. White, Cranbury; Robert B. Comizzoli, Belle Mead, both of N.J., and George L. Schnable, Lansdale, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,214

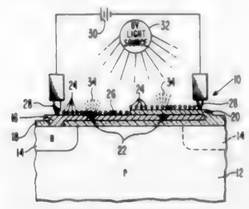
Int. Cl.³ G01N *27/00*

U.S. Cl. 204—1 T **11 Claims**

1. A method of detecting a cathodic corrosion site on a metallized substrate comprising the steps of:

depositing a relatively thin film of molecules of a pH sensitive fluorescent dye adjacent a metallic surface of said substrate, said metallic surface having a corrosion site thereon characterized by a reduction of the hydronium ion to hydrogen ($2H^+ + 2e^- \rightarrow H_2$) in a moist ambient capable of supplying H^+ ions,

applying an electrical bias across said surface by engaging two contact probes across the surface of said substrate, said electrical bias being sufficient to cause an electrolysis reaction to occur at said corrosion site, and



exposing said fluorescent dye to actinic radiation, whereby fluorescence is activated at the cathodic corrosion site.

4,278,509

METHOD OF ACTIVATING OXYGEN CONCENTRATION CELL

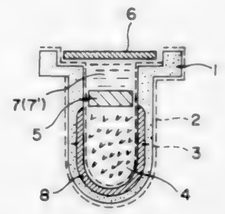
Yasuhiro Otsuka; Ryuzo Hori; Shinichi Matsumoto; Kiyoshi Uchida, and Toshinobu Furutani, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 933,476, Aug. 14, 1978. This application Dec. 10, 1979, Ser. No. 101,711

Claims priority, application Japan, Apr. 19, 1978, 53-46080

Int. Cl.³ G01N *27/46*

U.S. Cl. 204—1 T **5 Claims**



1. A method of activating and using an oxygen concentration cell having metal electrodes formed on both the inner and outer wall surfaces of a solid electrolyte vessel and a solid pole as a reference oxygen partial pressure source consisting of a metal alone or a mixture of said metal and its oxide packed into said vessel, comprising activating said oxygen concentration cell by heat-treating said oxygen concentration cell in the presence of air to diffuse said metal of the reference oxygen partial pressure source into the solid electrolyte through said inner wall surface metal electrode, said heat treatment comprising heating at a temperature in the range of 1,000°–1,200° C. over a period of 5–120 hours in the air, and then using the cell to measure oxygen concentration at temperatures below 1,000° C.

4,278,510

PLATABLE PROPYLENE POLYMER COMPOSITIONS

James C. W. Chien, Amherst, Mass.; Steven K. Evnochides, and Joseph A. Howlett, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Mar. 31, 1980, Ser. No. 136,138

Int. Cl.³ C25D *5/56*; C08K *3/04, 3/06*

U.S. Cl. 204—14 R **6 Claims**

1. A propylene polymer composition having the characteristic of being readily electroplatable with a metal such as nickel to provide a strongly adherent metal coating; said composition consisting essentially of about 100 parts by weight of a propylene polymer, a quantity of electrically conductive carbon black sufficient to reduce the electrical resistivity of the composition to less than about 1,000 ohm-centimeters, a minor

amount of sulfur, of a sulfur donor, sufficient to increase the rate of metal deposition on the polymer, and a minor amount of maleic anhydride-modified propylene polymer sufficient to improve the adhesion of the plated metal to the polymer; said maleic anhydride-modified propylene polymer containing about 0.1 to 5 weight % chemically combined maleic anhydride and having been prepared by heating a propylene polymer and maleic anhydride in an inert solvent in the presence of a free radical generating polymerization initiator; said sulfur donor being selected from the group consisting of sulfur chloride, 2-mercapto-benzoithiazole, N-cyclohexyl-2-benzothiozole sulfonomide, dibutyl xanthogen disulfide, and dipentamethylene-thiuram hexasulfide.

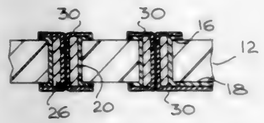
6. In a process for depositing a metal from an electroplating bath onto an article fabricated from a propylene polymer composition in which the article to be plated is employed as the cathode in a metal plating bath and an electric current is applied across the plating bath; the improvement which consists essentially of employing as the propylene polymer composition the propylene polymer composition of claim 1, 2 or 3.

4,278,511

PLUG PLATING

William P. Degan, Pomona, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Filed Feb. 28, 1980, Ser. No. 125,805
Int. Cl.³ C25D *5/02, 7/04*
U.S. Cl. 204—15 **17 Claims**



1. A method of hole plating comprising:
providing a dielectric substrate having two opposite side surfaces;
providing selected holes in said substrate between the surfaces;
conductively coating the substrate and hole surfaces;
plating the conductive surfaces; and
removing the plating from the conductive substrate surfaces without removing the plating from the holes.

4,278,512

LOW CONCENTRATION TRIVALENT CHROMIUM ELECTROPLATING SOLUTION AND PROCESS

Donald J. Barclay, and James M. L. Vigar, both of Winchester, England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 18, 1979, Ser. No. 86,092
Claims priority, application United Kingdom, Nov. 11, 1978, 44177/78; Sep. 18, 1979, 32300/79
Int. Cl.³ C25D *3/10, 5/14*
U.S. Cl. 204—41 **14 Claims**

1. A chromium electroplating solution in which the source of chromium comprises an equilibrated aqueous solution of chromium (III)-thiocyanate complexes, the chromium concentration being less than or equal to 0.02 Molar, said solution including an amino acid as a Ph buffer material providing at least one of the ligands for the complex.

11. A process of electroplating an article with chromium comprising electroplating the article with a first relatively thick layer of chromium in a first bath in which the source of chromium comprises an aqueous solution of chromium (III)-thiocyanate complexes, the concentration of chromium being greater than 0.03 M, transferring the article without rinsing to a second plating bath, and plating a relatively thin layer of chromium over the first layer in the second bath, the initial concentration of chromium in the second bath being less than or equal to 0.02 M to give a perceptibly lighter colored layer than that of the first layer.

4,278,513

TWO-STAGE DIFFERENTIAL ANODIZATION PROCESS

Richard J. Millard; Walter J. Bernard, and Alfred Whitman, all of Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Jun. 30, 1980, Ser. No. 164,650
Int. Cl.³ C25D *11/12*
U.S. Cl. 204—42 **3 Claims**

1. In a process for the differential anodization of valve-metal pellets in two-stages, in which the second stage is carried out in a different electrolyte and at a higher voltage than the first stage and in which said second stage electrolyte comprises a salt of a water-soluble weak acid having a dissociation constant of less than 1.0×10^{-4}, the improvement comprising the addition of 0.01–1.0 wt % of a nonionic surfactant to said second stage electrolyte to reduce underformed spots in the higher voltage layer being formed and then rinsing the pellets free of said second-stage electrolyte.

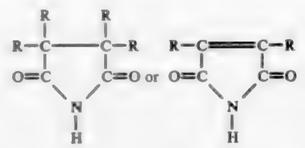
4,278,514

BRIGHT PALLADIUM ELECTRODEPOSITION SOLUTION

Ronald J. Morrissey, Cranston, R.I., assignor to Technic, Inc., Providence, R.I.

Filed Feb. 12, 1980, Ser. No. 120,914
Int. Cl.³ C25D *3/52*
U.S. Cl. 204—47 **8 Claims**

1. A palladium electroplating solution of pH of about 3-7 containing palladium in the form of a soluble organopalladium complex of an inorganic palladium salt and an organic polyamine complexing agent having 2 to about 8 carbon atoms and 2 to about 5 amino groups complexing agent; said solution being an aqueous solution; and said solution containing about 1-50 grams per liter of an organic imide of the formula



in which each R is independently selected from the group consisting of hydrogen, alkyl of 1–5 carbon atoms and alkoxy of 1–5 carbon atoms.

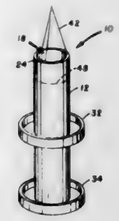
4,278,515

METHOD FOR REMOVAL OF SODIUM CARBONATE FROM CYANIDE PLATING BATHS

Fred Pearlstein, Philadelphia, Pa., and Carroll F. Evans, Cinnaminson, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 15, 1979, Ser. No. 84,964
Int. Cl.³ B01D *9/02;* **C25D** *21/02*
U.S. Cl. 204—55 Y **3 Claims**

1. A method for removing sodium carbonate from a plating bath solution containing same, which comprises immersing therein a container filled with a liquid cooled with dry ice to a temperature sufficient to cause the sodium carbonate to precipitate on the cold exterior surface of the container, maintaining said container immersed in said solution to precipitate the sodium carbonate as an encrustation of crystals on said cold container surface, and removing said container with said encrustation of sodium carbonate crystals from said plating bath solution.



2. The method of claim 1, wherein the bath is a sodium cyanide-zinc plating bath solution.

4,278,516

METHOD FOR THE PREPARATION OF 2-FLUORO-4-MONOBROMOMETHYLBIPHENYL

Edward J. Zaiko, and Paul F. Ranken, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Jun. 28, 1979, Ser. No. 53,060
Int. Cl.³ B07J *1/10;* **C07C** *25/18*
U.S. Cl. 204—158 HA **4 Claims**

1. A method for the preparation of 2-fluoro-4-monobromomethylbiphenyl which comprises reacting 2-fluoro-4-methylbiphenyl with N-bromosuccinimide or bromine under irradiation with light.

4,278,517

OSMIUM CATALYZED HYDROXYLATION OF OLEFINS WITH SELENOXIDE COOXIDANTS

Anthony G. Abatjoglou, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,313
Int. Cl.³ B01J *19/12;* **C07C** *31/20, 31/27*
U.S. Cl. 204—158 R **9 Claims**

1. A process for producing glycols by the catalytic oxidation of olefinic compounds which comprises contacting an olefinic compound with an organic selenoxide in an aqueous alkaline medium in the presence of a catalytic amount of octavalent osmium to form the corresponding glycol.

9. The process of claim 1 wherein the selenoxide is regenerated from the reduced selenide with photochemically generated singlet oxygen.

4,278,518

METHOD FOR REDUCING THE MONOMER RESIDUE CONTENT IN POLYMER PLASTICS

Bengt Bjellqvist, Stockholm; Torbjörn Reitberger, Skarholmen, both of Sweden, and Kennard H. Morganstern, Roslyn, N.Y., assignors to Radiation Dynamics, Inc., Long Island, N.Y.

Filed May 16, 1978, Ser. No. 906,551
Int. Cl.³ C08J *3/28*
U.S. Cl. 204—159.2 **10 Claims**

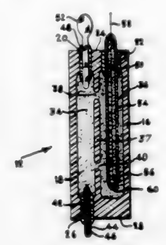
1. A method for reducing the residue content of halogen-substituted unsaturated hydrocarbon monomer in a homopolymer or copolymer plastic material derived from said monomer comprising irradiating said plastic material with ionizing radiation at a rad dosage level of from 0.050–2 megarads.

4,278,519

ELECTRODE ASSEMBLY FOR DETERMINING THE IDENTIFICATION OF METALS AND METAL ALLOYS

Vann Y. Won, 6697 Gloria Dr., Sacramento, Calif. 95831

Filed Jan. 25, 1980, Ser. No. 115,515
Int. Cl.³ G01N *27/32*
U.S. Cl. 204—195 F **3 Claims**



1. An electrode assembly for determining the identification of a unidentified metal comprising a test probe and means for registering the potential difference between said test probe and said unidentified metal, said test probe having a longitudinally extending body, said body being hollow on the interior thereof, a longitudinally extending wall located within said hollow interior of said body, said wall dividing said hollow interior of said body into a first and a second chamber for containing a saturated water solution of potassium chloride, said wall having at least one opening therein for interconnecting said first chamber with said second chamber, a longitudinally extending thin-walled hollow tube for containing a saturated liquid mercury solution containing granular calomel and potassium chloride, said tube being positioned within said second chamber and having an open end situated within said second chamber, an absorbent material located within said open end, a conductive wire located within said tube and protruding from said tube and said test probe at one end of said test probe, and opening formed at said one end of said test probe adjacent said first chamber for allowing the introduction therein of said saturated water solution of potassium chloride, an apertured tip connected to the other end of said test probe adjacent said first chamber, an absorbent material located within said apertured tip, and said means for registering said potential difference being capable of electrically connecting said conductive wire to said unidentified metal thereby enabling the registration of a potential difference between said test probe and said unidentified metal and whereby any gas bubbles formed in said test probe during said registration remains in said first chamber.

4,278,520

CONTINUOUS GOLD ELECTROPLATING APPARATUS

Dennis R. Turner, Chatham Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 911,099, May 31, 1978, abandoned.
This application Aug. 8, 1979, Ser. No. 64,771
Int. Cl.² C25D *17/18, 17/28, 5/02*
U.S. Cl. 204—207 **10 Claims**

1. An apparatus for continuous electrochemical processing on a continuous metallic strip using a plurality of processing steps carried out in a plurality of processing cells including a gold electroplating cell, said gold electroplating cell comprising a long narrow container with provision for the continuous metal strip which is the cathode in the gold electroplating process, provision for gold electroplating solution and anode comprising:

(a) means for making electrical contact to the metallic strip, said means comprising a spring loaded rectangular member rounded-off at the end and pressing against the metal

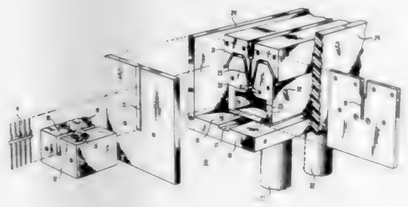
strip line and two stationary round members located on the other side of the strip line and located before and after the spring loaded rectangular member, said rectangular and round members made of conducting material;

(b) a first slotted section for admitting metal strip into an entrance spill-over chamber, said slotted section being deep enough to admit at least a portion of the metal strip into the gold electroplating cell and wide enough to provide clearance for the metal strip;

(c) a first spill-over chamber with a cutaway section to convey gold electroplating solution to a drainage tube leading to a reservoir;

(d) a second slotted section for admitting the metal strip into a main part of the gold electroplating cell said slotted section being deep enough to admit at least a portion of the metal strip into the gold electroplating cell and wide enough to provide clearance for the metal strip;

(e) a main part of the gold electroplating cell comprising a drain-off tube to return the electroplating solution to a reservoir;



(f) a third slotted section for admitting the metal strip into a second spill-over chamber said slotted section being deep enough to admit at least a portion of the metal strip into the gold electroplating processing cell and wide enough to provide clearance for the metal strip; and

(g) a fourth slotted section which is deep enough to admit at least a portion of the metal strip into the gold electroplating cell and wide enough to provide clearance for the metal strip, characterized in that

(1) the main part of the gold electroplating cell comprising in addition a long slotted section running down the center of the cell in which the metal strip fits, said long slotted section being located on the mirror plane which runs down the length of the main part of the gold electroplating cell; anode comprising long bar and located on each side of the mirror plane and running the length of the main part of the gold electroplating cell; a series of side walls and inner walls which permits electroplating solution to be conveyed from an inner tube, up the side of the cell and down onto the area around the anode and the long slotted section where the metal strip is located.

4,278,521

ELECTROCHEMICAL CELL

Gerhard Kreysa, Liederbach, Fed. Rep. of Germany, assignor to DECHEMA, Frankfurt am Main, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 910,829, May 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 796,821, May 13, 1977, abandoned. This application Jan. 15, 1980, Ser. No. 112,318

Int. Cl.³ C25D *17/12;* **C25C** *7/02*

U.S. Cl. 204—222 **9 Claims**

1. An electrochemical cell comprising a feeder electrode having a surface, a diaphragm or membrane, a porous or a packed bed electrode confined therebetween having a geometrical bed depth that is increased from the electrolyte inlet plane to the electrolyte outlet plane of the electrode such that said geometrical bed depth fulfills the functional equation



$$h(l) = \left(\frac{v \cdot \chi_s \cdot d_p(\eta - 0.12)\beta}{3(1-v)k \cdot z \cdot F \cdot c_o}\right)^{\frac{1}{4}} \left(\exp \frac{k \cdot A \cdot l}{2u}\right)$$

wherein

A: specific electrode area (cm^2/cm^3);

c_o: initial concentration (mol/cm^3);

d_p: particle diameter (cm);

F: Faraday number (As/val);

h(1): bed depth as 1 (cm);

k: Mass transfer coefficient (cm/s);

1: length coordinate of the electrode (cm);

v: voidage;

z: charge number of reaction (val/mol);

β: current efficiency;

η: overvoltage at the bed electrode (v);

χ_s: electrolyte conductivity (S/cm);

the geometry of the feeder electrode being such that said equation is satisfied and at each point 1 the distance between feeder electrode surface and diaphragm (or membrane) is equal to h (1).

4,278,522

APPARATUS FOR TREATING CONTAMINATED WATER

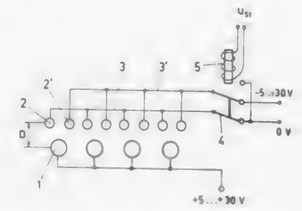
Gernot Jacob, Nussbaumen, and Luciano Pelloni, Zurich, both of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed Jun. 18, 1979, Ser. No. 49,065

Claims priority, application Switzerland, Aug. 23, 1978, 8913/78

Int. Cl.³ C25B *15/02, 11/03, 11/10*

U.S. Cl. 204—228 **5 Claims**



1. Apparatus for treating contaminated water by means of electroflotation; comprising:

a multiplicity of positively biased anode electrodes each having a cylindrical shape;

a pair of cylindrically shaped cathode electrodes respectively associated with each anode electrode said cathode and anode electrodes forming a grid-like screen, further wherein every second cathode electrode in said screen is connected to a common conductor bar; and

means for alternately applying a negative potential to only one of the cathode electrodes in each pair of cathode electrodes while maintaining the other of said cathode electrodes at a non-negative potential.

4,278,523

CLAMPING DIAPHRAGMS OR MEMBRANES IN ELECTROLYTIC CELLS

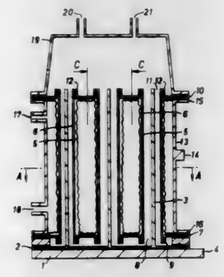
Geoffrey C. Byrd, Frodsham, and Colin Stanier, Northwich, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jul. 20, 1979, Ser. No. 59,448

Claims priority, application United Kingdom, Jul. 28, 1978, 31585/78; Nov. 10, 1978, 43954/78

Int. Cl.³ C25B *9/00, 13/02, 11/03*

U.S. Cl. 204—252 **16 Claims**



1. An electrolytic cell comprising: a plurality of anodes; a cathode box providing a plurality of cathodes so positioned that an anode is located between each pair of adjacent cathodes; a diaphragm or membrane located between adjacent anodes and cathodes; first and second diaphragm- or membrane-supports having lips defining slots therein and made of a material which is resistant to the conditions prevailing in the cell, the supports being located such that the slots in the first support are in alignment with the slots in the second support; the edges of the diaphragms or membranes being sealed to the lips defining the slots in the supports whereby the arrangement of diaphragms or membranes and the slots in the supports define spaces into which the anodes extend; and each diaphragm or membrane being sealed to the lips defining a slot in the support by means of one or more clamps which form an essentially leak-tight seal between the diaphragm or membrane and the lips of the support over substantially the entire extent thereof, each clamp comprising co-operating inner and outer clamp members of which at least the inner clamp member comprises a flexible strip or band for spreading the force exerted by the one or more clamps to provide effective sealing.

4,278,524

DIAPHRAGMS FOR USE IN THE ELECTROLYSIS OF ALKALI METAL CHLORIDES

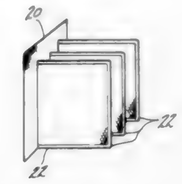
Igor V. Kadija, Cleveland, Tenn., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 836,636, Sep. 26, 1977, Pat. No. 4,184,939, and Ser. No. 947,235, Sep. 29, 1978, Pat. No. 4,207,163. This application Dec. 21, 1979, Ser. No. 106,219

Int. Cl.³ C25B *13/04*

U.S. Cl. 204—252 **14 Claims**

13. In an electrolytic diaphragm cell for the electrolysis of aqueous solutions of ionizable compounds, said cell having an anode assembly containing a plurality of anodes, a cathode assembly having a plurality of cathodes, a diaphragm separating said anode assembly from said cathode assembly, and a cell body housing said anode assembly and said cathode assembly, the improvement which comprises a porous diaphragm comprising a support fabric impregnated with particles of an inorganic clay of the montmorillonite group.



4,278,525

OXYGEN CATHODE FOR ALKALI-HALIDE ELECTROLYSIS CELL

Lawrence J. Gestaut, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Apr. 24, 1978, Ser. No. 899,548

Int. Cl.³ C25B *11/03, 11/12, 9/00*

U.S. Cl. 204—265 **14 Claims**

1. An oxygen cathode for alkali metal halide electrolysis processes comprising a mixture of a prefused composite of polytetrafluoroethylene and carbon black sintered under high pressure and at a temperature in excess of the sintering temperature of the polymer but below its temperature of decomposition to form an electrode substrate and an electrocatalyst applied to said substrate, the substrate having sufficient porosity so that the potential of the reduction reaction of oxygen at the electrode-electrolyte-gas interface is lower than the hydrogen discharge potential at the surface of steel cathodes.

4,278,526

APPARATUS FOR ELECTROLYSIS OF AN AQUEOUS ALKALI METAL CHLORIDE SOLUTION

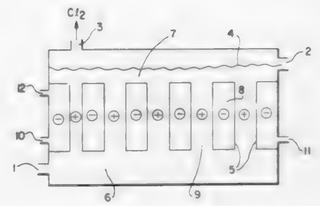
Tokuzo Iijima, Kobe; Yasushi Samejima, Kakogawa; Kazuo Kishimoto; Takamichi Komabashiri, both of Takasago, and Toshiji Kano, Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Dec. 18, 1979, Ser. No. 104,773

Claims priority, application Japan, Dec. 28, 1978, 53-163590; Jul. 2, 1979, 54-91757[U]

Int. Cl.³ C25B *9/00*

U.S. Cl. 204—266 **4 Claims**



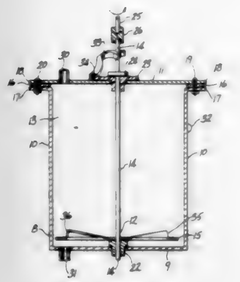
1. Apparatus for the electrolysis of an aqueous alkali metal chloride solution comprising an electrolytic cell which is partitioned by a cation exchange membrane into an anode chamber and a cathode chamber, wherein at least one anolyte solution exit is positioned to the anode chamber above the upper end of the cation exchange membrane, and wherein a gas-liquid interface having a surface area, at which halogen gas generated in the anode chamber is separated from the anolyte solution, is larger than the sum total of the horizontal cross section areas of unit anode chambers opposing to cathodes.

4,278,527

ELECTROLYTIC CELL FOR PURIFYING AQUEOUS SOLUTIONS OF ALKALI METAL HYDROXIDES

Ronald L. Dotson, Cleveland, Tenn., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 3,151, Jan. 15, 1979, Pat. No. 4,189,362.
This application Oct. 1, 1979, Ser. No. 80,758
Int. Cl.³ C25B *9/00, 11/02*
U.S. Cl. 204—272 **11 Claims**



1. An electrolytic cell for electrolyzing an aqueous solution of an alkali metal hydroxide containing an impurity of a soluble heavy metal complex, comprised of

(a) a conductive bottom,

(b) conductive sides secured to said conductive bottom, said sides having an insulated flange at the top thereof, and forming in combination with said conductive bottom a first electrode,

(c) a cell cover positioned atop said insulated flange to form an electrolytic chamber,

(d) an inlet for feeding said solution into said cell and an outlet for removing purified solution from said cell,

(e) a rotatable assembly comprised of

(1) at least one rotatable shaft,

(2) at least one second conductive metal electrode secured to said shaft and positioned adjacent to but spaced apart from said conductive bottom,

(3) said second conductive metal electrode having at least one fluted vane with at least one adjacent aperture therein so that when rotated said fluted vane agitates said aqueous solution while the aqueous solution is deflected through said aperture towards the conductive bottom, and

(f) means for maintaining a potential difference between said first conductive metal electrode and said second electrode.

4,278,528

RECTILINEAR SPUTTERING APPARATUS AND METHOD

Manfred R. Kuehnle, New London, N.H.; Arno K. Hagenlocher, Framingham, and Nicholas A. Giardino, Sharon, both of Mass., assignors to Coulter Systems Corporation, Bedford, Mass.

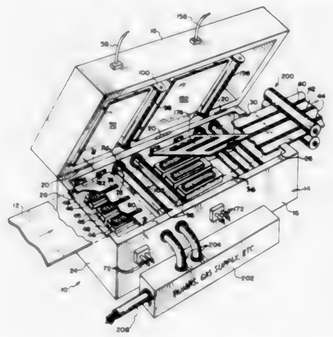
Filed Oct. 9, 1979, Ser. No. 83,220
Int. Cl.³ C23C *15/00*
U.S. Cl. 204—298 **15 Claims**

1. A sputtering apparatus for applying a sputtered coating onto a substrate member in the form of a continuous web passing through the apparatus which comprises:

A. a coffer of metallic construction adapted to be grounded and having a closure member and a body member, the closure member adapted to be at least partially removed from the body member to expose the interior of both members and adapted to be brought into engagement with the body member in face-to-face sealed engagement to provide a substantially sealed chamber on the interior of the coffer,

B. air lock means at opposite ends of the coffer arranged to enable a substrate member in the form of an elongate, flat, continuous web to pass into said chamber at an end of the coffer, substantially rectilinearly through said chamber and out of the other end of the coffer without varying the physical conditions within said chamber,

C. sputtering target means adapted to be made of a material which is to be sputter-coated onto said web, and anode means, the target and anode means being arranged in flat planes parallel to one another and spaced apart to provide sputtering gaps, said target and anode means being mounted in said coffer, the target means being mounted to one of the closure member and body member, the mountings being such that the gaps are formed when the closure and body members are in said face-to-face engagement,



but said target means and anode means are separated substantially from one another when the closure member is so separated from the body member,

D. means within the coffer for guiding said web to pass through said gaps in said coffer, said guiding means including at least a part carried by said closure member and a part carried by said body member, said parts adapted, when operative, to be in engagement and to have said web between them, but being separated when said closure member is so removed from said body member whereby to enable said web to be placed in position for becoming subsequently engaged between said parts without breaking said web, and

E. said coffer having means for establishing and maintaining sputtering conditions in said chamber when sealed and while said substrate member is passing through including means for connecting the target and anode means to a source of r.f. energy.

4,278,529

PROCESS FOR SEPARATING BITUMINOUS MATERIALS WITH SOLVENT RECOVERY

Junior A. Gearhart, Oklahoma City, Okla., assignor to Kerr-McGee Refining Corporation, Oklahoma City, Okla.

Filed Jun. 30, 1980, Ser. No. 164,591
Int. Cl.³ C10C *3/00, 3/08*
U.S. Cl. 208—309 **15 Claims**

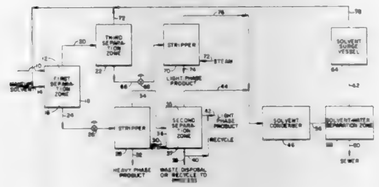
5. A process comprising:

separating an admixture comprising (i) a residuum comprising asphaltenes, resins and oils and (ii) a solvent in a first separation zone into a first light phase comprising oils and solvent and a first heavy phase comprising asphaltenes, resins and some solvent by maintaining the mixture at an elevated temperature and pressure;

reducing the pressure on said first heavy phase to vaporize at least a portion of the solvent present therein and form a mixture of fluid-like asphaltenes and resins in association with said vaporized solvent together with undesired fine particles of asphaltenes and resins dispersed therein;

introducing said mixture into a steam stripper;

introducing steam into said steam stripper to contact said mixture to vaporize at least a portion of any nonvaporized solvent remaining therein to form at least one stream comprising said fluid-like asphaltenes and resins and one other stream comprising said steam and vaporized solvent together with said fine particles of asphaltenes and resins dispersed therein;



introducing said stream comprising said steam, vaporized solvent, and fine particles of asphaltenes and resins into a second separation zone;

contacting said stream introduced into said second separation zone with a stream comprising at least a portion of said first light phase to scrub said fine particles of asphaltenes and resins from said vaporized solvent; and

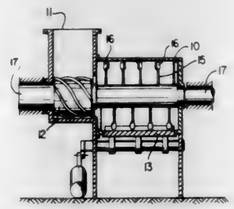
recovering said solvent from second separation zone substantially free of any fine particle size asphaltenes and resins.

4,278,530

PROCESS FOR SEPARATING BITUMEN FROM A BITUMEN SAND DEPOSIT

Zenas Crocker, Westmount, and Wilford B. Jonah, Nobleton, both of Canada, assignors to Synergistics Chemicals Limited, Concord, Canada

Filed Aug. 6, 1979, Ser. No. 63,867
Int. Cl.³ B03B *1/00*
U.S. Cl. 209—3 **5 Claims**



1. A process for separating bitumen from a bitumen sand deposit including sand particles having coatings of bitumen thereon, comprising the steps of:

feeding bitumen sand deposit and a dispersing medium into an enclosed container having a plurality of arms therein, adapted to rotate about a central axis, each arm having a blade at the end thereof,

rotating the plurality of arms, striking and impelling the sand particles to impact on internal surfaces of the blades and container and with other particles, the blades having sufficient tip speed to cause separation of the bitumen coatings from the particles, without further treatment thereof,

discharging the sand particles, bitumen and dispersing medium from the container, and

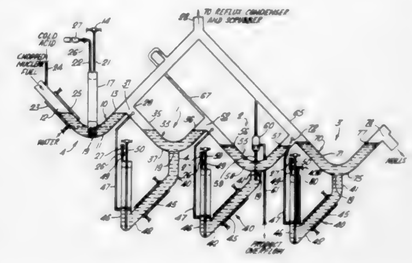
collecting the bitumen separately from the sand particles and dispersing medium.

4,278,531

APPARATUS AND METHOD FOR TRANSPORTING ITEMS

Thomas D. Hodgson, and Tony W. J. Jordan, both of Abingdon, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 8, 1979, Ser. No. 64,910
Claims priority, application United Kingdom, Aug. 9, 1978, 32746/78
Int. Cl.³ B07B *1/00*
U.S. Cl. 209—11 **13 Claims**



1. Apparatus for transporting from a receiving station to a discharge station items capable of being transported in a liquid, the apparatus comprising,

(a) an inlet duct for receiving items, the inlet duct having at the upper end thereof a receiving station and extending downwardly therefrom;

(b) an outlet duct connected at one end thereof to the inlet duct at a region thereof below the receiving station, the outlet duct having a discharge station at the upper end of said outlet duct and extending upwardly from the region to the discharge station;

(c) port means at the region and comprising a permeable barrier means for fine particulate material from the items to pass therethrough at the lower portion of the region;

(d) duct means extending at one end thereof from said region at said port means;

(e) means connectable to the other end of the duct means for applying pressure pulses to a liquid in the apparatus as to displace the liquid in the inlet duct and the outlet duct upwardly and thereby transport the items through the apparatus to the discharge station.

4. A method of transporting from a first receiving station to a last discharge station items capable of being transported in a liquid, the method comprising,

(a) containing a liquid in a plurality of ducts, each duct having two portions thereof upwardly extending from a lower region of the duct, said lower regions having thereat a barrier permeable to fine particulate material from the items, and one of the portions having a receiving station at the upper end thereof and the other portion having a discharge station at the upper end thereof, the ducts being connected together in series relationship so that the first duct in the series provides the first receiving station and the last duct in the series provides the last discharge station;

(b) feeding the items into the first receiving station;

(c) intermittently displacing the liquid upwardly in the other portions of the ducts by sequentially applying pressure pulses to the liquid therein so as to displace said items through the discharge openings of the respective ducts whereby the items are sequentially transported through the plant from the first receiving station to the last discharge station and fine particulate material from the items passes through the permeable barriers.

4,278,532

AIR CLASSIFICATION APPARATUS

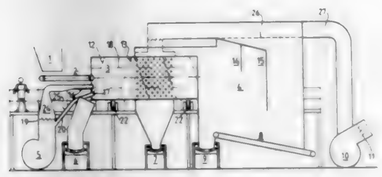
Peter R. Birch, 56 High St., Ashwell, Near Baldock, Hertfordshire, SG7 5NR; Kenneth V. Ling, 132 Swifts Green Rd., Stopsley, Luton, Bedfordshire, LU2 8BP; Claude S. Power, 16 Newnham Way, Ashwell, Near Baldock, Hertfordshire, SG7 5PN; Alan J. Robinson, "Moonrakers", Garth Rd., Letchworth; Terrence G. Mahoney, and Stanislaw F. Las-Laskowski, both of Green Dragon House, 64/70 High St., Croydon, Surrey, all of England

Filed May 23, 1979, Ser. No. 41,692

Claims priority, application United Kingdom, May 25, 1978, 22875/78

Int. Cl.³ B07B *7/00*

U.S. Cl. 209—19 **22 Claims**



1. An air classifier comprising a rotatable open-ended drum disposed with its axis substantially horizontal, for receiving material to be classified, means for creating a stream of air through the drum, means for introducing material to be classified into the drum near the upstream end thereof, means in the drum for conveying materially axially of the drum during rotation thereof, the conveying means comprising first and second helical vanes of mutually opposite hand, said first helical vane disposed in an upstream part of the drum to convey "heavies" in counter-current to the stream of air through the drum and said second helical vane disposed in a downstream part of the drum to convey "lights" in the direction of the air stream, a primary air inlet discharging air into the drum, and a secondary air inlet adjacent to the primary air inlet and disposed near the lower edge of the drum to direct air into the drum generally parallel to the upstream end portion of the first helical vane.

4,278,533

CONDITIONER FOR FLOTATION OF OXIDIZED COAL

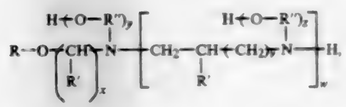
Robert E. Hefner, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 7, 1980, Ser. No. 119,251

Int. Cl.³ B03D *1/02*

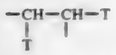
U.S. Cl. 209—166 **10 Claims**

1. A froth flotation process for beneficiaing coal of flotation size which comprises floating the sized coal in a frothing aqueous medium comprising a fuel oil collector and an effective amount of a conditioner selected from the group consisting of (1) an ether amine or hydroxyalkylated ether amine represented by the formula I:



I

wherein each R' is independently hydrogen or methyl, each R'' is independently



wherein T at each occurrence is independently hydrogen, methyl or ethyl, with the proviso that R'' at each occurrence contains no more than 4 carbon atoms; v, w, y, and z are each independently 0 or 1; x is 2 or 3 and R is an aryl, alkaryl, alkyl, aralkyl, alkenyl or alkynyl having from 1 to about 22 carbon atoms; (2) a condensation product of a compound of formula I with an organic carboxylic acid or its ester in a molar ratio of at least about 1 mole acid or ester per mole of the ether amine or derivative; and (3) an acid derivative of the compound of formula I or its condensation product;

with the proviso that if the conditioner employed in flotation is not a condensation product of the compound of formula I or an acid derivative thereof, then in formula I, y and z are both O and R is an alkyl-substituted phenyl or an alkenyl or alkyl having at least 10 carbon atoms.

4,278,534

METHOD FOR SEPARATION OF MATERIAL MIXTURES, CONTAINING ABRASIVE PARTICLES, IN A HYDROCYCLONE SEPARATOR

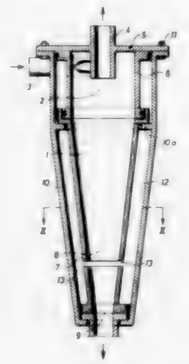
Karl F. O. Jakobson, Täby, Sweden, assignor to AB Celleco, Stockholm, Sweden

Filed Nov. 16, 1979, Ser. No. 95,064

Claims priority, application Sweden, Nov. 16, 1978, 7811825

Int. Cl.³ B04C *5/085*

U.S. Cl. 209—211 **3 Claims**



1. In the separation of an abrasive-containing mixture into two fractions by means of a hydrocyclone separator forming a separating chamber including a circular cylindrical part having a tangential inlet for said mixture and a central first outlet for one of said fractions, the separating chamber also including a conical part within a conical wall defining a second outlet for the other of said fractions, there being an outer mantle completely surrounding said conical wall and forming therewith a closed space between said wall and mantle, and method which comprises feeding said mixture through the tangential inlet into the separating chamber to effect said separation, causing said abrasive to form a hole through said conical wall, whereby said conical part of the separating chamber communicates with said closed space through said hole, allowing a mixture from said separating chamber to fill said closed spaced through said hole, and continuing to effect said separation while said hole is present in said conical wall and while said closed chamber remains filled with said mixture.

4,278,535

SCREEN DECKS

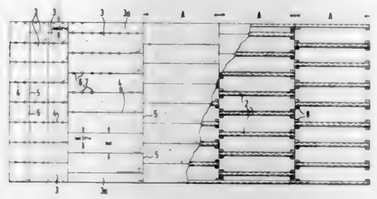
Kurt Wolff, Dinslaken, Fed. Rep. of Germany, assignor to Firma Steinhaus GmbH, Mülheim an der Ruhr, Fed. Rep. of Germany

Filed Jun. 14, 1979, Ser. No. 48,639

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832747

Int. Cl.³ B07B *1/46*

U.S. Cl. 209—399 **2 Claims**



1. A screen deck having rigid support struts each having fastening holes formed therein and a plurality of rectangular flexible screen members having longitudinal and transverse edges arranged thereon the screen members abutting one another directly in order to form a continuous screen, said longitudinal edges being parallel with said support struts, the distances between adjacent pairs of the support struts being equal to the length of the transverse edge of one of the screen members, the screen members having each a surface positioned next to said rigid support struts and having at the screen member edges which complement one another in pairs at the point of abutment of adjacent screen members the projections protruding from said surface that is next to said rigid support struts and together engage in one fastening hole in each complementing pair on the sides of the support struts, adjacent to the screen member surfaces wherein the invention comprises the lengths of at least some of the longitudinal edges of the screen members being at least one and a half times the transverse screen member edge, the longitudinal support struts and rows of screen members being subdivided into abutting sections, the successive abutting sections being staggered in the transverse direction relative to each other by a distance less than the transverse screen member edge length.

4,278,536

METHOD OF STARTING AN ELECTRO-PNEUMATICALLY ACTUATED WET-SETTLING MACHINE

Karl-Heinz Weiffen, Bochum, Fed. Rep. of Germany, assignor to Klockner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Mar. 12, 1979, Ser. No. 19,465

Claims priority, application Fed. Rep. of Germany, May 26, 1978, 2823081

Int. Cl.³ B03B *5/24*

U.S. Cl. 209—422 **8 Claims**

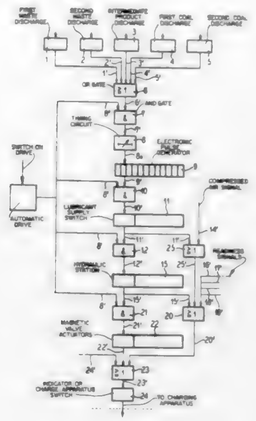
1. A method of starting an electro-pneumatically actuated wet settling machine which has electrically-controlled inlet and outlet valves, a compressed air system, a lubricating oil supply for the valves, discharge apparatus, removal apparatus, charging apparatus, a hydraulic station for the discharge apparatus, and an automatic drive control, for the separation of mineral mixtures into constituent components, in which separation takes place through the pulsation of a separating liquid in a separating chamber controlled by the introduction and exhaust of pressurized air into and from pulsation chambers which communicate with the compressed air supply by way of the inlet and outlet valves, comprising the steps of:

starting the removal apparatus which removes the individual components of the mineral mixture;

starting the lubricating oil supply for the inlet and outlet valves;

starting and operating the inlet and outlet valves in a predetermined sequence;

activating the compressed air system to cause pulsation of the separating liquid via the inlet and outlet valves;



starting the hydraulic station for operating the discharge apparatus for discharging the individual components; and

starting the charging apparatus to feed the mineral mixture to be separated to the separation chamber.

4,278,537

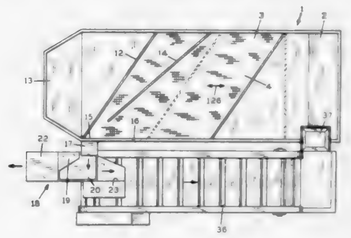
APPARATUS FOR SEPARATING HEAVY SOLIDS AND LIGHT SOLIDS FROM A MIXTURE THEREOF

Uwe Schmidt, Stadtbergen, and Dieter Schneider, Augsburg, both of Fed. Rep. of Germany, assignors to Alpine Aktiengesellschaft, Augsberg, Fed. Rep. of Germany

Filed Mar. 27, 1979, Ser. No. 24,242

Int. Cl.³ B07B *1/36*

U.S. Cl. 209—469 **6 Claims**



1. In an apparatus for separating a mixture of heavy particulate material and light particulate material into separate fractions of heavy and light material comprising first and second separating means, said first separating means being an elongated air jig, means for vibrating the air jig, and means for discharging the clean light fraction of material from one end of said air jig, the improvement comprising:

(a) lateral discharge means for discharging the heavy fraction (which heavy fraction still contains some light material) from the air jig laterally thereof;

(b) said second separating means being positioned laterally of said air jig to receive the heavy fraction containing some light material discharged from the air jig by said lateral discharge means;

(c) said second separating means being a pneumatic table having a top plate onto which said heavy fraction is dis-

charged, said pneumatic table being capable of separating said heavy fraction into clean heavy particles and lighter particles due to the different densities;

(d) said pneumatic table being mounted to said air jig for a vibratory conveying action for conveying the heavy particles of said heavy fraction received from the air jig toward one end of said pneumatic table to provide a clean heavy particulate fraction;

(e) means for providing an air stream in a direction generally opposite to the direction of movement of the clean heavy particles on said pneumatic table which air stream conveys the lighter particles of said heavy fraction in said opposite direction; and

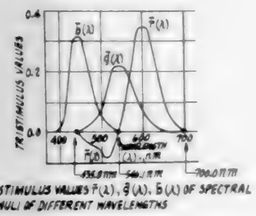
(f) means for recycling the lighter particles of said heavy fraction from said pneumatic table back to said air jig.

4,278,538

METHODS AND APPARATUS FOR SORTING WORKPIECES ACCORDING TO THEIR COLOR SIGNATURE

Hopeton S. Lawrence, Lawrenceville, N.J., and John D. Michalski, Levittown, Pa., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Apr. 10, 1979, Ser. No. 28,773
Int. Cl.³ B07C 5/342
U.S. Cl. 209—580 **26 Claims**



1. A method of sorting workpieces according to their colour, wherein positive colour determination is difficult for certain workpiece colours, comprising the steps of:

(a) advancing a workpiece to be sorted towards a workstation;

(b) directing a beam of light at said workpiece to illuminate the same while said workpiece is positioned at said workstation;

(c) measuring the amplitude of three different spectral components in the light which is diffusely reflected off said workpiece, the first and second ones of said components respectively corresponding to the first and second colours of any set of three colours which satisfy the Tristimulus Theory, said third component corresponding to at least the major lobe of the third one of said set of three colours, which satisfy the Tristimulus Theory;

(d) synthesizing an amplitude which substantially corresponds to the amplitude of the spectral component that would have been measured for the third one of said set of three colours which satisfy the Tristimulus Theory, by adding the amplitude of said third component to a moiety of the amplitude of said first component;

(e) comparing the amplitudes of said first and second spectral components, and said synthesized spectral component, to successive ones of a plurality of sets of spectral component amplitudes each set of which defines a possible colour for said workpiece, thereby to determine the colour of said workpiece when the results of the comparison indicate a match;

(f) summing the amplitudes of said first and second spectral components, and said synthesized spectral component;

(g) additionally comparing the sum of the amplitudes obtained in said summing step to the sum of the amplitudes in those ones of said plurality of sets of spectral component amplitudes of greatest interest, thereby to positively determine the colour of said workpiece when the results of said additional comparison indicate a match;

(h) moving a discharge member, in accordance with the results of steps (c) through (g) until said discharge member is aligned with the receptacle assigned to receive workpieces of said determined colour; and then,

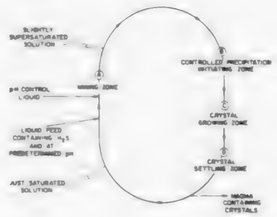
(i) releasing said workpiece from said workstation so that said workpiece traverses said discharge member and is received within said receptacle.

4,278,539

METHOD FOR REMOVING HEAVY METALS FROM AQUEOUS LIQUIDS

Chakra J. Santhanam, Lexington, and Ravindra M. Nadkarni, Arlington, both of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Sep. 8, 1978, Ser. No. 940,837
Int. Cl.² C02B 1/26; C02C 5/02
U.S. Cl. 210—724 **12 Claims**



1. A method for processing an aqueous feed liquid to precipitate at least one metal sulfide in a form to make said sulfide subsequently removable from said stream by settling and filtration, comprising the steps of

(a) circulating within a loop a volume of an aqueous liquid containing a soluble salt of the metal to be removed and establishing within said loop in order of liquid flow
at least one mixing zone,
a controlled precipitation initiating zone,
a crystal growing zone, and
a crystal settling zone;

(b) introducing into said loop upstream from said mixing zone aqueous feed liquid to be processed, said aqueous liquid containing H_2S, in excess of that required to react with said metal, dissolved therein and having a pH less than that at which the sulfide of said metal precipitates;

(c) introducing into said mixing zone an aqueous pH-adjusting liquid in a quantity sufficient to raise the pH of said liquid in said loop to a point between that at which said liquid becomes slightly supersaturated with respect to said metal sulfide and that at which precipitation of said metal sulfide is initiated;

(d) maintaining the degree of supersaturation within said controlled precipitation initiating and crystal growing zones in the metastable condition whereby the growth rate of metal sulfide crystals remains greater than under uncontrolled conditions vis-a-vis the nucleation rate throughout essentially the entire precipitation of sai metal sulfide and said metal sulfide formed is of a particle size distribution which permits it to collect in said crystal settling zone and to provide aqueous liquid for recirculation in said loop; and

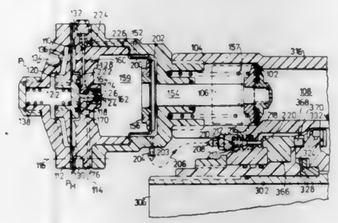
(e) drawing off from said loop the the metal sulfide magma formed in said crystal settling zone; the volume flow of said liquid in said loop being essentially equivalent to the product of volume flow rate of said aqueous liquid introduced into said loop and the residence time of a hypothetical volume of said liquid introduced into said loop.

4,278,540

BACK WASHING FLUID FILTERS

Mordeki Drori, 89 Zahal St., Kiron, Israel

Filed May 9, 1980, Ser. No. 148,494
Claims priority, application Israel, May 17, 1979, 57320
Int. Cl.³ B01N 29/38
U.S. Cl. 210—107 **9 Claims**



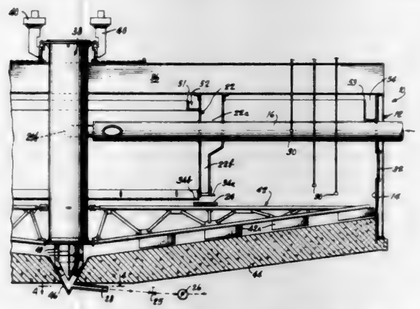
1. A backwashable filtering device including a housing having an inlet connectable to an upstream fluid pipe and an outlet connectable to a downstream fluid pipe, a filter body having an upstream surface facing the housing inlet, a backwash nozzle within the housing and having a nozzle inlet disposed adjacent to the upstream surface of the filter body, and pressure sensor means for sensing the pressure drop across the filter body and effective, upon sensing a predetermined pressure drop, to initiate a backwashing operation by connecting the backwash nozzle to the atmosphere and initiating relative rotary movement between the filter body and the backwash nozzle; characterized in that the filtering device further includes position sensor means for sensing the home angular position of the filter body with respect to the backwash nozzle, and control means effective, only when said home angular position is sensed, for terminating the backwash operation.

4,278,541

SEPARATOR EMPLOYING AN ANNULAR VERTICAL FEEDWELL WITH ASSOCIATED CONCENTRIC ANNULAR BAFFLE PLATE AND METHOD OF USING SAME TO SEPARATE SOLIDS FROM LIQUIDS

Frederick G. Eis, San Ramon; Oren V. Bonney, and Willard A. Sackett, both of Woodland, all of Calif., assignors to Amstar Corporation, New York, N.Y.

Continuation of Ser. No. 886,418, Mar. 14, 1978, abandoned.
This application Nov. 2, 1979, Ser. No. 90,638
Int. Cl.³ B01D 21/08
U.S. Cl. 210—112 **11 Claims**



1. A clarifier or thickener apparatus useful for separating solids from a liquid feed containing solids suspended therein comprising a tank for receiving said liquid feed, said tank being provided with a top liquid outlet means and a bottom solids outlet means, influent feed conduit means for supplying said liquid feed positioned closer to the top of said tank than to the bottom of said tank, annular feedwell means in fluid communication with said influent feed conduit means to receive said liquid feed, said annular feedwell means being positioned vertically within said tank such that the bottom of said annular feedwell means is closer to the bottom of said tank than to the top thereof, said annular feedwell means being open at the bottom thereof for the discharge into said tank of said liquid feed supplied to said annular feedwell means via said influent feed conduit means, said annular feedwell means having a larger annular cross-section at the upper portion thereof than at the lower portion thereof for the flow of said liquid feed introduced thereinto, said annular feedwell means comprising an inner shell or wall and an outer shell or wall, the bottom end of said inner shell or wall being flanged radially inwardly with respect to said tank and the bottom of said outer shell being flanged radially outwardly with respect to said tank, the bottom end of said inner shell of said annular feedwell means extending below the bottom end of the outer shell of said annular feedwell means, substantially horizontal baffle means positioned substantially concentric with respect to said annular feedwell means and commensurate with respect to the projected cross-sectional area of the open bottom of said annular feedwell means, said baffle means being fixed and positioned so as to be spaced from but directly opposed with respect to the open bottom of said annular feedwell means for arresting and diverting the flow of said liquid feed leaving the bottom of said annular feedwell means so that said liquid feed upon leaving the bottom of said annular feedwell means moves radially inwardly past the bottom flanged end of the inner shell of said annular feedwell means and radially outwardly within said tank with respect to the bottom flanged end of the outer shell of said annular feedwell means, the space available for the radial outward flow from the bottom of said annular feedwell means being greater than the space available for the radial inward flow of said liquid feed, and adjustable means for controlling the opening or distance between the open bottom of said annular feedwell means and said baffle means to control the discharge of said liquid feed from the open bottom of said annular feedwell means, said adjustable means to control the discharge of said liquid feed from the open bottom of said feedwell means comprising at least one vertically slidable flanged sleeve attached to the bottom of said feedwell means.

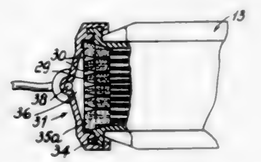
7. Apparatus in accordance with claim 1 wherein means is provided associated within said tank for sensing the interface between a relatively dense fluid solids phase and clarified liquid phase within said tank.

4,278,542

METHOD FOR MANUFACTURING MULTI-LAYER HEMODIALYZERS AND IMPROVED MULTI-LAYER HEMODIALYZER OBTAINED THEREBY

Theophiel Beulens, Heverlee, Belgium, assignor to Medical Development S.A., Luxembourg, Luxembourg

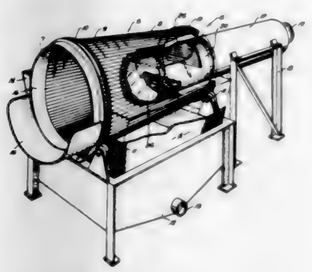
Filed Dec. 11, 1978, Ser. No. 967,895
Int. Cl.³ B01D 31/00
U.S. Cl. 210—321.3 **17 Claims**



1. In a method for manufacturing multi-layer hemodialyzers having flattened tubular membranes arranged in parallel and separated by foil-like supporting members, which comprises the steps of

(i) forming at least one pack comprising alternate layers of said membranes and said supporting members, wherein the open ends of said membranes are arranged at two opposed sides of said pack;
(ii) inserting said pack into a box-like enclosure to form a dialyzer assembly, said enclosure being open at its sides whereat said open ends of the membrane are arranged; and
(iii) securing, at the open sides of said enclosure, closing members defining manifold spaces in communication with spaces between said membranes; the improvement which comprises, before step (iii), the steps of:
(iv) positioning in said open ends of the membranes inserts projecting outwardly from said pack and extending into the interior of the tubular membranes;
(v) sealing the open ends of said membranes and the end spaces between said membranes and said supporting members in the dialyzer assembly by:
(a) removably closing the open ends of said dialyzer assembly comprising said inserts,
(b) placing the inside of said enclosure into communication with at least one container of fluid state resin, and subjecting said dialyzer assembly and said container to a centrifugal force so as to distribute said resin to the ends of said dialyzer assembly containing said inserts, and
(c) allowing said resin to set so as to obtain end blocks as means for sealing said open ends and said end spaces, said inserts providing means for defining communications orifices through the set-resin end blocks into the interior of the tubular membranes.

4,278,543
ROTARY SIEVE FOR SEPARATION OF SOLIDS FROM LIQUIDS
Dux C. L. Maniquis, Sydney, Australia, assignor to Aichaldean International Pty. Limited, Blakehurst, Australia
Filed Mar. 5, 1980, Ser. No. 127,420
Claims priority, application Australia, Mar. 5, 1979, PD7888
Int. Cl.[3] B01D *33/06*
U.S. Cl. 210—403 **2 Claims**

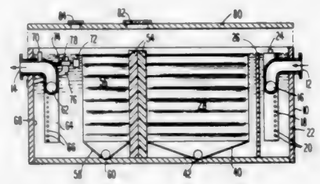


1. A sieve of the kind comprising:
an open-ended wedge-wire sleeve having a receiving end and a solids departure end, and having its longitudinal axis disposed substantially horizontally, means to rotate said sleeve about that axis, and means for infeed of material to be sieved into the sleeve by way of said receiving end; said infeed means comprising:
a trunk disposed co-axially with the sleeve, having one end outside the sleeve through which material to be sieved is delivered into said trunk and an opposite end portion which projects into and through the receiving end of the sleeve to extend within the sleeve over a distance equal to from one quarter to one half the axial length of the sleeve, and a material departure aperture in the top of said end portion bordered by a horizontal weir extending axially of said end portion for a distance at least half the axial length of that portion measured from the innermost end of said portion; said end portion being internally furnished with at least one upstream anti-surge baffle plate which extends laterally of said end portion and from the top of that portion towards the center thereof, and at least one downstream anti-surge baffle plate which extends laterally of said end portion and from the bottom of that portion towards the center thereof.

4,278,544
FILTER MEDIUM FOR FLUID
Masaru Takashima, Komae, Japan, assignor to Aikoh, Co., Ltd., Tokyo, Japan
Filed Mar. 26, 1980, Ser. No. 134,263
Int. Cl.[3] B01D *39/20*
U.S. Cl. 210—503 **1 Claim**

1. A filter medium for the filtration of a fluid at high temperatures which is a sintered body and has a mean pore diameter in the range of 500 microns to 1 mm and a porosity in the range of 15–40% which comprises:
(a) 100 parts by weight of an alumina refractory, with more than 95% by weight of said refractory being pelletized spheroids having a particle size of less than 1.0 mm, said refractory being at least one material selected from the group consisting of alumina, corundum, mullite, bauxite, diaspore and sillimanite;
(b) 15–30 parts by weight of an organic binder having a particle size less than 40 microns, with said binder being at least one material selected from the group consisting of kaolinite, bentonite, agalmatolite, burned alumina, sintered alumina, siliceous stone, feldspar, porcelian stone and glass; and (c) 0.1–1.0 parts by weight of a sintering aid wherein said sintering aid is at least one material selected from the group consisting of lithium fluoride and lithium oxide.

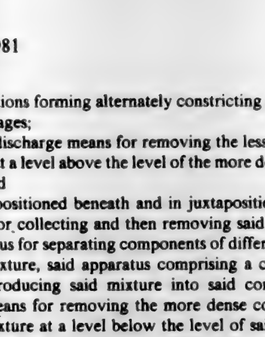
4,278,545
APPARATUS FOR SEPARATING SOLIDS AND LIQUID COMPONENTS
Edward F. Batutis, Phoenixville; Edward Rodriguez, Bensalem, and Walter R. Kugler, Norristown, all of Pa., assignors to The Bendix Corporation, Southfield, Mich.
Filed Sep. 12, 1979, Ser. No. 74,832
Int. Cl.[3] B01D *21/00*
U.S. Cl. 210—521 **10 Claims**



1. Apparatus for separating solids and components of different densities in a fluid mixture or emulsion comprising:
a. a container;
b. inlet means for introducing said mixture into said container to minimize turbulence within said container;
c. first discharge means for removing a more dense component at a level below the level of a less dense component;
d. a plurality of vertically disposed spaced plates positioned within said container and between said inlet means and said first discharge means, said plates having approximately sinusoidal corrugations in a cross-sectional plane transverse to the direction of fluid flow, each of said plates, and the corrugations therein, extending parallel to the direction of fluid flow and cooperating with at least one adjacent plate to define a vertically extending flowpath between the inlet and the first discharge means, said corrugations forming alternately constricting and expanding passages;
e. second discharge means for removing the less dense component at a level above the level of the more dense component; and
f. means, positioned beneath and in juxtaposition with said plates, for collecting and then removing said solids.

5. Apparatus for separating components of different densities in a fluid mixture, said apparatus comprising a container, an inlet for introducing said mixture into said container, first discharge means for removing the more dense component of said fluid mixture at a level below the level of said less dense component, a plurality of plates in said container, each of said plates extending vertically from a point adjacent the upper surface of said fluid mixture toward the bottom surface of said fluid mixture and also extending generally in the direction of fluid flow between the inlet and first discharge means to define vertically extending fluid flow paths between said plates between the inlet and the first discharge means, said plates having corrugations extending parallel to the direction of fluid flow such that the distance between each of said plates and a corresponding adjacent plate varies along the surface of the plate between the upper surface of said fluid mixture to the bottom surface thereof so that the width of the fluid flow paths varies at different horizontal cross sectional planes taken through said plates, and second discharge means for removing the less dense component at a level above the level of the more dense component.

4,278,546
TREATMENT OF A LIQUID BY CIRCULATION AND GAS CONTACTING
Frank C. Roesler, deceased, late of Stockton-on-Tees, England (by Johanna Roesler, executrix), assignor to Imperial Chemical Industries Limited, London, England
Continuation of Ser. No. 733,410, Oct. 18, 1976, abandoned.
This application Jan. 16, 1978, Ser. No. 870,040
Claims priority, application United Kingdom, Oct. 22, 1975, 43362/75; Apr. 7, 1976, 14098/76
Int. Cl.[3] C02F *3/22*
U.S. Cl. 210—626 **10 Claims**



1. A process for the treatment of wastewater containing biologically degradable material, utilizing a main treatment chamber, a downflow pipe, and an upflow pipe; said downflow and upflow pipes being disposed within the main treatment chamber and in communication with the interior of the main treatment chamber at the lower ends thereof, and being in communication with each other at the upper ends thereof in a basin from which gas may escape; the lower end of the upflow pipe communicating with the chamber at a lower level than does the lower end of the downflow pipe; an upper region of the chamber being above the level at which the lower end of the downflow pipe communicates with the chamber, and a lower region of the chamber being below this level; said process comprising the steps of
continuously introducing wastewater into the chamber;
producing different types of flow in the upper and lower regions by continuously recirculating wastewater along a circulatory path within the chamber, including downwardly in the downflow pipe into and through the lower region and upwardly in the upflow pipe; continuously introducing gas into the wastewater so that the wastewater in the circulatory path makes contact with gas during circulation thereof, the wastewater continuous circulation and gas continuous introduction steps being accomplished by introducing gas-upwardly into the upflow pipe, all the wastewater in the upflow pipe flowing into the basin where gas is allowed to escape, and from the basin all the wastewater flowing into the downflow pipe, -and while it is flowing downwardly in the main treatment chamber; and by controlling the circulation rate of the wastewater and gas so that the downward velocity of wastewater in the lower region effects an automatic division of gas bubbles therein, some escaping upwardly to the upper region, and others being carried downwardly into the lower region; and
continuously removing wastewater after sufficient treatment of the biologically degradable material therein.

7. Apparatus for the treatment of wastewater containing biologically degradable material, comprising
a main treatment chamber,
a generally vertically extending downflow pipe,
a generally vertically extending upflow pipe,
a basin from which gas may escape,
said downflow and upflow pipes being disposed within the main treatment chamber and in communication with the interior of the main treatment chamber at the lower ends thereof, and in communication with each other at the upper ends thereof in the basin,
the lower end of said upflow pipe communicating with the chamber at a lower level than the lower end of said upflow pipe,
means for recirculating wastewater along a circulatory path within said chamber, including up the upflow pipe and down the downflow pipe,
means for introducing gas into the wastewater by introducing gas upwardly in the upflow pipe, and so that wastewater in the circulatory path makes contact with gas during circulation thereof, all the wastewater in the upflow pipe flowing into the basin where gas is allowed to escape, and all the wastewater flowing into the downflow pipe,
means for controlling the circulation rate of the wastewater and gas, and
means for continuously removing wastewater from said chamber after sufficient treatment of the biologically degradable material therein.

4,278,547
CONSERVATION OF MOMENTUM IN A BARRIER OXIDATION DITCH
John H. Reid, 7 Stansbury Ct., Fredericksburg, Va. 22401
Continuation-in-part of Ser. No. 848,705, Nov. 4, 1977, which is a continuation-in-part of Ser. No. 649,995, Jan. 19, 1976, abandoned. This application Apr. 9, 1979, Ser. No. 28,383
Int. Cl.[3] C02C *1/17*
U.S. Cl. 210—629 **9 Claims**

1. The process of providing point-source aeration to a continuously circulating mixed liquor, disposed within the endless channel of an oxidation ditch, which:
(a) is at a concentration of at least 1,000 mg/l of mixed liquor suspended solids,
(b) is admixed with and diluted by a continuously inflowing stream of wastewater at a volume ratio of at least 100:1 of mixed liquor:wastewater,
(c) contains a biomass including heterotrophic aerobic, heterotrophic facultative, and autotrophic microorganisms

which are agglomerated at least partially as a bacterial floc and for which said wastewater is a food source at a food-to-microorganism ratio by weight varying over a range of 0.01 to 2.5 parts of five-day biochemical oxygen demand per part of mixed liquor suspended solids,

(d) flows translationally within said endless channel at a circulation velocity that is sufficient to maintain said floc in a state of suspension therewithin without interruption by a clarification zone within said channel,

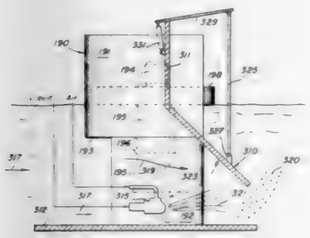
(e) is diminished by a portion thereof being continuously discharged to a settling means for separating mixed liquor into purified liquid waste and settled sludge, and

(f) is increased by at least a part of said settled sludge being continuously returned to said endless channel for dispersion within said mixed liquor,

said process comprising the operation of said oxidation ditch, which comprises an intake channel, a discharge channel, and a discharge passage therebetween, according to the following steps:

A. selectively forcing up to all of said mixed liquor, once per circuit-flow cycle thereof, to enter said discharge passage connecting upstream liquor within said intake channel to downstream liquor within said discharge channel;

B. pumping said mixed liquor entering said discharge passage:



(1) past an aeration means for dispersing air into said mixed liquor to form freshly aerated mixed liquor, said aeration means being disposed at substantially a single location within said channel, and

(2) at an adequate circulation rate within said discharge passage for generating sufficient hydraulic head to move all of said mixed liquor through the entire length of said endless channel at said sufficient circulation velocity;

C. at least substantially preventing back-mixing of said freshly aerated mixed liquor from said discharge channel to said intake channel;

D. increasing the log mean driving force across the intake and discharge ends of said discharge passage, thereby decreasing the energy required for dissolving a given quantity of oxygen in said mixed liquor and increasing the oxygen transfer efficiency for providing repetitive aerobic treatment to said mixed liquor; and

E. selectively conserving up to a substantial portion of the momentum in said continuously circulating mixed liquor, a barriered pump assembly being disposed between said intake channel and said discharge channel and being sealably attached to the bottom and sides of said endless channel, and said barriered pump assembly being a mixing-control apparatus which comprises an adjustably apertured barrier assembly having a plurality of gateways.

4,278,548

CONTROL OF BIOLOGICAL GROWTH IN REVERSE OSMOSIS PERMEATORS

George E. Bettinger; Hermann W. Pohland, and Lynn E. Applegate, all of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 20, 1979, Ser. No. 68,079
Int. Cl.[3] B01D *13/00*
U.S. Cl. 210—636 6 Claims

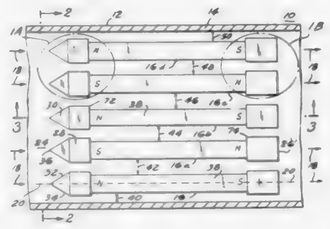
1. In the process for continuously purifying a liquid process stream by passing it through at least one reverse osmosis module comprising a core member having a semipermeable polyamide membrane positioned in a manner whereby the liquid permeates through the membrane producing flows of permeate and concentrate, the improvement which comprises inhibiting the growth of microorganisms in said liquid process stream and on the membrane by repeatedly introducing into the process stream prior to its entering the reverse osmosis module about from 5 to 25 parts per million, based on the total volume of the process stream, of an uncombined additive selected from the group consisting of iodine, hydrogen peroxide, sodium persulfate, ammonium persulfate and sodium perborate for a period of about from 30 minutes to 3 hours per 72 hours of operation, without interruption of the process stream.

4,278,549

MAGNETIC CONDITIONING OF LIQUIDS

Joseph L. Abrams, 960 Apple La., and Arthur D. Maynard, 624 Riverview Ave., both of Altamonte Springs, Fla. 32701

Filed Nov. 19, 1979, Ser. No. 95,625
Int. Cl.[3] C02F *1/48*
U.S. Cl. 210—695 7 Claims



1. A method for treating an aqueous or non-aqueous liquid stream to enhance its flow properties and reduce its tendency to deposit scales, encrustations, sludge and the like, comprising directing said stream along at least one primary flow path defined by adjacent permanent magnets arranged in parallel, each comprising a shank portion connecting longitudinally opposed proximal and distal head portions, said proximal head portion terminating in a tapered, deflecting portion, to contact and traverse a high density magnetic flux field generated between juxtaposed of said head portions and having a flux axis substantially normal to said primary flow path, the width of said head portion exceeding the width of said shank portion by a factor of at least about 1.2, the longitudinal dimension of the magnets being at least about 4 times the lateral dimension, to deflect said stream immediately prior to or substantially simultaneously with its contacting said flux field by said tapered portion along secondary flow paths causing said stream to contact and traverse said flux field at an angle of from about 20° to 60° with respect to said flux axis.

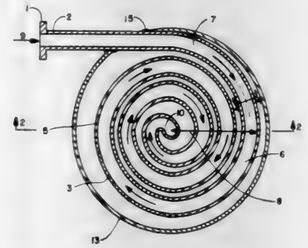
4. Apparatus for magnetically treating an aqueous or nonaqueous liquid stream to enhance its flow properties and to reduce its tendency to deposit scales, encrustation and the like comprising an enclosure, means for admitting a liquid stream to said enclosure, means for directing said stream along at least one primary flow path comprising adjacent permanent magnets arranged in parallel defining a flow path therebetween, the longitudinal dimension of the magnets being at least 4 times the lateral dimension, each of said magnets comprising a shank portion connecting longitudinally opposed proximal and distal head portions, said proximal head portion terminating in a tapered, deflecting portion, juxtaposed of said head portions generating a high density magnetic flux field therebetween having a flux axis normal to said primary flow path, the ratio of the width of the flow path between juxtaposed of said head portions to the width of the remainder of said primary flow path between juxtaposed of said shank portions being less than about 1:1.2, said tapered portion comprising means for deflecting said stream through said flux field at an angle of from about 20° to 60° with respect to said flux axis.

4,278,550

FLUID SEPARATOR

John D. Watts, P.O. Box 79466, Houston, Tex. 77079

Filed Dec. 14, 1979, Ser. No. 103,693
Int. Cl.[3] B04C *1/00, 11/00*
U.S. Cl. 210—741 12 Claims



1. A method of separating a first fluid from a pressurized mixture with a second fluid, said second fluid having a greater density than said first fluid, comprising: causing substantially all of said first fluid to travel a stationary first path of increasing centrifugal force through a zone of maximum centrifugal force; the first path comprising a confined, arcuate route of more than one revolution and having a decreasing radius in the direction of flow; the centrifugal force being sufficient to cause said second fluid to separate from said first fluid; causing the first fluid to exit the first path downstream from the zone of maximum centrifugal force; adjusting fluid flow along said first path responsive to pressure in said first path; adjusting said second fluid flow along said second path responsive to fluid level in said second path.

4,278,551

WOUND CARTRIDGE FILTERS

Kenneth C. Hou, Glastonbury, and Michael F. Kilty, Windsor Locks, both of Conn., assignors to AMF Incorporated, White Plains, N.Y.

Filed Jul. 30, 1979, Ser. No. 62,219
Int. Cl.[3] B01D *27/00*
U.S. Cl. 210—767 10 Claims

10. A method for the filtration of liquid at high flow rates and improved efficiency comprising passing said liquids through a porous wound cartridge filter comprising a tubular element defined by superposed windings of a continuous yarn bundle, the surfaces of which are modified with cationic colloidal silica.

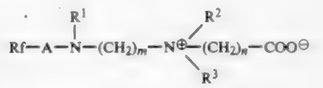
4,278,552

FLUORINE-CONTAINING BETAINE COMPOUNDS, AND PRODUCTION AND USE THEREOF

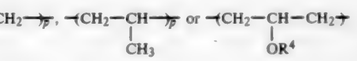
Iwao Hisamoto; Naonori Enjo, both of Osaka; Chiaki Maeda; Takasige Esaka, both of Kyoto; Yukio Omure; Toshihiko Iida, both of Osaka, and Hideki Aomi, Osaka, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Apr. 12, 1979, Ser. No. 29,573
Claims priority, application Japan, Apr. 13, 1978, 53-44082
Int. Cl.[3] A62C *1/12;* A62D *1/04;* C07C *101/24*
U.S. Cl. 252—3 4 Claims

1. A fluorine-containing betaine compound of the formula:

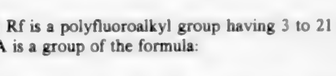


wherein Rf is polyfluoroalkyl group having 3 to 21 carbon atoms, A is a group of the formula:

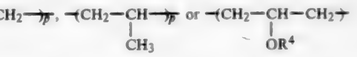


(wherein R^4 is a hydrogen atom or an acyl group having 2 or 3 carbon atoms and p is an integer of 1 to 5), R^1 is a hydrogen atom, an alkyl group having 1 to 20 carbon atoms or a group of the formula: Rf—A—, R^2 and R^3 are each a hydrogen atom, an alkyl group having 1 to 3 carbon atoms or a hydroxyalkyl group having 1 to 3 carbon atoms, m is an integer of 2 to 6 and n is an integer of 1 to 4.

4. A foam fire-extinguishing composition for polar organic liquids which comprises an aqueous solution of a partially hydrolyzed protein and, as an additive contained therein, 0.1 to 30% by weight based on the original liquid of the protein solution of a fluorine-containing betaine compound of the formula:



wherein Rf is a polyfluoroalkyl group having 3 to 21 carbon atoms, A is a group of the formula:



(wherein R^4 is a hydrogen atom or an acyl group having 2 or 3 carbon atoms and p is an integer of 1 to 5), R^1 is a hydrogen atom, an alkyl group having 1 to 20 carbon atoms or a group of the formula: Rf—A—, R^2 and R^3 are each a hydrogen atom, an alkyl group having 1 to 3 carbon atoms or a hydroxyalkyl group having 1 to 3 carbon atoms, m is an integer of 2 to 6 and n is an integer of 1 to 4.

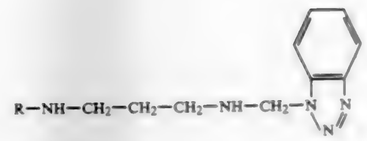
4,278,553

DIESEL LUBRICANT CONTAINING BENZOTRIAZOLE DERIVATIVES

Rodney L. Sung, Fishkill, and Benjamin H. Zoleski, Beacon, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 4, 1980, Ser. No. 109,702
Int. Cl.[3] C10M *1/32*
U.S. Cl. 252—50 5 Claims

1. A diesel lubricant composition comprising a diesel lubricating oil and a silver corrosion-inhibiting amount of a compound of the formula:



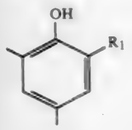
wherein R is straight chain alkyl having from 21 to 18 carbon atoms in the chain.

4,278,554
ANTIOXIDANT

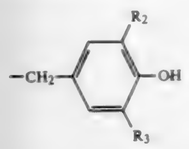
Robert E. Malec, Birmingham, Mich., assignor to Ethyl Corporation, Richmond, Va.

Division of Ser. No. 966,028, Dec. 4, 1978, Pat. No. 4,222,884. This application Apr. 18, 1980, Ser. No. 141,305
Int. Cl.³ C10M *1/24, 1/20, 3/18, 3/14*
U.S. Cl. 252—52 R **13 Claims**

1. Organic material normally subject to gradual degradation in the presence of oxygen containing an antioxidant amount of a normally liquid antioxidant composition comprising a mixture of compounds having a central segment made up of one to about ten divalent groups having the structure:



said divalent groups, when there are more than one, being bonded to each other through a $—CH_2—$ group, said central segment having a terminal group bonded at each end, said terminal group having the structure:



wherein R_1 and R_2 are selected from the group consisting of α-branched alkyl radicals containing 3 to about 12 carbon atoms, cycloalkyl radicals containing 5 to about 8 carbon atoms and aralkyl radicals containing 8 to about 12 carbon atoms and R_3 is selected from the group consisting of alkyl radicals containing 1 to about 12 carbon atoms, cycloalkyl radicals containing 5 to about 8 carbon atoms and aralkyl radicals containing 8 to about 12 carbon atoms.

4,278,555
LUBRICANT COMPOSITION

Edward F. Zaweski, Plesant Ridge, Mich., and Christian S. Harstick, Crestwood, Mo., assignors to Ethyl Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 960,763, Nov. 15, 1978, abandoned. This application Dec. 20, 1979, Ser. No. 105,725
Int. Cl.³ C10M *1/20*
U.S. Cl. 252—52 A **12 Claims**

1. A lubricating oil composition comprising a major amount of lubricating oil and a minor corrosion inhibiting amount of the combination of

(A) an oxyalkylated trimethylol alkane having a molecular weight of about 1,000–8,000 in which an initial hydrophobic oxyalkylene block is bonded to trimethylol alkane and a terminal hydrophilic oxyalkylene block is bonded to the other end of said hydrophobic block, said hydrophobic block consisting essentially of propyleneoxy units and optionally containing from 0 to 41 mole percent random ethyleneoxy units in an amount such that the average oxygen-to-carbon atom ratio in said hydrophobic block does not exceed 0.4, said hydrophilic block consisting essentially of ethyleneoxy units and at least 4 mole percent random propyleneoxy units such that the oxygen-to-carbon atom ratio in said hydrophilic block is in excess of 0.4, said hydrophilic block forming 5–90 weight percent of said oxyalkylated trimethylol alkane,

(B) an ethoxylated C_{4-12} alkylphenol containing an average of about 2–10 ethyleneoxy units, and

(C) an overbased metal detergent selected from the group consisting of alkaline earth metal alkylbenzene sulfonates, petroleum sulfonates, phenates, sulfurized phenates and salicylates.

4,278,556
PROCESS FOR PRODUCING FLEXIBLE MAGNETS

Takeo Tada, Urawa, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed May 17, 1979, Ser. No. 40,148
Claims priority, application Japan, May 19, 1978, 53-058877
Int. Cl.³ H01F *1/117*
U.S. Cl. 252—62.54 **3 Claims**

1. A method for producing flexible magnets comprising hard ferrite particles with an average particle size of from 1 to 1.75μ dispersed in a flexible non-magnetic matrix which comprises pulverizing hard ferrite particles have a particle size greater than 1.75μ in the presence of from 0.1% to 10%, based on the weight of ferrite particles, of at least 1 alkanol having a boiling point up to 100° C. and containing up to 4 carbon atoms, annealing the resulting particles at a temperature of from about 900° C. to 1000° C. to relax stresses and crystalline distortion therein; the annealed particles being nonfused and dispersing the annealed particles in a flexible non-magnetic matrix.

4,278,557
SOLVENT MIXTURE FOR DISSOLVING AND REMOVING EPOXY RESINOUS COMPOUNDS

John L. Elwell, Jr., Hooper, Utah, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 15, 1980, Ser. No. 140,640
Int. Cl.³ C11D *7/52*
U.S. Cl. 252—171 **2 Claims**

1. A solvent solution for effectively removing epoxy resinous formulations from a substrate, said solution consisting essentially of a mixture of about 45 volume percent methanol, about 40 volume percent dichloromethane and about 15 volume percent distilled water.

4,278,558
QUICK CURE CATALYST FOR POLYESTER MOLDING COMPOSITIONS

Donald C. Smith, and Jack D. Hoffman, Both of Ft. Wayne, Ind., assignors to Eagle-Picher Industries, Inc., Cincinnati, Ohio

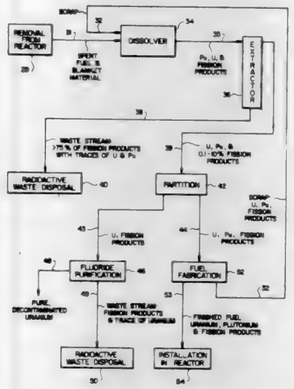
Filed Jul. 10, 1979, Ser. No. 56,051
Int. Cl.³ C08K *5/14;* **C08J** *3/24*
U.S. Cl. 252—186 **12 Claims**

1. A catalyst for curing unsaturated polyester resins, said catalyst comprising a mixture consisting essentially of about 20 to 40% by weight of 2,5-dimethylhexane-2,5-diperoxybenzoate, about 10 to 25% by weight of tert-butyl peroxy (2-ethyl hexanoate), and about 40 to 65% by weight of tert-butylperoxy isopropyl carbonate.

4,278,559
METHOD FOR PROCESSING SPENT NUCLEAR REACTOR FUEL

Milton Levenson, Menlo Park, and Edwin L. Zebroski, Los Altos, both of Calif., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Feb. 16, 1978, Ser. No. 878,392
Int. Cl.³ C09K *3/00;* **C01G** *43/00, 56/00*
U.S. Cl. 252—301.1 R **13 Claims**



1. A method for processing spent nuclear reactor fuel, comprising the steps of:

(a) dissolving spent nuclear reactor fuel into a spent fuel stream, said stream containing plutonium, uranium, and short-lived and long-lived radioactive fission products in an aqueous solution;

(b) extracting from the spent fuel stream plutonium and uranium together with a substantial quantity of long-lived fission products and discharging them together in an organic product stream; and

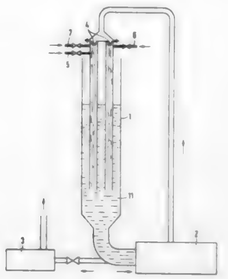
(c) partitioning the product stream into a uranium product stream and a fuel fabrication stream containing plutonium, uranium and long-lived fission products in an aqueous solution, the quantity of uranium in the fuel fabrication stream being equal to or greater than the quantity of plutonium therein.

4,278,560
METHOD FOR MANUFACTURING GADOLINIUM-CONTAINING NUCLEAR FUELS

Thomas Sondermann, Kahl, Fed. Rep. of Germany, assignor to RBU, Reaktor-Brennelment Union GmbH, Hanau, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,529
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853599
Int. Cl.³ G21C *3/62*
U.S. Cl. 252—301.1 R **8 Claims**

1. Method for manufacturing mixed crystals containing uranium and gadolinium for conversion into nuclear fuels, which comprises maintaining a body of an aqueous solution of ammonium carbonate at a pH of 9, introducing NH_3, CO_2 and a uranyl salt solution containing gadolinium in dissolved form, said uranyl salt being selected from the group consisting of uranyl nitrate and uranyl sulfate, into the aqueous solution of ammonium carbonate to precipitate ammonium salts of gadolinium and uranium complexes and during precipitation lowering the pH of the body of aqueous solution down to 8.2, separating the precipitate from the body of solution, and converting the precipitate of complexes containing gadolinium and uranium to uranium and gadolinium oxides.

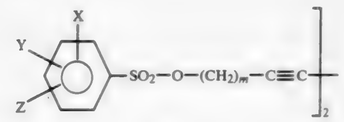


4,278,561
FLUORINATED BENZENESULFONATE DIACETYLENES

Kwok C. Yee, Randolph, N.J., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Sep. 13, 1978, Ser. No. 942,089
Int. Cl.³ C09K *3/00*
U.S. Cl. 252—408 **12 Claims**

1. A composition of the following formula:



wherein m is an integer value from 1 to 4 and X, Y and Z are selected from hydrogen, fluoro and C_1–C_4 fluorinated normal, iso- or secondary alkyl, containing 1–9 fluorine atoms, said composition being symmetrical and containing at least two fluorine atoms and being capable of undergoing solid state polymerization upon thermal annealing or exposure to actinic radiation or high energy ionizing radiation.

4,278,562
MANUFACTURE OF AN ETHYLENE OXIDE CATALYST

Wolf D. Mross; Eckart Titzenthaler, both of Ludwigshafen; Juergen Koopmann, Neustadt; Matthias Schwarzmann, and Volker Vogt, both of Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 13, 1978, Ser. No. 959,684
Claims priority, application Fed. Rep. of Germany, Nov. 19, 1977, 2751767; May 11, 1978, 2820520
Int. Cl.³ B01J *31/02, 23/50, 23/96;* **C07D** *303/04*
U.S. Cl. 252—430 **2 Claims**

1. A process for the preparation of a catalyst on a carrier for the manufacture of ethylene oxide by reaction of ethylene with oxygen in the gas phase, which catalyst contains from about 2 to 12% of elementary silver and alkali metals or their compounds, comprising:

applying at least one of the alkali metals potassium, rubidium or cesium to the catalyst carrier by treating the catalyst which already contains silver in the reduced form, with or without sodium and/or lithium, with a solution of a compound of potassium, rubidium and/or cesium which contains 0.1 to 10% by volume of a diketone which forms

complex salts, via an oxygen atom with silver-(I) ions, and using the solution in such amount that the solution absorbed by the catalyst corresponds to (based on silver) from 0.05 to 0.35 atom percent of potassium, from 0.003 to 0.25 atom percent of rubidium or from 0.0005 to 0.2 atom percent of cesium or to a corresponding amount of a mixture of these alkali metals, taking due account to any amounts of alkali metals which may already be present on the catalyst.

2. The process as set forth in claim 1, wherein a diketone selected from the group consisting of diacetyl, ethyl acetoacetate, and acetylacetone is used as the compound which forms complex salts.

4,278,563

COPPER CHLORIDE CONTAINING CATALYSTS FOR THE PREPARATION OF FURAN COMPOUNDS

Joseph M. Fremont, Glen Mills, Pa., and Donald I. Garnett, Hockessin, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 29,101, Apr. 10, 1979, abandoned. This application Jan. 18, 1980, Ser. No. 109,263

Int. Cl.[3] **B01J** *27/10, 27/08;* **C07D** *307/36*

U.S. Cl. 252—441 **6 Claims**

1. A catalyst consisting essentially of a support having deposited thereon

(a) 0.5–30%, by weight of the support, of a mixture of cuprous chloride and cupric chloride,

(b) 0.5–10%, by weight of the support, of an alkali metal chloride, and

(c) at least one of

(1) 0.01–2%, by weight of the support, of palladium chloride, and

(2) 0.1–2%, by weight of the support, of an iodide compound.

4. The catalyst of claim 1 in which the alkali metal chloride is of a divalent alkali metal.

5. The catalyst of claim 4 in which the alkali metal chloride is calcium chloride.

4,278,564

METHOD FOR MODIFYING THE SHAPE SELECTIVITY OF FERRIERITE

Bruce P. Pelrine, Trenton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 30, 1979, Ser. No. 89,691

Int. Cl.[3] **B01J** *29/06*

U.S. Cl. 252—450 **5 Claims**

1. A method for modifying the shape selectivity of natural ferrierite which comprises first contacting said ferrierite with oxalic acid and then contacting the resultant oxalic acid treated-ferrierite with an aqueous diammonium oxalate solution.

4,278,565

HYDROCARBON MANUFACTURE FROM ALCOHOLS

Nai Y. Chen, Titusville, and William J. Reagan, Englishtown, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 20,160, Mar. 14, 1979, abandoned, which is a division of Ser. No. 896,267, Apr. 14, 1978, Pat. No. 4,148,835. This application May 23, 1980, Ser. No. 152,878

Int. Cl.[3] **B01J** *29/28*

U.S. Cl. 252—455 Z **16 Claims**

1. A crystalline aluminosilicate zeolite catalyst having a crystal size of at least about 1 micron, a silica-to-alumina ratio of at least about 12 and a constraint index of about 1 to about 12, said zeolite comprising a Group 2B component, a Group 8 component and magnesium that have been incorporated into said zeolite in that order.

2. The catalyst of claim 1 wherein the Group 2B metal is zinc and the Group 8 metal is palladium.

11. A method for making a crystalline aluminosilicate zeolite catalyst having a crystal size of at least about 1 micron, a silica-to-alumina ratio of at least about 12 and a constraint index of about 1 to about 12, the step of incorporating into said zeolite catalyst a member comprising a Group 2B component, a Group 8 component and magnesium, said member having been incorporated in the order stated.

4,278,566

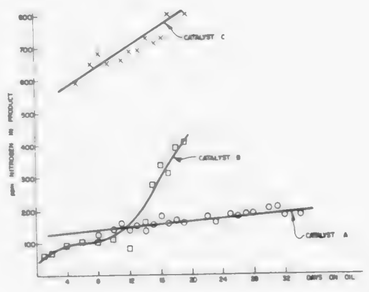
HYDROTREATING PROCESS

Albert L. Hensley, Jr., Munster, Ind.; Leonard M. Quick, Naperville, and P. Donald Hopkins, St. Charles, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 21,575, Mar. 19, 1979, Pat. No. 4,224,144. This application Apr. 11, 1980, Ser. No. 139,231

Int. Cl.[3] **C10G** *45/08, 45/38*

U.S. Cl. 252—465 **6 Claims**



1. A catalyst comprising a porous refractory inorganic oxide and deposited thereon hydrogenation components comprising chromium, molybdenum and at least one Group VIII metal, said catalyst having a pore volume distribution comprising 20–50% of pore volume in pores with diameters of 0–50 Angstrom units, 30–70% of pore volume in pores with diameters of 50–100 Angstrom units, 0–20% of pore volume in pores with diameters of 100–150 Angstrom units, and 0–10% of pore volume in pores with diameters greater than 150 Angstrom units.

4,278,567

PROCESS FOR PREPARATION OF COPPER-IRON-ALUMINUM HYDROGENATION CATALYST

Bunji Miya, deceased, late of Wakayama, Japan (by Kazu Miya, heir); by Fumiaki Miya, heir, Tokyo, Japan, and by Yukiko Nawashiro, heir, Ishikawa, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Mar. 10, 1980, Ser. No. 128,985

Claims priority, application Japan, Mar. 30, 1979, 54-377741

Int. Cl.[3] **B01J** *21/04, 23/72, 23/74*

U.S. Cl. 252—466 J **5 Claims**

1. A process for the preparation of a copper-iron-aluminum hydrogenation catalyst, which comprises the steps of: dissolving a cupric salt, a ferrous salt and an aluminum salt in water so that the Cu/Fe/Al atomic ratio is 1/(0.4–2.5)/(0.1–3.0), dissolving urea in the resulting aqueous solution in such an amount that the mole number of urea is at least 0.7 time as large as the sum of the equivalents of the metal ions of said salts, heating said aqueous solution until the pH of the liquid is 4.6 to 7.5, adding an alkali to the reaction liquid to elevate the pH to 9.5 to 11.5, further conducting the reaction and then separating, water-washing, drying and calcining the formed precipitate.

4,278,568

PROCESS OF MANUFACTURING SHEET METAL ELEMENTS OR STRIP HAVING A CATALYTIC SURFACE STRUCTURE

Karl Lohrberg, Heusenstamm; Heinz Wöllenweber, Frankfurt am Main; Jürgen Müller, Karben, and Bernd Sermond, Aslar, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 19, 1979, Ser. No. 50,018

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 2829901

Int. Cl.[3] **B01J** *25/00, 25/02, 35/02*

U.S. Cl. 252—472 **11 Claims**

1. In a process for manufacturing a sheet metal element or strip having a catalytic surface structure wherein a mixture comprising a skeleton powder and Raney alloy powder in a ratio of 1:3 to 3:1 is applied to a sheet or strip, bonded thereto by a roll of cladding, sintered in a reducing atmosphere at a temperature above 600° C. and treated with an alkaline or acid solution to dissolve out the soluble component of the Raney alloy the improvement wherein said sheet metal element or strip is cold-formed during said process with a deformation of 20 to 60% in any one forming step.

4,278,569

2,2,3-TRIMETHYL-3-CYCLOPENTEN-1-YLALKYL, ALKENYL AND ALKYLIDENE, CYCLOHEXANOLS, ORGANO-LEPTIC USES THEREOF IN PERFUME COMPOSITIONS, COLOGNES AND PERFUMED ARTICLES

Takao Yoshida, West Long Branch; Braja D. Mookherjee, Holmdel; Venkatesh Kamath, Red Bank; John B. Hall, Rumson, all of N.J.; William I. Taylor, Hertfordshire, England, and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

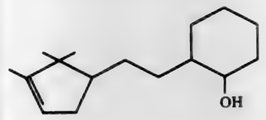
Continuation-in-part of Ser. No. 23,322, Mar. 22, 1979, Pat. No. 4,241,228, which is a division of Ser. No. 932,677, Aug. 10, 1978, Pat. No. 4,173,585. This application May 14, 1980, Ser. No. 149,650

The portion of the term of this patent subsequent to Dec. 23, 1997, has been disclaimed.

Int. Cl.[3] **C07C** *31/13;* **A61K** *7/46*

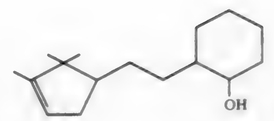
U.S. Cl. 252—522R **4 Claims**

1. The compound having the structure:

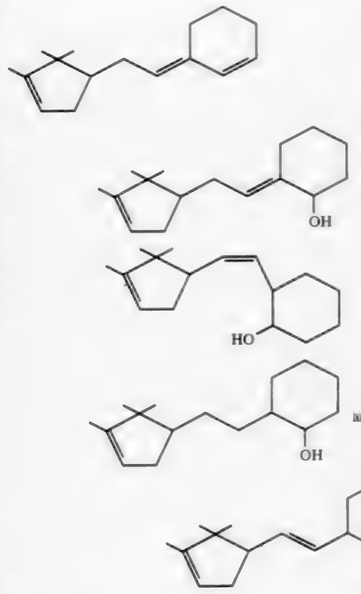


3. A process for augmenting or enhancing the organoleptic properties of a consumable material selected from the group consisting of perfume compositions, colognes and perfumed articles comprising the step of adding to said consumable material an organoleptic property-augmenting or enhancing quantity of at least one material selected from the group consisting of:

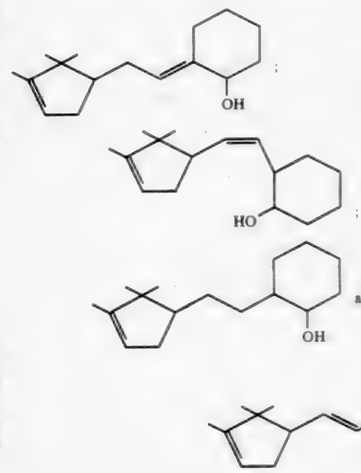
(i) The compound having the structure:



(ii) A mixture of compounds having the structures:



(iii) A mixture of compounds having the structures:



4,278,570
COSMETIC CLEANSER FORMULATION

Merlyn G. Flom, Noblesville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 20, 1980, Ser. No. 179,628
Int. Cl.³ C11D *1/84*; A61K *7/48*
U.S. Cl. 252—546 **1 Claim**

1. A skin cleanser formulation consisting essentially of, in percent by weight:

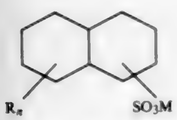
Ingredients	Percent
deionized water	39.73
propylene glycol	6.00
magnesium aluminum silicate	1.10
sodium carboxymethyl cellulose	0.10
methyl p-hydroxybenzoate	0.20
imidazolidinyl urea	0.30
ethylenediaminetetraacetic acid	0.02
sodium N-lauryl-β-iminodipropionate	4.00
titanium dioxide	0.75
sodium isostearoyl-2-lactylate	2.00
soya sterols	1.00
polyoxyethylene (10) soya sterols	2.50
polyoxyethylene (3) myristyl ether myristate	8.00
polyoxypropylene (15) stearyl ether	8.00
heavy mineral oil	8.00
propylene glycol dicaprylate/dicaprate (80/20 to 50/50)	7.00
cetyl alcohol (1-hexadecanol)	4.00
stearyl alcohol (1-octadecanol)	2.00
propyl p-hydroxybenzoate	0.10
glyceryl monostearate and polyethylene glycol (100) monostearate	2.00
triple pressed stearic acid	2.50
lactic acid	0.10
fragrance	0.60

4,278,571
SURFACTANT CAKE COMPOSITIONS

Clement K. Choy, Danville, Calif., assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed May 28, 1980, Ser. No. 154,000
Int. Cl.³ C11D *1/22, 3/04, 17/00*; E03D *9/02*
U.S. Cl. 252—558 **4 Claims**

1. A solid cake composition comprising from about 20% to about 50% of a naphthalene sulfonate surfactant of the formula



wherein each R is an alkyl group of from 1 to about 6 carbon atoms, n is a number of from 1 to 2 and M is an alkali metal, and from about 30% to about 80% of a water soluble salt selected from the group consisting of alkali metal sulfates and chlorides, the weight ratio of surfactant to salt being from about 1:0.3 to about 1:4.

4,278,572
PHENOLIC MODIFIED OLEFIN POLYMERS

Aubert Y. Coran, and Raman Patel, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

Filed Jan. 4, 1980, Ser. No. 109,728
Int. Cl.³ C08L *7/00, 61/10*
U.S. Cl. 260—3 **42 Claims**

1. A mono-olefin polymer having methylol phenolic groups grafted thereto by links of the type formed by the reaction of mono-olefin polymer and methylol phenolic material in the presence of an activator.

4,278,573
PREPARATION OF CATIONIC STARCH GRAFT COPOLYMERS FROM STARCH, N,N-METHYLENEBISACRYLAMIDE, AND POLYAMINES

Martin M. Tessler, Edison, N.J., assignor to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Apr. 7, 1980, Ser. No. 138,015
Int. Cl.³ C08L *3/02*
U.S. Cl. 260—17.4 GC **13 Claims**

1. As a composition of matter, a starch-g-poly(N,N'-methylenebisacrylamide-co-amine) copolymer, comprising a N,N'-methylenebisacrylamideamine copolymer grafted to a starch base through said N,N'-methylenebisacrylamide, wherein said amine is a polyamine containing at least two primary or secondary amine groups or mixtures thereof.

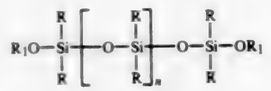
4,278,574
POLYSILOXANE-MODIFIED PAINT BINDERS AND PROCESS FOR PRODUCING THE BINDERS

Gert Dworak, and Hansjörg Aigner, both of Graz, Austria, assignors to Vianova Kunstharz, A.G., Werndorf, Austria

Filed Dec. 19, 1978, Ser. No. 971,002
Claims priority, application Austria, Dec. 27, 1977, 9304/77
Int. Cl.³ C08L *35/00, 67/02*
U.S. Cl. 260—22 CB **17 Claims**

1. A process for producing paint binders water soluble upon neutralization with bases wherein

(A) 50–85% by weight of a polyester resin containing chemically bonded thereto from 5–40% by weight of a polysiloxane of the general formula



wherein

R is an alkyl, cycloalkyl, aryl or alkoxy radical,

R_1 is hydrogen or an alkyl radical and

n is an integer of from 0–40;

said polyester having a hydroxyl number of from about 50–400 mg KOH/g, an acid value of below about 10 mg KOH/g, and an intrinsic viscosity of from about 6–11 ml/g, measured in dimethylformamide at 20° C.; and

(B) 15–50% by weight of a film forming resin selected from the group consisting of

(a) addition products of maleic anhydride to unsaturated fatty acids or their esters of their dehydrated or isomerized derivatives,

(b) copolymers of maleic anhydride with other alpha, beta-ethylenically unsaturated monomers, and

(c) polyester resins prepared by using a stoichiometric excess of polycarboxylic acids, whereby the anhydride groups of (a) and (b) are opened by hydrolysis or semi-ester formation with monohydric alcohols;

said resin containing carboxyl groups to provide an acid value of from about 100–300 mg KOH/g and an intrinsic viscosity of from about 5–9 ml/g, measured in dimethylformamide at 20° C.; the ratio of the intrinsic viscosity values of components (A) and (B) being governed by the relation

$$\eta A/\eta B = 1.2 \text{ to } 2.2,$$

are condensed at about 80°–150° C. to an intrinsic viscosity of from about 8–15 ml/g.

4,278,575
MODIFIED ACRYLIC COPOLYMER AND COATING COMPOSITION COMPRISING SUCH COPOLYMER

Hidehisa Nakamura; Ryoichi Hori, both of Sakai; Emiko Isomoto, Kishiwada, and Yoichi Murakami, Osaka, all of Japan, assignors to Dainippon Ink & Chemicals, Inc., Japan

PCT No. PCT/JP78/00013, §371 Date Jun. 28, 1979, §102(e) Date Jun. 19, 1979, PCT Pub. No. WO79/00240, PCT Pub. Date May 3, 1979
This PCT application filed Oct. 26, 1978, Ser. No. 101,109
Claims priority, application Japan, Oct. 28, 1977, 52-128720
Int. Cl.³ C09D *3/68, 3/81*
U.S. Cl. 260—22 CB **6 Claims**

1. A coating composition comprising a mixture of vehicle, solvent and a pigment, which vehicle is a modified acrylic copolymer having a weight average molecular weight/number average molecular weight ratio within the range of from 3 to 20, said copolymer being obtained by the polymerization of 1 to 40% by weight of a polyester containing an unsaturated double bond, 0.05 to 10% by weight of a dialkylaminoalkyl (meth)acrylate, 10 to 83.95% by weight of methyl methacrylate and 15 to 78.95% by weight of another polymerizable monomer.

4,278,576
ISOLATION AND IMPROVEMENT OF IMPACT MODIFIER POLYMER POWDERS

Theodore D. Goldman, Washington Crossing, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Dec. 5, 1978, Ser. No. 966,695
Int. Cl.³ C08K *9/04*; C08L *9/02, 9/06*
U.S. Cl. 260—23 AR **24 Claims**

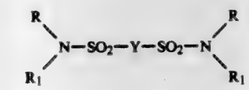
1. A method of isolating impact modifier polymers as powders and imparting anti-compaction and powder flow properties to said powders comprising introducing about 0.5 to 50% by weight, based on mixture, of stearate coated calcium carbonate having an average particle size of about 0.04 to 1 micron after formation of said polymer but before or during isolation of powders.

4,278,577
BIS(SULFONAMIDE) STABILIZERS FOR SYNTHETIC POLYMERS

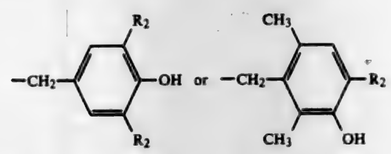
John Song, Carlsbad, Calif., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 79,690, Sep. 28, 1979, abandoned. This application Jul. 23, 1980, Ser. No. 171,620
Int. Cl.³ C08L *91/00*; C07C *143/79*
U.S. Cl. 260—23 H **20 Claims**

1. A compound of the formula:

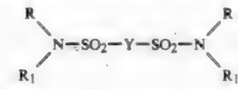


wherein Y is selected from phenylene, biphenylene and phenylene or biphenylene substituted with one to four alkyl (C_1–C_{18}) groups, R is alkyl (C_1–C_{18}); R_1 is

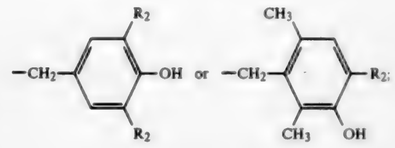


and R_2 is branched alkyl (C_3–C_{12}).

13. A stabilized composition comprising a synthetic polymer normally subject to the deteriorative effects of heat and a stabilizing amount of a compound of the formula:



wherein Y is selected from phenylene, biphenylene, and phenylene or biphenylene substituted with one to four alkyl (C_1–C_{18}) groups, R represents alkyl of 1 to 18 carbon atoms and R_1 represents



wherein R_2 represents a branched alkyl radical of 3 to 12 carbon atoms.

4,278,578
COATING COMPOSITION FOR SYNTHETIC PLASTIC SUBSTRATES AND METHODS FOR PREPARING AND USING SAME

Dale Carpenter, Agency, Mo., assignor to Hillyard Enterprises, Inc., St. Joseph, Mo.

Filed Nov. 5, 1979, Ser. No. 91,379
Int. Cl.³ G08L *93/00*
U.S. Cl. 260—27 R **18 Claims**

1. An aqueous coating composition comprising water having dispersed therein a polyfunctional aziridine cross-linking agent, an aqueous colloidal dispersion of a carboxy functional urethane polymer, a carboxy functional acrylic copolymer latex and an aqueous alkali soluble carboxy functional resin selected from the group consisting of dibasic acid modified rosin esters and styrene-maleic anhydride copolymers, said composition having a solids content of about 5 to about 65 weight percent, wherein said solids are comprised of about 1 to about 25 weight percent of said urethane polymer, about 1 to about 25 weight percent of said acrylic copolymer, about 1 to about 10 weight percent of said aqueous alkali soluble resin and about 0.2 to about 3 weight percent of said polyfunctional aziridine, all based on the total weight of said composition, said polyfunctional aziridine cross-linking said carboxy functional components.

4,278,579
AQUEOUS COATING SYSTEMS CONTAINING BISPHENOL-FORMALDEHYDE ETHERS

Edward J. Murphy, Mt. Prospect, Ill., assignor to DeSoto, Inc., Des Plaines, Ill.

Filed Aug. 6, 1979, Ser. No. 63,715
Int. Cl.³ C08L *61/12*
U.S. Cl. 260—29.3 **14 Claims**

1. An aqueous coating composition which cures on baking comprising an aqueous dispersion of a reactive resin solubilized by salt formation, and a water insoluble bisphenol-formaldehyde ether as the curing reactant for said reactive resin, said reactive resin having functional groups reactive with the etherified methylol groups on said bisphenol-formaldehyde ether when a coating is baked.

4,278,580

CATHODICALLY DEPOSITABLE PAINT BINDERS AND PROCESS FOR PRODUCING SAME

Gerhard Schmölzer; Wolfgang Daimer, and Heiner Verdino, all of Graz, Austria, assignors to Vianova Kunstharz, A.G., Werndorf, Austria

Filed Mar. 31, 1980, Ser. No. 135,861

Claims priority, application Austria, Apr. 9, 1979, 2606/79

Int. Cl.³ C08G *18/80, 59/14*

U.S. Cl. 260—29.2 EP **13 Claims**

1. Cathodically depositable paint binders water-soluble upon neutralization with acids comprising the reaction product of a polymer having an epoxy equivalent of between about 180 and 1500 with from about 3 to 70 mole percent per mole of epoxy groups on said polymer of a polyisocyanate adduct having substantially no free NCO content and carrying per molecule at least one carboxyl group, said epoxy containing polymer having basic functionality sufficient to solubilize said binder in water upon neutralization with an acid, said basic functionality provided in said polymer through reaction of said epoxy containing polymer with a secondary aliphatic amine or alkanol amine, said reaction product having an acid value of below about 5 mg KOH/g and an amine value of from about 24 to 150 mg KOH/g.

4,278,581

MOLD BINDER MATERIAL

Tetsuo Nakazawa, Shimoinayoshi; Junji Sakai, Minorimachi; Syogo Morimoto, Matsudo; Takatoshi Tanigawa, Tokyo; Ryoji Takahashi, Yukuhashi, and Seiji Okazaki, Kitakyushu, all of Japan, assignors to Hitachi, Ltd. and Hitachi Metals, Ltd., both of Tokyo, Japan

Filed Sep. 26, 1978, Ser. No. 946,020

Claims priority, application Japan, Sep. 28, 1977, 52-115588; Sep. 28, 1977, 52-115589; Sep. 28, 1977, 52-115592; Sep. 28, 1977, 52-115594

Int. Cl.³ C08L *23/08*

U.S. Cl. 260—29.6 M **9 Claims**

1. A mold binder material for a mold to be hardened with a CO_2 gas, which comprises a combination of an aqueous solution of at least one caustic alkali-neutralized copolymer selected from the group consisting of α-olefin-maleic anhydride copolymer, styrene-maleic anhydride copolymer, and methylvinyl ether-maleic anhydride copolymer; not more than 800%, on the basis of the caustic-alkali neutralized copolymer, of at least one multi-valent metal oxide or hydroxide; and 3 to not more than 100% by weight of the sodium salt of gluconic acid or of polyhydric alcohol on the basis of the aqueous solution of caustic-alkali neutralized copolymer.

4,278,582

REMOVAL OF RESIDUAL ACRYLONITRILE MONOMER

James R. Miller, Richfield, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Feb. 25, 1980, Ser. No. 124,039

Int. Cl.³ C08F *6/10, 6/16, 6/24, 6/28*

U.S. Cl. 260—29.6 AN **13 Claims**

1. A process for reducing residual acrylonitrile monomer in a medium containing said acrylonitrile comprising adding to said medium a sufficient amount of a reactive substance to reduce the content of said monomeric acrylonitrile to less than about 100 parts per million in said medium, said reactive substance is selected from the group consisting of hydrogen sulfide, alkali metal and alkaline earth metal phosphates and silicates, and mixtures of said reactive substances.

10. A process for reducing residual acrylonitrile monomer in a medium containing up to about several thousand parts per million of monomeric acrylonitrile comprising adding to said medium a sufficient amount of a reactive substance selected from ammonia, ammonium hydroxide, thioalcohols, alkali metal and alkaline earth metal carbonates, and mixtures of said reactive substances, to reduce the content of said monomeric acrylonitrile to less than 100 parts per million in said medium.

4,278,583

PAPER COATING COMPOSITION

Masayoshi Sekiya, Tokyo, Japan, assignor to Nippon Zeon Co. Ltd., Tokyo, Japan

Continuation of Ser. No. 929,914, Aug. 1, 1978, abandoned. This application Dec. 20, 1979, Ser. No. 105,608

Claims priority, application Japan, Aug. 10, 1977, 52/95932

Int. Cl.³ C08L *33/02*

U.S. Cl. 260—29.7 H **11 Claims**

1. A paper coating composition comprising:

(I) 100 parts by weight of a pigment, and

(II) 1 to 30 parts by weight, as solids contents, of a latex comprising a copolymer derived from 20 to 50% by weight of an aliphatic conjugated diolefin, 0.5 to 4.8% by weight of an ethylenically unsaturated acid monomer, 0.5 to 4% by weight of an ethylenically unsaturated amine monomer, and 10 to 74% by weight of a mono-olefinically unsaturated monomer, selected from aromatic vinyl compounds, alkyl acrylates, alkyl methacrylates and ethylenic nitrile compounds, and an emulsifier in an amount of not more than 1% by weight based on the copolymer, said latex having a gel point within a pH range of 3.5 to 8.5 and being gellable during the drying of a paper coated with said composition,

said composition having a higher pH than the gel point of the latex.

4,278,584

ORGANIC FRICTION MATERIAL

Kazuo Noguchi, Iwaki; Hiroto Fujimaki, Kokubunji; Kiyoshi Tagaya, Iwaki; Shigetoshi Ajima, Iwaki; Kazutoshi Takada, Iwaki, and Kensuke Okuda, Tokorozawa, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 139,730

Claims priority, application Japan, Apr. 26, 1979, 54-51937

Int. Cl.³ C08L *61/06*

U.S. Cl. 260—38 **6 Claims**

1. An organic friction material comprising:

(a) 10 to 30% by volume of phenol-formaldehyde resin,

(b) 15 to 50% by volume of carbon fibers,

(c) 7 to 20% by volume of steel fibers, and

(d) 10 to 15% by volume of inorganic- and/or organic fillers.

4,278,585

RUBBER COMPOSITIONS

Carl J. Stacy, and Rector P. Louthan, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 31, 1979, Ser. No. 62,390

Int. Cl.³ C08K *9/06*

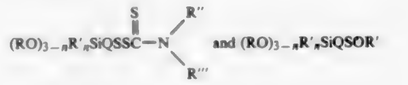
U.S. Cl. 260—42.15 **16 Claims**

1. A silica-containing vulcanizable composition comprising:

(a) a vulcanizable natural or synthetic rubber;

(b) a siliceous filler; and

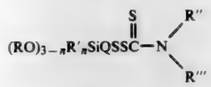
(c) at least one sulfur-containing organosilicon compound of the formulas



and $(RO)_{3-n}R'_nSiQSOR'$

wherein R′ is a hydrocarbon radical of 1 to 10, inclusive, carbon atoms, R, R″ and R‴ are selected from R′ and hydrogen, R″ and R‴ can be linked together and form with the nitrogen atom a cyclic structure, Q is alkylene, cycloalkylene, arylene, or combinations thereof having from 1 to about 10, inclusive, carbon atoms, and n is 0, 1, or 2, said organosilicon compound increasing the bonding of said siliceous filler to said rubber.

11. A compound suitable for use as coupling agents or promoters in the silica filler reinforcement of a rubber represented by the formula



wherein R′ is a hydrocarbon radical of 1 to 10, inclusive, carbon atoms, R, R″ and R‴ are selected from R′ and hydrogen, R″ and R‴ can be linked together and form with the nitrogen atom a cyclic structure, Q is alkylene, cycloalkylene, arylene, or combinations thereof having from 1 to about 10, inclusive, carbon atoms, and n is 0, 1, or 2.

4,278,586

GLASS FIBER-REINFORCED POLYOLEFINS

Roberto Marzola, Ferrara, and Enea Garagnani, Piumazzo, both of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Aug. 31, 1979, Ser. No. 71,481

Claims priority, application Italy, Sep. 1, 1978, 27243 A/78; Jul. 26, 1979, 24668 A/79

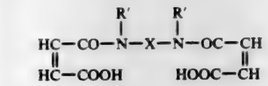
Int. Cl.³ C08K *7/14*

U.S. Cl. 260—42.18 **12 Claims**

1. Blends consisting of:

(a) 50–90% by weight of a crystalline polyolefin, and

(b) 50–10% by weight of glass fibers, characterized in that said blends contain from 0.5 to 5% by weight, with respect to the polyolefin, of a bis-maleamic acid of the general formula:



wherein X is a $(CHR)_n$ group, in which n is an integer from 2 to 18, and R is hydrogen or an alkyl with 1–6 carbon atoms, or X is a cycloaliphatic or aromatic bivalent group including such groups having several nuclei, or a heterocyclic group; R′ is hydrogen, the two R's together being capable of forming a $(CHR)_n$ group which X is $(CHR)_n$.

4,278,587

VULCANIZABLE RUBBER MIXTURE BASED ON HALOGEN FREE RUBBER FOR VULCANIZING THESE RUBBER MIXTURES AND USE OF THE RUBBER MIXTURES

Siegfried Wolff, Bornheim-Merten, and Ewe-Hong Tan, Bruhl, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 14, 1980, Ser. No. 178,160

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933345

Int. Cl.³ C08K *5/54*

U.S. Cl. 260—42.37 **76 Claims**

1. A vulcanisable rubber mixture comprising (1) a vulcanisable halogen fgree rubber or a mixture of such a rubber with a halogen containing rubber in an amount up to 80% based on the total weight of the rubber, (2) a silicate filler in an amount of 1 to 250 parts by weight, (3) 0 to 15 parts by weight of an oxide of zinc, magnesium or lead, (4) 0 to 10 parts by weight of a fatty acid having 12 to 24 carbon atoms, benzoic acid or salicylic acid, (5) 0 to 15 parts by weight of sulphur or a sulphur donor or a mixture thereof, (6) 0.1 to 10 parts by weight of a vulcanisation accelerator, (7) 0 to 100 parts by weight of a plasticizer (8) 0 to 10 parts by weight of at least one member of the group consisting of an antiager, a fatigue protecting agent, an antioxidant, a light protective agent and an ozone protective agent, (9) 0 to 150 parts by weight of carbon black and (10) 0.1 to 20 parts by weight of silane corresponding to the following formula

$$X_p—C_mH_{2m+1-p}SiR^1_n(OR)_{3-n} \qquad I$$

in which

X is chlorine or bromine

p is 1 or 2,

m is 1 to 5,

R^1 is a C_1- to C_5-alkyl group, a C_5- to C_8-cycloalkyl group or the phenyl group,

R is a C_1- to C_5-alkyl group, a C_5- to C_8-cycloalkyl group, the methoxyethyl group, the phenyl group or the benzyl group and n is 0, 1 or 2,

or a hydrolysate or condensate of the organosilane of formula I, all of the amounts being based on 100 parts by weight of the rubber.

4,278,588

PHOSPHINE OXIDE FLAME RETARDED, RUBBER-MODIFIED, POLYPHENYLENE ETHER RESIN COMPOSITIONS

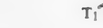
Albrecht H. Granzow, Somerset, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Sep. 24, 1979, Ser. No. 78,532

Int. Cl.³ C08K *3/32*

U.S. Cl. 260—45.7 P **6 Claims**

1. A flame retardant composition comprising a homogenous blend of polymers containing about 10 to 90 parts by weight of polyphenylene ether resin, about 90 to 10 parts by weight of polystyrene, and a flame retardingly effective amount less than 6% by weight based upon the blend of polymers of a compound of the formula



wherein R is (alkyl containing about 1 to 6 carbon atoms) n-propyl or n-butyl.

4,278,589

2-[2-HYDROXY-3,5-DI-(α,α-DIMETHYLBENZYL)-PHENYL]-2H-BENZOTRIAZOLE AND STABILIZED COMPOSITIONS

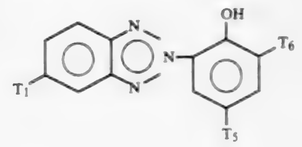
Martin Dexter, Briarcliff Manor, and Roland A. E. Winter, Armonk, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 918,984, Jun. 26, 1978. This application May 10, 1979, Ser. No. 36,914

Int. Cl.³ C08K *5/34*

U.S. Cl. 260—45.8 NT **10 Claims**

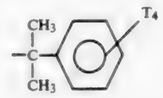
1. A compound of the formula



wherein

T_1 is hydrogen or chloro,

T_5 is tert-octyl or the group



where

T_4 is hydrogen or lower alkyl.

T_6 has the same meaning as T_5, with the proviso that one of T_5 and T_6 must be tert-octyl, but both cannot be tert-octyl.

6. A composition of matter comprising an organic material subject to light-induced deterioration stabilized with from 0.1 to 5% by weight of a compound according to claim 1.

4,278,590

2-[2-HYDROXY-3,5-DI-TERT-OCTYLPHENYL]-2H-BENZOTRIAZOLE AND STABILIZED COMPOSITIONS

Martin Dexter, Briar Cliff Manor, and Roland A. E. Winter, Armonk, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 68,275, Aug. 20, 1979, which is a continuation of Ser. No. 6,391, Jan. 25, 1979, abandoned. This application Dec. 17, 1979, Ser. No. 100,400

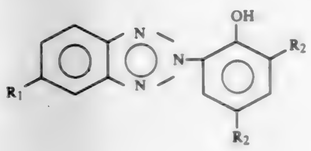
Int. Cl.³ C08K *5/34*

U.S. Cl. 260—45.8 NT **13 Claims**

1. An automotive topcoat finish, lacquer or enamel composition exhibiting retention of gloss and resistance to delamination on weathering which comprises

(a) a thermoplastic acrylic resin or a thermoset acrylic resin,

(b) 0.1 to 5% by weight of resin of a compound of the formula



wherein

R_1 is hydrogen or chloro, and

R_2 is tert-octyl, and

(c) 0.1 to 5% by weight of resin of a hindered amine light stabilizer.

4,278,591

FLAME RETARDANT POLY(BUTYLENE TEREPHTHALATE) COMPOSITION

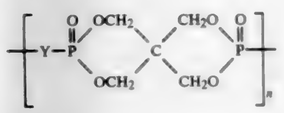
Albrecht H. Granzow, Somerset, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Dec. 20, 1979, Ser. No. 105,686

Int. Cl.³ C08K *5/34, 5/52, 5/53*

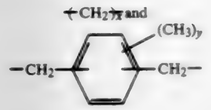
U.S. Cl. 260—45.75 D **5 Claims**

1. A method of flame retarding a poly(1,4-butylene terephthalate) polymer comprising incorporating therewith an effective flame retardant amount of a combination of melamine pyrophosphate and a polymeric pentaerythrityl phosphonate of formula (I)



(I)

wherein Y is selected from



(a)

(b)

wherein n is at least 2; x is an integer from 1 to 8; y is an integer from 0 to 4; and the weight ratio of melamine pyrophosphate to polymeric phosphonate is from about 1:5 to about 5:1.

4,278,592

PROCESS AND APPARATUS FOR THE PRODUCTION OF STERILE FILTERED BLOOD CLOTTING FACTORS

Arnold Seufert, Obere Kirchgasse 14, 8782 Karlstadt, Fed. Rep. of Germany

Filed Mar. 30, 1979, Ser. No. 25,425

Int. Cl.³ A61K *35/16, 37/02;* **C07G** *7/00*

U.S. Cl. 260—112 B **6 Claims**

1. A process for the manufacture of sterile filtered blood clotting products from fibrinogen with an enrichment of Factor 1, comprising the steps of:

extracting blood from at least one donor;

physically separating the blood to obtain substantially purified plasma, free of cellular componets, said separating step being carried out in a sequence of at least two centrifuging steps, to obtain plasma with an increasing degree of purity;

deep freezing the purified plasma at a temperature below about minus 22° C.;

thawing the plasma to produce a cyro-precipitate;

drawing off the plasma present above the cyro-precipitate and manufacturing fibrinogen from said plasma in a known manner;

dissolving the fibrinogen in a buffer; and

effecting a sterile filtration of the buffer-dissolved fibrinogen by means of a static filtration device at a pressure of less tha 0.5 atm.

4,278,593

GLUCOCORTICOID SPARING FACTOR AND PROCESS FOR THE PRODUCTION OF THE SAME

Nobuhiko Katsunuma, No. 1-78, Shomachi, Tokushima-shi, Tokushima-ken, Japan

Filed Jan. 2, 1980, Ser. No. 109,095

Claims priority, application Japan, Jan. 11, 1979, 54-2566

Int. Cl.³ C12P *21/00;* **C07G** *7/00*

U.S. Cl. 260—112 R **8 Claims**

1. A glucocerticoid sparing factor characterized in that:

it is a colorless and acidic substance produced in a culture broth of a microorganism of the Family Enterobacteriaceae;

it has a molecular weight between about 400 and about 1,000;

it is a uridine derivative having uracil, pentose, hexose and phosphate radical which can be easily hydrolyzed by the action of acids;

it amplifies the liver enzyme induction, with said amplifying action being deactivated by the action of α-glucosidase and phosphodiesterase II, but not being affected by the action of α-amylase, neuraminidase, hyaluronidase, lysozyme, chymotripsin, trypsin, pepsin, proteinase, papain, collagenase, aminopeptidase M, carboxypeptidases A and B, leucine-aminopeptidase, deoxyribonuclease 1, ribonuclease T_1+A, acid phosphatase or alkali phosphatase;

it is stable for more than 6 months at −20° C.;

it is stable for minimum of 48 hours in a buffer solution having a pH of 4.2–9 at 37° C.;

it is deactivated to form reducing sugar when heated at 105° C. for 12 hours in 6 N hydrochloric acid;

it has a peak at 260 nm in the ultraviolet absorption spectrum; and

it has an Rf of about 0.51 as measured by ascending method using filter paper and isopropanol-aqueous ammonia-water (7:1:2 v/v) as a developing agent.

4,278,594

PROCESS FOR SEPARATION AND ISOLATION OF AHF, VON WILLEBRAND'S RISTOCETIN COFACTOR (VWF:RCF) AND FIBRONECTIN FROM BLOOD PLASMA

David Amrani, 75 Rumson Rd., Staten Island, N.Y. 10304

Continuation-in-part of Ser. No. 49,965, Jun. 19, 1979, Pat. No. 4,210,580. This application Jun. 2, 1980, Ser. No. 152,628

The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.

Int. Cl.³ A23J *1/06;* **A61K** *35/16;* **C07G** *7/00*

U.S. Cl. 260—112 B **18 Claims**

1. A process for the separation and isolation of the AHF fraction, the fibronectin fraction and the von Willebrand's ristocetin cofactor fraction from blood plasma comprising:

(a) adding a sulfated mucopolysaccharide to blood plasma to a concentration of 0.05–0.4 mg/ml of plasma;

(b) then cooling said plasma to 0° C.–15° C.;

(c) centrifuging the plasma to isolate a precipitate which forms;

(d) removing the supernatant liquid from the precipitate said supernatant liquid being rich in AHF;

(e) washing the precipitate in a slightly basic solution of dilute salts;

(f) thereafter dissolving said precipitate in a buffered solution of chaotrophic salts of the Hofmeister series having an ionic strength from 0.01–1;

(g) and thereafter separating said fibronectin from the dissolved precipitate which contains fibronectin, fibrinogen and von Willebrand's ristocetin cofactor by chromatographic means.

4,278,595

ORALLY ACTIVE MIF ANALOGS WITH AN EFFECT ON THE CENTRAL NERVOUS SYSTEM

Joseph H. Cort, New York, N.Y., assignor to Vega Laboratories, Inc., Tucson, Ariz.

Filed Dec. 10, 1979, Ser. No. 102,149

Int. Cl.³ C07C *103/52;* **A61K** *37/00*

U.S. Cl. 260—112.5 R **5 Claims**

1. A tripeptide represented by the general formula:

X—D—Leu—Gly—NR^1R^2

wherein X is the proline (Pro) or pyróglutamic acid (pGlu) residue, D-Leu is the D-leucine residue, Gly is the glycine residue, and each of R^1 and R^2, when taken separately, is hydrogen or lower alkyl with the proviso that when X is proline, R^2 is lower alkyl.

4,278,596

ANALGESIC PENTAPEPTIDES

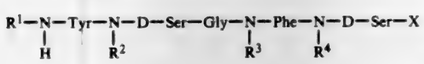
Victor M. Garsky, Radnor, Pa., assignor to American Home Products Corporation, New York, N.Y.

Filed Aug. 8, 1978, Ser. No. 932,089

Int. Cl.³ C07C *103/52;* **A61K** *37/00*

U.S. Cl. 260—112.5 R **5 Claims**

1. A compound of the formula:



wherein R^1 is hydrogen, methyl, ethyl, propyl, 2-methyl-2-pentenyl, 2-methyl-1-pentenyl; cyclopropylmethyl, or cyclobutylmethyl; R^2, R^3, and R^4 are, independently, hydrogen or methyl; and X is $—NH_2$, $—NHC_nH_{2n+1}$ where n is 1, 2, 3, or 4, $—OR^5$, or CH_2OR^5, where R^5 is hydrogen or lower alkyl of from 1 to 4 carbon atoms; or a pharmaceutically acceptable salt thereof.

4,278,597

PROTEIN ISOLATE HAVING LOW SOLUBILITY CHARACTERISTICS AND PROCESS FOR PRODUCING SAME

Iue C. Cho; Christopher W. Frederiksen, both of St. Louis, and Ralph A. Hoer, Ballwin, all of Mo., assignors to Ralston Purina Company, St. Louis, Mo.

Filed Jun. 11, 1980, Ser. No. 158,191

Int. Cl.³ A23J *3/00*

U.S. Cl. 260—123.5 **20 Claims**

17. A method of forming a soy protein isolate having a nitrogen solubility index (NSI) below about 20 comprising:

(a) forming an aqueous slurry of isolated soy protein having a solids level of between about 4 to 25% by weight, said protein having a high degree of dispersibility;

(b) controlling the pH of the slurry to between about 4.5 to 5.8 by the addition of a monovalent alkali reagent selected from the group consisting of alkali metal hydroxides, alkali metal carbonates, and ammonium hydroxide;

(c) heating said slurry to a temperature of between about 170°–200° F. for a time sufficient to obtain said isolate with a NSI below about 20; and

(d) neutralizing said slurry to a pH of 6.8 to 7.2 by adding between about 0.25 to 1.0% by weight of the solids of said slurry of an alkaline earth cation.

4,278,598

POSITIVE-WORKING IMMOBILE INTRAMOLECULAR NUCLEOPHILIC DISPLACEMENT COMPOUNDS AND PHOTOGRAPHIC ELEMENTS CONTAINING SAME

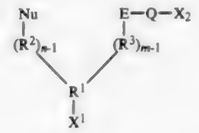
Gerald C. Hinshaw, Penfield, and Paul B. Condit, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 534,966, Dec. 20, 1974, Pat. No. 4,199,354, which is a continuation-in-part of Ser. No. 326,628, Jan. 26, 1973, abandoned. This application Sep. 1, 1976, Ser. No. 719,643

Int. Cl.³ C09B *29/26, 29/28, 29/36*

U.S. Cl. 260—157 **34 Claims**

1. A compound having the formula:



wherein R^1 is an aromatic group containing 5–7 members in the ring to which Nu and E are attached; R^2 and R^3 are bivalent organic groups containing from 1–3 atoms in the bivalent linkage which are alkylene, oxyalkylene or thiaalkylene; Nu is a nucleophilic group which is a hydrazine, an hydroxyamino, an hydroxy, a sulfonamido, a primary amino or alkali-labile precursors for said nucleophilic groups; E is an electrophilic group which is a carbonyl or a sulfonyl; Q is a bivalent group providing a mono atom linkage between E and X_2 and is amino providing a mono atom nitrogen linkage, an oxygen atom, a sulfur atom or a selenium atom, provided that Nu and E are positioned on a ring of said aromatic carbocyclic group to provide for intramolecular formation of a 5- to 7-membered ring between Nu and E displacing Q—X_2 from E; one of X_1 or Q—X_2 is a ballasting group containing at least 8 carbon atoms, which ballasting group is of a size sufficient to render said compound immobile in an alkaline solution-permeable layer of a photographic element; one of X_1 or Q—X_2 is an azo dye; and n and m are integers of 1 or 2.

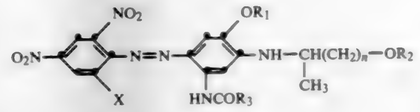
4,278,599

MONO AZO DYES FROM (2-ALKOXY-5-ALKANOYLAMINOANILINO)ALKOXY OR ARYLOXY ALKANES

Gary T. Clark, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 18, 1979, Ser. No. 86,115
Int. Cl.³ C07C *107/06*; C09B *29/14*
U.S. Cl. 260—207 **6 Claims**

1. The dye of the formula



wherein

X is halogen or cyano;

R_1 and R_3 are straight or branched alkyl of 1–10 carbons;

R_2 is 1–4C alkyl which may be substituted with lower alkoxy or aryloxy, aryl or substituted aryl; and

n is an integer 1–4.

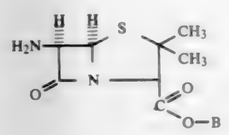
4,278,600

PRODUCTION OF PENICILLINS

Derek Walker, Jamesville; Herbert H. Silvestri, Dewitt; Chester Sapino, East Syracuse, and David A. Johnson, Fayetteville, all of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

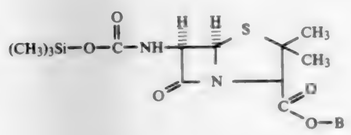
Continuation-in-part of Ser. No. 21,852, Mar. 19, 1979, which is a continuation-in-part of Ser. No. 4,780, Jan. 19, 1979, abandoned, which is a continuation-in-part of Ser. No. 970,704, Dec. 18, 1978, abandoned. This application Jul. 20, 1979, Ser. No. 59,401
Int. Cl.³ C07D *499/12*
U.S. Cl. 260—239.1 **18 Claims**

1. In the process for the conversion of 6-aminopenicillanic acid or a known ester thereof having the formula



I

wherein B is hydrogen or an easily cleavable, conventional ester-protecting group to a compound having the formula



II

wherein B is trimethylsilyl or an easily cleavable, conventional ester-protecting group which comprises mixing a compound of formula I with at least a small stoichiometrical excess of trimethylsilylating agent in an anhydrous inert organic solvent in the presence as an acceptor of hydrogen chloride of slightly less than an equimolar amount with respect to said trimethylsilylating agent of a solvent-soluble, strong organic base followed by carbonation, the improvement which comprises the addition after silylation and prior to carbonation of an amount of urea which is just sufficient to convert to its hydrochloride all of the free organic base remaining after the silylation.

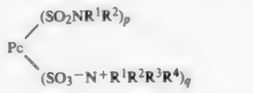
4,278,601

PROCESS FOR CONDITIONING PHTHALOCYANINE PIGMENT

Ian R. Wheeler, Craigend; George H. Robertson, Paisley, and David McGregor, Glasgow, all of Scotland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 18,379, Mar. 7, 1979, abandoned, which is a continuation of Ser. No. 882,682, Mar. 2, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,488
Claims priority, application United Kingdom, Mar. 19, 1977, 11727/77
Int. Cl.³ C09B *47/04*
U.S. Cl. 260—314.5 **10 Claims**

1. A process for conditioning pigments which comprises grinding a crude copper phthalocyanine pigment and a crystallizing solvent, capable of converting alpha-form copper phthalocyanine into the beta-form thereof, in the absence of inorganic salt but in the presence of one or more sulphonated phthalocyanine amine derivatives having the general formula



(I)

wherein Pc represents a metal or metal free phthalocyanine; R^1, R^3 and R^4 are the same or different and are hydrogen or a residue containing 1 to 22 carbon atoms; R^2 is a residue containing 1 to 22 carbon atoms;

with the proviso that the total number of carbon atoms in the sum of R^1, R^2, R^3 and R^4 is not greater than 66; p is 0 to 3, q is 1 to 4 and the sum of p and q is 1 to 4.

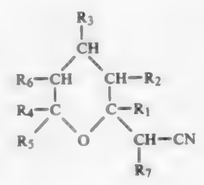
4,278,602

PROCESS FOR SYNTHESIZING PYRAN NITRILES

Lucio Faggian, and Edoardo Platone, both of San Donato Milanese, Italy, assignors to Anic S.p.A., Palermo, Italy

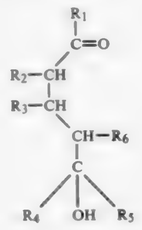
Filed Nov. 15, 1979, Ser. No. 94,599
Claims priority, application Italy, Dec. 19, 1978, 30986 A/78
Int. Cl.³ C07D *309/08*
U.S. Cl. 260—345.1 **5 Claims**

1. A process for synthesizing pyran nitriles of the formula (I):



(I)

wherein R_1 is alkyl and each of R_2, R_3, R_4, R_5, R_6 and R_7 is hydrogen or alkyl which consists of reacting an aliphatic 1,5-hydroxyketone of the formula (II):



(II)

wherein R_1, R_2, R_3, R_4, R_5 and R_6 are as defined above with an aliphatic nitrile of the formula R_7-CH_2CN wherein R_7 is hydrogen or alkyl in the presence of an alkali metal or alkaline earth metal hydroxide or alcoholate at a temperature between 30° C. and 150° C. and wherein the molar ratio of aliphatic nitrile to hydroxyketone is between 2 and 100.

4,278,603

NOVEL POLYMORPHIC CRYSTALLINE FORM OF DIBENZOPYRANONE

Arvind L. Thakkar, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 707,786, Jul. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 628,521, Dec. 8, 1975, abandoned, which is a continuation-in-part of Ser. No. 504,391, Sep. 11, 1974, abandoned, which is a continuation-in-part of Ser. No. 413,011, Nov. 5, 1973, abandoned. This application Aug. 8, 1977, Ser. No. 822,471
Int. Cl.³ C07D *311/80*
U.S. Cl. 260—345.3 **1 Claim**

1. A polymorphic form of dl-1-hydroxy-3-(1',1'-dimethylheptyl)-6,6-dimethyl-6,6a,7,8,10,10a-hexahydro-9H-dibenzo[b,d]pyran-9-one, capable of producing significant blood levels in mammals for long periods of time after oral administration of the drug, prepared by adding an ethanol solution of a non-orally absorbable polymorphic form of the said pyran-9-one recrystallized from either acetone or hexane and incapable of producing significant blood levels of drug after oral administration in mammals, with stirring to a large quantity of water.

4,278,604

PROCESS FOR PREPARING AN ALKENYL-SUBSTITUTED DICARBOXYLIC ACID ANHYDRIDE

Justin C. Powell, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Aug. 27, 1979, Ser. No. 70,186
Int. Cl.³ C07D *307/60*
U.S. Cl. 260—346.74 **8 Claims**

1. A method for preparing an alkenyl-substituted acid anhydride which comprises reacting an olefin or a polyolefin polymer having a number average molecular weight ranging from about 40 to 3000 with an unsaturated dicarboxylic acid anhydride at a temperature in the range from about 175° C. to 300° C. employing a mole ratio of from about 0.8 to 5 moles of said anhydride per mole of said olefin or polyolefin in the presence of from about 5 to about 5000 ppm of bromine based on said olefin or polyolefin derived from a brominated phenol selected from the group consisting of ortho-bromophenol, para-bromophenol, ortho-and para-dibromphenol, tetrabromophenol 2,4,6-tribromophenol, and pentabromophenol.

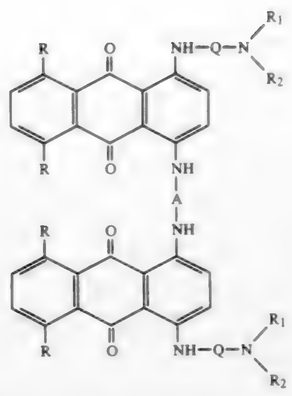
4,278,605

HETEROALKYLENEBISANTHRAQUINONES

Keith C. Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

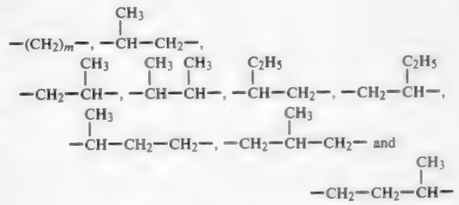
Filed Jun. 30, 1980, Ser. No. 164,615
Int. Cl.³ A01N *33/02*
U.S. Cl. 260—367 **16 Claims**

1. A compound selected from the group consisting of those of the formula:

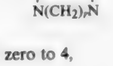


(I)

wherein Q is a divalent moiety selected from the group consisting of those of the formulae:



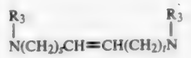
where m is an integer from 2 to 3, inclusive; A is $(CH_2)_nX(CH_2)_p$ where n and p may be the same or different and each may be an integer from 1 to 4 inclusive; X is selected from the group comprising



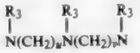
O, $(CH_2)_q$ where q is zero to 4,



where r is an integer from 2 to 6,



where s and t may be the same or different and each may be an integer from 1 to 3 and the olefin may be cis or trans, and



where u and v may be the same or different and each may be an integer from 2 to 5; R is hydrogen and hydroxy; R_1 and R_2 are each individually selected from the group consisting of hydrogen, alkyl having from 1 to 4 carbon atoms and monohydroxyalkyl having from 2 to 4 carbon atoms wherein the carbon atom alpha to the nitrogen atom may not bear a hydroxyl group, R_3 is hydrogen and lower alkyl (C_1–C_3) and pharmaceutically acceptable acid-addition salts thereof.

4,278,606

PREPARATION OF 1-AMINO-2-PHENOXY-4-HYDROXYANTHRAQUINONE

Heinrich Hiller, Wachenheim; Heinz Eilingsfeld, Frankenthal; Helmut Reinicke, Gruenstadt, and Fritz Traub, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 7, 1980, Ser. No. 128,118

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910716

Int. Cl.[3] C07C *97/26*

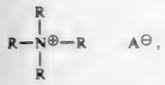
U.S. Cl. 260—380 **11 Claims**

1. In a process for the preparation of 1-amino-4-hydroxy-2-phenoxyanthraquinone, where the phenoxy is unsubstituted or substituted by one or two chlorine, bromine, C_1–C_4-alkyl or C_1–C_4-alkoxy, by reacting a 1-amino-2-halo-4-hydroxyanthraquinone with the corresponding phenol in an aqueous alkaline medium at an elevated temperature, the improvement comprising reacting 1-amino-2-chloro-4-hydroxyanthraquinone, in the form of an aqueous suspension, with the corresponding phenol,

at a pH of 9–13 and at from 120° to 150° C.,

in the presence of from 1 to 20% by weight, based on the 1-amino-2-chloro-4-hydroxyanthraquinone of:

(a) ammonium salts of the formula

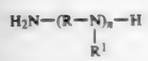


where one or more R's are linear or branched C_4–C_{20}-alkyl or C_7–C_{10}-phenylalkyl, the remaining R's are C_1–C_4-alkyl, and one of the remaining R's may also be phenyl, or $R_3N-\oplus$ is pyridinium, and $A^\ominus$ is one equivalent of an anion, or

(b) ethylene oxide/propylene oxide block copolymers which are obtained:

(α) by reacting hydroxy compounds of the formula $A(OH)_m$, where A is an m-valent aliphatic radical of 2 to 6 carbon atoms, OH is primary or secondary hydroxyl and m is 2 to 4, with from 2 to 40 moles of propylene oxide per equivalent of hydroxyl and subsequent reaction with from 2 to 40 moles of ethylene oxide per equivalent of oxypropylation product, or

(β) by reacting amines of the formula



where R is saturated linear or branched C_2–C_6-alkylene, R^1 is hydrogen, methyl or phenyl and n is from 1 to 5, with from 2 to 40 moles propylene oxide per equivalent of reactive amino hydrogen, followed by reaction with from 2 to 40 moles of ethylene oxide per equivalent of oxypropylation product, or

(c) reaction products of C_2–C_{20}-alkylphenols, C_{12}–C_{20}-alkenylamines, C_{12}–C_{20}-alkylamines or C_8–C_{20}-alkanols with from 3 to 30 moles of ethylene oxide per mole of hydroxy compound or amino compound,

and the reaction product is then isolated.

4,278,607

PROCESS FOR THE PREPARATION OF DIMETHOXYANTHRAQUINONES

Helmut Seidler, Bonn, and Günter Gehrke, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 10, 1980, Ser. No. 110,877

Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903851

Int. Cl.[3] C07C *49/74*

U.S. Cl. 260—383 **7 Claims**

1. Process for the preparation of dimethoxyanthraquinones by reacting dinitroanthraquinones with potassium hydroxide in methanol, comprising reacting 1 part by weight of dinitroanthraquinone with 2–8 parts by weight of methanol and 0.5–1.5 parts by weight of potassium hydroxide in the presence of 0.05–0.5 parts by weight of amidosulphonic acid until all the nitro groups have been replaced.

4,278,608

ADRENERGIC BLOCKING AGENTS

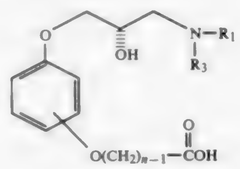
Kenneth E. Fahrenholtz, Bloomfield; Robert W. Guthrie, Saddle Brook, and Richard W. Kierstead, North Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 73,051, Sep. 6, 1979, Pat. No. 4,247,710, which is a division of Ser. No. 875,966, Feb. 8, 1978, Pat. No. 4,202,978. This application Aug. 22, 1980, Ser. No. 180,288

Int. Cl.[3] C07C *143/90*; C11D *1/28*

U.S. Cl. 260—401 **2 Claims**

1. The compound of the formula



wherein R_1 is lower alkyl, R_3 is selected from the group consisting of mesyl, tosyl, brosyl and benzenesulfonyl and n is 2 to 20.

4,278,609

PROCESS FOR THE SELECTIVE HYDROGENATION OF TRIGLYCERIDE OILS WITH A METALLIC CATALYST IN THE PRESENCE OF AMMONIA

Jan Kuiper, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,757

Claims priority, application Netherlands, Jun. 19, 1979, 7904781

Int. Cl.[3] C11C *3/12*

U.S. Cl. 260—409 **10 Claims**

1. Process for the selective hydrogenation of fatty acid derivatives, which contain besides fatty acids with two double bonds fatty acids with more than two double bonds, by contacting the fatty acid derivative with hydrogen at a temperature of −20° to 100° C. in the presence of a hydrogenation catalyst chosen from the group consisting of palladium, platinum, rhodium and iridium, which catalyst is treated with dry ammonia in a molar ratio of ammonia to the metal component of the catalyst of 100:1 to 5000:1.

4,278,610

METHOD OF MAKING AN ORGANIC METAL SALT OR COMPLEX

Gerald L. Maurer, Fairfield, and Virginia E. Stefanini, Cincinnati, both of Ohio, assignors to National Research Laboratories, Cincinnati, Ohio

Continuation-in-part of Ser. No. 932,945, Aug. 11, 1978, abandoned. This application Dec. 20, 1979, Ser. No. 105,623

Int. Cl.[3] C07F *1/08*

U.S. Cl. 260—438.1 **25 Claims**

1. Method of making an organic metal salt or complex comprising reacting a heavy metal hydroxide with an organic Lewis acid, or salt thereof, in an aqueous reaction medium and in the presence of a gaseous catalyst.

4,278,611

PROCESS FOR SYNTHESIZING ALKOXYALANATES OF ALKALINE EARTH METALS

Salvatore Cucinella, San Donato Milanese, and Giovanni Dozzi, Milan, both of Italy, assignors to Anic S.p.A., Palermo, Italy

Filed Dec. 28, 1979, Ser. No. 108,225

Claims priority, application Italy, Jan. 8, 1979, 19125 A/79

Int. Cl.[3] C07F *5/06*

U.S. Cl. 260—448 AD **8 Claims**

1. A process for synthesizing alkoxyalanates of alkaline earth metals of the formula:



in which M represents an alkaline earth metal, OR represents an alkoxy group of a primary, secondary or tertiary aliphatic, cycloaliphatic or aromatic alcohol, the radical R being simple or amino or alkoxy-substituted, and n is a number between 1.5 and 3.5, the process consisting of reacting an alanate of the alkaline earth metal with an alcoholate of the alkaline earth metal and an aluminum alcoholate in an inert solvent at a temperature between −40° C. and the product decomposition temperature.

4,278,612

2-CHLORO-2-ALKYL SUBSTITUTED PEROXYESTERS

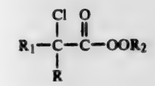
Reidar Halle, Novato, and David Peterson, Hercules, both of Calif., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Continuation-in-part of Ser. No. 50,898, Jun. 21, 1979, abandoned. This application Nov. 28, 1979, Ser. No. 98,010

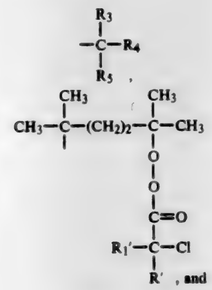
Int. Cl.[3] C07C *179/18*

U.S. Cl. 260—453 RZ **21 Claims**

1. A peroxyester of the formula:

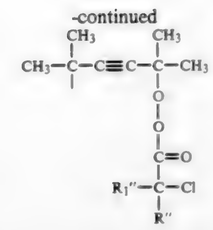


wherein R_2 is selected from



, and

-continued



and R and R_1 are alkyl groups which collectively contain up to about 10 carbon atoms providing R_1 and R are not both methyl when R_2 is t-butyl,

R′ and R_1′ are alkyl groups which collectively contain up to about 10 carbon atoms,

R″ and R_1″ are alkyl groups which collectively contain up to about 10 carbon atoms, and

R_3, R_4, and R_5 are alkyl groups which collectively contain up to about 9 carbon atoms.

4,278,613

SULFUR-CONTAINING OXIME COMPOUNDS, PROCESSES FOR PRODUCING THEM, AND THEIR USE FOR PROTECTING CULTIVATED PLANTS

Elmar Sturm, Aesch; Heinrich Schempp, Arlesheim, and Henry Martin, Allschwil, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

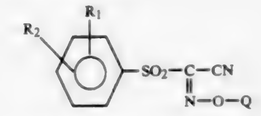
Filed Aug. 20, 1979, Ser. No. 68,123

Claims priority, application Switzerland, Aug. 28, 1978, 9081/78

Int. Cl.[3] C07C *121/52*

U.S. Cl. 260—465 D **6 Claims**

1. A compound of the formula



wherein R_1 and R_2 independently of one another are each hydrogen, halogen or C_1–C_4-alkyl, and Q is acetamide or a C_1–C_4-alkyl-substituted carbamoyl group.

4,278,614

PROCESS FOR THE CATALYTICAL PREPARATION OF ACRYLONITRILE

Sumio Umemura; Kyoji Ohdan; Tokuo Matsuzaki; Hiroyuki Asada, and Masao Tsuruoka, all of Ube, Japan, assignors to Ube Industries, Ltd., Ube, Japan

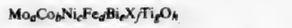
Filed Sep. 10, 1979, Ser. No. 74,232

Claims priority, application Japan, Sep. 13, 1978, 53-111700

Int. Cl.[3] C07C *120/14*

U.S. Cl. 260—465.3 **16 Claims**

1. A process for the catalytical preparation of acrylonitrile, comprising bringing, at an elevated temperature, a reaction feed containing propylene, molecular oxygen and ammonia, each in gas phase, into contact with a catalyst consisting of an oxide composition of the empirical formula:



wherein X represents at least one atom of an element selected from vanadium and tellurium, the subscripts a, b, c, d, e, f and g respectively denote the numbers of the respective atoms of the elements, the ratio a:b:c:d:e:f:g being in the range of 10:0 to 10:0 to 10:1 to 7:0.08 to 1.1:0.01 to 1:1 to 15, and the ratio of a to the sum of b and c being in a range of 10:3 to 10, and; the

subscript h represents the number of oxygen atoms which satisfies the average valency of the elements, the ratio a:h being in a range of 10:36.7 to 84.1.

4,278,615

PROCESS FOR THE PRODUCTION OF AROMATIC PEROXYCARBOXYLIC ACIDS

Reinhard Stober, Gross-Krotzenburg, and Rolf Wirthwein, Hanau, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt and Henkel KGaA, Henkelstrasse, both of, Fed. Rep. of Germany

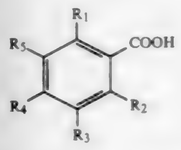
Filed Oct. 24, 1979, Ser. No. 88,053

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1979, 2929839

Int. Cl.[3] **C07C** *179/10*

U.S. Cl. 260—502 R **21 Claims**

1. A process for the production of an aromatic peroxycarboxylic acid comprising introducing with stirring a solid aromatic carboxylic acid of the formula



wherein R_1, R_2, R_3, R_4 and R_5 are hydrogen, COOH, 1–4 carbon atom alkyl, 1–4 carbon atom alkoxy or halogen into a mixture of aqueous 50–99 weight % hydrogen peroxide and sulfuric acid, carrying out the reaction of the aromatic acid with said mixture in heterogeneous phase and recovering the aromatic peroxycarboxylic acid formed, the reaction mixture consisting essentially of the solid aromatic carboxylic acid, water, hydrogen peroxide and sulfuric acid.

4,278,616

4,4'-THIODIPHENOL-FORMALDEHYDE CONDENSATION PRODUCTS

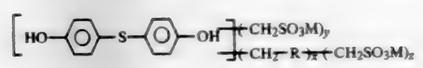
Robert L. Wineholt, Wyomissing Hills, and James F. Feeman, Wyomissing, both of Pa., assignors to Crompton & Knowles Corp., New York, N.Y.

Filed Mar. 29, 1979, Ser. No. 25,011

Int. Cl.[3] **C07C** *143/42, 143/52;* **D06P** *5/02*

U.S. Cl. 260—512 C **9 Claims**

1. A compound having the structure



wherein R is a phenolic radical selected from the group consisting of phenol, a cresol, a xylenol, catechol, resorcinol, a hydroxy-benzoic acid, a napthol, a bisphenol, a phenyl-phenol, and thiodiphenol; x is 1, 2, 3 or 4; y is 0, 1, 2 or 3, z is 0, 1, 2, 3 or 4 and y+z is 1, 2, 3 or 4 and M is H, Na, K, Li, NH_4 or a mono, di or tri alkanol ammonium ion.

4,278,617

HUMIDIFIER

Michael Rahman, Winston-Salem, N.C., assignor to Envirotech Corporation, Menlo Park, Calif.

Filed Mar. 3, 1980, Ser. No. 126,786

Int. Cl.[3] **B01F** *3/04*

U.S. Cl. 261—30 **1 Claim**

1. A humidifier comprising:

(a) a conduit;

(b) a fan assembly mounted in said conduit for rotation about an axis, said fan assembly causing an air stream to flow through said conduit when said fan assembly is rotated;

(c) a water slinger assembly mounted in said conduit downstream of said fan assembly for rotation about said axis, said water slinger assembly including:

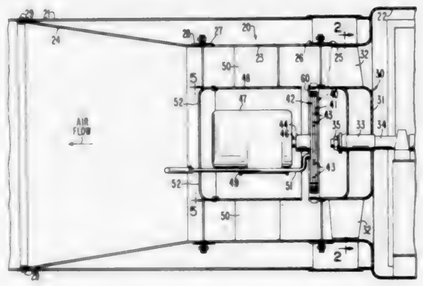
(i) a first plate;

(ii) a second plate, said first and second plate being mounted spaced apart from each other for rotation about said axis; and

(iii) vanes interposed between said first and second plates to define a plurality of water channels, each water channel being located between two adjacent vanes;

(d) means for introducing water into each of said water channels;

(e) means for rotating said water slinger assembly to cause water to be ejected from said water channels into a region peripherally adjacent said water slinger assembly, said means for rotating said water slinger assembly comprises a motor having a shaft that is coaxial with said axis of rotation, said motor being surrounded by a housing structure to protect said motor from substantial accumulation of moisture, said housing structure being of substantially cylindrical configuration having an open end adjacent said water slinger assembly and a closed end remote from said water slinger assembly, said closed end being downstream of said motor and being apertured to enable a stream of air induced by rotation of said water slinger assembly to pass therethrough to ventilate said motor;



(f) a generally cylindrical mist-forming member affixed to said fan assembly and surrounding said region peripherally adjacent said water slinger assembly; and

(g) means for rotating said fan assembly and said attached mist-forming member about said axis in a direction opposite to the direction of rotation of said slinger assembly, said forming member functioning to interact with the water ejected by said water slinger assembly to form a mist of fine water droplets, said fine water droplets becoming entrained in said air stream flowing through said conduit.

4,278,618

ACCELERATION PUMP FOR A CARBURETOR

Keizo Higashigawa, and Kazuo Shinoda, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Nov. 29, 1979, Ser. No. 98,612

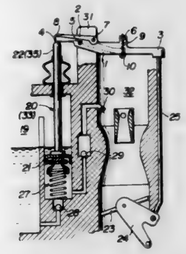
Claims priority, application Japan, Jul. 24, 1979, 54-102075[U]

Int. Cl.[3] **F02M** *7/08*

U.S. Cl. 261—34 A **5 Claims**

1. An acceleration pump for a carburetor having a barrel, fuel pumping means, a pump rod slidably secured to the pumping means, an acceleration rod having first and second ends longitudinally movably provided at the carburetor body, a throttle lever having first and second ends rockably secured at said first end to said first end of said acceleration rod, and a throttle valve rockably installed within the barrel of the carburetor and also secured to the second end of the throttle lever, comprising:

a first rockable member secured to a first fulcrum of the carburetor body and having a first contact end connected to the acceleration rod movable via the throttle lever and the throttle valve and a second contact end making contact with the pump rod; and



a second rockable member secured to a second fulcrum of the carburetor body at the position substantially nearer to the acceleration rod apart from the pump rod and having a first contact end making contact with the pump rod in the same manner as said first rockable member and a second end connected via a spring to said first rockable member.

4,278,619

STEAM THROTTLE VALVE

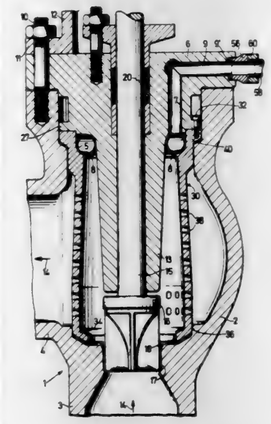
Edelbert Tiefenthaler, Elgg, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed Aug. 21, 1980, Ser. No. 179,963

Claims priority, application Switzerland, Sep. 5, 1979, 8012/79

Int. Cl.[3] **B01F** *3/04*

U.S. Cl. 261—62 **9 Claims**



1. A steam throttle valve comprising

a valve body having a steam inlet port and a throttle cross-section disposed on a valve axis downstream of said inlet port;

a valve spindle guide disposed on said valve axis;

a perforated valve cage disposed on said axis downstream of said throttle cross-section and concentrically about said spindle guide to define a flow chamber therebetween;

a thin-walled hollow member between said valve cage and said spindle guide and having injection ducts for directing cooling water into said flow chamber; and

a thin-walled water supply duct in said body for receiving cooling water and being in communication with said hollow member to deliver cooling water into said hollow member for injection into said flow chamber.

4,278,620

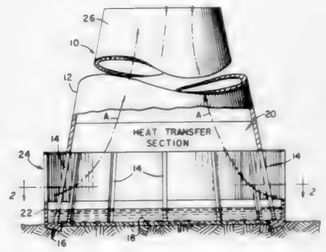
APPARATUS FOR REDUCING THE DETRIMENTAL WIND INFLUENCE ON COOLING TOWERS

Marcel R. Lefevre, Branchburg, N.J., assignor to Research-Cottrell, Inc., Somerville, N.J.

Filed Feb. 19, 1980, Ser. No. 122,174

Int. Cl.[3] **B01F** *3/04*

U.S. Cl. 261—109 **4 Claims**



1. Apparatus for reducing detrimental wind influence on cooling towers comprising:

a cooling tower;

air inlet means at the lower end of the tower;

air outlet means at the upper end of the tower;

air and fluid contact means in the air path between the air inlet means and the air oulet means; and

means mounted in the air inlet means for reducing detrimental wind influence, said means comprising a plurality of spaced baffles, each of said baffles configured as a truncated airfoil in transverse section and having a continuous smooth curved low wind resistance surface directed outwardly of the air inlet means, and a high wind resistance surface directed toward the interior of the tower.

4,278,621

VAPOR-LIQUID CONTACTING SYSTEM

Paul W. Sigmund, Tarrytown, and Kenneth F. Butwell, Newburgh, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

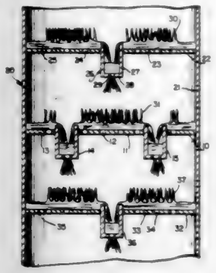
Continuation of Ser. No. 863,350, Dec. 22, 1977, abandoned. This application May 14, 1980, Ser. No. 149,729

Int. Cl.[3] **B01D** *53/14*

U.S. Cl. 261—114 R **5 Claims**

1. In a vapor-liquid absorption column for effecting selective separation of one gaseous component in preference to another gaseous component contained in a gas stream, the improvement including means for providing a laminar jetting hydraulic regime; said means comprising at least one tray having a perforated portion, having fixed size perforation openings, forming an active surface area for vapor-liquid contact in the interior of said tray, with a perforation open area in the interior of said tray, with a perforation open of from 1/16 to 3/32 inch; said active surface portion of said tray being circumscribed by an imperforate peripheral portion with a width of from 0.05 to 0.35 times the radius of the tray, to prevent interference by said inner wall of said absorption column with vapor-liquid contacting above said active surface area portion of said tray;

means for flowing said vapor through said perforated portion at a velocity of from 50–133 ft./sec.; and a liquid discharge



downcomer means having a height measured from the main flat top surface of said tray of from ¼ to ¾ inch.

4,278,622

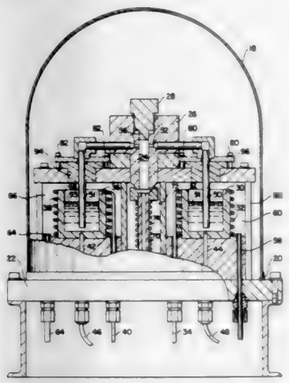
METHOD FOR FORMING METAL, CERAMIC OR POLYMER COMPOSITIONS

Nam P. Suh, Sudbury, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 78,320, Sep. 24, 1979, abandoned. This application Feb. 26, 1980, Ser. No. 124,694

Int. Cl.³ B01J *2/06*

U.S. Cl. 264—11 **19 Claims**



1. The process for forming a small grain size composition from at least two liquid streams, each of said streams selected from the group consisting of a polymer, a metal, a metal alloy, a ceramic and a mixture of a ceramic and a metal and/or a metal alloy wherein not more than one of said streams is a polymer, which comprises impinging said liquid streams upon each other to form a turbulent mixture having small eddies, each of said liquid streams having a Reynolds Number based on the nozzle diameter of at least about 50, and quickly freezing said mixture before substantial coalescence of the components of said stream.

4,278,623

ULTRA-FINE FIBERS AND METHOD FOR MAKING SAME

Walter D. Niegisch, Watchung, N.J., assignor to Union Carbide Corporation, New York, N.Y.

Filed Jan. 11, 1977, Ser. No. 758,424

Int. Cl.³ B29B *1/02*

U.S. Cl. 264—28 **9 Claims**

1. A method of shortening ultra-fine fibers having a length to diameter ratio sufficiently high to prevent forming a free-flowing, non-agglomerating slurry of such fibers in a liquid diluent into sufficiently short fiber lengths to allow formation of a free-flowing, non-agglomerating slurry which comprises placing ultra-fine fibers into a medium, immobilizing the medium to



embed the fibers therein and subjecting the immobilized fibers to shear at a rate and for a time sufficient to shorten the embedded ultra-fine fibers into lengths allowing formation of a free-flowing, non-agglomerating slurry.

4,278,624

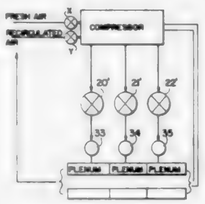
FLUID FILM CONTINUOUS PROCESSING METHOD AND APPARATUS

Andrew T. Kornylak, Hamilton, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio

Filed Oct. 25, 1978, Ser. No. 954,448

Int. Cl.³ B29D *27/04*; **B65G** *53/02*; **B29C** *25/00*

U.S. Cl. 264—37 **66 Claims**



1. A method of processing a product with a fluid film, comprising the steps of:

providing a fluid under pressure;

providing a product to be processed by the fluid;

providing a confining wall having a general shape of the final desired shape of the product on one side;

passing the fluid through the confining wall to form a thin film fluid processing and bearing film on said one side of said confining wall;

controlling the characteristics of the fluid;

directly contacting the thin fluid film with the product immediately adjacent said confining wall to prevent direct contact between said product and said confining wall and further to directly process the product according to the controlled characteristics of the fluid;

monitoring the pressure of the fluid film and producing a corresponding pressure monitor signal;

providing a pressure reference signal;

comparing the pressure reference signal with the pressure monitor signal and producing a correlated differential pressure signal; and

automatically varying the pressure of the fluid film in correlation to said pressure differential signal.

4,278,625

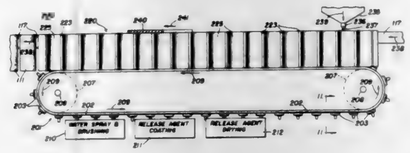
FIELD TRANSPLANT SYSTEMS AND METHODS AND COMPONENTS THEREOF

Richard R. Dedolph, Naperville, Ill., assignor to Gravi-Mechanics Co., Naperville, Ill.

Division of Ser. No. 772,094, Feb. 25, 1977, Pat. No. 4,130,072. This application Jul. 28, 1978, Ser. No. 928,957

Int. Cl.³ B29D *27/04*; **B29C** *1/04, 23/00*

U.S. Cl. 264—39 **13 Claims**



1. A method of forming polymerized soil plugs for growing plants therein comprising the steps of providing at least two sets of mold elements that when joined form a set of mold cavities, moving said sets of mold elements along a first path with said mold elements joined to form said set of mold cavities and thereafter moving said sets of mold elements along the second path wherein said mold elements are separated to facilitate the removal of molded soil plugs therefrom and to facilitate cleaning thereof, filling of each of said mold cavities along the first portion of said first path with a slurry of foam-forming synthetic organic resin and a quantity of particles of soil mix, separating said sets of mold elements at the exit from said first path to remove the molded soil plugs therefrom, cleaning said sets of mold elements during the first portion of movement along said second path, and thereafter applying a non-phytotoxic resin release agent at least to the surfaces of the mold elements forming said mold cavities.

4,278,626

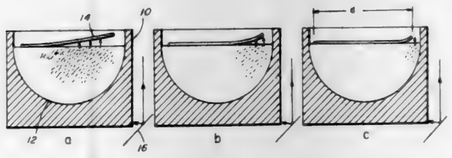
METHOD OF CASTING PHOTOGRAPHS IN DOME-SHAPED STRUCTURES

Marin Atanassovski, 187 Harvard St., Malden, Mass. 02148

Filed Aug. 13, 1979, Ser. No. 66,015

Int. Cl.³ B29C *5/00*; **B29D** *3/00*

U.S. Cl. 264—40.1 **2 Claims**



1. A method of embedding a two dimensional pictorial display in a dome-shaped casting which includes in sequence:

(a) charging a dome-shaped transparent mold with casting material, the exposed portion of the material as charged forming the surface which the display will engage and through which the display will be viewed;

(b) contacting the surface of the casting with a portion of a planar display;

(c) monitoring the migration of gas from the casting;

(d) overlaying continually the display on the surface as the gas escapes from within the material, the display comprising more than 50% of the surface air of the casting;

(e) engaging the entire display to the surface when substantially all of the gas has escaped;

(f) charging subsequent to step (e) the mold with further casting material subsequent to the material charged in step (a) curing to embed the display in the casting and to form an integral casting;

(g) positioning said mirror adjacent to said mold;

(h) reflecting an image of the casting material on said mirror; and

(i) viewing the image reflected from said mirror as said overlying progresses.

4,278,627

EXPANDABLE STYRENE-MALEIC ANHYDRIDE COPOLYMER PARTICLES AND A PROCESS FOR MOLDING THE SAME

Mutsuhiko Kajimura, Moriyama, and Tetsuji Maeda, Nara, both of Japan, assignors to Sekisui Kaseihin Kogyo Kabushiki Kaisha, Nara, Japan

Filed May 2, 1980, Ser. No. 146,012

Claims priority, application Japan, May 7, 1979, 54/56047

Int. Cl.³ C08J *9/18*

U.S. Cl. 264—45.4 **3 Claims**

1. A process for preparing foamed article which comprises

(a) reacting, in an aqueous medium, particles of a styrene-maleic anhydride copolymer with a hydroxy compound having 2–4 active hydroxy groups and 2–15 carbon atoms in an amount of 2.5–150 mol% relative to the maleic anhydride moiety of said copolymer and further impregnating said copolymer of the resulting copolymer with a volatile blowing agent before, during or after the above reaction, to yield particles of an expandable styrene-maleic anhydride copolymer

(b) pre-expanding the expandable styrene-maleic anhydride copolymer particles under heating and

(c) molding the pre-expanded particles in a mold in which the particles are charged in an amount equal or up to 10% excessive to a volume of cavity, whereby foamed article having low density and good thermal stability is formed.

4,278,628

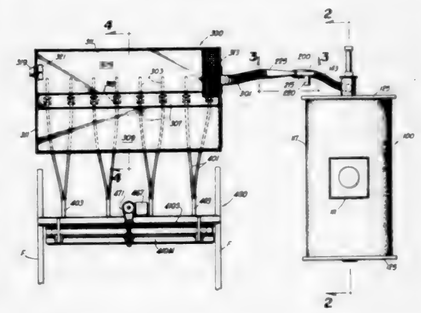
METHOD FOR PRE-EXPANDING AND MOLDING EXPANDABLE THERMOPLASTIC POLYMER PARTICLES

Robert L. Montgomery, and Stuart B. Smith, both of Conyers, Ga., assignors to Southeastern Foam Products, Inc., Conyers, Ga.

Continuation of Ser. No. 827,873, Aug. 26, 1977, abandoned. This application Aug. 31, 1979, Ser. No. 71,532

Int. Cl.³ B29D *27/00*

U.S. Cl. 264—45.5 **3 Claims**



1. A method for expanding and molding expandable thermoplastic polymer particles including the steps of: heating the walls of a substantially moisture-free tank, introducing a plurality of polystyrene beads that contain approximately 6% pentane gas and have a bulk density of 40 pcf into the heated substantially moisture-free tank by means of vacuum, pressur-

izing said polystyrene beads within said tank with hot dry air drawn from a source outside the heated substantially moisture-free tank to soften said beads without allowing expansion thereof, agitating and polystyrene beads within said tank, subjecting said polystyrene beads within said tank to a selected vacuum within the range of 15 to 20 ins. of Hg. to effect expansion of said beads to a selected desired density and to remove therefrom excess pentane gas, venting the tank to establish atmospheric pressure within said tank, discharging said expanded beads into a holding bin by means of suction, said beads being in a heated moisture-free state, introducing said expanded hot moisture-free polystyrene beads into a mold by passing said beads through feed lines extending between said holding bin and spaced pneumatic injection devices on the mold, fusing said expanded polystyrene beads into an integral mass by injecting steam into said mold from only one side thereof, cooling said fused polystyrene mass by introducing water onto the plates of the mold to form an outer skin on the fused polystyrene mass, and ejecting said fused polystyrene mass from said mold.

4,278,629

PREPARATION OF PADDED ARTICLES

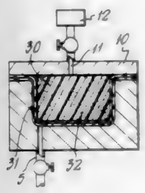
Peter S. Bennett, Morecambe, England, assignor to Storey Brothers and Company Limited, England

Continuation-in-part of Ser. No. 846,229, Oct. 27, 1977, abandoned, which is a continuation-in-part of Ser. No. 687,779, May 19, 1976, abandoned. This application Jun. 18, 1979, Ser. No. 49,710

Claims priority, application United Kingdom, May 27, 1975, 23086/75

Int. Cl.³ B29D *27/04*

U.S. Cl. 264—46.8 **4 Claims**



1. A method of preparing a resilient padded article comprising the steps of

(a) shaping a sheet of plasticized vinyl chloride polymer by vacuum forming to provide a shaped cover,

(b) holding said cover in a female mould,

(c) placing within said cover the precursors of a polyurethane foam,

(d) allowing said precursors to foam and fill said cover to provide a resilient foam filling, said foam being bonded to said cover and retaining said cover in the required shape, wherein the surface of said sheet which is to be in contact with said foam is treated at any time before step (c) and substantially in the absence of organic solvent with an aqueous primer composition comprising:

(A) a latex of butadiene-acrylonitrile copolymer containing a carboxyl group; and

(B) a latex chosen from the group consisting of natural rubber, styrene-butadiene latex and mixtures thereof in an amount sufficient to promote bonding and wherein the weight ratio of (A) and (B) is from 4:1 to 1:4, and the treated surface is dried.

4,278,630

METHOD FOR THE PREPARATION OF IMPLANTS, AND IMPLANTS

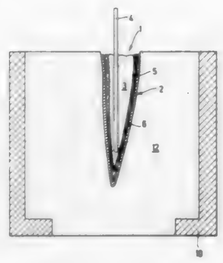
Hans Scheicher, Rondell Neuwittelsbach 4, 8000 München 19, Fed. Rep. of Germany

Filed Jan. 2, 1979, Ser. No. 629

Claims priority, application Fed. Rep. of Germany, Dec. 31, 1977, 2759214

Int. Cl.³ B29C *1/04*

U.S. Cl. 264—60 **11 Claims**



1. Method for the preparation of implants from ceramic substances, especially with a porous surface stimulating the ingrowth of bone tissues, comprising: introducing a model of the implant into a high-temperature embedding substance which has been mixed to a paste and leaving it in this until the embedding substance hardens thus producing a negative mold of the implant removing the model from the mold and lining the mold via an opening reaching into its interior with a layer of a ceramic substance which should form the outer layer of the implant, subsequently completely filling the cavity of the mold with dentine or core substances, sealing the opening with a high-temperature embedding substance which is mixed to a paste, drying the embedding substance, and heating the product to the sintering temperature of the ceramic substance used, and firing the ceramic substances at this temperature.

4,278,631

METHOD AND INSTALLATION FOR PRODUCING BRICKS

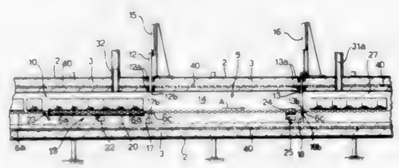
Antonio Salviati, Vicenza, Italy, assignor to Salviati Impianti S.p.A., Italy

Filed Aug. 17, 1979, Ser. No. 67,375

Claims priority, application Italy, Sep. 4, 1978, 27288 A/78

Int. Cl.³ F27B *9/12*; **C04B** *33/32*

U.S. Cl. 264—64 **27 Claims**



1. A method for producing bricks in a brick producing apparatus wherein said bricks are dried and fired in a single operating unit and wherein said bricks are transported through said unit, comprising the steps of:

preheating green bricks having a total moisture content of 13–15% to a wet-bulb temperature of 45°–100° C. in a co-current stream of hot gases having a predetermined moisture content;

drying said preheated bricks in a co-current stream of hot gases;

heating said dried bricks in preparation for firing;

firing said heated bricks; and

cooling said bricks, at least a portion of the gases from said heating step being utilized in drying said green bricks and at least a portion of the gases from said drying step being utilized in said preheating and said cooling steps, respectively.

4,278,632

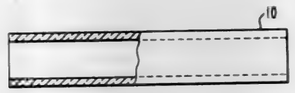
METHOD OF CONFORMING CLEAR VITREOUS GEL OF SILICA-TITANIA MATERIAL

Bulent E. Yoldas, Churchill, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 8, 1980, Ser. No. 119,689

Int. Cl.³ C03C *3/04*

U.S. Cl. 264—66 **5 Claims**



1. The method of forming a monolithic clear vitreous member substantially comprising silica-titania binary which contains up to about 40 mole percent titania without melting the constituents used in forming the monolithic clear vitreous member, which method comprises:

(a) preparing as a precursor of one of said binary constituents a predetermined amount of clear solution of partially hydrolyzed alkoxide which prior to hydrolyzation is represented by the formula $M(OR)_4$ where M is one of silicon and titanium, R is alkyl with from 1 to 6 carbon atoms, the solution solvent comprises organic solvent for any metallic or metalloid alkoxide precursor and any partially hydrolyzed metallic or metalloid alkoxide precursor used in forming said silica-titania vitreous member, in the case M is silicon hydrolyzing water is present in amount of from about 1 mole to about 4 moles per mole of silicon alkoxide prior to hydrolyzation, and in the case M is titanium hydrolyzing water is present in amount of from about 1 mole to about 3 moles per mole of titanium alkoxide prior to hydrolyzation;

(b) adding to and reacting with said prepared solution a predetermined amount of precursor of the other of said binary constituents in the form of (1) a partially hydrolyzed clear solution of said other binary constituents which prior to hydrolyzation is represented by the formula $M'(OR)_4$ where M' is said other of silicon and titanium, R is alkyl with from 1 to 6 carbon atoms, the solution solvent comprises organic solvent for any metallic or metalloid alkoxide precursor and any partially hydrolyzed metallic or metalloid alkoxide precursor used in forming said silica-titania vitreous member, in the case M' is silicon hydrolyzing water is present in amount of from about 1 mole to about 4 moles per mole of silicon alkoxide prior to hydrolyzation, and in the case M' is titanium hydrolyzing water is present in amount of from about 1 mole to about 3 moles per mole of titanium alkoxide prior to hydrolyzation; or (2) alkoxide of said other binary constituents which is represented by the formula $M'(OR)_4$ where M' is said other of silicon and titanium and R is alkyl with from 1 to 6 carbon atoms; and including with at least one of said precursors a small amount of suitable mineral acid, and said predetermined amounts of said one binary precursor relative to said other binary precursor being such that the atom ratio of total combined titanium to total combined silicon is that molar ratio of titania to silica which is desired in the formed monolithic clear vitreous member;

(c) adding to the resulting reacted solution any additional water as required to complete the hydrolysis reaction of said titanium alkoxide and said silicon alkoxide, and allowing to stand until said reacted precursors form into a gel which is a clear, stiff, single phase containing a chemically formed glass network;

(d) conforming the gel into a member having a predetermined configuration, slowly drying the conformed member, and heating the resulting conformed and dried member at a temperature in the range of from about 400° C. to about 600° C. to evolve any residual organic components to produce a clear member; and

(e) sintering the resulting conformed clear member at a temperature below its melting temperature to form said monolithic clear vitreous member which has the predetermined configuration into which the gel is initially formed.

4,278,633

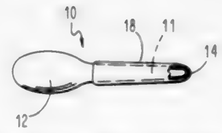
METHOD OF TREATING A WATER SOLUBLE CAPSULE

Akira Fujii, Cincinnati, Ohio, assignor to Stanley Drug Products, Inc., Portland, Oreg.

Continuation of Ser. No. 972,027, Dec. 20, 1978, abandoned, which is a continuation of Ser. No. 857,463, Dec. 5, 1977, abandoned, which is a continuation of Ser. No. 627,027, Oct. 30, 1975, abandoned. This application Dec. 10, 1979, Ser. No. 101,444

Int. Cl.³ A61M *3/00*

U.S. Cl. 264—134 **10 Claims**



1. A method of treating a water soluble gelatin capsule of the type used for supplying a material to a selected area of the body through a body orifice, said capsule having a soft deformable bulb portion and an elongated portion insertable through said orifice, said method comprising the steps of applying a hardening agent as a coating to a sufficient portion of the periphery of said elongated portion to provide a desired rigidity to said elongated portion for insertion through said orifice, said hardening agent being a mixture of polyethylene glycol-400 and polyethylene glycol-4000, which mixture does not flow at room temperature.

4,278,634

BICONSTITUENT ACRYLIC FIBERS BY MELT SPINNING

Maurice M. Zwick, Stamford, Conn., and William J. van Loo, Sarasota, Fla., assignors to American Cyanamid Company, Stamford, Conn.

Filed Aug. 18, 1980, Ser. No. 179,380

Int. Cl.³ D01D *5/22*

U.S. Cl. 264—168 **10 Claims**

1. A process for producing bicomponent acrylonitrile polymer fiber composed of two polymers of different acrylonitrile contents which comprises preparing a single-phase melt of a first fiber-forming acrylonitrile polymer and water, said first acrylonitrile polymer containing at least about 85 weight percent acrylonitrile and said melt being at a temperature above the boiling point of water at atmospheric pressure and at a pressure which maintains water in liquid state; preparing a pure melt of a second fiber-forming acrylonitrile polymer, said second acrylonitrile polymer containing from about 60–72 weight percent acrylonitrile, said pure melt being at the temperature and pressure of said single-phase polymer-water melt, and the difference in acrylonitrile contents of said first and said second acrylonitrile polymers being less than about 30 weight percent; extruding said single-phase polymer-water melt and said pure melt together through the orifices of a spinneret assembly directly into a steam pressurized solidification zone maintained under conditions which control the release of water from the nascent extrudate; and stretching the nascent

extrudate while it remains within said solidification zone to provide molecular orientation of said polymers.

4,278,635

METHOD FOR DEOXYGENATION OF WATER

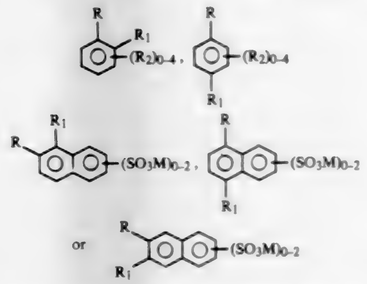
Herman Kerst, Des Plaines, Ill., assignor to Chemed Corporation, Cincinnati, Ohio

Continuation-in-part of Ser. No. 84,520, Oct. 12, 1979, abandoned. This application Dec. 26, 1979, Ser. No. 107,486

Int. Cl.³ C23F 11/06, 11/12, 11/14, 11/16

U.S. Cl. 422—14 5 Claims

1. A method for control of corrosion of metal surfaces in a boiler system caused by dissolved oxygen in the water, which comprises adding to the said system an effective amount, from 0.1 to 20 parts by weight per part of the oxygen in the water of an oxygen scavenger selected from the group consisting of



in which R and R_1 are independently selected from the group consisting of —OH or $—NH_2$; R_2 (when present) is lower alkyl containing 1–8 carbons: M is H, Na, or K: and combinations thereof; said group member being the sole oxygen scavenger present.

4,278,636

CALIBRATING DEVICE FOR A BREATH ALCOHOL MEASURING INSTRUMENT

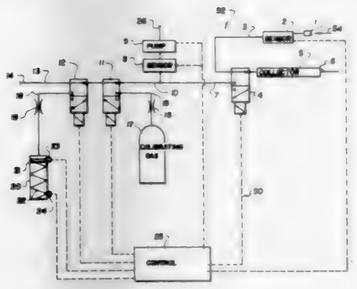
Günter Voigt, Bad Schwartau, and Rainer Boldt, Lübeck, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 121,697

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1979, 2912181

Int. Cl.³ G01N 33/50, 1/22

U.S. Cl. 422—84 5 Claims



1. A calibrating device for a breath-alcohol measuring instrument which includes a passage for the breathing air having a sensor for detecting alcohol therein and a collector in the passage arranged after the sensor and having an atmospheric discharge, comprising a connecting circuit, valve means in said circuit for selectively connecting the circuit to said passage, said circuit also including a member therein having a chamber, a piston wall movable in said chamber between two end positions, spring means biasing said piston wall member toward one end position, a calibrating gas supply connectable to said chamber on said one end of said piston, a sensor connected to said chamber on one side of said piston, and control means connected to said chamber and to said sensor and said valve means for selectively and alternatively connecting said sensor and said calibrating gas supply to said chamber and for connecting said circuit to said breathing gas passage.

4,278,637

CHEMICAL OXYGEN GENERATOR

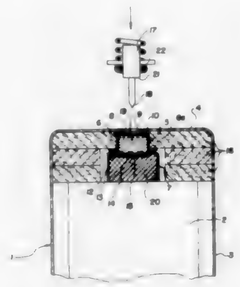
William S. McBride, Huntsville, Ala., assignor to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 17, 1980, Ser. No. 141,129

Claims priority, application Fed. Rep. of Germany, May 8, 1979, 2918417

Int. Cl.³ F01C 19/02; F03C 2/00; F01C 1/00

U.S. Cl. 422—122 5 Claims



1. An improved chemical oxygen generator of the type having an outer container, an ignition mixture activatable by a liquid, means for enclosing the liquid, and starter means accessible from outside of the outer container for rupturing the enclosing means to release the liquid to ignite the ignition mixture, the improvement comprising an ignition mixture container in the outer container containing the ignition mixture, said ignition mixture container having an opening and a first foil sealingly overlying the opening, the outer container having an opening extending therethrough for passing the starter means, and wherein the enclosing means comprises a second foil fixedly connected to the inner wall surface of the outer container and sealingly overlying the opening of the outer container, and wherein said second foil is fixedly connected to said ignition mixture container and the liquid is contained intermediate said second foil and said first foil of the ignition mixture container.

4,278,638

GAS GENERATOR CONSTRUCTION

Karl E. Nilsson, Ottobrunn, and Armin Lampert, Aschheim, both of Fed. Rep. of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Fed. Rep. of Germany

Filed Apr. 11, 1980, Ser. No. 139,359

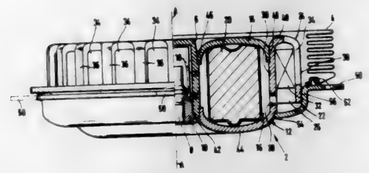
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915202

Int. Cl.³ B01J 1/00; B60R 21/00

U.S. Cl. 422—166 7 Claims

1. A gas generator particularly for the inflation of inflatable protective bags for safety systems of vehicles, comprising a tubular central part having an outer wall, an annular substantially S-shaped wall member having a bottom forming wall portion, an intermediate wall portion connected to the bottom forming wall portion, an outer casing wall portion, and a mid-

web wall portion connected between said outer casing wall portion and said intermediate wall portion, said bottom forming wall portion having an inner edge joined to the outer wall of said central tubular part, an annular cover member having respective radially inner and radially outer peripheral edges joined to said outer wall of said central tubular part and to said intermediate wall portion and enclosing a reaction chamber therebetween overlying said bottom forming wall portion, an outer cover ring extending between and joined to said outer



casing wall portion and said intermediate wall portion and enclosing a filter and expansion chamber therebetween, said outer casing wall portion having a plurality of outlet ports therein for the outflow of the generated gases, said intermediate wall portion having at least one opening therein communicating said reaction chamber with said filter and expansion chamber for the flow of reaction gases from the reaction chamber into the filter and expansion chamber and then through the outlet ports of said outer casing wall portion.

4,278,639

CATALYTIC CONVERTER FOR PURIFYING GASES

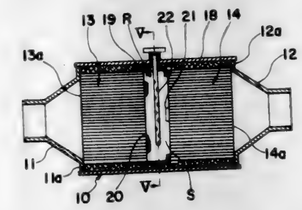
Tomoo Tadokoro, and Yasuo Honda, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Mar. 14, 1980, Ser. No. 130,445

Claims priority, application Japan, Mar. 19, 1979, 54-36420[U]

Int. Cl.³ B01D 53/36; F01N 3/28, 3/30, 7/18

U.S. Cl. 422—171 4 Claims



1. A catalytic converter for effecting purification of exhaust gases by catalytic reaction, which comprises, in combination:

a generally elongated casing having at one end an inlet for receiving the exhaust gases and at the other end an outlet for discharging the exhaust gases which have been passed through the casing;

at least two separate catalyst carriers of honeycomb type positioned in said casing and each having a plurality of parallel closely adjacent flow passages extending throughout the length thereof;

a spacer ring means between said catalyst carriers and connecting the catalyst carriers together in longitudinally spaced relation in a unitary structure, said spacer ring means being an annular spacer body having a cross-sectional shape similar to that of said catalyst carriers and a size for securing the ends of said catalyst carriers therein, and two sets of stop pawls each having at least two stop pawls protruding radially inwardly from the annular spacer body, one set adjacent each end of said spacer body, each stop pawl in a set being spaced inwardly from a corresponding end of said spacer body, said annular spacer body having the opposed ends of the adjacent catalyst carriers within said spacer body and abutting the pawls of the corresponding sets and holding the catalyst carriers in alignment with the longitudinal axis of the casing and retaining the catalyst carriers in position in the unitary structure; and

a heat-insulating and cushioning layer positioned in compressed sandwich fashion between the unitary structure and the casing and surrounding the unitary structure.

4,278,640

METHOD FOR SOLVENT EXTRACTION OF METALLIC MINERAL VALUES FROM ACIDIC SOLUTIONS

Hanceford L. Allen, Bartow, and William W. Berry, Lakeland, both of Fla., assignors to International Minerals & Chemical Corporation, Northbrook, Ill.

Filed Mar. 19, 1979, Ser. No. 22,218

Int. Cl.³ C01B 25/234

U.S. Cl. 423—10 11 Claims

1. In a process for recovering metallic mineral values from an aqueous acidic solution obtained by processing an ore containing said values in admixture with other inorganic and/or organic constituents, which process includes the steps of mixing said aqueous acidic solution with an immiscible organic extractant to form a two-phase mixture, allowing said two-phase mixture to separate into a lighter phase and a heavier phase, said separated phases having an interfacial region therebetween, said interfacial region containing an accumulation of solid particles of impurities derived from the inorganic and/or organic constituents originally present in said ore or introduced by subsequent ore processing, the improvement comprising introducing air bubbles into said two-phase mixture to form a dispersion of bubbles which contact and adhere to said solid particles and cause said particles to rise to the surface of said lighter phase rather than accumulate in said interfacial region.

4,278,641

METHOD FOR EXTRACTING RHENIUM AND TUNGSTEN FROM WASTES OF RHENIUM-TUNGSTEN ALLOYS

Nikolov Y. Petrov; Maria M. Pavlova, and Ognyan D. Bojkov, all of Sofia, Bulgaria, assignors to Institute Po Obshta I Neorganichna Chimia, Sofia, Bulgaria

Filed Jan. 16, 1980, Ser. No. 112,451

Claims priority, application Bulgaria, Aug. 7, 1979, 44586; Nov. 28, 1979, 45707

Int. Cl.³ C01G 41/00, 47/00

U.S. Cl. 423—49 6 Claims

1. A method of recovering rhenium and tungsten from wastes containing rhenium and tungsten alloys and of separating the two elements which comprises the following steps:

(a) electrochemically dissolving said wastes containing rhenium and tungsten alloys in substantially 4 to 5 normal sodium hydroxide to form a solution containing rhenium and tungsten;

(b) solvent extracting said solution containing rhenium and tungsten with an organic solvent capable of selectively removing rhenium from said solution thereby forming a second solution of said solvent containing the rhenium and leaving behind a raffinate containing the tungsten;

(c) distilling off the solvent from the second solution formed during step (b) to produce sodium perrhenate;

(d) converting the sodium perrhenate to ammonium perrhenate by ion exchange;

(e) adding sulfuric acid to the raffinate formed during step (b) to adjust the pH thereof to about 1; and

(f) extracting tungsten from the raffinate with a solution of trioctylamine in kerosene and octyl alcohol.

4,278,642

METHOD FOR REMOVING MOLYBDENUM FROM TUNGSTATE SOLUTIONS BY SOLVENT EXTRACTION

Martin B. MacInnis, and Tai K. Kim, both of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Continuation of Ser. No. 38,974, May 14, 1979, abandoned, and a continuation-in-part of Ser. No. 952,419, Oct. 14, 1978, abandoned. This application Jun. 12, 1980, Ser. No. 158,670

Int. Cl.³ C01G *41/00*

U.S. Cl. 423—54 **1 Claim**

1. A process for separating molybdenum values from an aqueous solution containing molybdenum and tungsten values comprising the following steps:

(1) forming an aqueous solution comprising less than about five grams per liter sodium molybdate and from about fifty to about two hundred grams per liter sodium tungstate;

(2) sulfidizing said aqueous solution to form a sulfidized solution, said sulfidizing being carried out to an extent sufficient to convert substantially all of the sodium molybdate to sodium thiomolybdenum species, said sulfidizing being substantially less than the extent necessary to convert substantially all of said sodium tungstate to sodium thiotungsten species; and

(3) contacting said sulfidized solution at a pH of from about eight to about nine and one-half with a suitable amount of organic extractant for a sufficient period of time to preferentially extract greater than ninety percent of the sodium thiomolybdenum species into the organic extractant, said organic extractant consisting essentially of tricaprylyl monomethyl ammonia chloride as the active extractant and the balance being an organic solvent comprising a mixture of alkyl benzenes having total carbon atoms in the alkyl group of from three to five, said active extractant being present as a volume percent of total organic extractant in an amount less than about three percent by volume wherein said volume percent is selected to result in greater than ninety percent of the sodium thiomolybdenum species and less than about five percent of the sodium thiotungsten species present in said solution being extracted.

4,278,643

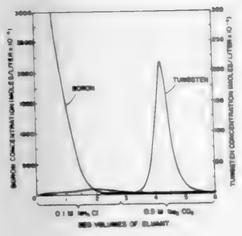
RESIN SORPTION PROCESS FOR EXTRACTING TUNGSTEN

Samuel Natansohn, Sharon, and Sophia R. Su, Wellesley, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Sep. 15, 1980, Ser. No. 186,949

Int. Cl.³ C01G *41/00*

U.S. Cl. 423—54 **9 Claims**



1. In a process for recovering tungsten values from a solution containing boron comprising the steps of contacting said solution with a resin comprising a copolymer of 8-hydroxyquinoline, a polyamine, resorcinol, and formaldehyde to load said resin with metal values; and desorbing the metal values from said loaded resin to recover the tungsten; the improvement comprises a two step desorption of metal values from said loaded resin including a first step of contacting said loaded resin with a solution of a weakly acidic salt to remove a portion of the boron from said loaded resin, followed by a second step of contacting said loaded resin with a solution of a weakly basic salt to remove a portion of the tungsten from said loaded resin, whereby the tungsten recovered by said improvement is substantially free of boron.

4,278,644

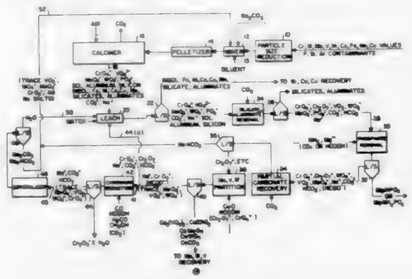
PROCESS FOR PARTITIONING Mo AND W FROM A MIXED $CaMoO_4$-$CaWO_4$ PRECIPITATE

Alkis S. Rappas, Bedford; Jameel Menashi, Lexington, both of Mass., and Donald A. Douglas, Amherst, N.H., assignors to Cabot Corporation, Kokomo, Ind.

Filed Apr. 15, 1980, Ser. No. 140,436

Int. Cl.³ C01G *39/00, 41/00*

U.S. Cl. 423—58 **18 Claims**



1. A process for partitioning Mo and W from a mixed precipitate comprising $CaMoO_4$ and $CaWO_4$, said process comprising the steps of

A. adding an acidic sulfate solution to said precipitate to produce $CaSO_4$, the amount of sulfate in said solution being sufficient to produce a sulfate concentration in said solution, in addition to sulfate contained in $CaSO_4$ precipitate, of at least about 3 moles per liter;

B. subjecting the slurry resulting from step A to a leaching operation below about 50° C. using a leach solution comprising at least about 3 moles per liter H_2SO_4 and sufficient H_2O_2 to complex the tungsten values in said slurry, said operation resulting in a solution containing Mo and W values;

C. separating solid $CaSO_4$ from the Mo and W containing solution;

D. heating the Mo and W containing solution to decompose peroxide complexes contained therein to result in precipitation of a tungstic acid product and;

E. separating the tungsten containing precipitate resulting from step D from the solution containing Mo.

10. A process for partitioning Mo and W from a mixed precipitate comprising $CaMoO_4$ and $CaWO_4$, said process comprising the steps of:

A. adding an acidic sulfate solution to said precipitate to produce $CaSO_4$ and to selectively dissolve Mo values, said acidic sulfate solution containing sufficient dissolved sulfate and bisulfate ion to precipitate the calcium and to result in an aqueous phase having a total sulfate ion concentration in the 4–10 moles/liter range;

B. separating a solid comprising a mixture of H_2WO_4 and $CaSO_4$ from the aqueous phase containing dissolved Mo values produced in step A;

C. recovering Mo values from the aqueous phase separated in step B.

D. treating the solid separated in step B with an acidic sulfate, H_2O_2 containing leach solution to selectively dissolve W values contained therein;

E. separating a solid $CaSO_4$ product from the aqueous solution produced in step D; and

F. recovering W values from the solution separated in step E.

4,278,645

METHOD OF PURIFYING HOT GASES

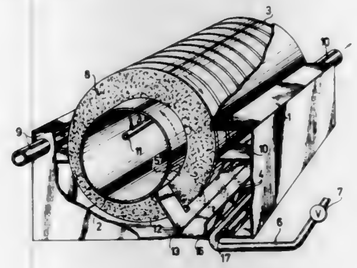
Peter Filss, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 888,002, Mar. 20, 1978, Pat. No. 4,214,881. This application Jan. 21, 1980, Ser. No. 113,615

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1977, 2712216

Int. Cl.³ B01D *47/00*

U.S. Cl. 423—210 **10 Claims**



1. A method of purifying a hot gas, especially industrial waste gas, by means of rotatable plates arranged in axially spaced relationship to each other, which includes in combination the steps of:

spraying those surfaces of said plates which face each other with a liquid;

drying said sprayed-on liquid in dried condition on said plate surfaces to form thereon a solid substance layer;

reacting and combining said layer containing at least one substance that reacts and combines with at least one component being removed from said hot gas being purified, passing and purifying the hot gas between said plate surfaces as well as simultaneously rotating said plates to cause said reacting of at least one component to be removed from said hot gas to combine with the respective adjacent layer on said plates, and after said reacting of the respective solid substance layer with said gas being purified also removing at least a portion of said layer from the plates.

4,278,646

OXIDATIVE REMOVAL OF HYDROGEN SULFIDE FROM GASEOUS STREAMS

Scott Lynn, Walnut Creek, Calif., and Bernard J. Dubs, Berre l'Etang, France, assignors to The Regents of the University of California, Berkeley, Calif.

Continuation of Ser. No. 891,545, Mar. 30, 1978, abandoned. This application Nov. 7, 1979, Ser. No. 92,041

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—226 **34 Claims**

1. A process for the removal of hydrogen sulfide from gaseous streams which comprises:

contacting a gaseous stream containing hydrogen sulfide with an aqueous solution of ferric ion chelated with an aminopolycarboxylic acid chelating agent at a pH of about 3.5 to 5, whereby hydrogen sulfide is oxidized to elemental sulfur and chelated ferric ion is reduced to chelated ferrous ion, the total concentration of ferrous and ferric iron in the aqueous solution being more than about 0.1 mole per liter of solution and the aqueous solution containing a salt selected from the group consisting of an ammonium salt of a strong mineral acid and an aliphatic, alicyclic, or heterocyclic primary or secondary amine salt of a strong mineral acid, said salt present in a sufficient proportion to maintain the thus formed chelated ferrous ion in solution.

4,278,647

PRODUCTION OF PHOSPHOROUS ACID

Klaus Jödden, Hürth; Hans-Werner Stephan, Cologne, and Gero Heymer, Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 25, 1979, Ser. No. 60,659

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833380

Int. Cl.³ C01B *25/16, 25/26*

U.S. Cl. 423—317 **8 Claims**

2. A process for making phosphorous acid which comprises saturating an aqueous sodium phosphite solution with hydrogen chloride and separating precipitating sodium chloride from the reaction product with the resultant formation of a phosphorous acid solution containing hydrochloric acid, said phosphorous acid solution being substantially free from sodium chloride, stripping said solution and recovering the phosphorous acid.

4,278,648

METHOD OF IMPROVING SILICEOUS FILTER AID DISPERSION IN WET PROCESS ORTHOPHOSPHORIC ACID PRODUCTION SYSTEMS

Harris G. Walton, Littleton, Colo., assignor to Johns-Manville Corporation, Denver, Colo.

Filed Mar. 17, 1980, Ser. No. 130,874

Int. Cl.³ C01B *25/16*

U.S. Cl. 423—319 **10 Claims**

1. In a process wherein solid products of the reaction of sulfuric acid and phosphate rock dispersed in an aqueous acid medium are removed by filtration from said medium using a siliceous filter aid, and wherein said aqueous acid medium is at a temperature of at least 140° F., the improvement which comprises increasing the ability of the filter aid to disperse in said aqueous acid medium or to form a precoat by contacting said filter aid particles with water to adsorb on said particles 15 to 75 weight percent water based on the weight of the dry filter aid prior to dispersing said filter aid particles in said aqueous acid medium.

4,278,649

CONTINUOUS PROCESS FOR THE PRODUCTION OF AMORPHOUS SODIUM ALUMINOSILICATE IN AN ELONGATED REACTION ZONE

Peter Christophliemk, Dusseldorf, and Willi Wüst, Ratingen-Hoesel, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen and Deutsche Gold- und Silber-Scheideanstalt Vonmals Roessler, Frankfurt am Main, both of, Fed. Rep. of Germany

Filed Mar. 5, 1980, Ser. No. 127,383

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910152

Int. Cl.³ C01B *33/26, 33/28*

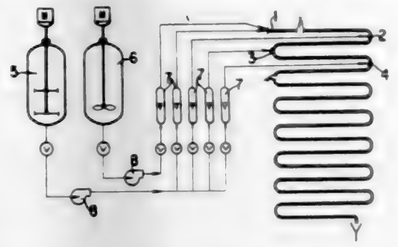
U.S. Cl. 423—329 **10 Claims**

1. A process for the continuous production of an aqueous, alkaline suspension of x-ray amorphous sodium aluminosilicate having a small particle size of at least 99% by volume of a particle size of less than 50μ, suitable for conversion into zeolite sodium aluminosilicate of the smallest particle sizes, by mixing an aqueous sodium aluminate solution with an aqueous sodium silicate solution in the presence of excess sodium hydroxide solution at a temperature in the range of from 20° to 103° C., where the solutions being mixed have a mathematical total molar ratio of:

1.5 to 9 Na_2O:1 Al_2O_3:1 to 7 SiO_2:40 to 400 H_2O

consisting essentially of the steps of continuously passing one of said two aqueous solutions into the entrance of an elongated substantially circular cross-sectional reaction zone having a

ratio of length to diameter of more than 500, continuously splitting the other aqueous solution into at least three partial streams, continuously passing the first of said partial streams into said entrance, continuously passing the mixed contents through said elongated reaction zone divided into a first zone where the mean holding time is from 5 to 60 seconds into a second zone of said elongated reaction zone, continuously



passing the remainder of said partial streams separately into downstream zones of said elongated reaction zone, where said mean holding time of the reaction mixture in each of said separate zones of said elongated reaction zone is at least 5 seconds and sufficient to effect substantial mixing of said contents, the mean holding time in the entirety of said elongated substantially circular cross-section reaction zone being at least 3 minutes.

4,278,650

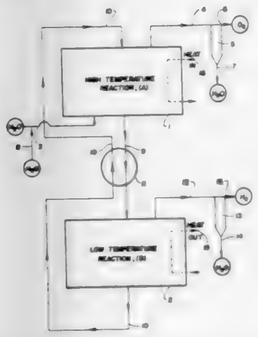
METHOD FOR PRODUCING OXYGEN AND HYDROGEN FROM WATER

William H. Dorrance, Ann Arbor, Mich., assignor to Organization Control Services, Inc., Ann Arbor, Mich.

Filed Mar. 24, 1980, Ser. No. 133,352

Int. Cl.³ C01B *1/08, 13/00*

U.S. Cl. 423—579 **9 Claims**



1. A method for producing O_2 and H_2 from water comprising:

flowing water as steam into contact with large-port hydrated mordenite contained in a first reaction vessel, said mordenite having an Si/Al ratio of from 5 to 30 and containing metal cation in a high oxidation state and selected from the group consisting of Cu, Cr, V, Fe, Co, Ni, Ho, Pm, Yb, Eu, In, Tl, U, Ti Ru and Rh, the temperature in said first reaction vessel being above 500° C. and the pressure in said first reaction vessel being above 150° psia and sufficiently high to prevent dehydration of said mordenite, thereby to cause a reaction of said water with said mordenite which generates O_2 and which converts said mordenite to a solid product containing substantially the same number of moles of water of hydration as in said mordenite prior to said reaction and containing the metal cation in a lower oxidation state;

withdrawing O_2 from said first reaction vessel;

withdrawing said solid reaction product from said first reaction vessel and passing it through a heat exchanger and then into a second reaction vessel, the pressure in said second reaction vessel being above 150 psia and sufficiently high to prevent dehydration of said solid reaction product, and the temperature in said second reaction vessel being below 400° C. and being at least 200° C. less than the temperature in said first reaction vessel thereby to cause a reaction which generates H_2 from said solid reaction product and which converts said solid reaction product to said mordenite containing the metal cation in its high oxidation state;

withdrawing H_2 from said second reaction vessel; and

withdrawing the mordenite from said second reaction vessel and passing it through said heat exchanger into said first reaction vessel, said mordenite from the second reaction vessel being heated in said heat exchanger by the heat removed in said heat exchanger from said solid reaction product passing through said heat exchanger from said first reaction vessel.

4,278,651

SUPPORTED RECEPTOR AND USE THEREOF IN AN ASSAY

Richard H. Hales, West Jordan, Utah, assignor to Becton Dickinson & Company, Paramus, N.J.

Filed Sep. 27, 1978, Ser. No. 946,064

The portion of the term of this patent subsequent to Aug. 22, 1995, has been disclaimed.

Int. Cl.³ G01N *33/48;* **G01T** *1/00*

U.S. Cl. 424—1 **33 Claims**

7. A supported receptor for use in an assay for a ligand, comprising:

a particulate support including an imprevious non-porous core, and an outer porous coating, said particulate support having a water insoluble polymer coating adhering thereto, said water insoluble polymer coating including at least one functional group selected from the group consisting of carboxyl, isothiocyanate, N-hydroxysuccinimide, imidazolide, bromoacetyl, maleimide and diazomethylene, and a receptor for binding the ligand being covalently linked to the support through said functional group.

4,278,652

PROCESS FOR DETERMINING FERRITIN

Elfriede Niemann, Kriftel, Fed. Rep. of Germany; Brian H. Stagg, Bletchley, and Stuart I. Cowan, Marston Mortaine, both of England, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 26, 1978, Ser. No. 954,897

Claims priority, application Fed. Rep. of Germany, Oct. 29, 1977, 2748657

Int. Cl.³ G01N *33/48;* **A61K** *43/00;* **G01T** *1/00*

U.S. Cl. 424—1 **2 Claims**

1. A process for the determination of ferritin in serum or in plasma, which comprises incubating an antibody directed against a first organ-specific isoferritin, which is covalently bound to polyamide 6,6, on the one hand with ferritin standard solutions containing an isoferritin identical with or different from that employed for the production of the antibody, and on the other hand with serum samples under the same conditions, decanting or aspirating the incubation solutions, washing the polyamide 6,6-isoferritin specific antibody-ferritin complex formed and subsequently incubating it with a ^{125}I-labelled antibody directed against a second organ-specific isoferritin, decanting or aspirating the solution, washing the polyamide 6,6-antibody-ferritin anti-body-^{125}I complex formed in which the antibodies are directed specifically against the isoferritins of different organs, counting its radioactivity in a gamma counter and comparing the standard samples with the serum samples.

4,278,653

METHODS AND KITS FOR DOUBLE ANTIBODY IMMUNOASSAY PROVIDING A COLORED PELLET FOR EASY VISUALIZATION

S. Richard Harris, Needham, and Darlene K. Bonci, W. Boylston, both of Mass., assignors to New England Nuclear Corporation, Boston, Mass.

Filed Feb. 1, 1979, Ser. No. 8,267

Int. Cl.³ G01N *33/56, 33/78*

U.S. Cl. 424—1 **52 Claims**

1. A method for performing an immunoassay, said method comprising:

reacting an antigen and a labelled version of said antigen with a first antibody for said antigen and said first antibody with a second antibody for said first antibody to precipitate a complex of said antigen, said first antibody and said second antibody, and

precipitating a colored protein to form a precipitate comprised of said complex and colored protein.

4,278,654

PROCESS FOR THE PREPARATION OF A STERILE INJECTABLE PHYSIOLOGICALLY ACCEPTABLE SOLUTION OF AN X-RAY CONTRAST AGENT AND SOLUTIONS OF THE X-RAY CONTRAST AGENT AND A BUFFER

Fridtjov B. Rakli, and Michael J. Kelly, both of Oslo, Norway, assignors to Nyegaard & Co. A/S, Oslo, Norway

Filed Jul. 3, 1979, Ser. No. 54,440

Claims priority, application United Kingdom, Jul. 4, 1978, 28764/78

Int. Cl.³ A61K *49/04*

U.S. Cl. 424—5 **10 Claims**

1. A process for the preparation of a buffered sterile, injectable, physiologically acceptable solution of an X-ray contrast agent which comprises autoclaving a solution of a m-carboxamido-o-iodo-N-(β-hydroxyalkyl)-aniline X-ray contrast agent in the presence of a physiologically acceptable buffer which is selected from the group consisting of ammonia and a water soluble amine having a pKa of ≦9.5 at 15° C. and which causes a decrease of the pH of the buffered solution with increasing temperature.

4,278,655

ANTIPERSPIRANT COMPOSITION

Steele J. Ehni, Midland Park, N.J., assignor to Finetex, Inc., Elmwood Park, N.J.

Filed Mar. 7, 1979, Ser. No. 18,250

Int. Cl.³ A61K *7/32, 7/38*

U.S. Cl. 424—47 **12 Claims**

1. In an antipersipirant composition comprising an active antiperspirant salt, a particular suspending agent, and a liquid carrier, the improvement comprising wherein said liquid carrier comprises the benzoic acid esters of a mixture of linear primary alcohols in the C_9 to C_{15} carbon chain length range, said esters enabling increased suspension time and softer packing of settled matter following agitation of said composition, and a reduction in odor and in oily sensation when said composition is deposited upon the skin.

4,278,656

COSMETIC COMPOSITION CONTAINING KOJIC ACID ESTER

Sumiyoshi Nagai, and Tokio Izumi, both of Onojo, Japan, assignors to Sansho Pharmaceutical Co., Ltd., Onojo, Japan

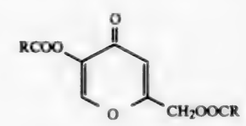
Filed Jul. 18, 1979, Ser. No. 58,447

Claims priority, application Japan, Jun. 28, 1979, 54-82257

Int. Cl.³ A61K *7/135, 7/42, 31/35*

U.S. Cl. 424—62 **3 Claims**

1. A method of whitening human skin comprising the steps of applying to said skin an effective skin whitening amount of an aqueous composition in the form of a lotion, cream, pack, or milk lotion comprising a diester of kojic acid having the formula



wherein R is an aliphatic group containing from 3 to 20 carbon atoms, said diester comprising from 0.01 to 10% by weight of said aqueous cosmetic composition and

allowing said composition to whiten said skin.

4,278,657

CREAMY OR MILKY SKIN COSMETIC COMPOSITIONS CONTAINING NATURAL MATERIALS AS EMULSIFYING AGENTS

Keizo Tezuka, Kaisei; Genichiro Okuyama, Odawara; Kazunobu Tokunaga, Odawara, and Yasuhisa Otani, Odawara, all of Japan, assignors to Kanebo, Ltd., Tokyo, Japan

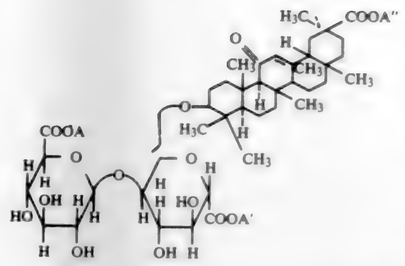
Filed Jun. 26, 1979, Ser. No. 52,263

Int. Cl.³ A61K *7/00, 7/02, 7/02*

U.S. Cl. 424—63 **8 Claims**



1. A creamy or milky skin cosmetic composition of the oil-in-water emulsion type which consists essentially of an emulsifying agent, an oily substance and water, said oily substance consisting of from 10 to 70% by weight based on the composition and selected from the group consisting of higher aliphatic hydrocarbons, vegetable fats and oils, animal fats and oils, waxes, higher alcohols, higher fatty acids and ester oils, said water constituting from 30 to 90% by weight of the composition, and said emulsifying agent being composed of at least one naturally-occurring glycyrrhizic compound in amounts of from 0.01 to 20.0% by weight based on the composition and having the general formula



where A, A' and A'' independently represent hydrogen atoms, sodium atoms, potassium atoms, ammonium radicals or cationic radicals derived from alkanol-amines and at least one water-soluble polysaccharide in amounts of from 0.1 to 10.0% by weight based on the composition and selected from the group consisting of pectin, karaya gum, locust bean gum and xanthan gum.

4,278,658

DEODORANT COMPOSITION

David C. Hooper, Ashford; George A. Johnson, and Donald Peter, both of Wirral, all of England, assignors to Lever Brothers Company, New York, N.Y.

Filed Jan. 15, 1979, Ser. No. 3,318
Claims priority, application United Kingdom, Jan. 13, 1978, 1479/78; May 16, 1978, 19842/78
Int. Cl.[3] A61K *7/32*
U.S. Cl. 424—65 12 Claims

1. A deodorant skin treatment product comprising:

(i) from 0.01 to 20% by weight of a deodorant composition having a deodorant value of from 0.50 to 3.5 as measured by the Deodorant Value Test;

(ii) up to 99.9% by weight of a cosmetically acceptable vehicle for the composition; the deodorant composition comprising from 45 to 100% by weight of deodorant components, said components having a lipoxidase-inhibiting capacity of at least 50% or a Raoult variance ratio of at least 1.1, said components being classified into six classes consisting of:

Class 1: phenolic substances
Class 2: essential oils, extracts, resins and synthetic oils
Class 3: aldehydes and ketones
Class 4: polycyclic compounds
Class 5: esters
Class 6: alcohols,

provided that where a component can be classified into more than one class, it is placed in the lower or lowest numbered class;

said components being so selected that

(a) the deodorant composition contains at least five components of which at least one must be selected from each of class 1, class 2 and class 4;

(b) the deodorant composition contains components from at least 4 of the 6 classes; and

(c) any component present in the deodorant composition at a concentration of less than 0.5% by weight of said composition is eliminated from the requirements of (a) and (b).

4,278,659

HAIR SETTING AND BODYING COMPOSITION AND METHOD

Miklos M. Breuer, Rockville, Md., assignor to The Gillette Company, Boston, Mass.

Continuation of Ser. No. 972,597, Dec. 22, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 83,137
Int. Cl.[3] A61K *7/09, 7/11*
U.S. Cl. 424—71 12 Claims

1. A hair treating composition for imparting improved setting properties comprising an aqueous solution containing about 0.5 to 20% by weight of a mixture of glyceraldehyde, resorcinol and an oligomeric precondensate of glyceraldehyde and resorcinol said composition being prepared by heating an aqueous mixture containing glyceraldehyde, resorcinol and an acid selected from the class consisting of boric acid and silicic acid, the molar ratio of glyceraldehyde to resorcinol being about 19:1 to 1:19 and the molar ratio of glyceraldehyde to said acid being about 4:1 to 1:1.5.

4,278,660

COMPLEX OR SALT OF A PLATINUM (II) COMPOUND AND A NITROGEN CONTAINING POLYMER

Harry R. Allcock, State College; Robert W. Allen, University Park, and John P. O'Brien, State College, all of Pa., assignors to Research Corporation, New York, N.Y.

Division of Ser. No. 792,608, May 2, 1977, Pat. No. 4,151,185. This application Nov. 9, 1978, Ser. No. 958,976
Int. Cl.[3] A61K *31/74, 31/555, 31/28*
U.S. Cl. 424—78 2 Claims

1. A method of treating animal malignant tumor cells sensitive to cis-square planar platinum compounds in animals which comprises parenterally administering to an animal afflicted with said tumor cells a solution containing a complex or salt of the said cis-square planar platinum compound with a nitrogen container oligomer or polymer selected from the group consisting of polyphosphazenes, polyvinylpyridine and polyvinylpyrrolidone in an amount sufficient to cause regression of the animal tumor cells.

4,278,661

PURIFICATION OF INTERFERON

Ernest Knight, Jr., Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 12, 1979, Ser. No. 84,632
Int. Cl.[3] A61K *45/02*
U.S. Cl. 424—85 7 Claims

1. In a process for purifying biologically active serum-free human interferon comprising contacting an aqueous solution of impure serum-free human interferon with immobilized Cibacron Blue F3G-A, adsorbing the interferon on the Cibacron Blue F3G-A, and eluting the adsorbed interferon by washing the Cibacron Blue F3G-A with an eluting solvent to obtain a solution of purified interferon, the improvement which comprises:

(i) employing, as eluting solvent, an aqueous buffer solution containing 35 to 45 percent of ethylene glycol,

thereby obtaining interferon of greater than 95% purity,

(ii) obtaining the purified interferon as a mixture of monomer and dimer, and

(iii) contacting the purified interferon mixture with an organic thiol compound to convert dimer to monomer,

whereby all interferon activity resides in the monomer molecular weight fraction.

4,278,662

ATTENUATED INFLUENZA TYPE A VIRUS VACCINE

Michele Löbmann, Bierges, and Gerard Florent, Genval, both of Belgium, assignors to Smith Kline - RIT, Belgium

Filed Oct. 16, 1979, Ser. No. 85,437
Int. Cl.[3] A61K *39/145*
U.S. Cl. 424—89 2 Claims

1. A live influenza virus vaccine composition comprising an effective dose of the influenza virus CNCM No. I-099 strain (RIT 4265), prepared by recombination of the attenuated A/PR/8/34 influenza virus strain with the pathogenic A/California/10/78 (CNCM No. I-098) influenza virus strain, said novel attenuated influenza virus strain showing a heterogeneous constellation of its polymerase (P) genes versus the polymerase (P) genes constellation of its A/PR/8/34 and A/California/10/78 parent strains.

4,278,663

ANTIBIOTIC X-14868A, B, C AND D

Chao-Min Liu, Cedar Grove; Barbara Prosser, Bloomfield, and John Westley, Cedar Grove, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jan. 30, 1980, Ser. No. 116,696
Int. Cl.[3] A61K *31/71*
U.S. Cl. 424—119 4 Claims

3. Antibiotic X-14868C having the following physical characteristics:

(1) an infrared spectrum as set forth in FIG. 3;

(2) a melting point of 172°–175° C. (Na salt);

(3) a specific rotation of

[α] D chloroform	methanol
+49.6°	+30.5° and

(4) a microanalysis of

%C	%H	%Na
57.13	8.58	2.36

4,278,664

PREVENTATIVE TREATMENT FOR *OTITIS EXTERNAE*

Jon S. Van Cleave, 3810 Thornwood Cir., West Des Moines, Iowa 50265

Continuation of Ser. No. 713,633, Aug. 12, 1976, Pat. No. 4,073,937. This application Feb. 6, 1978, Ser. No. 875,320
Int. Cl.[3] A61K *33/22, 33/40, 31/235*
U.S. Cl. 424—148 11 Claims

1. A composition for preventive treatment for swimmer's ear said composition comprising,

a pharmaceutically safe, liquid, non-ionic, substantially water insoluble aqueous surface tension reducing agent, in combination with an effective buffering amount of, a pharmaceutically safe non-skin irritating acidifying agent, and

a pharmaceutically acceptable medicinal agent which is non-irritating, in an amount which is effective to prevent said surfactant from providing a medium for bacterial growth.

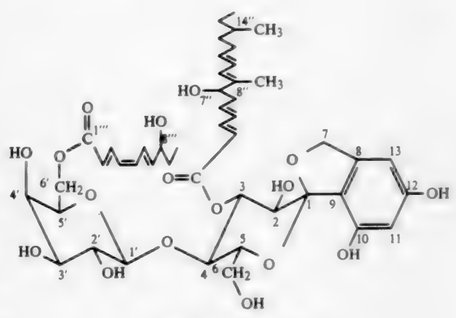
4,278,665

PAPULACANDIN DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Peter Traxler, Allschwil; Johannes Gruner, Flüh, and Jakob Nüesch, Arlesheim, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 664,336, Mar. 5, 1976, abandoned. This application Oct. 21, 1977, Ser. No. 844,412
Claims priority, application Switzerland, Mar. 13, 1975, 3199/75; Oct. 3, 1975, 12857/75
Int. Cl.[3] A61K *31/71*; C07H *17/04*
U.S. Cl. 424—181 17 Claims

1. Papulacandin B of the formula



$C_{47}H_{64}O_{17}$ MW 900

5. A pharmaceutical preparation which comprises an antibiotically effective amount of a compound as claimed in claim 1 together with a pharmaceutical acceptable carrier.

4,278,666

NOVEL ORGANOSILICON COMPOUNDS AND ANTI-TRANSPLANTED TUMOR AGENTS CONTAINING THE SAME

Shigeshi Toyoshima, Funabashi; Ryuichi Sato, Gunma; Koichi Ito, Higashi-kurume; Toshio Shinohara, Annaka, and Yasushi Yamamoto, Takasaki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,957
Claims priority, application Japan, Mar. 12, 1979, 54-28456
Int. Cl.[3] C07F *7/10*; A61K *31/725*; A01N *55/00*; A61K *31/695*
U.S. Cl. 424—184 13 Claims

1. A (trihydrocarbylsilylmethyloxyimino)alkane represented by the general formula

$$R^1{}_3Si—CH_2—O—N=Y,$$

where R^1 is a substituted or unsubstituted monovalent hydrocarbon group having from 1 to 10 carbon atoms and Y is a divalent hydrocarbon group denoted by $=CR^2R^3$ or $=CR^4$, R^2 and R^3, which may be identical or different, having the same meaning as R^1 defined above and R^4 being a divalent hydrocarbon group which forms a ring structure jointly with the carbon atom bonded to the nitrogen atom.

12. An anti-transplanted tumor agent which comprises a (trihydrocarbylsilylmethyloxyimino)alkane represented by the general formula

$$R^1{}_3Si—CH_2—O—N=Y,$$

where R^1 is a substituted or unsubstituted monovalent hydrocarbon group having from 1 to 10 carbon atoms and Y is a divalent hydrocarbon group denoted by $=CR^2R^3$ or $=CR^4$, R^2 and R^3, which may be identical or different, having the

same meaning as R^1 above and R^4 being a divalent hydrocarbon group which forms a ring structure jointly with the carbon atom bonded to the nitrogen atom, in a therapeutically effective amount with a pharmaceutically acceptable carrier.

4,278,667

METHOD OF TREATING TARDIVE DYSKINESIA BY ORAL DOSAGE FORM OF A PHYSOSTIGMINE COMPOUND

James B. Madison, Maryland Heights, Mo., and Larry K. Hiland, Edwardsville, Ill., assignors to Chromalloy American Corporation, St. Louis, Mo.

Filed Jun. 2, 1980, Ser. No. 155,479
Int. Cl.³ A61K *31/40, 31/625*
U.S. Cl. 424—232 **10 Claims**

1. A method of treating tardive dyskinesia in a living animal body comprising ingesting into said living animal body in oral dosage form a physostigmine compound selected from the group consisting of physostigmine, physostigmine salicylate, physostigmine sulfite and physostigmine sulfate at intervals of time not less than about four hours apart in an amount effective to relieve the tardive dyskinesia.

4,278,668

PURE 17 ALPHA-ETHYNYL(5 ALPHA), ANDROST-2-ENE,17 BETA-CL, PROCESS FOR ITS PREPARATION AND THERAPEUTICAL APPLICATIONS OF THE SAME

Nicolas Gueritee, 65 rue des Vignes, Paris, France (75016)

Continuation-in-part of Ser. No. 854,757, Nov. 25, 1977, abandoned. This application Jul. 16, 1979, Ser. No. 58,010
Int. Cl.³ A61K *31/56;* **A01N** *45/00*
U.S. Cl. 424—238 **7 Claims**

2. Method of treatment of endometriosis, comprising the administration of the 17 beta-acetate of pure 17 alpha-ethynyl (5 alpha), 2-androsten, 17 beta-ol at a daily dose of 100 to 300 mg.

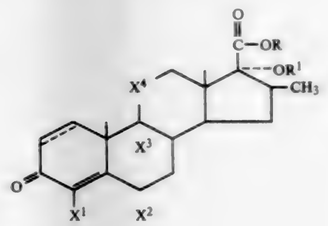
4,278,669

3-OXO-4-HALO-16β-METHYLANDROST-4-ENE 17β-CARBOXYLIC ACIDS AND ESTERS

Francisco S. Alvarez, Sunnyvale, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 893,643, Apr. 5, 1978. This application Aug. 29, 1979, Ser. No. 70,578
Int. Cl.³ A61K *31/56*
U.S. Cl. 424—243 **12 Claims**

1. A compound chosen from those represented by the formula



(I)

wherein

X^1 is fluoro or chloro;

X^2 is fluoro, chloro or hydrogen;

X^3 is fluoro, chloro, bromo or hydrogen;

X^4 is =C=O or



or;

R is hydrogen or alkyl of 1 through 6 carbon atoms;

R^1 is hydrogen or alkanoyl of 2 through 6 carbon atoms; and the solid and broken lines between C-1 and C-2 represent a double or a single bond.

12. A process for treating an inflamed condition in a mammal which comprises administering a therapeutically effective amount of the compound of claim 1 to said mammal.

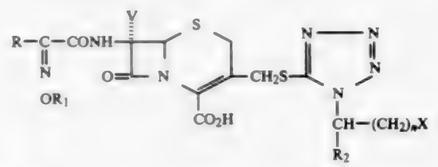
4,278,670

7-ALPHA-OXYIMINOACYLCEPHALOSPORINS

George L. Dunn, Wayne, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Jul. 12, 1976, Ser. No. 704,159
Int. Cl.³ A61K *31/545;* **C07D** *501/56*
U.S. Cl. 424—246 **15 Claims**

1. An acid compound of the formula:



in which:

R is thienyl, furyl or phenyl optionally monosubstituted by hydroxy, halo, methoxy, nitro, ureido, methylthio or trifluoromethyl;

R_1 is hydrogen, lower alkyl, benzyl, phenethyl, thienylmethyl or furylmethyl;

R_2 is hydrogen or methyl;

n is selected from 0–9;

X is carboxy, carbamyl, N-methylcarbamyl or N,N-dimethylcarbamyl; and

Y is hydrogen or methoxy; or one of its nontoxic pharmaceutically acceptable alkali metal salt, amine salt or easily hydrolyzed ester derivatives.

11. A pharmaceutical composition having antibacterial activity comprising an effective but nontoxic quantity of a compound of claim 1 and a pharmaceutical carrier therefor.

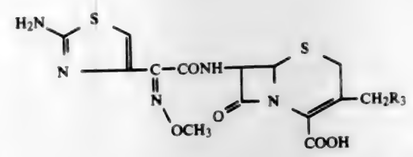
4,278,671

7-[2-(2-AMINOTHIAZOL-4-yl)-2-(SYN)-METHOXYIMINOACETAMIDO] CEPHALOSPORINS

Michihiko Ochiai, Suita; Akira Morimoto, Ikeda, and Yoshihiro Matsushita, Nishinomiya, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

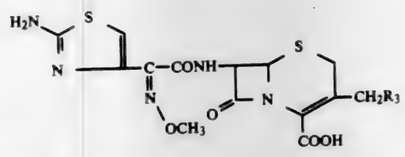
Continuation of Ser. No. 787,258, Apr. 13, 1977, abandoned. This application Aug. 8, 1979, Ser. No. 64,743
Claims priority, application Japan, Apr. 14, 1976, 51-42885; Sep. 8, 1976, 51-108102
Int. Cl.³ A61K *31/545;* **C07D** *501/46*
U.S. Cl. 424—246 **4 Claims**

1. A member selected from the group consisting of a 7-[2-(2-aminothiazol-4-yl)-2-(syn)-methoxyiminoacetamido]cephalosporin compound of the formula:



wherein R_3 is pyridinium or 4-carbamoylpyridinium, and a pharmaceutically acceptable salt or ester thereof.

2. An antibacterial composition which comprises (a) an antibacterially effective amount of a member selected from the group consisting of a 7-[2-(2-aminothiazol-4-yl)-2-(syn)-methoxyiminoacetamido]cephalosporin compound of the formula:



wherein R_3 is pyridinium or 4-carbamoylpyridinium, and a pharmaceutically acceptable salt or ester thereof in admixture with (b) a pharmaceutically acceptable excipient or diluent therefor.

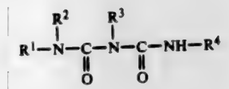
4,278,672

PHARMACEUTICAL COMPOSITION AND METHODS OF USE CONTAINING 1,1,3,5-SUBSTITUTED BIURET COMPOUND

Hajime Fujimura, Kyoto; Yasuzo Hiramatsu, Otsu; Takahiro Yabuuchi, Takarazuka; Masakatu Hisaki, Hikone; Katsuo Takikawa, Naruto; Takaji Honna, Tokushima; Hidekazu Miyake, Tokushima, and Makoto Kajitani, Tokushima, all of Japan, assignors to Taiho Pharmaceutical Company, Limited, Tokyo, Japan

Filed Mar. 27, 1980, Ser. No. 134,555
Claims priority, application Japan, Mar. 31, 1979, 54/38792; Mar. 31, 1979, 54/38794
Int. Cl.³ A61K *27/00, 31/40, 31/165, 31/445*
U.S. Cl. 424—248.4 **6 Claims**

1. A method of treating a patient requiring analgesia, said method comprising administering to said patient an analgesic amount of a compound of the formula (1):



(1)

wherein R^1 is a lower alkyl group or a phenyl group; R^2 is a lower alkyl group, a phenyl group or a substituted phenyl group having chlorine atom(s), methyl group(s) or methoxy group(s) as the substituent(s), further R^1 and R^2 may form a single ring containing one or two hetero atoms including the adjacent nitrogen atom; R^3 is a hydrogen atom, a lower alkyl group or a phenyl group; R^4 is a phenyl group, a substituted phenyl group having halogen atom(s), trifluoromethyl group(s), methyl group(s), methoxy group(s), dimethylamino group(s), nitro group(s), hydroxyl group(s), acetyl group(s) or methylthio group(s) as the substituent(s), a benzyl group, a cyclohexyl group or a lower alkyl group; provided, however, that when R^1 is a lower alkyl group; R^2 is a lower alkyl group, a phenyl group, or a substituted phenyl group having chlorine atom(s) or methoxy group(s) as the substituent(s); or R^1 and R^2 form a single ring containing one or two hetero atoms including the adjacent nitrogen atom; and R^3 is a hydrogen atom, a lower alkyl group or a phenyl group; then R^4 is only a substituted phenyl group having hydroxyl group(s) as the substituent(s).

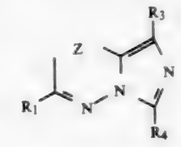
4,278,673

PHARMACOLOGICALLY ACTIVE COMPOUNDS

David Hartley, Ware, and Alexander W. Oxford, Royston, both of England, assignors to Allen & Hanburys Limited, London, England

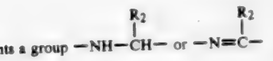
Continuation of Ser. No. 888,522, Mar. 21, 1979, abandoned. This application Sep. 4, 1979, Ser. No. 72,098
Claims priority, application United Kingdom, Mar. 25, 1977, 12598/77; Nov. 14, 1977, 47250/77
Int. Cl.³ C07D *487/04;* **A61K** *31/415*
U.S. Cl. 424—249 **14 Claims**

1. A compound which is a imidazo[5,1-f]-1,2,4-triazine or a derivative thereof of the formula (I):



(I)

and physiologically acceptable salts thereof in which



Z represents a group —NH—CH— or —N=C—

wherein R_2 represents a hydrogen atom or a straight or branched chain alkyl radical containing from 1 to 6 carbon atoms, or Z can additionally represent a group



and R_1, R_3 and R_4, which may be the same or different, each represent a hydrogen atom; a cycloalkyl group, said cycloalkyl group containing from 3 to 7 carbon atoms; a phenyl group which may optionally be substituted by one or more hydroxy, alkoxy or halogen radicals, said alkoxy radical containing from 1 to 4 carbon atoms; or straight or branched alkyl or alkenyl group, said alkyl group containing from 1 to 6 carbon atoms, said alkenyl group containing 2 to 6 carbon atoms, which alkyl or alkenyl group may be substituted with a phenyl group, which phenyl group may optionally be substituted by one or more hydroxy, alkoxy or halogen radicals, said alkoxy radical containing from 1 to 4 carbon atoms.

14. A method for the treatment of a patient suffering from a condition involving constriction of the bronchial muscle which comprises administering an effective amount of a compound as claimed in claim 1.

4,278,674

SUBSTITUTED 14-DESOXY-MUTILIN COMPOSITIONS

Helmut Egger, and Hellmuth Reinshagen, both of Vienna, Austria, assignors to Sandoz Ltd., Basel, Switzerland

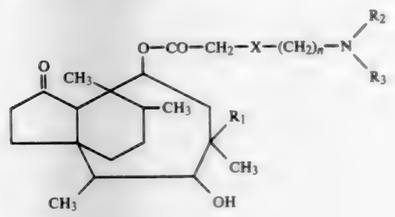
Division of Ser. No. 912,497, Jun. 5, 1978, Pat. No. 4,208,326, which is a division of Ser. No. 758,133, Jan. 10, 1977, Pat. No. 4,107,164, which is a division of Ser. No. 606,430, Aug. 21, 1975, Pat. No. 4,032,530, which is a division of Ser. No. 427,514, Dec. 26, 1973, Pat. No. 3,919,290, which is a continuation-in-part of Ser. No. 294,642, Oct. 3, 1972, abandoned. This application Nov. 29, 1979, Ser. No. 98,333

Claims priority, application Switzerland, Oct. 5, 1971, 14450/71; Oct. 5, 1971, 14451/71; May 25, 1972, 7738/72; May 25, 1972, 7739/72; May 25, 1972, 7740/72

Int. Cl.³ A01N *37/36, 43/36, 43/60, 43/84*

U.S. Cl. 424—250 **16 Claims**

1. A pharmaceutical composition useful in treating bacterial infection comprising an antibacterial effective amount of a compound of the formula:



wherein

R_1 is ethyl or vinyl,

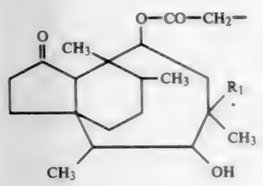
n is an integer from 2 to 5,

X is sulphur, a group



or a group $=N-R_4^I$,

wherein either Y and Z are both sulphur, or one of Y and Z is oxygen and the other is sulphur, and R_4^I is hydrogen or a group of the formula:



wherein

R_1 is as defined above,

each of R_2 and R_3 is alkyl of 1 to 10 carbon atoms, or

R_2 and R_3 together with the nitrogen atom is pyrrolidino, piperidino, morpholino, thiomorpholino, or 1-hexahydro-1H-azepino, or

R_2 and R_3 together with the nitrogen atom form a piperazinyl radical, the second nitrogen of which is substituted by a group R_5^I,

wherein R_5^I is alkyl of 1 to 5 carbon atoms or hydroxyalkyl of 1 to 4 carbon atoms, or

R_2 and R_3 together with the nitrogen atom form a piperazinyl radical, the second nitrogen atom of which is substituted by a radical R_5^{II},

whereby R_5^{II} is (alkanoyloxy of 2 to 5 carbon atoms) alkyl of 1 to 4 carbon atoms or (benzoyloxy) alkyl of 1 to 4 carbon atoms, or

wherein

R_1 is as defined above,

n is the number 2,

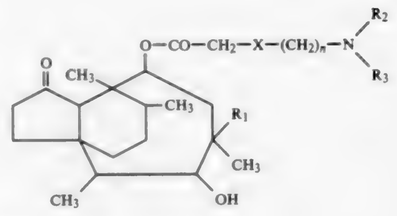
R_3 is alkyl of 1 to 10 carbon atoms, hydroxyalkyl of 1 to 4 carbon atoms, (alkanoyloxy of 2 to 5 carbon atoms) alkyl of 1 to 4 carbon atoms or (benzoyloxy) alkyl of 1 to 4 carbon atoms,

X is the group $=N-R_4^{II}$, and

R_2 together with R_4^{II} forms an ethylene bridge between both nitrogen atoms,

and pharmaceutically acceptable salts thereof, in association with a pharmaceutical carrier or diluent.

8. A method of treating bacterial infection in animals which comprises administering to an animal in need of such treatment an antibacterial effective amount of a compound of the formula:



wherein

R_1 is ethyl or vinyl,

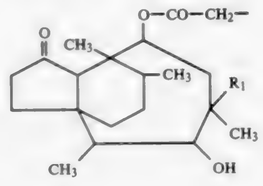
n is an integer from 2 to 5,

X is sulphur, a group



or a group $=N-R_4^I$,

wherein either Y and Z are both sulphur, or one of Y and Z is oxygen and the other is sulphur, and R_4^I is hydrogen or a group of the formula:



wherein

R_1 is as defined above,

R_2 and R_3 are independently alkyl of 1 to 10 carbon atoms, or

R_2 and R_3 together with the nitrogen atom is pyrrolidino, piperidino, morpholino, thiomorpholino, or 1-hexahydro-1H-azepine, or

R_2 and R_3 together with the nitrogen atom form a piperazinyl radical, the second nitrogen atom of which is substituted by a radical R_5^I,

wherein

R_5^I is alkyl of 1 to 5 carbon atoms or hydroxyalkyl of 1 to 4 carbon atoms, or

R_2 and R_3 together with the nitrogen atom form a piperazinyl radical, the second nitrogen atom of which is substituted by a radical R_5^{II},

whereby R_5^{II} is (alkanoyloxy of 2 to 5 carbon atoms) alkyl of 1 to 4 carbon atoms or (benzoyloxy) alkyl of 1 to 4 carbon atoms, or

wherein

R_1 is as defined above,

n is the number 2,

R_3 is alkyl of 1 to 10 carbon atoms, hydroxyalkyl of 1 to 4 carbon atoms, (alkanoyloxy of 2 to 5 carbon atoms) alkyl of 1 to 4 carbon atoms or (benzoyloxy) alkyl of 1 to 4 carbon atoms,

X is the group $=N-R_4^{II}$, and

R_2 together with R_4^{II} forms an ethylene bridge between both nitrogen atoms, and pharmaceutically acceptable salts thereof.

16. An animal feed or drinking water composition comprising a compound as defined in claim 1, in free base or pharmaceutically acceptable salt form.

4,278,675

BRONCHODILATING PROCESS

Takayuki Naito, Kawasaki; Susumu Nakagawa, Tokyo; Tetsuro Yamasaki; Taka-aki Okita, both of Ichikawa, and Haruhiro Yamashita, Tokyo, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,847

Int. Cl.³ A61K *31/52*

U.S. Cl. 424—253 **3 Claims**

1. A bronchodilating method which comprises systemic administration to a mammal in need thereof an effective dose of from about 0.1 to 20 mg./kg. body weight of a compound selected from the group consisting of 9-cyclohexyl-9H-adenine, 9-benzyl-2-n-propoxy-9H-adenine and a pharmaceutically acceptable acid addition salt thereof.

4,278,676

HETEROCYCLIC COMPOUNDS

Povl. Krogsgaard-Larsen Allerod, Denmark, assignor to H. Lundbeck & Co. A/S, Copenhagen-Valby, Denmark

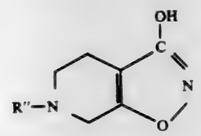
Filed Jun. 19, 1978, Ser. No. 917,118

Claims priority, application United Kingdom, Jun. 20, 1977, 25740/77

Int. Cl.³ C07D *491/02;* **A61K** *31/435*

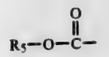
U.S. Cl. 424—256 **16 Claims**

1. Compounds of the general formula I



I

wherein R'' is hydrogen, acetyl or a group of the general formula VII



VII

wherein R_5 is C_{1-8} alkyl; phenyl; phenyl substituted in the 4-position with halogen, C_{1-4} lower-alkoxy, or C_{1-4} lower-alkyl; or phenyl-C_{1-4} alkyl in which the phenyl group may be substituted in the 4-position with halogen, C_{1-4} lower-alkoxy, or C_{1-4} lower-alkyl; and pharmaceutically-acceptable salts thereof.

6. A method for treating GABA system malfunction-related diseases in living animals by administering, to the animal, a therapeutically-effective GABA-system-affecting dose of a compound of the general formula I as defined in claim 1, or a pharmaceutically-acceptable salt thereof.

4,278,677

TETRAHYDROPYRIDINYL INDOLES

Lucien Nedelec, Le Raincy; Jacques Guillaume, Sevran, and Claude Dumont, Nogent-sur-Marne, all of France, assignors to Roussel Uclaf, Paris, France

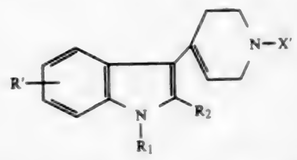
Filed Jan. 10, 1979, Ser. No. 2,453

Claims priority, application France, Jan. 16, 1978, 78 01083

Int. Cl.³ A61K *31/445;* **C07D** *401/04*

U.S. Cl. 424—263 **39 Claims**

1. A compound selected from the group consisting of compounds of the formula



wherein R' is selected from the group consisting of hydrogen, halogen and alkoxy of 1 to 3 carbon atoms, R_1 and R_2 are individually selected from the group consisting of hydrogen and alkyl of 1 to 3 carbon atoms and X' is selected from the group consisting of alkyl of 1 to 6 carbon atoms, cycloalkyl of 4 to 7 carbon atoms, alkenyl and alkynyl of 2 to 5 carbon atoms and aralkyl of 7 to 12 carbon atoms with the proviso that when X' is methyl, at least one of R', R_1 and R_2 contain more than one carbon atom and when X' is benzyl, at least one of R', R_1 and R_2 must not be hydrogen and their non-toxic, pharmaceutically acceptable acid addition salts.

27. A method of treating psychic disorders in warm-blooded animals comprising administering to warm-blooded animals an amount of at least one compound of claim 1 sufficient to relieve psychic disorders.

4,278,678

SUBSTITUTED OXY-CYCLOHEXYLACETIC ACID DERIVATIVES

Yasuhiko Hamazaki; Kenji Seri; Nobuo Ishiyama; Toshiyuki Yamamoto; Masao Sakaeni, and Reiko Sato, all of Tokyo, Japan, assignors to Kaken Chemical Co., Ltd., Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 94,950

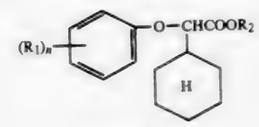
Claims priority, application Japan, Dec. 1, 1978, 53-147746

Int. Cl.³ A61K *31/44;* **C07D** *213/65;* **A61K** *31/19*

U.S. Cl. 424—263 **7 Claims**

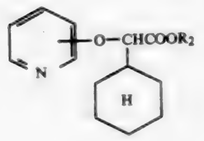
1. A substituted oxy-cyclohexylacetic acid derivative having the formula

(I)



or

(III)



wherein n is 1 or 2; R_1 represents a halogen atom, trifluoromethyl, a lower alkyl, a lower alkoxy, a lower alkylcarbonyl, dimethylphenylmethyl, cyclohexyl, phenoxy or halogenophenoxy group, and two of R_1 groups can be bonded to form

an orthocondensed saturated alkylene ring; and R_2 represents a hydrogen atom or a lower alkyl group.

7. An antihyperlipidemic composition which comprises as an active ingredient, an antihyperlipidemically effective amount of a substituted oxy-cyclohexylacetic acid derivative having the formula (I) or (III) according to claim 1, in a pharmaceutically acceptable carrier.

4,278,679

COMBINATION OF TWO OR MORE DRUGS IN A SINGLE DOSAGE FORM WHEREIN ONE OF THE DRUGS IS A PHYSOSTIGMINE COMPOUND

James B. Madison, Maryland Heights, Mo., and Larry K. Hiland, Edwardsville, Ill., assignors to Chromalloy American Corporation, St. Louis, Mo.

Filed May 1, 1980, Ser. No. 145,431
Int. Cl.³ A61K *31/44, 31/40, 31/33, 31/46*
U.S. Cl. 424—263 **14 Claims**

1. A therapeutic composition comprising an antihistaminic drug selected from the group consisting of ethanolamine and alkylamine antihistaminic drugs which produce an anticholinergic effect combined in the same dose with a physostigmine compound selected from the group consisting of physostigmine, physostigmine salicylate, physostigmine sulfate and physostigmine sulfite in an amount effective to overcome the anticholinergic effect of the antihistaminic drug without inhibiting the antihistaminic effect.

4,278,680

HYPOGLYCAEMICALLY AND HYPOLIPIDAEMICALLY ACTIVE DERIVATIVES OF PHENYLACETIC ACID

Manfred Hübner, Ladwigshafen am Rhein; Hans Kühnle, Mannheim-Neuostheim; Ernst-Christian Witte, Mannheim; Ruth Heerdt, Mannheim-Feudenheim; Rudi Weyer, Frankfurt am Main-Unterliederbach, and Volker Hitzel, Lorsbach, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Division of Ser. No. 701,717, Jul. 1, 1976, Pat. No. 4,207,341.
This application Dec. 10, 1979, Ser. No. 101,978
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1975, 2532420
Int. Cl.³ C07D *213/56, 215/40;* **A61K** *31/455*
U.S. Cl. 424—266 **7 Claims**

1. A phenylacetic acid derivative of the formula



wherein

A is a thienyl, pyridyl or quinolyl optionally substituted by halogen, lower alkyl or lower alkoxy,

Y is a valency bond or an optionally branched alkylene radical containing up to 3 carbon atoms, and

R_1 and R_2 each independently is hydrogen or a lower alkyl radical,

or a physiologically compatible salt thereof.

5. A hypolipsdaemically active composition of matter comprising a hypolipidaemically effective amount of a compound according to claim 1 or a physiologically compatible salt thereof in admixture with a physiologically acceptable diluent.

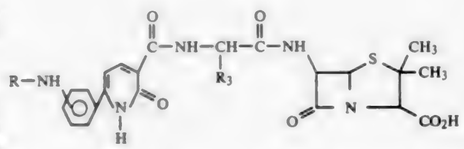
4,278,681

ANTIBACTERIAL AMIDE COMPOUNDS AND MEANS FOR USING THE SAME

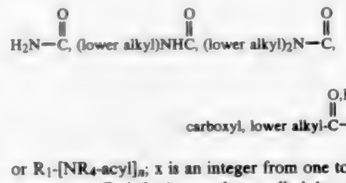
Theodore H. Haskell, Ann Arbor; Marland P. Hutt, Jr., Saline; Ernest D. Nicolaides, Ann Arbor; Peter W. K. Woo, Ann Arbor, and Gin G. Huang, Ann Arbor, all of Mich., assignors to Warner-Lambert Co., Morris Plains, N.J.

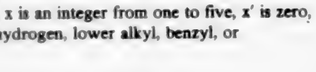
Continuation-in-part of Ser. No. 20,000, Mar. 12, 1979, abandoned. This application Jan. 31, 1980, Ser. No. 112,657
Int. Cl.³ A61K *31/455;* **C07D** *499/68*
U.S. Cl. 424—266 **39 Claims**

1. A compound of the formula



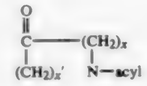
and pharmaceutically acceptable salts thereof; wherein R is





carboxyl, lower alkyl-C—O amino,

or R_1-[NR_4-acyl]$_n$; x is an integer from one to five, x' is zero, one or two; R_1 is hydrogen, lower alkyl, benzyl, or



wherein R_2 is hydrogen, amino or a lower alkyl group of from one to four carbon atoms, optionally substituted by from one to three chlorine or fluorine atoms; R_4 is hydrogen or lower alkyl; N-acyl is an aminoacyl moiety derived from a carboxylic acid of from two to ten carbon atoms optionally substituted by from one to three of the following groups, formamido, lower alkylamido, hydroxyl,



carbamido, carbonyl oxygen, lower alkoxy, lower alkylthio, or sulfonic acid; R_3 is phenyl, 4-hydroxyphenyl, 2-thienyl or cyclohexa-1,4-dien-1-yl and n is an integer of from one to four.

38. An antibacterial pharmaceutical composition comprising from 50 mg to 1000 mg of a compound of claim 1 and a pharmaceutical carrier.

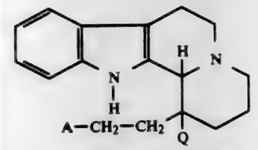
4,278,682

VASODILATING METHOD OF TREATMENT USING A INDOLO-QUINOLIZINE-MONOESTER, DIESTER OR NITRILE

Csaba Szantay; Lajos Szabo; György Kalaus; Egon Karpati, and Laszlo Szporny, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

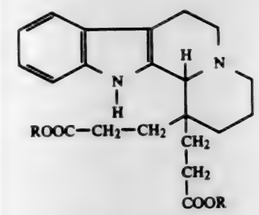
Continuation-in-part of Ser. No. 865,428, Dec. 29, 1977, Pat. No. 4,173,642. This application Apr. 2, 1979, Ser. No. 26,345
Claims priority, application Hungary, Dec. 30, 1976, RI 612
The portion of the term of this patent subsequent to Nov. 8, 1994, has been disclaimed.
Int. Cl.³ A61K *31/445*
U.S. Cl. 424—267 **5 Claims**

1. A method of causing vasodilatation without CNS sedative effect which comprises administering to a mammalian subject an effective vasodilating amount of a compound of the formula



wherein Q is hydrogen or A—CH_2—CH_2— and A is cyano or $COOCH_3$, or a pharmaceutically acceptable acid-addition salt thereof.

5. A method of causing vasodilation without CNS sedative effect which comprises administering to a mammalian subject an effective vasodilating amount of a compound of the formula:



wherein R is C_1 to C_6 alkyl, or a pharmaceutically acceptable acid addition salt thereof.

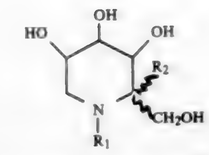
4,278,683

SACCHARASE INHIBITING 3,4,5-TRIHYDROXYPIPERIDINE DERIVATIVES

Jürgen Stoltefuss, Haan; Lutz Müller, Wuppertal; Walter Puls, Wuppertal, and Rüdiger Sitt, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 30, 1979, Ser. No. 71,347
Claims priority, application Fed. Rep. of Germany, Sep. 9, 1978, 2839309
Int. Cl.³ A61K *31/445;* **C07D** *211/46, 211/98*
U.S. Cl. 424—267 **27 Claims**

1. A 3,4,5-trihydroxypiperidine derivative of the formula



(I)

or a pharmaceutically acceptable salt thereof, in which

R_1 denotes a hydrogen atom, an amino group, an alkyl radical with 1 to 30 carbon atoms, an alkenyl or alkinyl radical with 2 to 18 carbon atoms, said alkyl, alkenyl or alkinyl radicals substituted by hydroxy, C_1–C_4-alkoxy, C_1–C_7-alkanoyloxy, phenylcarbonyloxy, trifluoromethyl, amino, C_1–C_4-alkylamino, C_1–C_4-dialkylamino, mercapto, C_1–C_4-alkylmercapto, halogen, C_1–C_4-alkylcarbonyl, carboxyl, nitro or cyano, phenyl or naphthyl; cycloalkyl, cycloalkenyl or cycloalkadienyl having 3 to 10 carbon atoms; or mono- or bi-cyclic carbocyclic aryl having 6 or 10 carbon atoms and

R_2 denotes a —$CH_2NR_3R_4$, —CH_2—NR_3—CO—R_4, —CH_2—NR_3—$CONR_4R_5$, —CH_2—NR_3—SO_2R_4, —CH_2—NR_3—SO_2—NR_4R_5, —CH_2—NR_3—CS—R_4, —CH_2—NR_3—CS—NR_4R_5, —COOH, —$CONH_2$, —$COOR_3$, —CO—NR_3R_4, —CH_2—OR_3, —CH_2—N—H—$COOR_4$ or —CH_2—NH—$COSR_4$ group in which

R_3 denotes hydrogen or, independently of R_4, one of the meanings given for R_4, and

R_4 and R_5 independently denote hydrogen; C_1–C_{30}-alkyl; C_2–C_{18}-alkenyl; C_3–C_{10}-cycloalkyl; C_3–C_{10}-cycloalkenyl; C_3—C_{10}-cycloalkadienyl; C_1–C_{30}-alkyl or C_2–C_{18}-alkenyl substituted by hydroxy, C_1–C_4-alkoxy, C_1–C_4-carbalkoxy, carboxy or cyano; a mono- or bi-cyclic carbocyclic aryl radical with 6 or 10 carbon atoms; phenyl substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, halogen, nitro, trifluoromethyl or —$CH{=}CH_2COOC_2H_5$; or benzyl which is unsubstituted or substituted by methyl, methoxy, chlorine or nitro.

23. A method of combating arteriosclerosis, adiosity, diabetes and/or hyperlipaemia in warm-blooded animals which comprises administering to the animals an effective amount of an active compound according to claim 1 either alone or in admixture with a pharmaceutically acceptable diluent or in the form of a medicament.

4,278,684

NON-TOXIC ANTHELMINTHIC POUR-ON COMPOSITION

Guido J. L. Van der Veken, Turnhout, and Josef C. J. Dockx, Vosselaar, both of Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

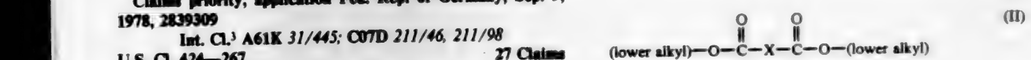
Filed Jun. 17, 1980, Ser. No. 160,248
Int. Cl.³ A61K *31/425*
U.S. Cl. 424—270 **19 Claims**

1. A pour-on composition for combating helminthic infestations in a non-human animal, comprising:

a. an anthelminthically effective amount of dl-2,3,5,6-tetrahydro-6-phenylimidazo[2,1-b]thiazole and/or the laevo isomer thereof;

b. one or more aliphatic carboxylic acids, having each a pKa-value between 3 and 6, the molar ratio of the total amount of said carboxylic acids to the total amount of the anthelminthics varying between 0.01 and 3; and

c. an amount, varying from 10 to 70% by volume, of at least one di(lower alkyl) dicarboxylic acid ester of the formula



(II)

wherein X represents a direct bond or an alkylene radical having from 1 to 12 carbon atoms.

4,278,685

AMIDE DERIVATIVES

Terence J. Ward, Slough, England, assignor to John Wyeth & Brother Limited, Maidenhead, England

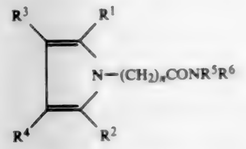
Filed Nov. 8, 1978, Ser. No. 958,762

Claims priority, application United Kingdom, Nov. 24, 1977, 48921/77

Int. Cl.[3] **C07D** *207/34;* **A61K** *31/40*

U.S. Cl. 424—274 **7 Claims**

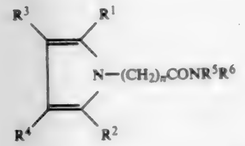
1. An amide of the formula



(I)

wherein R^1 and R^2 are each halogen, R^3 and R^4 are each hydrogen or lower alkyl, R^5 and R^6 are each hydrogen or lower alkyl and n is an integer of from 1 to 3 inclusive.

7. A pharmaceutical composition having antisecretory activity comprising an effective amount of an amide of the formula



wherein R^1 and R^2 are each halogen, R^3 and R^4 are each hydrogen or lower alkyl, R^5 and R^6 are each hydrogen or lower alkyl and n is an integer of from 1 to 3 inclusive, in association with a pharmaceutically acceptable carrier.

4,278,686

CARBAPENUM DERIVATIVES, A PROCESS FOR THEIR PREPARATION AND THEIR USE IN PHARMACEUTICAL COMPOSITIONS AND INTERMEDIATES

David F. Corbett, Dorking, and Alfred J. Eglington, Betchworth, both of England, assignors to Beecham Group Limited, England

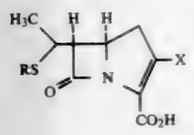
Filed Apr. 27, 1979, Ser. No. 33,825

Claims priority, application United Kingdom, May 6, 1978, 18101/78; May 30, 1978, 24358/78

Int. Cl.[3] **C07D** *487/04;* **A61K** *31/40*

U.S. Cl. 424—274 **90 Claims**

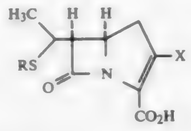
1. A compound of the formula (I):



(I)

a pharmaceutically acceptable salt thereof, or an ester which is convertible by chemical or biological means to the corresponding acid or salt thereof wherein X is $SCH_2CH_2NH_2$ or $YNH.CO.CH_3$ wherein Y is SCH_2CH_2, trans SO—CH=CH or cis or trans S—CH=CH and R is lower alkyl, phenyl unsubstituted or substituted by nitro, fluoro, chloro, bromo, lower alkyl or lower alkyloxy, lower alkyl substituted by phenyl which phenyl moiety is itself unsubstituted or substituted by nitro, fluoro, chloro, bromo, lower alkyl or lower alkyloxy, lower alkenyl or lower alkyl substituted by lower alkoxy, lower alkanoyloxy, lower alkyl esterified carboxyl, carboxyl, amino or lower alkylamide, or R is 2-benzyloxycarbonylaminoethyl, 2-p-nitrobenzyloxycarbonylaminoethyl, 2-p-methoxybenzyloxycarbonylaminoethyl, benzyloxycarbonylmethyl or p-nitrobenzyloxycarbonylmethyl.

31. A pharmaceutical composition useful for treating bacterial infections in humans and animals which comprises an antibacterially effective amount of a compound of the formula (I):



(I)

a pharmaceutically acceptable salt thereof or an in vivo hydrozylable ester thereof, wherein X is $SCH_2CH_2NH_2$ or YNH-.$CO.CH_3$ wherein Y is SCH_2CH_2, trans SO-CH=CH or cis or trans S-CH=CH and R is lower alkyl, phenyl unsubstituted or substituted by nitro, fluoro, chloro, bromo, lower alkyl or lower alkyloxy, lower alkyl substituted by phenyl which phenyl moiety is itself unsubstituted or substituted by nitro, fluoro, chloro, bromo, lower alkyl or lower alkyloxy, lower alkenyl or lower alkyl substituted by lower alkoxy, lower alkanoyloxy, lower alkyl esterified carboxyl, carboxyl, amino or lower alkylamido, in combination with a pharmaceutically acceptable carrier, or R is 2-benzyloxycarbonylaminoethyl, 2-p-nitrobenzyloxycarbonylaminoethyl, 2-p-methoxybenzyloxycarbonylamino, benzyloxycarbonylmethyl or p-nitrobenzyloxycarbonylmethyl.

4,278,687

INHIBITION OF BIOSYNTHESIS OF TRIGLYCERIDES BY CERTAIN N-β-PHENETHYL-N-THIENYLALKYLAMINES

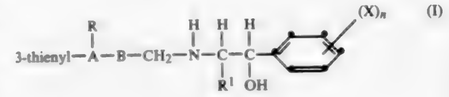
George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 117,160, Jan. 31, 1980, abandoned. This application Nov. 3, 1980, Ser. No. 202,997

Int. Cl.[3] **A61K** *31/38*

U.S. Cl. 424—275 **1 Claim**

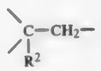
1. A method for inhibiting biosynthesis of triglycerides in swine which comprises administering, to a pig in need of such treatment, orally or parenterally, an effective amount of a compound of the formula:



(I)

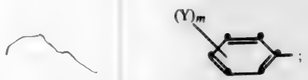
wherein

(a) the bridging fragment >A—B— is one of



and >C=CH—;

(b) R is 3-thienyl or



;

(c) R^1 is hydrogen or methyl;

(d) R^2 is hydrogen or hydroxyl;

(e) n is zero or one;

(f) X is alkyl, halogen or haloalkyl of one to three carbon atoms;

(g) m is zero or one;

(h) Y is alkyl of one to three carbon atoms, and their physiologically acceptable acid addition salts.

4,278,688

PROSTAGLANDIN ANALOGUES

Masaki Hayashi; Katsuichi Shimoji, both of Takatsuki, and Yoshinobu Arai, Toyonaka, all of Japan, assignors to Ono Pharmaceutical Co., Osaka, Japan

Division of Ser. No. 940,685, Sep. 9, 1978, Pat. No. 4,215,142. This application Jan. 16, 1980, Ser. No. 112,676

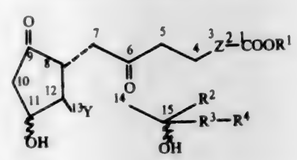
Claims priority, application Japan, Sep. 16, 1977, 52-110504

Int. Cl.[3] **A61K** *31/557;* **C07C** *177/00*

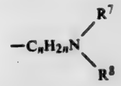
U.S. Cl. 424—305 **8 Claims**

1. A prostaglandin E_1 analogue of the general formula:

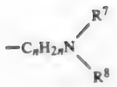
IV



wherein Y represents trans-vinylene, Z represents ethylene, R^1 represents a hydrogen atom, a straight- or branched-chain alkyl group containing from 1 to 12 carbon atoms, an aralkyl group containing from 7 to 12 carbon atoms, a cycloalkyl group containing from 4 to 7 carbon atoms in the ring and unsubstituted or substituted by at least one straight- or branched-chain alkyl group containing from 1 to 6 carbon atoms, a phenyl group unsubstituted or substituted by at least one chlorine atom, trifluoromethyl group, straight- or branched-chain alkyl group containing from 1 to 4 carbon atoms or phenyl group, a $-C_mH_{2m}COOR^5$ group (wherein m represents an integer of from 1 to 12 and R^5 represents a hydrogen atom or a straight- or branched-chain alkyl group containing from 1 to 4 carbon atoms), a $-C_nH_{2n}OR^6$ group (wherein R^6 represents a hydrogen atom or a straight- or branched-chain alkyl group containing from 1 to 4 carbon atoms and n represents an integer of from 2 to 12) or a



group (wherein R^7 and R^8, which may be the same or different, each represent a hydrogen atom or a straight- or branched-chain alkyl group containing from 1 to 4 carbon atoms and n is as hereinbefore defined), R^2 represents a hydrogen atom, R^3 and R^4 together represent 2-methylhexyl group, and the wavy line attached to the C-11 and C-15 carbon atoms represents α- or β-configuration or mixtures thereof and cyclodextrin clathrates of such acids and esters and, when R^1 represents a hydrogen atom or a group $-C_mH_{2m}COOR^5$ in which R^5 represents a hydrogen atom and m is as hereinbefore defined, non-toxic salts thereof and, when R^1 represents a group



in which n, R^7 and R^8 are as hereinbefore defined, non-toxic acid addition salts thereof.

4,278,689

1,4-BIS(SUBSTITUTED-AMINO)-5,8-DIHYDROXY-ANTHRAQUINONES AND LEUCO BASES THEREOF

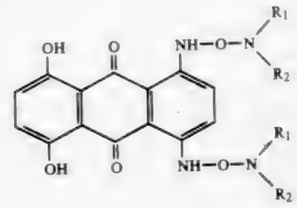
Keith C. Murdock, Pearl River, N.Y., and Frederick E. Durr, Ridgewood, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 923,602, Jul. 11, 1978, Pat. No. 4,197,249, which is a continuation-in-part of Ser. No. 873,040, Jan. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 824,872, Aug. 15, 1977, abandoned. This application Aug. 2, 1979, Ser. No. 63,285

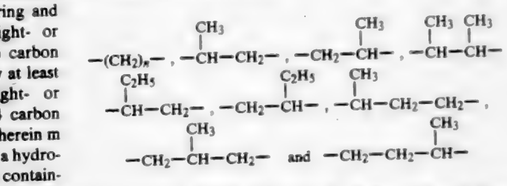
Int. Cl.[3] **A61K** *31/135*

U.S. Cl. 424—330 **29 Claims**

1. A pharmaceutical composition in dosage unit form comprising from about one to about 30 mg. of a compound selected from the group consisting of those of the formula:



wherein Q is a divalent moiety selected from the group consisting of those of the formulae:



wherein n is an integer from 2 to 4, inclusive; R_1 and R_2 are each individually selected from the group consisting of hydrogen, alkyl having from 1 to 4 carbon atoms and monohydroxyalkyl having from 2 to 4 carbon atoms and wherein the carbon atom alpha to the nitrogen atom may not bear an hydroxy group with the proviso that R_1 and R_2 may not both be hydrogen or alkyl; and the pharmacologically acceptable acid-addition salts thereof; in association with a pharmaceutical carrier.

4,278,690

METHOD OF PRODUCING NUTRIENT FOOD BY FERMENTING WATER OATS WITH A *BACILLUS SUBTILIS*

Bunei Onodera, Harajukuribin 3F, 2-35-13, Jingumae, Shibuya-ku, Tokyo, Japan

Filed Aug. 31, 1979, Ser. No. 71,773

Claims priority, application Japan, Sep. 13, 1978, 53-111765

Int. Cl.[3] **A23B** *7/02;* **A23L** *1/212*

U.S. Cl. 426—52 **6 Claims**

1. A method of producing a nutrient food from water oats, comprising:

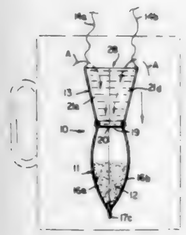
drying the water oats;
cutting the leaves, stalks or both leaves and stalks of water oats into small pieces;
steam boiling the cut pieces;
cooling the steam boiled material;
fermenting the cooled material with *Bacillus subtilis* ON-1; and
drying the fermented material.

4,278,691

COFFEE INFUSION BAG

Angelo Donarumma, 469-15 St., West Babylon, N.Y. 11704, and Thomas Callahan, 7 Cynthia La., East Islip, N.Y. 11730

Filed Mar. 17, 1980, Ser. No. 130,700
Int. Cl.³ B65B *29/02, 29/04*
U.S. Cl. 426—80 **10 Claims**



1. An infusion bag comprising a receptacle portion containing infusion solids and formed of water permeable sheet material, and a reservoir portion including an open top, side walls and a lower water permeable sheet, the lowest portion of said reservoir side walls being attached to the uppermost part of the receptacle portion so that the reservoir portion is disposed substantially above the receptacle portion and said water permeable sheet is disposed above and spaced from the infusion solids; the reservoir portion including fold means and string means attached to said uppermost part of the reservoir portion, said fold means and string means combining to open and close the reservoir portion to the inflow of water when the string means is in a relaxed condition and a taut condition, respectively, the string means being in a relaxed condition with the bag being buoyed when the bag is lowered into a cup of hot water wherein the water freely moves into said open top of said reservoir portion and the string means being taut when they are pulled upwardly thus assisting in the movement of the water from the filled reservoir portion down through said lower water permeable sheet and through said lower water permeable sheet and through the receptacle portion so as to extract a water soluble brew from the solids.

4,278,692

METHOD FOR INCREASING PREPARATION TOLERANCE OF A DRY MIX HAVING A GUM TO FORM AN OIL-AQUEOUS EMULSION

Robert R. Cassanelli; Ronald P. Wauters, both of Dover; Richard A. Cole, Clayton; David N. Evans, and Darrel E. Herbst, both of Dover, all of Del., assignors to General Foods Corporation, White Plains, N.Y.

Filed May 12, 1978, Ser. No. 905,306
Int. Cl.³ A23L *1/216*
U.S. Cl. 426—96 **13 Claims**

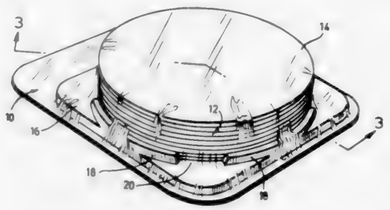
1. A method for increasing the preparation tolerance of a dry mix to form an oil-aqueous emulsion while obtaining a stable viscous emulsion which comprises:
manually mixing the dry mix with an aqueous solution and then an oil, the dry mix comprising an encapsulated gum and solids, the encapsulant being effective to retard hydration of the gum, the rate of hydration of the gum and the amount of gum being effective to provide a stable viscous emulsion for at least 24 hours after mixing, the solids being present in an amount effective to obtain a desired viscosity.

4,278,693

SHIPPER PACKAGE

Frank H. Dingethal, and Edward Bartosek, both of Kitchener, Canada, assignors to J. M. Schneider Inc., Kitchener, Canada

Filed Apr. 21, 1980, Ser. No. 142,091
Int. Cl.³ B65D *73/00, 5/50*; B65B *25/06*
U.S. Cl. 426—129 **3 Claims**



1. A shipper package comprising; a substantially rigid base having an upper face and a lower face, a support platform on the upper face projecting upwardly from said upper face and also being spaced inwardly from the circumferential edge around the entire periphery of the rigid base, a ridge projecting upwardly from the upper face of the platform defining a circumferential periphery of a product support area of the platform, said ridge having an apex disposed above said upper face, a product mounted on said product support area inwardly from said ridge and projecting above said ridge, said ridge being interrupted at at least one point about the periphery to provide a peripherally extending gap in the ridge which extends to the surface of the platform whereby the full height of the product above the support area can be ascertained visually through said gap, said ridge being arranged and proportioned such that at least a portion of the ridge extends in each quadrant of the perimeter and a transparent vacuum-sealed wrapper enclosing the product and sealingly engaging the upper face of the base in a face to face relationship to form a continuous seal extending about the entire periphery outwardly from said apex of said ridge.

4,278,694

MODIFIED LIQUID SMOKE COMPOSITIONS AND FOOD CASINGS PREPARED THEREFROM

Herman S. Chiu, Chicago, Ill., assignor to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 904,283, May 9, 1978. This application Sep. 7, 1979, Ser. No. 73,298
Int. Cl.³ A22C *13/00*; A23L *1/22*
U.S. Cl. 426—135 **35 Claims**

1. An aqueous liquid smoke composition comprising a uniform mixture of smoke coloring and flavoring constituents, and an amount of a water soluble alcohol solubilizing agent sufficient to prevent said smoke constituents from separating out, said composition having greater than about 15% by weight of said smoke constituents, and having a pH greater than about 4.

4,278,695

PREPARING BEVERAGE MIX CONTAINING DEXTROSE HYDRATE AND COATED CITRIC ACID

Violeta S. Velasco, Bolingbrook, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

Continuation of Ser. No. 965,827, Dec. 4, 1978, abandoned. This application Jan. 16, 1980, Ser. No. 116,981
Int. Cl.³ A23L *1/221, 2/00*
U.S. Cl. 426—289 **1 Claim**

1. A method for preparing a dry, free-flowing beverage mix which comprises:
a. coating particles of citric acid with a powdered desiccating agent selected from the group consisting of silicon dioxide with a mean particle diameter of less than 50 millimicrons and sodium silicoaluminate with a mean particle diameter of less than 50 millimicrons; and
b. mixing the coated acid with a flavoring agent and a saccharide material containing from 5% to 25% by weight of dextrose hydrate, said saccharide material being sufficiently water soluble at room temperature to form a water solution containing at least about 10% by weight of dissolved solids, which beverage mix includes 1% to 6% by weight of citric acid and about 0.3% to about 2% by weight of the powdered desiccating agent.

4,278,696

DEACIDIFYING COFFEE EXTRACT WITH CHITOSAN

Daniele Magnolato, Chardonne, Switzerland, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Aug. 27, 1979, Ser. No. 69,712
Claims priority, application Switzerland, Sep. 14, 1978, 9638/78
Int. Cl.³ A23F *5/18*
U.S. Cl. 426—422 **6 Claims**

1. A process for deacidifying a coffee extract which comprises contacting the coffee extract with chitosan in divided form and collecting the deacidified coffee extract after separation from the chitosan, wherein the caffeine content of the coffee extract is not affected by contact with the chitosan.

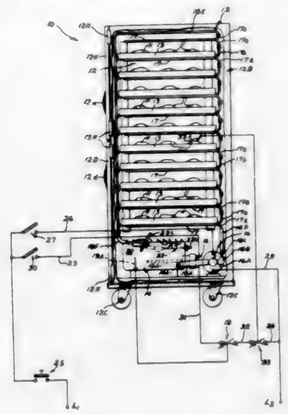
4,278,697

METHOD OF TRANSFERRING HEAT TO FOOD ARTICLES

Benno E. Liebermann, 2805 Lime Kiln La., Louisville, Ky. 40222

Division of Ser. No. 922,230, Jul. 5, 1978, Pat. No. 4,210,675, which is a continuation-in-part of Ser. No. 835,808, Sep. 22, 1977, Pat. No. 4,224,862. This application Dec. 5, 1979, Ser. No. 100,484
The portion of the term of this patent subsequent to Sep. 30, 1997, has been disclaimed.
Int. Cl.³ A23L *1/00*
U.S. Cl. 426—506 **3 Claims**

1. A method of transferring heat to food articles comprising:
(a) supporting food articles on support means located within a chamber;
(b) mechanically forcing circulation of heated liquid water through radiator means at a flow rate of approximately one gallon per minute for transferring heat to the food articles, said radiator means being located in the upper portion of said chamber adjacent to and on opposite sides of said support means and being fluid-connected via hollow conduit means to sump means for containing said liquid water that are located in the lower portion of said chamber beneath said support means such that said liquid water is both withdrawn from and returned to said sump means by said circulation thereof, with the water being heated in said sump means;
(c) maintaining the humidity within said chamber above that of the atmosphere outside of said chamber by heating the water so as to produce water vapor in said sump and controlling the amount of water vapor that is first transferred from said sump means to said chamber and, subsequently, vented from said chamber to the atmosphere by operation of means for controlling flow through an opening that is provided between said sump means and said chamber and by operation of vent means provided for said chamber; and



(d) maintaining said heated liquid water at a temperature of within ±5° F. of a desired temperature by directly heating said liquid water with heater means located within said sump means.

4,278,698

METHOD OF COOLING COOKED PRODUCTS BY INTERVAL SHOWERING

Rudolf Maurer, 7752 Insel Reichenau in Bodensee, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,308
Int. Cl.³ A23L *1/00*
U.S. Cl. 426—506 **5 Claims**

1. A method for cooling and conditioning a cooked product with the aid of a shower providing coolant, said product being initially at a substantially higher temperature than the coolant and being cooled to achieve a predetermined final temperature of its core, said method comprising the steps of:
turning on said shower for a predetermined active time interval calculated to cool the surface of the product by a predetermined amount and to withdraw insufficient heat from said product to reduce its core from said initial to said final temperature during a single active time interval;
turning off the shower for a sufficient inactive time interval to permit the surface of the product to dry and to be raised in temperature by heat transmitted from the core of the product, and
sequentially repeating the preceding steps for a number of repetitions calculated to reduce the core of the product to said predetermined final temperature.

4,278,699

METHOD OF PURIFYING DISTILLERS SOLUBLES AND USE OF THE PURIFIED MATTER

Kiyoshi Yoshizawa, Tokyo; Kikuo Nojiro, Machida; Masamitsu Itoh, Hatoyama; Hiroshi Kiuchi, Sayama, and Kazuo Horii, Otani-Omiya, all of Japan, assignors to National Tax Administration Agency and Kibun Company Limited, both of Tokyo, Japan

Filed Jan. 26, 1977, Ser. No. 762,680

Claims priority, application Japan, May 6, 1976, 51-50746; May 6, 1976, 51-50747; May 6, 1976, 51-50748; Jun. 17, 1976, 51-70428; Sep. 2, 1976, 51-104235

Int. Cl.[3] **B21D** *39/00*; **C07G** *17/00*; **C12N** *1/38, 1/20*

U.S. Cl. 426—624 **4 Claims**

1. A method of purifying distillers solubles unknown growth factor from distillers solubles comprising the steps of clarifying distillers solubles by treatment selected from the group consisting of

(1) a centrifugal separation to a degree of above 50,000 (g×minute) and

(2) a filtration with addition of a filter aid; and collecting the liquid parts of molecular weights of 10^3–10^5 by subjecting the obtained clarified liquid to a molecular sieve treatment.

4,278,700

MARZIPAN SUBSTITUTE

Roelof H. Barents, Poortugaal, Netherlands, and John B. Rossell, Loughton, England, assignors to Lever Brothers Company, New York, N.Y.

Filed Nov. 29, 1979, Ser. No. 98,582

Claims priority, application United Kingdom, Dec. 1, 1978, 46910/78

Int. Cl.[3] **A23G** *3/00*

U.S. Cl. 426—660 **9 Claims**

1. In an edible marzipan substitute plastic candy filling comprising a mixture of ground almonds and sugar wherein at least a portion of said almond constituent thereof is replaced by a replacement substituent, the improvement comprising:

the addition to said mixture of a vegetable fat wherein:

a. said fat is present in said mixture in an amount sufficient to promote bloom-resistance in couvetures applied thereto;

b. said fat has dilatations at 20° C. and 35° C. of at least 800 and at most 500 respectively; and

c. said fat is compatible with couvetures applied to said mixture;

the improvement providing an edible marzipan type plastic candy filling having improved bloom-resistance to couvetures applied thereto.

4,278,701

ANIMAL AND VEGETAL TISSUES PERMANENTLY PRESERVED BY SYNTHETIC RESIN IMPREGNATION

Gunther von Hagens, Jahnstr. 6, Heidelberg, Fed. Rep. of Germany (6900)

Continuation of Ser. No. 851,101, Nov. 14, 1977, Pat. No. 4,205,059. This application Nov. 8, 1979, Ser. No. 92,544

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1977, 2710147; May 7, 1977, 2720607

The portion of the term of this patent subsequent to May 27, 1997, has been disclaimed.

Int. Cl.[3] **A01G** *5/06*

U.S. Cl. 427—4 **15 Claims**

1. A method of preparing a body consisting essentially of anhydrous animal or vegetal tissue and a water-insoluble synthetic resin substantially uniformly distributed in said tissue which comprises:

(a) replacing the water content of a water-bearing body of animal or vegetal tissue with an organic solvent volatile in a vacuum;

(b) holding said body bearing said solvent in contact with a fluid precursor composition in a vacuum until said solvent is volatilized and replaced in said body by said composition, said composition being capable of being polymerized into a solid, water-insoluble synthetic resin;

(c) removing adhering precursor composition from the surface of said body; and

(d) holding said body under polymerization conditions until said precursor composition in said body is cured to said solid resin.

4,278,702

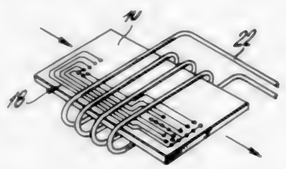
METHOD OF MAKING PRINTED CIRCUIT BOARD BY INDUCTION HEATING OF THE CONDUCTIVE METAL PARTICLES ON A PLASTIC SUBSTRATE

Cheng-Yih Jenq, Piscataway, N.J., assignor to Anthony J. Casella, East Williston, N.Y.; a part interest.

Filed Sep. 25, 1979, Ser. No. 78,687

Int. Cl.[3] **H05K** *3/12*

U.S. Cl. 427—45.1 **5 Claims**



1. A method of making a printed circuit board comprising the steps of:

placing a strip of powdered material onto a dielectric plastic substrate wherein said powdered material includes conductive metal particles having a melting point higher than said plastic substrate; and

heating said powdered material by induction at a frequency sufficient to sinter said conductive metal particles but for a duration less than sufficient to cause said plastic substrate to deform due to the heat emitted from said metal particles and transmitted to said plastic substrate by conduction thereby securing the strip to the dielectric plastic substrate and forming a conductive pathway.

4,278,703

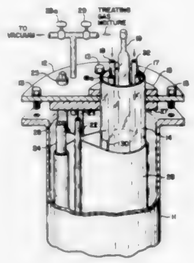
METHOD AND MEANS FOR PRODUCING FLUOROCARBON FINISHES ON FIBROUS STRUCTURES

Madeline S. Toy, Palo Alto; Roger S. Stringham, Woodside, and Lawrence C. Fogg, Sunnyvale, all of Calif., assignors to Science Applications, Inc., La Jolla, Calif.

Filed Aug. 20, 1979, Ser. No. 68,110

Int. Cl.[3] **B05D** *3/06*

U.S. Cl. 427—54.1 **8 Claims**



1. A method for imparting an improved finish to a fibrous textile material or the like while retaining the identity of the material, comprising contacting a web of said material with a gaseous medium containing from about 5% to about 10% of a fluoroolefin gas comprising bromotrifluoroethylene as its major component and from about 90% to about 95% of an inert diluent gas, and while so contacted, subjecting said web to ultraviolet radiation under controlled conditions by moving the latter from a supply roll thereof along a cylindrical path toward a takeup roll therefor, said cylindrical path being spaced about 40 mm from an elongated ultraviolet lamp located substantially at the axis of said path and having an output of about 200 watts per inch of length, and maintaining the temperature of said web within the range of about ambient to about 200° C., said web movement being such as to expose said web to ultraviolet radiation from said lamp for from about 200 to about 500 seconds during traversal of said cylindrical path by said web, thereby to cause photografting and chemical bonding between the fluoroolefin in said gaseous medium and the fibers of said material effective to impart said improved finish to said material.

4,278,704

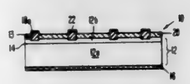
METHOD FOR FORMING AN ELECTRICAL CONTACT TO A SOLAR CELL

Brown F. Williams, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 30, 1980, Ser. No. 116,790

Int. Cl.[3] **B05D** *3/02, 3/10*

U.S. Cl. 427—75 **16 Claims**



1. A method of forming an electrical contact to the surface region of a silicon semiconductor device without punching through said region, said device having a body of one conductivity type with opposed major surfaces and a region in said body at one of said major surfaces of opposite conductivity type to said body forming a rectifying junction in said body between said region and said body and means for electrically contacting the major surface opposite to said region, comprising:

depositing a sufficient amount of a metal onto said region wherein said metal upon heating will form a silicide with said region to a predetermined depth of penetration into said region;

heating said device to a sufficient temperature and for a sufficient time to form said metal silicide to the predetermined depth in said region; and

oxidizing the surface of said region not containing said silicide.

4,278,705

SEQUENTIALLY ANNEALED OXIDATION OF SILICON TO FILL TRENCHES WITH SILICON DIOXIDE

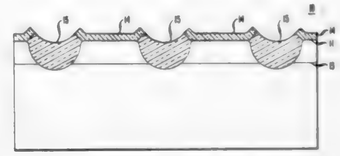
Jorge Agraz-Guerena, Hanover Township, Northampton County; Lewis E. Katz, and Bernard L. Morris, both of Allentown, all of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 8, 1979, Ser. No. 92,523

Int. Cl.[3] **H01L** *21/316, 21/324*

U.S. Cl. 427—93 **5 Claims**

1. In the fabrication of silicon integrated circuits made in silicon chips which utilize trenches filled with silicon oxide to provide dielectric isolation between different surface portions of the chip, the process of filling the trenches in the silicon chip with silicon oxide which comprises heating the silicon chip, which has been masked to leave exposed the trenches while covering the surface between the trenches, in a relatively strong oxidizing ambient to fill partially the trenches with silicon oxide, annealing the chip in an ambient in which any oxide growth is insignificant for a time to relieve stresses in the chip, and repeating the heating and annealing steps until the trenches are substantially filled and planarity is essentially restored to the chip.



4,278,706

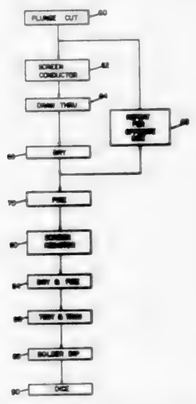
METHOD FOR MAKING DISCRETE ELECTRICAL COMPONENTS

Richard L. Barry, North Attleboro, Mass., assignor to TRX, Inc., Attleboro Falls, Mass.

Division of Ser. No. 860,862, Dec. 15, 1977, Pat. No. 4,199,745. This application May 29, 1979, Ser. No. 43,439

Int. Cl.[3] **H01C** *17/06*

U.S. Cl. 427—96 **5 Claims**



1. A process for fabricating a multiplicity of discrete electrical circuit components comprising the steps of forming a series of through apertures in a substrate,

depositing thick film paste conductor material on one surface of said substrate to form spaced conductor portions, applying a pressure differential across said substrate to draw said deposited conductor material along walls of said apertures to form connector portions extending toward the opposite surface of the substrate,

depositing further thick film paste electrical conductor material on said opposite surface of said substrate and then applying a pressure differential across said substrate to draw said further conductor material along walls of said apertures towards said one substrate surface to form spaced terminal pads on said opposite substrate surface corresponding to spaced conductor portions on said one substrate surface and connector strips electrically connecting corresponding conductor portions and terminal pads, and

dicing said substrate such that the edge surfaces of said spaced conductor strips are not disturbed and only sub-

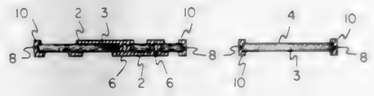
strate material is removed in said dicing step to form said multiplicity of discrete electrical circuit components.

4,278,707

METHOD FOR COATING THE EDGE OF A PRINTED CIRCUIT BOARD TO IMPROVE ITS MOISTURE RESISTANCE

Joseph Biran, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 19, 1980, Ser. No. 151,010
Int. Cl.³ H05K 3/28
U.S. Cl. 427—96 **2 Claims**



1. A method for manufacturing printed circuit boards having fibers therein comprising the steps of:
defining conductive traces on a non-conductive board;
sizing the non-conductive board to expose raw fibers at the periphery of the board; and then
coating the periphery of the board to seal the periphery and to prevent moisture penetration into the board.

4,278,708

CONDUCTIVE CORROSION RESISTANT MATERIAL AND ALKALI METAL/POLYSULFIDE BATTERY EMPLOYING SAME

Mati Mikkor, Ann Arbor, and Samuel S. Shinozaki, Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 31, 1979, Ser. No. 89,818
Int. Cl.³ B05D 5/12
U.S. Cl. 427—126.1 **7 Claims**



1. A method of preparing an article which is electronically conductive, but resistant to corrosive attack by molten polysulfide salts, which method comprises (1) providing a metal substrate having at least a surface layer thereon of a transition series metal selected from the group consisting of chromium, titanium, niobium, tantalum, molybdenum and zirconium, (2) coating said surface layer with silicon carbide particles have an average particle diameter ranging between about 0.1 and about 0.5 microns, (3) pressing said silicon carbide particles into contact with said transition series metal layer so as to provide greater contact therebetween, and (4) heating said substrate having said surface layer and layer of silicon carbide thereon in an inert atmosphere to a temperature of between about 1000° C. and about 1300° C. for a sufficient time to allow diffusion to occur between said silicon carbide and said transition series metal layer, thereby forming a layer of a tertiary compound comprising silicon, silicon carbide and said transition series metal.

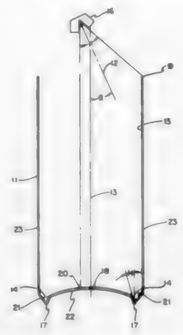
4,278,709

METHOD OF APPLYING WATER SOLUBLE INTERNAL COATING TO HOT CANS

Richard W. Sullivan, Denver, and Robert N. Warwick, Arvada, both of Colo., assignors to Ball Corporation, Muncie, Ind.

Filed Oct. 25, 1979, Ser. No. 88,228
Int. Cl.³ B05D 7/22
U.S. Cl. 427—233 **3 Claims**

1. In a method for applying an internal coating to a hot light-weight can having an inner frustoconical surface at an angle of between 0 and 30 degrees, comprising the steps of, rotating said can, directing a coating composition onto the interior surface of said can, and curing said coating composition on said interior surface, wherein the improvement comprises, directing a composition including water and epoxy onto the interior surface of the can wherein said composition has a



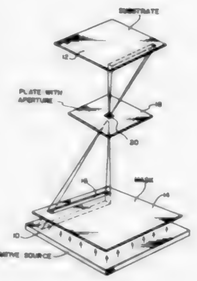
viscosity of between 22 and 16 seconds when measured at 77 degrees F., in a number 4 Ford cup and wherein said can has a temperature of over 140 degrees F., and the additional step of allowing said coating composition to flow outwardly along the bottom of said can thereby coating the inner frustoconical surface, said allowing step to be performed prior to said curing step.

4,278,710

APPARATUS AND METHOD FOR SUBMICRON PATTERN GENERATION

Edward C. Jelks, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 27, 1979, Ser. No. 69,654
Int. Cl.³ C23C 11/00, 13/00
U.S. Cl. 427—250 **10 Claims**



8. A method of depositing submicron patterns on a substrate comprising the steps of:
evaporating molecules from a source of metal opposite the substrate so that the molecules of metal will be directed toward the substrate;
interposing a mask with an open pattern between the source of metal and the substrate so that molecules of metal will be directed through the open pattern toward the substrate; and
further interposing a plate with a small aperture between the mask and the substrate so that all metal molecules have to pass through said aperture,

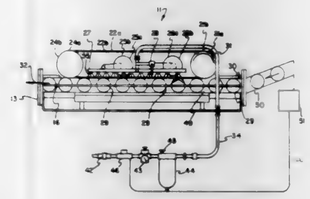
whereby metal molecules will be deposited directly on the substrate in the pattern of the openings on the mask.

4,278,711

APPARATUS AND METHOD FOR THE LUBRICATION OF CANS

Richard W. Sullivan, Denver, Colo., assignor to Ball Corporation, Muncie, Ind.

Filed Jan. 14, 1980, Ser. No. 112,011
Int. Cl.³ B05D 1/02, 3/12
U.S. Cl. 427—284 **26 Claims**



20. A method of depositing a fluid on a narrow circumferential strip at one end of a cylindrical article comprising the steps of: advancing and rotating the article through a treating zone; supplying pressurized air to an atomizer; producing a mist of airborne fluid particles with said atomizer; transporting said airborne fluid particles by a moving air stream through a hollow member to a conduit; directing said moving air stream carrying said airborne fluid particles toward and to said cylindrical article through a plurality of outlets along the length of said conduit and facing said cylindrical article; and depositing said fluid particles on said cylindrical article while advancing and rotating, whereby, said moving air stream travels from said atomizer to and through said conduit and through a plurality of outlets in said conduit toward and to said cylindrical article thereby depositing said fluid particles on said cylindrical article.

4,278,712

METHOD FOR ACTIVATING NON-NOBLE METAL COLLOIDAL DISPERSION BY CONTROLLED OXIDATION FOR ELECTROLESS PLATING

Thomas G. Thomann, Trenton, N.J., assignor to Surface Technology, Inc., Princeton, N.J.

Continuation of Ser. No. 938,438, Aug. 31, 1978, abandoned.
This application Jan. 28, 1979, Ser. No. 52,857
Int. Cl.³ C23C 3/02
U.S. Cl. 427—304 **19 Claims**

1. A process for the metallizing of a non-conductor substrate by electroless (chemical) metal deposition comprising the steps of:
(1) contacting said substrate with an activated colloidal dispersion comprising of non-noble catalytic metal capable of electroless plating initiation and wherein said metal may be part of an alloy or elemental state and mixtures thereof and wherein said activated colloidal dispersion is prepared by the admixing of a chemical oxidizing agent with a weakly active stable colloidal dispersion and wherein said admixing is carried forth in a manner of achieving a controlled oxidation and thereby producing the activated colloidal dispersion, and
(2) contacting the treated substrate with an electroless plating bath for the deposition of a metal.

4,278,713

POLYVINYL CHLORIDE PLASTISOLS

Christian Burba, Ascheberg-Herbern; Hans-Guenter Volland, Unna, and Norbert Esper, Bergkamen, all of Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Jan. 28, 1980, Ser. No. 115,567
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 2906134
The portion of the term of this patent subsequent to Apr. 24, 1996, has been disclaimed.
Int. Cl.³ B05D 3/02
U.S. Cl. 427—388.2 **8 Claims**

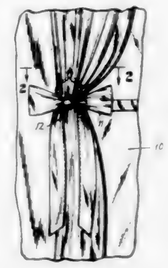
3. A method for protectively coating a substrate which comprises applying to said substrate a coating of a plastisol containing a vinyl chloride polymer and then baking the coating at a temperature from 100° C. to about 200° C., said plastisol further comprising from about 0.1 to about 4.0 percent, by weight of said plastisol, of a Schiff base containing from 0.05 to 1.0 azomethine groups per 100 grams of compound and further containing a uretidine dione or isocyanurate group in the molecule.

4,278,714

BOW CONSTRUCTION

Herbert S. Schwartz, Raleigh, N.C., assignor to Croscill Curtain Co. Inc., New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,190
Int. Cl.³ D04D 7/10
U.S. Cl. 428—4 **3 Claims**



1. A bow construction for gathering the vertical length of a curtain or drapery which comprises:
a horizontal strip which is essentially rectangular in appearance;
a vertical strip, the strip being abutted against the front of the horizontal strip and knotted therebehind, whereby the ends of the vertical strip hang downwardly below the horizontal strip and the central portion of the horizontal strip is compressed so that the appearance is that of a bow; and
the horizontal strip has depending therefrom at least two ribbons, the ribbons having detachable hook means at the ends thereof to be received on a support member to properly and positively locate the bow construction along the vertical length of the curtain or drapery.

4,278,715

PRESERVATION OF GREEN PLANT TISSUES

Cesar Romero-Sierra, Bath, and John C. Webb, Kingston, both of Canada, assignors to Queen's University at Kingston, Kingston, Canada

Filed Jul. 30, 1979, Ser. No. 61,688
Claims priority, application Canada, Aug. 18, 1978, 309654
Int. Cl.³ A01N 3/00; C09K 15/06
U.S. Cl. 428—22 **18 Claims**

1. A solution, for the preservation of naturally green co-

loured plant tissues, consisting essentially of 30%–70% by volume water; at least one monohydric alcohol; at least one preservative component selected from the group comprising lower carboxylic acids, and di- and tri-hydric alcohols; and sufficient buffering and mordant reagents to control the pH and osmolality of said solution so as to permanently retain said green colour in said tissues.

4,278,716

LIGHT WEIGHT PACKAGE CONTAINER MADE FROM MULTI-LAYER MATERIAL

Norbert Buchner, Tamm, and Dieter Liede, Möglingen, both of Fed. Rep. of Germany, assignors to Robert Bosch Verpackungsmaschinen GmbH, Waiblingen, Fed. Rep. of Germany

Continuation of Ser. No. 794,482, May 5, 1977, abandoned, which is a continuation of Ser. No. 655,569, Feb. 5, 1976, abandoned, which is a continuation of Ser. No. 457,435, Apr. 3, 1974, abandoned. This application Oct. 5, 1979, Ser. No. 82,205

Claims priority, application Fed. Rep. of Germany, Apr. 3, 1973, 2316513

Int. Cl.[3] **B65D** *1/34;* **B32B** *15/08*

U.S. Cl. 428—35 **12 Claims**



1. A deep-drawn light weight, semi-rigid, dent-resistant, packaging container, made from a laminated sheet, comprising in combination:

(a) an aluminum layer having a thickness in the range of from one grain to a few grains; and

(b) at least one layer of polymeric plastic material, which is biaxially stretched before forming the laminated sheet, to increase the yield strength of the polymeric material, and has an elongation before fracture of 15–50%, said polymeric material being selected from a group consisting of polypropylene, polyamide and polyester, and being laminated to said aluminum layer for providing stretchability, strength and stability, the total thickness of said at least one layer of polymeric material being substantially greater than that of said aluminum layer.

11. A deep-drawn light weight, semi-rigid, dent-resistant, packaging container, formed from a laminated sheet having a stretch capability of up to 50% elongation without rupture, said laminated sheet comprising:

a first layer of polymeric plastic material selected from the group consisting of polypropylene, polyamide and polyester, which is biaxially stretched before forming the laminated sheet to increase the yield strength of the polymeric material, and which has an elongation before fracture of 15–50%;

a second layer of aluminum, which has a thickness in the range of from one grain to a few grains, and which is laminated to said first layer; and

a third layer of synthetic material which has a low tendency to return to its state before forming, selected from a group consisting of impact-resistant polystyrene, acrylic butadiene styrene, and polyvinyl chloride, which has a thickness substantially greater than said aluminum layer, and which is laminated to said aluminum layer.

4,278,717

HEAT RESISTANT CUSHION

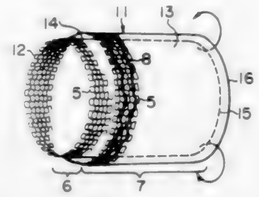
Toshiho Aoyama, Nagoya, Japan, assignor to Chuo Hatsujo Kabushiki Kaisha, Aichi, Japan

Filed May 21, 1979, Ser. No. 40,781

Claims priority, application Japan, May 19, 1978, 53-60393

Int. Cl.[3] **B32B** *7/00, 7/04, 15/00*

U.S. Cl. 428—36 **11 Claims**



1. A heat resistant cushion in the form of a compact of a toroidal structure which is formed by rolling an annular network structure of knitted metal wires into said toroidal structure, the network structure comprising a first annular segment which forms the outer covering of the toroidal structure after said rolling said a second annular segment which forms the inner part of the toroidal structure after said rolling, said second segment containing axially spaced yarns of an inorganic fiber which extend circumferentially of the network structure and which are supported by engagement with selected loops of the metal wires which form said second segment, said first segment comprising regularly knitted, non-yarn bearing metal wire which forms said outer covering whereby said outer covering of non-yarn bearing metal wire protects said yarn on said inner part of said toroidal structure from becoming loose as said yarn degrades during use, said annular network structure being rolled upon itself beginning with the free end of the second segment such that upon completion of the rolling to form the toroidal structure, said first segment is rolled last to form said outer covering of said toroidal structure.

4,278,718

SEALING COMPOSITIONS FOR MINIMIZING SOLUBLE IRON MIGRATION

Charles A. Billings, Concord, and Robert H. Hofeldt, Littleton, both of Mass., assignors to W. R. Grace & Co., Cambridge, Mass.

Filed Jan. 11, 1980, Ser. No. 111,313

Int. Cl.[3] **B32B** *3/02, 27/20, 27/22, 27/30*

U.S. Cl. 428—64 **15 Claims**

1. A plastisol sealing composition for inhibiting iron migration in acid packs consisting essentially of a polyvinyl chloride resin, between about 50 and 300 parts by weight of a plasticizer for the resin per 100 parts of said resin and the improvement therein comprising from about 0.1 to about 50 parts by weight of a metal oxide iron migration inhibitor per 100 parts of said resin, said inhibitor being selected from the group consisting of aluminum oxide, zinc oxide, magnesium oxide, calcium oxide, copper oxide, silver oxide, nickel oxide, chromium oxide, and mixtures thereof.

4,278,719

WATERPROOF BACKED TOWEL

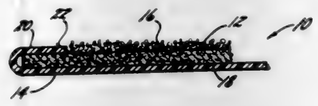
Mildred A. Sarnecki, 1536 E. Mission La., Phoenix, Ariz. 85020

Filed Oct. 15, 1979, Ser. No. 84,643

Int. Cl.[3] **B32B** *3/04*

U.S. Cl. 428—78 **1 Claim**

1. A waterproof backed towel comprising: (a) an absorbent cover sheet of preselected size consisting of terrycloth which has a huck side and a back side; and (b) a waterproof backing sheet consisting of waterproof nylon, which waterproof backing sheet is coextensive with and slightly larger than the absorbent cover sheet, is in face-to-face juxtaposition with the back side of the absorbent cover sheet and is lapped over onto the huck side of the absorbent cover sheet around the periphery of the cover sheet to form a waterproof edge around the periphery of the cover sheet.



4,278,720

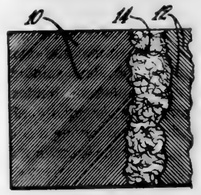
BONDED MAT OF DIRECTIONALLY ORIENTED STRANDS AND RANDOMLY ORIENTED STRANDS

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, OhioIO

Filed May 2, 1979, Ser. No. 35,199

Int. Cl.[3] **B32B** *5/12*

U.S. Cl. 428—109 **3 Claims**



1. A sheet molding compound comprising: a mat having two layers of long lengths of parallely oriented strand running at an angle to each other with a layer of randomly oriented glass strand positioned between said two parallely oriented strand layers and with strands of said layers touching each other at the points where said parallely oriented strands crossover randomly oriented strand, said layers being bonded by set organic binder that is limited generally to said crossover points, said mat being impregnated by a heat settable molding compound, and whereby a shifting between crossover points occurs during molding over projections to reduce wrinkling and prevent complete separation of the continuous strand layers.

4,278,721

THERMAL BARRIER

Richard H. Hudgin, Marlboro, Mass., assignor to Princeton Polymer, Plainsboro, N.J.

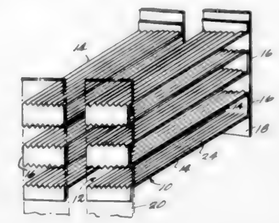
Filed Aug. 23, 1979, Ser. No. 69,079

Int. Cl.[3] **B32B** *3/28, 3/30*

U.S. Cl. 428—122 **33 Claims**

1. Apparatus for preventing heat to flow from a first area to a second area comprising:

a corrugated sheet including a plurality of side portions, each of said side portions having a first edge proximate said first area and a second edge proximate said second area, pairs of adjacent side portions defining a plurality of channels, each of said channels having a length substantially parallel to said side portions and extending between said first and second edges, and a thickness, said length being at least four times greater than said thickness;



said side portions having grooves for increasing the angle of incidence of infra-red radiation radiated from said sheet to enhance absorption and decrease reflection; and

means for preventing convection between said channels.

4,278,722

MULTILAYER EDGE SEALED RECORD CARRIER

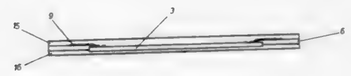
Joachim Hoppe; Yahya Haghiri-Tehrani, both of Munich, and Wolfgang Gauch, Otterfing, all of Fed. Rep. of Germany, assignors to G.A.O. Gesellschaft für Automation und Organisation mbH

Division of Ser. No. 861,343, Dec. 16, 1977, Pat. No. 4,208,231. This application Jan. 10, 1979, Ser. No. 2,339

Claims priority, application Austria, Dec. 29, 1976, 9780/76

Int. Cl.[3] **B42D** *15/02;* **G09F** *3/02*

U.S. Cl. 428—192 **2 Claims**



1. A record carrier comprising, a paper insert having a plastic film strip border disposed about said paper insert, a security device on said paper insert, a printed information and security pattern printed on a top surface of said paper insert and a top surface of said film border extending across a boundary between said paper insert top surface and said film border top surface without interruption, a top transparent film sealed to the top surfaces of said paper insert and said film border and a bottom transparent film sealed to a bottom surface of said paper insert and said film border, whereby a removal of said top transparent film over said printed pattern will distort said printed pattern.

4,278,723

SHAPED BODY OF EXTRUDED ACRYLIC GLASS

Theodor P. Moench, Gross-Umstadt-Heubach, and Friedrich Hanstein, Gross-Zimmern, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,110

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853302

Int. Cl.[3] **B32B** *23/02;* **B28B** *11/08;* **B29C** *17/04*

U.S. Cl. 428—192 **8 Claims**

1. A shaped body produced by the reshaping of an originally-flat extruded sheet of acrylic glass having a molecular weight between 50,000 and 300,000, said shaped body having a three-dimensionally reshaped region surrounded by a flat border in the plane of the originally-flat sheet, said flat border being stretched biaxially by at least 25 percent in each direction, said shaped body further having transition zones, between said three-dimensionally reshaped region and said surrounding flat border, which are less sensitive to mechanical and corro-

sion damage than are corresponding transition zones in a reshaped extruded sheet of acrylic glass not having a flat border stretched biaxially by at least 25 percent in each direction.

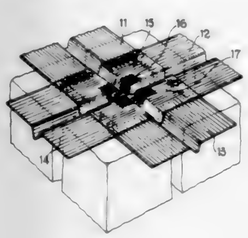
8. A process for manufacturing a shaped body as defined in claim 1 which comprises biaxially stretching, by at least about 25% in each direction, an extruded sheet of a polymer or copolymer containing at least 80% by weight of units of methyl methacrylate, then gripping the edges of the plate to maintain its dimensions and applying a force to the interior portion of the sheet while the sheet is in a thermoelastic state to move said interior portion out of the plane of the surrounding edges thereof.

4,278,724

COMPOSITE BITUMINOUS SHEET, PARTICULARLY FOR SEALING MEMBERS

Henri F. M. Desgouilles, Chantilly, France, assignor to Composants Industrialises du Batiment, par abreviation C.I.B., Paris, France

Filed Dec. 6, 1979, Ser. No. 100,963
Claims priority, application France, Dec. 7, 1978, 78 34495
Int. Cl.³ B32B *11/08, 11/10*
U.S. Cl. 428—193 **11 Claims**



1. Composite bituminous sheet, particularly useful for sealing members, comprising an external zone of a non-extensible cloth surrounding at least one central zone formed of an extensible elastic cloth, the whole being coated with a bituminous composition which is the same for all said zones.

4,278,725

CERMET RESISTOR AND METHOD OF MAKING SAME

Richard E. Riley, Riverside, and Bradley D. Turner, Pomona, both of Calif., assignors to Spectrol Electronics Corp., City of Industry, Calif.

Filed Jan. 21, 1980, Ser. No. 114,010
Int. Cl.³ H01B *1/02*
U.S. Cl. 428—208 **4 Claims**

1. A resistance element comprising an electrically nonconductive base having a layer of resistance material thereon, said resistance material comprised of a glass having a noble metal in finely divided form dispersed throughout the glass and minute particles of a gold-silver alloy on the surface of the glass.

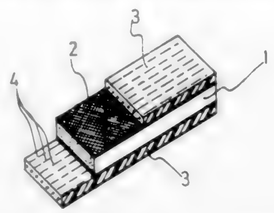
4,278,726

ENERGY ABSORBING ELEMENTS COMPRISING RIGID NON-ELASTOMERIC LAYER AND VISCO-ELASTIC LAYER WITH TWISTED FIBER BUNDLES EMBEDDED THEREIN

Andre Wisme, Zwevegem, Belgium, assignor to N. V. Bekaert S.A., Zwevegem, Belgium

Filed Sep. 24, 1979, Ser. No. 78,057
Claims priority, application Luxembourg, Sep. 28, 1978, 80296
Int. Cl.³ F16C *27/06*; F16F *1/40, 7/12, 11/00*
U.S. Cl. 428—229 **6 Claims**

1. An energy absorbing element such as a spring, shock absorber or vibration damper in the form of a laminated structure comprising at least one rigid non-elastomeric layer bonded



to a visco-elastic layer, wherein twisted fibre bundles are embedded in said visco-elastic layer.

4,278,727

ALKAI-SOLUBLE, WATER-RESISTANT BINDERS FOR NON-WOVEN MATERIALS

Hartmut Brabetz; Heinz Schäfer, and Dieter Gorzel, all of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Division of Ser. No. 946,552, Sep. 28, 1978, abandoned. This application Jun. 1, 1979, Ser. No. 44,667
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1977, 2747182
Int. Cl.³ B32B *27/00, 27/10*
U.S. Cl. 428—290 **8 Claims**

1. A cellulosic non-woven material containing from 2% to 25% by dry weight of the alkali-soluble, water-resistant in neutral to weakly acidic solutions, binder for cellulosic non-woven material consisting essentially of an aqueous vinyl acetate copolymer dispersion having a solids content of from 10% to 60% by weight and the following range of monomeric units:

(1) 50% to 70% by weight of the monomer units of vinyl acetate units,

(2) 20% to 35% by weight of the monomer units of higher molecular weight ethylenically-unsaturated ester units selected from the group consisting of vinyl esters of alkanoic acids having from 8 to 18 carbon atoms, alkyl esters having from 4 to 18 carbon atoms in the alkyl of acrylic acid, alkyl esters having from 4 to 18 carbon atoms in the alkyl of methacrylic acid, and mixtures thereof, and

(3) 3% to 15% by weight of the monomer units of ethylenically-unsaturated acid units selected from the group consisting of alkenoic acids having 3 to 4 carbon atoms, alkendioic acids having 4 carbon atoms, alkyl monoesters having from 1 to 18 carbon atoms in the alkyl of alkenedioic acids having 4 carbon atoms, alkenyl monoesters having from 3 to 6 carbon atoms in the alkenyl of alkanedioic acids having 2 to 6 carbon atoms, and mixtures thereof,

and containing from 0.5% to 10% by weight, based on the monomer units, of protective colloids and from 0 to 6% by weight, based on the monomer units of emulsifiers, said binder being applied to said cellulosic non-woven material as an aqueous dispersion and subsequently dried.

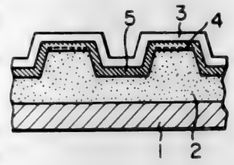
4,278,728

EMBOSSED INTERIOR FINISHING MATERIALS HAVING EXCELLENT CIGARETTE MARK RESISTANCE

Kiyoshi Honda, Hirakata; Kazuya Kuriyama, Chiba; Shigeru Murakami, Ichihara; Ryozo Sugawara, and Chiaki Nakamura, both of Chiba, all of Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, Japan

Filed Oct. 26, 1979, Ser. No. 88,416
Claims priority, application Japan, Oct. 30, 1978, 53-132613
Int. Cl.³ B32B *3/00, 5/18, 5/20*; B05D *3/06*
U.S. Cl. 428—313 **13 Claims**

1. A method for producing an embossed interior finishing material having superior cigarette mark resistance, which comprises coating a composition comprising a vinyl chloride polymer, a reactive plasticizer, a blowing agent and a light sensitizer on a base material (A), irradiating ultraviolet light partly onto the coated base material



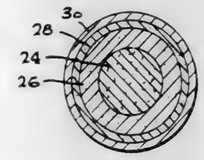
to form a foamed undercoat layer (B), coating a composition comprising a vinyl chloride polymer, a reactive plasticizer and a light sensitizing agent on said undercoat layer (B), and then irradiating ultraviolet light onto the resulting laminate to form a top coat layer (C).

4,278,729

PRODUCTION OF CARBON FIBER-TANTALUM CARBIDE COMPOSITES

James O. Gibson, and Mark G. Gibson, both of 871 El Oro La., Pacific Palisades, Calif. 90272

Division of Ser. No. 942,485, Sep. 15, 1978, Pat. No. 4,196,230. This application Nov. 19, 1979, Ser. No. 95,158
Int. Cl.³ B32B *9/00*; D02G *3/00*
U.S. Cl. 428—368 **13 Claims**



1. An erosion resistant high strength composite consisting essentially of carbon fibers impregnated or coated with a first coating of tantalum carbide and carbon, a second coating of tantalum carbide overlying said first coating and a third continuous phase coating of a refractory metal overlying said second coating and forming the matrix of said composite, said refractory metal selected from the group consisting of tantalum, rhenium and tungsten.

12. An erosion resistant high strength composite comprising a matrix of a refractory metal selected from the group consisting of tantalum, rhenium and tungsten, and a multiplicity of carbon fibers in said matrix, said carbon fibers impregnated or coated with a first coating of tantalum carbide and carbon, and a second coating of tantalum carbide overlying said first coating, said matrix metal forming a continuous phase coating over said second coating.

4,278,730

FAST-COOLING STYRENE POLYMER FOAMS

John P. Spicuzza, Jr., Mt. Lebanon, Pa., assignor to ARCO Polymers, Inc., Philadelphia, Pa.

Filed Oct. 1, 1980, Ser. No. 192,664
Int. Cl.³ C08J *9/14*
U.S. Cl. 428—407 **5 Claims**

1. A composition comprising a styrene polymer particles containing dispersed throughout 3 to 20 weight percent of a blowing agent and coated on the surface of said particles thereof by 0.06 to 0.6 weight percent of decaglyceroloctaoleate.

4,278,731

FAST-COOLING STYRENE POLYMER FOAMS

John P. Spicuzza, Jr., Mt. Lebanon, and John G. Klepic, III, Cornopolis, both of Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed Oct. 1, 1980, Ser. No. 192,665
Int. Cl.³ C08J *9/14*
U.S. Cl. 428—407 **5 Claims**

1. A composition comprising a styrene polymer particles containing dispersed throughout 3 to 20 weight percent of a blowing agent and coated on the surface of said particles with 0.05 to 0.6 weight percent of a mixture of esters having general formula RCO_2R', wherein R and R' may be the same or different and are long chain alkyl groups having from 12 to 18 carbon atoms and which mixture of esters is composed of 20 to 30 weight percent of C_{14} or lower alkyls, 50 to 55 weight percent of C_{16} alkyls and 20 to 25 weight percent of C_{18} alkyls.

4,278,732

ANTILUMPING EXPANDABLE STYRENE POLYMERS

John P. Spicuzza, Jr., Mt. Lebanon, Pa., assignor to ARCO Polymers, Inc., Philadelphia, Pa.

Filed Oct. 1, 1980, Ser. No. 192,670
Int. Cl.³ C08J *9/14*
U.S. Cl. 428—407 **3 Claims**

1. Expandable styrene polymer particles which will not lump during pre-expansion, comprising styrene polymer particles containing a blowing agent and having on their surface from 0.02 to 0.05 percent by weight based on polymer of decaglyceroloctaoleate.

4,278,733

EPOXY MODIFIED ANILINE-PHENOLIC LAMINATE

James R. Benzinger, Orchard Park, N.Y., assignor to Spaulding Fibre Company, Inc., Buffalo, N.Y.

Filed Jul. 23, 1979, Ser. No. 59,581
Int. Cl.³ B32B *27/08, 27/10, 27/26, 27/38, 27/42*
U.S. Cl. 428—413 **10 Claims**

1. A laminate product comprising a base material impregnated with a cured mixture of a first composition comprising two moles of aniline, about 5 to 28 moles of phenol and about 7 to 30 moles of formaldehyde and a second composition consisting essentially of an epoxy resin which is about 10% to 500% by weight of the first composition.

6. A method of making a laminate product comprising:

(a) Reacting a mixture comprising two moles of aniline, about 5 to 28 moles of phenol and about 7 to 30 moles of formaldehyde under reflux to produce a resole;

(b) Separating said resole and adjusting the water content thereof to less than about 12% by weight;

(c) Adding a solvent to said resole in an amount sufficient to bring the total solids content to about 50% by weight;

(d) Adding essentially only epoxy resin to said mixture; and

(e) Impregnating a base material with the composition from step (d).

4,278,734

OPTICAL INFORMATION RECORDING MATERIAL AND METHOD OF RECORDING AND REPRODUCING INFORMATION USING SAME MATERIAL

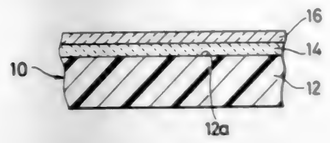
Takeo Ohta; Nobuo Akahira; Tatsushi Nakamura, and Tadaoki Yamashita, all of Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 8, 1979, Ser. No. 64,748
Claims priority, application Japan, Aug. 17, 1978, 53-100626
Int. Cl.³ C23C *3/04*
U.S. Cl. 428—432 **13 Claims**

6. In a method of optically recording and reproducing information, wherein information is recorded on a thin film of a photosensitive material by applying optical energy to the thin film to cause a selective change in optical density of the thin film and subsequently reproduced by applying optical energy

to the thin film to detect variations of optical density of the thin film resulting from the recording of information,

the improvement comprising said photosensitive material



being at least one suboxide of a metal or semimetal selected from the elements of Groups IIIB, IVB, VB and VIB and added with at least one Group VIB element selected from the group consisting of S aand Se.

4,278,735

AQUEOUS METAL COORDINATION COMPOUNDS AS PROTECTIVE COATINGS FOR GLASS

Arnold F. Marcantonio, and Rodney E. Dailey, both of Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.

Division of Ser. No. 8,291, Jan. 31, 1979, Pat. No. 4,232,065. This application Feb. 21, 1980, Ser. No. 123,235

Int. Cl.³ B32B *17/06, 27/06*

U.S. Cl. 428—432 **4 Claims**

1. A coated glass article having improved chemical durability and scratch resistance, said coated article being formed by applying to the surface of said article while it is at a temperature of at least 425° C., an aqueous solution comprising of from 5 to about 30 weight percent of compound having MX_6^{-2} ions wherein M is titanium, tin or zirconium and X is a halogen, said M being the central atom in the compound and having an oxidation number of +4 and a coordination number of 6, the temperature of the glass being sufficient to immediately and substantially completely vaporize the water content of said solution, annealing said coated article, applying thereafter to said article an organic material selected from the group consisting of polyethylene, polypropylene, polystyrene, polyurethane, and fatty acids and their derivatives and mixtures thereof.

2. A coated glass article having improved chemical durability, said coated article being formed by applying to the surface a coordination compound at a temperature of at least 425° C., and above the decomposition temperature of said coordination compound, said compound being represented by the formula Y_2MX_6 wherein Y is an alkali metal, hydrogen or ammonium, M is titanium, tin or zirconium and X is a halogen, said M being the central atom in the compound and having an oxidation number of +4 and a coordination number of 6, said article having a titrant value less than about 0.75 ml of 0.02 N H_2SO_4, the coating formed by said compound being greater than about 8 angstroms and having a ware scratch resistance of more than 30 pounds load abrasion to audible scratching.

4,278,736

CONTRAST ENHANCEMENT FILTER AND METHOD

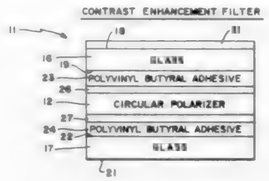
Marc A. Kamerling, Santa Rosa, Calif., assignor to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Jan. 5, 1979, Ser. No. 1,359

Int. Cl.³ G02B *1/08;* **B32B** *17/10, 27/42, 27/30*

U.S. Cl. 428—437 **3 Claims**

1. In a contrast enhancement filter for use with a face plate of a display device, first and second transparent glass substrates with first and second surfaces with the first surfaces being disposed in the medium in which the filter is disposed, a sheet-like polarizer disposed between the first and second substrates, said polarizer being formed of stretched plastic members covered by layers of cellulose acetate butyrate, said stretched plastic members comprising a linear polarizer and a quarter wave retardation plate, a dried plastisol primer layer disposed on the outer surface of the layers of cellulose acetate butyrate facing the glass substrates, and first and second layers of a



polyvinyl butyral adhesive securing the circular polarizer to the glass substrates.

4,278,737

ANODIZING ALUMINUM

Geoffrey K. Creffield, Chessington; Anthony J. Wickens, Rudgwick; Anthony C. H. Dowd, Chessington, and Vernon F. F. Henley, London, all of England, assignors to United States Borax & Chemical Corporation, Los Angeles, Calif.

Filed Jul. 30, 1979, Ser. No. 62,146

Claims priority, application United Kingdom, Aug. 4, 1978, 32277/78

Int. Cl.³ C25D *11/06*

U.S. Cl. 428—469 **12 Claims**

1. A method of anodising aluminum which comprises subjecting it to electrolysis first in a bath of an aqueous alkaline electrolyte solution containing a borate at a pH of between 9 and 11 and a temperature in the range of about 50° to 80° C. until there is formed an oxide layer at least 2 microns thick and then in a second bath of electrolyte containing an aqueous solution of an acid until the desired total thickness of the oxide coating is formed.

4,278,738

ETHYLENE-VINYL ACETATE COPOLYMER FILM LAMINATE

Harri J. Brax; Joseph F. Porinchak, both of Spartanburg, and Alan S. Weinberg, Greenville, all of S.C., assignors to W. R. Grace & Co., Duncan, S.C.

Continuation of Ser. No. 887,893, Mar. 10, 1978, abandoned, which is a continuation of Ser. No. 646,110, Jan. 2, 1976, Pat. No. 4,031,162, which is a division of Ser. No. 344,005, Mar. 22, 1973, Pat. No. 3,953,557, which is a division of Ser. No. 129,501, Mar. 30, 1971, Pat. No. 3,741,253. This application Jul. 16, 1979, Ser. No. 57,615

Int. Cl.³ B32B *27/08, 27/32;* **B29D** *23/04*

U.S. Cl. 428—515 **4 Claims**



1. A multi-ply, thermoplastic film laminate comprising:

(a) a first ply being a substrate layer consisting essentially of a cross-linked ethylene-vinyl acetate copolymer;

(b) a second ply comprising a barrier material selected from the group consisting of vinyl chloride-vinylidene chloride copolymers, and,

(c) a third ply comprising an uncross-linked ethylene-vinyl acetate copolymer.

4,278,739

ELECTROLESS METAL PLATED LAMINATES

Miguel Coll-Palagos, Rye, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 6,141, Jan. 24, 1979, which is a continuation-in-part of Ser. No. 871,308, Jan. 23, 1978, abandoned, which is a continuation of Ser. No. 735,243, Oct. 26, 1976, abandoned, which is a division of Ser. No. 561,957, Mar. 25, 1975, abandoned. This application Jul. 16, 1979, Ser. No. 57,877

Int. Cl.³ C23C *3/02*

U.S. Cl. 428—623 **6 Claims**

1. A laminate comprising a substrate material provided with a coating of a non-conductive hydrophilic composite material and said composite material provided with a coating of an electrolessly plated metal wherein the hydrophilic composite material is comprised of a blend of at least one film forming component selected from the group consisting of vinyl chloride, vinyl acetate and copolymers thereof; and cellulose esters and polyvinyl acetals; and at least one hydrophilic component of a water soluble polymeric component, the water soluble component being polyvinyl pyrrolidone, the water soluble component being dispersed throughout the coating of the composite material producing a microporous surface upon contacting the composite material with water or a water solution of salts which dissolve the water soluble component.

4,278,740

ALUMINUM-TIN BASE BEARING ALLOY AND COMPOSITE

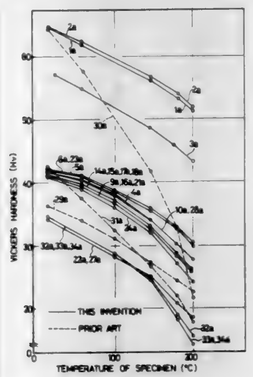
Tamotsu Nara, Toyota, and Soji Kamiya, Nishio, both of Japan, assignors to Taiho Kogyo Co., Ltd., Toyota, Japan

Filed Jun. 11, 1979, Ser. No. 47,336

Claims priority, application Japan, Jul. 11, 1978, 53/84232; Jul. 11, 1978, 53/84233

Int. Cl.³ B32B *15/04*

U.S. Cl. 428—653 **20 Claims**



1. An Al-Sn base, bearing alloy, consisting essentially of: from 3.5 to 35 wt.% of Sn; from 0.1 to 1.0 wt.% of Cr; from 1 to 10 wt.%, in total, of one or more additive elements selected from the group consisting of Si, Mn, Sb, Ti, Ni and Fe; and the balance is Al.

5. A bearing material which is made by applying said bearing alloy as claimed in claim 1 to a backing steel sheet by pressure welding.

4,278,741

NONAQUEOUS CELL

Tibor Kalnoki-kis, Westlake, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 147,132, May 6, 1980, abandoned, which is a continuation-in-part of Ser. No. 52,463, Jun. 27, 1979, abandoned. This application May 30, 1980, Ser. No. 151,993

Int. Cl.³ H01M *6/00*

U.S. Cl. 429—48 **14 Claims**

1. A nonaqueous cell comprising an ionically conductive cathode-electrolyte solution comprising a solute dissolved in an active liquid cathode; an active metal anode; a cathode collector; a separator disposed between the anode and the cathode collector; and wherein at least a portion of the surface of the separator is coated with a vinyl polymer film.

4,278,742

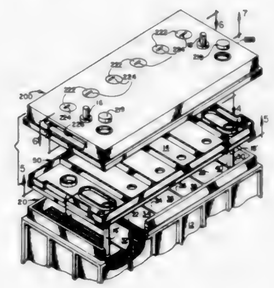
MANIFOLD VENTED BATTERY COVER

Terry R. Oxenreider, Wernersville, and Herbert A. Bush, Jr., Kenhorst, both of Pa., assignors to General Battery Corporation, Reading, Pa.

Filed May 5, 1980, Ser. No. 146,577

Int. Cl.³ H01M *2/12*

U.S. Cl. 429—88 **2 Claims**



1. A manifold cover for use with a battery case having upstanding partitions forming a plurality of cell compartments and an equal plurality of battery plate packets to provide a lead acid storage battery, said manifold cover comprising:

an inner member for sealably engaging said battery case and said upstanding partitions to define a plurality of substantially closed cells, each of said cells having a vent port which depends from said lower portion of said manifold cover into said cell,

an outer member dimensioned to fit over and about said inner member to define a manifold portion therebetween, said outer member having: an electrolyte fill port for each of the respective cells, said electrolyte fill port extending from the upper surface of said outer member through said manifold portion and said lower member into said battery cell, said electrolyte fill port further having a cap for sealing said fill port; a bore positioned over each of the end cells of said battery case; and an aperture for opening said manifold to the atmosphere; and

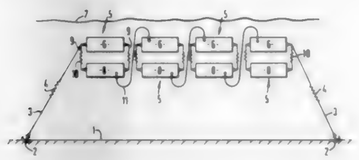
terminal posts, positioned over each of the end cells of said battery case, said terminals comprising a male portion extending through said outer member, a web portion extending under said outer member and a female portion depending from said web portion, said female portion being positioned under said bore in said outer member and dimensioned to receive a terminal post normally associated with the end cell battery plate packet, said web portion and said female portion encapsulated and sealed within the said manifold portion between said inner and outer members.

4,278,743

GENERATION OF ELECTRICAL ENERGY

Jack E. Thompson, "Edgmont", Woodhouse La., Holmbury St. Mary, Nr. Dorking, Surrey, England

Filed Dec. 31, 1979, Ser. No. 108,555
Int. Cl.³ H01M 6/34
U.S. Cl. 429—119 **8 Claims**



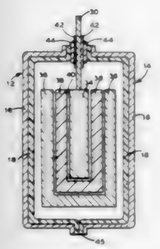
1. A marine installation for generating electrical energy, which installation operates as an electric battery using the sea as the electrolyte and comprising a plurality of individual electric cells connected together mechanically and electrically to form a floating structure which is anchored to the sea bed and insulated to prevent loss of potential by conduction, each cell comprising an upper electrode coated with a material which reacts electrochemically with sea water and arranged to float on or just below the surface of the water, a lower electrode of greater weight than said upper electrode and also coated with a material which reacts electrochemically with sea water, insulated means and insulated means suspending said lower electrode from said upper electrode.

4,278,744

EXPANDABLE CASING FOR ELECTRO-CHEMICAL CELLS

Lee F. Athearn, Reading, Mass., assignor to Duracell International Inc., Bethel, Conn.

Continuation of Ser. No. 643,588, Dec. 19, 1975, abandoned, which is a continuation of Ser. No. 187,762, Oct. 8, 1971, abandoned, which is a continuation-in-part of Ser. No. 822,661, May 7, 1969, abandoned. This application Jan. 27, 1978, Ser. No. 873,046
Int. Cl.³ H01M 2/02
U.S. Cl. 429—181 **3 Claims**



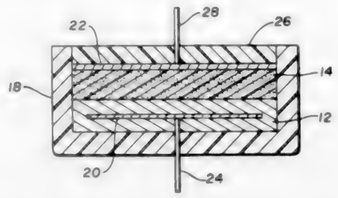
1. An electrochemical cell containing a lithium anode, an electrolyte salt, an organic electrolyte solvent, and a cathode, and said cell having an hermetically sealed, flexible casing with terminals extending through sealed openings in the casing; wherein said casing is formed from a laminated material comprising a first inner layer which is permeable to vapors of said electrolyte solvent but free of pinholes, thereby rendering it impermeable to said electrolyte salt, and said inner layer being substantially completely surrounded by an outer, air impermeable metal barrier layer which prevents the vapors of said electrolyte solvent from escaping.

4,278,745

CATHODE MATERIALS FOR ELECTROCHEMICAL CELLS

Paul M. Skarstad, Wayzata; Darrel F. Untereker, Cedar, and Arthur J. Coury, St. Paul, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Feb. 25, 1980, Ser. No. 124,082
Int. Cl.³ H01M 4/60
U.S. Cl. 429—213 **23 Claims**



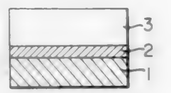
1. As a cathode material for electrochemical cells, a combination consisting essentially of a conductive mixture comprising a first constituent selected from the group consisting of monomeric substituted pyridines, dimeric substituted pyridines, derivatives of dimeric substituted pyridines, monomeric quinoline, monomeric substituted quinolines, trimeric substituted pyridines, derivatives of trimeric substituted pyridines and mixtures thereof; a second constituent selected from the group consisting of poly-2-vinylpyridine; poly-4-vinylpyridine; poly-2-vinylquinoline; poly-2-methyl-5-vinylpyridine; copolymers thereof; pyridine; 1,2-bis(4-pyridyl)ethylene; 1,2-bis(2-pyridyl)ethylene; 2,2'-dipyridyl; 4,4'-dipyridyl; 2,4'-dipyridyl, and mixtures thereof, and a third constituent comprising iodine.

4,278,746

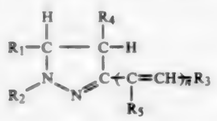
PHOTOSENSITIVE ELEMENTS FOR ELECTROPHOTOGRAPHY

Satoshi Goto; Yoshiaki Takei; Ichiro Imaho, and Hiroyuki Nomori, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jun. 14, 1979, Ser. No. 48,456
Claims priority, application Japan, Jun. 21, 1978, 53-75854
Int. Cl.³ G03G 5/04
U.S. Cl. 430—59 **8 Claims**



1. A photosensitive element for electrophotography which element comprises a conductive support, a charge generating layer containing a charge generating substance, and a charge transporting layer; said charge transporting layer comprising a polymeric binder containing a charge transporting substance represented by the following general formula



wherein n represents 0 or 1, R_1, R_2 and R_3 each represent an aryl group, and R_4 and R_5 each represent a hydrogen, an alkyl group having 1–4 carbon atoms, an aryl group or an aralkyl

group, provided that R_4 and R_5 are not simultaneously a hydrogen, and when n is 0, R_4 is not hydrogen.

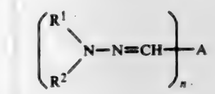
4,278,747

ELECTROPHOTOGRAPHIC PLATE COMPRISING A CONDUCTIVE SUBSTRATE AND A PHOTOSENSITIVE LAYER CONTAINING AN ORGANIC PHOTOCONDUCTOR LAYER COMPOSED OF A HYDRAZONE COMPOUND

Tetsuo Murayama, Machida; Shigenori Otsuka, Tokyo, and Tsunemitsu Tajima, Kawasaki, all of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Apr. 26, 1979, Ser. No. 33,401
Claims priority, application Japan, May 17, 1978, 53/58536
Int. Cl.³ G03G 5/06
U.S. Cl. 430—82 **15 Claims**

1. An electrophotographic plate comprising a conductive substrate and a photosensitive layer coated thereon; wherein said photosensitive layer comprises an organic photoconductor layer; and wherein said organic photoconductor layer comprises a hydrazone compound represented by the general formula (I):



(I)

wherein R^1 and R^2 are independently selected from the group consisting of substituted or unsubstituted alkyl, substituted or unsubstituted aralkyl, and substituted or unsubstituted aryl, n is a number of 1 or 2, and A is an unsubstituted or substituted aromatic heterocyclic group, and a binder.

4,278,748

ABSORBED HYDRAZIDE NUCLEATING AGENTS AND PHOTOGRAPHIC ELEMENTS CONTAINING SUCH AGENTS

Jasbir Sidhu, Harrow; Michael J. Simons, Ruislip, and Miroslav V. Mijovic, Watford, all of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 25, 1979, Ser. No. 60,549
Int. Cl.³ G03C 1/40, 5/24, 7/00, 1/06
U.S. Cl. 430—212 **17 Claims**

1. A silver halide emulsion comprised of silver halide grains capable of forming an internal latent image and, adsorbed to the surface of said silver halide grains, a nucleating amount of a triazole-substituted phenylhydrazide, wherein the phenyl moiety is triazole-substituted.

4,278,749

RECEIVING ELEMENTS CONTAINING GRAFT GELATIN POLYMERS AS DYE MORDANTS

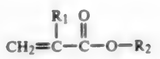
Peter J. Wright, Ilford, England, assignor to Ciba-Geigy AG, Basel, Switzerland

Filed Feb. 4, 1980, Ser. No. 118,243
Claims priority, application United Kingdom, Sep. 3, 1979, 8311/79
Int. Cl.³ G03C 1/40, 7/00; B41N 5/00, 3/00
U.S. Cl. 430—213 **13 Claims**

1. A receiving element for transferred dyes which comprises a support having coated thereon a mordant layer which comprises a graft polymer which is prepared from at least three components:

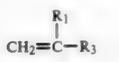
(a) a water-soluble proteinacious polymer

(b) an acrylic monomer of the general formula



(1)

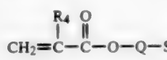
or a vinyl monomer of the general formula



(2)

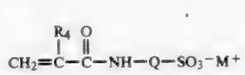
wherein R_1 is hydrogen, halogen or methyl and R_2 is alkyl or aryl and R_3 is aryl, acyloxy or cyano, and

(c) an acrylate or methacrylate monomer of the general formula



(3)

where R_4 is hydrogen or methyl, Q is a bivalent organic radical and M^+ is an alkali metal or ammonium cation or an acrylamide or methacrylamide monomer of the formula



(4)

where R_4 is hydrogen or methyl, Q is a bivalent organic radical and M^+ is an alkali metal or ammonium cation.

4,278,750

NOVEL ELECTRON DONOR PRECURSORS AND PHOTOGRAPHIC ELEMENTS CONTAINING THEM

Chung Y. Chen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

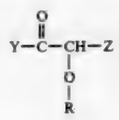
Filed Sep. 6, 1979, Ser. No. 72,873
Int. Cl.³ G03C 1/40, 7/00, 5/54, 1/10
U.S. Cl. 430—218 **35 Claims**

11. In an image transfer film unit processable by means of an alkaline processing composition containing an electron transfer agent, the film unit comprising:

(a) a photographic element comprising a support and a silver halide emulsion having associated therewith an immobile compound which upon reduction under alkaline conditions will release a diffusible dye or photographic reagent;

(b) an image-receiving layer; and

(c) an electron donor precursor codispersed together with the immobile compound in the same solvent; the improvement wherein the electron donor precursor comprises a compound represented by the structural formula:



wherein:

R is an alkali labile group;

Y is an aliphatic or aromatic group;

Z is an electron withdrawing carbamoyl group having the formula



where one of R^{10} and R^{11} is hydrogen and the other is aryl of 6 to 30 carbon atoms; and

Y and Z are of sufficient bulk to render the electron donor precursor substantially immobile in alkali-permeable layers of the film unit.

4,278,751

PHOTOPOLYMERIZATION CO-INITIATOR COMPOSITIONS COMPRISING AMINE-SUBSTITUTED KETOCOUMARINS AND CERTAIN ACETIC ACID DERIVATIVE ACTIVATORS

Donald P. Specht; Kenneth L. Payne, and Samir Y. Farid, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 16, 1979, Ser. No. 95,171
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—281 **9 Claims**

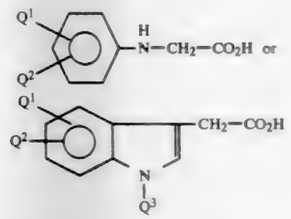
1. In a photopolymerizable composition comprising an addition-polymerizable compound and a co-initiator composition comprising a carbonyl sensitizer and a photopolymerization activator;

the improvement wherein said sensitizer is an amine-substituted ketocoumarin having an adsorption maximum between about 350 and 550 nm and a



substituent in the 3-position wherein R^1 is alkyl or alkenyl having 1 to 12 carbon atoms, or a carbocyclic or heterocyclic group having 5 to 20 carbon and hetero ring atoms; and

wherein said activator has the structure



(I)

(II)

wherein Q^1 and Q^2 are each independently hydrogen; alkyl, alkoxy, or thioalkyl containing from 1 to 5 carbon atoms; aryl, aryloxy, or benzoyloxy containing from 6 to 10 carbon atoms; hydroxy; or halogen; or together Q^1 and Q^2 are the necessary atoms to complete a fused heterocyclic or aromatic ring containing from 4 to 6 ring atoms; and Q^3 is hydrogen or alkyl containing from 1 to 5 carbon atoms.

4,278,752

FLAME RETARDANT RADIATION SENSITIVE ELEMENT

Joseph E. Gervay, Red Bank, and Yvan P. Pilette, Lawrenceville, both of N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 940,170, Sep. 7, 1978, abandoned, which is a continuation-in-part of Ser. No. 780,907, Mar. 24, 1977, abandoned, which is a continuation-in-part of Ser. No. 735,979, Oct. 27, 1976, abandoned. This application Feb. 14, 1980, Ser. No. 121,438
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—281 **15 Claims**

1. In a solvent-developable radiation-sensitive solder mask element having a support bearing a layer of photopolymerizable composition useful as a permanent coating for a printed circuit, which comprises (a) at least one addition polymerizable ethylenically unsaturated compound having a boiling point above 100° C. at normal pressure, (b) an organic free radical-generating addition polymerization initiator activatable by actinic radiation in the ultraviolet-to-visible region of the spectrum and (c) at least 20% by weight of a macromolecular organic polymeric binder, based on the total weight of the composition, the improvement for the purpose of rendering the composition flame retardant and resistant to molten solder without blistering or degradiation of the photopolymerizable layer upon polymerization which comprises

(1) utilizing as the binder component a macromolecular organic polymer containing at least 5% by weight acrylonitrile monomeric units and

(2) incorporating halogen by covalent bonding to at least component (a) of the photopolymerizable composition, the weight percent of covalently bonded halogen based on the total weight of the composition being at least 5 weight percent, with the proviso that the covalent halogen bond is to an aromatic moiety or a conjugated vinyl component.

4,278,753

PLASMA DEVELOPABLE PHOTORESIST COMPOSITION WITH POLYVINYL FORMAL BINDER

James M. Lewis, Aurora, and Eugene F. McInerney, Chagrin Falls, both of Ohio, assignors to Horizons Research Incorporated, Cleveland, Ohio

Filed Feb. 25, 1980, Ser. No. 124,413
Int. Cl.³ G03C *1/68, 5/00*
U.S. Cl. 430—283 **20 Claims**

1. In a photosensitive composition which can be developed as a photoresist by an oxygen plasma, which photosensitive composition consists essentially of a binder containing:

(1) at least one polymerizable N-vinyl monomer selected from the group consisting of N-vinylamines, N-vinylamides, N-vinylimides; and

(2) at least one organo-halogen compound which sufficiently enhances the effect of exposing said monomer to a suitable dose of electromagnetic radiation, so as to induce polymerization of said monomer;

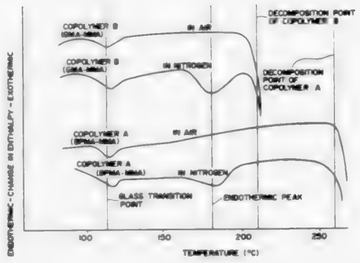
the improvement which consists in providing a polyvinylformal binder having a molecular weight range (weight average) between 10,000 to 40,000 as said binder.

4,278,754

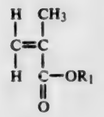
RESISTS AND METHOD OF MANUFACTURING SEMICONDUCTOR ELEMENTS BY USING THE SAME

Yoshio Yamashita; Mitsumasa Kunishi, and Ryuji Kawazu, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

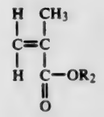
Filed Jul. 17, 1979, Ser. No. 58,814
Claims priority, application Japan, Jul. 20, 1978, 53-87753
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—323 **4 Claims**



1. A method of forming a fine pattern on a substrate comprising the steps of preparing a resist consisting essentially of a copolymer of 10–90 mole % of a first monomer of the formula



where R_1 represents an alkyl group of 1-3 carbon atoms containing at least one member selected from the group consisting of bromine, chlorine and an epoxide radical, and 90–10 mole % of a second monomer of the formula



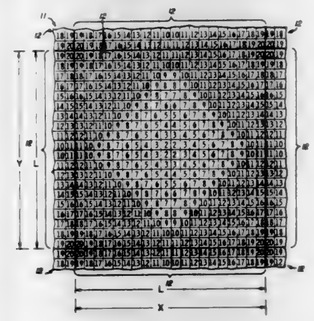
where R_2 represents an alkyl radical; applying said copolymer resist onto a substrate to form a copolymer resist layer; irradiating said copolymer resist layer with ionizing radiations; dissolving irradiated portions of said copolymer resist layer to form a positive pattern; heating the resulting assembly in an inert atmosphere at a temperature of about 180° C. for about 20 to 30 minutes to cause a crosslinking reaction of reactive radicals remaining in said copolymer resist; and etching the heated assembly with a liquid etchant to form an etched pattern on said substrate.

4,278,755

HALFTONE SCREEN AND METHOD OF USING SAME

Hua-Kuang Liu, Tuscaloosa, Ala., assignor to Lumin, Inc., Tuscaloosa, Ala.

Division of Ser. No. 894,902, Apr. 10, 1978, Pat. No. 4,188,225. This application Aug. 27, 1979, Ser. No. 69,907
Int. Cl.³ G03F *5/00*
U.S. Cl. 430—396 **9 Claims**



1. In a method of using a screen for reproduction of continuous-tone graphics, the steps of:

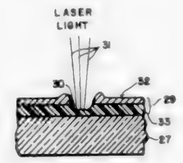
exposing a high contrast medium to the continuous tone graphic image to be reproduced through a screen pattern to produce a corresponding dot exposure pattern on the high contrast medium, said exposure dots having a size corresponding to the tone of the graphic image in the region of the respective dot, said screen pattern being characterized by comprising a two-dimensional matrix of cell portions each cell portion having a common pattern of transmittance to radiation to be directed through said screen pattern, said common pattern of transmittance having a plural finite number of different discrete transmittance level patterns, each cell being characterized by sets of unit areas, each set of unit areas having a uniform optical transmittance level, with each set of unit areas having a discrete optical transmittance level differing from each other set of unit areas within the cell by a well-defined combination of unit step functions being functions of two variables, one variable being the distance to the point where the optical transmittance level is evaluated from the boundary of a first side of said cell, and the other variable being the distance of said point from the boundary of the side adjacent said first side of said cell.

4,278,756

REFLECTIVE DATA STORAGE MEDIUM MADE BY SILVER DIFFUSION TRANSFER

Eric W. Bouldin, Woodside, and Jerome Drexler, Los Altos Hills, both of Calif., assignors to Drexler Technology Corporation, Mountain View, Calif.

Filed Jul. 6, 1979, Ser. No. 55,270
Int. Cl.³ G03C *1/02, 5/32;* **G01D** *15/24, 15/26*
U.S. Cl. 430—414 **18 Claims**



18. A negative silver diffusion transfer process for making a reflective electrically non-conducting data storage medium from a photosensitive silver-halide emulsion comprising,

photographically defining data storage fields in a photosensitive silver-halide emulsion and further defining a pattern of indicia in these recording fields,

photographically exposing and chemically developing said pattern to form low reflectivity data images while leaving the remainder of the silver-halide emulsion unexposed and undeveloped,

forming an areawise surface latent image layer of silver precipitating nuclei in the unexposed and undeveloped recording fields of the photosensitive silver-halide emulsion layer, said latent image layer of silver precipitating nuclei having a gradient of decreasing volume concentration through the depth of the emulsion, said emulsion having unexposed photosensitive silver halide remaining therein in concentrations inversely related to said latent image concentration,

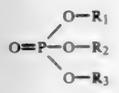
contacting said unexposed photosensitive silver-halide emulsion layer with a reagent, comprising a weak silver-halide developing agent for chemical development of said surface latent image layer of silver precipitating nuclei and a rapid-acting silver-halide complexing solvent for reacting with unexposed and undeveloped silver halide to form soluble silver ion complexes which are transported by diffusion transfer to said chemically developed silver-precipitating nuclei of said latent image where silver of said silver ion complexes is precipitated and adsorbed on said chemically developed nuclei in the presence of said developer acting as a reducing agent, thereby forming a reflective electrically non-conducting layer of aggregated and individual silver particles in said areas for data storage, the activity of said solvent permitting chemical development of the surface latent by the weak developing agent while simultaneously all of the undeveloped and unexposed silver halide is dissolved by the complexing agent.

4,278,757
SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Yasuo Mukunoki; Masakazu Yoneyama; Jiro Yamaguchi; Hideki Naito, and Jun Sasaki, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 10, 1979, Ser. No. 65,496
Claims priority, application Japan, Aug. 10, 1978, 53-97575
Int. Cl.³ G03C *1/40, 1/10, 1/84, 1/68*
U.S. Cl. 430—512 **19 Claims**

1. In a silver halide photographic light-sensitive material comprising a support having thereon at least one silver halide emulsion layer and at least one hydrophilic organic colloid layer, said silver halide emulsion layer being the same as or different than said hydrophilic colloid layer and at least one of said silver halide emulsion layer or said hydrophilic organic colloid layer containing a dispersion of a substantially water-insoluble photographic additive dissolved in a solvent, the improvement wherein said solvent comprises a phosphoric acid ester represented by the following general formula (I):



(I)

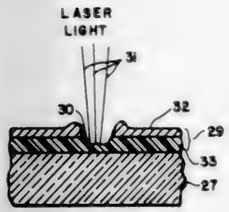
wherein R_1 represents a saturated alicyclic group; and R_2 and R_3, which may be the same or different, each represents a saturated alicyclic group, an alkyl group or an aryl group.

9. The silver halide photographic light-sensitive material of claim 1, wherein said substantially water-insoluble photographic additive is a photographic coupler, an antioxidant, a fade preventing agent, a hardener, an oil-soluble filter dye, an oil-soluble ultraviolet absorbing agent, a fluorescent brightening agent, a development inhibitor releasing compound, a developing agent, a diffusible dye releasing coupler, a diffusible dye releasing redox compound or a dye developing agent.

4,278,758
PROCESS FOR MAKING A REFLECTIVE DATA STORAGE MEDIUM

Jerome Drexler, Los Altos Hills, and Eric W. Bouldin, Woodside, both of Calif., assignors to Drexler Technology Corporation, Mountain View, Calif.

Continuation-in-part of Ser. No. 55,270, Jul. 6, 1979. This application Sep. 6, 1979, Ser. No. 72,908
Int. Cl.³ G03C *1/76;* **G02B** *27/22;* **G03C** *1/48, 5/24*
U.S. Cl. 430—616 **16 Claims**



1. A method of making a reflective electrically non-conducting data storage medium comprising,

forming an areawise, latent image exposure in a photosensitive silver-halide emulsion layer disposed on a substrate, thereby defining an area for data storage, said exposure creating an areawise layer of silver precipitating nuclei having a volume concentration gradient through the depth of the emulsion, said emulsion having unexposed photosensitive silver-halide remaining therein in concentrations inversely related to said nuclei concentration,

contacting said unexposed photosensitive silver-halide emulsion layer with an aqueous monobath comprising a weak silver-halide developing agent for developing said latent image and a rapid-acting silver-halide solvent for reacting with unexposed and undeveloped silver halide to form soluble silver ion complexes which are transported by chemical diffusion transfer to said silver-precipitating nuclei of said latent image where silver of said silver ion complexes is precipitated and adsorbed on said nuclei in the presence of said developer acting as a reducing agent, thereby forming a reflective electrically non-conducting silver negative of said latent image in said area for data storage, and

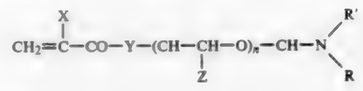
heating said reflective electrically non-conducting data storage medium at least to 250° C. until the reflectivity of the surface increases by at least 5% of the initial reflectivity percentage.

4,278,759
PROCESS OF PREPARING PHOTOGRAPHIC SILVER HALIDE EMULSION

Wilhelm Saleck, Schildgen; Erich Wolff, and Erwin Müller, both of Leverkusen, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert A.G., Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 845,137, Oct. 25, 1977, abandoned, which is a continuation of Ser. No. 657,217, Feb. 11, 1976, abandoned. This application May 24, 1979, Ser. No. 42,082
Claims priority, application Fed. Rep. of Germany, Feb. 15, 1975, 2506405
Int. Cl.³ G03C *1/02*
U.S. Cl. 430—627 **2 Claims**

1. In the process for the preparation of a photographic silver halide emulsion by precipitation and physical ripening of the silver halide in the presence of a peptisation agent, followed by flocculation of the emulsion, washing if necessary, redispersion and chemical ripening, the improvement according to which the precipitation of the silver halide is carried out in the presence of a hydrophilic colloid binder for the silver halide emulsion containing from 50% to 100% of a homopolymer of the compound of the following formula:



in which

X represents hydrogen or an alkyl group containing 1 to 6 carbon atoms,

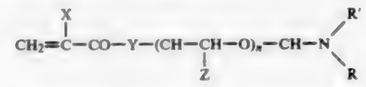
Y represents —NH—, $-NC_mH_{2m+1}-$(m=1-6) or —O—,

Z represents hydrogen or an alkyl group containing 1 to 4 carbon atoms,

R and R′ may be the same or different and represent an alkyl group containing 1 to 18 carbon atoms or a cycloalkyl group containing 5 to 7 carbon atoms or R and R′ together with the nitrogen atom may represent a heterocyclic ring which may also contain other heteroatoms, and

n represents an integer of from 1 to 10

or, a copolymer of a monomer mixture with 2 to 50 mol% of a compound of the following formula:



in which

X represents hydrogen or an alkyl group containing 1 to 6 carbon atoms,

Y represents —NH—, $-NC_mH_{2m+1}-$(m=1-6) or —O—,

Z represents hydrogen or an alkyl group containing 1 to 4 carbon atoms,

R and R′ may be the same or different and represent an alkyl group containing 1 to 18 carbon atoms or a cycloalkyl group containing 5 to 7 carbon atoms or R and R′ together with the nitrogen atoms may represent a heterocyclic ring which may also contain other heteroatoms, and

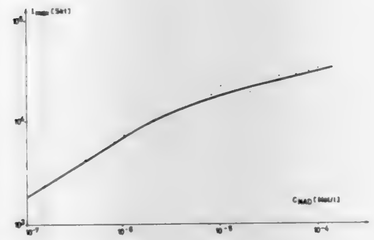
n represents an integer of from 1 to 10

the remainder of said binder made up with protective colloid, said homopolymer or said copolymer having a molecular weight ranging from 10,000 to 1,000,000, wherein said compound of said formula when used to form a copolymer is copolymerized essentially with a comonomer which is a water soluble polymerizable monomer compound selected from the group consisting of vinyl pyrridine, vinyl methyl ether, acrylamide and methacrylamide, and compounds of carboxylic acid, sulfonic acid, phosphonic acid and acrylic acid, said emulsion containing said homopolymer or said copolymer in an amount of from 1 g to 200 g per mol o silver halide.

4,278,760
METHOD AND COMPOSITION FOR DETERMINING AN OXIDIZED PYRIDINE CO-ENZYME

Karl Wulff, Weilheim; Fritz Stähler, and Gerhard Michal, both of Tutzing, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Jul. 19, 1979, Ser. No. 58,873
Claims priority, application Fed. Rep. of Germany, Aug. 1, 1978, 2833723
Int. Cl.³ C12Q *1/66*
U.S. Cl. 435—8 **14 Claims**



1. Method for the quantitative determination of an oxidized pyridine co-enzyme which comprises reacting a sample containing oxidized pyridine co-enzyme in the presence of its specific alcohol dehydrogenase with an aliphatic alcohol of 8 to 16 carbon atoms, oxidizing the aldehyde formed with reduced flavine mononucleotide and oxygen in the presence of luciferase and of the particular FMN-reductase which is independent of the co-enzyme to be determined and of the reduced substrate co-enzyme of the latter, and measuring the resulting light emission as a measure of the initial oxidized pyrizine co-enzyme content.

8. Reagent for the determination of an oxidized pyridine co-enzyme comprising

luciferase;
FMN reductase;
an aliphatic alcohol of 8 to 16 carbon atoms;
a reduced co-enzyme;
an alcohol dehydrogenase specific for the co-enzyme to be determined;
flavine-mononucleotide (FMN); and
a buffer.

4,278,761
ENZYME ASSAY AND KIT THEREFOR

John W. Hastings, Constance, Fed. Rep. of Germany, and Shiao-Chun Tu, Houston, Tex., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Filed Dec. 26, 1979, Ser. No. 107,439
Int. Cl.³ C12Q *1/6;* **C12N** *11/18, 11/14, 11/02*
U.S. Cl. 435—8 **7 Claims**

2. Composition comprising a single immobilized enzyme of a pair selected from the group consisting of water-soluble glycolytic enzyme pairs, said enzyme being covalently bonded to a water-insoluble support and being the sole enzyme of said pair covalently bonded to said support and the other enzyme of said pair being bound to said immobilized enzyme.

3. The method of assaying an enzyme of a water-soluble glycolytic enzyme pair or a substrate of one of said enzymes which comprises:

providing one enzyme of said pair immobilized on a water-insoluble support,

bringing said immobilized enzyme into contact with a solution containing the other enzyme of said pair and the substrates of said enzymes, whereby said other enzyme is bound to said immobilized enzyme and reactions between said substrates are catalyzed by said enzymes,

the amount of each said enzyme and each said substrate except for the enzyme or substrate to be assayed being in excess of the stoichiometric amount, and

measuring the amount of at least one product of the last said reaction.

4,278,762
METHOD FOR THE QUANTITATIVE DETERMINATION OF PLASMINOGEN ACTIVATORS

Lars G. Svendsen, Reinach BL, Switzerland, assignor to Pentapharm AG, Basel, Switzerland

Division of Ser. No. 798,426, May 19, 1977, Pat. No. 4,190,574. This application Sep. 11, 1979, Ser. No. 74,551
Claims priority, application Switzerland, May 28, 1976, 006816/76
Int. Cl.³ C12Q *1/56*
U.S. Cl. 435—13 **5 Claims**

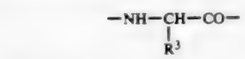


1. A method for the quantitative determination of plasminogen activators, inhibitors thereof and plasminogen preactivators, and trypsin, trypsin inhibitors and trypsinogen in human and other mammal body fluids and tissue extracts, which comprises:

(1) reacting said body fluids or tissue extracts with a substrate which has the following structure:

$$R^1—X—Y—Z—NH—R^2$$

wherein X represents a group having the formula



in which R^3 is a straight or branched alkyl radical having 1 to 7 carbon atoms or a cyclohexyl or cyclohexylmethyl

radical, Y represents a seryl group or a glycyl group, Z represents an arginyl group, R^1 represents hydrogen or an acyl or sulfonyl group and R^2 represents an aromatic hydrocarbon radical optionally carrying substituents which permit chromophoric or fluorescent activity, -NH-R^2 being a chromophoric or fluorescent group, and which has the property to release a split product of formula NH_2R^2 under the action of plasminogen activators, and

(2) measuring by photometric, spectrophotometric or fluorescence-photometric methods the quantity of the split product NH_2R^2 formed by the hydrolytic action of the biologically active factors on the substrate.

4,278,763

DIAGNOSTIC AGENTS FOR THE DETECTION OF PROTEOLYTIC ENZYMES

Dieter Berger, Viernheim; Franz Braun, Rimbach; Werner Güthlein, Mannheim; Manfred Kuhr, Mannheim, and Wolfgang Werner, Mannheim, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

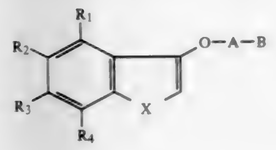
Filed Nov. 30, 1979, Ser. No. 99,180

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2854987

Int. Cl.³ C12Q *1/38*

U.S. Cl. 435—23 **28 Claims**

28. Method of detecting proteolytic enzymes which method comprises contacting a sample suspected of containing a proteolytic enzyme with a diagnostic agent comprising an absorbent carrier, a film layer, a powder mixture, a lyophilizate, a solution or a reagent tablet, containing at least one chromogen and an appropriate buffer substance, at least one chromogen having been selected from the group consisting of indoxylamino acid esters, thioindoxylamino acid esters and peptide esters of the formula



wherein

R_1, R_2, R_3 and R_4 are individually selected from hydrogen, halogen, lower alkyl, lower alkoxy, aryl, aralkyl, aralkoxy, hydroxyl, carboxy, carboxy lower alkoxy, aralkoxycarbonyl, aralkyloxycarbonyl lower alkoxy, nitro or lower acylamino radicals, whereby two adjacent substituents can also represent an optionally halogenated fused benzene ring;

X is a sulfur atom or an imino group optionally substituted by a lower alkyl, aryl, aralkyl or acyl radical;

A is an amino acid or peptide residue; and

B is a nitrogen protective group.

4,278,764

PROCESS FOR PREPARING CITRIC ACID BY FERMENTATION OF CARBOHYDRATES

Claudio Rottigni, and Giuliano Cardini, both of Milan, Italy, assignors to Eteco Impianti S.p.A., Milan, Italy

Filed Oct. 25, 1979, Ser. No. 88,303

Claims priority, application Italy, Oct. 27, 1978, 29160 A/78

Int. Cl.³ C12P *7/42*

U.S. Cl. 435—144 **7 Claims**

1. In a process for preparing citric acid from hydrolized carbohydrates by submerged fermentation under aerobic conditions in a broth containing yeasts of the genus Candida under controlled temperature conditions and at a pH value of from 5 to 7 maintained by adding measured quantities of calcium hydroxide during the fermentation operation, in which the fermentation broth containing citric acid in the form of calcium citrate is discharged during or at the end of the fermentation operation to recover said citric acid, the improvement which comprises subjecting at least part of the fermentation broth thus discharged to centrifuging to separate calcium citrate from a liquid phase containing yeast cells, subjecting said liquid phase to a further centrifuging to separate said cells from a residual broth, and recycling the yeast cells thus recovered for use in a further fermentation operation, thereby achieving by means of the use of said recycle cells an improvement in the yield and output of citric acid in said further fermentation operation.

4,278,765

METHOD FOR PREPARING STRAINS WHICH PRODUCE AMINOACIDS

Vladimir G. Debabov, ulitsa Miklukho-Maklaya, 43, kv. 57; Jury I. Kozlov, Mikroraion 2, korpus 3, kv. 178; Nelli I. Zhdanova, Leningradskoe shosse, 112, korpus 3, kv. 748; Evgeny M. Khurges, ulitsa Tikhvinskaya, 1/13, kv. 16; Nikolai K. Yankovsky, ulitsa Verkhnaya Radischevskaya, 13/15, kv. 59; Mikhail N. Rozinov, 3 Frunzenskaya ulitsa, 6, kv. 161; Rustem S. Shakulov, ulitsa Krasnogo Mayaka, 14, korpus 2, kv. 106; Boris A. Rebentish, ulitsa 11 Sokolnicheskaya, 12, kv. 16; Vitaly A. Livshits, ulitsa Kirovogradskaya, 24, korpus 3, kv. 8; Mikhail M. Gusyatiner, Suschevsky val, 22, kv. 28; Sergei V. Mashko, ulitsa Nizhnaya Pervomaiskaya, 5, kv. 16; Vera N. Moshentseva, ulitsa Krupskoi, 5, kv. 67; Ljudmila F. Kozyreva, 4 Novopodmoskovny pereulok, 4, kv. 80, and Raisa A. Arsatiants, Mikroraion 2, korpus 3, kv. 178, all of Moscow, U.S.S.R.

Filed Jun. 28, 1979, Ser. No. 52,744

Claims priority, application U.S.S.R., Jun. 30, 1978, 2639616

Int. Cl.³ C12N *15/00*

U.S. Cl. 435—172 **4 Claims**

1. A method for preparing bacterial strains which produce aminoacids comprising combining a chromosome DNA fragment of a donor bacterium containing genes controlling the synthesis of a selected aminoacid and having a mutation which destroys the negative regulation of the synthesis of said aminoacid, with a plasmid DNA molecule capable of ensuring amplification, to form a hybrid DNA molecule; transforming with said hybrid DNA molecule, cells of a recipient bacterial strain having a mutation blocking the synthesis of the selected aminoacid in said strain and a mutation partly blocking the related step of metabolism of said aminoacid, to yield a bacterial strain possessing increased productivity of the selected aminoacid.

4,278,766

MUTANT MICROORGANISMS USEFUL FOR THE PRODUCTION OF SINGLE CELL PROTEIN AND AMINO ACIDS

Vadake R. Srinivasan, Baton Rouge, La., and Ye-Chin Choi, New Haven, Conn., assignors to Louisiana State University Foundation, Baton Rouge, La.

Continuation-in-part of Ser. No. 718,974, Aug. 30, 1976, Pat. No. 4,104,124. This application Nov. 8, 1977, Ser. No. 849,695

Int. Cl.³ C12N *1/20*

U.S. Cl. 435—253 **2 Claims**

1. A biologically pure culture of cellulase-elaborating bacteria of mutant microorganisms of Cellulomonas (ATCC-21399) which have the ability to excrete L-glutamic acid or L-lysine, or both, when the mutant microorganisms are grown in a fermentation medium in the substantial absence of yeast extract on an assimilable source of carbon, and supplied with nitrogen and mineral nutrients, in the presence of oxygen at temperatures ranging from about 20° C. to about 40° C.

4,278,767

FIRE-RETARDANT MONOCARBOXYLIC ACID COPOLYMERS

Adolph V. DiGiulio, and Jack N. Bauer, both of Pittsburgh, Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed May 7, 1980, Ser. No. 147,037

Int. Cl.³ C08V *9/06, 9/12*

U.S. Cl. 521—88 **7 Claims**

1. A process for making fire-retardant foams consisting of dryblending a mixture of (a) a copolymer of 70 to 95 mole percent of a monovinyl aromatic monomer and 5 to 30 mole percent of an ethylenically unsaturated monocarboxylic acid monomer; (b) from 0.5 to 10 percent by weight of water; (c) from 10 to 20 parts per hundred parts of copolymer of an at least tri-brominated diphenylether; and (d) 4 to 8 parts per hundred parts of copolymer of a metal oxide synergist for the ether until an intimate blend is obtained; heating the blend to a temperature of between 125° and 190° C. under sufficient pressure to prevent foaming of the blend; releasing the pressure to allow the blend to expand to a foam of density between 1 and 10 pounds per cubic foot; and cooling the resultant foam to room temperature.

4,278,768

RUBBER-MODIFIED FIRE-RETARDANT ANHYDRIDE COPOLYMERS

Adolph V. DiGiulio, and Jack N. Bauer, both of Pittsburgh, Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed May 7, 1980, Ser. No. 147,666

Int. Cl.³ C08J *9/06, 9/12*

U.S. Cl. 521—88 **7 Claims**

1. A process for making fire-retardant foams consisting of blending a mixture of (a) a rubber-modified copolymer of 5 to 40 weight percent of a rubber selected from the group consisting of homopolymers of conjugated dienes, copolymers of said dienes with up to 50 weight percent of one or more monoolefinically unsaturated monomers, ethylene-propylene-diene terpolymer rubbers, acrylate diene copolymer rubbers, and mixtures thereof and 95–60 weight percent of a copolymer of 50 to 95 mole percent of a monovinyl aromatic monomer and 5 to 50 mole percent of the anhydride of an ethylenically unsaturated dicarboxylic acid monomer; (b) from 0.5 to 10 percent by weight of water; (c) from 10 to 20 parts per hundred parts of copolymer of an at least tri-brominated diphenylether; and (d) 4 to 8 parts per hundred parts of copolymer of a metal oxide synergist for the ether until an intimate blend is obtained; heating the blend to a temperature of between 125° and 190° C. under sufficient pressure to prevent foaming of the blend; releasing the pressure to allow the blend to expand to a foam of density between 1 and 10 pounds per cubic foot; and cooling the resultant foam to room temperature.

4,278,769

BLOWING AGENT CONCENTRATE

Peter Gebauer, Troisdorf, and Karl G. Sturm, St. Augustin, both of Fed. Rep. of Germany, assignors to Dynamit Nobel AG, Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 774,095, Mar. 3, 1977, abandoned. This application Feb. 21, 1979, Ser. No. 13,761

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1976, 2608925

Int. Cl.³ C08J *9/00*

U.S. Cl. 521—90 **37 Claims**

1. A blowing agent concentrate consisting of a chemical blowing agent and a thermoplastic vehicle therefor, said vehicle being a saturated polyester or copolyester having a crystalline melting point between 100° C. and 220° C. and a reduced viscosity between 0.4 dl/g and 1.6 dl/g, said chemical blowing agent being present in said blowing agent concentrate in an amount of at least 5 weight percent.

4,278,770

STABILIZATION OF HIGH RESILIENCE POLYURETHANE FOAM BY INCLUDING IN THE REACTION MIXTURE A POLYOL CONTAINING AN EFFECTIVELY DISPERSED FINELY DIVIDED SOLID PARTICULATE MATERIAL

Kiran B. Chandalia, Cheshire, and Henry G. Barnowski, Durham, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 898,274, Apr. 20, 1978, abandoned, which is a continuation-in-part of Ser. No. 881,297, Feb. 27, 1978, abandoned. This application Jan. 25, 1979, Ser. No. 6,951

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—99 **15 Claims**

1. In a process for preparing a high resilience polyurethane foam from a reaction mixture comprising:

(a) a polyether polyol having a molecular weight of at least about 1,500, a polyhydroxy alcohol nucleus having a functionality from about 2 to about 8, polyoxyalkylene chain segments attached to said nucleus, and a ratio of primary to secondary hydroxyl end groups ranging from about 1.5:1 to about 5.5:1;

(b) an organic polyisocyanate;

(c) a foaming agent; and

(d) a reaction catalyst;

the improvement characterized by including in said reaction mixture a polyol containing a proportion of an effectively dispersed finely divided solid particulate material, said particulate material having, prior to dispersion in said polyol, an average primary particle size of about 0.007 to about 10 microns and a pH ranging from about 3 to about 5, and further having, in dispersion in said polyol, an effective maximum particle size in dispersion of less than about 50 microns.

4,278,771

FLAME RETARDANT COMPOSITIONS

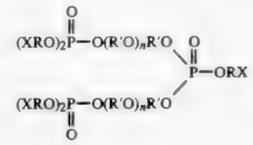
Edward D. Weil, Hastings-on-Hudson, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 49,999, Jun. 18, 1979, Pat. No. 4,242,288. This application Apr. 25, 1980, Ser. No. 143,652

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—107 **6 Claims**

1. A polymer composition containing an effective flame retardant amount of a flame retardant composition containing as its major ingredient a compound of the formula:



wherein R represents an alkylene radical of from 2 to about 10 carbon atoms and the halosubstituted derivatives thereof, R' represents an alkylene radical of from 2 to 3 carbon atoms, X represents a halogen of chlorine or bromine and n represents an integer of from 1 to 5.

4,278,772

SEMI-FLEXIBLE FOAM POLYMER USED IN PACKAGING

Robert J. Raynor, North Branford, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Jul. 31, 1980, Ser. No. 174,071

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—110 **10 Claims**

1. A semi-flexible foam polymer having a density of from about 0.3 to about 2 pounds per cubic foot, said polymer being prepared from a reaction mixture having an over-all index of

about 10 to about 600, wherein said reaction mixture comprises:

(a) a polymeric polyisocyanate having an average functionality of about 2.5 to about 3.5;

(b) water in a proportion of about 2 to about 43 parts per every 100 parts by weight of total polyisocyanate in said reaction mixture;

(c) an amine catalyst; and

(d) a non-hydrolyzable silicon-based surfactant in a proportion of about 0.5 to about 12 parts per every 100 parts by weight of total polyisocyanate in said reaction mixture; and

wherein said reaction mixture is substantially free of a polyol.

4,278,773

DISPERSIBLE COMPOSITIONS OF FLUOROCARBON RESINS

Rolf Kleber, Neu-Isenburg, and Lothar Jaeckel, Flörsheim am Main, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 22, 1979, Ser. No. 13,913

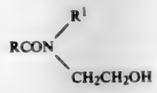
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1978, 2808157

Int. Cl.³ C08K *5/16*; C08L *27/12*; C08F *14/18*

U.S. Cl. 525—6 **9 Claims**

1. Dispersible composition of fluorocarbon resins which consists of

(a) from 1 to 10 parts by weight of a compound of the general formula



in which R is C_8–C_{22} alkyl or alkenyl and R^1 is hydrogen or hydroxyethyl,

(b) from 1 to 10 parts by weight of a compound of the general formula

in which R is C_8–C_{22} alkyl or alkenyl and x is a number of from 15 to 50, and

(c) 1 part by weight of a fluorocarbon resin consisting of at least one fluorinated compound with at least one benzene nucleus and

(1) one or two carbonyl groups as substituents at this benzene nucleus, wherein the carbonyl groups are bound via an oxygen or a nitrogen atom to a perfluoroalkyl or perfluoroalkylene-oxyperfluoroalkyl radical of from 2 to 20 carbon atoms and, if each benzene nucleus does not contain more than one carbonyl group of this kind, the number of benzene nuclei is at least 2, and

(2) further carbonyl groups arranged each in the ortho-position to a carbonyl group, and only to one of the first-mentioned carbonyl groups, the number of the former group not exceeding the number of the first-mentioned carbonyl groups, these additional carbonyl groups being bound each via an oxygen atom at an esterifying bivalent alkylene radical of from 1 to 5 carbon atoms which binds the oxygen atom to

(a) at least one further benzene nucleus substituted in similar manner, or

(b) an alkyl group of from 1 to 5 carbon atoms substituted at least once by a hydroxyl group, a halogen atom or a terminal epoxy ring, or

(c) two alkyl groups of this kind which are bound to each other by an oxygen atom.

4,278,774

BLOCK-COPOLYMERS OF VINYLTRIALKYLSILANE-HEXAORGANOCYCLOTRISILOXANES AND METHOD FOR PRODUCING SAME

Nikolai S. Nametkin, Leninsky prospekt, 13, kv. 11; Sergei G. Durgarian, ulitsa Fersmana, 5, kv. 25; Eduard G. Novitsky, prospekt Mira, 120, kv. 218; Valentina G. Filippova, Shipilovskaya ulitsa, 23, kv. 37; Natalya K. Gladkova, Michurinsky prospekt, 54, korpus 3, kv. 85, and Vladimir V. Teplyakov, Koptevskaya ulitsa, 18b, kv. 175, all of Moscow, U.S.S.R.

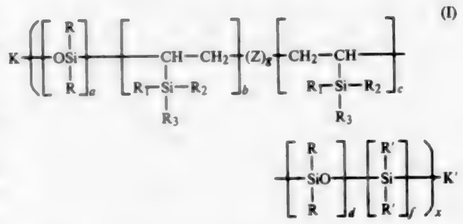
Filed Feb. 15, 1979, Ser. No. 12,451

Claims priority, application U.S.S.R., Feb. 20, 1978, 2584574

Int. Cl.³ C08G *77/42*

U.S. Cl. 525—100 **11 Claims**

1. Block-copolymers of vinyltrialkylsilane-hexaorganocyclotrisiloxane of the formula:



(I)

wherein R, R′ are compounds selected from the group consisting of methyl and phenyl, R_1, R_2, R_3 are each an aliphatic radical containing 1 to 4 carbon atoms, Z is a residue of a dilithium initiator of polymerization of the vinyltrialkylsilane; K is a residue of a monolithium initiator which is a normal or isoalkyl hydrocarbon radical; K′ is a compound selected from the group consisting of hydrogen, $(R)_3Si$ silcarbonic group wherein R is a C_1–C_4 alkyl radical, or a hydrocarbon radical; a=0 to 10^4; b=0 to 10^4; c=10 to 10^4; d=10 to 10^4; f=0 to 1; g=1; x is at least 1, with a molecular mass of from 10^3 to 10^6.

4,278,775

MALEIMIDE-STYRENE COPOLYMER BLEND WITH POLYPHENYLENE OXIDE

Ronald A. Fava, Monroeville, Pa., assignor to Arco Polymers, Inc., Philadelphia, Pa.

Filed Jun. 23, 1980, Ser. No. 161,806

Int. Cl.³ C08L *71/04*

U.S. Cl. 525—132 **4 Claims**

1. A thermoplastic composition for molding of plastic articles consisting of a blend of

A. polyphenylene oxide

B. a resin containing 5 to 35% maleimide and and 86 to 93% styrene

each of components A and B being present in a weight concentration within a range from 35% to 65%.

4,278,776

VULCANIZABLE MIXES BASED ON FLUOROELASTOMERS AND COMPRISING ELASTOMERIC FLUOROPOLYAMIDES AS PROCESSING AIDS

Gastone Mauro; Carlo Lagana; Sergio Geri, all of Milan, and Ezio Strepparola, Treviglio, all of Italy, assignors to Montedison S.p.A., Milan, Italy

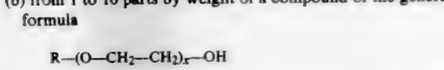
Filed Jun. 12, 1980, Ser. No. 158,814

Claims priority, application Italy, Jun. 14, 1979, 23572 A/79; Mar. 18, 1980, 20731 A/80

Int. Cl.³ C08L *77/00*

U.S. Cl. 525—178 **5 Claims**

1. Vulcanizable mixes based on elastomeric copolymers of vinylidene fluoride with fluorinated or chlorofluorinated olefins or with fluorinated vinyl ethers, comprising, as processing aid, from 5 to 15 parts by weight, per 100 parts by weight of fluoroelastomer, of a fluorinated polyamide having a structure formed by recurring units represented by the formula:



wherein:

the CF_2O and CF_2CF_2O units are distributed statistically along the chain;

m and n are integers comprised between 2 and 100;

the sum of n+m is a number comprised between 15 and 100;

the m/n ratio is comprised between 0.2 and 1.5;

A is a bivalent radical selected from the group consisting of alkenyl, cycloalkenyl, arylene, alkylarylene and heterocyclic radicals, and

R is selected from the group comprising hydrogen or an alkyl or phenyl group,

said fluorinated polyamide having an inherent viscosity comprised between 0.1 and 0.6 (dl/g), determined on a 0.3% solution of the polyamide in a mixture of 1,1,2-trichloro-trifluoroethane and dimethylformamide, at 20° C., with a Desreux-Bishoff type free-fall viscosimeter.

4,278,777

GRAFTED POLYMERS AND METHOD OF PREPARING AND USING SAME

Stephen Z. Jakabhazy, Weston, and Laxmidas R. Patel, Chelmsford, both of Mass., assignors to Abcor, Inc., Wilmington, Mass.

Filed Mar. 27, 1980, Ser. No. 134,647

Int. Cl.³ C08F *291/18, 291/06, 291/04*

U.S. Cl. 525—276 **17 Claims**

1. A method of dry-grafting, with high grafting efficiency, a vinyl monomer onto a polymer having an aliphatic carbon-hydrogen group, which method comprises:

admixing into an essentially dry, solvent-swollen, finely-divided, particulate, solid, polymer admixture, wherein the polymer has free radicals formed thereon and the admixture is essentially free of a polymerization initiator, a small grafting amount in incremental portions of a vinyl monomer material to be grafted onto the swollen polymer, the amount of vinyl monomer sufficient to maintain an essentially free-flow, stirrable, particulate admixture, and effecting grafting of the vinyl monomer to the polymer.

4,278,778

SYNERGISTIC PREVULCANIZATION INHIBITOR FOR HALOPOLYMER WITH DIAMINOPROPANE AND CYCLOHEXYLTHIOPHTHALIMIDE

Norman E. Warren, Baton Rouge, La., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jun. 28, 1979, Ser. No. 53,139

Int. Cl.³ C08F *8/34, 8/32*

U.S. Cl. 525—346 **8 Claims**

1. An improved heat curable composition comprising an elastomer-forming, chlorine- or bromine-containing halopolymer; a 1,3-diaminopropane or salt thereof; an acid acceptor; a sulfur source; and a prevulcanization inhibitor wherein the improvement comprises providing as the prevulcanization inhibitor a combination of from about 0.1 to 2 parts per hundred parts of the halopolymer of N-(cyclohexylthio)phthalimide and from about 1 to about 3 parts per hundred parts of the halopolymer of N-nitrosodiphenylamine.

4,278,779

AROMATIC POLYAMIDE COMPOSITION

Yasuo Nakagawa, 1-28-4-205, Ozu-cho; Keizo Shimada, 3-1-40, Yamate-cho; Tsutomu Nakamura, 1-28-2, Ozu-cho, and Kichiro Matsuda, 5-17-29, Nishimi, all of Iwakuni-shi, Yamaguchi-ken, Japan

Filed Jul. 19, 1979, Ser. No. 58,920

Claims priority, application Japan, Jul. 31, 1978, 53-92646

Int. Cl.³ C08L *77/00*

U.S. Cl. 525—432 **12 Claims**

1. An aromatic polyamide composition comprising:

(A) 50 to 95% by weight of poly-m-phenylene isophthalamide, and;

(B) 5 to 50% by weight of at least one other aromatic polyamide comprising:

(1) an amine moiety consisting essentially of (a) 35 to 100 molar % of at least one xylylene diamine and, (b) 0 to 65 molar % of at least one other aromatic diamine, and;

(2) an acid moiety consisting essentially of at least one aromatic dicarboxylic acid.

4,278,780

THERMOSETTING RESIN COMPOSITION COMPRISING EPOXY COMPOUND AND REACTION PRODUCT OF UNSATURATED DICARBOXYLIC ACID ANHYDRIDE AND EXCESS DIAMINE

Akio Nishikawa; Hiroshi Suzuki, and Hisashi Kohkame, all of Hitachi, Japan, assignors to Hitachi, Ltd. and Hitachi Chemical Co., Ltd., both of Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 55,069

Claims priority, application Japan, Jul. 12, 1978, 53/84004

Int. Cl.³ C08L *63/04*; C08G *73/10, 73/12*

U.S. Cl. 525—488 **18 Claims**

1. A thermosetting resin composition comprising

(a) a reaction product mixture obtained by melt reacting 2 to 20 moles of a diamine with 1 mole of a dicarboxylic acid anhydride having at least one ethylenic carbon-carbon double bond, and

(b) an epoxy compound having more than one 1,2-epoxy group on the average in the molecule.

4,278,781

CATALYST AND PROCESS FOR THE POLYMERIZATION OF ETHYLENE AND TERMINAL OLEFINS

Gunter Caspari, Wheaton, and David E. Boone, Chicago, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 841,575, Oct. 12, 1977, abandoned, which is a continuation of Ser. No. 662,816, Mar. 1, 1976, abandoned, which is a continuation-in-part of Ser. No. 242,235, Apr. 7, 1972, abandoned. This application Apr. 19, 1979, Ser. No. 31,377

Int. Cl.³ C08F *4/02, 10/02*

U.S. Cl. 526—150 **18 Claims**

1. A catalyst component for polymerizing ethylene, a mixture of ethylene and propylene or a mixture of ethylene and butene-1 which consists essentially of the reaction product of a first material which is an organotin compound selected from the group consisting of triphenyltin hydroxide, trimethyltin hydroxide and n-butyl stannonic acid and a second material which is a higher-valent Group IVB, Group VB, or Group VIB transition metal halide, oxyhalide, ester or haloester, said first and second materials being reacted in amounts and under conditions such that the valence state of the Group IVB, Group VB, or Group VIB metal contained in said reaction product is essentially unchanged from that of the Group IVB, VB, or VIB metal contained in said second material.

4,278,782
ALLYL ALCOHOL POLYMERS
John F. Heaps, and Donald M. Gardner, both of Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.
Filed Nov. 1, 1979, Ser. No. 90,378
Int. Cl.³ C08F 212/08, 216/08, 220/40
U.S. Cl. 526—326 4 Claims

1. A terpolymer of a C_8–C_{12} monovinyl aromatic monomer containing the vinyl group directly attached to the aromatic nucleus, a C_3–C_7 allylic alcohol and an ester of a C_3–C_7 allylic alcohol and a C_7–C_{12} monovalent aromatic acid, wherein the terpolymer contains at least about 40 weight percent of units of the monovinyl aromatic monomer, on average from about 2 to about 4 units of the C_3–C_7 allylic alcohol and at least one unit of the ester of the C_3–C_7 allylic alcohol and the C_7–C_{12} monovalent aromatic acid per molecule and has a number average molecular weight in the range of about 700 to about 3000.

4,278,783
METHOD OF CURING AN ORGANOALKOXYSILANE COMPOUND
Susumu Taniyama, Toyonaka; Goro Shimaoka, Sakai, and Shoichi Inoue, Itami, all of Japan, assignors to Mitsubishi Gas Chemical Company Inc., Tokyo, Japan
Filed Sep. 4, 1979, Ser. No. 72,221
Claims priority, application Japan, Sep. 5, 1978, 53/108756
Int. Cl.³ C08G 77/04, 77/08
U.S. Cl. 528—23 6 Claims

1. A method of curing an organoalkoxysilane compound characterized by using as a catalyst a phosphite of the formula:

$$(RO)_nP(OH)_{3-n}$$

wherein R is an alkyl group having 1 to 4 carbon atoms and/or an aromatic group; and n is an integer of 1 or 2.

4,278,784
ENCAPSULATED ELECTRONIC DEVICES AND ENCAPSULATING COMPOSITIONS
Ching-Ping Wong, Lawrence Township, Mercer County, N.J., assignor to Western Electric Company, Inc., New York, N.Y.
Filed Feb. 6, 1980, Ser. No. 119,077
Int. Cl.³ C08G 77/04
U.S. Cl. 528—27 10 Claims

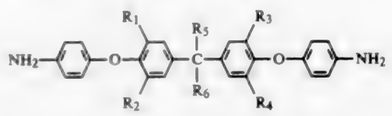
1. A polymeric encapsulating composition comprising a polysilicone having a cryptate ether as part of the polymer chain.

4,278,785
POLYESTER COMPOSITION, PROCESS THEREFOR AND MOLDED ARTICLES THEREFROM
Jerold C. Rosenfeld, Tonawanda, N.Y., assignor to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.
Filed Jan. 4, 1979, Ser. No. 45,464
Int. Cl.³ C08G 63/66, 63/68, 63/76
U.S. Cl. 528—176 20 Claims

1. In a linear aromatic polyester which comprises residues of a bisphenol and an aromatic dicarboxylic acid and in which the terminal residues of the polyester chain comprise a residue of said dicarboxylic acid, the improvement wherein the end carboxylate groups of said terminal dicarboxylic acid residues comprise a minor, hydrolysis-stabilizing proportion of above about 2 weight percent, based on the polyester, of a carboxylate ester of an aliphatic monofunctional hydrocarbon alcohol of 8 to 45 carbon atoms.

4,278,786
AROMATIC POLYAMIDES CONTAINING ETHER LINKAGES AND PROCESS FOR PRODUCING SAME
Ken Nanaumi, Hitachi; Fusaji Shoji, Mito; Hisashi Kohkame, and Susumu Era, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 853,550, Nov. 22, 1977, abandoned, which is a continuation of Ser. No. 714,199, Aug. 13, 1976, abandoned. This application Jul. 5, 1979, Ser. No. 54,796
Claims priority, application Japan, Aug. 15, 1975, 50/98616
Int. Cl.³ C08G 69/32, 69/40
U.S. Cl. 528—179 14 Claims

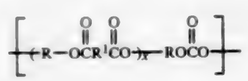
1. An aromatic polyamide polymer produced by polymerization of an aromatic diamine having the general formula:



wherein R_1 through R_4 are the same or different, and are members selected from the group consisting of H, Cl and CH_3, and wherein R_5 and R_6 are the same or different, and are the members selected from the group consisting of H, CH_3, C_2H_5 and C_3H_7, the total carbon number of R_5 and R_6 being no greater than 4; with an equivalent amount of a mixture of terephthalic acid dichloride and isophthalic acid dichloride in molar proportions of from 80:20 to 20:80, said polymer having a reduced viscosity of 0.3 to 1.5 dl/g, and initial weight loss temperature of 380° C. or above, and an initial flow temperature of at least 80° C. lower than the initial weight loss temperature, whereby said aromatic polyamide polymer has melt moldability, in which said polymer is obtained by reacting said diamine and said mixture in a water-immiscible, chemically inert, organic solvent in the presence of an aqueous solution of an alkali-metal hydroxide or carbonate in an amount sufficient to neutralize an acidic substance generated in the reaction.

4,278,787
ALTERNATING COPOLYESTERCARBONATE RESINS
Daniel J. Swart, and Jacqueline S. Kelyman, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 916,616, Jun. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 795,978, May 11, 1977, Pat. No. 4,105,633. This application Jul. 7, 1980, Ser. No. 166,283
Int. Cl.³ C08G 63/64
U.S. Cl. 528—191 4 Claims

1. A normally solid alternating copolyester-carbonate having repeating units of the formula:



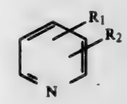
wherein each R is independently an aromatic hydrocarbylene or inertly substituted hydrocarbylene, R^1 is meta-phenylene or inertly substituted meta-phenylene and x is a number from 0.05 to 10.

4,278,788
REMOVAL OF RESIDUAL CATALYST FROM POLYOLEFIN POLYMERS
James R. Hatfield; Merlin H. Moseman, both of Omaha, Nebr.; James R. Graham, Fountain Valley, Calif., and Thomas J. Hirt, Omaha, Nebr., assignors to InterNorth, Inc., Omaha, Nebr.
Filed Mar. 16, 1979, Ser. No. 21,097
Int. Cl.³ C08F 6/02, 6/08
U.S. Cl. 528—494 6 Claims

1. In a method for reducing the halogen content of a particulate polyolefin formed by catalytic polymerization of an olefin in the presence of a Ziegler-Natta catalyst, wherein the polyolefin in the dry state is contacted at elevated temperature in a gas phase fluidized bed with an inert gas stream containing alkylene oxide and a solvent selected from the group consisting of alcohol and water such that the alkylene oxide reacts with halogens present in the polyolefin to form an alkylene halohydrin, and the alkylene halohydrin is then removed from the polyolefin thereby reducing the halogen content of the polyolefin, the improvement which comprises regenerating the alkylene oxide by contacting the alkylene halohydrin with a hydroxide caustic solution of said solvent at temperature of from about 90° F. (32° C.) to about 160° F. (71° C.), wherein the concentration of the caustic is from about 0.001 N to about 1 N, and recovering alkylene oxide formed by the reaction of the alkylene halohydrin and the caustic solution.

4,278,789
LINCOMYCIN COMPOUNDS
Robert D. Birkenmeyer, Comstock Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Continuation-in-part of Ser. No. 96,652, Nov. 23, 1979, abandoned. This application May 19, 1980, Ser. No. 148,056
Int. Cl.³ C07H 15/16
U.S. Cl. 536—11 81 Claims

1. A compound of the formula



wherein R_1, which can be singly or multiply substituted in any position of the pyridine ring not already substituted by R_2, is selected from the group consisting of hydrogen, alkyl and substituted alkyl wherein the alkyl portion is from 1 to 8 carbon atoms, inclusive, and isomeric forms thereof, cycloalkyl and substituted cycloalkyl, of from 3 to 8 carbon atoms, inclusive substituted oxygen, substituted nitrogen, halogen, phenyl, and substituted phenyl, $-(CH_2)_n-OH$, $-(CH_2)_n-NR_4R_5$, and branched chain isomers thereof wherein n is an integer of from 1 to 8, inclusive, R_4 and R_5 are H or alkyl of from 1 to 8 carbon atoms, inclusive, and isomeric forms thereof; wherein R_2, which can be singly substituted in any position of the pyridine ring not already substituted by R_1, is



and X is the amino function of a compound selected from the group 7(R)-hydroxy-methyl 1-thio-α-lincosaminide, 7(S)-hydroxy-methyl 1-thio-α-lincosaminide, 7(S)-halo-methyl 1-thio-α-lincosaminide, 7(R)-halo-methyl 1-thio-α-lincosaminide, 7(S)-methoxy-methyl 1-thio-α-lincosaminide, 7-deoxy-7(S)-(methylthio)-methyl 1-thio-α-lincosaminide, 7-deoxy-7(S)-(2-hydroxyethylthio)-methyl 1-thio-α-lincosaminide and 7-deoxy-7(S)-(3-hydroxypropylthio)-methyl 1-thio-α-lincosaminide; and the pharmaceutically acceptable acid-addition salts thereof.

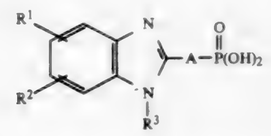
4,278,790
NOVEL CELLULOSE SOLUTIONS
Charles L. McCormick, Hattiesburg, Miss., assignor to Hopkins Agricultural Chemical Co., Madison, Wis.
Continuation-in-part of Ser. No. 929,749, Jul. 31, 1978, abandoned. This application Mar. 7, 1980, Ser. No. 128,014
Int. Cl.³ C08B 11/00; C08L 1/00, 1/02, 1/26
U.S. Cl. 536—84 10 Claims

8. In the method of preparing cellulose derivatives by chemical reactions utilizing the hydroxyl functionality of the cellulose, the improvement which comprises using as the cellulose reactant, a solution of cellulose in lithium chloride and dimethylacetamide.

9. The method of claim 8 in which the cellulose derivative being prepared is a cellulose ether.

4,278,791
BENZIMIDAZOLYL-2-ALKANE-PHOSPHONIC ACIDS
Artur Botta; Heinz-Joachim Rother, and Günther Teichmann, all of Krefeld-Uerdingen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Dec. 10, 1979, Ser. No. 101,977
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855659
Int. Cl.³ C09B 23/14; C07F 9/28
U.S. Cl. 542—412 6 Claims

1. A benzimidazolyl-2-alkane-phosphonic acid of the formula



wherein

R^1 and R^2 are identical or different and denote hydrogen, lower alkyl, phenyl, halogen, trifluoromethyl, nitro or lower alkoxy, or together form a fused-on benzene ring,

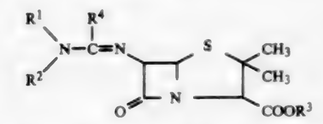
R^3 denotes hydrogen, lower alkyl or phenyl or benzyl which is optionally substituted by lower alkyl or halogen and

A denotes a straight-chain or branched, saturated or unsaturated bivalent hydrocarbon radical with 1 to 15 carbon atoms, which can be substituted by phenyl which is optionally substituted by lower alkyl or halogen or by carboxyl or the phosphonic acid group,

and its salt with an inorganic base or acid.

4,278,792
METHOD OF PRODUCING DERIVATIVES OF 6-β-AMIDINOPENICILLANIC ACID
Pietro Cesti, San Matino di Trecate; Leonardo Marsili, and Carmine Pasqualucci, both of Milan, all of Italy, assignors to Archifar Laboratori Chimico Farmacologici S.p.A., Trento, Italy
Filed Mar. 24, 1980, Ser. No. 132,763
Claims priority, application Italy, Apr. 12, 1979, 21809 A/79
Int. Cl.³ C07D 499/04
U.S. Cl. 542—420 4 Claims

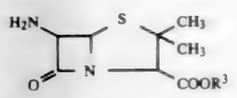
1. A method of producing derivatives of 6-β-amidinopenicillanic acid having the formula



(I)

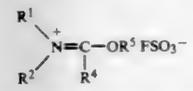
wherein R^1 and R^2 are a C_1–C_4 alkyl group, a C_5–C_6 cycloalkyl

group, or R^1 and R^2 together with nitrogen atom, to which they are bonded, form a seven member heterocyclic ring or a morpholino ring; R^3 is selected from the group consisting of hydrogen and substituted or unsubstituted alkyl; and R^4 is selected from the group consisting of hydrogen and C_1–C_4 alkyl radicals, said method comprising reacting a derivative of 6-aminopenicillanic acid having the formula



(II)

wherein R^3 is as above defined, with a derivative of a disubstituted amide, the reaction being carried out in an inert anhydrous organic solvent selected from the group consisting of methylene chloride and chloroform and in the presence of at least 2 equivalents of a tertiary amine, at a temperature lower than +10° C., wherein said derivative of a disubstituted amide is a complex of a carboxylic acid amide having the formula



(III)

wherein R^1, R^2 and R^4 are as above defined, and R^5 is methyl or ethyl.

4,278,793

CEPHEM DERIVATIVE

Walter Dürckheimer, Hattersheim am Main; Dieter Bormann, Kelkheim; Eberhard Ehlers, Hofheim am Taunus; Elmar Schrinner, Wiesbaden, all of Fed. Rep. of Germany, and Rene Heymes, Romainville, France, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 891,850, Mar. 30, 1978. This application Jul. 21, 1980, Ser. No. 170,839

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1977, 2714880; Apr. 15, 1977, 2716707

Int. Cl.³ C07D *501/56*

U.S. Cl. 544—27 **1 Claim**

1. 7-β-[2-(2-amino-thiazol-4-yl)-2-syn-methoximino-acetamido]-3-(5-carboxymethyl-4-methyl-1,3-thiazol-2yl-thiomethyl)-ceph-3-em-4-carboxylic acid.

4,278,794

PROCESS FOR PREPARING PURE CYANURIC ACID

Karlheinz Wegleitner, Linz; Wilfried Krulla, Traun, and Richard Willim, Linz, all of Austria, assignors to Chemie Linz Aktiengesellschaft, Linz, Austria

Filed Jul. 1, 1980, Ser. No. 165,154

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929211

Int. Cl.³ C07D *251/32*

U.S. Cl. 544—192 **3 Claims**

1. In a process for the preparation of pure cyanuric acid by hydrolyzing crude or waste melamine using sulfuric acid as a hydrolyzing agent, the improvement which comprises introducing the crude or waste melamine, at room temperature, with stirring, into 70 to 80% strength sulfuric acid in the equivalent amount for formation of ammonium bisulfate, heating the reaction mixture under normal pressure to a temperature within the range of 150° to 190° C. over a period of 1 to 2 hours, whilst distilling off the water introduced with the sulfuric acid, and subsequently adding water, cooling the reaction mixture to room temperature, and isolating the pure cyanuric acid product by crystallizing out and filtering off the cyanuric acid, suspending the filtered product in water and filtering again.

4,278,795

PROCESS FOR THE PREPARATION OF PYRENE COMPOUNDS

Horst Harnisch, Much, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

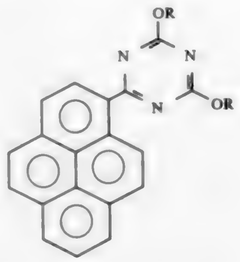
Filed Apr. 21, 1980, Ser. No. 141,833

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1979, 2923337

Int. Cl.³ C07D *251/16*

U.S. Cl. 544—219 **9 Claims**

1. Process for the preparation of pyrene compounds of the formula



wherein

R represents an optionally substituted alkyl, alkenyl, cycloalkyl, aralkyl or aryl radical, by reaction of cyanuric chloride with pyrene in the presence of an aluminium halide and by further reaction of the intermediate product with an alkali metal alcoholate or phenolate, characterised in that a complex is prepared by reacting an aluminium halide with at least an equivalent amount of cyanuric chloride in an inert solvent, this complex is allowed to act on pyrene and the product is reacted with a compound of the formula

RO—M

wherein

R has the abovementioned meaning and

M represents an alkali metal, in an amount which is at least equivalent for the replaceable halogen atoms.

4,278,796

PIPERAZINES

Camillo Corvi-Mora, Via Borgonuovo 9, Milano, Italy

Continuation of Ser. No. 939,106, Sep. 1, 1978, abandoned, which is a continuation-in-part of Ser. No. 758,725, Jan. 12, 1977, Pat. No. 4,123,530. This application Nov. 28, 1979, Ser. No. 98,091

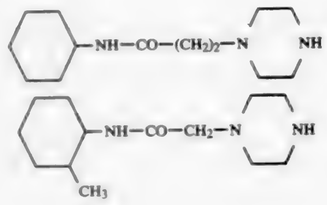
Claims priority, application Italy, Jan. 23, 1976, 19517 A/76

The portion of the term of this patent subsequent to Oct. 31, 1995, has been disclaimed.

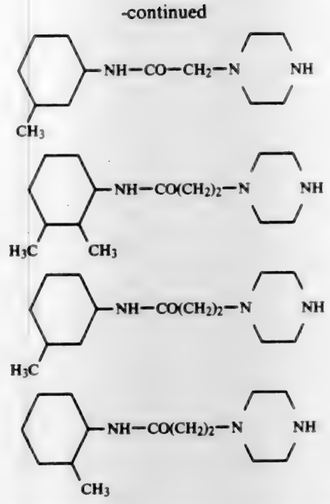
Int. Cl.³ C07D *295/14*; **A01K** *31/495*

U.S. Cl. 544—400 **7 Claims**

1. A piperazine derivative selected from the group consisting of compounds of the formulae



-continued



and the pharmaceutically acceptable salts thereof with acids.

4,278,797

INTERMEDIATES TO PHENYLMORPHANS AND METHOD OF PREPARATION THEREOF

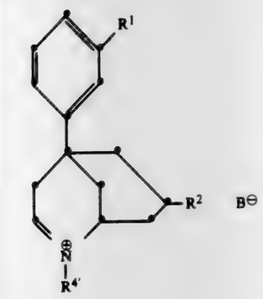
Dennis M. Zimmerman, Mooresville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 19,527, Mar. 12, 1979, abandoned. This application May 19, 1980, Ser. No. 150,763

Int. Cl.³ C07D *221/22*

U.S. Cl. 546—112 **17 Claims**

1. A compound of the formula



wherein:

R^1 is hydrogen, hydroxy or C_1–C_3 alkoxy;

R^2 is hydrogen, C_1–C_5 alkyl or CH_2C_2–C_4 alkenyl;

$R^{4'}$ is C_1–C_{10} alkyl, C_1–C_3 alkylphenyl or CH_2C_3–C_6 cycloalkyl; and

B^{θ} is an anion of a protonic acid.

4,278,798

1-ETHYL-1,4-DIHYDRO-6-(2-NAPHTHYL)-4-OXONICOTINIC ACID AND ESTERS THEREOF

Alexander E. Wick, Le Mesnil-le Roy, France, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

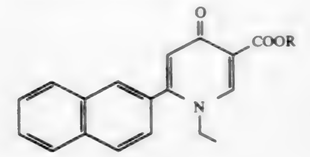
Filed Jul. 7, 1980, Ser. No. 166,506

Claims priority, application Switzerland, Jul. 13, 1979, 6555/79

Int. Cl.³ C07D *213/55*

U.S. Cl. 546—298 **3 Claims**

1. A compound of the formula



I

wherein R is hydrogen or C_{1-6}-alkyl,
or an alkali metal, alkaline earth metal, ammonium or ethanolamine salt thereof.

4,278,799

CONTINUOUS PROCESS FOR THE PRODUCTION OF DICHLOROACETAMIDES

Alan H. Benke; Hue T. Morris, both of Oakland, and Louie A. Nady, Berkeley, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Apr. 28, 1980, Ser. No. 144,500

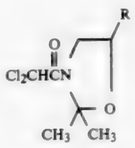
Int. Cl.³ C07C *102/00*; **C07D** *263/04*

U.S. Cl. 548—215 **13 Claims**

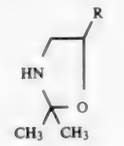
1. A continuous process for the production of dichloroacetamides selected from the group consisting of

(a) N,N-diallyldichloroacetamide; and

(b) N-dichloroacetyl oxazolidines having the formula



in which R is hydrogen or C_1–C_3 alkyl, by reaction of dichloroacetyl chloride with, respectively, N,N-diallylamine or an oxazolidine having the formula



in which R is hydrogen or C_1–C_3 alkyl, in the presence of an aqueous solution of sodium hydroxide, comprising the steps of:

(a) continuously mixing the dichloroacetyl chloride, aqueous solution of sodium hydroxide and either N,N-diallylamine or the oxazolidine by continuously introducing these substances into a circulating liquid medium to form a reaction mixture;

(b) continuously introducing the reaction mixture into a non-agitated reactor;

(c) retaining the reaction mixture in the reactor for a sufficient time such that there occurs separation of the

mixture into an aqueous phase comprising brine and an organic phase comprising the crude desired product;
(d) continuously withdrawing the aqueous phase from the reactor;
(e) continuously withdrawing one portion of the organic phase containing N,N-diallyldichloroacetamide, or an N-dichloroacetylated oxazolidine from the reactor;
(f) recovering the desired product from the organic phase withdrawn in step (e); and
(g) continuously withdrawing a second portion of the organic phase from the reactor and continuously recycling it to step (a) to serve as the circulating liquid medium therein.

4,278,800

γ-AZOLYL COMPOUNDS, AGENTS CONTAINING THEM FOR REGULATING PLANT GROWTH, AND THE MANUFACTURE THEREOF

Costin Rentzea, Heidelberg; Hubert Sauter; Eberhard Ammermann, both of Ludwigshafen; Gerd Heilen, Speyer, and Johann Jung, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

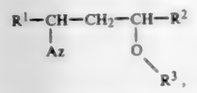
Filed Oct. 1, 1979, Ser. No. 80,527

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1978, 2845254

Int. Cl.³ C07D *249/08, 249/04*

U.S. Cl. 548—262 **2 Claims**

1. A γ-azolyl compound of the formula



I,

wherein R^1 is unsubstituted phenyl or phenyl substituted by fluoro, chloro, bromo, nitro, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, or by alkenyl of 1 to 4 carbon atoms; R^2 is alkyl of 1 to 8 carbon atoms; R^3 is alkyl of 1 to 8 carbon atoms, unsubstituted or chloro-substituted alkenyl of 2 to 5 carbon atoms, alkynyl of 3 to 4 carbon atoms, benzyl which is unsubstituted or substituted by fluoro, chloro, bromo, nitro, trifluoromethyl, or by alkyl or alkoxy of 1 to 4 carbon atoms and Az denotes 1,2,4-triazolyl or 1,2,3-triazolyl.

4,278,801

PREPARATION OF 5-HYDROXYMETHYLIMIDAZOLES

Uwe Kempe, Limburgerhof; Toni Dockner, Meckenheim; Anton Frank, and Helmut Karn, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

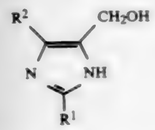
Filed Feb. 8, 1980, Ser. No. 119,959

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, 2908212

Int. Cl.³ C07D *233/64*

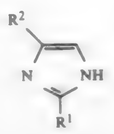
U.S. Cl. 548—342 **4 Claims**

1. A process for the preparation of a 5-hydroxymethylimidazole of the formula 1



1

where R^1 is hydrogen or alkyl of 1 to 18 carbon atoms, phenyl, benzyl or β-phenylethyl, and R^2 is alkyl of 1 to 18 carbon atoms or phenyl, wherein an imidazole of the formula 2



2

where R^1 and R^2 have the meanings given for formula 1, is reacted with formaldehyde or an oligomer of formaldehyde is aqueous hydrochloric acid solution, containing from 5 to 18% by weight of hydrogen chloride, at from 80° to 160° C., if appropriate in a closed system under pressure, and the resulting 5-hydroxymethylimidazole is isolated in the form of its hydrochloride, the ratio of imidazole to hydrogen chloride being from 1:1.5 to 1:5.

4,278,802

NOVEL α-THIO-ALKANOIC ACID DERIVATIVES

Genichi Tsuchihashi, Tama; Katsuyuki Ogura, and Shuichi Mitamura, both of Sagamihara, all of Japan, assignors to Sagami Chemical Research Center, Japan

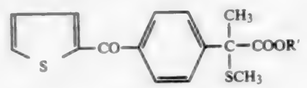
Division of Ser. No. 20,231, Mar. 13, 1979, which is a continuation of Ser. No. 843,343, Oct. 18, 1977, abandoned. This application Jun. 4, 1980, Ser. No. 156,349

Claims priority, application Japan, Oct. 18, 1976, 51-123903; Oct. 18, 1976, 51-123904; Dec. 27, 1976, 51-156358; Dec. 27, 1976, 51-156360

Int. Cl.³ C07D *333/48;* **A61K** *31/38*

U.S. Cl. 549—72 **1 Claim**

1. Alpha-methylthio-α-[p-(2-thienylcarbonyl)phenyl]propionic acid and its ester of the formula



wherein R′ represent H or C_1–C_4 alkyl.

4,278,803

PREPARATION OF 2-METHYLENE-1,3-PROPANEDIAMIDE

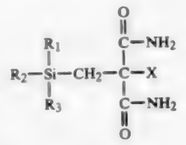
Howard C. Haas, Arlington; Stanley J. Jasne, Andover, both of Mass., and Robert D. Moreau, Nashua, N.H., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 7, 1980, Ser. No. 109,811

Int. Cl.³ C07F *7/08;* **C07C** *102/00*

U.S. Cl. 556—419 **16 Claims**

1. A process for preparing 2-methylene-1,3-propanediamide, which comprises:
providing a solution of a compound of the formula



wherein R_1, R_2, and R_3 can each independently be lower alkyl of from 1 to 10 carbon atoms, aryl, alkaryl, aralkyl, or halogen, and X is an electron-accepting leaving group, in an inert, aprotic organic solvent;
subjecting said compound in said solution to β-elimination reaction conditions effective to eliminate the silyl group



and the electron-accepting leaving group

—X

from said compound to form a double bond between those carbon atoms to which the silyl group and the electron-accepting leaving group were bonded, thereby forming 2-methylene-1,3-propanediamide.

4,278,804

ULTRAVIOLET LIGHT ABSORBING AGENTS AND COMPOSITIONS AND ARTICLES CONTAINING SAME

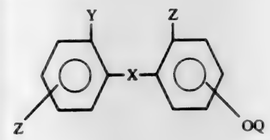
Bruce A. Ashby, and Siegfried H. Schroeter, both of Schenectady, N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed May 30, 1980, Ser. No. 154,622

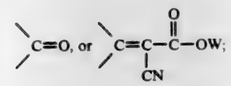
Int. Cl.³ C07F *7/18, 7/09*

U.S. Cl. 556—436 **3 Claims**

1. An ultraviolet light absorbing agent, comprising a compound having the formula:



wherein:
X is



Y is H or OH;
Z is H, OH, OQ or OW, where at least one Z is OH if Y is H;
Q is $—CH_2(CH_2)_nSi(R_2)_x(OR_1)_y$; and
W is $—C_mH_{2m+1}$;
where x=0, 1 or 2, y=1, 2 or 3, x+y=3,
R_1=alkyl or alkanoyl having 1 to 6 carbon atoms,
R_2=alkyl having 1 to 6 carbon atoms, n=0, 1 or 2 and m=1 to 18.

4,278,805

PROCESS FOR THE PREPARATION OF AN ARYL MONO-, DI-, AND/OR POLYURETHANE

Franz Merger, Frankenthal, and Friedrich Towse, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 135,246

Claims priority, application Fed. Rep. of Germany, Oct. 29, 1979, 2942510

Int. Cl.³ C07C *125/07, 125/077, 125/063*

U.S. Cl. 560—25 **12 Claims**

1. A process for the manufacture of an aryl mono-, di- and/or polyurethane comprising the steps of
A. reacting a primary aromatic mono-, di- and/or polyamine with a carbomate of the formula $H_2N—COOR$ in which R represents an unsubstituted or substituted aliphatic, cycloaliphatic or aromatic-aliphatic radical in the presence of an alcohol and at least one compound containing one or more cations of metals of groups IA, IB, IIA, IIB, IIIA, IIIB, IVA, IVB, VA, VB, VIB, VIIB, VIIIB of the periodic system as catalysts, and
B. separating the ammonia and other by-products from the aryl mono, di-, and/or polyurethane.

4,278,806

15-DEOXY-16-SUBSTITUTED-19-CHLORO-20-NOR PROSTANE DERIVATIVES OF THE E AND F SERIES

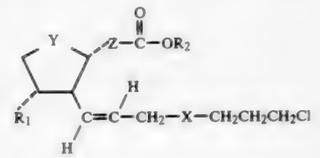
Allan Wissner, Ardsley, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Jun. 7, 1979, Ser. No. 46,725

Int. Cl.³ C07C *177/00*

U.S. Cl. 560—121 **14 Claims**

1. An optically active compound of the formula:



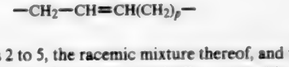
wherein
X is:



and
Y is



R_1 is selected from the group consisting of hydrogen and hydroxyl;
R_2 is selected from the group consisting of hydrogen and C_1 to C_6 alkyl;
R_3 is selected from the group consisting of hydrogen, methyl, vinyl and ethynyl;
Z is



wherein p is 2 to 5, the racemic mixture thereof, and when R_2 is hydrogen, the pharmaceutically acceptable salts thereof.

4,278,807

PROCESS FOR PRODUCTION OF 1-NAPHTHYL METHYLCARBAMATE

Eugene J. Boros, South Charleston, and David W. Peck, Charleston, both of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Sep. 28, 1979, Ser. No. 80,067

Int. Cl.³ C07L *125/067*

U.S. Cl. 560—134 **8 Claims**

1. An improvement in the process for producing 1-naphthylmethylcarbamate, by reacting 1-naphthol with methyl isocyanate in the presence of an effective amount of an anion exchange resin catalyst containing a major portion of weak-base functional groups in the form of free amino functional groups and a minor portion of strong-base groups in the form of qua-

ternary ammonium functional groups in catalytically inactive salt form, whereby during reaction said weak-base groups are converted to the catalytically inactive salt form, the improvement which comprises treating said anion exchange resin with an aqueous solution containing ammonium hydroxide and ammonium chloride for a time sufficient to convert said weak-base groups to their catalytically active free amine form while maintaining said strong-base groups in their catalytically inactive salt form.

4,278,808

METHOD OF PREPARING A 3-ALKOXY-2-ALKYL-PROPIONIC ACID ESTER DERIVATIVE AND INTERMEDIATE THEREFOR

Ernst Felder, Riva S. Vitale, Switzerland, and Davide Pitre, Mailand, Italy, assignors to Bracco Industria Chimica S.p.A., Milan, Italy

Filed Sep. 14, 1978, Ser. No. 942,403

Claims priority, application Switzerland, Oct. 31, 1977, 13188/77

Int. Cl.³ C07C *69/734, 69/63, 69/67*

U.S. Cl. 560—183 **6 Claims**

1. A method of preparing a 3-alkyloxy-2-alkyl-propionic acid ester derivative of the formula (I)

$$X-(CH_2)_m-O-CH_2-\underset{\displaystyle C_oH_{2o+1}}{\underset{|}{CH}}-COO-C_nH_{2n+1}$$

which comprises:

(a) reacting an ester of the formula (II)

$$C_oH_{2o+1}-CH_2-COO-C_nH_{2n+1}$$

with carbon monoxide in the presence of an alkali metal alcoholate until a formylation product of the formula (III)

$$Y-O-CH=\underset{\displaystyle C_oH_{2o+1}}{\underset{|}{C}}-COO-C_nH_{2n+1}$$

is formed;

(b) holding said product of formula (III) under condensation conditions with a compound of the formula (IV)

$$X-(CH_2)_m-Z$$

until the acrylic acid analog of said derivative of formula (I) is formed as the compound of the formula (V)

$$X-(CH_2)_m-O-CH=\underset{\displaystyle C_oH_{2o+1}}{\underset{|}{C}}-COO-C_nH_{2n+1}$$

and

(c) hydrogenating said acrylic acid analog to said derivative of formula (I);

(d) in said formulas:

X being chlorine, bromine, or hydroxyl,

Y being hydrogen or alkali metal,

Z being chlorine, bromine, iodine, alkylsulfonyloxy, or arylsulfonyloxy, alkyl and aryl in said alkylsulfonyloxy or arylsulfonyloxy having 1 to 7 carbon atoms, when Y is alkali metal; Z being hydroxyl when Y is hydrogen

m being an integer between 2 and 4,

n and o being integers between 1 and 4.

5. A 3-alkyloxy-2-alkyl-acrylic acid ester derivative of the formula (V)

$$X-(CH_2)_m-O-CH=\underset{\displaystyle C_oH_{2o+1}}{\underset{|}{C}}-COO-C_nH_{2n+1}$$

wherein X is chlorine, bromine, or hydroxyl; m is an integer between 2 and 4, and n and o are integers between 1 and 4.

4,278,809

PROCESS FOR PREPARING 2-ISOCYANATOALKYL ESTERS OF ORGANIC CARBOXYLIC ACIDS

Kenneth A. Burdett, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jun. 15, 1977, Ser. No. 806,805

Int. Cl.³ C07C *67/18*

U.S. Cl. 560—222 **4 Claims**

1. A process for preparing a 2-isocyanatoalkyl ester of an organic carboxylic acid comprising reacting by contacting

(a) an aqueous solution of a 2-oxazoline, and

(b) a solution of phosgene in a water-immiscible organic solvent, in the presence of

(c) a hydrochloric acid acceptor,

wherein (a), (b), and (c) are added essentially simultaneously to a reaction vessel with efficient blending in essentially stoichometric amounts.

4,278,810

PROCESS FOR THE PREPARATION OF TEREPHTHALIC ACID

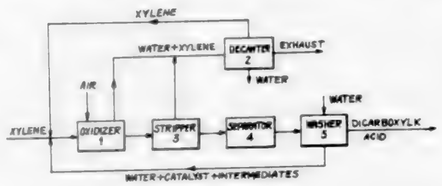
Jacques D. V. Hanotier, Lasne-Chapelle-Saint-Lambert, Belgium, assignor to Labofina S.A., Brussels, Belgium

Continuation of Ser. No. 785,827, Apr. 8, 1977, abandoned, which is a continuation-in-part of Ser. No. 764,981, Feb. 2, 1977, abandoned. This application Apr. 13, 1979, Ser. No. 30,054

Claims priority, application United Kingdom, Oct. 26, 1976, 44459/76

Int. Cl.³ C07C *51/255*

U.S. Cl. 562—412 **23 Claims**



1. A process for producing terephthalic acid comprising the steps of:

providing a substantially liquid, aqueous mixture consisting essentially of p-xylene, p-toluic acid and a solvent consisting essentially of water wherein the molar ratio of p-toluic acid to p-xylene is between about 0.01 and about 100, the molar ratio of water to p-toluic acid is between about 0.4 and about 60, the initial water content of said mixture is at least 5 weight percent and the amount of water is at least sufficient to maintain the p-toluic acid in solution at the reaction temperature;

oxidizing said mixture with a molecular oxygen-containing gas at oxidation conditions and in the presence of an oxidation catalyst comprising at least one heavy metal salt to produce terephthalic acid as the principal product of the oxidation reaction; and

separating terephthalic acid from the oxidized mixture.

4,278,811

PROCESS FOR THE PREPARATION OF TRIS(AMINOMETHYL)PHOSPHINE OXIDE AND ITS TERNARY SALTS

Arlen W. Frank, Slidell; Donald J. Daigle, New Orleans, and Russell M. H. Kullman, Harahan, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation-in-part of Ser. No. 964,854, Nov. 29, 1978, Pat. No. 4,196,149. This application Mar. 10, 1980, Ser. No. 128,440

Int. Cl.³ C07F *9/53*

U.S. Cl. 564—15 **4 Claims**

1. A process for preparing tris(aminomethyl)phosphine oxide which comprises (a) mixing a tris(carbalkoxylaminomethyl)phosphine oxide having the formula $(RO_2CNHCH_2)_3PO$, where R is an alkyl radical having from 1 to 6 carbon atoms, with a reagent selected from the group consisting of alkalis and alkaline earths, in the presence of water, (b) heating the mixture at a temperature of about 100° C. until all three of the acyl-nitrogen bonds are cleaved, (c) destroying the excess reagent with carbon dioxide at a temperature of about 100° C., and (d) recovering the product from the resulting reaction mixture.

4,278,812

19,20-DIDEHYDRO-PG$_2$ SULFONYL AMIDES

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979. This application Oct. 17, 1979, Ser. No. 85,741

Int. Cl.³ A61K *31/18*; C07C *143/75*

U.S. Cl. 564—98 **1 Claim**

1. A compound of the formula

wherein D is

(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,

(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,

(3) cis—CH_2—CH=CH—CH_2—CH_2—,

(4) trans—$(CH_2)_3$—CH=CH—,

wherein Q is

wherein R_5 is hydrogen or methyl,

R_{29} is alkyl of one to 4 carbon atoms, inclusive,

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is

and wherein X is cis— or trans—CH=CH— or —C≡C—.

4,278,813

19,20-DIDEHYDRO-13,14-DIHYDRO-PG$_2$, SULFONYL AMIDES

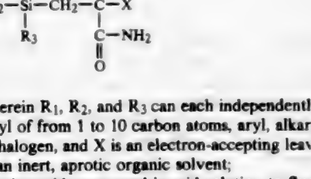
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979. This application Oct. 17, 1979, Ser. No. 85,742

Int. Cl.³ A61K *31/18*; C07C *143/75*

U.S. Cl. 564—98 **1 Claim**

1. A compound of the formula



wherein D is

(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,

(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,

(3) cis—CH_2—CH=CH—CH_2—CH_2—,

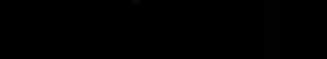
(4) trans—$(CH_2)_3$—CH=CH—,

wherein Q is



wherein R_5 is hydrogen or methyl, R_{29} is alkyl of one to 4 carbon atoms, inclusive, wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is



and wherein X is —CH_2CH_2—.

4,278,814

PREPARATION OF 2-METHYLENE-1,3-PROPANEDIAMIDE BY A FLUORIDE ANION-INITIATED β-ELIMINATION REACTION

Krishna G. Sachdev, Beacon, N.Y., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 7, 1980, Ser. No. 109,812

Int. Cl.³ C07C *102/00*; C07F *7/08*

U.S. Cl. 564—160 **17 Claims**

1. A process for preparing 2-methylene-1,3-propanediamide which comprises:

providing a solution of a compound of the formula

wherein R_1, R_2, and R_3 can each independently be lower alkyl of from 1 to 10 carbon atoms, aryl, alkaryl, aralkyl, or halogen, and X is an electron-accepting leaving group, in an inert, aprotic organic solvent;

subjecting said compound in said solution to fluoride anion to effect elimination of the silyl group



and the electron-accepting leaving group

—X

from said compound to form a double bond between those carbon atoms to which the silyl group and the electron-accepting leaving group were bonded, thereby forming 2-methylene-1,3-propanediamide.

4,278,815

19-KETO-PG AMIDES

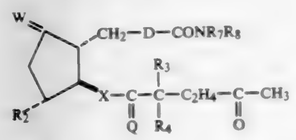
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, abandoned. This application Mar. 20, 1980, Ser. No. 132,351

Int. Cl.³ C07C *103/19, 103/737;* **A61K** *31/16, 31/165*

U.S. Cl. 564—189 **5 Claims**

1. A compound of the formula



wherein

D is

(1) cis—CH=CH—CH_2—$(CH_2)_5$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_5$—CH_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—,
(4) trans—$(CH_2)_3$—CH=CH—,
(5) —$(CH_2)_3$—$(CH_2)_5$—CH_2—,
(6) —$(CH_2)_3$—CH_2—CF_2—,
(7) —$(CH_2)_3$—O—CH_2—,
(8) —(CH_2)—O—$(CH_2)_2$—,
(9) —CH_2—O—$(CH_2)_3$—,
(10) —(m-Ph)—$(CH_2)_2$—, or
(11) —(m-Ph)—O—CH_2—,

wherein —(m-Ph)— is inter-meta-phenylene and

wherein g is zero, one, two, or three;

wherein Q is α—OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;

wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different;

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and

wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and

wherein X is cis- or trans—CH=CH—, —C≡C— or —CH_2CH_2—.

4,278,816

PROCESS FOR PREPARING PHENOLS AND THIOPHENOLS

Kyung-sup Shim, Irvington, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Aug. 26, 1977, Ser. No. 827,919

Int. Cl.³ C07C *149/28, 37/055*

U.S. Cl. 568—67 **14 Claims**

1. A process for producing a phenol and a thiophenol which comprises reacting the corresponding diphenylether compound with hydrogen sulfide in the gaseous phase in contact with a catalyst comprising an absorptive catalyst.

4,278,817

NOVEL PRENYL 4-CARANONES

Dietmar Lamparsky, Wangen, Switzerland, assignor to Givaudan Corporation, Clifton, N.J.

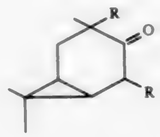
Filed Nov. 21, 1979, Ser. No. 96,721

Claims priority, application Switzerland, Dec. 5, 1978, 12390/78

Int. Cl.³ C07C *49/417, 49/29*

U.S. Cl. 568—374 **5 Claims**

1. A composition consisting of compounds of the general formula:



I

wherein one of the R symbols represents a 3-methyl-2-butenyl group and the other represents a hydrogen atom.

4,278,818

2-DECARBOXY-2-HYDROXYMETHYL-19,20-DIDEHYDRO-13,14-DIHYDRO-PG_2 COMPOUNDS

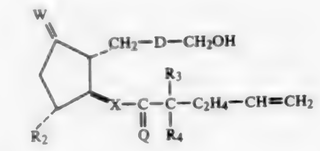
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,243,611. This application Oct. 17, 1979, Ser. No. 85,624

Int. Cl.³ C07C *177/00*

U.S. Cl. 568—379 **1 Claim**

1. A compound of the formula



wherein D is

(1) cis—CH=CH—CH_2—$(CH_2)_5$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_5$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—,
(4) trans—$(CH_2)_3$—CH=CH—,

wherein g is zero, one, 2 or 3;

wherein Q is

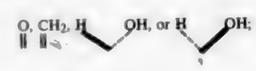


wherein R_5 is hydrogen or methyl;

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is



and wherein X is —CH_2CH_2—.

4,278,819

PROCESS FOR THE PRODUCTION OF ACETALDEHYDE DIMETHYL ACETAL

Joachim Korff, Bornheim; Max Fremery, Wesseling, and Johannes Zimmermann, Weilerswist, all of Fed. Rep. of Germany, assignors to Union Rheinische Braunkohlen Kraftstoff Aktiengesellschaft, Wesseling, Fed. Rep. of Germany

Filed Apr. 2, 1980, Ser. No. 136,415

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1979, 2913677

Int. Cl.³ C07C *43/303, 43/30*

U.S. Cl. 568—594 **8 Claims**

1. A process for the production of acetaldehyde dimethyl acetal by the cobalt-catalysed reaction of methanol with carbon monoxide and hydrogen in the presence of a promoter selected from the group consisting of iodine, bromine, an iodide of hydrogen, methyl, nickel, cobalt, cesium and a bromide of hydrogen, methyl, nickel, cobalt, cesium at elevated temperature and pressure, which comprises using, in addition to cobalt, nickel in the form of its compounds capable to build a carbonyl- or a hydrocarbonyl complex or in the form of finely divided metal as co-catalyst in such a quantity that up to 1% by weight of cobalt and from 0.1 to 5% by weight of nickel are present, based on the methanol used, and the compounds of 3-valent phosphorus normally used as ligands are used as ligand in a molar ratio of nickel to ligand of from 5:1 to 1:3, the reaction being carried out at temperatures in the range from 180° to 230° C., under pressures of from 200 to 500 bars and with a ratio of CO to H_2 of from 2:1 to 1:2.2.

4,278,820

PROCESS FOR PREPARING MONOALKYLENE GLYCOL MONOETHERS

Norio Kametaka, Hiratsuka; Kuniomi Marumo, and Tutomu Nozawa, both of Tokyo, all of Japan, assignors to Showa Denka K.K., Tokyo, Japan

Filed Oct. 3, 1979, Ser. No. 81,619

Claims priority, application Japan, Oct. 5, 1978, 53/121979

Int. Cl.³ C07C *41/03*

U.S. Cl. 568—678 **6 Claims**

1. In a process for producng a monoalkylene glycol monoether comprising reacting an alkylene oxide having 2 to 4 carbon atoms with an aliphatic alcohol having 1 to 4 carbon atoms to produce the corresponding monoalkylene glycol monoether, the improvement which comprises performing said reaction in the presence of a solid catalyst resulting from the exchanging of exchangeable cations of a clay composed mainly of montmorillonite with at least one cation selected from the group consisting of aluminum, chromium, manganese, iron, tin and thorium.

4,278,821

ω,ω-BIS(DIALKYLHYDROXYPHENYL) ALKANOLS AS INTERMEDIATES IN MAKING EFFECTIVE ANTIOXIDANTS

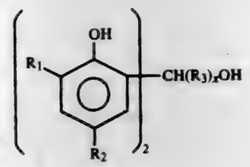
David J. Tracy, Lincoln Park, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Aug. 1, 1979, Ser. No. 62,762

Int. Cl.³ C07C *39/12*

U.S. Cl. 568—723 **6 Claims**

1. A compound of the formula:



wherein

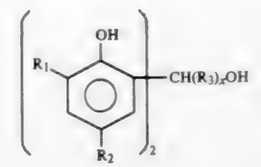
R_1 is a diisobutyl group;

R_2 is alkyl having 1–4 carbon atoms;

R_3 is a straight chain or branched alkylene group having 1–4 carbon atoms; and

x is 1–4.

2. A compound of the formula:



wherein

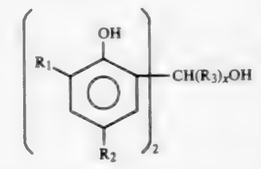
R_1 is a tertiary alkyl group having 4–8 carbon atoms;

R_2 is alkyl having 1–4 carbon atoms;

R_3 is propylene;

x is 1–4.

3. A compound of the formula:



wherein

R_1 is a tertiary alkyl group having 4–8 carbon atoms;

R_2 is alkyl having 1–4 carbon atoms;

R_3 is a straight chain or branched alkylene group having 1–4 carbon atoms; and

x is 3.

4,278,822

LOW MOLECULAR WEIGHT TERMINALLY-FUNCTIONAL SATURATED HYDROCARBON POLYMER

Gary Ver Strate, Matawan, N.J., and Francis P. Baldwin, Coupeville, Wash., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

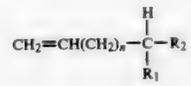
Continuation of Ser. No. 642,294, Dec. 19, 1975, abandoned. This application Nov. 7, 1977, Ser. No. 849,539

Int. Cl.³ C07C *17/28*

U.S. Cl. 570—257 **8 Claims**

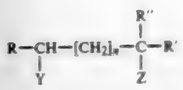
1. The polymeric reaction product of:

(a) a 1-alkene, having at least one trisubstituted carbon atom, said alkene being selected from the group represented by the general formula:



where n is 0 to 10 and R_1 and R_2 may be alkyl, and;

(b) a transfer agent selected from the group represented by the formula:



where Z is halogen, Y is halogen or hydrogen, R′ and R″ are alkyl, R is alkyl, phenyl, or hydrogen, and n is 0 or 1; and wherein said polymeric reaction product contains a saturated backbone, terminal functionality, and an $\bar{M}_n$ of about 500 to 5,000.

4,278,823

HYDROGENOLYSIS OF 2,5-NORBORNADIENE SATURATED ENDO-ENDO HEXACYCLIC DIMER

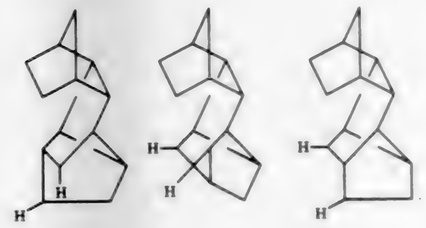
Abraham Schneider, Overbrook Hills, and Harry K. Myers, Jr., Aston, both of Pa., assignors to Suntech, Inc., Philadelphia, Pa.

Division of Ser. No. 942,860, Sep. 15, 1978. This application Dec. 13, 1979, Ser. No. 102,726

Int. Cl.³ C07C *13/62*

U.S. Cl. 585—22 **1 Claim**

1. A saturated pentacyclic hydrocarbon having one of the following structures:



4,278,824

DEHYDROCOUPLING OF TOLUENE

Samuel J. Tremont, Manchester, Mo.; Alex N. Williamson, Greensboro, N.C., and Arthur J. Solodar, University City, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 10, 1979, Ser. No. 101,921

Int. Cl.³ C07C *2/72*

U.S. Cl. 585—428 **17 Claims**

1. A process for dehydrocoupling toluene which comprises contacting the toluene in the vapor phase at a temperature between about 450° C. and about 650° C. with an inorganic metal/oxygen composition represented by the empirical formula:

$$M_a{}^1M_b{}^2M_c{}^3O_x$$

where M^1 is bismuth, M^2 is at least one element selected from silver, zinc, indium, germanium, phosphorus, thorium, the lanthanides, beryllium, calcium, strontium, barium, and radium, Groups 1a, 3b, 4b, and 8 of the Periodic Table of Elements, and mixtures thereof, and wherein a is 1, b is 0.01 to 10, c is 0.01 to 10, and x is a number taken to satisfy the average valences of M^1, M^2 and M^3 in the oxidation states in which they exist in the composition to yield the dehydrocoupled toluene product.

4,278,825

DEHYDROCOUPLING OF TOLUENE

Samuel J. Tremont, Manchester, Mo., and Alex N. Williamson, Greensboro, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 10, 1979, Ser. No. 101,928

Int. Cl.³ C07C *2/72*

U.S. Cl. 585—428 **18 Claims**

1. A process for dehydrocoupling toluene which comprises contacting the toluene in the vapor phase at a temperature between about 450° C. and about 650° C. with an inorganic metal/oxygen composition represented by the empirical formula:

$$M_a{}^1M_b{}^2M_c{}^3O_x$$

where M^1 is bismuth, M^2 is at least one element selected from the group consisting of indium, beryllium, calcium, strontium barium, and radium, and mixtures thereof, and M^3 is at least one element selected from the group consisting of zinc, germanium, thorium, the lanthanides, Groups 1*a*, 3*b*, 4*b*, and 8 of the Periodic Table of the Elements, and mixtures thereof, and wherein a is 1, b is 0.01 to 10, c is 0.01 to 10, and x is a number taken to satisfy the average valences of M^1, M^2 and M^3 in the oxidation states in which they exist in the composition, the composition having a surface area less than 10 m^2/g, to yield the dehydrocoupled toluene product.

4,278,826

DEHYDROCOUPLING OF TOLUENE

Samuel J. Tremont, Manchester, Mo.; Alex N. Williamson, Greensboro, N.C., and Arthur J. Solodar, University City, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 10, 1979, Ser. No. 101,944

Int. Cl.³ C07C *2/72*

U.S. Cl. 585—428 **17 Claims**

1. A process for dehydrocoupling toluene which comprises contacting the toluene in the vapor phase at a temperature between about 450° C. and about 650° C. with an inorganic metal/oxygen composition represented by the empirical formula:

$$M_a{}^1M_b{}^2M_c{}^3O_x$$

where M^1 is lead, M^2 is antimony, and M^3 is at least one element selected from silver, zinc, gallium, the lanthanides, Groups 1a, 2a, 3b, 4b, and 8 of the Periodic Table of the Elements, and mixtures thereof, and wherein a is 1, b is 0.01 to 10, c is 0.01 to 10, and x is a number taken to satisfy the average valences of M^1, M^2, and M^3 in the oxidation states in which they exist in the composition to yield the dehydrocoupled toluene product.

4,278,827

SHAPE SELECTIVE REACTIONS WITH ZEOLITE CATALYST MODIFIED WITH GROUP IVB METAL

Chin-Chiun Chu, North Brunswick, and Warren W. Kaeding, Westfield, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 7, 1980, Ser. No. 137,881

Int. Cl.³ C07C *2/68, 5/22, 5/52*

U.S. Cl. 585—467 **26 Claims**

1. A process for conversion of organic compounds, said process comprising contacting said organic compounds with a crystalline zeolite catalyst at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of $10^5 N/m^2$ to $10^7 N/m^2$, said zeolite being characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said zeolite having undergone prior modification by treatment with one or more compounds containing metal elements of Group IVB to deposit thereon at least 0.25 weight percent of such metal element.

4,278,828

NOISE-TEMPERATURE THERMOMETER

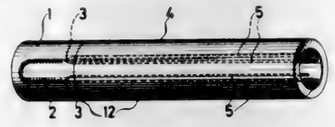
Heinz Brixy, Niederzier, and Helmut Hofer, Korschenbroich, both of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Filed Dec. 14, 1979, Ser. No. 103,435

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1978, 2854227

Int. Cl.³ G01K *7/30, 7/04*

U.S. Cl. 136—232 **5 Claims**



1. A noise thermometer temperature sensor comprising:

a housing forming a measuring head;

a noise-thermometer resistance wire received in said head and having a pair of ends forming junctions with respective leads; and

an axially elongated rigid solid ceramic insulator formed by at least one insulating ceramic body in said head, said body being formed with a perforated portion having a plurality of passages respectively traversed by said leads and a web extending axially from said portion toward said noise-thermometer resistance wire between said junctions, said web being formed in one piece with said portion, said leads including paired thermoelement conductors with each pair of conductors joined in a respective thermocouple at a respective junction, said passages being formed in said body in pairs spaced on either side of said web and traversed by the respective pairs of conductors, said portion thereby having four of said passages, said web being disposed between said thermocouples.

4,278,829

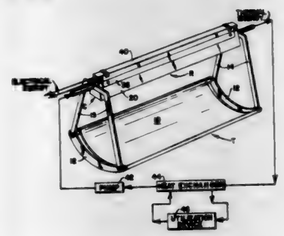
SOLAR ENERGY CONVERSION APPARATUS

Roger A. Powell, 1589 Vernon Rd., Norristown, Pa. 19401

Filed Mar. 12, 1979, Ser. No. 19,784

Int. Cl.³ H01L *31/04*

U.S. Cl. 136—248 **9 Claims**



1. A solar energy conversion apparatus comprising:

(a) a photoelectric transducer for converting incident solar energy within a particular spectral region to electrical energy;

(b) a selectively absorbing liquid adapted to transmit solar energy within said spectral region and to absorb solar energy outside said spectral region, whereby the absorbed solar energy is converted to thermal energy in said liquid;

(c) means for supporting said liquid on an optical path between the sun and said transducer, said supporting means comprising a container having front and rear walls which are substantially transparent to solar energy within said spectral region, said front wall being additionally transparent to solar energy of wavelengths absorbed by said liquid, said container further comprising reflective side walls between said front and rear walls, said side walls acting to redirect incident solar energy toward said rear wall;

(d) means for supporting said transducer in a position spaced from said rear wall to thermally isolate said transducer from said liquid, whereby said liquid can be heated to a temperature which exceeds the optimal operating temperature of said transducer;

(e) supplemental absorbing means positioned within said container to absorb solar energy within a particular spectral bandpass to which said liquid is transparent; and

(f) means for extracting thermal energy from said liquid for utilization.

4,278,830

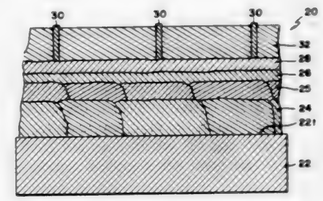
SCHOTTKY BARRIER SOLAR CELL

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Richard J. Stirn, La Canada, and Yea-Chuan M. Yeh, Santa Monica, both of Calif.

Continuation-in-part of Ser. No. 837,513, Sep. 29, 1977, abandoned, which is a continuation-in-part of Ser. No. 683,073, May 4, 1976, abandoned, which is a continuation-in-part of Ser. No. 597,430, Jul. 21, 1975, abandoned. This application Nov. 13, 1979, Ser. No. 93,714

Int. Cl.³ H01L *31/06*

U.S. Cl. 136—255 **7 Claims**



1. In a Schottky barrier solar cell for converting incident light energy to electrical energy, said cell including means for supporting an active layer of a semiconductor material which includes arsenic as one of its constituents and a layer of semi-transparent metal, which together with said semiconductor layer forms a Schottky barrier, and through which light reaches said semiconductor active layer, the improvement comprising:

an interfacial oxide layer between said active semiconductor layer and said metal layer, said oxide layer being characterized by including arsenic in an oxidation state of not less than +3.

4,278,831

PROCESS FOR FABRICATING SOLAR CELLS AND THE PRODUCT PRODUCED THEREBY

Dietrich E. Riemer, Auburn, and Rudolph E. Corwin, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 33,887, Apr. 27, 1979, abandoned. This application Feb. 20, 1980, Ser. No. 122,828

Int. Cl.³ H01L *31/04, 31/18*

U.S. Cl. 136—256 **13 Claims**

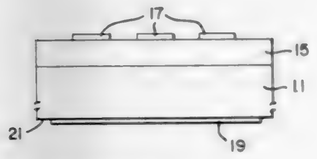
10. The product produced by the process comprising the steps of:

a. forming a substantially transparent, electrically conducting, anti-reflective, barrier coating on one surface of a silicon base layer, in which a PN junction has been or is to be formed near the one surface thereof;

b. forming an electrically conducting thick film contact on the one surface of said barrier coating; and

c. firing said thick film contact at conventional thick film

process temperatures without the material comprising said thick film contact penetrating through said barrier coating to said silicon base layer, wherein the material comprising said barrier coating is such that it (1) acts as a barrier to the diffusion of the material comprising the thick film contact during the step of firing the contact, thereby preventing diffusion of said thick film material into the silicon base layer, and further such that it (2) does not itself diffuse into the silicon base layer when the barrier coating is formed thereon, so that a path for electrical current is established between said thick film contact and the silicon base layer through said barrier coating without a diffusion of either said coating material or said contact material into said silicon base layer to such an extent to detrimentally affect the operation of the solar cell.



11. A solar cell, comprising:

a silicon base layer having a PN junction formed therein;

a substantially transparent, electrically conducting, anti-reflective, barrier coating formed on one surface of said silicon base layer; and

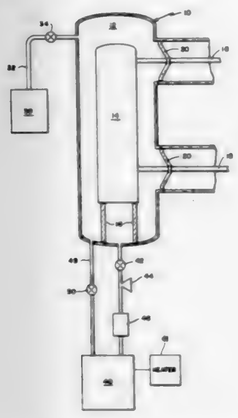
an electrically conducting, thick film contact formed on the one surface of said barrier coating, so that a current path exists between said thick film contact and said silicon base layer, said barrier coating comprising a material (1) which is a barrier to the diffusion of the material comprising said thick film contact at the high temperatures necessary for firing thereof, and (2) which does not itself diffuse into said silicon base layer when applied thereto as the barrier coating.

4,278,832

METHOD AND MEANS FOR CLEANING THE GAS INSULATED ENVIRONMENT OF AN ELECTRICAL APPARATUS

Narain G. Hingorani, Los Altos Hills, Calif., assignor to Electric Power Research Institute, Palo Alto, Calif.

Filed Oct. 29, 1979, Ser. No. 89,268
Int. Cl.³ H01B *17/36*; B03C *3/70*
U.S. Cl. 174—14 R **11 Claims**



1. A method of cleaning the environment of a gas insulated electrical apparatus to remove contaminants in said environment comprising the steps of:

introducing into said environment a cleansing fluid in vapor form,

condensing said fluid on internal surfaces of said apparatus within said environment and thereby capturing contaminants, and

removing said condensed fluid and contaminants from said environment.

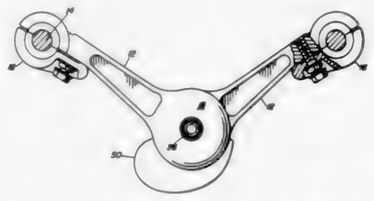
8. In sealed gas insulated electrical apparatus, means for cleaning the enclosed gas insulating environment of said apparatus comprising means for introducing into said environment a cleansing fluid in vapor form, and means for removing said cleansing fluid from said environment after said cleansing fluid condenses in said environment.

4,278,833

DAMPING SPACER WITH HUB INTERLOCK

Ronald G. Hawkins, Massena, N.Y., assignor to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 39,879, May 17, 1979, Pat. No. 4,223,176. This application Aug. 7, 1980, Ser. No. 176,084
Int. Cl.³ H02G *7/14*, *7/12*
U.S. Cl. 174—42 **1 Claim**



1. A frameless damping spacer for two parallel overhead conductors comprising:

two rigid elongated spacer arms,

an integral hub structure associated with each of the spacer arms,

a disc-like structure located between the hub structures, the disc-like structure being made of a relatively heavy material to provide an inertial weight for the damping spacer, the mass of inertial weight being off-center in the direction of one of the two spacer arms,

rigid pin means extending perpendicularly through the disc-like and hub structures to mechanically connect the structures together,

clamping means for securing the spacer arms to respective overhead conductors at locations remote from the hub structures,

opposed, radially offset, semi-circular wall portions provided on the faces of the hub structures facing the disc-like structure, and on both faces of the disc-like structure, the wall portions forming opposed, radially offset, semi-circular recesses in the disc-like and hub structures,

the hub and disc-like structures being disposed together such that the wall portions of the hub structures extend into the recesses of the disc-like structure, and vice versa,

the wall portions of the disc-like and hub structures being located at the same radial distance from the centers of the disc-like and hub structures,

the dimensions of the wall portions and the recesses being such that relative movement of the spacer arms and the disc-like structure is permitted,

a second recess provided in both faces of the disc-like structure and in the faces of the hub structures having the wall and recess portions, for receiving elastomer bushings, and

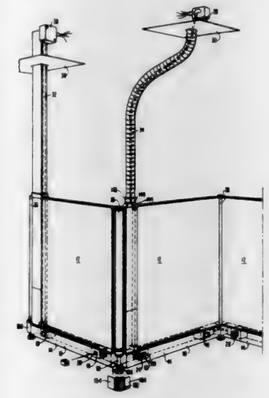
elastomer bushings located respectively between the faces of the disc-like and hub structures and in the second recesses.

4,278,834

VERSATILE, ELECTRIFIED SPACE DIVIDING WALL PANEL SYSTEM

Bruce K. Boundy, Holland, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 6, 1978, Ser. No. 967,181
Int. Cl.³ H02G *3/00*
U.S. Cl. 174—48 **4 Claims**



1. An electrified space dividing wall panel system comprising:

a plurality of space dividing wall panels having an elongated open ended covered channel extending along and secured to the bottom edge thereof, said elongated open-ended covered channel extending along and secured to the bottom edge of each panel including hinged side walls providing access to the interior of said channel, said side walls each including at least two spaced apertures therethrough;

cylindrical support posts having annular slots therein for supporting said space dividing wall panels;

a pair of spaced terminal blocks each disposed within said elongated covered channel adjacent an opposite end thereof in each of said space dividing wall panels, each of said terminal blocks including two sets of four vertically aligned male electrical connecting terminals extending outwardly longitudinally of said channel adjacent said open ends, one of said male electrical connecting terminals in each of said sets of four vertically aligned male electrical connecting terminals, including a raised portion defining a different shape than the others in said set of four vertically aligned male electrical connecting terminals;

means electrically connecting each terminal block to the other terminal block in each of said plurality of panels; and

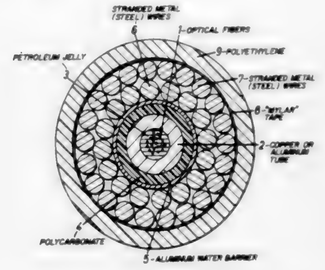
a plurality of flexible cables having four female electrical receptacles at each end thereof, said female electrical receptacles adapted to electrically connect to one of said sets of four vertically aligned male terminals on a terminal block on one of said panels while the four female electrical receptacles at the other end of said flexible cable are connected to one of said sets of four vertically aligned male terminals on another of said panels while said flexible cable spans said cylindrical post, one of said female electrical receptacles in each of said sets of four female electrical receptacles is of a shape compatible with said one male electrical connecting terminal of a different shape and different from the remaining three female electrical receptacles in said set of four female electrical receptacles.

4,278,835

SUBMARINE COMMUNICATION CABLE INCLUDING OPTICAL FIBRES WITHIN AN ELECTRICALLY CONDUCTIVE TUBE

Lynden A. Jackson, Ipswich, England, assignor to The Post Office, London, England

Filed Dec. 14, 1978, Ser. No. 969,574
Claims priority, application United Kingdom, Dec. 16, 1977, 52509/77
Int. Cl.³ G02B *5/14*
U.S. Cl. 174—70 R **3 Claims**



1. A submarine communication cable comprising a tubular sheath of electrically conductive metal, jelly material within said sheath and a plurality of longitudinally extending optical fibers within the jelly-filled sheath each fiber being unconstrained and radially spaced from the sheath wall.

4,278,836

REPAIR COUPLING FOR FLEXIBLE ELECTRICAL CONDUIT

Loran S. Bingham, 3571 Oceanview Ave., Mar Vista, Calif. 90066

Filed Sep. 15, 1978, Ser. No. 942,606
Int. Cl.³ H02G *1/16*
U.S. Cl. 174—84 S **10 Claims**

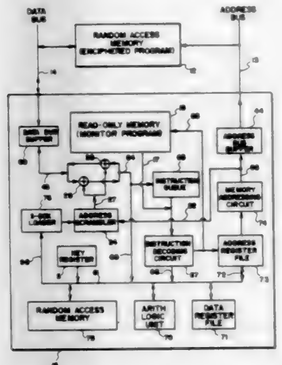


1. A repair coupling for rejoining separated ends of flexible electrical conduit sections comprised of helically wrapped loosely interlocked strip and with wiring extending continuously therethrough and therebetween, and including; an elongated maleable body of shell form having an initial semi circular arucate cross sectional configuration with inner and outer perimeter walls, said perimeter walls terminating at opposite normal ends and having coextensive juxtaposed edges initially spaced one from the other to establish a longitudinally disposed slot-shaped opening for the lateral reception of said wiring, at least a portion of said initially spaced juxtaposed edges of the maleable body being reformable into tubular configuration with overlapped engagement and with opposed stop shoulders thereof engaged to limit constriction of the diameter of said outer perimeter wall thereof for insertion into opposed ends of the separated conduit sections.

4,278,837
CRYPTO MICROPROCESSOR FOR EXECUTING ENCIPHERED PROGRAMS

Robert M. Best, 16016 9th Ave. NE., Seattle, Wash. 98155

Continuation-in-part of Ser. No. 846,638, Oct. 31, 1977, Pat. No. 4,168,396, and Ser. No. 927,580, Jul. 24, 1978, abandoned, which is a continuation of Ser. No. 750,009, Dec. 13, 1976, abandoned.
This application Jun. 4, 1979, Ser. No. 44,952
Int. Cl.³ H04L 9/00
U.S. Cl. 178—22.09 **47 Claims**



1. A cryptographic microprocessor apparatus constructed as an integrated circuit chip for executing a computer program of information stored in enciphered form in a storage means as a plurality of portions of enciphered program instructions, the apparatus comprising:

means included in said chip for storing a cipher key;

deciphering means included in said chip for cryptographically transforming a portion of said enciphered program information under control of said cipher key to produce a portion of deciphered information containing a deciphered instruction in said program;

processing means included in said chip for fetching a deciphered instruction from a portion of deciphered information from said deciphering means, and for executing the deciphered instruction, and for addressing in said storage means a subsequent portion of said enciphered program information for transforming by said deciphering means.

4,278,838
METHOD OF AND DEVICE FOR SYNTHESIS OF SPEECH FROM PRINTED TEXT

Lyubomir Y. Antonov, Sofia, Bulgaria, assignor to Edinen Centar Po Physika, Sofia, Bulgaria

Continuation-in-part of Ser. No. 32,507, Apr. 23, 1979, abandoned, which is a continuation of Ser. No. 829,944, Sep. 1, 1977, abandoned. This application Aug. 2, 1979, Ser. No. 63,169
Claims priority, application Bulgaria, Sep. 8, 1976, 34160
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SM **4 Claims**

1. A method for synthesizing speech, comprising the steps of:

analyzing a printed text grammatically and phonetically for sequences of phonemes, for the placement of accents, for the placement and duration of pauses and intonations to form frequency magnitude and amplitude characteristics of a sentence to be synthesized;

reading out from a read-only memory, according to said frequency magnitude characteristics, binary signals coding at least in part successive magnitudes of voice-frequency functions;

converting said binary signals at the output of said read-only memory into an analog signal;

modulating said analog signal according to said amplitude characteristics;

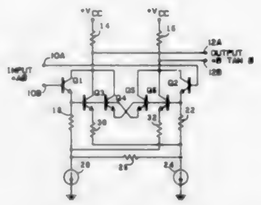
introducing quasirandom changes in said frequency magnitude and amplitude characteristics to facilitate the production of natural-sounding speech, the quasirandom changes introduced in said frequency magnitude and amplitude characteristics being within the limits of ±3% for the frequency and ±30% for the amplitude; and

feeding the modulated analog signal to the loudspeaker.

4,278,839
TANGENT FUNCTION GENERATOR FOR AM STEREO

Charles J. Marik, Chicago, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 2, 1979, Ser. No. 63,273
Int. Cl.³ H04H 5/00; G06G 7/22
U.S. Cl. 179—1 GS **7 Claims**



1. A function generator comprising in combination:

means for providing a two-quadrant input signal;

differential amplifier means coupled to the input means for linearly amplifying the input signal;

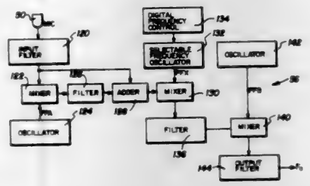
a plurality of additional amplifier means coupled to the differential amplifier means, each additional amplifier means comprising a pair of first and second transistors biased to a threshold level different from the threshold level of each other additional amplifier means and only one transistor of each pair conducting during each polarity of the input signal; and

means for combining the outputs of all amplifier means.

4,278,840
DYNAMIC FREQUENCY AND TIME VOICE ENCRYPTION SYSTEM AND METHOD

Barrie O. Morgan, and Mitchell M. Wilkinson, both of Dallas, Tex., assignors to Datotek, Inc., Dallas, Tex.

Filed Mar. 23, 1979, Ser. No. 23,170
Int. Cl.³ H04K 1/04
U.S. Cl. 179—1.5 S **29 Claims**



1. A voice scrambler system for encryption of a voice signal comprising:

a first generator for generating a fixed frequency signal;

a second generator for generating a plurality of frequency signals;

control means for dynamically controlling said second generator for randomly generating said plurality of frequency signals;

first mixer means for heterodyning the voice signal with said fixed frequency signal generated by said first generator;

first filter means for filtering the output of said first mixer means;

adder means for adding the voice signal and the output of said first filter means;

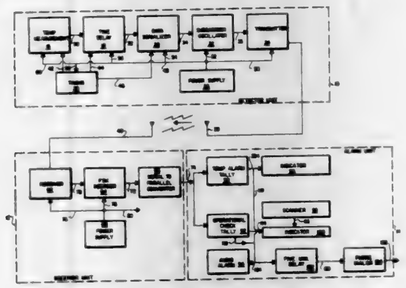
second mixer means for heterodyning the output of said adder means with one of said plurality of frequency signals generated by said second generator; and

second filter means for filtering the output of said second mixer means to generate an encrypted voice signal of a first level of voice encryption.

4,278,841
MULTIPLE STATION TEMPERATURE MONITOR SYSTEM

Jack Regennitter, 1734 E. 3015 South, Salt Lake City, Utah 84106, and Ronald C. Ward, Salt Lake City, Utah, assignors to Jack Regennitter, Salt Lake City, Utah

Filed Oct. 22, 1979, Ser. No. 87,254
Int. Cl.³ H04M 11/04
U.S. Cl. 179—5 R **7 Claims**



1. A temperature monitoring system comprising: a plurality of detector units, each of which includes:

temperature measuring means positioned to sense the air temperature of a refrigerated area to generate a temperature alarm signal reflective of a preselected alarm temperature condition,

time delay means conductively connected to said temperature measuring means to receive and integrate temperature alarm signals and to transmit a temperature alarm signal after a preselected time delay,

a data serializer conductively connected to receive the temperature alarm signal from said time delay means, said data serializer having identification code means to generate a preselected identification code unique to a detector unit, and wherein said data serializer converts said identification code and said temperature alarm signal into a serialized data train,

a subcarrier oscillator conductively connected to said data serializer to receive said data train to generate a radio frequency subcarrier signal modulated with said data train signal,

a transmitter with antenna means conductively connected to receive said modulated radio frequency subcarrier signal from said subcarrier oscillator to transmit a radio frequency carrier modulated with said modulated radio frequency subcarrier,

timing means conductively connected to said temperature measuring means, time delay means and data serializer to supply timing signals thereto to cause intermittant operation thereof in accordance with a preselected schedule, and

a first power supply conductively connected to supply power to said temperature measuring means, time delay means, data serializer, subcarrier oscillator transmitter and timing means;

a receiver unit positioned remote from said detector unit, said receiver unit including:

receiver means with antenna means to receive said radio frequency carrier from said transmitter to extract therefrom said modulated radio frequency subcarrier,

frequency shift key decoder means conductively connected to said receiver to receive said modulated radio frequency subcarrier therefrom to extract said data train from said subcarrier,

serial to parallel converter means conductively connected to said decoder means to receive said data train therefrom and to convert said data train into a plurality of parallel in time data signals reflective of the temperature and the identity of the detector unit related thereto, and

a second power supply conductively connected to said receiver, frequency shift key decoder and said serial to parallel converter to supply power thereto; and

an alarm unit conductively connected to said serial to parallel converter to receive said data signals therefrom and to said second power supply to receive power therefrom, said unit including:

a temperature alarm tally circuit to receive said data signals and generate an alarm signal indicative of the existence of an alarm condition and the identity of the detector unit from which the alarm condition has been transmitted,

indicator means conductively connected to receive said alarm signal to indicate the existence thereof and identify of the detector unit related thereto, and

external alarm means to receive said alarm signal and indicate the existence thereof external from the alarm unit.

4,278,842
CIRCUIT FOR ELIMINATING SPURIOUS PULSES IN A DIAL PULSE STREAM

George H. Simmons, East Lansing, Mich., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

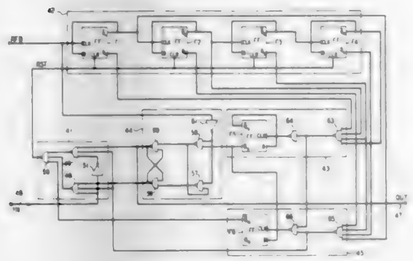
Filed Jun. 6, 1979, Ser. No. 45,970
Int. Cl.³ H04Q 1/36
U.S. Cl. 179—16 EA **4 Claims**

1. In a communication system wherein two level dial pulse signals contain both genuine and spurious transient pulses, a spurious pulse elimination circuit which receives said dial pulse signals as an input signal and generates genuine pulses as an output signal, said circuit characterized by

means (41) for comparing the input (46) and output (47)

signal levels of said circuit and generating therefrom a control signal when the level of said input signal differs from the level of said output signal, said control signal being continuously present until the levels of said input and output signals are the same,

counting means (42) responsive to said control signal for counting for a preselected time interval and being reset to zero by a predetermined state of said control signal, said counting means also being reset to zero once the count has continued for the preselected time interval,



means (43, 44) coupled to said counting means for preventing said output signal level from matching a change in input signal level unless the duration of said change in input signal level exceeds a first particular count within said preselected time interval, and

means (45) coupled to said counting means for holding said output signal level constant when said change in input signal level is from a first to a second predetermined signal level, the holding means being activated by said first particular count and the holding means being deactivated once a second particular count is counted by said counting means.

4,278,843

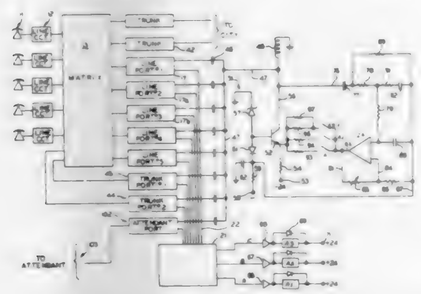
TWO-WAY AMPLIFIER ARRANGEMENT

Alfred M. Hestad, Chicago, Ill., assignor to Anaconda-Ericsson Inc., Denver, Colo.

Continuation of Ser. No. 456,971, Apr. 1, 1974, abandoned. This application Nov. 25, 1975, Ser. No. 635,239

Int. Cl.³ H04M *3/56*

U.S. Cl. 179—18 BC **9 Claims**



1. In a PABX conference call system, means for interconnecting two or more telephone stations in a conference type call, said interconnecting means including a signal transmission circuit for transmitting voice frequency signals originating from each telephone station connected in the call to each remaining telephone station that is connected in the call, the improvement comprising means (a) for amplifying voice frequency signals transmitted by said transmission circuit by a first predetermined amount only in response to the interconnection of a first pre-selected number of the telephone stations by said interconnecting means and (b) for amplifying the voice frequency signals transmitted by said transmission circuit by a second predetermined amount only in response to the interconnection of a second pre-selected number of the telephone stations by said interconnecting means, said first pre-selected number being in excess of two and less than said second pre-selected number, and said second predetermined amount being more than said first predetermined amount.

4,278,844

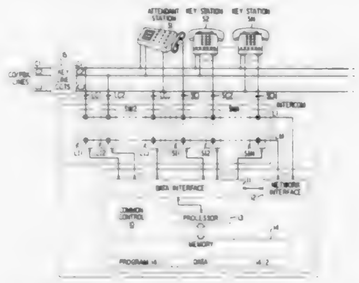
COMMUNICATION SYSTEM SELECTIVE CALL SCREENING ARRANGEMENT

David F. Jones, Middletown Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 26, 1979, Ser. No. 23,741

Int. Cl.³ H04M *3/48, 3/54*

U.S. Cl. 179—18 B **42 Claims**



10. A selective call screening arrangement for use in a telephone system having a plurality of stations each having a capability of communication with other stations through a switching network internal to said system, said switching network having a communication facility extending to each said station and each of said stations having a signaling means operable to establish a call feature and a dialing means to establish a communication connection to said station,

CHARACTERIZED IN THAT said call screening arrangement includes

means for activating said call screening arrangement from signals sent from said signaling means of a first station, said call screening arrangement designed to forward an incoming call addressed to said first station to a second station while blocking an incoming call addressed to said second station;

means for accepting an address of said second station from a dialing code subsequently entered using said dialing means at said first station; and

means controlled by said activating means and said accepting means for enabling said activated call screening arrangement to block an incoming call addressed to said second station while allowing an incoming call addressed to said first station to be forwarded to said second station.

4,278,845

TELEPHONE INDEX FOR AUTOMATIC DIALING

Suchi Chiou, 5th fl., No. 14, Lane 180, Ho-Chiang St., Taipei, Taiwan

Filed Aug. 20, 1979, Ser. No. 67,758

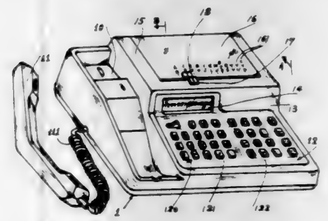
Int. Cl.³ H04M *1/274*

U.S. Cl. 179—90 B **3 Claims**

1. In a telephone apparatus with memory-stored dialing data for automatic dialing comprising a housing having an entry keyboard switch means thereon for entering numbers to be stored and display means for displaying the number entered by

said entry keyboard; multiple card index means for a visual listing of names and telephone numbers, each card including individual lines for individual numbers arranged in the same position on the cards, wherein said card and lines are divided into a plurality of left-hand lines and a plurality of right-hand lines being substantially equal in number, and further including a card-supporting place, a cover pivotally mounted over said cards, and a card-selecting hook freely engaging said cover for positioning an individual card for visual display of the card's content; card switch means including an individual contact associated with each card index; selector switch means including a left-hand and a right-hand series of push buttons with one button in said left-hand series for and adjacent to each of said left-hand lines and one button in said right-hand series for and adjacent to each of said right-hand lines so that said selector switch means is activated by a push button to close a circuit for a particular line positioned on an individual card to thereby complete a first circuit associated with the card contained data and close a second circuit associated with a particular line on a card to retrieve and automatically dial a telephone number stored at a location in the memory associated with said particular line; and a visual display panel means on said housing adjacent said cover for displaying the number dialed by actuating said card switch and selector switch; the improvement which comprises:

(a) said card-selecting hook comprises a surface plate, a vertical plate extending under said surface plate, a middle hook plate connecting said vertical plate and two legs extending downwards from said hook plate, said surface plate of said card-selecting hook including a center line



which coincides with the classification of telephone numbers on said cover;

(b) further wherein said two legs which extend from said card-selecting hook freely engage a sliding button which is movingly engaged within a horizontal plate extending from said housing such that both the card-selecting hook and the sliding button may be moved simultaneously;

(c) said sliding button comprises a surface plate, a vertical plate with a hook connecting said surface plate and a horizontal plate connecting said vertical plate, said horizontal plate having a tongue extension at one end and another end which extends in two arms each terminating with a shaft bracket for pivotally inserting a horizontal shaft therein, a sliding plate which extends downwards in two arms each terminating with a shaft bracket for pivotally inserting said horizontal shaft, and a spring which is jacketed into said shaft having one end resting against said horizontal plate of said sliding button and the other end fixed on said sliding plate under said card-supporting plate such that said spring, acting by its one end to force said hook of said button to engage with the edge of said cover and acting by its other end to force said sliding plate to back against the botton of said card-supporting plate, causes said cover plate to open as said sliding button is depressed; and

(d) a printed circuit board comprising individual electrical contacts corresponding to each card in said card index is positioned under said tongue extension of said sliding button such that momentary electrical contact is made and the circuit is momentarily energized when said sliding button is depressed and at the same time said cover plate is opened.

4,278,846

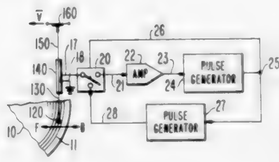
VIDEO DISC LOCKED GROOVE CLEARANCE SYSTEM

Kazuo Fukazawa, Tokyo, and Akira Yamada, Chofu, both of Japan, assignors to RCA Corporation, New York, N.Y.

Filed Oct. 29, 1979, Ser. No. 88,659

Int. Cl.³ H04N *5/76;* **G11B** *3/06, 3/10*

U.S. Cl. 369—128 **6 Claims**



1. In combination:

a support housing with a compliant member mounted at one end thereof;

a stylus arm with a pickup stylus mounted at a first end thereof and having a second end;

a longitudinal transducer having a first end mounted to the second end of the stylus arm, having a second end and a signal electrode, said transducer generating a potential proportional to a prescribed relative motion between its first and second ends and imparting relative motion in a prescribed direction between its ends proportional to a signal applied to said signal electrode;

means mounting the second end of the transducer to the compliant member arranged so that the transducer will be responsive to stylus motion normal to the longitudinal axis of the stylus arm;

circuit means having an input terminal selectively connected to the transducer electrode signal, said circuit means generating, at an output terminal thereof, output signals responsive to signals above a prescribed frequency which are generated in said longitudinal transducer, said circuit means output terminal being connected to the transducer signal electrode for energizing said transducer.

4,278,847

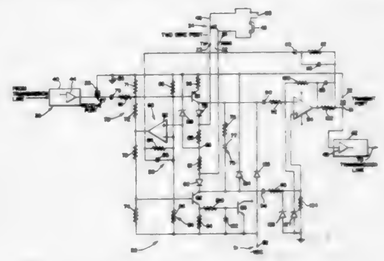
TRANSFORMERLESS HYBRID CIRCUITS

Donald W. Wortman, Central Islip, N.Y., assignor to TII Corporation, Lindenhurst, N.Y.

Filed Feb. 26, 1979, Ser. No. 15,407

Int. Cl.³ H04B *1/58*

U.S. Cl. 179—170 NC **13 Claims**



3. In an electronic hybrid for coupling a two-wire line to a four-wire line and having a two-wire port adapted to be connected to the two-wire line for receiving incoming information signals from the two-wire line and for applying outgoing infor-

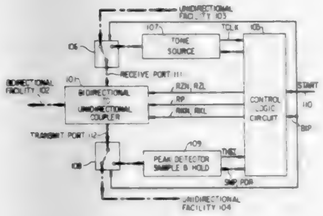
mation signals to said two-wire line, separate receive and transmit ports adapted to be connected to said four-wire line, means for coupling the incoming information signals from said two-wire port to said transmit port, first and second transistors each having first and second signal terminals, means for coupling a single-ended information signal received at said receive port to the first terminal of said first transistor, circuit means connected to and cooperating with said transistors for converting said single-ended information signal into a balanced differential signal having one signal component on the second terminal of said first transistor and the other signal component on the second terminal of second transistor, and means coupling said second terminals to said two-wire port for applying said differential signal to said two-wire port, said circuit means comprising a feedback circuit connected between the first and second terminals of said first transistor and also between the first and second terminals of said second transistor.

4,278,848

AUTOMATICALLY ADJUSTABLE BIDIRECTIONAL-TO-UNIDIRECTIONAL TRANSMISSION NETWORK

Joseph F. Rizzo, Lodi, and John A. Rudisill, Jr., Flanders, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 6, 1979, Ser. No. 64,041
Int. Cl.³ H04B *1/58*
U.S. Cl. 179—170 D **10 Claims**



1. A transmission network (FIG. 1, 101) having receive (111) and transmit (112) ports and at least a third port adapted to couple a bidirectional (2-wire) transmission facility (102) to receive (103) and transmit (104) unidirectional facilities (4-wire) including a controllably adjustable impedance network (FIG. 2, 202) in circuit relationship with at least said receive (111) and transmit (112) ports, responsive to control signals, and having a plurality of adjustable impedance elements (FIG. 3, RKN, RZN, RP or FIG. 4, RKL, RZL) for obtaining an optimum match to the impedance of the bidirectional facility (102), CHARACTERIZED BY,

a controllable source (107) of at least a plurality of individual tone signals each having a predetermined frequency (for example, 1300 Hz, 2600 Hz, 325 Hz),

means (109) for detecting signal amplitude values at the transmit port (112) of the transmission network (101), and

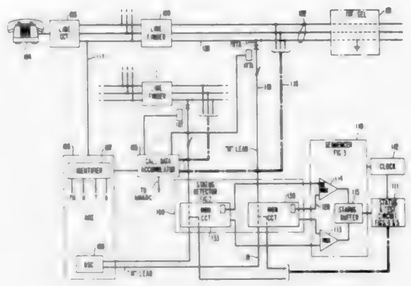
means (105) for generating control signals to control supplying the individual tone signals (from 107) to the receive port (111) of the transmission network (101) and to control adjusting in a prescribed sequence (FIGS. 8–10 or 14) the individual impedance elements (RKN, RZN and RP, or RKL and RZL) while a predetermined tone (for example, 1300 Hz, 2600 Hz or 325 Hz) is supplied to the receive port (111) for obtaining an amplitude null (detected via 109) at the transmit port (112) for each impedance element (RKN, RZN and RP or RKL and RZL) in said sequence, so that transhybrid loss between the receive port (111) and transmit port (112) is maximized.

4,278,849

TEST ARRANGEMENT FOR AUTOMATIC NUMBER IDENTIFICATION SYSTEMS

Erling T. Sund, Westerville, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 19, 1979, Ser. No. 95,798
Int. Cl.³ H04M *15/06;* **H04Q** *3/72*
U.S. Cl. 179—175.2 C **9 Claims**



2. For use in a telephone system comprising groups of line switches, automatic number identification means including an individual conductor associated with each switch group, and means for momentarily connecting each conductor with a switch in its corresponding switch group to transmit an identifying signal over said conductor to identify a line connected to said switch

CHARACTERIZED BY

apparatus for detecting trouble-held ones of said connecting means comprising a plurality of monitor means each coupled to a corresponding one of said identifying conductors and responsive to said identifying signal thereon,

means for periodically scanning each said monitor means for a predetermined interval, and

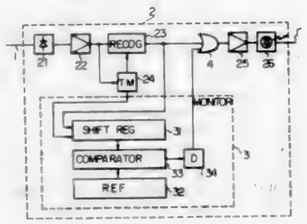
means controlled by said scanning means for interrupting the signal on said conductor when said signal is continuously present for said predetermined interval.

4,278,850

MONITORING SYSTEM FOR OPTICAL TRANSMISSION LINE REPEATERS

Masanori Sato, Machida; Yasuhiko Niiro, Yokohama, and Hiroharu Wakabayashi, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Apr. 9, 1979, Ser. No. 28,312
Claims priority, application Japan, Apr. 11, 1978, 53-41782; May 8, 1978, 53-54288
Int. Cl.³ H04B *3/46*
U.S. Cl. 179—175.31 R **8 Claims**



1. In an optical digital transmission system including a transmitting station coupled by way of a transmission line to a receiving station and at least one intermediate repeater station, the combination therewith of:

(a) optical pulse generating means at said transmitting station for establishing a test signal on a time divisional basis with the data to be transmitted, said test signal comprising an indentification code for identifying a particular repeater station and an acknowledgement block having an empty bit position,

(b) decoding means at said repeater station for decoding said identification code, said decoding means outputting an acknowledgement signal upon recognition of said identification code,

(c) delaying means at said repeater station coupled to the output of said decoding means for delaying said acknowledgement signal to achieve time coincidence with said empty bit position in said acknowledgement block, and

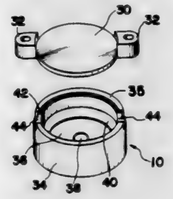
(d) gating means at said repeater station coupled to the outputs of said delaying means and the transmission line for combining said test and data signals with said acknowledgement signal on a time divisional basis for transmission to said receiving station.

4,278,851

PIEZOELECTRIC BUZZER

Tadashi Takaya, Kyoto, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Aug. 30, 1979, Ser. No. 71,238
Claims priority, application Japan, Sep. 7, 1978, 53-123323[U]
Int. Cl.³ H04R *1/28;* **G08B** *3/00*
U.S. Cl. 179—179 **8 Claims**



2. A piezoelectric buzzer, comprising:

transducer means for producing a sound when energized;

casing means accommodating said transducer means, said casing means comprising a hollow body having one end closed by a perforated end wall and having one end open;

lid member means for closing said open end, and

means for loosely connecting said lid member means to said casing means to permit said casing means to more freely in all directions with respect to said lid member means, said connecting means comprising an annular groove defined on the inner peripheral surface of said hollow body and surrounding said open end thereof, said annular groove being adapted to loosely receive said lid member means.

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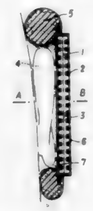
EARPHONE CONSTRUCTION

Rudolf Görike, Vienna, Austria, assignor to AKG Akustische u. Kino-Gertäte Gesellschaft m.b.H., Austria

Filed Aug. 28, 1978, Ser. No. 937,439
Claims priority, application Austria, Aug. 31, 1977, 6285/77; Nov. 9, 1977, 8010/77; Mar. 2, 1978, 1493/78
Int. Cl.³ H04R *1/10, 7/04*
U.S. Cl. 179—182 R **11 Claims**

1. An earphone for a person's ear, comprising, an ear pad adapted to surround the ear, at least one electroacoustic transducer having a housing supported on said ear pad, and a surface-driven diaphragm with a periphery directly supported on said housing and having a surface area larger than that of the ear, said at least one diaphragm comprising two surface-driven diaphragm parts disposed at substantially right angles to each other, said electroacoustic transducer including a housing portion of wedge-shaped configuration joined directly to said ear pad having walls at right angles to each other, said ear pad being of a similar configuration with said diaphragm parts extending across substantially said entire walls.

9. An earphone construction for being worn over an auricle of a person's ear comprising, an ear pad adapted to surround the auricle of the person's ear and be free from contact therewith, at least one electroacoustic transducer supported on said ear pad at a location adapted to be free from contact with the auricle and defining therewith a coupling space, the electroacoustic transducer being substantially acoustically transparent, and including a surface-driven diaphragm having mass of



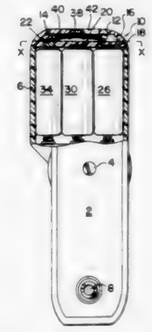
about 0.04 grams, with the mechanical impedance thereof, in the audible frequency range, being low with respect to the acoustic radiaton resistance thereof, the diaphragm having a periphery supported on said ear pad so as to be in contact-free and close proximity to the auricle and defining a boundry of the coupling space whereby said diaphragm reflects substantially no sound in the coupling space, a surface of said diaphragm facing away from the coupling space being in direct contact with air outside the coupling space and the surface area of said diaphragm exceeding that of the auricle and extending beyond the auricle on all sides thereof.

4,278,853

BATTERY CASE INCLUDING A MAIN SWITCH DEVICE

Hiroshi Wakabayashi, Yokohama, and Takeshi Okuyama, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Feb. 26, 1979, Ser. No. 14,954
Claims priority, application Japan, Mar. 1, 1978, 53-25847[U]
Int. Cl.³ H01H *15/00*
U.S. Cl. 200—16 D **6 Claims**



1. A battery case comprising a battery chamber body having a chamber therein for receiving battery means and formed with an opening for loading the battery means into the chamber, a lid member engageable with the battery chamber body for closing said opening, the lid member having an inner wall located adjacent to the chamber and an outer wall located adjacent to the inner wall so as to define an enclosed space between said inner wall and said outer wall and having an aperture in said outer wall, at least a pair of electrode contacts extending between first and second surfaces of said inner wall, each of said electrode contacts having a first end located on

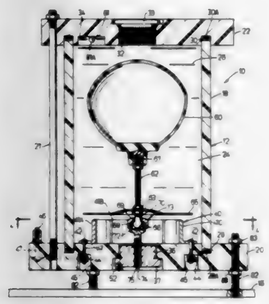
said first surface of the inner wall and exposed to said enclosed space and a second end located on said second surface of the inner wall and exposed to said chamber, said second end being positioned to contact an electrode of the battery means received within the chamber, and switch means located within said enclosed space, the switch means having a switch member formed of conductive resilient material and being adapted for displacement between a first position at which the switch member connects said first ends to connect said electrode contacts together and a second position at which the switch member is incapable of connecting said first ends, and an operating member being operable through the aperture in the outer wall and being slidable with respect to the aperture, the operating member being effective to displace the switch member between said first and second positions by said sliding.

4,278,854

TILT INDICATING DEVICE

Hans H. Krause, 10212 N. Cedarburg Rd., Mequon, Wis. 53092

Filed Apr. 20, 1979, Ser. No. 31,755
Int. Cl.³ H01H *35/02*
U.S. Cl. 200—52 A **23 Claims**



1. A tilt indicating device for a tiltable machine or component, comprising:
- a housing subject to a tilting motion to be detected and having therein a chamber containing liquid;
- a float in said chamber buoyantly supported by said liquid therein;
- a support member having a pivotal connection with said housing at the lower end of said member and also having a fixed connection to said float at the upper end of said member, said connections defining an axis tending to remain substantially vertical and extending through said pivotal connection and the center of buoyancy of said float;
- first and second electrical contact members in said chamber and axially spaced apart, said first contact member attached to said support member and said second contact member attached to said housing, said contact members being electrically engageable in any direction from vertical, and said first and second contact members having electrically conducting portions laterally spaced from said axis.

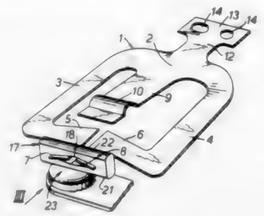
4,278,855

SNAP ACTION SWITCH

Guglielmo Rossi, Linkenheim, Fed. Rep. of Germany, assignor to Ranco Incorporated, Columbus, Ohio

Filed Mar. 12, 1980, Ser. No. 129,715
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1979, 8776/79
Int. Cl.³ H01N *13/38*
U.S. Cl. 200—67 D **12 Claims**

1. A snap action swith including a resilient blade having two cantilever arms with respective end portions and a contact element interconnecting the end portions of said arms and stressing the blade for snap movement of the contact element, wherein the contact element has at least an aperture in which both said end portions are engaged, the contact element being retained on said end portions by virtue of the stressing of the



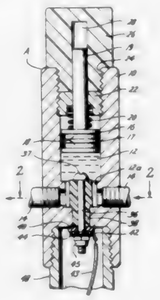
arms of the blade, said contact element aperture tapering in width from its center towards its opposite ends, allowing angular movement of each blade end portion about the edge thereof which engages the respective end of the aperture.

4,278,856

FLUID PRESSURE INDICATOR SWITCH APPARATUS

Charles A. Owens, 6616 Dixie Dr., Houston, Tex. 77087

Filed Jun. 29, 1979, Ser. No. 53,266
Int. Cl.³ H01H *35/38*
U.S. Cl. 200—82 R **5 Claims**



1. A switch designed for pressurized fluid supply lines which visually indicates the position of the switch, comprising:
- a housing with a central cavity;
- an electrically conductive piston disposed within the central cavity of the housing having an elongated stem;
- a retaining insert mounted at one end of the housing to close said one end, said insert having a guide bore receiving the elongated stem of the piston;
- a cap mounted at one end of the housing adjacent to the retaining insert, said cap containing a channel receiving the elongated stem of the piston;
- an electrical contact in the opposite end of the housing from the cap;
- resilient means for moving the piston towards the electrical contact when the pressure of the fluid in the central cavity drops below a predetermined amount;
- said housing having an annular recess forming a part of said central cavity and surrounding a portion of said electrical contact for forming a pocket;
- said housing having holes which provide for fluid communication through the annular recess; and
- said cap having a portion thereof which is transparent for the visual observation of the elongated stem as it moves longitudinally for the engagement of the piston with the

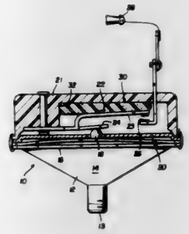
electrical contact when the fluid pressure in the central cavity drops below the predetermined amount.

4,278,857

VIBRATION RESISTANT ELECTRICAL SWITCH

Theodore A. Wernimont, Burlington, Iowa, assignor to J. I. Case Company

Filed Jan. 25, 1980, Ser. No. 115,459
Int. Cl.³ H01H *35/34*
U.S. Cl. 200—83 R **3 Claims**



1. A pressure-actuated electrical switch assembly for actuating a warning device in response to a substantial drop in fluid pressure in a hydraulic circuit, said assembly comprising:
- a dome-lime container having a base, an entry port in said base being connected to said hydraulic circuit, said container being divided interiorly by a diaphragm into upper and lower sealed chambers, said lower chamber receiving fluid pressure through said entry port;
- a button actuator being fixed to one side of said diaphragm, said button actuator being movable vertically upward in response to fluid pressure in said lower chamber against a second side of said diaphragm which deflects said diaphragm;
- a cap enclosing said upper chamber, a contact arm being mounted at one end to said cap, said contact arm being bifurcated into a spring leg portion and a contact support leg portion, said contact support leg portion being cantilevered and vertically spaced above said spring leg portion;
- a first electrical contact being mounted at one end of said support leg portion and a second electrical contact being fixed to said cap and being aligned with said first electrical contact, said button actuator pressing upwardly on said spring leg portion in response to fluid pressure in said lower chamber to keep said contacts separated or open; and
- a dampening member being mounted to said cap, said dampening member engaging said contact support leg when said contacts are open to dampen any vibration experienced by said contact arm thereby preventing fatigue in said contact arm.

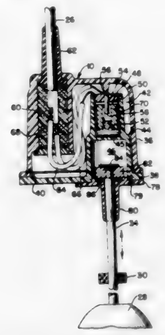
4,278,858

LIQUID LEVEL RESPONSIVE PROXIMITY SWITCH

Donald A. Kaessen, Ashland, Ohio, assignor to The Marley-Wylain Company, Mission, Kans.

Continuation-in-part of Ser. No. 558,940, Mar. 17, 1975, abandoned. This application Sep. 17, 1976, Ser. No. 724,247
Int. Cl.³ H01H *35/18*
U.S. Cl. 200—84 B **29 Claims**

1. A proximity switch for starting and stopping electric pump motors comprising;
- a casing having a transverse wall to partially establish and separate a sealed inner chamber and a downwardly opening outer cylindrical chamber;
- an hermetically sealed, cylindrical reservoir in said inner chamber overlying said outer chamber and in coaxial alignment therewith, said reservoir being partially filled by conductive liquid and spaced from said outer chamber by an electrically insulating transverse dividing wall;
- an annular magnetic float having an axial central opening and normally supported on said conductive liquid;
- a first electrode on the cylindrical inner surface of said reservoir near the lower end thereof and thus normally contacting said conductive liquid;
- a second depending post-like electrode in said reservoir and having a contact portion normally positioned above the level of said conductive liquid and having a transverse dimension to fit within the central opening of said annular magnetic float;
- a magnetic actuating member supported for linear movement along the axis of said outer chamber between a lower switch-opening position spaced from said magnetic float



and an upper switch-closing position in which said float is magnetically attracted to said actuator and in which said float and said actuator are magnetically retained against opposite sides of said transverse dividing wall to displace said conductive liquid upwardly in said reservoir to submerge the contact portion of said second electrode and thereby establish circuit continuity between said electrodes; and

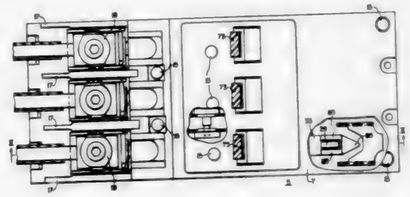
means to move said magnetic actuating member between said lower and upper positions in response to independent external liquid level variations and by magnetic attraction thereof with said magnetic float in the region of said upper position, whereby movement of such magnetic attraction will effect an essentially instantaneous displacement of said magnetic float.

4,278,859

CIRCUIT BREAKER STRUCTURE

Russell T. Borona, Seymour, Conn., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 15, 1978, Ser. No. 970,046
Int. Cl.³ H01H *33/04*
U.S. Cl. 200—144 R **3 Claims**



1. A circuit breaker comprising a stationary contact, a movable contact, a contact arm carrying said movable contact, the stationary contact being mounted on a bus, the bus having a

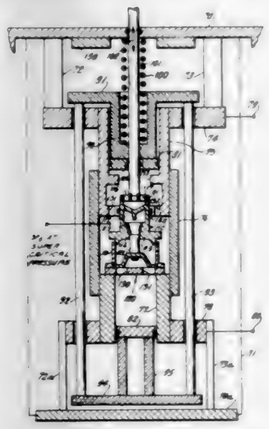
side surface facing the contact arm, a manual operating member movable to a closed position, an insulation member between the bus and the contact arm, the insulation member comprising a dielectric, heat-resistant material mounted on the bus and extending from the stationary contact, and end portion of the member adjacent to the stationary contact being secured in place by a tape wrapped around the assembled member, and the bus and the tape comprising a gas-emitting ingredient activated by heat to create a gaseous atmosphere between the bus and the contact arm to minimize arc restriking conditions.

4,278,860

ARC DRIVEN SINGLE PRESSURE TYPE CIRCUIT BREAKER

Jiing-Liang Wu, Chalfont, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Aug. 3, 1979, Ser. No. 63,132
Int. Cl.³ H01H *33/88*
U.S. Cl. 200—148 R **5 Claims**



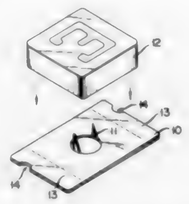
1. An electrical interrupter comprising:
contact means separable to produce an electric arc in an arcing region;
an elongated enclosure means enclosing said arcing region; said enclosure means having first and second cylinder regions on opposite respective ends thereof; said contact means supported within said enclosure means;
high density electronegative fluid at supercritical pressure filling said enclosure means and said arcing region;
first and second coaxial pistons slidably disposed in and sealing said first and second cylinders respectively; said first piston having a greater area exposed to said fluid than said second piston, and mechanical means fixing said first and second pistons to one another whereby they move simultaneously and in the same axial direction;
biasing means connected to said first and second pistons for biasing said first and second pistons to a given axial location relative to said arcing region under the influence of a given fluid pressure of said fluid; said biasing means biasing said first and second pistons for movement in an opposite direction to the differential force on said pistons due to said fluid pressure;
and operating means connected to said contact means for separating said contact means and producing an arc, whereby the increased fluid pressure produced by said arc moves said first and second pistons and moves said fluid through said arcing region, and whereby pressure surges are limited by the expansion of the volume within said enclosure means due to the movement of said pistons therein.

4,278,861

KEY BUTTON STRUCTURE FOR ELECTRONIC DEVICES

Akio Matsuzaki, Tokorozawa, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1979, Ser. No. 62,806
Claims priority, application Japan, Aug. 23, 1978, 53-115312[U]
Int. Cl.³ H01H *3/12*; B41J *5/12*
U.S. Cl. 200—340 **6 Claims**



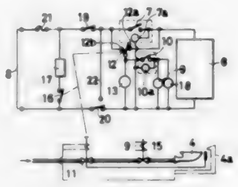
1. A key button structure for electronic devices comprising:
a key button body made of a metal, said key button body having a top and a substantially flat bottom portion; and
a planar, thin metal plate contacted with the bottom surface of said key button body, said thin metal plate having an area wider than the area of the bottom of said key button body and forming a collar portion relative to said key button body, said planar, thin metal plate having at least one projection having a sharp tip, the projection being bitten or impaled into the bottom of the key button body so that said key button body and said metal plate are connected together, the wider areas of said thin metal plate projecting outwardly of said key button body to form said collar.

4,278,862

COMBINATION MICROWAVE AND GAS OVEN

Sueo Mizuno, Nagoya; Toshihiro Nozu, Aichi; Yoshihiro Kanaya, and Masshiko Koumura, both of Konan, all of Japan, assignors to Rinnai Kabushiki Kaisha, Nagoya, Japan

Filed Jan. 17, 1980, Ser. No. 113,040
Claims priority, application Japan, Jan. 25, 1979, 54-7100[U]
Int. Cl.³ H05B *6/68*
U.S. Cl. 219—10.55 B **7 Claims**



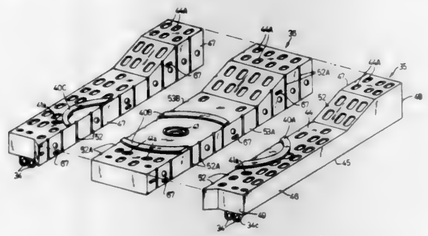
1. A heat cooking device of the type comprising: a cooking device main body having therein a heating chamber with microwave heating means; gas heating means and a cooling fan for said microwave heating means; a first operation circuit for operating said microwave heating means connected to an electric power source through a first switching circuit; a second operation circuit for operating said gas heating means connected to said electric power source through a second switching circuit and a switch arranged to be operated with a gas cock; a driving circuit for said cooling fan connected to said switch so as to be in parallel with a circuit connecting in series said second operation circuit and said second switching circuit; said switch having a first contact connected to said electric power source through said first switching circuit and having a second contact connected to said electric power source without passing through said first switching circuit and being arranged to be connected to said first contact when the gas cock is closed and to the second contact when the gas cock is opened.

4,278,863

METHOD OF MAKING WELDED STRUCTURE

Robert D. Myers, West Allis, Wis., assignor to Harnischfeger Corporation, West Milwaukee, Wis.

Filed Aug. 20, 1979, Ser. No. 67,875
Int. Cl.³ B23K *25/00*
U.S. Cl. 219—73.1 **8 Claims**



1. A method of fabricating a structure comprising the steps of:
providing a pair of metallic members which are to be joined together to form said structure, said members having surfaces which abut when said pair of members are joined together;
forming grooves in said surfaces of said members which align to define passages when said pair of members are joined together;
temporarily joining together said members with said grooves aligned to define said passages;
performing a machining operation on said members while said members are temporarily secured together so as to provide a first finished surface on one member which is precisely aligned with a second finished surface on the other member;
disjoining said members after said machining operation is performed and transporting said members to another location;
rejoining said members together at said other location with said grooves aligned to define said passages and with said first and second finished surfaces precisely realigned;
filling said passage with molten welding material which fuses to the sides of said passage;
and allowing said molten welding material to cool and solidify in said passage to join said metallic members together.

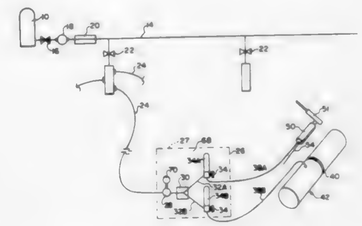
4,278,864

WELDING GAS SHIELD CONTROL

Claude De Facci, 22536 Lake Shore Dr., Richton Park, Ill. 60471, and Peter C. Duerr, 4757 W. 175th Pl., Country Club Hills, Ill. 60477

Filed Feb. 21, 1979, Ser. No. 13,024
Int. Cl.³ B23K *9/16, 9/32*
U.S. Cl. 219—75 **8 Claims**

3. A readily portable, security protected, fixed pressure shielding gas output regulator for use at a welding site remote from a source of shielding gas comprising a portable cabinet including a bottom wall, a top wall, two sidewalls and a back wall forming an enclosure having an open front side, said sidewalls, backwall and topwall being joined to form an integral unit removably secured to said bottom wall, a pressure reducing regulator means mounted in said enclosure adjacent the back wall thereof and having an inlet for receiving shielding gas from a supply conduit, said pressure reducing regulator means operating to supply shielding gas at a predetermined working pressure to first and second outlets thereof, and first and second adjustable flow metering means mounted within said enclosure between said pressure reducing means and the open front side of said enclosure and each connected to receive shielding gas at said predetermined working pressure from one of said outlets, each said first and second flow metering means including an outlet port positioned for access from the open front of said enclosure, a rate of flow control valve means operative to vary the rate of flow of the shielding gas to said



outlet port, control means for each said rate of flow control valve means manually accessible from the exterior of said enclosure through the open front side thereof, and flow indicator means connected to each of said first and second flow metering means and operating to indicate the rate of gas flow through said flow control valve means, said flow indicator means being positioned for visual observation through the open front side of said enclosure, and first and second flow metering means being positioned to block access to said pressure reducing regulator means from the open front side of said enclosure.

4,278,865

GAS SHIELDED STUD WELDING METHOD

Hiroyuki Watanabe, Toyotashi; Eiji Miyoshi, Suitashi; Haruo Kojima, Toyotashi; Takeshi Yoshida, Nagoyashi; Masaaki Kato, and Shizuo Miyazaki, both of Toyotashi, all of Japan, assignors to Nippon Stud Welding Co. Ltd., Tokyo, Japan

Filed Apr. 16, 1979, Ser. No. 30,467
Claims priority, application Japan, Apr. 19, 1978, 53-45255
Int. Cl.³ B23K *9/20*
U.S. Cl. 219—99 **1 Claim**



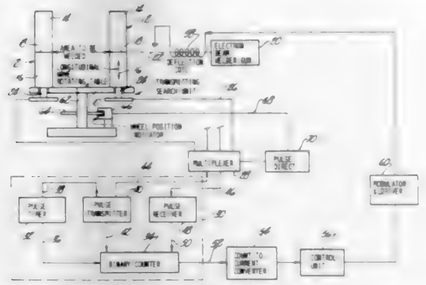
1. In a method of welding a stud to a base metal using the stud as an electrode and using an inert mixed gas as an arc shield, the improvement wherein said stud is used as the positive electrode and said base metal as the negative electrode, and wherein said inert mixed shielding gas consists essentially of carbon dioxide and argon in a ratio of approximately two parts of carbon dioxide to five parts of argon.

4,278,866

AUTOMATIC ELECTRON BEAM DEFLECTING CIRCUIT

Glenn T. Nevins, Muskegon, and William A. Keely, Hesperia, both of, Mich., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Dec. 5, 1975, Ser. No. 637,889
Int. Cl.³ B23K *9/00*
U.S. Cl. 219—121 EC **7 Claims**



1. For use in conjunction with a workpiece positioned on a work table, said workpiece having a substantially planar interface spaced from the work table, an apparatus for welding said interface comprising:

sounding means operatively coupled at one end of said workpiece for generating an ultrasonic sense wave pulse along said workpiece to said interface;

receiving means operatively coupled at the lastmentioned end of said workpiece for receiving an echo of said sense wave from the interface in said workpiece;

an electron beam welding gun adapted to generate an electron welding beam toward said workpiece, wherein said electron beam is substantially parallel to said interface and substantially perpendicular to the path of said sense wave;

timing means for determining the elapsed time between the generation of said sense wave pulse by said sounding means and the receipt of said echo by said receiving means, wherein said elapsed time is representative of the distance from said work table to said interface;

means responsive to said elapsed time determined by said timing means for deflecting the electron beam in a direction substantially parallel to said path of the sense wave so that said electron beam impinges upon said interface and welds the same.

4,278,867

SYSTEM FOR CHIP JOINING BY SHORT WAVELENGTH RADIATION

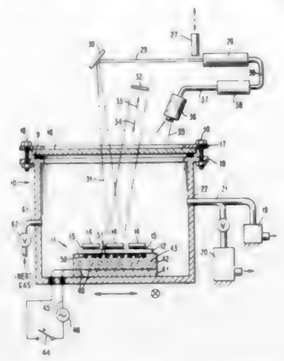
Swie-In Tan, Bedford Hills, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,595
Int. Cl.³ B23K *26/02, 26/12*
U.S. Cl. 219—121 LD **10 Claims**

1. In a system for joining a chip to metal surfaces on a substrate, said chip having an upper and a lower surface and having circuitry on the lower surface thereof along with areas bearing chip joining metal for joining to said metal surfaces when heated, said chip joining metal being employed for connection to said metal surfaces on said substrate,

the improvement comprising energy means for directing radiation with wavelengths to which said chip is substantially opaque at the upper surface of said chip.

6. In a method of joining a chip to metal surfaces on a substrate, said chip having an upper surface and a lower surface and having circuitry on the lower surface thereof along with areas bearing chip joining metal for joining to said metal surfaces when heated, said chip joining metal being employed for connection to said metal surfaces on said substrate,



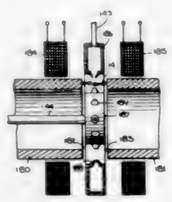
the improvement comprising the step of directing radiation with wavelengths to which said chip is substantially opaque at the upper surface of said chip.

4,278,868

METHODS AND APPARATUS FOR HEATING METAL PARTS WITH MAGNETICALLY DRIVEN TRAVELLING ELECTRIC ARC

Wallace C. Rudd, New Canaan, and Humfrey N. Udall, Darien, both of Conn., assignors to Thermatool Corp., Stamford, Conn.

Division of Ser. No. 861,703, Dec. 19, 1977, Pat. No. 4,219,722.
This application Oct. 19, 1979, Ser. No. 86,472
Int. Cl.³ B23K *9/08*
U.S. Cl. 219—123 **5 Claims**



1. In apparatus for heating the facing and spaced ends of a pair of tubes by means of an electric arc including n arc current source having terminals at different potentials, one terminal being connected to one tube and another terminal being connected to the other tube, and magnetic field means producing a magnetic field in the space between said ends for causing said electric arc to traverse said ends along paths extending in the circumferential direction with respect to the axes of said tubes, said magnetic field means also causing the arc to travel completely around said axes of said tubes within a predetermined time interval, the combination therewith of magnetic field varying means adjacent said ends and modifying the direction of the magnetic field to which the arc is subjected a plurality of times during said interval so as to subject the arc to magnetic forces directed alternately radially inwardly and radially outwardly a plurality of times during said interval whereby said arc moves alternately inwardly toward and outwardly from the axes of said tubes a plurality of times during each traverse of said ends.

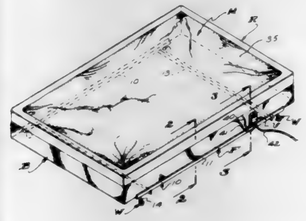
2. A method of heating an end surface of a metal tube by means of an electric arc extending between said surface and a conductive member, said member having a surface adjacent but spaced from, and conforming in shape to, said first-mentioned surface, said method comprising initiating said arc between said surface of said tube and said surface of said member, magnetically deflecting said arc along said surface of said tube by means of a magnetic field and causing said arc to traverse the entire circumferential length of said last-mentioned surface a plurality of times and further deflecting said arc radially inwardly toward and outwardly of the axis of said tube a plurality of times during each traverse of said surface of said tube by modifying the magnetic field to which the arc is subjected a plurality of times during each traverse of said surface by the arc and along a different path on said last-mentioned surface during each successive traverse of said last-mentioned surface by said arc.

4,278,869

INSTRUMENT MOUNTING FIXTURE

James P. McMullan, 2630 Seaman Ave., El Monte, Calif. 91733

Filed Nov. 13, 1979, Ser. No. 94,036
Int. Cl.³ H05B *3/00*
U.S. Cl. 219—217 **12 Claims**



1. In combination, a mattress supporting box-spring comprising a lower flat horizontal wood frame with longitudinal side beams with downwardly and laterally outwardly disposed surfaces, a soft flexible normally flat horizontal pad in vertical spaced relationship above the frame and spring means between the frame and the pad; a soft flexible mattress above and supported by the pad; an electric resistance heater adjacent the mattress to maintain the mattress at a desired temperature; a temperature control unit for the heater positioned outward of and adjacent one side of the box-spring; a power cord extending from the control unit to the heater and a service cord extending from the unit to a power supply; and a unitary mounting fixture mounting the control unit adjacent said one side of the box-spring unit between the top and bottom planes thereof and comprising a lower portion with a lower horizontal flange adjacent and fastened to the lower surface of a related beam and a vertical flange adjacent and fastened to the outside surface of that beam; an upper plate portion with a laterally outwardly disposed outer surface laterally outward of the box-spring and a vertical intermediate portion integrally joining said upper and lower portions; said control unit includes a housing with a rear surface positioned adjacent said outside surface of the plate; and means carried by the plate releasably securing the housing to said plate.

4,278,870

DENTAL MIRROR WARMER

John S. Carleton, 2009 Belmeade, Brownwood, Tex. 76801, and Karl A. Senghaas, 434 Forest Hill Dr., San Antonio, Tex. 78209

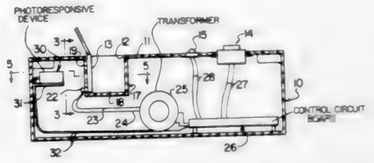
Filed Jul. 6, 1979, Ser. No. 55,172
Int. Cl.³ H05B *1/02;* **A61B** *1/24*
U.S. Cl. 219—219 **5 Claims**

1. An apparatus for warming a dental mirror of the type having a handle and a reflective portion before use to prevent fogging thereof comprising the combination of

a housing;

a heating well supported in said housing, said well having a plurality of walls, at least one of said walls being made of an electrically conductive material, said at least one wall being capable of generating heat when an electric current is passed therethrough, said well being sufficiently large to receive the reflective portion of a dental mirror and sufficiently small to keep said reflective portion in close proximity to said at least one wall;

means in said housing defining an access opening adjacent said well for permitting insertion of at least the reflective portion of said mirror into said well in heat exchange relationship to said at least one electrically conductive wall;



means connectable to a source of electrical power for providing current to said at least one conductive wall for heating said wall;

means in a wall of said well defining a light transmissive portion therethrough;

photoelectric means mounted in said housing including means for transmitting light into and receiving reflected light from the reflective portion of a mirror in said well through said light transmissive portion and for producing a control signal in response to said reflected light; and

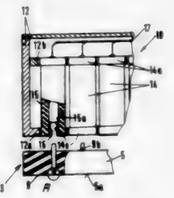
circuit means responsive to said control signal for actuating said means for providing current to said at least one conductive wall for a limited predetermined time interval.

4,278,871

ARRANGEMENT FOR EFFECTING THE SUPERFINE PERFORATION OF FILM-LIKE SHEETING WITH THE AID OF HIGH-VOLTAGE PULSES

Klaus-Peter Schmidt-Kufeke, Bernhardstr. 5, 7500 Karlsruhe 1, and Gerhard Feld, Am Erlanger 3, 8501 Eckenthal, both of Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 54,237
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830326
Int. Cl.³ H05B *7/18*
U.S. Cl. 219—384 **10 Claims**



1. An arrangement for electrically perforating a film-like sheet by means of high-voltage pulses, comprising an energizing circuit arrangement, a first stationary electrode including a first multi-row needle field member carrying a plurality of needles and a first connecting board to electrically connect said first needle field member to said energizing circuit arrangement; a second stationary electrode including a second multi-row needle field member carrying a plurality of needles and a second connecting board to electrically connect said second needle field member to said energizing circuit arrangement; said first multi-row needle field member being arranged

at an equally spaced distance from said second multi-row needle field member to receive in a space therebetween said film-like sheet adapted for advancing movement along said members, said circuit arrangement including a transformer for generating the high-voltage pulses, said needles of said first needle field member being aligned in a mirror-inverted arrangement to said needles of said second needle field member and having point ends and pointless ends the latter of which directed toward said connecting boards respectively; and a series of high-ohmic resistors mounted in said first connecting board, said pointless ends of said needles being arranged in a direct conductive connection with said corresponding high-ohmic resistors, said first needle field member and said second needle field member each including a plate of insulating material having a plurality of openings for receiving said needles, and said distance between the spaced members being somewhat greater than

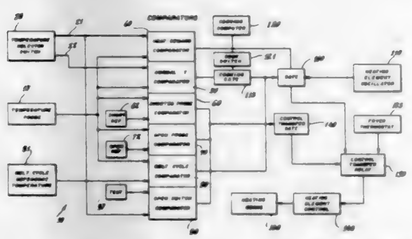
the thickness of said film-like sheet.

4,278,872

TEMPERATURE CONTROLLER WITH PULSED HEATING DURING IDLE

Bernard G. Koether, Westport, and Gary G. Matison, Wilton, both of Conn., assignors to Food Automation-Service Techniques, Inc., Stratford, Conn.

Filed Jul. 30, 1979, Ser. No. 62,069
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—497 **16 Claims**



1. A temperature controller for use with a fryer of the type comprising a vat containing cooking oil, heating means for heating the cooking oil and a heating element control for operating the heating means, the temperature controller comprising:

(A) a temperature sensor for sensing the temperature of the cooking oil;

(B) a temperature selector for selecting a selected temperature for the cooking oil;

(C) means establishing a normal temperature range extending between the selected temperature and a temperature below the selected temperature;

(D) comparator and gate means operating the heating element control and thereby the heating means when the temperature of the cooking oil is below the selected temperature, said comparator and gate means operating the heating element control and thereby the heating means

(1) in a full on mode when the temperature of cooking oil is below the selected temperature and cooking is taking place or when the temperature of the cooking oil is below the normal temperature range and

(2) in a pulsed mode when the temperature of the cooking oil is in the normal temperature range and no cooking is taking place,

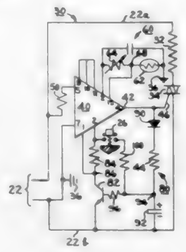
whereby overshoot of the temperature of the cooking oil above the selected temperature is minimized when the cooking oil is heated with the fryer in noncooking operation.

4,278,873

TEMPERATURE-RESPONSIVE CONTROL MEANS

Christie Petrides, Monroe, Conn., assignor to General Electric Company, New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 117,966
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—501 **9 Claims**



1. Temperature-responsive control means for controlling the electric power input from a source of alternating current electric power to a series electric circuit comprising a heater and a first gate controlled semiconductor switching means, said temperature-responsive control means comprising:

a pulse-generating means having first input means for connection to the same source of alternating current electric power as the heater circuit and first output means connected to the gate of the first semiconductor switching means in the heater circuit for supplying turn-on pulses thereto,

first temperature sensing means for sensing a temperature associated with the heater circuit, said first temperature sensing means having an output means connected to a second input means of said pulse-generating means, said first temperature sensing means being reasponsive to the sensed temperature to supply to said second input means an input signal having a magnitude within a first range of magnitudes when the temperature is within an acceptable range and a second range of magnitudes when the temperature is within an unacceptable range,

second sensing means coupled to said first output means of said pulse-generating means and having an output means connected to a third input means of said pulse-generating means, said second sensing means being responsive to the output of said first output means to supply to said third input means an input signal having a magnitude within a first range of mangitudes when turn-on pulses are being supplied from said first output means and a second range of magnitudes when turn-on pulses are not being supplied from said first output means,

said pulse-generating means being responsive to the simultaneous application of both an input signal to said second input means having a magnitude within said respective first range of magnitudes and an input signal to said third input means having a magnitude within said respective first range of magnitudes to generate and deliver turn-on pulses to said first output means, and said pulse-generating means being responsive to either an input signal to said second input means having a magnitude within said respective second range of magnitudes or an input signal to said third input means having a magnitude within said respective second range of magnitudes to prevent the generation and delivery of turn-on pulses to said first output means, and

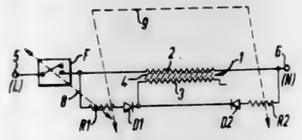
manually operated means coupled to said second sensing means selectively operable to cause said second sensing means to supply to said third input means an input signal having a magnitude within said respective first range of magnitudes whether or not turn-on pulses are being supplied from said first output means, whereby the production of turn-on pulses may be initiated only upon activation of said manually operated means at a time when the sensed temperature is within the acceptable range.

4,278,874

HEATING CIRCUITS

Graham M. Cole, Lymington, England, assignor to Dreamland Electrical Appliances Limited, Southampton, England

Filed Aug. 8, 1979, Ser. No. 64,621
Claims priority, application United Kingdom, Aug. 24, 1978, 34538/78
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—505 **9 Claims**



1. In a heating circuit comprising input terminals for connection to an AC supply, a first elongate conductor connected between said input terminals to effect heating, a second elongate conductor substantially coextensive with said first conductor, and elongate separating means that separates said first and second conductors and is in contact with each of said first and second conductors, said separating means having a relatively high impedance at least at normal working temperatures, and said separating means being of such a nature that in the event of overheating said impedance will drop to a relatively low value and/or it will melt to permit contact of said first and second conductors whereby said impedance will drop to substantially zero, the improvement comprising:

a first half-wave rectifier means and a first resistor connected in series between one end of said first conductor and one end of said second conductor to permit current to flow through the first half-wave rectifier means, the first resistor and said impedance when the AC supply is of a first polarity;

a second half-wave rectifier means and a second resistor connected in series between the other end of said first conductor and one end of said second conductor to permit current to flow through the second half-wave rectifier means, the second resistor and said impedance when the AC supply is of the other polarity; and

circuit interruption means responsive to current flow through one or both of the first and second resistors indicating that said impedance has dropped in value as a result of overheating, said circuit interruption means acting to disconnect the heating circuit from the AC supply.

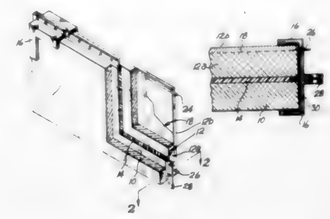
4,278,875

ELECTRICALLY HEATED WINDOW

Peter H. Bain, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 19, 1979, Ser. No. 105,389
Int. Cl.³ H05B *3/06*
U.S. Cl. 219—522 **9 Claims**

1. A transparent window comprising a structurally unitary, electrically heatable window pane, said window pane having a substantially transparent layer of an electroconductive material sandwiched between and fused directly to first and second sheets of glass fused directly together, and means forming an electrical contact with said layer of electroconductive material for applying an electrical potential to said layer.



4,278,876

THERMOSTATICALLY CONTROLLED HEATER

Paul F. Savoca, 66 The Helm, East Islip, N.Y. 11740, and Melvin Lindner, 387 Plymouth St., West Hempstead, N.Y. 11552

Filed Aug. 31, 1979, Ser. No. 71,728
Int. Cl.³ H05B *3/58*
U.S. Cl. 219—535 **5 Claims**



1. A thermostatically controlled heater that can be seated on a plate-like metal workpiece that is to be welded, for heating the workpiece to within a selected temperature range prior to the welding process and for maintaining it in that temperature range, comprising:

(a) an elongate electrical resistance heating element of rod-like structure that is electrically connected to a source of electric power through a thermostat assembly that is disposed to control the power applied to said electrical resistence heating element;

(b) a heat conductive thermal shoe having a recessed portion in its upper surface, said heating element having a major portion thereof disposed in said recess in thermal contact with said shoe, said shoe having a lower face that forms a heat transfer surface for transferring the heat generated by said heating element to a workpiece on which the heater is seated with its lower face confronting and engaged against the surface of the workpiece;

(c) a reflective plate disposed over the upper surface of said shoe, covering said recess and the portion of the heating element disposed therein, said reflecting plate retaining said heating element in said recess; and

(d) a thermostat assembly that is thermally and mechanically connected to said shoe, including a heat conductive housing, a mounting means for thermally and mechanically connecting said heat conducting housing to said shoe at one end of said shoe and in spaced relation to the nearest part of said electrical resistance heating element, and a thermostat temperature sensing element mounted within said housing and electrically connected between said electric resistance heating element and said source of electric power, for controlling the electric power that is applied to said electrical resistance heating element, said thermostat having said thermal sensing means disposed with and thermally connected to a portion of said heat conductive housing at which the heat gradient between said portion of the housing and sai thermal shoe substan-

tially matches the heat gradient between said shoe and said workpiece, whereby said thermostat can be used to maintain the temperature of said workpiece within a selected temperature range by sensing the temperature of said shoe through said housing.

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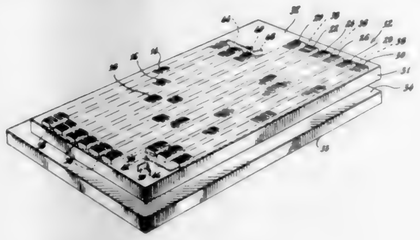
ELECTRICAL HEATING UNIT WITH FLATTENED EMBEDDED HEATING COIL

Ewald R. Werych, Elm Grove, Wis., assignor to General Signal Corporation, Stamford, Conn.

Continuation of Ser. No. 862,907, Dec. 21, 1977, abandoned. This application Aug. 2, 1979, Ser. No. 62,987

Int. Cl.³ H05B *3/44, 3/50*

U.S. Cl. 219—544 **5 Claims**



1. An electric heating unit comprising:

a form-retaining ceramic fiber insulating body having a heat-radiating surface;

an elongate resistance heating coil of wire having a plurality of turns at least substantially fully embedded in situ in the ceramic fiber material of said insulating body along said heat-radiating surface;

each turn of said coil being formed with a substantially linear first segment lying generally parallel to and closely adjacent said surface of said insulating body, in contact with said ceramic material at least substantially along the entire length of said first segment, and a second segment lying generally parallel to said surface wholly within said body at a predetermined distance from said first segment;

the portion of said heat-radiating surface immediately adjacent and extending alongside said first coil segment being substantially linear in a direction parallel to said first segment;

the lateral dimension of each turn of said coil in a direction parallel to said first segment being greater than said predetermined distance; and

means extending from said insulating body making electrical connection to the ends of said heating coil.

4,278,878

PASSING PERSON COUNTING APPARATUS

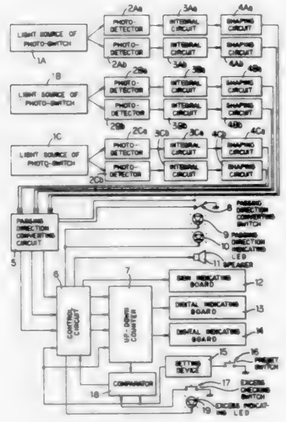
Toshio Kato, Seto, Japan, assignor to Tanaka Business Machines Co. Ltd., Aichi, Japan

Filed May 21, 1979, Ser. No. 41,187

Claims priority, application Japan, Apr. 11, 1978, 53-136040

Int. Cl.³ G06M *3/14;* **G07C** *9/00*

U.S. Cl. 235—92 PK **10 Claims**



1. A passing person counting apparatus installed in a passageway having a nearer side, an outlet and a width allowing one person to pass through comprising:

(a) at least first and second trunk-portion-sensor groups installed in said passageway at a height of the trunk portion of human bodies to be counted and with an inter distance slightly narrower than the thinnest one of human bodies to be counted, each of said trunk-portion-sensor groups including at least a first and a second trunk portion sensor closely arranged to each other, each of said trunk portion sensors being provided with a signal sending part for sending a signal traversing substantially horizontally said passageway and a signal receiving part for receiving said signals varying in response to whether being interrupted or not;

(b) a leg-portion-sensor group including at least first and second leg portion sensors, installed in said passageway at a height of the leg portion of human bodies to be counted and between the first and second trunk-portion-sensor groups, said leg portion sensors being closely arranged to each other in the passing direction of said passageway and in the same order as said trunk portion sensors, each of said leg portion sensors being provided with a signal sending part for sending a signal traversing substantially horizontally said passageway and a signal receiving part for receiving said signal, said signals varying in response to whether being interrupted or not;

(c) means including at least three circuits and counter means coupled to said three circuits for receiving confirming signals from said three circuits to confirm that the confirming signals have been received from all three said circuits and to indicate result of counting, said three circuits including:

(i) a first circuit coupled to said trunk portion sensors for producing a width confirming signal upon having confirmed the fact that all the signals of the trunk portion sensors have been at least for an instant simultaneously interrupted;

(ii) a second circuit coupled to said trunk portion sensors and to at least one of said leg portion sensors for producing a simultaneousness confirming signal upon having confirmed the fact that at least one signal from the trunk portion sensors was interrupted while at least one of the signals from the leg portion sensors was being interrupted; and

(iii) a third circuit coupled to at least two of said leg portion sensors and at least two of said trunk portion sensors which are installed on the nearer side to the outlet of said passageway for producing a passing-through confirming signal upon having confirmed a body, which had interrupted the signals of the leg portion sensors and the trunk portion sensors, passed through said passageway.

4,278,879

SWITCHING ARRANGEMENT FOR RECORDING A VALUE-BALANCE

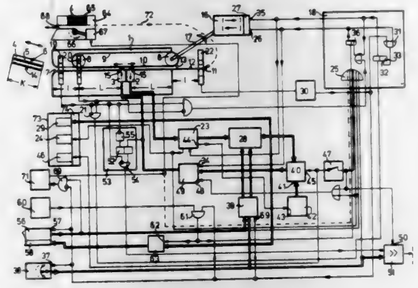
Otto Hofmann, Nuremberg, and Georg Nagler, Oberwildenau, both of Fed. Rep. of Germany, assignors to Tele-Alarm, Nachrichtentechntebe Gerate GmbH, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,062

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1978, 2828111

Int. Cl.³ G06K *5/00, 13/07, 19/06*

U.S. Cl. 235—380 **21 Claims**



1. A switching arrangement for the recording of value balance information on a magnetic track disposed on a charge card, the arrangement comprising:

a reader-writer device having reader and writer heads;

a debiting circuit;

a balance recording device;

a balancing circuit connected to the reader-writer device to the debiting circuit and to the balance recording device;

a reversible driving motor, the reader-writer device being coupled to the reversible driving motor and including a pair of reversing rolls;

a guide support, the reader and writer heads being inserted into the guide support;

a conveyor belt guided revolvingly on the reversing rolls and having an active segment slidably disposed on the guide support, the active segment having a forward beginning and a rear end; and

a pair of format fork couplers disposed in front of the active segment of the conveyer belt and separated in the direction of the active segment of the conveyer belt by a distance (C) less than the length (K) of the charge card measured in the direction of the magnetic track of the charge card.

4,278,880

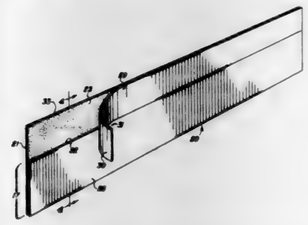
EXTENDED CLEAR BAND CARRIER-STRIP

Melvin S. Buros, P.O. Box 6495, Phoenix, Ariz. 85005

Filed Jan. 21, 1980, Ser. No. 113,450

Int. Cl.³ G06K *19/00, 19/06*

U.S. Cl. 235—493 **3 Claims**



1. An extended clear band for facilitating the re-encoding of documents, said documents having a rectangular shape and having an encoding receiving clear band on one face extending along one of the longer edges thereof comprising:

(a) an elongated rectangular backing member of natural high density kraft paper having a predetermined width and having a coating of rubber base pressure sensitive adhesive on one side thereof for contacting and supporting a strip member and an indicia receiving member;

(b) an elongated rectangular indicia receiving release paper member having one of the longer edges thereof in contact with said pressure sensitive adhesive and extending along said backing member, and having a width less than said predetermined width, said longer edge adapted for abutting contact with said strip member and with said document;

(c) an elongated rectangular release paper strip member releaseably secured to said pressure sensitive adhesive on said backing member and having one of the longer edges thereof in abutment with said one of the longer edges of said indicia receiving member, the other of the longer edges of said strip member being coterminous with one of the longer edges of said backing member, said strip member having a width less than said predetermined width;

(d) said indicia receiving member having a contrasting color with respect to the adhesive coated side of said backing member;

(e) said release paper strip member and said release paper indicia receiving member being formed from successive layers of encoding receiving litho paper, a barrier coating to prevent release compounds from being drawn into the encoding receiving paper, and a silicone polymer release layer;

whereby, said strip member may be removed to expose said pressure sensitive adhesive and permit the attachment of said extended clear band along the longer edge of said document adjacent said encoding and with said document edge in abutting contact with said one of the longer edges of said indicia receiving member.

4,278,881

SYSTEM TO SUPERVISE OPERATION OF A BEARING

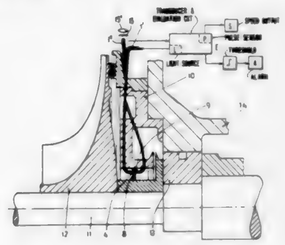
Albrecht Mann, Augsburg, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft (M.A.N.), Augsburg, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,133

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1978, 2828311

Int. Cl.³ G02B *5/14*

U.S. Cl. 250—227 **16 Claims**



1. Optical supervisory system for a bearing to optically supervise the operation and condition of the bearing, having

a light source (L);

a transducer and evaluation means (15, E) receiving light and providing an evaluation output;

and comprising

two bundles (1', 1'') of light guide fibers or filaments (2), one of which (1') is in optically coupled relation to the light

source (L) and the other (1'') is in optically coupled relationship to the transducer and evaluation means (E);

each one of said bundles (1', 1'') having end cut surfaces (3) facing each other with a distance therebetween to provide a measuring zone;

a disk element (8) secured to the rotating portion of the bearing, and a ring element (9) surrounding the disk element, with a gap (4) therebetween and secured to the stationary portion of the bearing, said ring element and said disk element being positioned in said measuring zone wherein

the end cut portions of the light guide fibers or filaments cover the gap (4) and

the light guide fibers or filaments of one of said bundles transmitting light through said gap (4) to the light fibers or filaments of the other bundle (1'');

at least some of the filaments (21, 2') of said bundles are continuous from one of said bundles (1') to the other of said bundles (1''), and positioned at a distance from said disk (8) corresponding to maximum permissible deviation of said disk from a predetermined standard position to provide, upon deviation of said disk beyond said maximum permissible deviation, a positive ON/OFF signal to the evaluation and transducer means (E) by severing said continuous light fibers or filaments in dependence of deviation of said disk within or beyond the permitted range.

4,278,882

COAL ASH MONITORS

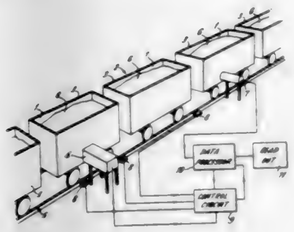
Colin G. Clayton, and Malcolm R. Wormald, both of Abingdon, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Sep. 28, 1979, Ser. No. 80,006

Claims priority, application United Kingdom, Oct. 2, 1978, 39011/78

Int. Cl.³ G01V *5/00*; G01N *23/00*; G06K *9/00*

U.S. Cl. 250—255 **18 Claims**



1. Apparatus for measuring the ash content of coal contained in a transport container, said apparatus comprising means for irradiating a known quantity of coal in a transport container with a known dose of thermal neutrons, means for detecting γ-rays having a predetermined energy emitted by the irradiated coal, the γ-rays arising from the capture of thermal neutrons by ^{27}Al present in the coal, means for producing a signal related to the intensity of the γ-ray emission from the irradiated coal, and means responsive to the said signal to provide an indication of the concentration of the ^{27}Al in the coal, thereby providing a measure of the ash content of the coal.

4,278,883

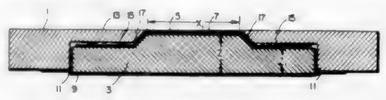
SAMPLE MOUNT FOR X-RAY DIFFRACTION

John C. Hathaway, Falmouth, and Lawrence J. Poppe, East Falmouth, both of Mass., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Dec. 27, 1979, Ser. No. 108,260

Int. Cl.³ G01N *23/20*

U.S. Cl. 250—277 CH **8 Claims**



1. A sample mounting assembly for use with an X-ray diffractometer comprising:

a membrane holder with an upper and a lower surface opposite each other, said holder having an opening extending therethrough from the lower to the upper surface with the area of the opening at the lower surface being larger than the area of the opening at the upper surface;

an insert having an upper and lower surface and adapted to fit into the holder's opening from the holder's lower surface and complementary shaped at its side surfaces with the mating edge surfaces of the holder to prevent the insert, when properly fitted therein, from moving through the holder;

a filter substrate layer larger than the area of the holder's upper opening and adapted to fit between the insert and holder in that opening, said filter being made of a material having a high mass absorption coefficient for X-rays;

a sample layer of material, which is to be subjected to X-ray diffraction analysis, mounted on said filter layer to form an exposed flat layer at the upper opening even with the adjacent upper surface of the holder, said sample overlapping the filter and being pressed at its edge between the insert and holder;

and means for holding the insert in the holder.

4,278,884

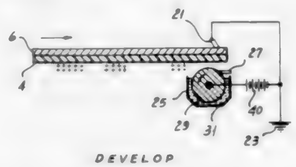
METHOD AND APPARATUS FOR XERORADIOGRAPHY

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Nov. 9, 1978, Ser. No. 958,978

Int. Cl.³ G03G *15/08*

U.S. Cl. 250—315.2 **2 Claims**



1. In an apparatus for making xeroradiographs including in combination means for charging a photoconductor in the dark, exposing means for subjecting the charged photoconductor to a pattern of absorption and passage of ionizing radiations through a subject to form a latent electrostatic image of such absorption and passage, a first toning means for masking the latent electrostatic image, said toning means comprising a tank for holding a dielectric liquid carrying charged toner particles, an applicator roller for applying toner particles to said latent electrostatic image, biasing means for biasing said roller to a potential above that of the most greatly discharged areas of said latent image to prevent masking the same, means for illuminating the masked electrostatic image to enhance the same, means for developing the enhanced electrostatic image, and means for transferring the developed electrostatic image to a carrier sheet.

4,278,885

APPARATUS FOR MEASURING THE CONCENTRATIONS OF ELEMENTS IN A MATERIAL BY THE CAPTURE GAMMA METHOD

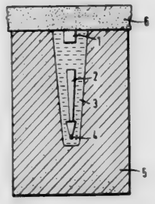
Georg C. von Alfthan, Espoo; Tuula A. Lukander, Kauniainen; Pekka Rautala, Espoo; Heikki J. Sipilä, Espoo, and Seppo J. Uusitalo, Espoo, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

Filed May 2, 1979, Ser. No. 35,245

Claims priority, application Finland, May 4, 1978, 781381

Int. Cl.³ G01T *1/22*

U.S. Cl. 250—370 **16 Claims**



1. An apparatus for measuring the concentrations of elements in a material by the capture gamma method, said apparatus comprising

a neutron source,

a moderator surrounding the neutron source and being at least partly constituted by heavy water,

a gamma radiation detector in the form of a semiconductor detector, said detector being positioned close to the material to be measured and in a flux of slow neutrons, there being so much of the moderator between the neutron source and the detector that at most only a few fast neutrons can reach the detector.

4,278,886

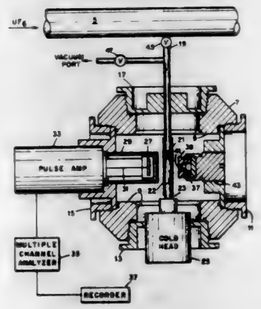
IN-LINE ASSAY MONITOR FOR URANIUM HEXAFLUORIDE

Steven A. Wallace, Knoxville, Tenn., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 21, 1980, Ser. No. 132,433

Int. Cl.³ G01J *1/42*; G01T *1/00*

U.S. Cl. 250—393 **9 Claims**



1. A method for measuring the uranium-235 enrichment of a uranium hexafluoride gas system independent of the density of the gas within the system, comprising the steps of:

cooling a radiation pervious chamber connected in fluid communication with said system to withdraw a specimen of the gas from said system into said chamber and to solidify said gas in said chamber;

irradiating said solidified specimen with a radiation source which emits ionizing radiation of an energy different from that emitted by the spontaneous gamma ray emission from uranium-235 present in said specimen;

measuring the quantity of radiation emitted by said specimen and the quantity of radiation transmitted through said specimen; and

determining the fraction of uranium-235 present in said specimen relative to the total uranium present in said specimen from the respective radiation quantity measurements as a measure of the uranium-235 enrichment factor of the system.

4,278,887

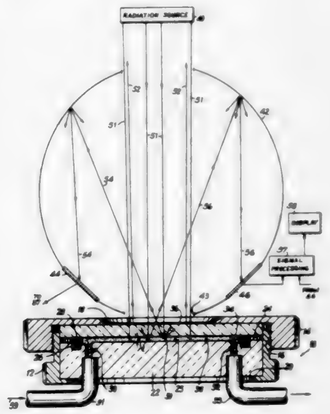
FLUID SAMPLE CELL

Victor G. Lipshutz, Tarrytown, and Edward Stark, Yorktown Heights, both of N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,563

Int. Cl.³ G01N *21/01*; G01J *1/04*; G01N *1/10*

U.S. Cl. 250—432 **11 Claims**



5. A spectroscopic analysis apparatus, comprising: a fluid sample cell including a sample compartment for the containment of a fluid sample to be analyzed, said compartment being defined by a radiation-transmitting window and a diffuse reflector spaced from said window, opposing surface portions of said window and said diffuse reflector being supported in spaced fashion, inlet and outlet ports extending into said compartment for passing successive fluids samples, in turn, through said compartment, a radiation energy source for directing energy through said window and into said compartment, and means for collecting radiation scattered, whether in a forward or back direction, and radiation transmitted by said sample contained within said compartment, at least a portion of said forward scattered and transmitted radiation being reflected back from said diffuse reflector and through said sample, so as to minimize the effects of variations in light scattering on the accuracy of the spectroscopic measurement.

4,278,888

APPARATUS FOR DETERMINING THE SPATIAL DISTRIBUTION OF THE ABSORPTION OF RADIATION IN A BODY

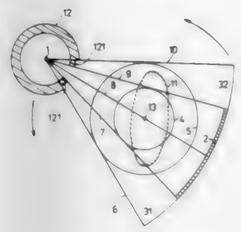
Wolfgang Wagner, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 23, 1979, Ser. No. 5,734

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1978, 2802593

Int. Cl.³ G03B *41/16*

U.S. Cl. 250—445 T **9 Claims**



1. In apparatus for determining the spatial distribution of the absorption of radiation in a body of the type which includes principal radiation source means which radiate an examination area with penetrating radiation and principal detector means disposed opposite the principal source means, which detect the intensity of radiation from the principal source means which passes through the body, and which further defines a positioning area for placement of the body, which area is larger than and surrounds the examination area, the improvement comprising:

auxiliary radiation source means which emit auxiliary radiation into an area which includes an outer boundary of the examination area and which is tangent to an outer boundary of the positioning area, the auxiliary radiation being strongly absorbed by the body, and a

auxiliary detector means which respond at least to auxiliary radiation falling outside the examination area and which supply signals which are a measure of the distance between auxiliary radiation rays which are tangent to the body and the boundary of the examination area.

4,278,889

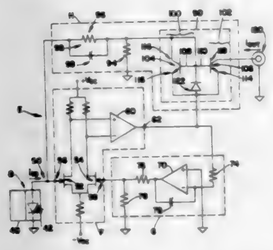
CURRENT AMPLIFIER WITH AUTOMATIC DRIFT CORRECTION FOR TOMOGRAPHIC SCANNERS

Joseph W. Erker, Aurora, Ohio, assignor to Ohio Nuclear, Inc., Solon, Ohio

Filed Oct. 15, 1979, Ser. No. 84,777

Int. Cl.³ G01T *1/20*

U.S. Cl. 250—445 T **15 Claims**



1. A computerized tomographic scanning apparatus for examining a planar slice of an object within a scan circle with radiation and producing a representation of an image of the planar slice comprising:

a source of radiation for producing a generally planar array of radiation;

at least one radiation detector for producing electrical signals in response to received radiation from the source;

a current amplifier comprising a first amplifier means having a first input operatively connected with said detector, and a current mirror means comprising a current receiving section for receiving current signals and a current generating section for generating a mirror current proportional to the current signals received by the current receiving section, said current mirror means operatively connected with said first amplifier means and said current receiving section being operatively connected with said first input; and

processing means for producing the representation of an image, said processing means being operatively connected with said current generating section.

4,278,890

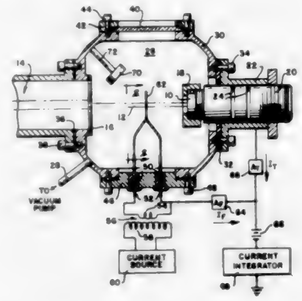
METHOD AND MEANS OF DIRECTING AN ION BEAM ONTO AN INSULATING SURFACE FOR ION IMPLANTATION OR SPUTTERING

Dieter M. Gruen, Downers Grove; Alan R. Krauss, Naperville, and Barry Siskind, Downers Grove, all of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 1, 1977, Ser. No. 812,936

Int. Cl.³ G21K *5/04*; C23C *15/00*

U.S. Cl. 250—492 B **1 Claim**



1. An apparatus for implanting ions in an electrically insulating target comprising:

a support for holding the target in a vacuum region;

an ion gun to direct a beam of ions at the target;

means for maintaining the vacuum in the vacuum region;

a filament disposed to emit electrons in a direction to reach the target;

a controllable electrical source connected to the filament for heating the filament;

means for measuring the flow of electrical current between the filament and the target;

means for measuring the net electrical current flowing between the target support and electrical ground;

a voltage source for establishing an electrical bias between the target support and electrical ground; and

a current integrator for integrating the current between the filament and the target as a function of time.

4,278,891

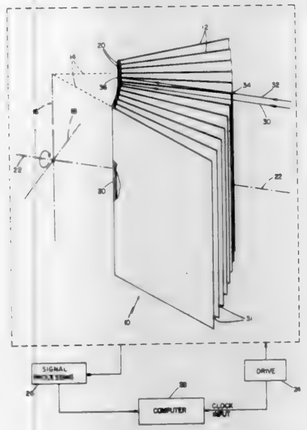
FAR FIELD IMAGING

Christopher H. Toswill, Sturbridge, Mass., assignor to Galileo Electro-Optics Corp., Sturbridge, Mass.

Filed Nov. 17, 1978, Ser. No. 961,671

Int. Cl.² G21K *1/00*; G01J *1/20*

U.S. Cl. 250—505 **8 Claims**



1. Apparatus for imaging distant radiation sources, comprising

a collimator having a multiplicity of portions transmissive of radiation from a said source,

the transmissivities of said portions to radiation reaching the collimator from a given said source being different from portion-to-portion for a given orientation of said collimator,

means for varying said transmissivities over time, and

means for detecting the radiation passing through each said portion for successive values of its transmissivity.

4,278,892

RADIOACTIVITY-SHIELDING TRANSPORT OR STORAGE RECEPTACLE FOR RADIOACTIVE WASTES

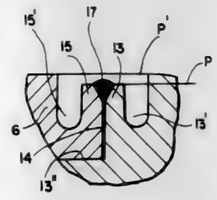
Heinrich Baatz, Essen, and Dieter Rittscher, Heiligenhaus, both of Fed. Rep. of Germany, assignors to Steag Kernergie GmbH, Essen, Fed. Rep. of Germany

Filed Dec. 6, 1978, Ser. No. 966,951

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1977, 7737499[U]

Int. Cl.² G21F *5/00*

U.S. Cl. 250—506 **9 Claims**



1. A shielding transport and storage vessel for radioactive wastes, comprising:

a receptacle body cast unitarily with an upstanding wall and a bottom defining the interior of the receptacle;

a shielding cover received in said receptacle and capable of resisting radiation transmission from the interior thereof, said body being formed with a shoulder and said shielding cover with a flange resting upon and connected to said shoulder; and

a safety cover overlying said shielding cover and hermetically sealed to said wall, said wall having an upper end formed with an annular continuous upstanding welding lip and said safety cover formed with an upstanding welding lip adjacent the welding lip of said body, the hermetic seal between said safety cover and said body being effected by a bead of weldment bridging said lips, at least one passage being cast into said body and opening at the upper end thereof, said safety cover extending beyond and overlying the opening of said passage, thereby sealing same.

4,278,893

ALIGNMENT APPARATUS

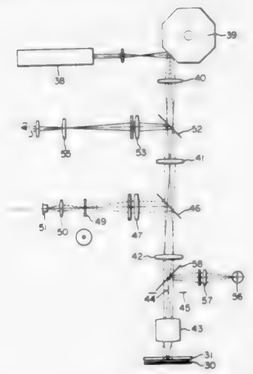
Yuzo Kato; Yasuo Ogino; Ryozo Hiraga; Hideki Yoshinari, all of Yokohama; Masao Tozuka, Ohmiya; Ichiro Kano, Yokohama, and Akiyoshi Suzuki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1979, Ser. No. 14,359

Claims priority, application Japan, Feb. 27, 1978, 53-2164

Int. Cl.³ G01N *21/86*

U.S. Cl. 250—548 **1 Claim**



1. An alignment apparatus comprising a first support member for supporting a pattern bearing member provided with first and second alignment marks representing first and second standard points, respectively, along a first standard line, a second support member for supporting a workpiece provided with first and second alignment marks, along a second standard line, representing first and second reference points respectively, corresponding to said standard points, a member for moving at least one of said first and second support members relative to the other, means for photoelectrically scanning said alignment marks on said pattern bearing member and workpiece, and a driving member for operating said moving member to align said pattern bearing member and the workpieces by placing the first standard point within a first tolerable region and placing the second standard point within a second tolerance region, the first tolerable region being defined by an area enclosed with substantially linear lines connecting a first limit point to a third limit point, the third limit point to a second limit point, the second limit point to a fourth limit point, and the fourth limit point to the first limit point, wherein the first and second limit points represent tolerable limits in the direction of the second standard line adjacent to the first reference point, and the third and fourth points represent tolerable limits in a direction of a line perpendicularly crossing the first reference point, the second tolerable region being defined by an area enclosed with substantially linear lines connecting a fifth limit point to a seventh limit point, the seventh limit point to a sixth limit point, the sixth limit point to an eighth limit

point, and the eighth limit point to the fifth limit point, wherein the fifth and sixth limit points represent tolerable limits in the direction of the second standard line adjacent to the second reference point, and the seventh and eighth points represent tolerable limits in a direction of a line perpendicularly crossing the second reference point.

4,278,894

WIND-DRIVEN POWER GENERATOR

Gelindo Cimaz, Via Prova 1, San Bonifacio/Verona, Italy

Filed Dec. 1, 1978, Ser. No. 965,725
Claims priority, application Italy, Dec. 16, 1977, 69812 A/77
Int. Cl.³ F03D *9/00*
U.S. Cl. 290—44 **4 Claims**



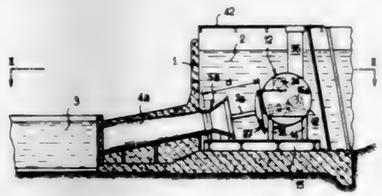
1. A wind-driven power generator comprising a pair of wheels mounted coaxially on a support for rotation about a vertical axis; a plurality of blades, each blade being rotatably mounted on a shaft extending between said wheels; and linkage means operatively connected between a point located on said support, eccentric to said vertical axis, and said shaft of each of said blades, for forcing each blade to rotate from a radial position to a tangential position during half a revolution of said wheels about said axis, and from said tangential position back to said radial position during the next half revolution.

4,278,895

HYDROELECTRIC POWER STATION

Pierre Cros, Paris, France, assignor to Spie-Batignolles, Puteaux, France

Filed Nov. 29, 1979, Ser. No. 98,550
Claims priority, application France, Dec. 14, 1978, 78 35189
Int. Cl.³ F03B *13/08*
U.S. Cl. 290—52 **17 Claims**



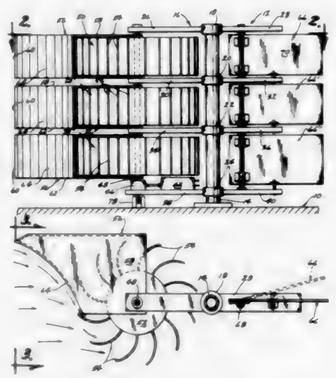
1. A low-head hydroelectric power station comprising a dam forming an upstream pool and a downstream pool in a watercourse, at least one turbine having a turbine runner located within a high flow-velocity passageway formed at the base of the dam, and at least one electric generator coupled to the turbines and housed within a totally submerged casing, wherein said generator casing is located within the upstream pool at a distance from the dam and the turbine and upstream of the high flow-velocity zone, said casing being provided with an inspection shaft having an opening located above the normal water level and fixed on a flooring structure in a demountable and removable manner.

4,278,896

WIND POWER GENERATOR

Douglas F. McFarland, Davis City, Iowa 50065

Filed Jun. 4, 1979, Ser. No. 45,059
Int. Cl.³ F03D *9/00*; **H02P** *9/04*; **F03D** *7/00*
U.S. Cl. 290—55 **5 Claims**



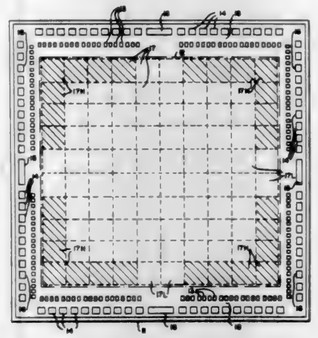
1. A wind power generator comprising,
a vertically disposed support member,
a support means rotatably mounted about a first vertical axis on said support member and extending horizontally laterally therefrom,
at least one rotor means rotatably mounted on said support means about a second vertical axis situated on one side of said first vertical axis and radially spaced therefrom, said rotor means including a plurality of rotor blades dwelling in a vertical plane,
a wind deflector means mounted on said support means in stationary relation thereto for deflecting the wind towards said blades to improve the angle of attack of the wind on said blades and for shielding a portion of said rotor means from the wind to prevent the wind from inhibiting the rotation of said rotor means,
an electrical generator means operatively connected to said rotor means for generating electrical energy upon said rotor means being rotated by the wind,
and a stabilizer assembly mounted on said support means on the opposite side of said first vertical axis such that said stabilizer assembly will be moved by the wind to the leeward side of said support member thereby maintaining said rotor means and wind deflector means on the windward side of said support member.

4,278,897

LARGE SCALE SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

Kenichi Ohno, Tokyo; Tohru Hosomizu, Yokohama, and Kazumasa Nawata, Kawasaki, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Dec. 28, 1978, Ser. No. 974,147
Int. Cl.³ H01L *27/00*
U.S. Cl. 307—455 **10 Claims**



1. An LSI chip comprising:
a semiconductor substrate having a planar surface;
transistors and resistors formed with selected patterns in said surface;
metallic layers on said surface comprising means for selectively connecting said transistors and resistors;
input/output terminal pads disposed at the periphery of said LSI chip, said pads including terminal pads for supply and ground potentials for operating said LSI chip;
large transistors connected as emitter-follower circuits for outputting signals from internal logic circuits of said LSI chip, said large transistors being located near said input-/output terminal pads;
macros arranged in an array on said surface, each said macro selectively comprising said transistors and resistors to form a respective unit logic circuit, each said unit logic circuit selectively handling high and low power, said macros comprising said unit logic circuits for handling high power being selectively terminated internally and externally of said LSI chip, said macros comprising said unit logic circuits for handling low power being terminated only within said LSI chip, said transistors and resistors of said macros comprising said unit logic circuit for handling high power having dimensions that are selectively larger than the corresponding dimensions of said transistors and resistors of said macros comprising said unit logic circuits for handling low power, said macros comprising said unit logic circuits for handling high power being located at the periphery of said macro array.

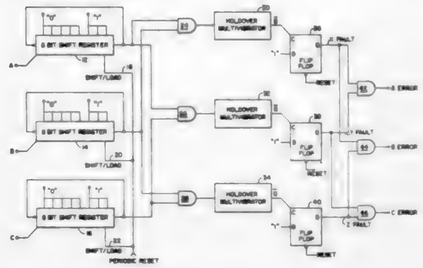
4,278,898

FREQUENCY COMPARATOR FOR ELECTRONIC CLOCKS

James B. Rhode, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 13, 1979, Ser. No. 66,271
Int. Cl.³ H03K *21/00*
U.S. Cl. 307—528 **11 Claims**

1. An apparatus for indicating a frequency error in one of a plurality of electronic clocks comprising:
n input terminals, each for connection to one of said plurality of electronic clocks;
n shift registers each having an output and being connected to one of said n input terminals;
n logic gates;
each pair of said shift register outputs being connected to one of said n logic gates;
n multivibrators, each being connected to the output of one of said n logic gates; and



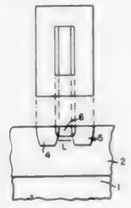
a plurality of switching means, each being connected to one of said n multivibrators, for providing an indication of which of said plurality of clocks has a frequency error.

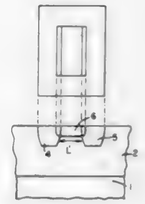
4,278,899

ELECTRONIC CIRCUIT FOR A TIMEPIECE

Eiichi Iwanami, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Nov. 13, 1978, Ser. No. 959,455
Claims priority, application Japan, Nov. 16, 1977, 52/137569
Int. Cl.³ H03K *3/353*; **H01L** *29/06, 29/80*
U.S. Cl. 307—304 **2 Claims**





1. An electronic circuit for a timepiece, comprising:
a high impurity concentration semiconductor substrate, and a low impurity concentration expitaxially grown semiconductor layer on said substrate;
high frequency oscillator circuit means for generating a high frequency oscillating output signal, comprising a vertical junction field effect transistor formed in said low impurity concentration epitaxially grown semiconductor layer, a pair of lateral transistors formed in said low impurity concentration epitaxially grown semiconductor layer and connected for biasing said vertical junction field effect transistor, a quartz crystal vibrator connected to said vertical junction field effect transistor for being driven to oscillate, and a pair of frequency adjusting capacitors connected to said quartz crystal vibrator; and
frequency dividing circuit means for dividing the oscillating

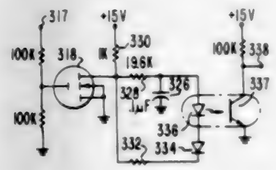
output signal from said oscillator circuit means for developing a low frequency timing signal, said dividing circuit means comprising at least one divider stage including a vertical junction field effect transistor formed in said low impurity concentration epitaxially grown semiconductor layer, the vertical junction field effect transistor of said oscillator circuit means having a gate space longer than the gate space of the vertical junction field effect transistor of the divider stage of said dividing circuit means for imparting a higher mutual conductance to said vertical junction field effect transistor comprising said oscillator circuit means than the mutual conductance of said vertical junction field effect transistor comprising the divider stage of said dividing circuit means.

4,278,900

FAIL-SAFE PULSE PROVIDING APPARATUS

Jayant K. Kapadia, Pleasant Hills, and Thomas C. Matty, North Huntingdon, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 15, 1979, Ser. No. 12,546
Int. Cl.³ H03K *3/42, 5/19*
U.S. Cl. 307—311 **6 Claims**



1. In fail-safe pulse providing apparatus responsive to an input signal comprising a plurality of time control pulses followed by a pulse gap, the combination of:

switch means coupled with the input signal for initiating a voltage pulse in response to one of said time control pulses or said pulse gap and terminating said voltage pulse in response to the other of said one time control pulse or said pulse gap,

a first impedance member,

energy storage means responsive to said voltage pulse and coupled with the first impedance member and the switch means for storing a predetermined amount of energy as determined by the duration of said voltage pulse,

a second impedance member,

a light emitting diode coupled with the storage means and the second impedance member for providing a desired photon output in accordance with the discharge of said predetermined amount of stored energy in response to said voltage pulse, and

photo-responsive switch means for providing an output pulse in accordance with said desired photon output.

4,278,901

PULSIVE COMPONENT DETECTING APPARATUS

Hiroyasu Kishi, Gunma, Japan, assignor to Sanyo Electric Co., Ltd., Osaka and Tokyo Sanyo Electric Co., Ltd., Gunma, both of, Japan

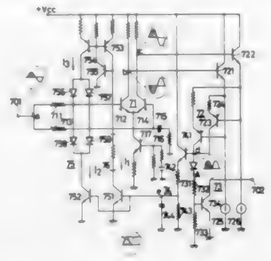
Filed Mar. 20, 1979, Ser. No. 22,342
Claims priority, application Japan, Jun. 9, 1978, 53-70603; Jun. 19, 1978, 53-75769; Jun. 19, 1978, 53-75770
Int. Cl.³ H03K *5/153*
U.S. Cl. 307—350 **28 Claims**

1. Apparatus for detecting a pulsive component randomly interspersed in an input signal having a substantially continuous noise component comprising:

amplifying means having an input for receiving said input signal and an output,

means connected to the output of said amplifying means for generating a control signal corresponding to the amplitude level of said continuous noise component of the input signal,

means connected to the input of said amplifying means and responsive to said control signal for controlling the amplitude of the input signal applied to said amplifying means to maintain a substantially predetermined amplitude level for



said continuous noise component at the output of said amplifying means, and

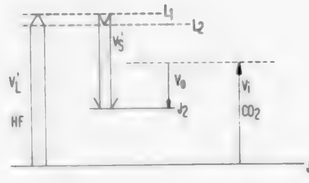
means responsive to the output of said amplifying means for detecting a pulsive component exceeding a predetermined level above said predetermined level of said continuous noise component.

4,278,902

TUNABLE 16-MICRON COHERENT SOURCE INCLUDING PARAHYDROGEN RAMAN TRANSITION AND METHOD

Michael M. Loy, Mount Kisco, and Peter P. Sorokin, Ossining, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,588
Int. Cl.³ H03F *7/00*
U.S. Cl. 307—426 **20 Claims**



1. A source of coherent IR in the vicinity of 16 um comprising:

a parahydrogen cell (34);

a CO_2 laser (10);

a multi-line gas laser (20) emitting with wave number significantly below 14,400 $cm.^{-1}$; and

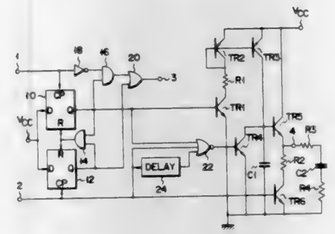
means for coupling emissions of said CO_2 and multi-line gas laser to said parahydrogen cell (**11, 12, 21, 30, 31, 32, 33**) and output means for passing 16 um emissions of said parahydrogen cell (**35**).

4,278,903

PHASE COMPARISON CIRCUIT

Kazuaki Ichinose, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Apr. 19, 1979, Ser. No. 31,399
Claims priority, application Japan, Apr. 28, 1978, 53-51987; Jan. 24, 1979, 54-6119
Int. Cl.³ H03K *5/26*
U.S. Cl. 307—514 **22 Claims**



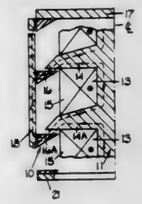
1. A phase comparison circuit comprising first signal generating means receiving first and second input signals and producing an output signal having a duration corresponding to a phase difference between said first and second input signals; second signal generating means for producing an output signal a predetermined time after the output signal of said first signal generating means is terminated, capacitor means, charging means connected to said capacitor means and adapted to be enabled by the output signal of said first signal generating means to cause said capacitor means to be charged, discharging means connected to said capacitor means and adapted to be enabled by said second signal generating means to discharge said capacitor means, a first transistor having its base connected to said capacitor means to produce from the emitter thereof an output signal corresponding to an amount of charge stored in said capacitor means, and switching means connected in series with a resistor between the emitter of said first transistor and a first reference power supply terminal to cause the emitter of said first transistor to be coupled to said first reference power supply terminal through said resistor.

4,278,904

ELECTROMAGNETIC DEVICES

Alec H. Seilly, North Wembley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Apr. 10, 1980, Ser. No. 139,145
Claims priority, application United Kingdom, Apr. 11, 1979, 12797/79
Int. Cl.³ H02K *33/00*
U.S. Cl. 310—27 **6 Claims**



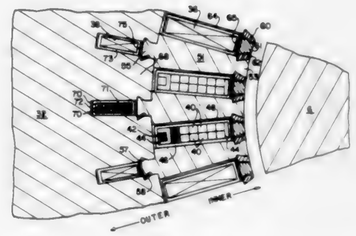
1. An electromagnetic device comprising a first member of annular form, a second member located within said first member and having two or a multiple of two axially spaced helical ribs defined on its surface presented to the first member, windings carried by said second member and which when supplied with electric current causes adjacent ribs to assume opposite magnetic polarity, said first member when the windings are energised, moving axially relative to said second member to reduce the reluctance of magnetic circuits defined by the two members, characterised by a third member of annular form surrounding said first member, said third member being formed from magnetic material and defining a cylindrical surface presented to said first member, said first member comprising a helical element having an outer face presented to but spaced from the cylindrical surface of said third member and a face presented to a face of a rib of the second member, said helical element having the characteristic of a coiled spring, whereby when the windings are energised, deformation of the helical element can take place, thereby progressively increasing the force available at one end of the member.

4,278,905

APPARATUS FOR SUPPORTING A STATOR WINDING IN A SUPERCONDUCTIVE GENERATOR

Madabushi V. K. Chari, Schenectady; Donald W. Jones, Burnt Hills, and Evangelos T. Laskaris, Schenectady, all of N.Y., assignors to Electric Power Research Institute, Palo Alto, Calif.

Continuation-in-part of Ser. No. 864,540, Dec. 27, 1977, abandoned. This application Feb. 16, 1979, Ser. No. 12,718
Int. Cl.³ H02K *9/00*
U.S. Cl. 310—52 **5 Claims**



1. An apparatus for supporting a stator winding in a superconductive generator, said generator having a yoke and a rotor comprising:

(a) a plurality of integral stator bars positioned between the yoke and the rotor in a superconductive generator;

(b) a plurality of integral stator bars positioned within the yoke of the superconductive generator, said bars being for generating an electrical output current in combination with the stator bars located between the yoke and the rotor;

(c) a plurality of non-conductive supporting teeth interspaced between the stator bars located between the yoke and the rotor, said teeth being rigidly attached to the yoke of the generator; and

(d) a plurality of wedge members for engaging the supporting teeth and for rigidly securing the stator bars located between the yoke and the rotor during operation of the generator.

4,278,906

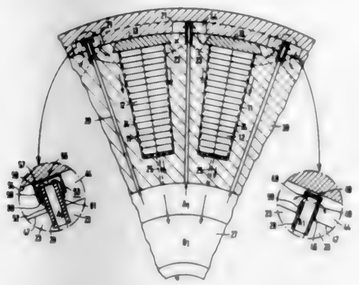
COOLING ARRANGEMENT FOR THE ROTOR OF AN ELECTRIC MACHINE

Dieter Kullmann, Langenzenn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,513
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830852
Int. Cl.³ H02K *7/14*
U.S. Cl. 310—52 **9 Claims**

1. In an arrangement for cooling the rotor of an electric machine having a superconducting field winding which is

cooled by coolant flow from a co-rotating mixing chamber located near the axis of the rotor, through coolant connecting lines outside the winding parts, a coolant distribution system disposed at the outer circumference of the field winding, and cooling canals running through the winding parts of the field winding between the coolant distribution system and the mixing chamber so that, during operation, coolant flows through the cooling canals due to a self-pumping effect, the improvement comprising:



at least some of the coolant connecting lines having end sections projecting into the coolant distribution system, each end section being thermally insulated from the coolant in the distribution system by a shielding device and having at least one coolant outlet opening located a predetermined distance from the rotor axis which is greater than the distance of inlet openings connecting the cooling canals to the coolant distribution system, as measured to the rotor axis, through the winding parts of the field winding.

4,278,907

D.C. SUBFRACTIONAL HORSEPOWER MOTOR WITH FLUX SHUNT FOR VARIABLE RPM ADJUSTMENT

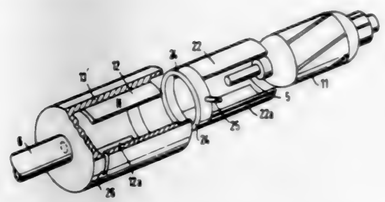
Hermann Landgraf, Heppenheim, and Juergen Wohlgemuth, Darmstadt, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 20, 1979, Ser. No. 59,295

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1978, 2834099

Int. Cl.³ H02K *1/00, 23/40*

U.S. Cl. 310—191 **10 Claims**



1. A dental tool drive system comprising a d.c. subfractional horsepower motor with permanent-magnetic excitation and with rotor output means including an armature (**11**) for the drive of a tool rotatably seated in a dental hand instrument selectively over relatively high and relatively low dental speed ranges, said system further comprising a cylindrical motor housing (**13'**) having permanent magnets (**12**, **12***a*) therein for the excitation of the armature (**11**) and arranged with poles lying diametrically opposite one another, said motor housing comprising a sleeve encircling the armature and forming a stationary return flux path and being of low retentivity material for this purpose, said sleeve having the permanent magnets (**12**, **12***a*) secured thereto so as to provide for an air gap between the permanent magnets (**12**, **12***a*) and the armature (**11**), a plurality of pole shoes (**22**, **22***a*) of low retentivity magnetic material corresponding to the plurality of said permanent magnets (**12**, **12***a*) and rotatably arranged concentrically thereto in the air gap between the armature (**11**) and permanent magnets; and manually operable dental speed range selector means coupled with the pole shoes (**22**, **22***a*) and comprising an actuation element (**25**) extending through the motor housing to the exterior thereof for manual actuation for the selection of the dental speed range of the dental hand instrument, and arranged for manual switchover to shift the pole shoes from a first work position (FIG. **12**) increasing the magnetic flux through the armature to a maximum value for dental work into a second work position (FIG. **13**) which decreases the magnetic flux to a minimum value, whereby depending upon the working position of said actuation element (**25**) adjustment of armature current selectively adjusts the speed of the dental tool over a minimum dental speed range and over a maximum dental speed range.

4,278,908

HEATING OF DOSING CAPSULE

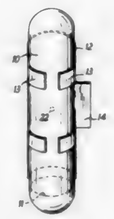
Basil Antonis, London, England, assignor to Thorn Electrical Industries Limited, London, England

Filed Mar. 21, 1979, Ser. No. 22,443

Claims priority, application United Kingdom, Mar. 31, 1978, 12748/78

Int. Cl.³ H01J *61/28*

U.S. Cl. 313—177 **9 Claims**



1. In a method of introducing a dosing material into a gas discharge lamp from a glass capsule mounted in a metallic support within the envelope of the lamp by using an electromagnetic field to heat the support and thereby open the capsule, the improvement which comprises constructing the metallic support as a sheet metal clip having an opening therethrough, fitting the clip closely about the capsule, and heating the sheet metal of the clip around the said opening by means of the electromagnetic field, thereby softening the glass and causing the softened glass to be forced through the opening by the pressure developed within the capsule.

4,278,909

MODIFIED CONDUCTOR ARRAY FOR PLASMA DISPLAY PANEL

Albert O. Piston, Catskill, and Thomas A. Sherk, West Hurley, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 13, 1979, Ser. No. 57,531

Int. Cl.³ H01J *17/04, 61/06, 63/02*

U.S. Cl. 313—217 **10 Claims**

1. A gaseous discharge display device comprising in combination,

a pair of glass plates,

each of said glass plates having a conductor array formed thereon,

a dielectric coating over each of said conductor arrays,

spacer means comprising a plurality of spacer elements for providing and maintaining a uniform discharge gap between said glass plates,

said spacer means comprising a plurality of metallic spacer elements located at predetermined positions on one of said plates,



said spacer elements having a configuration adapted to fit between adjacent parallel conductors on said one of said glass plates, and

means for symmetrically modifying the physical parameters of said conductors adjacent said spacer elements to compensate for modification of the operating characteristics of said adjacent conductors resulting from the proximate location of said spacer elements.

4,278,910

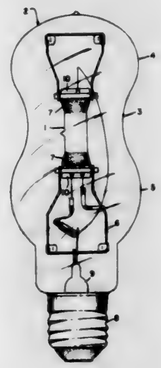
HIGH PRESSURE ARC DISCHARGE LAMP HAVING CONCAVE SHAPED OUTER JACKET

William M. Keeffe, Rockport, and David R. Brown, Beverly, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Aug. 6, 1979, Ser. No. 64,157

Int. Cl.³ H01J *17/16, 61/34*

U.S. Cl. 313—220 **1 Claim**



1. In a high pressure arc discharge lamp of the type comprising an elongated arc tube having electrodes at its ends and disposed substantially axially within a glass outer jacket, the improvement which comprises the portion of the outer jacket surrounding the arc tube having a concave shape longer than the internal length of the arc tube, the pressure in the arc tube during normal operation being greater than one atmosphere.

4,278,911

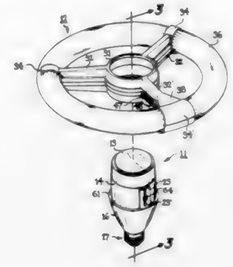
CIRCULAR FLUORESCENT LAMP UNIT

Rudolph Metoff, Mayfield Heights, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 13, 1979, Ser. No. 47,985

Int. Cl.³ H01J *5/48, 5/50*

U.S. Cl. 313—318 **16 Claims**



1. A circular lamp unit comprising a central hub and a detachable circular lamp assembly, said hub comprising means for connection to a source of electrical power and a socket at the side of the hub, and said circular lamp assembly comprising a circular light bulb, a sleeve ring adapted to fit around said hub, and a plurality of spokes extending outwardly from said sleeve ring and supporting said circular light bulb, one of said spokes being provided with an electrical slide connector arranged to slide alternatively toward said hub and make contact with said socket, and away from said hub and break contact with said socket.

4,278,912

ELECTRIC DISCHARGE TUBE HAVING A GLASS-SEALED ELECTRIC LEADTHROUGH AND METHOD OF MANUFACTURING SUCH AN ELECTRIC LEADTHROUGH

Gerardus A. H. M. Vrijsen, and Johannes P. T. Franssen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 18, 1979, Ser. No. 50,005

Claims priority, application Netherlands, Jun. 24, 1978, 7806822

Int. Cl.³ H01J *5/50*

U.S. Cl. 313—331 **4 Claims**



1. An electric discharge tube comprising a glass envelope having an inner wall, an outer wall, and an electric leadthrough connecting these walls, said envelope having a first electrically conductive layer on the inner wall and a second electrically conductive layer on the outer wall, said leadthrough comprising a third electrically conductive layer, present on a wall of an aperture in the glass envelope and electrically connected to the first and second layers, and a glass plug hermetically sealing the aperture, said glass plug comprising hermetically sealing, thermally devitrified glass;

wherein the aperture has an axis which points in a direction from the outer to the inner wall, and the cross-section of the aperture, transverse to its axis, decreases in the inward direction.

4,278,913
PHOSPHOR AND LOW-VELOCITY ELECTRON EXCITED FLUORESCENT DISPLAY DEVICE UTILIZING THE SAME

Akiyasu Kagami, Ninomiya, and Yoshiyuki Mimura, Chigasaki, both of Japan, assignors to Kasei Optonix, Ltd. and Japan Electric Industry Development Assoc., both of Tokyo, Japan

Filed Sep. 20, 1979, Ser. No. 77,377
Claims priority, application Japan, Sep. 20, 1978, 53-115676
Int. Cl.³ C09K *11/46*; H01J *63/04*
U.S. Cl. 313—495 **4 Claims**

1. A zinc oxide-based phosphor represented by the formula

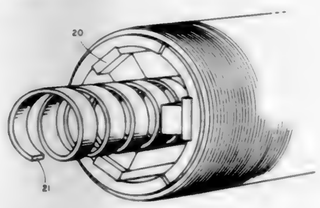
$$xM^{II}F_2.yM^{III}F_3.ZnO$$

wherein M^{II} is at least one divalent metal selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, zinc and tin; M^{III} is at least one trivalent metal selected from the group consisting of aluminum, gallium, indium, thallium, yttrium and antimony; and x and y are numbers satisfying the conditions of $0.0001 \leqq x+y \leqq 0.1$, $0 \leqq x$ and $0<y$; said phosphor emitting yellow light when excited by low velocity electrons.

4,278,914
DIAMOND SUPPORTED HELIX ASSEMBLY AND METHOD

Robert Harper, Concord, Mass., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 18, 1979, Ser. No. 86,213
Int. Cl.³ H01J *25/34*
U.S. Cl. 315—3.5 **11 Claims**



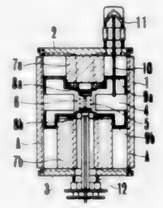
1. An improved structure for diamond supported helices comprising:
a metal tubing having a plurality of grooves machined therein each adapted to receive in close fit diamond heat support material in strip arrangement;
a like plurality of metal strips having diamond heat support material bonded thereto positioned in said grooves,
a helix delay line having an outer diameter greater than the inner diameter of said positioned diamond heat support material,
said tubing divided longitudinally into disconnected sections remote from said grooves and said sections positioned about said delay line with said diamond heat support material inner surfaces contacting the outer surface of said delay line; and
wire means positioned about said disconnected tubing sections for exerting and maintaining a selected radially inward pressure against said disconnected sections;
whereby the inner surfaces of said diamond heat support material are held in thermal contact against said helix delay line without having to be bonded thereto and said pressure may be varied initially with precision by adjusting said means for exerting pressure.

11. A method of positioning helix delay lines in electron interaction devices of the traveling wave type comprising:
forming longitudinal grooves equally spaced about the interior of a cylindrical member having high thermal conductivity;
dividing said member longitudinally into at least two disconnected sections;
inserting in said grooves in close fit metallic strips having diamond support material bonded thereto;
positioning said strips over a helically wound delay line having a plurality of spaced turns so as to obtain contact between said diamond support material and said delay line opposite each of said grooves; and p1 wrapping a wire of selected small diameter about said disconnected sections so that a contact of selected pressure is created between surface portions of said delay line and said diamond support material opposite said grooves.

4,278,915
MAGNETRONS

Toshio Ogura, Mobara, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 17, 1979, Ser. No. 85,636
Claims priority, application Japan, Oct. 25, 1978, 53-145821[U]
Int. Cl.³ H01J *25/50*
U.S. Cl. 315—39.71 **1 Claim**



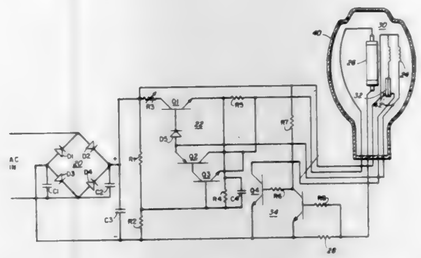
1. In a magnetron of the type comprising a cylindrical anode electrode, a cathode electrode disposed along a central axis of said anode electrode, said anode electrode having a plurality of vanes secured to an inner surface of the cylinder and extending radially and inwardly toward said cathode electrode to define an interaction space between the cathode electrode and inner ends of said vanes, a pair of permanent magnets disposed at both ends of said interaction space, and pole pieces mounted on opposing surfaces of said permanent magnets for passing magnetic flux of said permanent magnets axially through said interaction space, the improvement wherein at least one pole piece mounted to the permanent magnet on the output side of the magnetron has an annular contact surface contacting the opposing surface of the associated permanent magnet and generally takes the form of a tube with one end closed and with a recess formed in the one end, said one end opposing the associated permanent magnet.

4,278,916
INSTANT-ON LIGHT SOURCE

Robert J. Regan, Needham, and Paul O. Haugsjaa, Acton, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Dec. 3, 1979, Ser. No. 99,770
Int. Cl.³ H05B *41/36*, *41/46*
U.S. Cl. 315—92 **17 Claims**

1. An instant-on light source comprising:
a high pressure discharge lamp;
a first incandescent filament having a first terminal for receiving electrical power from a dc power source;
current regulating means for delivering regulated current to said discharge lamp, said regulating means including an output coupled to said discharge lamp, a first input for receiving electrical power from said dc power source, and a second input coupled to a second terminal of said first filament for receiving electrical power through said first filament, said second input drawing sufficient current to energize said first filament only during discharge lamp warm-up;
a second incandescent filament having a first terminal for receiving electrical power from said dc power source; and

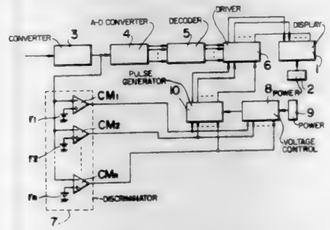


filament control means, coupled in series with said second filament, for permitting current flow through said second filament when said filament control means senses an absence of discharge in said discharge lamp at a time when said discharge lamp is above a predetermined maximum starting temperature.

4,278,917
DRIVING CIRCUIT FOR FLUORESCENT DISPLAY DEVICE

Youichi Kobori, Mobara, Japan, assignor to Futaba Denshi Kogyo K.K., Chiba, Japan

Filed Sep. 28, 1979, Ser. No. 80,036
Claims priority, application Japan, Oct. 9, 1978, 53-137888[U]
Int. Cl.³ H01J *23/34*, *29/98*
U.S. Cl. 315—169.1 **3 Claims**

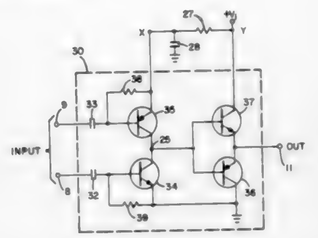


1. In a driving circuit for fluorescent display device which comprises anodes for forming a pattern display section, a phosphor layer deposited on said anodes, said phosphor layer deposited on at least one of said anodes being composed of mixed fluorescent materials each having different luminous color and threshold luminous voltage, a filamentary cathode for emitting thermions when energized and heated, whereby characters, figures and the like are displayed when thermions emitted from said cathode impinge said phosphor layer, the improvement which comprises:
a means for controlling an output voltage in response to an input to be displayed in said fluorescent display device;
a means for generating pulse signals having a peak value regulated by the output voltage of said voltage control means and having a pulse width or pulse-recurrence frequency regulated by the input to be displayed in said fluorescent display device; and
a means for driving said fluorescent display device in response to the output of said pulse generating means.

4,278,918
DISPLAY PANEL DRIVER CIRCUIT

Kenneth W. Bachofer, Elk River, Minn., assignor to Modern Controls, Inc., Elk River, Minn.

Filed Mar. 31, 1980, Ser. No. 135,657
Int. Cl.³ H05B *41/30*
U.S. Cl. 315—169.4 **6 Claims**

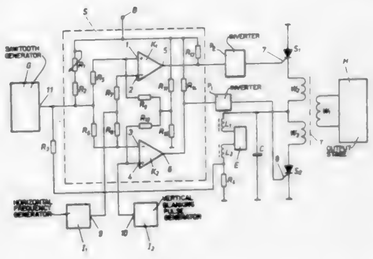


1. A circuit for voltage driving a plurality of capacitive conductor segments in a gas display panel, comprising:
(a) a first complementary transistor pair connected at an intermediate series junction point in series coupled arrangement between a voltage source and a ground return terminal, said pair having a common connection to their respective control elements;
(b) a second complementary transistor pair connected in series coupled arrangement between a voltage source and a ground return terminal, said pair having their respective common junction point connected to said common connection of said first pair's control elements;
(c) a pair of input terminals, each terminal respectively connected to a control element of one of said second complementary transistor pair; and
(d) an output terminal connected to the intermediate series junction point of said first complementary transistor pair.

4,278,919
TELEVISION VERTICAL DEFLECTION CIRCUIT UTILIZING COMPARATORS

Rolf Hugo, and Wilfried Schiller, both of Hildesheim, Fed. Rep. of Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,865
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1978, 2850731
Int. Cl.³ H01J *29/72*
U.S. Cl. 315—393 **6 Claims**



1. In television equipment operative in vertical trace and retrace intervals occurring at a vertical deflection frequency and horizontal trace and retrace intervals occurring at a horizontal deflection frequency, said television equipment having means (G) for generating a sawtooth voltage at said vertical deflection frequency, means (I_1) for furnishing shaped horizon-

tal frequency pulses having slanted pulse tops, vertical deflection means (L_1, L_2), and means (S_1, S_2, W_2, W_3, C) for energizing said vertical deflection means, said energizing means comprising at least one controllable switch means (S_2) requiring application of a sequence of horizontal frequency control pulses having increasing pulse width during each of said vertical deflection intervals, apparatus for furnishing said sequence of horizontal frequency control pulses, comprising

comparator means (K_2) having a first (3) and a second (4) input and a comparator output (6) for furnishing comparator output pulses having pulse widths corresponding to the time a signal applied to said second input has an amplitude exceeding the amplitude of a signal applied to said first input;

first connecting means (R_6) for connecting said first input of said comparator means to said sawtooth voltage generating means;

second connecting means (R_8) for connecting said first input of said comparator means to said shaped horizontal frequency pulse furnishing means; and

means interconnected between said comparator output and said controllable switch means for applying said comparator output pulses to said controllable switch means to constitute said sequence of horizontal frequency control pulses.

4,278,920

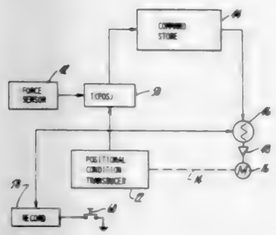
METHOD AND APPARATUS FOR GENERATING POSITION OR PATH CONTROL PROGRAMS USING FORCE FEEDBACK

Carl F. Ruoff, Jr., Dayton, Ohio, assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 708,521, Jul. 25, 1976, abandoned. This application Jul. 31, 1978, Ser. No. 929,490

Int. Cl.³ H02K *7/00*

U.S. Cl. 318—2 **16 Claims**



1. Apparatus for generating a control program for a machine having a positionable member and a drive system for the member operable under control of the program, comprising: a first sensor for generating signals which are a function of forces imposed on the member by an interaction between the member and an external instrumentality; a second sensor for generating signals which are functions of the position of the member; means for receiving the signals from the first sensor and the second sensor and for generating a command signal which is a function of the desired position of the member to decrease the forces exerted between the member and the external instrumentality; comparator means for receiving the command signal and the output of the second sensor and for generating an error signal which is a function of this input and is applied to the drive system to effect movement of the member; and means for recording at least certain of said signals representative of the position of the member.

4,278,921

CONSTANT SPEED ELECTRIC MOTOR

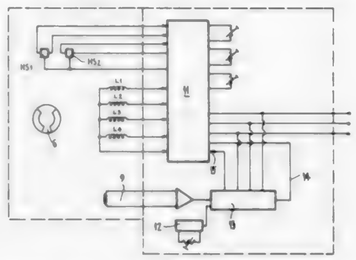
Reuben Medding, North Caulfield, and Peter D. Kay, Glen Waverley, both of Australia, assignors to Consolidated Electronic Industries Proprietary Limited, Thornbury, Australia

Filed Aug. 31, 1979, Ser. No. 71,483

Claims priority, application Australia, Aug. 31, 1978, PD5766

Int. Cl.³ H02P *6/02*

U.S. Cl. 318—254 **3 Claims**



1. A constant speed brushless D.C. motor of the permanent magnet outside rotor type with an internal stator wired in quadrature having a pair of Hall effect switches one of each mounted in proximity to one of a pair of opposite stator wirings to sense the direction and phase relationship of the field in the rotor, a coarse feedback loop sensing means for comparing the negative generated motor voltage and motor potential, an outer fine speed control loop superimposed over said coarse feedback loop, said outer loop including means for producing a group of integrated pulses representing the speed of the motor, second comparator means in said outer fine speed loop for comparing a separate group of integrated pulses having a constant frequency which is substantially exactly equated with a desired motor speed thereby achieving a frequency lock, said Hall effect switches operating under the influence of said comparator means to control power to said motor and thereby control its speed.

4,278,922

ASSEMBLY FOR GENERATING ADJUSTMENT MOVEMENTS AT AUTOMOBILE VENTILATION DEVICES

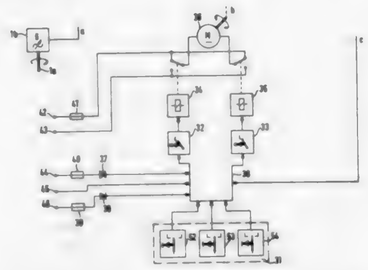
Karl Grebe, Frankfurt, Fed. Rep. of Germany, assignor to Rockwell-Golde, G.m.b.H., Frankfurt, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 28,931

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817297

Int. Cl.³ B60H *1/26*

U.S. Cl. 318—264 **7 Claims**



1. In combination an assembly generating adjustment movements on automobile ventilation devices driven by motor drive means, especially on roof openings closeable by a slideable or pivoted lid comprising: a generator coupled to a component of the automobile which revolves during travelling and the rotational speed of which is directly proportional to the speed of travel, said generator generating a control signal to adjust said drive means for the ventilation device which is switched on according to the speed of travel, in the direction of closing the ventilation device at a higher speed and in the direction of opening at a lower speed; said switching on of the drive means is carried out optionally for two different ranges of travel speed, one for town driving and the other for country driving; said drive means can be selectively switched on.

4,278,923

APPARATUS FOR MAINTAINING A ROTATING MEMBER AT A CONSTANT SPEED

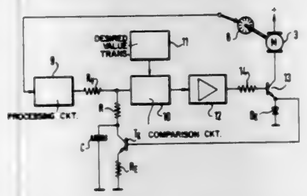
Peter Nowak, Am Weinberg 1, 7634 Kippenheim 2, and Reinhard Rieger, Bertholdstrasse 29, 7630 Lahr, both of Fed. Rep. of Germany

Filed Jul. 12, 1978, Ser. No. 924,207

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1977, 2731666

Int. Cl.³ H02P *5/46*

U.S. Cl. 318—302 **23 Claims**



1. In an assembly comprising a drive motor producing a drive force and a corresponding motor torque, a rotary member, transmission means for operatively connecting the motor and the rotary member and being of a nature to be liable to suffer from slip in the transmission of the drive force, and an electrical control circuit connected to said drive motor for controlling the drive motor; the improvement comprising compensation means responsive to said slip in the transmission of the drive force for applying to the control circuit a compensation signal proportional to a change in a parameter directly related to the motor torque, whereby to compensate for the slip suffered by the transmission means.

4,278,924

DIGITAL SERVO APPARATUS

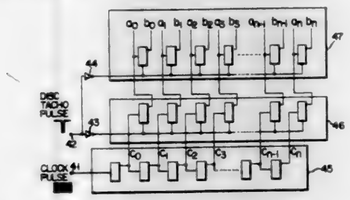
Masahiko Mawatari, Kawasaki, and Masaaki Tamura, Fujisawa, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 18, 1978, Ser. No. 943,645

Claims priority, application Japan, Sep. 21, 1977, 52-113864

Int. Cl.³ G11B *21/04*

U.S. Cl. 318—314 **18 Claims**



1. Digital servo apparatus for controlling a motor comprising:

a binary counter adapted to receive clock pulses and having a binary output with a count value based on the number of clock pulses received;

first memory circuit means connected to said binary counter for storing an output of said counter in response to a first latch pulse which is a vertical synchronizing signal of a television signal;

secondary memory circuit means connected to said binary counter for storing an output of said counter in response to a second latch pulse taken from the motor to be controlled;

data processing circuit means connected to said first and second memory circuit means for calculating an amount of control of said motor from the difference between the stored data of said first memory circuit means and the stored data of said second memory circuit means.

4,278,925

PHASE-LOCKED LOOP SPEED CONTROL SYSTEM USING PROGRAMMABLE COUNTER FOR FREQUENCY PULLING

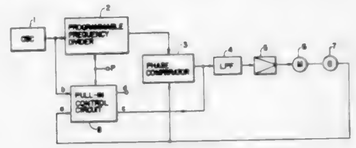
Hiroshi Minakuchi, Kadoma, Japan, assignor to Matsushita Electric Industrial Company, Kadoma, Japan

Filed May 31, 1979, Ser. No. 44,149

Claims priority, application Japan, Dec. 6, 1977, 52-146750

Int. Cl.³ H02P *5/16*

U.S. Cl. 318—314 **7 Claims**



1. A phase-locked loop system for controlling the speed of an electrically driven moving element, comprising:

means for generating a train of pulses at a frequency related to the speed of said moving element;

an oscillator for generating clock pulses;

a programmable frequency divider having a clock input terminal connected to said oscillator and a program control input terminal receptive of a program control signal for generating an output signal at a frequency which is an integral submultiple of the frequency of said oscillator in response to said program control signal;

a phase comparator having a first input terminal connected to the output of said programmable frequency divider and a second input terminal receptive of said speed related pulses;

a lowpass filter connected to the output of said phase comparator;

a pull-in control circuit comprising a programmable counter having a clock input terminal connected to said oscillator for counting said clock pulses and a program control input terminal receptive of said program control signal, said pull-in control circuit being responsive to said speed related pulses for generating an output signal such that the output signal of said lowpass filter varies as a function of the frequency of said speed related pulses; and

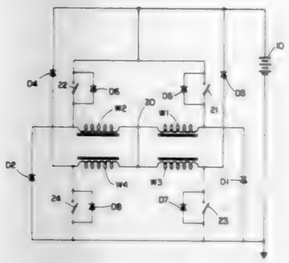
means for combining said output signal of said pull-in control circuit with the output signal from said phase comparator and applying a combined output signal through said lowpass filter to said moving element.

4,278,926

STEP MOTOR CIRCUIT

Peter G. Bartlett, Davenport, Iowa, assignor to Automation Systems, Inc., Eldridge, Iowa

Filed May 23, 1979, Ser. No. 41,719
Int. Cl.³ G05B *19/40*
U.S. Cl. 318—696 **7 Claims**



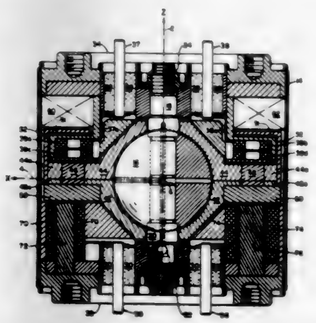
1. A step motor circuit comprising: (a) a power source, having a first voltage terminal and a second, more positive, voltage terminal;
(b) first, second, third, and fourth switch means;
(c) first, second, third, and fourth step motor windings, each of said windings having one end connecting to the other said windings; the other ends of said first and second windings being switchably connected to said second voltage terminal through said first and second switch means respectively; the other ends of said third and fourth windings being switchably connected to said first voltage terminal through said third and fourth switch means;
(d) a first diode and a second diode, said diodes connecting the other ends of said first and said second windings with said first voltage terminal respectively; the anodes of said diodes being connected to said first voltage terminal;
(e) a third diode and a fourth diode, said diodes connecting the other ends of said third winding and said fourth winding with said second voltage terminal respectively; the cathodes said diodes being connected to said second voltage terminal.

4,278,927

AXIAL GAP PERMANENT MAGNET MOTOR

Lester R. Grobe, East Weymouth, Mass., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Mar. 5, 1979, Ser. No. 17,352
Int. Cl.³ H02P *7/36*
U.S. Cl. 318—721 **4 Claims**



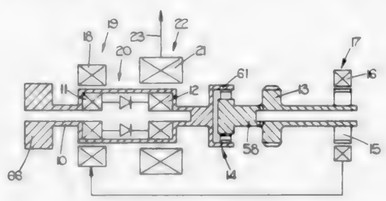
1. An axial gap, permanent magnet motor comprising:
A. a stator including two adjacent sets of series connected coils wound in quadrature, each set of coils being disposed in a substantially annular configuration about a spin reference axis wherein the axis of each coil is substantially parallel to said spin reference axis,
B. a rotor adapted for rotation about a spin axis and including a set of permanent magnets disposed in a substantially annular configuration about said spin axis, said annular configuration of magents having substantially the same mean radius as said annular configuration of coils, and wherein the magnetic moment of each of said magnets is substantially parallel to said spin axis, and wherein the magnetic moments of adjacent magnets in said set are oppositely directed,
C. means for positioning said rotor with respect to said stator whereby said annular configuration of magnets is adjacent to said annular configuration of coils so that magnetic flux from said magnets is coupled to said coils,
D. means for maintaining said spin reference axis and said spin axis substantially coaxial,
E. return means connected to said rotor for establishing a magnetic flux return path therein, said return path completing a circuitous path for magnetic flux passing through said coils, and
F. means for exciting said sets of coils including servo means for detecting back emf in said sets of coils and for generating control signals related thereto for driving alternating currents in the respective sets of coils, said currents having a 90° relative phase shift and being in-phase with the detected back emf for the respective sets of coils.

4,278,928

ELECTRIC GENERATOR ARRANGEMENT

Trevor J. Griffiths; Raymond Sharpe, both of Bradford, and Peter Hunt, Shipley, all of England, assignors to Lucas Industries Limited, Birmingham, England

Filed Sep. 7, 1977, Ser. No. 831,105
Claims priority, application United Kingdom, Sep. 8, 1976, 37141/76; Apr. 14, 1977, 15617/77
Int. Cl.³ H02P *15/00*; F16H *47/04*
U.S. Cl. 322—29 **29 Claims**



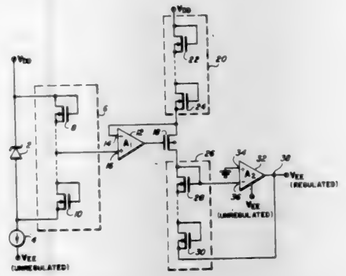
1. A generator arrangement comprising an electric generator having a stator and a rotor, a continuously variable ratio drive means having an input shaft and an output shaft, said output shaft being drivingly connected to the rotor of said generator, hydraulic control means, responsive to the speed of said output shaft, for varying the ratio of the speeds of said input and output shafts, a centrifugal liquid-air separator including an impeller, means for drivingly connecting said impeller to said output shaft for rotation at the speed of said output shaft, a first passage for delivering hydraulic fluid to said separator from which liquid is separated and pressurized by rotation of said impeller, and means for supplying directly to said control means the liquid separated and pressurized by said impeller.

4,278,929

REGULATED NEGATIVE VOLTAGE SUPPLY

Robert D. Lee, and Richard W. Ulmer, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 21, 1979, Ser. No. 96,274
Int. Cl.³ G05F *1/40*
U.S. Cl. 323—311 **10 Claims**



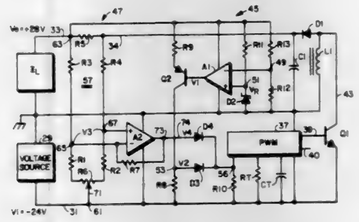
1. An MOS regulated negative power supply, comprising:
first means, coupled to an unregulated supply voltage, for generating a positive reference voltage;
second means coupled to said first means for converting said reference voltage to a current;
third means coupled to said second means for receiving said current and generating therefrom a first voltage; and
feedback means coupled to said third means for referencing said first voltage to ground to maintain said first voltage negative and for regulating the negative voltage.

4,278,930

CURRENT SENSING CIRCUIT FOR POWER SUPPLY WITH SERIES CONTROL TRANSISTOR

Robert G. Rogers, Los Altos, Calif., assignor to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.

Filed Sep. 27, 1979, Ser. No. 79,650
Int. Cl.³ G05F *1/58*
U.S. Cl. 323—285 **6 Claims**



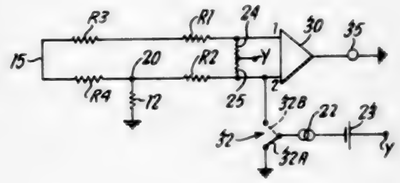
1. In a voltage converter responsive to an input voltage at a pair of input terminals for producing an output voltage at a pair of output terminals across which a load impedance is to be connected, apparatus for producing an indication of load current outputted from a first output terminal comprising:
passive resistive bridge circuit means having a pair of nodes electrically connected between the first output terminal and an other one of the terminals,
said resistive bridge circuit means comprising:
a first resistor in one of the arms of said bridge means that is adjacent the first output terminal, said first resistor being a current sensing resistor that passes the load current therethrough to said first output terminal;
a potentiometer having one and other sides thereof and having a moveable contact electrically connected to said other one of the terminals;
a first resistive voltage divider means including second and third series connected resistors having one ends thereof electrically connected together at a first tap point and having other ends electrically connected to the one side of said potentiometer and to one side of said first resistor that is connected to said first terminal, respectively;
a second resistive voltage divider means including fourth and fifth series connected resistors having one ends electrically connected together at a second tap point and having other ends electrically connected to the other side of said potentiometer and to the other side of said first resistor, respectively;
the resistance of said potentiometer being varied for adjusting the magnitude of difference voltage developed between said voltage divider tap points, which difference voltage is an indication of the load current passed by the voltage converter, to be a prescribed value for a given load current in said first resistor.

4,278,931

LOCATION OF CONTACT FAULTS ON ELECTRICALLY CONDUCTIVE CABLES

Ernest E. J. Huggins, Seaford, England, assignor to The Post Office, London, England

Filed Jan. 26, 1979, Ser. No. 6,647
Claims priority, application United Kingdom, Jan. 27, 1978, 3456/78
Int. Cl.³ G01R *31/08*
U.S. Cl. 324—52 **13 Claims**



1. A method of locating contact faults on electrically conductive cable pairs comprising looping the pair at one end thereof, connecting two resistors across the other end of the pair, connecting a constant current source to the junction of the two resistors and measuring the current flowing in each resistor, the ratio of said currents being indicative of the position of the fault.

4,278,932

A.C. BRIDGES

David A. G. Tait, 34 Mount St., Dorking, Surrey, England

Filed Jul. 6, 1979, Ser. No. 55,171
Claims priority, application United Kingdom, Jul. 11, 1978, 29445/78
Int. Cl.³ G01R *27/00, 27/26, 27/02*
U.S. Cl. 324—57 R **13 Claims**

1. An a.c. bridge comprising
a first arm including an element having a standard resistance;
a second arm including an element having a standard reactance, one end of said second arm being connected to one end of said first arm;
a third arm having terminals for connection to an unknown impedance, one end of said third arm being connected to the other end of said first arm;
a fourth arm comprising a resistive circuit including first and second variable resistance elements, said fourth arm being connected between the other ends of said second and third arms, said second variable resistance having a movable tap;
an a.c. voltage source;
means for connecting one terminal of said source to the

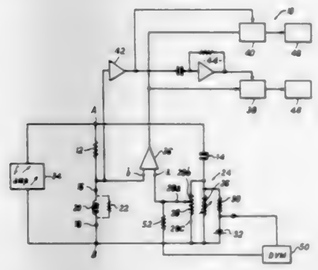
junction between said first and second arms and the other terminal of said source to the junction between said third and fourth arms;

first and second phase-sensitive rectifier circuits each having an input terminal and a reference signal terminal;

means for coupling an unbalance signal from the junction between said first and third arms and said movable tap of said second variable resistance to the input of each of said rectifier circuits;

circuit means for supplying a first a.c. reference signal having a predetermined phase relation with the voltage developed across the unknown impedance to said reference input terminal of said first rectifier circuit to synchronize said rectifier circuit;

circuit means for supplying a second a.c. reference signal having a second predetermined phase relation with the



voltage developed across the unknown impedance to synchronize said rectifier circuit; and

indicating means coupled to the outputs of the phase-sensitive rectifier circuits for indicating the senses of their output signal levels;

the magnitude of said first resistive element being adjustable until the phase difference between the unbalance signal at the input of said first rectifier circuit and the first reference signal supplied thereto is at a predetermined value,

said movable tap on said second variable resistance being subsequently adjustable until the phase difference between the signal at the input of said second rectifier circuit and said second reference signal supplied thereto is at a predetermined value, without affecting the phase relation between the signal at the input of the first rectifier circuit and the first a.c. reference signal to balance the bridge.

4,278,933

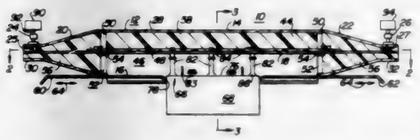
MEANS AND METHOD FOR DETERMINING SUSCEPTIBILITY TO RADIATED ENERGY

Robert T. Klopach, State College, and Rickey E. Hartman, Lansdale, both of Pa., assignors to American Electronic Laboratories, Inc., Colmar, Pa.

Filed Jun. 18, 1979, Ser. No. 49,395

Int. Cl.³ G01R *27/04*

U.S. Cl. 324—58 R **23 Claims**



1. A testing means for determining susceptibility to radiated energy and leakage of energy from a device having a conductive surface comprising a stripline unit for transmitting radiant energy in the principal transverse electromagnetic mode including a first conductive ground plane element, a second conductive ground plane element spaced from and parallel to the first ground plane element, and a plane center conductor element positioned intermediate and parallel to the first and second ground plane elements, the stripline unit having first and second end sections providing energy coupling means, and an intermediate section between the end sections for transmitting energy therealong, a portion of the first ground plane element of the intermediate section of the stripline unit providing an opening for being closed by a conductive surface of a device which is to be tested and which effectively provides a portion of ground plane of the stripline unit, said opening being adjustable for electrically contacting the device which is to be treated for reducing leakage of energy transmitted by the stripline unit.

4,278,934

ELECTRODE ASSEMBLY FOR A MOISTURE METER

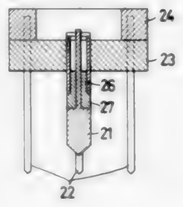
Susumu Ihara; Yoshinobu Kashiuchi, and Isamu Jinguji, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 26, 1979, Ser. No. 33,408

Claims priority, application Japan, Apr. 27, 1978, 53-58598[U]; Apr. 27, 1978, 53-58599[U]

Int. Cl.³ G01R *27/26*

U.S. Cl. 324—61 P **2 Claims**



1. An electrode assembly for an electrostatic moisture meter of the electrostatic capacity type for determining the moisture content of powdery or granular material, said assembly comprising:

a primary insulator;

at least one secondary insulator mounted on the base of at least one high-voltage electrode in the form of a rod, said at least one secondary insulator and at least one high-voltage electrode mounted in said primary insulator and extending outwardly therefrom;

a plurality of ground electrodes in the form of rods, said ground electrodes being mounted in said primary insulator at locations spaced around said at least one high-voltage electrode, and said ground electrodes being longer than said at least one high-voltage electrode; and

an electrostatic shield mounted on said at least one secondary insulator and extending through said primary insulator for preventing an appreciable increase in electrostatic capacitance between said at least one high-voltage electrode and said ground electrode.

4,278,935

ELECTRODES FOR MOISTURE METER

Susumu Ihara, and Kizashi Nakamura, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jun. 20, 1979, Ser. No. 50,219

Claims priority, application Japan, Jul. 6, 1978, 53-93679[U]; Jul. 6, 1978, 53-93680[U]; **Dec. 8, 1978, 53-169542**[U]

Int. Cl.³ G01R *27/26*

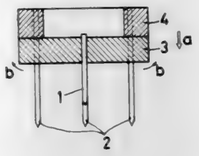
U.S. Cl. 324—61 P **9 Claims**

1. An electrode assembly for an electrostatic moisture meter of the electrostatic capacity type for determining the moisture content of powdery or granular material, said assembly comprising:

an insulator;

at least one high-tension electrode in the form of a rod mounted in said insulator and extending outwardly therefrom; and

a plurality of earth electrodes in the form of rods, said earth



electrodes being mounted in said insulator at locations spaced around said high-tension electrode, said earth electrodes extending outwardly from said insulator in directions parallel to said high-tension electrode, and said earth electrodes being longer than said high-tension electrode.

4,278,936

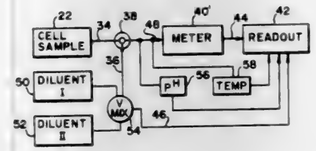
BIOLOGICAL CELL PARAMETER CHANGE TEST METHOD AND APPARATUS

Ian B. Shine, Lexington, Ky., assignor to Coulter Electronics, Inc., Hialeah, Fla.

Filed Feb. 5, 1980, Ser. No. 118,727

Int. Cl.³ G01N *27/00*

U.S. Cl. 324—71 CP **24 Claims**



1. A method for testing cells comprising the steps of:

a. forming a hypotonic mixture with at least one portion of a cell sample and a first solution having a specific osmolality, the cells of said sample each having an original parameter value state;

b. causing the cells to reside in said mixture for at least a short known duration, during which the cells attain a change of at least one parameter value as compared to their original parameter value state, the amount of said change depending upon the osmolality of the mixture and the innate and acquired properties of each cell;

c. measuring said attained cell parameter change; and

d. employing said attained cell parameter change to define data which is capable of being compared with cell parameter change data representative of a known health or physiological condition.

4,278,937

CIRCUIT ARRANGEMENT FOR MONITORING THE PHASE SEQUENCE OF A ROTARY FIELD

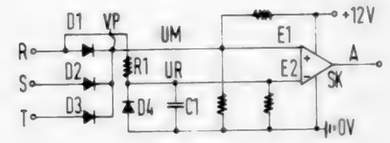
Josef Immler, Puchheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 22, 1979, Ser. No. 14,139

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2808085

Int. Cl.³ G01R *25/00*

U.S. Cl. 324—86 **7 Claims**



1. A circuit arrangement for monitoring the phase sequence of a rotary field, comprising:

a voltage comparator for receiving first half waves from two-phases and the opposite half wave of a third phase, inverted, and responsive thereto to form a measuring voltage;

means for providing an inverted half wave of the third phase as the reference voltage to said comparator; and

means for adjusting said voltage comparator to provide an error signal indicating an erroneous phase sequence when the reference voltage exceeds the measuring voltage.

4,278,938

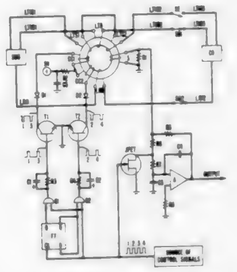
ELECTROMAGNETIC ARRANGEMENT FOR MEASURING ELECTRICAL CURRENT

Jeffrey C. Morriss, Lisle, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 27, 1979, Ser. No. 61,261

Int. Cl.³ G01R *19/00, 33/00;* **H04M** *3/22*

U.S. Cl. 324—117 R **11 Claims**



1. An arrangement for measuring an electrical line current flowing in a line circuit comprising:

(A) a single magnetic path having magnetic characteristics such that the slope of the hysteresis characteristic changes substantially as the magnetizing intensity H changes between a zero amount of H and a finite amount of H;

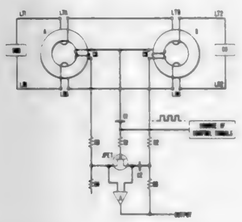
(B) means electromagnetically coupling the line circuit to the path so that a particular amplitude and polarity of line current causes in the path a corresponding finite amount and polarity of line H;

(C) means for supplying a succession of control signals;

(D) a control circuit controlled by each control signal so that a corresponding pulse of particular amplitude and

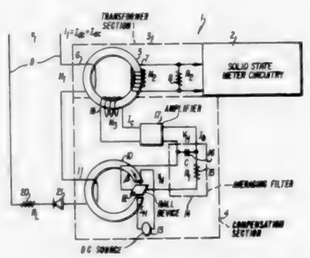
duration and polarity of electrical control current flows in the control circuit;
(E) means electromagnetically coupling the control circuit to the path so that successive control current pulses cause in the path successive corresponding changes of control H where the successive changes of control H are of essentially equal finite amounts of the opposite polarity;
(F) the successive changes of control H being such as to cause the magnetic induction B in the path to undergo successive corresponding changes of opposite polarity where the amounts of the changes of B are determined by the combined amount and polarity of line H and control H;
(G) means controlled by each control signal and by the corresponding change of B to produce a corresponding voltage pulse the amplitude and duration and polarity of which are a measure of the amount and polarity of line H in the path;
(H) means controlled by a plurality of successive voltage pulses
(1) to perform cumulative algebraic integration of the successive voltage pulses
(2) and to provide a changing output voltage the amplitude and polarity of which are a measure of the cumulative integration;
(I) and, means controlled by the output voltage to cause in the path an amount of feedback H where
(1) the amount of feedback H is according to the amplitude of the output voltage
(2) and the polarity of the feedback H is opposite to the polarity of any line H;
(J) whereby
(1) the amplitude of the output voltage becomes essentially constant when in the path the amount of feedback H essentially equals the amount of line H
(2) and the amplitude and polarity of the constant output voltage are a measure of the amplitude and polarity of the line current.

4,278,939
ELECTROMAGNETIC ARRANGEMENT FOR MEASURING ELECTRICAL CURRENT
James L. Henry, Whippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jul. 27, 1979, Ser. No. 61,463
Int. Cl.[3] G01R *33/00*; H04M *3/22*
U.S. Cl. 324—117 R **10 Claims**



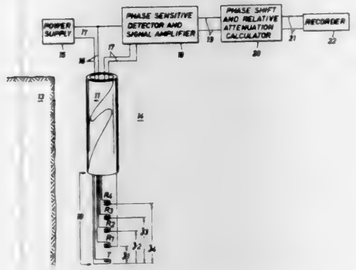
1. An arrangement for measuring an electrical line current flowing in a line circuit comprising:
(A) two separate magnetic paths having essentially matching magnetic characteristics such that the slope of the hysteresis characteristic changes substantially as the magnetizing intensity H changes between a zero amount of H and a finite amount of H;
(B) means electromagnetically coupling the line circuit to the two paths so that a particular amplitude and polarity of line current causes in the two paths corresponding essentially equal finite amounts of the same polarity of line H;
(C) means for supplying a succession of control signals;
(D) a control circuit controlled by each control signal so that a corresponding pulse of particular amplitude and duration and polarity of control current flows in the control circuit;
(E) means electromagnetically coupling the control circuit to the two paths so that each control current pulse causes in the two paths coresponding changes of control H where the changes of control H are of essentially equal finite amounts of the opposite polarity;
(F) each change of control H in the two paths being such as to cause the magnetic inductions B in the two paths to undergo corresponding changes of opposite polarity where the amounts and polarities of the changes of B are determined by the combined amount and polarity of line H and control H in the two paths;
(G) means including the control circuit coupling means controlled by each control signal and by the corresponding changes of B in the two paths to produce a corresponding voltage pulse the amplitude and duration and polarity of which are a measure of any algebraic difference between the amounts of the corresponding changes of B in the two paths;
(H) means controlled by a plurality of successive voltage pulses
(1) to perform cumulative algebraic integration of the successive voltage pulses
(2) and to provide a changing output voltage the amplitude and polarity of which are a measure of the cumulative integration;
(I) and, means including the control circuit coupling means controlled by the output voltage to cause in the two paths essentially equal amounts of feedback H where
(1) the amount of feedback H is according to the amplitude of the output voltage
(2) and the polarity of the feedback H is opposite to the polarity of any line H;
(J) whereby
(1) the amplitude of the output voltage becomes essentially constant when in each of the two paths the amount of feedback H essentially equals the amount of line H
(2) and the amplitude and polarity of the constant output voltage are a measure of the amplitude and polarity of the line current.

4,278,940
MEANS FOR AUTOMATICALLY COMPENSATING DC MAGNETIZATION IN A TRANSFORMER
Miran Milkovic, Scotia, N.Y., assignor to General Electric Company, Somersworth, N.H.
Filed Apr. 25, 1979, Ser. No. 33,078
Int. Cl.[3] G01R *1/20, 11/24*
U.S. Cl. 324—127 **3 Claims**



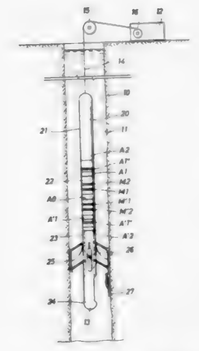
1. In an electronic watthour meter of the type having a transformer including an input winding for receiving alternating current from a power signal generating source, an output winding connected to meter circuitry for monitoring the alternating current flowing through the input winding, and a core which is potentially saturable through DC magnetization caused by an undersired DC component, of potentially differing values, which is deliberately superimposed on the AC component of the alternating current applied to the input winding of said transformer, apparatus for compensating for DC magnetization of said core comprising:
(a) a compensating winding on the core of said transformer;
(b) sensing means connected to sense the current flowing through the input winding of said transformer and generating an alternating output signal having a magnitude proportional to the sensed current and which includes the AC and DC components of sensed current; and
(c) an averaging filter, including an amplifier, for filtering the AC component out of the alternating output signal over at least one cycle of the sensed current, to thereby provide, from said amplifier to said compensating winding of said transformer, a compensating current signal having a magnitude proportional to that value of the DC component of the sensed current, said compensating current signal effecting linear operation of said transformer by compensating for the DC magnetization of said core caused by the undesired DC component flowing in the input winding of said transformer to thereby effect maximum coupling of the AC component of the alternating current from the input winding to the output winding of said transformer to derive an input signal to the meter circuitry having a magnitude proportional to the magnitude of the alternating current flowing in the input winding of said transformer.

4,278,941
HIGH FREQUENCY INDUCTION LOG FOR DETERMINING RESISTIVITY AND DIELECTRIC CONSTANT OF THE EARTH
Robert Freedman, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Oct. 30, 1978, Ser. No. 955,673
Int. Cl.[3] G01V *3/28*
U.S. Cl. 324—341 **6 Claims**



5. An apparatus for induction logging a borehole to obtain the resistivity and dielectric constant of the formation surrounding the borehole, said apparatus comprising:
a logging tool adapted for lowering into the borehole and having three spaced coils disposed thereon; one coil being a transmitter coil and the remaining two coils being receiver coils;
a power source having a frequency between 20 and 60 megahertz, said power source being coupled to said transmitter coil;
a phase sensitive detector and amplifier network coupled to the said two receiver coils, said phase sensitive detector and amplifier network measuring at both receiver coils the voltage that is in-phase with respect to the power source and the voltage that is out-of-phase with respect to the power source;
computer means disposed to utilize the in-phase and out-of-phase signals to compute the phase shift in the voltages between the receiver coils and the relative attenuation of the voltage amplitudes;
a recording mechanism to record as a function of wireline depth the phase shift and relative attenuation computed by the said circuit means; and,
a nomogram for obtaining the resistivity and relative dielectric constant of the formation from the phase shift and relative attenuation.

4,278,942
SEAL AND PRESSURE BALANCE SYSTEM FOR AN ELECTRODE-TYPE LOGGING SONDE
Jean-Loup Bonnet, Chatenay Malabry, and Claude Fierfort, Palaiseau, both of France, assignors to Schlumberger Technology Corporation, Houston, Tex.
Filed Nov. 24, 1978, Ser. No. 963,629
Int. Cl.[3] G01V *3/18*
U.S. Cl. 324—347 **11 Claims**



1. A logging tool adapted for the investigation of earth formations traversed by a borehole, comprising:
a mandrel adapted to be suspended in a borehole;
a plurality of annular members including a first group of electrically-conductive annular members and a second group of electrically-nonconductive annular members coaxially arranged and axially stacked around said mandrel with the ends of said annular members in abutting contact with one another, and with said electrically-nonconductive annular members respectively serving as insulated spacer members and said electrically-conductive annular members respectively disposed between selected ones of said insulated spacer members to serve as spatially-arranged electrode members;
means, including said annular members and sealing means cooperatively arranged between adjacent ones of said stacked annular members, for collectively defining a fluid-tight space between the interior of said stacked annular members and at least the portion of the exterior of said mandrel thereadjacent;
resilient means supported on said mandrel and cooperatively arranged and coupled to said stacked annular members for imposing a compressive load thereon; and
means supported on said tool in fluid communication with said fluid-tight space and the exterior of said stacked annular members for continuously maintaining a predetermined relationship between the pressure of an electrically-nonconductive fluid contained in said fluid-tight space and the pressure existing at the exterior of said stacked annular members.

4,278,943
INTEGRATION CIRCUIT

Eiji Masuda; Chikara Sato, both of Kawasaki, and Yasoji Suzuki, Ayase, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jun. 29, 1978, Ser. No. 920,343
Claims priority, application Japan, Jun. 29, 1977, 52-76622
Int. Cl.³ H03K 5/00; G06G 7/186
U.S. Cl. 328—127 **16 Claims**

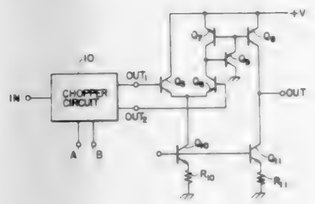


1. An integration method using an integration circuit having operational amplifying means with first and second input terminals and an output terminal and receiving at said first input terminal a reference potential signal, capacitor means connected between said second input terminal and said output terminal of said amplifying means, and resistive means having first and second ends, said resistive means connected at said first end to said second input terminal of said amplifying means and said resistive means selectively connected at said second end to a voltage signal to be integrated, comprising a step of directly and non-resistively applying a signal with substantially the same potential as the potential of said reference potential signal to said second end of said resistive means, and at the same time stopping the application of said voltage signal to be integrated to said second end of the resistive means.

4,278,944
CHOPPER TYPE SWITCHING CIRCUIT

Kohji Ishida, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 54,118
Claims priority, application Japan, Jun. 30, 1978, 53-80011
Int. Cl.³ H03D 1/18
U.S. Cl. 329—103 **8 Claims**

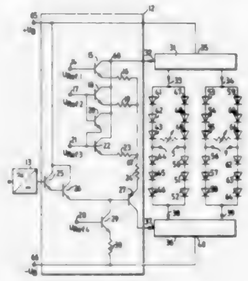


8. A chopper type switching circuit comprising; first and second transmission paths adapted to transmit a predetermined input signal to respective output terminals from a first input terminal; first and second switching elements connected respectively between the mid points of said first and second transmission paths and a reference voltage line; a group of resistors series connected between said output terminals; and third and fourth switching elements connected respectively between the series connection points of said group of resistors and said reference voltage line, said first, second, third and fourth switching elements being controlled to be rendered conductive, whereby said input signal is not transmitted to said output terminals, and hence said switching circuit operates as a muting circuit.

4,278,945
CIRCUIT FOR THE GENERATION OF A CONTROL VARIABLE FOR THE CONTROL OF THE TRANSFER CONSTANT OF ELECTRONICALLY ACTUABLE AMPLIFYING AND ATTENUATING MEMBERS

Ernst Schröder, Hanover, and Jürgen Wermuth, Stederdorf, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,949
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842945
Int. Cl.³ H03G 3/00; H03H 7/24; H03B 1/64
U.S. Cl. 330—278 **5 Claims**



1. A circuit for the generation of a control variable for the control of the transfer constant of electronically controllable amplifying or attenuating members in dependence upon a steady differentiable function, for an arrangement for the automatic dynamics-compression or -expansion comprising a rectifier having an input and an output the input of which is supplied by a signal which is provided for dynamics-compression or -expansion and a transfer element determining the control characteristic, having an input and an output, the input of which is coupled to the output of the rectifier and the output of which is coupled to the electronically controllable amplifying or attenuating members, the transfer element comprises at least two transistors, the bases of which are subjected to different reference voltages, and the emitter-collector current paths of which comprise different series resistances whereby one input terminal of the transfer element is wired to a junction of the current paths which junction is adjacent to the emitters of the transistors, and one output terminal is wired to a junction of the current paths which junction is adjacent to one of the collectors of the transistors.

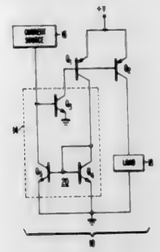
4,278,946
CURRENT SCALING CIRCUITRY

Leonard A. Kaplan, Fords, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 28, 1979, Ser. No. 52,785
Int. Cl.³ H03F 3/04, 1/34
U.S. Cl. 330—288 **5 Claims**

1. In an amplifier having input and output terminals, said amplifier comprising first and second transistors of like conductivity type having respective emitter, base and collector electrodes, wherein said second transistor is connected to conduct an output current at said output terminal, said amplifier further comprising improved feedback means connected between the collector and base electrodes of said first transistor for conditioning said first transistor to conduct a current substantially proportional to a current applied at said input terminal, said feedback means comprising:

a current mirror amplifier having master and slave paths, said master path being connected to conduct current at the collector electrode of said first transistor, said slave path being connected to substantially conduct a current applied at said input terminal, the current in said slave path being substantially proportional to the current in said master path; and



buffer means responsive to the difference between said input current and said current in said slave path of said current mirror amplifier for providing respective base currents of said first and second transistors.

4,278,947
PRECISION FREQUENCY SOURCE USING INTEGRATED CIRCUIT ELEMENTS

Edward H. Nicollian, Murray Hill; Harold Seidel, Warren, and George E. Smith, Murray Hill, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation-in-part of Ser. No. 940,398, Sep. 8, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 76,313
Int. Cl.³ H03L 7/00
U.S. Cl. 331—1 R **1 Claim**

1. An oscillator circuit (FIG. 1) including a controlled local oscillator (30), a converter (40) for developing a signal proportional to the frequency of said controlled local oscillator (30), a reference signal source (10), and a comparator (20) jointly responsive to said converter (40) and to said source (10) for driving said controlled local oscillator (30), characterized in that

said converter (40) is a metered charge-coupled device (FIG. 2)

comprising:

an underlying p-type substrate (50) having first and secnd independent n-positive regions (51,55) embedded therein and a p-type implant (52) located between said first and second regions and lying directly adjacent to said first region (51) only,

a first insulating layer (56) deposited atop said p-type substrate (50) including said embedded first (51) and second (55) regions and said p-type implant (52),

a silicon layer (57) deposited atop said first insulating layer (56) and extending from the inner edge of said first region (51) and above said p-type implant (52) extending toward but not reaching said second region (55),

a second insulating layer (58) surrounding said silicon layer (57), and

a metallized layer (59) extending from above said silicon layer (57) to the inner edge of said second region (52),

conductive electrodes (61, 62, 64, 65) being connected to each of said first (51) and second (55) regions and to each of said silicon (57) and metallized (59) layers whereby under the control of selected sequences of potentials applied to the several electrodes measured packets of electrical charges can be transferred between said first (51) and second (52) regions at a rate proportional to the frequency of the output of said local oscillator.

4,278,948
AUTOPOINTING LASER SYSTEM

Viktor Evtuhov, Pacific Palisades, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 716,307, Aug. 20, 1976, abandoned. This application Aug. 25, 1978, Ser. No. 937,016
Int. Cl.² H01S 3/081
U.S. Cl. 331—94.5 C **6 Claims**

1. An autopointing laser system for use in the tracking and/or detection of a reflective object comprising a first reflective surface forming one end of an optical resonator, a pair of second reflective paraboloidal surfaces juxtaposed to one another and forming a multi-reflective path therebetween, said pair of second reflective surfaces being in optical alignment with said first reflective surface, said first reflective surface and said pair of second reflective surfaces constituting a retro-reflector, a third reflective surface being in optical alignment with said pair of second reflective surfaces, said pair of second reflective surfaces being disposed along respective paraboloidal surfaces having a common axis and a common focus substantially at the center of said third reflective surface and a lasing medium located between said pair of second reflective surfaces whereby when said reflective object is situated in optical alignment with said third reflective surface, said reflective object acts as the other end of said resonator and radiant energy produced within said laser medium is reflected between said first reflective surface, said pair of second reflective surfaces, said third reflective surface and said reflective object thereby allowing a lasing action to take place within said lasing medium as long as said reflective object remains in optical alignment with said third reflective surface.

4,278,949
SEMICONDUCTOR LASER STRUCTURE AND MANUFACTURE

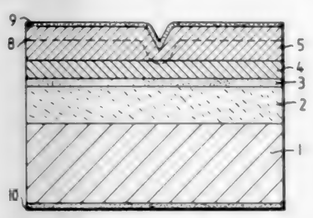
Peter Marschall, Neu-Ulm; Ewald Schlosser, Ulm, and Claus Wölk, Erbach, all of Fed. Rep. of Germany, assignors to LICENTIA Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 41,171

Claims priority, application Fed. Rep. of Germany, May 20, 1978, 2822146

Int. Cl.³ H01S *3/19*

U.S. Cl. 331—94.5 H **15 Claims**



1. In a semiconductor laser composed of a sequence of layers forming a heterostructure diode and including a substantially homogeneously doped layer defining a laser active zone having a laser radiation exit face perpendicular to the layers, two respectively differently doped semiconductor layers disposed at respectively opposite sides of the active zone, and means for constricting the current flowing in the forward direction of the diode to a narrow, strip-shaped region in the laser active zone, the improvement wherein said laser comprises a monocrystalline layer located in the layer sequence to be spaced from said active zone by one of said differently doped semiconductor layers, with the surface of said monocrystalline layer directed away from said active zone being provided with a trough-shaped recess extending essentially perpendicularly to said radiation exit face, and a doped region extending from said surface provided with said recess toward but not into said active zone and formed by diffusion from said surface provided with said recess of a doping material which gives said doped region the same conductivity type as said one of said differently doped layers, said doped region being delimited by a diffusion front substantially parallel, and corresponding in contour, to said surface provided with said recess, and said diffusion front being located for providing a localized semiconductor region of a single conductivity type in the area below said recess and between said recess and said active zone, and semiconductive regions of respectively opposite conductivity types separated by said diffusion front in areas adjacent the localized region.

4,278,950
ELECTRO-DYNAMIC LASER WITH ACOUSTIC ABSORBING ELECTRODE

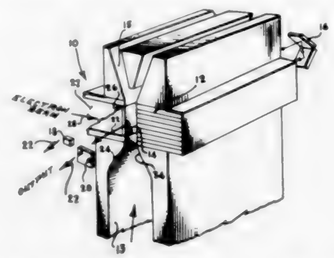
David R. Ahouse, Andover; Jack D. Daugherty, Winchester; Sheldon L. Glickler, Framingham; Paul F. Kellen, Medford; George W. Sutton; David Korff, both of Lexington, and Marvel J. Yoder, Andover, all of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 6, 1979, Ser. No. 46,073

Int. Cl.³ H01S *3/08, 3/22*

U.S. Cl. 331—94.5 G **10 Claims**

1. In a high pressure, high power, continuous wave electrodynamic laser having a resonant cavity with a longitudinal axis and a pair of side walls, a gaseous laser medium flowing through said resonant cavity in a direction substantially transverse to said longitudinal axis of said resonant cavity and between said side walls, a pair of oppositely disposed sustainer electrodes in the form of an anode and a cathode positioned to contact said gaseous laser medium, said anode and cathode having a fundamental anode to cathode frequency, an electron beam entering said resonant cavity through one of said side walls substantially transverse to both said longitudinal axis of said resonant cavity and the direction of said flow of said gaseous laser medium for pumping said gaseous laser medium, and means for extracting energy from said laser, the improvement being in the form of the other of said side walls, said other of said side walls comprising means being coincidental with said gaseous laser medium in said resonant cavity for absorbing



acoustic disturbances which arise from a linear instability which occurs within said resonant cavity, said acoustic disturbance absorbent means having a surface of material porous to said gaseous laser medium and a backing material juxtaposed said surface material capable of broad band acoustic absorption, said backing material having an absorbtion peak centered around said fundamental anode to cathode frequency whereby output flux modulations within said resonant cavity are substantially reduced.

4,278,951
SOLID-STATE MILLIMETER WAVE SOURCE COMPRISING A DIRECTIVE ANTENNA

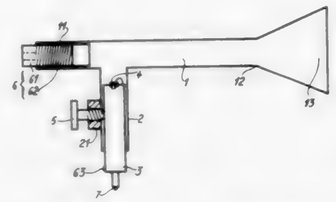
Gérard Cachier, and Jacques Espaignol, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Mar. 28, 1979, Ser. No. 24,503

Claims priority, application France, Mar. 31, 1978, 78 09568

Int. Cl.³ H03B *5/36*

U.S. Cl. 331—96 **4 Claims**



1. A source of millimeter waves comprising a cylindrical waveguide one end of which is provided with a movable piston and the other end is provided with a directive antenna, and, connected to the section between the ends, a cylindrical waveguide branch, a solid-state active component integrated in a module having a metal support and an electrode, the latter being capable of radiating the millimeter waves emitted by the active component, said module being supported by a sub-assembly slidable in said branch, said sub-assembly having a central part supporting said solid state component that is insulated from said waveguide branch, and a voltage supply inserted between said central part and said waveguide branch, the adjustment of the piston and the sub-assembly being usable for acting on the power and the frequency of said source.

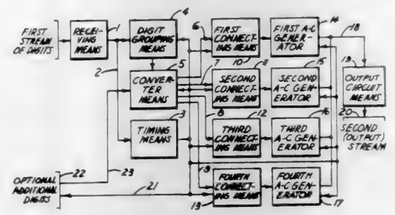
4,278,952
QUANTIZED ANGLE MODULATOR

Charles B. Fisher, 2850 Hill Park Rd., Montreal, Quebec H3H 1T1, and Sidney T. Fisher, 53 Morrison Ave., Mt. Royal, Montreal, Quebec H3R 1K3, both of Canada

Filed Jul. 23, 1980, Ser. No. 171,534

Int. Cl.³ H03C *3/02*

U.S. Cl. 332—1 **4 Claims**



1. A quantized angle modulator for receiving a first stream of digits of substantially the same duration, which converts said first stream of digits to a second stream of alternating-current digits each of substantially the same peak amplitude and each of substantially the same duration which may be different from said duration of the digits of said first stream, said second stream of alternating current digits transmitting the information of said first stream of digits, which comprises:

receiving means for said first stream of digits, and

grouping means connected to said receiving means for grouping said first stream of digits into groups or digital words of substantially equal duration, each said group containing an integral number of said digits of said first stream;

a plurality of alternating-current generators, each of which generates a wave of substantially the same peak amplitude with a single substantially constant frequency, the frequencies of the waves from any two generators being materially different, the number of said generators being at least as great as the greatest possible number of said groups of digits with materially different information content;

digital converter means which receives said groups of digits from said grouping means, and causes one of said generators to be connected through connecting means to a single output circuit for all said generators after the receipt of each of said groups, a different one of said generators being connected for each of said groups with materially different information content according to a predetermined coding plan; and

timing means which produces a wave with predetermined fixed frequency and phase relationship to the timing of said first stream of digits, said wave controlling the timing of said grouping means and said converter means and the frequencies and phases of said alternating-current generators.

4,278,953
NEAR MILLIMETER WAVELENGTH MODULATOR AND TUNABLE OSCILLATOR

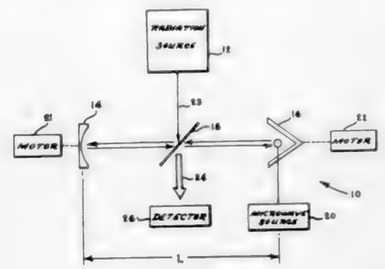
Raymond Y. Chiao, Berkeley, Calif.; Harold R. Fetterman, Lexington, Mass., and Howard R. Schlossberg, Annandale, Va., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 23, 1979, Ser. No. 23,371

Int. Cl.³ H01S *3/10*

U.S. Cl. 332—7.51 **10 Claims**

1. A near millimeter wavelength modulator which is operable with an incoming beam of monochromatic radiation of preselected near millimeter wavelength comprising means for reflecting said beam of radiation, means in optical alignment with said reflecting means for variably reflecting said beam of radiation, said reflecting means and said variable reflecting means being spaced a preselected distance apart, said distance between said reflecting means and said variable reflecting means being such that a resonant condition is achieved with respect to said incoming beam of radiation, means operably connected to said variable reflecting means for varying the reflectivity thereof in order to generate a beam of radiation at a wavelength at which a non-resonant condition is achieved



between said reflecting means and said variable reflecting means and means in optical alignment with said reflecting means and said variable reflecting means for receiving said incoming beam of preselected monochromatic radiation, directing said incoming beam of radiation between said reflecting means and said variable reflecting means and for directing said generated beam of radiation at said wavelength at which said non-resonant condition is achieved out of said modulator.

4,278,954
SUPPRESSED CARRIER MODULATOR USING DIFFERENTIAL AMPLIFIER

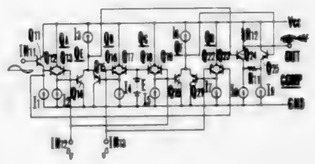
Hitoshi Fujisaki, Kodaira, Japan, assignor to Hitachi Denshi Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,609

Claims priority, application Japan, Sep. 22, 1978, 53-116014

Int. Cl.³ H03C *1/42, 1/54*

U.S. Cl. 332—9 T **3 Claims**



1. A modulation system comprising;

first, second, third and fourth transistor pairs, each emitter coupled;

fifth and sixth transistor pairs, each emitter coupled;

a differential amplifier;

means for connected base electrodes of the transistors of said fifth transistor pair to respective emitter electrodes of said first and second transistor pairs;

means for connecting base electrodes of the transistors of the sixth transistor pair to respective emitter electrodes of said third and fourth transistor pairs;

means for connecting emitter electrodes of said fifth and sixth transistor pairs to a pair of input terminals of said differential amplifier, respectively;

means for applying a clamped modulation signal to a base electrode of a first transistor of said first transistor pair and to a base electrode of a second transistor of said fourth transistor pair;

means for applying a signal to be modulated to the base electrodes of respective second transistors of said first and third transistor pairs;

means for applying direct current voltage to a base electrode of the second transistor of said second transistor pair and to a base electrode of the first transistor of said third transistor pair; and

means for applying a signal to be modulated to respective base electrodes of first transistors of said second and fourth transistor pairs, the last mentioned signal to be modulated having a phase opposite to that of said first mentioned signal to be modulated supplied to the respective base electrodes of the second transistors of said first and third transistor pairs, thereby producing a modulated output signal on an output terminal of said differential amplifier.

4,278,955

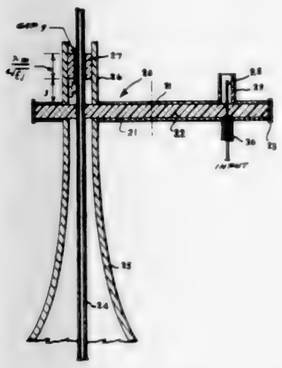
COUPLER FOR FEEDING EXTENSIBLE TRANSMISSION LINE

Clarence D. Lunden, FederalWay, Wash., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 22, 1980, Ser. No. 123,612

Int. Cl.³ H01P *5/08*

U.S. Cl. 333—33 **8 Claims**



1. A coupler for coupling a fixed r.f. signal source to a sliding transmission line comprising:

a planar elliptical cavity of electrically conductive material,

input means inputting an r.f. signal at a point connecting with one focus of said elliptical cavity,

an r.f. transmission line slidably extending through an aperture coinciding with the other focus of said elliptical cavity, the distance between ellipse foci being one half wavelength less than the length of the ellipse's major axis.

4,278,956

HF-ATTENUATOR

Georg Spinner, Feldkirchen-Westerham, and Leo Treczka, Munich, both of Fed. Rep. of Germany, assignors to Spinner GmbH Elektrotechnische Fabrik, Fed. Rep. of Germany

Filed Jun. 8, 1979, Ser. No. 46,634

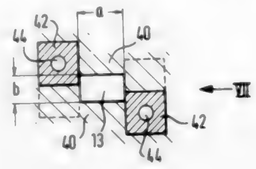
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2826081

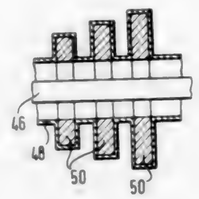
Int. Cl.³ H01P *1/22*

U.S. Cl. 333—81 A **32 Claims**

1. An HF attenuating member for a hollow waveguide, wherein the waveguide includes an elongate body having a longitudinal opening therethrough defined by an inner wall of the body;

resistance material disposed over the length of the body and at the inner wall, the resistance material being in the form of at least one body of constant cross-sectional dimensions, and the resistance material being shaped for increasing the proportion of the inner wall having absorbent





properties in the direction of wave propagation and being shaped such that the energy absorption of the resistance material per unit of body length is substantially constant.

4,278,957

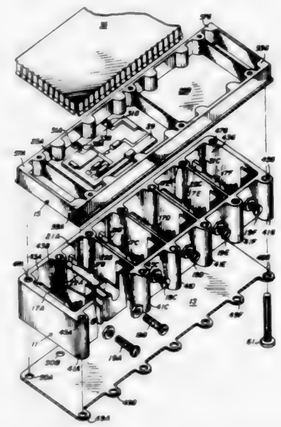
UHF FILTER ASSEMBLY

Terrence M. Starai, Bensenville; John H. Champlin, Jr., Hoffman Estates, and Randall J. Johnson, Bloomingdale, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 16, 1979, Ser. No. 58,059

Int. Cl.³ H01P *1/201, 7/00*

U.S. Cl. 333—202 **7 Claims**



1. A filter assembly for UHF or microwave frequency range comprising:

a bottom cover plate,

a top cover plate, and

a unitary cast multicell frame disposed between the bottom and the top cover plate, having a resonating rod in each of the cells that has been cast as an integral part of the unitary cast multicell frame, and wherein selected ones of the resonating rods have taps which have been cast as parts of the unitary cast multicell frame.

4,278,958

ELECTROMAGNETICALLY OPERATED MULTI-POLE CIRCUIT BREAKER

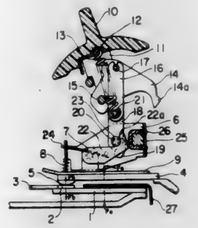
Kiyoshi Kandatsu, Kawasaki, Japan, assignor to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jul. 5, 1979, Ser. No. 54,744

Claims priority, application Japan, Jul. 5, 1978, 53/81599

Int. Cl.³ H01H *75/00, 77/00, 83/00*

U.S. Cl. 335—16 **6 Claims**



1. In a circuit breaker having stationary contactors provided respectively for all of the poles thereof; movable contactors provided respectively for all of the poles in correspondence to said stationary contactors; stationary contacts provided respectively on the end portions of said stationary contactors; and movable contacts provided respectively on the end portions of said movable contactors, said movable contactors being movable from said stationary contactors by electromagnetic force to open respective circuits before said circuit breaker is opened by an overcurrent tripping device when a large current such as short-circuit current flows, the improvement comprising holders adapted to hold said movable contactors of all of the poles mounted on a common rotatable insulating rod (**25**), one of said holders (**6**) holding one of said poles having latch means (**22**) rotatable around a first rod 7 provided on said holder; a second rod (**20**) normally engaged by said latch means, and guide slots (**19**) in said one holder for guiding said second rod, wherein said second rod is movable in said guide slots when disengaged by said latch means, and an engaging spring (**24**) operating to engage said latch means with said second rod until a rotational moment acting on said latch due to a repulsive electromagnetic force generated in any one of the poles or the sum of repulsive electromagnetic forces generated in all of the poles reaches a predetermined value, whereupon said one holder rotates with said guide slots moving relative to said second rod, and said movable contactors of all of the poles are simultaneously separated from said stationary contactors to open the respective circuits with the aid of said insulating rod and said holders.

4,278,959

CURRENT-STROKE PROPORTIONAL TYPE SOLENOID VALVE

Torazo Nishimiya, Mito, and Masamitsu Okumura, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

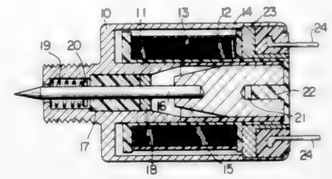
Filed Sep. 4, 1979, Ser. No. 72,462

Claims priority, application Japan, Sep. 4, 1978, 53-107606

Int. Cl.³ H01F *7/08*

U.S. Cl. 335—262 **7 Claims**

1. A current-stroke proportional type solenoid valve having a movable plunger disposed around the inner peripheral wall of a bobbin with a coil therearound, a stator core disposed face to face with the movable plunger and forming the magnetic circuit, a bias spring for always biasing the movable plunger in one direction , and the stroke of the movable plunger being determined by magnitude of the current flowing through the coil, wherein said output rod is axially supported by a first lubricant resin bearing and said movable plunger is axially supported by a second lubricant resin bearing, wherein said



second resin bearing is a guide projection made of lubricant resin secured to the bobbin, being slidably inserted into a guide hole formed in the portion of said movable plunger not having the output rod fixed thereto.

4,278,960

TEMPERATURE CONTROLLED BIMETAL SWITCH

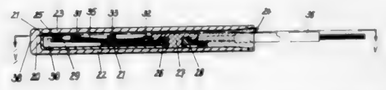
Manfred K. Müller, Pforzheim, Fed. Rep. of Germany, and Tomoyoshi Uchiya, Misato, Japan, assignors to Limitor AG, Zurich, Switzerland and Uchiya Thermostat Co., Saitama, Japan

Filed Jul. 11, 1979, Ser. No. 56,508

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831198

Int. Cl.³ H01H *37/54*

U.S. Cl. 337—365 **9 Claims**



1. A temperature-controlled bimetal switch comprising an electrically insulated housing, a contact spring located within said housing, a curved bimetal snap plate in displacing contact with said contact spring, said housing being a flat structure having an upper wall and a lower wall closely spaced apart, said housing being formed of one of a transparent or translucent rigid plastics material permeable to radiant heat, said contact spring located between said upper and lower walls and being elongated and having a first end and a second end, said contact spring being secured within said housing at the first end thereof between said upper and lower walls, a fixed contact secured to said housing, said contact spring having a movable contact secured thereon adjacent the second end thereof for movement into and out of contact with said fixed contact, said bimetal snap plate being located between said spring and said upper wall so that radiant heat from the exterior of said housing passes through said upper wall and impinges directly on said bimetal snap plate, and holding means for loosely securing said snap plate to said contact spring so that said snap plate is held loosely on said contact spring while a major portion of the coextensive areas of said plate and spring are maintained out of contact.

4,278,961

INSULATING COATING FOR SURGE ARRESTER VALVE ELEMENT

James E. Schroeder, Greenfield, and John F. Rasmussen, Franklin, both of Wis., assignors to McGraw-Edison Company, Rolling Meadows, Ill.

Continuation of Ser. No. 786,223, Apr. 11, 1977, abandoned.

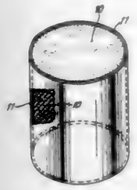
This application Apr. 21, 1978, Ser. No. 898,621

Int. Cl.³ H01C *7/10*

U.S. Cl. 338—21 **3 Claims**

1. A valve element of a surge arrestor for an alternating

current power circuit, said valve element including non-linear resistive particles tightly held together in intimate contact within a ceramic matrix, said valve element having opposite end surfaces defining an axis therebetween, an outer axially-extending surface intermediate the opposite ones of said end



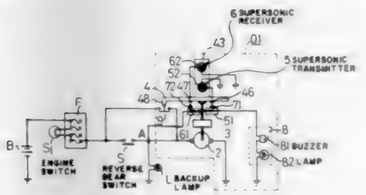
surfaces, said valve element being characterized by an electrically insulating coating intimately adhered to the outer axially extending surface of said valve element, said coating comprising a thermoset, anhydride cured, Bisphenol-A epoxy resin material.

4,278,962

AUTOMATIC ALARM SYSTEM FOR DETECTING OBSTACLES BEHIND A BACKING VEHICLE

Pin-Houn Lin, Taipei, Taiwan, assignor to Reino International Corporation, Taipei, Taiwan

Filed Nov. 14, 1978, Ser. No. 960,641
Int. Cl.³ G08G *1/00, 1/16*
U.S. Cl. 340—34 **8 Claims**



1. An automatic alarm system for detecting vehicles behind a backing vehicle, comprising:

a casing having a generally cylindrical form with an opening therein, said casing being mountable on the rear end of the vehicle such that said opening faces rearwardly,

a revolving disc mounted within said casing,

a motor mounted within said casing,

a reduction gear assembly interconnecting said motor and said disc whereby said motor rotates said disc,

a printed circuit plate fixed within said casing under said revolving disc,

a supersonic transmitting member installed on said revolving disc,

a supersonic receiving member installed on said revolving disc,

said transmitting and receiving members being simultaneously alignable with said opening, and being electrically connected to a printed circuit on said printed circuit plate at least when said transmitting and receiving members are aligned with said opening, so that said transmitting member emits a signal which is deflected off adjacent obstacles and detected by said receiving member, and

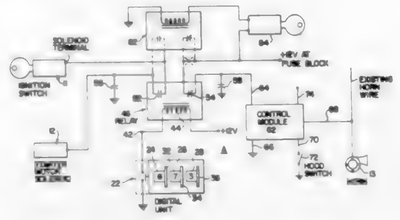
an alarm means connected in series with said circuit on said printed circuit plate so that deflected signals detected by said receiving member actuate said alarm means to alert a driver of the vehicle.

4,278,963

AUTOMOTIVE ANTI-THEFT SYSTEM

Luther Allen, 15806 Biltmore Ave., Cleveland, Ohio 44128

Filed Dec. 4, 1978, Ser. No. 965,845
Int. Cl.³ B60R *25/04, 25/10*
U.S. Cl. 340—64 **1 Claim**



1. An automotive anti-theft system comprised of: a combination unit inside the passenger compartment comprised of a series of digital switches having a digital display and thumb wheels for manually changing said digital display having a large number of possible settings, only one of which will cause an associated electrical switch to close; a relay unit having a coil, normally open contacts and normally closed contacts, said relay unit connected to said combination unit such that said relay coil is energized when said combination unit switch is closed, said normally open contact being inserted in the lead between an automotive starter motor solenoid and the solenoid terminal on an automotive ignition switch; a control module having an electrical sensing lead connected through said normally closed contacts of said relay to a positive voltage point at an automotive fuse block and an output line which will supply power to an associated alarm device after a selected delay when said sensing line detects a drop in the positive supply voltage at said fuse block; a second concealed relay unit having a coil, normally open contacts and normally closed contacts; and a concealed key switch supplying power to said second relay coil in one position and interrupting power to said second relay coil in a second position; said second relay normally opened contacts connected in parallel to said first relay unit normally open contacts such that said second relay normally open contacts will complete the connection between said automotive starter motor solenoid and said solenoid terminal on said automotive ignition switch; said second relay unit nromally closed contacts electrically connected in series with said first relay unit normally closed contacts such that said control module electrical sensing lead will be isolated from said positive voltage point at said automotive fuse block when said second relay unit normally closed contacts are opened.

4,278,964

SEISMIC PLAYBACK SYSTEM

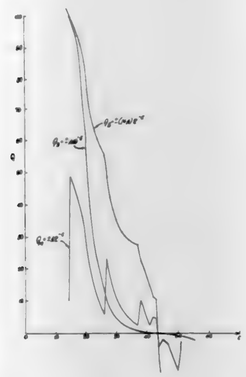
James R. Vanderford, Darien, Conn., assignor to Texaco Inc., White Plains, N.Y.

Continuation of Ser. No. 153,077, Jun. 14, 1971, abandoned.
This application May 29, 1974, Ser. No. 474,280
Int. Cl.² H03K *13/02*
U.S. Cl. 340—347 DA **4 Claims**

1. A system for providing an analog output signal representative of an input signal, where said input signal is represented in digital word form, said word being represented in digital signal form by the general algebraic form $Q_I = \pm AG^{-E}$ wherein Q_I corresponds to the amplitude of the analog output signal, A corresponds to the mantissa, G represents the exponent, and wherein said word is represented by at least one digit representing A, comprising means for providing a signal corresponding to at least one digit representing A, means connected to the A signal means for providing said output signal, and means connected to the A signal means and to the output signal means and receiving the digital signals corresponding to E for

affecting the output signal when E changes value so as to minimize distortion in the output signal resulting from a change in the input signal, said distortion minimizing means controls the output signal means to provide the analog output signal in accordance with the following equations:

$$Q_6 = \pm(1+A)2^{-E4}$$



when the exponent E has a value of 4 or less, where Q_6 corresponds to the amplitude of the analog output signal and E_4 corresponds to the Exponent E, and

$$Q_7 = \pm A2^{-E5}$$

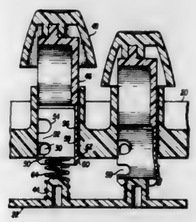
when the exponent E has a value of 5, where Q_7 corresponds to the amplitude of the analog output signal and E_5 corresponds to the exponent E.

4,278,965

PHOTO-OPTICAL KEYBOARD HAVING N-KEY ROLLOVER

Edward I. Nelson, Sunrise; Harry B. Mueller, Hollywood Hills, and John E. Lane, Pompano, all of Fla., assignors to Burroughs Corporation, Detroit, Mich.

Filed Sep. 14, 1979, Ser. No. 75,396
Int. Cl.³ G06F *3/02*
U.S. Cl. 340—365 P **16 Claims**



1. A photo-optical keyboard with N-key rollover comprising:

a keyboard housing having a matrix of rows and columns of apertures for keys, a light channel for each row passing between the apertures of each row; and a light channel for each column passing between the apertures of each column; and

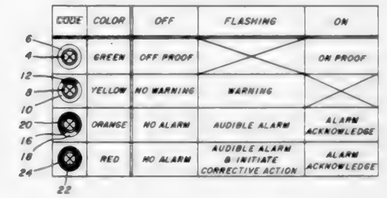
multiple keys each shaped to said apertures, each said key having first passages for allowing light to pass through said column and row light channels in the undepressed position, one or more projections causing an interruption of light in said row and light channels in the partially depressed position, second passages for allowing light to pass through said column and row light channels in the substantially depressed position.

4,278,966

VISUAL SIGNALING SYSTEM

Frank J. Hemsher, Venetia, Pa., assignor to Control Technology, Inc., McMurray, Pa.

Filed Feb. 9, 1979, Ser. No. 10,701
Int. Cl.³ G08B *5/36*
U.S. Cl. 340—366 R **9 Claims**



1. A visual signaling system comprising at least two light sources,

graphic indicator means operatively associated with said light sources for identifying said light sources, said indicator means including bands surrounding said light sources,

said indicator means being substantially continuously and simultaneously visible, and

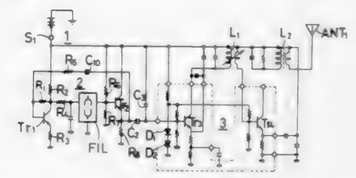
said indicator means having code means for identifying the particular light source with which it is associated, said code means including shading of said bands to an extent corresponding to the specific light source with which it is associated, whereby said indicator means will permit one to distinguish one of said light sources from another of said light sources.

4,278,967

WIRELESS DETECTION AND WARNING SYSTEM

Fumitaka Tanahashi, 29-23, Kounan 3-chome, Kounan-ku, Yokohama-shi, Kanagawa-ken, Japan

Filed Oct. 9, 1979, Ser. No. 82,584
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—539 **1 Claim**



1. A wireless warning and detection system comprising at least one sensor type transmitting unit, a receiving unit, and at least one portable transmitting unit;

said at least one sensor type transmitting unit comprising:

a sensor element for producing a sensing signal in response to the detection of an operation to be detected by said sensor;

a low frequency oscillation means operatively connected to said sensor element for producing a low frequency signal in response in said sensing signal;

a modulation means operatively connected to said low frequency oscillation means for multiplying and modulating said low frequency signal to produce a high frequency signal;

a high frequency transmitting means operatively con-

nected to said modulation means for transmitting said high frequency signal through a transmitting antenna;

said at least one portable transmitting unit comprising:

a switch means for producing a control signal;

an additional low frequency oscillation means operatively connected to said switching means for producing an additional low frequency signal in response to said control signal;

an additional modulation means operatively connected to said additional low frequency oscillation means for multiplying and modulating said additional low frequency signal into an additional high frequency signal;

an additional high frequency transmitting means operatively connected to said additional modulation means for transmitting said additional high frequency signal through an additional transmitting antenna, wherein the frequency of said low frequency signal is different than the frequency of said additional low frequency signal;

said receiving means comprising:

a frequency modulation means for receiving said high frequency signal and said additional high frequency signal through a receiving antenna and for amplifying said signals selectively to intermediate and additional intermediate frequency signals;

an intermediate frequency amplifying means operatively connected to said frequency modulation means for amplifying said intermediate and said additional intermediate frequency signals;

a detection means operatively connected to said intermediate frequency amplifying means for providing a signal having the same frequency as that of said low frequency signal and for providing a signal having the same frequency as that of said additional low frequency signal;

a low frequency amplifying means operatively connected to said detection means for amplifying said signal and said additional signal from said detection means;

first and second selection circuit means operatively connected to said low frequency amplifying means, said first selection means providing a warning in response to the detection of said signal having the same frequency as that of said low frequency oscillation means and said second selection means providing an inhibit signal upon the detection of a signal having the same frequency as that of said additional low frequency oscillation means;

wherein said second selection means is operatively connected to said first selection means and wherein said inhibit signal of said second selection means inhibits the operation of said first selection means whereby the operation of the switch means on said at least one portable transmitting unit disables at least a portion of said receiving unit to prevent the operation of said warning means.

4,278,968

DOOR STATUS DETECTOR APPARATUS

Coleman C. Arnett, P.O. Box 1472, Lewisville, Tex. 75067; James W. Godfrey, 4613 NW. 61st, Oklahoma City, Okla. 73122, and Mark R. Miller, P.O. Box 1375, Lewisville, Tex. 75067

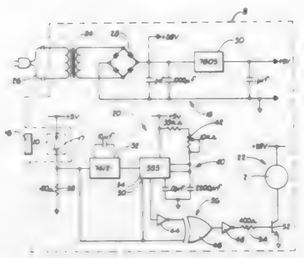
Filed Nov. 13, 1979, Ser. No. 93,731
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—545 **14 Claims**

1. A door status detector apparatus comprising:

a proximity switch responsive to the opening and closing of a door;

a timer having a trigger input electrically associated with said proximity switch for triggering, at the output of said timer, a pulse having a predetermined duration when said proximity switch responds to the opening of the door,

means responsive to said proximity switch and said timer for determining the concurrent condition of the expiration of the predetermined pulse duration and the continued open position of the door; and



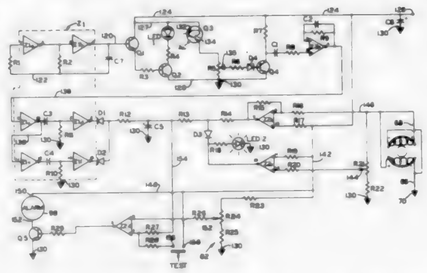
means responsive to said condition determining means for generating a signal when the concurrent condition is determined to exist.

4,278,969

DRIVER WARNING SYSTEM

Richard E. Woods, Markle, Ind., assignor to Reli Corporation, Markle, Ind.

Continuation-in-part of Ser. No. 828,529, Aug. 29, 1977, abandoned. This application May 16, 1979, Ser. No. 39,274
Int. Cl.³ G08B *19/00*
U.S. Cl. 340—576 **15 Claims**



1. A vehicle having a steering sensing apparatus comprising:

steering sensor means for sensing a predetermined steering movement and emitting a first signal upon such movement;

vehicle speed sensing means for sensing vehicle speed and emitting a second signal proportional to vehicle speed;

alarm means electrically coupled to said steering sensor means and said vehicle speed sensing means and responsive to said first and second signals for generating an alarm signal upon the absence of said first signal for a predetermined time period, said predetermined time period being changed in time duration in response to said second signal whereby the alarm signal is generated in accordance with steering movement and in accordance with said second signal which is continuously changed by instantaneous vehicle speed; and

means for manually varying said predetermined time period.

through said actuator means upon closure of said switch means,

the improvement comprising:

second storage means connected with said power source through a second resistor for storing electric energy in a second predetermined time constant, the first-named time constant being normally larger than the second time constant;

a comparator for comparing a first signal indicative of the stored electric energy of said first storage condenser with a second signal indicative of the stored electric energy of said second storage means to generate an output signal therefrom when the first-named time constant becomes smaller than the second time constant; and

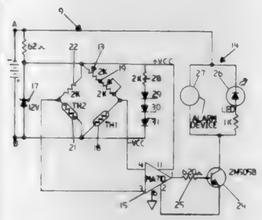
means for informing of shortage of the stored electric energy of said first storage condenser when received the output signal from said comparator.

4,278,970

ALARM CIRCUIT FOR DETECTING OVERHEATED CONDITION

Michael Streczyn, 1218 Junipero, Redwood City, Calif. 94061, and Joseph B. Loughlin, 20701 Beach Blvd., Space 231, Huntington Beach, Calif. 92648

Filed May 2, 1979, Ser. No. 35,321
Int. Cl.³ G08B *17/06, 21/00*
U.S. Cl. 340—599 **11 Claims**



1. A detecting circuit for an overheated condition, comprising:

(a.) a d.c. powered bridge circuit having a detector thermistor in a bridge arm, the bridge being fed by the d.c. source;

(b.) thermistor response detector in an adjacent bridge arm, the detector being set for a response to thermistor changes in about the 300° K.–400° K. range;

(c.) a two state comparator amplifier for activation by the thermistor response detector:

(d.) an on-off switch activated by the amplifier; and,

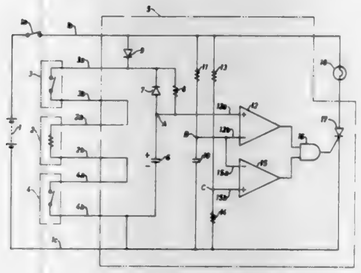
(e.) output signal means for the circuit connected to the on-off switch, whereby a bridge unbalance due to thermistor changes caused by an overload will activate the thermistor response detector, thereby activating the on-off switch and then turn on the output signal means.

4,278,971

ELECTRIC CONTROL CIRCUIT FOR SAFETY APPARATUS IN AUTOMOTIVE VEHICLES

Toshio Yasui, Obu, and Motoharu Naito, Okazaki, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Sep. 1, 1978, Ser. No. 938,876
Claims priority, application Japan, Sep. 6, 1977, 52-106906
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—635 **5 Claims**



1. In an electric control circuit for a safety apparatus adapted to be actuated by electrically operated actuator means, said control circuit including an electric power source, a storage condenser connected with said power source through a resistor to store electric energy in a predetermined time constant, and normally open switch means interposed between said condenser and said actuator means to discharge said condenser

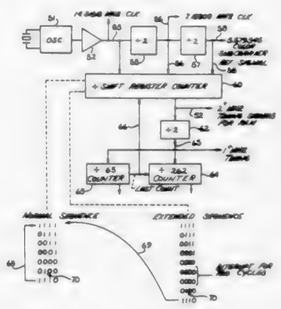
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4,278,972

DIGITALLY-CONTROLLED COLOR SIGNAL GENERATION MEANS FOR USE WITH DISPLAY

Stephen G. Wozniak, Cupertino, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.

Continuation of Ser. No. 910,125, May 26, 1978, abandoned, which is a division of Ser. No. 786,197, Apr. 11, 1977, Pat. No. 4,136,359. This application Jan. 8, 1980, Ser. No. 110,409
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—703 **11 Claims**



1. A digitally controlled color signal generation means for use with a color video display adapted to receive color signals having a color subcarrier reference signal of frequency N, said color signal generation means comprising:

means for generating at least one digital word which corresponds to a predetermined color, said digital word comprising a plurality of bits;

storing means for storing said digital word;

sampling means coupled to said storing means for sequentially sampling each of said bits of said digital word at a predetermined sampling rate, said sampling rate being selected such that a color signal is developed at an output of said sampling means which corresponds to said predetermined color and which has a frequency component at said frequency N,

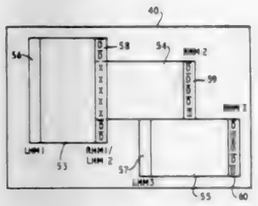
whereby a color signal suitable for use with the video display is generated.

4,278,973

VIDEO DISPLAY TERMINAL WITH PARTITIONED SCREEN

Michael A. Hughes, Stockbridge; Jeremy S. M. Johnson, Rownhams, both of England, and Graham C. E. Winn, Woodstock, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,732
Claims priority, application United Kingdom, Oct. 2, 1978, 39001/78
Int. Cl.³ G06F *3/153*
U.S. Cl. 340—721 **12 Claims**



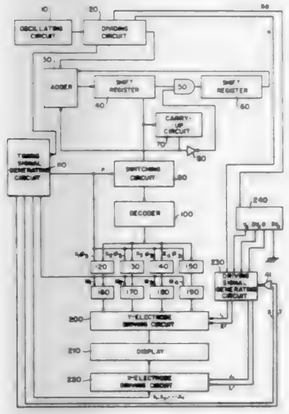
1. A video display terminal comprising:
a video display device for displaying characters;
a character buffer for storing therein character code bytes representing characters to be displayed;
display control logic means for causing characters corresponding to character code bytes stored in said character buffer to be displayed on said video display device; and
processing means for loading character code bytes representing characters to be displayed on said video display device into said character buffer in positions corresponding to the desired positions of the characters on the display device; and for defining two or more partitions on said video display device and for assigning margin attribute bytes to one margin of each partition.

4,278,974

DRIVING SYSTEM OF DISPLAY

Kenichi Kondo, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Mar. 27, 1979, Ser. No. 24,442
Claims priority, application Japan, Apr. 6, 1978, 53-40523
Int. Cl.³ G06F *3/147*
U.S. Cl. 340—784 **7 Claims**



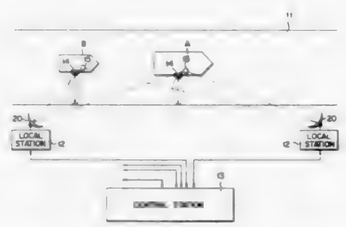
1. An apparatus comprising: a matrix display device with X electrodes and Y electrodes arranged in point-like displays at selected crossing points of the X and Y electrodes; and a display device driving system comprising timing signal generating means for controlling the X electrode scanning signals, display signal converter means receptive of a portion of the display information addressed by said timing signal generating means for converting the display information into a portion of the signals for display, a driving circuit for the Y electrodes, memory means for storing the portion of the signals for display for applying to the driving circuit for the Y electrodes, and means controlled by said timing signal generating means for inhibiting the drive to the Y electrodes while information to be stored is being stored in the memory means.

4,278,975

NAVIGATION-MONITORING APPARATUS

Yoshinori Kimura, Yokohama; Masuki Sunayama, and Yoshiki Okamoto, both of Machida, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 18, 1979, Ser. No. 4,533
Claims priority, application Japan, Jan. 27, 1978, 53-8104
Int. Cl.³ G01S *13/87*
U.S. Cl. 343—6 R **5 Claims**



1. A navigation-monitoring system for detecting the position of ships relative to a nearest bank and a ground station which comprises:
a transmitting and receiving device installed in a ground station to transmit an interrogation signal including a specified address code for each ship;
a transmitting and receiving device carried on each ship to receive said interrogation signal and issue a reply signal; said ship transmitting and receiving device including means for detecting said specified address code, and a ship-to-bank distance measuring device for measuring ship-to-bank distance, after detecting said specified address code, and providing data indicative thereof; said ship-to-bank distance data being added to said reply signal in response to said interrogation signal;
means installed in said ground station for calculating a ground station-to-ship distance from a time interval between the time at which said interrogation signal is issued and the time at which said reply signal from the ship is received; and
means installed in said ground station for obtaining said ship-to-bank distance data from said reply signal.

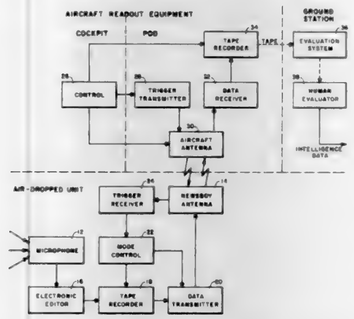
4,278,976

REMOTE SENSING DEVICE

Frederick C. Alpers, Riverside, Calif., and Klaus J. Hecker, Oberursel, Fed. Rep. of Germany, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 7, 1967, Ser. No. 690,708
Int. Cl.³ G01S *13/74*
U.S. Cl. 343—6.5 R **3 Claims**

1. In a system for battlefield and enemy support area surveillance, the combination comprising:
(a) sound recording and radio transmitting means adapted to be air dropped behind enemy lines in a battlefield area including:
(1) a microphone for converting sound waves into electronic signals,
(2) electronic editor means coupled to said microphone for compressing said electronic signals into a bandwidth suitable for recording and playback transmission,
(3) tape recorder means coupled to said electronic editor for recording and playing back the compressed signals from said electronic editor means,
(4) mode control means,
(5) transmitter means coupled to said tape recorder and to said mode control means for transmitting signals received from said tape recorder when operating in the playback mode,



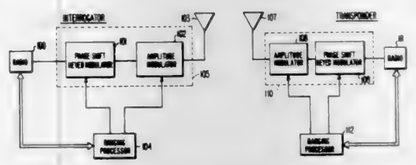
(b) radio signal receiving and recording means adapted to be located in an interrogating aircraft for receiving and recording signals received from said sound recording and radio transmitting means,
(c) a radio link coupling said sound recording and radio transmitting means to said radio signal receiving and recording means,
(d) a sound reconstruction system for receiving the recorded radio frequency signals for generating output audio signals which are a close approximation of the originally recorded audio signals.

4,278,977

RANGE DETERMINING SYSTEM

Edward J. Nossen, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 4, 1979, Ser. No. 36,012
Int. Cl.³ G01S *13/78*
U.S. Cl. 343—6.5 LC **9 Claims**



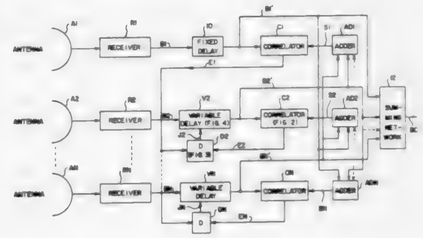
1. A range finding system comprising:
interrogation means for generating and transmitting an interrogation signal having at least one portion comprising a first carrier signal modulated by a signal which is a concurrent function of a first two-level tone of frequency f_T and a first iterative two-level pseudo random sequence whose level transitions are coincident with level transitions of said first two-level tone;
responding means for receiving said interrogation signal and for generating a first tracking signal which identifies the propagation delayed phases of said first tone and said first pseudo random sequence;
said responding means further comprising means for generating a responsive signal comprising a second carrier signal modulated by signal which is a concurrent function of a second two-level tone of frequency f_T and a second iterative psuedo random sequence whose phases are the same as the propagation delayed phases of said first tone and said first pseudo random sequence;
said interrogation means further comprising:
logic means for receiving said responsive signal, for generating a second tracking signal which identifies the propagation delayed phases of said second two-level tone and said second pseudo random sequence,
and for determining the phase difference between said interrogation signal before transmission thereof and said second tracking signal; and
means for computing the distance between said interrogation means and said responding means from said phase difference.

4,278,978

BASEBAND SIGNAL COMBINER FOR LARGE APERTURE ANTENNA ARRAY

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Mahlon E. Easterling, Altadena, and Robin A. Winkelstein, La Crescenta, both of Calif.

Filed Sep. 18, 1979, Ser. No. 76,643
Int. Cl.³ H04B *7/00*
U.S. Cl. 343—100 CL **17 Claims**



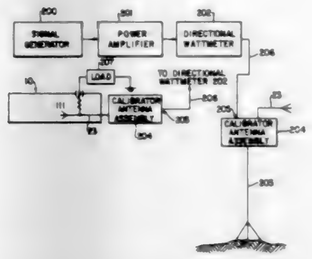
1. A baseband signal combiner for an antenna array comprising a plurality of antennas each having an associated receiver, each of said receivers providing a baseband output signal to be combined with other receiver baseband output signals, comprising:
means for phase comparing a first baseband signal and a first sum signal comprising all the other baseband signals, thereby generating a first correlation signal related to the phase difference between said first baseband signal and said first sum signal;
means for phase comparing each of the other baseband signals and a signal that is the sum of all the baseband signals except the baseband signal being compared, each phase comparison generating a correlation signal related to the phase difference between the baseband signal and the sum signal being compared;
means for subtracting the phase difference represented by said first correlation signal from each of said other correlation signals, thereby generating a variable delay signal corresponding to each of the other baseband signals; and
means for adjusting the phase of each of said other baseband signals in accordance with its associated variable delay signal, thereby resulting in all of said baseband signals being in phase with each other.

4,278,979

METHOD AND APPARATUS FOR TESTING SURVIVAL RADIOS

William M. Pelino, Hollywood, Fla., assignor to ACR Electronics, Inc., Hollywood, Fla.

Filed Oct. 1, 1979, Ser. No. 80,498
Int. Cl.³ G01R *1/00*
U.S. Cl. 343—703 **15 Claims**



8. A method for calibrating a test apparatus for testing the operation of each one of a plurality of radio types by use of a calibrator antenna comprising an empty case of the radio type for which the calibration is to be performed secured to a corresponding antenna said antenna being adapted to radiate power into free space, said method comprising the steps of:

applying a predetermined magnitude of forward power to the calibrator antenna at a frequency corresponding to an operating frequency of the radio type for which the calibration is being performed;

radiating power into free space;

measuring the magnitude of reverse power reflected back from said calibrator antenna;

positioning said calibrator antenna in test apparatus adapted to absorb power from said antenna;

applying said predetermined magnitude of forward power to said calibrator antenna at said corresponding frequency;

comparing the magnitude of reverse power reflected back from the calibrator antenna with the magnitude of reverse power obtained in said measuring step;

positioning a resistive impedance at a position along said antenna where the relation between forward and reverse power is the same as was measured during free space radiation; and

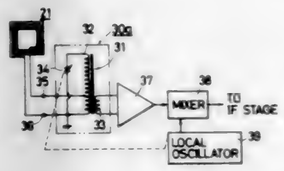
indicating said position of said resistive impedance to determine a calibration point for said radio type.

4,278,980

ANTENNA INPUT CIRCUIT FOR RADIO RECEIVER

Minoru Ogita, and Masahiro Takeyama, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Mar. 28, 1979, Ser. No. 24,854
Claims priority, application Japan, Mar. 30, 1978, 53-37164
Int. Cl.³ H01Q *7/00*
U.S. Cl. 343—748 **13 Claims**



1. An antenna input circuit for a radio receiver, comprising:

a first input transformer including a primary winding and a secondary winding, said primary winding having a grounded first end lead, a second end lead, and a tap lead;

a first capacitor connected across said first and second end leads to form a tuning circuit jointly with said primary winding;

a first antenna terminal connected to said tap lead of said primary winding;

a grounded second antenna terminal, said first and second antenna terminals being adapted to be connected with respective output leads of a low-impedance loop antenna having an inductance of 1 microhenry up to 100 microhenries for reception of medium-frequency-band radio waves;

a third and a fourth antenna terminal adapted to be connected to respective wires of a twin-lead type feeder extending from an antenna for receiving very-high-frequency-band radio waves;

a second input transformer including a primary winding and a secondary winding for very-high-frequency-band radio signal reception, said primary winding having a grounded center tap lead, a first end lead connected to said third antenna terminal and a second end lead connected to said fourth antenna terminal through a second capacitor which substantially prevents the passage therethrough of medium-frequency-band signals but passes very-high-frequency-band signals therethrough;

an inductor between said fouth antenna terminal and ground, and having substantially the same inductance as that of said low-impedance loop antenna; and

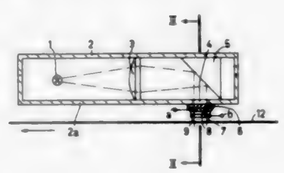
short-circuiting means for short-circuiting said first and fourth antenna terminals when reception of medium-frequency-band radio waves is intended without the connection of said low-impedance loop antenna but with the connection of said very-high-frequency-band radio wave receiving antenna.

4,278,981

OPTICAL PRINTER

Bernhard Hill, Hamburg; Klaus P. Schmidt, Quickborn, and Gerhard Graf, Siegen, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 16, 1979, Ser. No. 21,127
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812206
Int. Cl.³ G01D *9/42*
U.S. Cl. 346—108 **4 Claims**



1. An optical printer which comprises:

a light source,

a photosensitive record carrier disposed in spaced relation to said light source,

means for forming characters in situ, said means including a character generator, said means being responsive to electronic signals from said character generator, said character generator being disposed between said light source and said photosensitive record carrier, said means for forming including a template which is a light switching mask including means for selectively varying the light transmission through each of a plurality of points, the number of said points being sufficient to provide a high resolution,

said means for selectively varying the light transmission

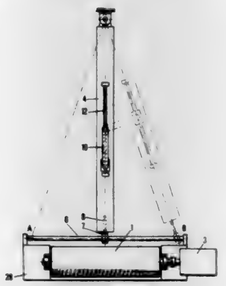
including integrated thin-film technology light switching elements and means for controlling said switching elements electronically with a character generator.

4,278,982

OPTICAL RECORDING DEVICE

Jacques Cholet, L'Etang-la-Ville; Bernard Damotte, Rueil-Malmaison, and Jean Laurent, Morainvilliers, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Apr. 16, 1979, Ser. No. 30,688
Claims priority, application France, Apr. 17, 1978, 78 11462
Int. Cl.³ G01D *15/14*
U.S. Cl. 346—108 **9 Claims**



1. An optical recording device suitable for continuously recording a large number of seismic traces, comprising:

means for displacing a horizontal photosensitive recording support in a first displacement direction;

a rigid arm mounted on and pivotable about a fixed horizontal axis located above said recording support and parallel to said first displacement direction, driving means for imparting to said rigid arm an oscillatory pendular motion about its axis, and guide means adapted to confine the pendular motion of the arm to a vertical plane substantially perpendicular to said first displacement direction;

an optical system secured to said rigid arm and oriented substantially along the longitudinal direction thereof, said optical system being adapted to generate a variable light beam; and

a monitoring system for synchronizing the control of said optical system with the pendular motion of said rigid arm, comprising a detection assembly secured to said rigid arm and adapted to transmit a periodic electrical signal whose period is a function of the rate of the displacement of said arm, and control means for introducing data to be recorded into said optical system with a recurrence period depending upon that of the electrical signal generated by said detection assembly.

4,278,983

INK JET WRITING DEVICE

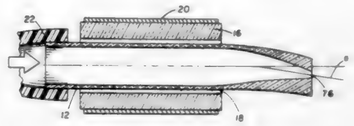
Laszlo Halasz, Brecksville, Ohio, assignor to Gould Inc., Rolling Meadows, Ill.

Filed May 23, 1979, Ser. No. 41,842
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **1 Claim**

1. An improved ink jet writing device comprising:

a tubular glass liner having an integral outlet orifice with smoothly converging geometry at one end thereof, said liner having a longitudinal axis and said orifice being radially displaced from said axis to form a liner with an angled outlet orifice;

a cylindrical piezoelectric transducer surrounding said liner and in stress transmitting engagement with said liner, said transducer being adapted to contract radially in use to displace a small quantity of liquid through said outlet orifice.

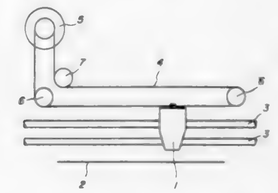


4,278,984

CONSTANT FLOW RATE LIQUID SUPPLY PUMP

Masafumi Matsumoto, and Matahira Kotani, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 28, 1979, Ser. No. 70,639
Claims priority, application Japan, Aug. 30, 1978, 53-106836
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **13 Claims**



1. An ink liquid supply system for an ink jet system printer, said ink jet system printer comprising a nozzle for emitting an ink liquid supplied from said ink liquid supply system and a beam gutter for collecting waste ink droplets emitted from said nozzle and for recovering the ink liquid toward said ink liquid supply system, said ink liquid supply system comprising:

an ink liquid reservoir for containing the ink liquid therein; and

a constant flow rate pump comprising:

a cylinder block;

a piston disposed in said cylinder block;

drive means for reciprocating said piston in said cylinder block;

two diaphragms fixed to desired positions of said piston;

a first pressure chamber defined by said cylinder block and an end of said piston;

a second pressure chamber defined by one of said two diaphragms, said piston and said cylinder block;

a third pressure chamber sandwiched by said two diaphragms;

a first inlet valve for introducing the ink liquid from said beam gutter to said second pressure chamber;

a first outlet valve for developing the ink liquid from said second pressure chamber to said ink liquid reservoir;

a second inlet valve for introducing the ink liquid from said ink liquid reservoir to said third pressure chamber;

valve means for supplying the ink liquid developed from said third pressure chamber to said first pressure chamber; and

a second outlet valve for supplying the ink liquid developed from said first pressure chamber to said nozzle.

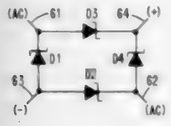
4,278,985

MONOLITHIC INTEGRATED CIRCUIT STRUCTURE INCORPORATING SCHOTTKY CONTACT DIODE BRIDGE RECTIFIER

William Stobbs, North Reading, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Apr. 14, 1980, Ser. No. 140,038
Int. Cl.³ H01L *29/48*
U.S. Cl. 357—15 **15 Claims**





1. Monolithic integrated circuit structure incorporating a metal-semiconductor rectifying barrier diode bridge comprising

a body of semiconductor material;

a first sector of said body electrically isolated from the remainder of the body by intervening semiconductor material of one conductivity type;

said first sector including

a first zone of semiconductor material of the opposite conductivity type,

a second zone of semiconductor material of the opposite conductivity type,

said first and second zones being separated from each other by an intervening barrier of semiconductor material of the one conductivity type;

a first layer of metal-semiconductor rectifying barrier forming metal in contact with said first zone forming a rectifying barrier therebetween;

a second layer of metal-semiconductor rectifying barrier forming metal in contact with said second zone forming a rectifying barrier therebetween;

a second sector of said body electrically isolated from the remainder of the body by intervening semiconductor material of the one conductivity type;

said second sector including

a third zone of semiconductor material of the opposite conductivity type, and

a fourth zone of semiconductor material of the opposite conductivity type;

a third layer of metal-semiconductor rectifying barrier forming metal in contact with said third zone forming a rectifying barrier therebetween;

a fourth layer of metal-semiconductor rectifying barrier forming metal in contact with said fourth zone forming a rectifying barrier therebetween;

first connection means in ohmic contact with the first zone of semiconductor material and connected to said third layer of metal;

second connection means in ohmic contact with the second zone of semiconductor material and connected to said fourth layer of metal;

third connection means connected to said first and second layers of metal; and

fourth connection means in ohmic contact with the third and fourth zones of semiconductor material;

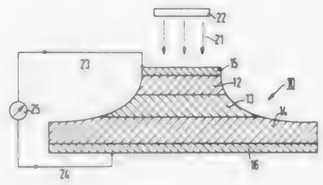
whereby a bridge rectifier of four metal-semiconductor rectifying barrier diodes is provided, which in response to an AC voltage across the first and second connection means produces a DC voltage across the third and fourth connection means.

4,278,986

SEMICONDUCTOR DIODE

Hermann Mader, Carl-Duisberg-Str. 42, 8025Unterhaching, Fed. Rep. of Germany

Filed Jan. 2, 1979, Ser. No. 103
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1978, 2800820
Int. Cl.³ H01L *29/00*
U.S. Cl. 357—33 **4 Claims**



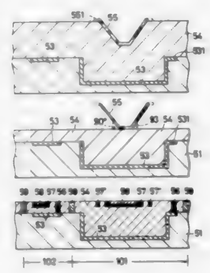
1. A three layer pnp or npn semiconductor diode formed with a middle base region of opposite conductivity type located between an emitter region and a collector region with a first ohmic contact affixed to an exterior surface of the emitter region and a second ohmic contact affixed to an exterior surface of the collector region, characterized in that the base region is selected to have a width in combination with a doping density of the emitter which is on the order of two orders of magnitude greater than a doping density of the base which in turn is on the order of two orders of magnitude greater than a doping density of the collector region such that the base region is fully depleted of free charge carriers without an applied external voltage.

4,278,987

JUNCTION ISOLATED IC WITH THICK EPI PORTION HAVING SIDES AT LEAST 20 DEGREES FROM (110) ORIENTATIONS

Ichiro Imaizumi, Hinodemachi; Masatoshi Kimura, Hachioji, and Keijiro Uehara, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 12, 1978, Ser. No. 950,671
Claims priority, application Japan, Oct. 17, 1977, 52-123474; Dec. 26, 1977, 52-173999[U]; Aug. 28, 1978, 53-103944
Int. Cl.³ H01L *27/04, 21/302, 21/20, 21/76*
U.S. Cl. 357—48 **7 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a first conductivity type and having a surface on one of (a) the (100) crystal plane and (b) a plane inclined within 5° against the (100) crystal plane;

a dent provided on a surface region of said substrate;

a highly doped layer having a second conductivity type opposite to the first conductivity type, provided on a surface region of said substrate in a portion of said dent and extending on a surface region of said substrate from a peripheral portion of said dent; and

a semiconductor layer having the second conductivity type, having a lower impurity concentration than that of said highly doped layer and provided on the surface of said substrate, said semiconductor layer filling up said dent and having a substantially flat surface, thereby said semiconductor layer having a thick portion on said dent and a thin portion on the surface of said substrate other than said dent,

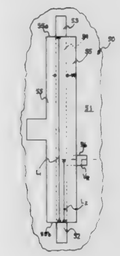
wherein said dent has a polygonal shape having main sides, each of which is parallel to at least one specific direction selected from a direction of the <100> crystal axis and directions inclined within 25° against the <100> crystal axis.

4,278,988

SEMICONDUCTOR DEVICE FOR PROVIDING A SELECTABLE REFERENCE VOLTAGE

James A. Clifford, San Diego, and Daniel E. Pearson, La Jolla, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Feb. 4, 1980, Ser. No. 118,616
Int. Cl.³ H01L *27/02, 29/78*
U.S. Cl. 357—51 **10 Claims**



1. A semiconductor device for providing a selectable reference voltage; said device being comprised of:

a semiconductor substrate doped with atoms of a first conductivity type and having a major surface;

a channel having input and output terminals, and having an elongated portion of a first predetermined length L_1 and a uniform width W in said substrate near said surface for passing current between said terminals;

a single gate on an insulating layer completely overlying said channel; and

a conductive region in said substrate near said surface doped with atoms of a conductivity type opposite to said first type, contacting the elongated portion of said channel at a predetermined length L_2 from one end thereof, to pick-off said reference voltage as generated by said current in said channel as a function of the ratio L_1/L_2.

4,278,989

SEMICONDUCTOR DEVICE HAVING CROSS WIRES

Fumio Babs; Kiyoshi Miyasaka; Takashi Yabu, all of Yokohama, and Jun-ichi Mogi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Jan. 15, 1979, Ser. No. 3,286
Claims priority, application Japan, Jan. 20, 1978, 53-5933[U]
Int. Cl.³ H01L *27/00*
U.S. Cl. 357—59 **13 Claims**

2. A semiconductor device having at least one crossover structure for two respective wiring lines, said device comprising:

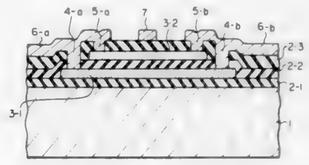
a semiconductor substrate;

a first insulating film covering the surface of said semiconductor substrate;

a lower layer and an upper layer of a conductive semiconductor extending selectively over said first insulating film, said layers extending at least in part along a common direction, and said upper layer overlapping to a major extent said lower layer at least along said extension in said common direction;

a second insulating film separating said lower and upper layers of a conductive semiconductor;

a third insulating film selectively covering said upper layer of said conductive semiconductor and any exposed portions of said lower conductive semiconductor layer and said semiconductor substrate in at least a region over said common extension of said conducting semiconductor layers;



two portions of a first metallic wire layer formed selectively on said second and third insulating film, each said portion of said first metallic wire layer being commonly connected to a respective pair of adjoining ends of said lower and upper layers of said conductive semiconductor, thereby connecting said lower and upper layers in parallel between said two portions of said first metallic wire layer along said common direction; and

a second metallic wire layer formed on a portion of said third insulating film to cross over said parallel-connected conductive semiconductor layers in said region of common extension of said conductive semiconductor layers, said second metallic wire layer and said lower and upper layers of conducting semiconductor in said region being comprised in said at least one crossover structure.

4,278,990

LOW THERMAL RESISTANCE, LOW STRESS SEMICONDUCTOR PACKAGE

Julie Y. Fichot, Skaneateles, N.Y., assignor to General Electric Company, Auburn, N.Y.

Filed Mar. 19, 1979, Ser. No. 21,488
Int. Cl.³ H01L *23/02, 23/28, 23/42*
U.S. Cl. 357—81 **13 Claims**

1. A semiconductor device having low thermal impedance and low electrical resistance comprising:

a base member adapted to be mounted to an external heat-sink in low thermal impedance connection therewith;

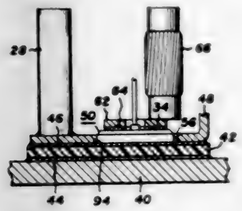
an insulating member disposed on said base member and bonded thereto with a low thermal impedance bonding layer;

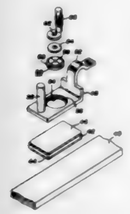
a thin highly annealed current spreading layer disposed on said insulating layer in low thermal impedance relation therewith, said current spreading layer characterized by low electrical resistance;

an electrically and thermally conductive stress relief means on said current spreading layer for matching the thermal coefficient of expansion of said semiconductor element and said current spreading layer;

a semiconductor element on said stress relief means in low stress bonding relationship therewith for minimizing the stress on said semiconductor element due to the difference in coefficient of thermal expansion between said current spreading layer and said semiconductor element; and

an electrode on said current-spreading layer surrounding said stress relief means but laterally spaced apart therefrom to form a capillary chamber between the sidewalls of said stress relief means and the inside wall of said electrode, a solder layer in said capillary chamber thermally





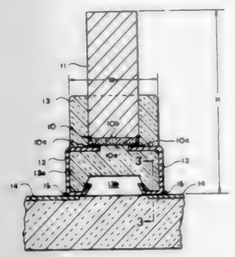
and electrically connecting said electrode to said stress relief member for providing electrical connection between said semiconductor element and said electrode without contributing to the thermal impedance between said semiconductor element and said base member.

4,278,991

IC PACKAGE WITH HEAT SINK AND MINIMAL CROSS-SECTIONAL AREA

Ronald J. Ritchie, La Mesa, and Daniel M. Andrews, San Marcos, Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Aug. 13, 1979, Ser. No. 65,940
Int. Cl.³ H01L *23/02, 23/48, 29/44*
U.S. Cl. 357—81 **7 Claims**



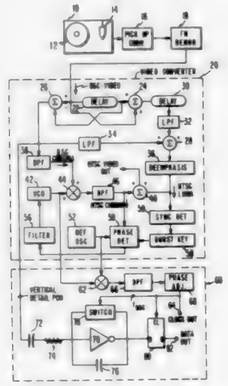
1. An integrated circuit package comprised of:
a substantially flat semiconductor chip having first and second oppositely facing major surfaces with said first major surface containing both said integrated circuit and a plurality of raised pads connected to said circuit;
an elongated heat sink having a cross-section that substantially matches said second major surface and which is attached at one end thereof by an adhesive to said second major surface;
a plurality of spaced apart C-shaped leads respectively connected at one end thereof to said raised pads; each of said leads extending outward from said pads beyond the periphery of said chip, then parallel to the direction of elongation and away from said heat sink, and then inward towards each other; and
a solid mass encapsulating said chip, only a portion of said elongated heat sink with said portion being adjacent said chip, and said outward extending portion of said leads to rigidly hold said encapsulated components in place.

4,278,992

PCM DETECTOR FOR VIDEO REPRODUCER APPARATUS

Todd J. Christopher, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 28, 1980, Ser. No. 125,640
Int. Cl.³ H04N *8/493*
U.S. Cl. 358—13 **5 Claims**



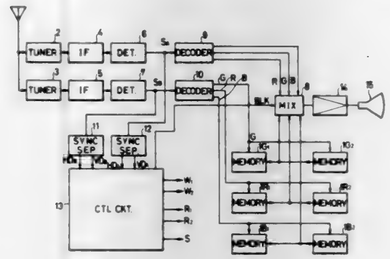
1. A PCM detector for use in video reproducer apparatus of the type in which digital data is represented by serial synchronous pulse code modulation of a video signal produced by said apparatus and synchronously detected by means of a color burst component of said video signal, said video signal tending to exhibit leading and trailing edge distortion, said detector comprising:
oscillator means responsive to said color burst component of said video signal for producing a reference signal of predetermined phase relative to signaling intervals of said pulse code modulated video signal;
phase shifting means responsive to said reference signal for producing a clock signal in phase quadrature with said signaling intervals of said pulse code modulated video signal;
integrator means having an input terminal for receiving said pulse code modulated video signal and an output terminal for providing an integrated output signal;
control means responsive to said clock signal and coupled to said integrator means for enabling said integrator means when said clock signal is of a first value during the central portion of each signaling interval and for resetting said integrator means when said clock signal is of a second value during initial and terminal portions of each signaling interval; and
output means responsive to transitions of said clock signal and to said integrated output signal for detecting said digital data corresponding to said pulse code modulated video signal at the end of each integration period and for storing said digital data until the end of the next integration period to produce a pulse code modulated digital data output signal having reduced leading and trailing edge distortion.

4,278,993

COLOR PICTURE-IN-PICTURE TELEVISION RECEIVER

Toshio Suzuki, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,675
Claims priority, application Japan, Nov. 20, 1978, 53-143144
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—22 **8 Claims**



1. A system for inserting a reduced picture of a first channel broadcast into a picture of a second channel broadcast on a single screen in a picture-in-picture television receiver, comprising: a first tuner, I.F., video detector, and decoder chain for producing video signals of said first channel broadcast; a second tuner, I.F., video detector, and decoder chain for producing video signals of said second channel broadcast; a first group of three memories connected to the first chain for memorizing R, G and B signals obtained from a first field of video signals of said first channel broadcast; a second group of three memories connected to the first chain for memorizing R, G and B signals obtained from a second field of the video signals of said first channel broadcast; control means for writing in one of said R, G and B signals into a corresponding one of said first group of three memories and the remaining two of said R, G and B signals into a corresponding remaining two of said first group of three memories during said first field by first and second trains of writing pulses, respectively, the second train of pulses being opposite in phase to the first train; during said second field said control means writing in said one of the R, G and B signals into one of the second group of three memories and said remaining two of the R, G and B signals being written into a corresponding remaining two of said second group of three memories during the second field by said second train and said first train, respectively.

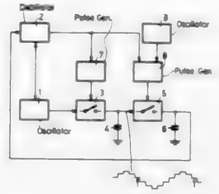
4,278,994

CIRCUIT ARRANGEMENT IN A COLOR TELEVISION ENCODER

Nicolaas J. L. Van der Valk, Breda, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 12, 1979, Ser. No. 75,048
Claims priority, application Netherlands, May 28, 1979, 7904157
Int. Cl.³ H04N *9/44*
U.S. Cl. 358—25 **7 Claims**

1. A circuit arrangement in a color television encoder, comprising a first oscillator for generating a chrominance subcarrier signal and a second oscillator for generating a signal having the line frequency or a multiple thereof, wherein one of said oscillators is adjustable, said circuit arrangement further comprising a frequency control loop which includes the adjustable one of said oscillators and a mixer circuit coupled to the outputs of said first and second oscillators for generating a frequency control signal for the adjustable one of said oscillators, characterized in that said circuit arrangement further comprises a phase control loop, also coupled to the adjustable one of said oscillators, which includes a first sample-and-hold



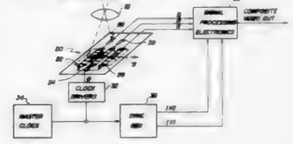
circuit for providing a phase control signal for the adjustable one of said oscillators.

4,278,995

COLOR LINE SENSOR FOR USE IN FILM SCANNING APPARATUS

William T. Fearnside, Fishers, and Teh-Hsuang Lee, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 20, 1979, Ser. No. 68,030
Int. Cl.³ H04N *9/11*
U.S. Cl. 358—54 **5 Claims**



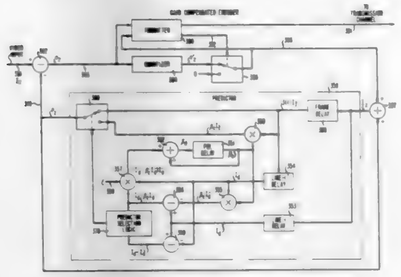
1. A color line sensor for use in a color image scanning apparatus of the type having means including image forming optics for projecting a two-dimensional color image, a line sensor for scanning the projected image at a predetermined line scan rate, and means for continuously displacing the projected image relative to the line sensor in a direction perpendicular to the line scan to effect an image raster scan composed of a number of equally spaced lines, the color line sensor comprising:
first line sensing means responsive to a first wavelength range of light for producing a first color signal;
second line sensing means, spaced from said first line sensing means a distance corresponding to N times the spacing between scan lines of the raster scan and in the direction of relative image motion, where N is an integer, and responsive to a second wavelength range of light for producing a second color signal; and
delay means responsive to said first color signal for producing a delayed first color signal, the delay being equal to N times the time required to scan one line, whereby said delayed first color signal and said second color signal represent scans of the same location in the image at a given instant in time.

4,278,996

TECHNIQUE FOR ENCODING PICTORIAL INFORMATION

Arun N. Netravali, Matawan; John D. Robbins, Aberdeen, both of N.J., and John A. Stuller, Rolla, Mo., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 11, 1980, Ser. No. 139,584
Int. Cl.³ H04N *7/12*
U.S. Cl. 358—136 **24 Claims**



1. Apparatus for encoding a video signal which represents the intensity values of a plurality of elements of a picture, including:

means for forming at least first and second predictions p_1 and p_2 of the intensity value I(x,t) of a particular element in a present frame of said picture,

means for comparing each prediction p_1 and p_2 with said intensity value I(x,t) to determine which prediction produces the smaller error e, and

means for encoding the magnitude of said error e and the location of said particular element only if said magnitude exceeds a predetermined threshold T,

CHARACTERIZED IN THAT

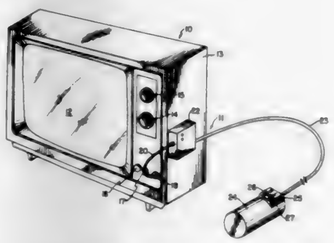
said prediction forming means includes means for forming one of said predictions p_1 by multiplying the intensity value $I(x,t-\tau)$ of said particular element in a previous frame of said picture by a recursively updated gain factor ρ.

4,278,997

REMOTE VOLUME CONTROL FOR TELEVISION SET

Raymond L. Folz, 22-40 123rd St., College Point, N.Y. 11356

Filed Aug. 25, 1978, Ser. No. 936,830
Int. Cl.³ H04B *1/06;* **F16C** *1/12*
U.S. Cl. 358—194.1 **3 Claims**



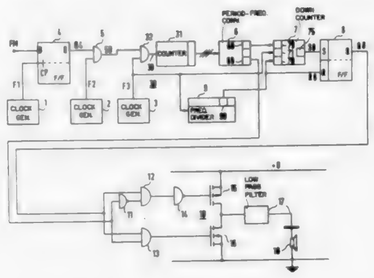
1. A remote control mechanism for regulating a volume control means of a television, said volume control means including a rotary shaft, said mechanism comprising an unshielded, resilient flexible shaft, means for connecting said unshielded, resilient flexible shaft directly and coaxially to the rotary shaft of said volume control means, a forward/reverse electric motor and reduction gearing train assembly, said gearing train being connected to said motor for reducing the output revolutions of said motor, a housing for said motor and gearing train assembly, said housing being adapted to be attached to said set adjacent to said volume control, said flexible shaft being connected to the output of said gearing train for rotation thereby and being of a length, flexibility and strength sufficient to interconnect said gearing train and said rotary shaft to effect rotation of the latter when said gearing train rotates said flexible shaft, a remotely hand-held housing having externally operated forward and reverse switching means and an electrical wire interconnecting said switching means and said electric motor means.

4,278,998

SOUND CHANNEL CIRCUIT FOR FREQUENCY-MODULATED SIGNALS

Leslie Miskin, Gundelfingen, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Feb. 13, 1980, Ser. No. 121,185
Int. Cl.³ H04N *5/60*
U.S. Cl. 358—198 **6 Claims**



1. A circuit for the sound channel of radio or television receivers wherein a signal frequency-modulated with the sound signals is demodulated; and wherein the sound signals are reproduced by means of a power output stage and a loudspeaker, comprising:

D flip-flop means having an amplitude-limited frequency-modulated signal applied as a square-wave signal to the data signal input thereof, and having a clock input connected to the output of a first clock generator;

first AND gate means having a first input thereof coupled to the Q output of said D flip-flop means, and a second input thereof connected to the output of a second clock generator;

digital period-measuring circuit means having the output of said first AND gate coupled to the measuring input thereof, and including a counter, a third clock generator and input gate;

a period-frequency converter means having the digital output signal of the period-measuring circuit coupled thereto, and having a first output for a first digital output signal, giving the absolute value of the frequency deviation of the frequency-modulated signal, and a second output for a second digital output signal, giving the sign of the frequency deviation of the frequency-modulated signal;

a down-counter means having the first output of the period-frequency converter coupled to the preset input thereof, and having its count input connected to the output of the third clock generator;

RS flip-flop means having the zero output of the down-counter is coupled to the S input thereof;

frequency divider means having the output of the third clock generator is coupled to the input thereof;

wherein the R input of the RS flip-flop and the count enable input of the down-counter are connected to one of the outputs of the frequency divider, and wherein the divisor associated with said output being greater than the maximum number (df_{max}) occurring at the first output of the period-frequency converter, and the total divisor of the frequency divider being greater than said divisor;

the Q output of the RS flip-flop is coupled to the first inputs of second AND gate means and a third AND gate means;

the second input of the second AND gate being connected to the second output of the period-frequency converter via a first inverter, and the second input of the third AND gate being connected to said output directly;

the output of the second AND gate being coupled via a second inverter to the control electrode of one of two power transistors having their controlled current paths connected in series;

the output of the third AND gate being coupled to the control electrode of the other of said two power transistors;

the junction point of the controlled current paths of the two power transistors being connected via a low-pass filter to a loudspeaker;

whereby the frequency (f_1) of the first clock signal (F1) is equal to the sum of the sound carrier frequency (f_T) of the television signal or of the intermediate frequency (f_Z) of the radio broadcast signal, twice the value of the upper cutoff frequency (f_g) of the power output stage, and twice the maximum value (df_{max}) of the frequency deviation ($f_1=f_T+2f_g+2df_{max}$ or $f_1=f_Z+2f_g+2df_{max}$);

the frequency (f_2) of the second clock signal (F2) is equal to twice the value of the upper cutoff frequency (f_g) of the power output stage ($f_2=2f_g$), and

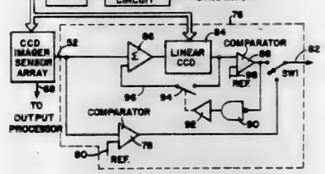
whereby the third clock generator is crystal-stabilized, and the frequency (f_3) of the third clock signal (F3) is an integral multiple of the color subcarrier frequency.

4,278,999

MOVING IMAGE SCANNER

Biswa N. Ganguly, Dayton, Ohio, and Suresh C. Paranjpe, Dallas, Tex., assignors to The Mead Corporation, Dayton, Ohio

Filed Sep. 12, 1979, Ser. No. 75,065
Int. Cl.³ H04N *3/12, 3/14*
U.S. Cl. 358—213 **14 Claims**



13. An image scanner for scanning a document along a plurality of scan lines and providing a plurality of print control signal pulses in response to the image density of pixel areas of said document along said scan lines, comprising:

means for projecting a moving document image onto a focal plane,

a sensor array positioned in said focal plane, said array comprising a first plurality of sensor groups positioned in a row, each of said sensor groups including a plurality of sensors, positioned in a column, for receiving light from respective pixel areas on said image along a corresponding one of said scan lines and providing electrical outputs related to the image density of said respective pixel areas, each of said columns extending substantially parallel to the direction of image motion, said sensor array further comprising a second plurality of sensor groups positioned in a second row, and spaced from said first row of sensor groups in the direction of image motion by a predetermined distance, each of said second plurality of sensor groups including a plurality of sensors, positioned in a column extending substantially parallel to the direction of image motion, for receiving light from respective pixel areas on said image along a corresponding one of said scan lines, the scan lines corresponding to said second plurality of sensor groups interlacing with the scan lines corresponding to said first plurality of sensor groups,

a first plurality of column shift registers, each such column shift register associated with a corresponding one of said first plurality of sensor groups and including a plurality of register stages with each stage receiving an electrical output from a respective one of said sensors in the associated sensor group, each such column shift register responsive to a column shift signal for shifting the electrical outputs in said register stages to adjacent stages in the direction of image motion, said electrical outputs being shifted toward an output stage in each of said column shift registers,

a second plurality of column shift registers, each of said second plurality of shift registers associated with a corresponding one of said second plurality of sensor groups and including a plurality of register stages with each stage receiving an electrical output from a respective one of said sensors in the associated one of said second plurality of sensor groups, each such column shift register responsive to a column shift signal for shifting the electrical outputs in said register stages to adjacent stages in the direction of image motion, said electrical outputs being shifted toward an output stage in each of said column shift registers,

a first row shift register defining a plurality of row register stages, each such row register stage associated with one of said output stages, for storing the electrical outputs from said output stages and shifting said outputs to adjacent row register stages in response to a row shift signal,

a second row shift register defining a plurality of row register stages, each such row register stage associated with one of said output stages of said second plurality of shift registers, for storing the electrical outputs from said output stages and shifting said outputs to an adjacent row register stage in response to a row shift signal,

a first plurality of register transfer gate means, each such register transfer gate means connecting an output stage of one of said first plurality of column shift registers and the respective row register stage associated therewith, for transferring to each of said row register stages an electrical output from the associated output stage in response to a transfer signal,

a second plurality of register transfer gate means, each such register transfer gate means connecting an output stage of one of said second plurality of column shift registers and the respective row register stage associated therewith, for transferring to each of said row register stages an electrical output from the associated output stage in response to a transfer signal,

means for generating said column shift signal, said transfer signal, and said row shift signal, said row shift signal being substantially equal in frequency to the rate at which successive pixel areas along said scan lines are scanned by each sensor times the number of sensor groups in said first plurality of sensor groups, the frequency of said transfer signal being equal to the rate at which successive pixel areas along said scan lines are scanned by each sensor, and the frequency of said column shift signal being substantially equal to the rate at which pixel areas along said scan lines are scanned by each sensor, and

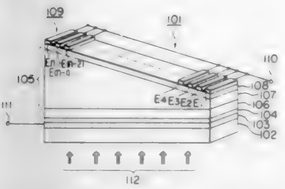
output processor means, responsive to said first and second row shift registers, for sequentially comparing each of the electrical outputs stored in said row shift registers with a reference electrical potential and providing print control signal pulses when an electrical output exceeds said reference electrical potential, thereby providing line copy print control signal pulses.

4,279,000

PHOTOELECTRIC INFORMATION INPUT APPARATUS

Tadaji Fukuda, Kawasaki, and Susumu Sugiura, Yamato, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1979, Ser. No. 60,824
Claims priority, application Japan, Jul. 26, 1978, 53-91049
Int. Cl.³ H04N *3/14*
U.S. Cl. 358—213 **4 Claims**



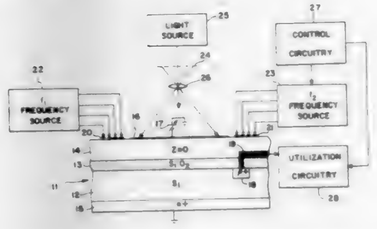
1. A photoelectric information input apparatus comprising:
a photoelectric converting unit having
a photoelectric converting layer provided between a linear array of a number n of picture element electrodes and a counter electrode and having a charge generating portion provided on an electrode transparent to the incident light and a charge transporting portion for effectively transporting the charge generated in said charge generating portion, said photoelectric converting layer having a wedge shaped configuration and the varying wedge thickness, and at least one insulating layer provided between said photoelectric converting layer and said counter electrode or between said photoelectric converting layer and said linear array of picture element electrodes; and
means for generating control signals for controlling said photoelectric converting unit so as to obtain electric signals corresponding to the optical signals received by said photoelectric converting portion.

4,279,001

IMAGE READOUT DEVICE WITH ELECTRONICALLY VARIABLE SPATIAL RESOLUTION

Harry A. Benz, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 28, 1980, Ser. No. 135,039
Int. Cl.³ H04N *5/30*
U.S. Cl. 358—213 **8 Claims**



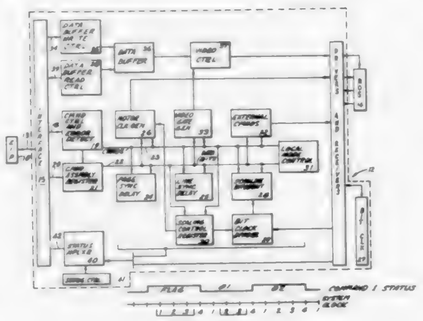
1. In an image readout device, a detector for detecting light at discrete points along a straight line comprising:
a surface acoustic wave charge transfer device which in response to a frequency source produces a traveling longitudinal electric field in the device that creates potential wells which carry charges that are injected into the wells by light that strikes the device;
a first means for applying a frequency f_1 to said charge transfer device for producing a first traveling longitudinal electric field in the device along said straight line;
a second means for applying a frequency f_2 to said charge transfer device for producing a second traveling longitudinal electric field in the device along said straight line in the direction opposite to the electric field produced by said first means;
wherein f_2 is a harmonic of f_1, has the same amplitude as f_1 and is phase stable with f_1, whereby the first and second traveling longitudinal fields produce a standing wave along said straight line that has a frequency equal to the difference of f_1 and f_2;
means for applying an image to said device whereby light charges are stored in the wells of said standing wave;
means for disconnecting f_2 from said device whereby said standing wave breaks up and the charges stored in the wells of said standing wave are moved along said straight line by the first traveling longitudinal electric field; and
electrode means included with said charge transfer device receiving the charges moved along said straight line by the first traveling longitudinal electric field.

4,279,002

ADAPTER FOR RASTER OUTPUT SCANNING PRINTER

Ronald E. Rider, Palos Verdes Estates, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 24, 1978, Ser. No. 899,137
Int. Cl.³ H04N *1/36*
U.S. Cl. 358—257 **5 Claims**



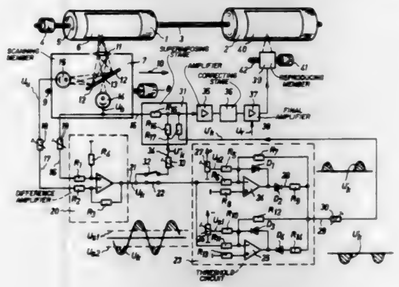
1. An adapter for interfacing a digital electronic image processor with a raster output scanning printer, said adapter having dedicated input and output connections for printer control and operation, said adapter comprising:
means for receiving at a first dedicated input connection digital command data from said electronic image processor and for initiating control functions in response thereto;
means for receiving at a second dedicated input connection digital clock signals of a predetermined uniform frequency transmitted thereto by said electronic image processor and for distributing said clock signals throughout said adapter;
means for receiving in bit parallel format at a set of third dedicated input connections packets of video print information from said electronic image processor and for retiming said video information for transmission to said printer;
means for monitoring the transmission of video print information to said printer and for generating data request signals at a first dedicated output connection to said electronic image processor in order to thereby request additional packets of video print information from said electronic image processor;
means for monitoring the status of said adapter and said printer and for serializing status information and generating said status information at a second dedicated output connection for transmittal to said electronic image processor; and
said means for receiving command data and for initiating control functions in response thereto comprises sampling means responsive to command bits which occur at a frequency which is an integer quotient of the frequency of said digital clock pulses, said sampling means including means for detecting command bit polarity with the occurrence of consecutive ones of said digital clock pulses during command pulses, means for comparing the command bit polarities detected, and means for generating an error signal when said means for comparing registers an unequal comparison in order to abort the performance of control functions in response to command data including any data bit in which sampling and comparison as aforesaid produces an unequal comparison.

4,279,003

PICTURE CONTRAST-INCREASING ARRANGEMENTS

Joachim Schulz, Mönkeberg, Fed. Rep. of Germany, assignor to Dr. Ing Rudolf Hell G.m.b.H., Monkeberg, Fed. Rep. of Germany

Filed Feb. 1, 1979, Ser. No. 8,585
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1978, 2805237
Int. Cl.³ H04N *1/40*
U.S. Cl. 358—280 **6 Claims**



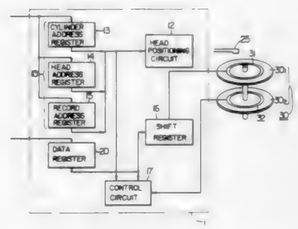
1. In an arrangement for increasing contrast when reproducing originals containing line elements, comprising
(a) an opto-electronic scanning member having a main aperture and an unsharp masking aperture respectively operative to generate a picture signal and an unsharp masking signal, the diameter of said main aperture being approximately equal to the width of the line elements in said original,
(b) a difference stage operatively connected to said scanning member to generate a difference signal from said picture signal and said unsharp masking signal,
(c) a threshold circuit operatively connected to said difference stage, which allows positive parts of said difference signal lying above a first threshold value and negative parts lying below a second threshold value to pass through, and
(d) means for superimposing selectable proportions of said parts of the difference signal which have been passed by said threshold circuit onto said picture signal as a first correcting signal to increase contrast for line elements in said original.

4,279,004

METHOD FOR CONTROLLING ROTARY MEMORY DEVICE

Yoshiaki Yamashita; Hiroyuki Kambara, both of Hadano; Hiroaki Kambayashi, and Yasuyuki Okada, both of Sagamihara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 3, 1979, Ser. No. 35,530
Claims priority, application Japan, Oct. 4, 1978, 53-121541
Int. Cl.³ G11B *5/09*
U.S. Cl. 360—48 **3 Claims**



1. A method for controlling a rotary memory apparatus for storing at least one record including at least an address section identifying the record and a data section forming the data of the record, in a recording medium along a track, said method comprising the steps of:
dividing the track into a plurality of sectors each being of the same fixed length;
storing the address section of a given record in one of the sectors together with a flag for distinguishing the stored address section from other types of sections in other sectors;
storing the data section for a given record in at least one of the sectors succeeding the sector in which the address section is stored;
searching for said flag in succeeding sectors, in the operation of seeking access to the stored data section, after the detection of the beginning point of each sector;
reading out the address section which follows the flag, upon the detection of the flag;
comparing the read-out address section with externally supplied address information; and
making an access to the data section stored in the succeeding sector, upon the detection of coincidence between the read-out address section and the address information as a result of said comparison.

4,279,005

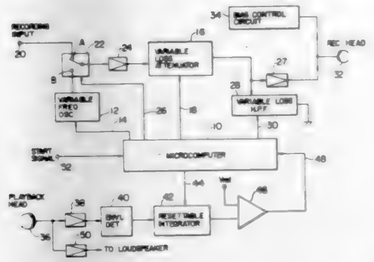
METHOD AND SYSTEM FOR AUTOMATICALLY PROVIDING FLAT FREQUENCY RESPONSE TO AUDIO SIGNALS RECORDED ON MAGNETIC TAPES

Masatsugu Kitamura; Hideo Onoye, and Masami Yamazaki, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed May 23, 1979, Ser. No. 41,822
Claims priority, application Japan, May 28, 1978, 53-63609; Jun. 10, 1978, 53-70066; Jul. 23, 1978, 53-89611
Int. Cl.³ G11B *5/47, 5/45, 77/36*
U.S. Cl. 360—66 **21 Claims**

1. A method for automatically providing a flat response to signals over the audio frequency spectrum based on the magnetic properties of a magnetic tape, comprising successively generating first and second audio test signals at different frequencies during a test period, recording said test signals in said tape, reproducing the recorded first and second test signals successively, sensing the level of the reproduced first and second signals, storing the sensed level of the first signal in a storage medium, comparing the sensed level of the second test signal with the stored level of the first test signal to detect the

difference therebetween, adjusting the level of the recorded second test signal in accordance with the detected difference



so as to reduce said difference substantially to zero, and holding the adjusted level of said second test signal during subsequent recording operation after said test period.

4,279,006

MAGNETIC TAPE RECORDING AND/OR REPRODUCING APPARATUS

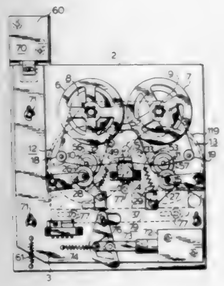
Toshiharu Sasaki, Kawanishi; Noboru Katakabe, Katano, and Yoshihiro Yokoyama, Kobe, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 17, 1979, Ser. No. 30,879

Claims priority, application Japan, Apr. 21, 1978, 53/47981; Apr. 21, 1978, 53/47983

Int. Cl.³ G11B *15/24, 15/28, 5/54*

U.S. Cl. 360—90 **9 Claims**



1. A magnetic tape recording and/or reproducting apparatus, comprising:

a magnetic head;

two tape winding reels;

a first capstan and a first pressure roller opposed thereto, a second capstan and a second pressure roller opposed thereto, said pressure rollers being movable into contact with said capstans for transporting a magnetic tape;

two fixed motor means, one being coaxial with and directly driving said first capstan and the other being coaxial with and directly driving said second capstan;

tape direction control means connected to said pressure rollers for selectively bringing said first or second pressure roller into contact with said first or second capstan, respectively, for selectively driving said tape in one or the other direction; and

transmission means to which said tape direction control means is connected for driving said tape winding reels under the control of said tape direction control means, said transmission means having means for transmitting the rotary motion of said motors and being selectively engagable with one of said two winding reels and one of said two motor means while being disengaged from said other motor means or with the other of said two winding reels and the other of said two motors while being disengaged from said one motor means, depending on the direction in which said tape is to be transported, whereby said magnetic tape is selectively transported in one or the other direction for recording and/or reproducing.

4,279,007

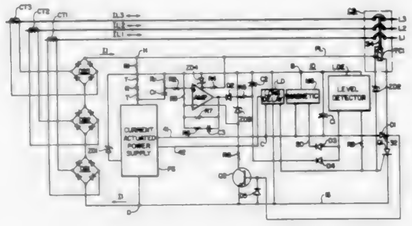
SINGLE-PHASE FAULT DETECTING CIRCUIT BREAKER

Alan B. Shimp, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 12, 1979, Ser. No. 57,054

Int. Cl.³ H02H *3/16*

U.S. Cl. 361—47 **21 Claims**



1. Apparatus for determining in a three-phase alternating current electrical system whether fault current which flows therein when the peak value thereof is within a range of peak values of fault currents is either three-phase or single-phase in nature, comprising:

(a) fault sensing means interconnected with said electrical system for providing an output voltage signal the peak absolute value of which is related to said peak value of fault current, said voltage output signal having an AC voltage component, the peak value of said AC voltage component being no larger than a predetermined value for the maximum possible three-phase AC fault current component which is available when said peak value of fault current is within said range, but said peak value of said AC voltage component being larger than said predetermined value for the maximum possible single-phase AC fault current component which is available when said peak value of fault is within said range;

(b) filter means connected in circuit relationship with said fault sensing means in such a manner as to have said output voltage signal impressed thereacross, said filter means having a portion thereof across which only said AC voltage component appears; and

(c) indicator means the input of which is connected across said portion for being sensitive only to said AC component of said voltage signal, the minimum value of said AC component of said voltage signal for which said indicator means provides an output being larger than said predetermined value so that an output may be had for a single-phase AC fault current component but not for the maximum three-phase AC fault current component.

4,279,008

RELAY

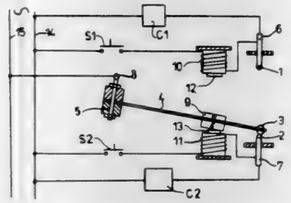
Walter del Picchia, Dept' Eng. e Electricidade - Escola Politecnica - USP - Cidade Universitaria; Wagner W. Martins, Rua Barao de Itauna No. 155; Decio G. Silveira, Rua Urimonduba No. 66, Apt. 92, and del Picchia Sergio, Rua das Margaridas No. 26, Apt. 43, all of Sao Paulo - SP -, Brazil

Filed Feb. 16, 1979, Ser. No. 12,770

Claims priority, application Brazil, Aug. 22, 1978, 7805413

Int. Cl.³ H01H *47/04*

U.S. Cl. 361—194 **18 Claims**



1. A relay comprising at least one fixed contact, one movable contact mounted on an element capable of assuming a first configuration in which the movable contact is separated from said fixed contact and a second configuration of contact between the movable contact and said fixed contact, first means to make said element assume and maintain said first configuration and second means to make said element assume and maintain said second configuration, characterized by the fact that said first means comprise a first electromagnetic device to make said element assume the first configuration by means of forces of repulsion and a permanent magnet so as to maintain said element in the first configuration by means of forces of attraction and the second means comprise a second electromagnetic device to make said element assume the second configuration by means of forces of repulsion and a permanent magnet to maintain the element in the second configuration by means of forces of attraction, said first electromagnetic device having an energizing circuit comprising the movable contact and the mentioned fixed contact.

4,279,009

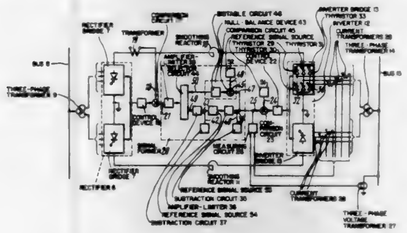
METHOD AND REGULATING DEVICE FOR CONTROLLING HIGH-VOLTAGE DIRECT CURRENT TRANSMISSION SYSTEM

Valery A. Androsov, ulitsa Vernosti, 14, korpus 1; Alexandr I. Boyarsky, ulitsa Khlopina, 3, kv. 10; Viktor I. Emelyanov, prospekt Engelsa, 40, kv. 40, and Iosif B. Nabutovsky, Beloostrovskaya ulitsa, 25, kv. 20, all of Leningrad, U.S.S.R.

Filed Jul. 30, 1979, Ser. No. 62,222

Int. Cl.³ H02J *3/36*

U.S. Cl. 363—35 **4 Claims**



1. A method for controlling a high-voltage direct current transmission system having a rectifier of the controlled valve type at its transmitting end and an inverter of the controlled valve type at its receiving end, said method comprising the steps of

maintaining the current supplied from said rectifier to said inverter in accordance with its reference value by adjustably controlling the firing angles of the rectifier valves; and

varying the reference value of the current supplied from said rectifier to said inverter in accordance with variations in the difference between a predetermined value and the smallest of the margin angles of the inverter valves when the smallest of the margin angles of the inverter falls below said predetermined value, so that the reference value of the current supplied from said rectifier to said inverter is reduced with an increase in the difference between said predetermined value and said smallest of the margin angles of the inverter valves, and the reference value of the current supplied from said rectifier to said inverter is increased with a reduction in the difference between said predetermined value and said smallest of the margin angles of the inverter valves, the reference value of the current supplied from said rectifier to said inverter being set above or equal to the minimum permissible value of the current supplied from said rectifier to said inverter.

4,279,010

DC-DC CONVERTER FOR SOLID STATE WATCHES

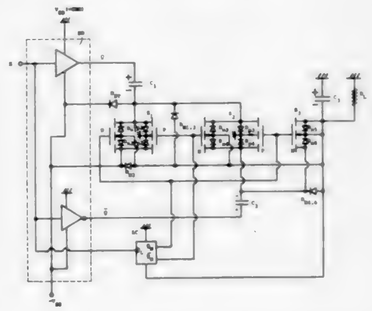
Mitsuo Morihisa, 29 Shibatsujiminami-cho, Nara-shi, Nara-ken, Japan

Continuation of Ser. No. 714,757, Aug. 16, 1976, abandoned. This application May 12, 1978, Ser. No. 905,293

Claims priority, application Japan, Aug. 14, 1975, 50-99165

Int. Cl.² H02M *7/00*

U.S. Cl. 363—60 **8 Claims**



1. A DC-DC converter having a C-MOS driver stage and a voltage multiplier stage including a plurality of capacitors, comprising:

field effect mode switching transistor means in series with the respective capacitors of said voltage multiplier for controlling the charging and discharging of the respective capacitors in response to control signals applied to said field effect mode switching transistors;

level converter means for providing control signals applied to said field effect mode switching transistors in response to enable signals applied to said C-MOS driver stage and the highest voltage appearing at the last stage of said voltage multiplier; and

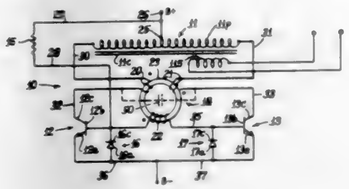
bypass means for providing charging and discharging path for the respective capacitors through parasitic diodes within said field effect mode switching transistor means, said bypass charging and discharging paths not including the circuit path through the gate, source, and drain of said field effect mode switching transistor means, said bypass means being operable from the initial start-up of said DC to DC converter up to the stable state at the starting thereof.

4,279,011

SIMPLE, HIGH-EFFICIENCY INVERTER CIRCUITS

Ole K. Nilssen, Caesar Dr. - Rte. 4, Barrington, Ill. 60010

Filed Mar. 26, 1979, Ser. No. 23,849
Int. Cl.[3] H02M 7/537
U.S. Cl. 363—133 26 Claims



1. In an inverter circuit for converting DC voltage into AC voltage a drive circuit having a pair of alternating conducting switching transistors, each with a collector and a base-emitter junction and characterized by some internal resistance, and comprising:

feedback control means including a saturable current transformer having one winding connected directly between the base-emitter junctions of the transistors and operable to provide intermittent drive signals to the transistors for turning them on alternately; and

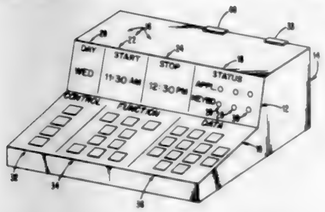
diode means connected across the base-emitter junction of each transistor and characterized by internal resistance less than that of the associated transistors and operable to affect the rapid turning off of a conducting transistor for thereby producing an alternating output voltage.

4,279,012

PROGRAMMABLE APPLIANCE CONTROLLER

David L. Beckedorff, Wellesley; Michael Sporer, Harvard, both of Mass., and Bruce R. Watts, Portsmouth, R.I., assignors to Massachusetts Microcomputers, Inc., Wellesley, Mass.

Filed Oct. 23, 1978, Ser. No. 953,558
Int. Cl.[2] G06F 15/20; H01H 43/00
U.S. Cl. 364—104 44 Claims



1. Controller apparatus for controlling the operation of a device, said apparatus comprising:

A. switch means having a control input, a source input and a source output;

B. first means for coupling said source output to said device;

C. second means for coupling an energy source to said source input;

D. means for receiving a control signal at said control input, wherein the presence of said control signal at said control input enables the coupling of said energy source from said source input to said source output; and

E. means for generating said control signal comprising

1. means for providing the current time of day,

2. storage means for storing information indicative of at least one period of time of a potential plurality of periods of time during which said control signal is to be generated, said storage means including a plurality of storage locations, each of said locations corresponding to a predetermined time interval, and wherein each of said periods of time is comprised of at least one of said predetermined time intervals,

3. means for entering into said storage means information defining anyone of said periods of time, said information including the requirement for only a start time and a stop time for each of said periods of time, and

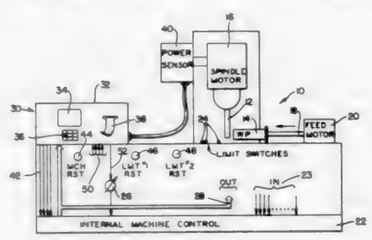
4. means, responsive to said current time of day and said information stored in said storage means, for enabling the generation of said control signal.

4,279,013

MACHINE PROCESS CONTROLLER

Larry E. Cameron, Sterling Heights; Kenneth J. Cook, Troy; Vance E. Neff, Detroit, and Keith L. Rowland, Pontiac, all of Mich., assignors to The Valeron Corporation, Troy, Mich.

Filed Oct. 31, 1979, Ser. No. 89,436
Int. Cl.[3] G05B 13/02, 23/02
U.S. Cl. 364—105 58 Claims



1. A controller for a machine having a tool for removing material from a workpiece, said controller comprising:

sensing means for monitoring the power used by the machine;

limit setting means for supplying a first limit value defining a first extreme level of power consumption for the machine;

comparison means for comparing outputs of said sensing means and said limit setting means, operative to provide an output signal if the machine power consumption has exceeded the limit value;

first programmable timer means capable of storing a selectively alterable time period;

manually actuable means for loading said timer means with a selected time period; and

output means capable of altering the machine operation when the machine power consumption has continuously exceeded the limit value for said selected time period whereby electrical noise and expected fluctuations peculiar to the machine operation may be accommodated without disturbing the optimum machine operating conditions.

4,279,014

ARRANGEMENT FOR CONVERTING VIRTUAL ADDRESSES INTO PHYSICAL ADDRESSES IN A DATA PROCESSING SYSTEM

Jean-Claude M. Cassonnet, Conflans Sainte Honorine; Guy Hiot, and Violette Cohen, both of Paris, all of France, assignors to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme), Paris, France

Filed Aug. 14, 1978, Ser. No. 933,546
Claims priority, application France, Aug. 17, 1977, 77 25121
Int. Cl.[3] G06F 9/20
U.S. Cl. 364—200 2 Claims

1. In a data processing system of the type having a virtual memory including a main physical memory and an auxiliary memory,

space in said main physical memory being allocated on the principle of segmentation wherein said main memory is divided into a plurality of logical groupings termed segments, each segment occupying contiguous main memory space and being treated as a unit,

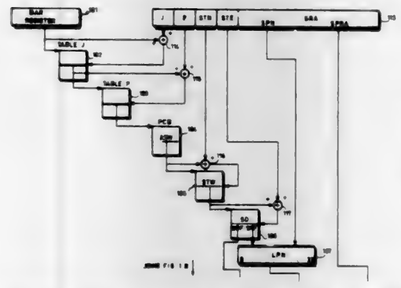
addressing and other characterizing information for each segment being defined by a respective segment descriptor stored in said main physical memory, and

the segment descriptors being grouped into segment tables in said main physical memory, each segment descriptor thus being a segment table entry;

an arrangement for translating a virtual address of an item of data into a physical address, the virtual address being expressed as an effective address word including zones (STN and STE) for designating a particular segment table out of the group of segment tables and a particular segment table entry in the particular segment table, the segment table entry being a segment descriptor, and a segment relative address zone (SRA) which is divided into a segment page number zone (SPN) for indicating the number of the page in the segment to which the item of data belongs and a zone (SPRA) which designates the address of the item of data in the page defined by the segment page number (SPN), said arrangement comprising:

each of the plurality of segment descriptors stored in said main physical memory as segment table entries including an area (SRF) which contains a unique reference for the segment;

means for addressing a segment descriptor in said main



physical memory based on the contents of the zones (STN and STE) in the effective address word designating a particular segment table and entry;

means for generating a logic page number (LPN), which means operate to concatenate the unique reference for the segment (SRF) which is contained in the addressed segment descriptor to the segment page number (SPN) which is contained in the effective address word;

a logic page table (LPT) stored in said main physical memory, said logic page table containing at each address two entries, one entry being a logic page number entry and the other entry being a corresponding physical page number entry;

means indicating the starting address of said logic page table;

means for adding the generated logic page number to the indicated starting address of said logic page table to create an LPT address, which when applied to the logic page table (LPT) locates a logic page number entry and a physical page number entry for each said LPT address;

means for comparing the generated logic page number to the logic page number entry to indicate a match; and

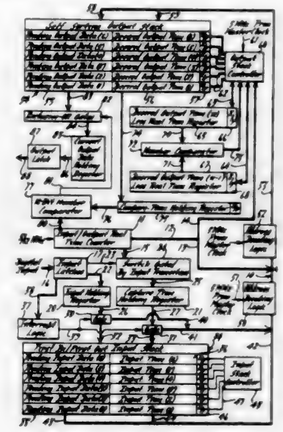
means for generating the physical address of the item of data in main physical memory by concatenating the physical page number entry and the zone (SPRA) which designates the address of the item of data in the page defined by the segment page number, said means for generating the physical address being activated when a match occurs between the generated logic page number and the logic page number entry.

4,279,015

BINARY OUTPUT PROCESSING IN A DIGITAL COMPUTER USING A TIME-SORTED STACK

Brian S. Edelman, Dearborn, and Ralph L. Robinson, Jr., Canton Township, Plymouth County, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jun. 13, 1979, Ser. No. 48,198
Int. Cl.[3] G06F 3/00
U.S. Cl. 364—200 8 Claims



1. In a digital computer that has a real time counter and a memory/address bus and that generates binary output data in the form of bytes, each of which is assigned a desired output time and each of which has at least one bit of output information, improved processing of the binary output data comprising the steps of:

(a) entering bytes of binary output data together with their assigned desired output times in a stack;

(b) time-sorting the entries in the stack;

(c) comparing the desired output time of the binary output data byte in the stack which has the earliest desired output time with the count in the real time counter;

(d) making the binary output data byte, whose desired output time is compared, available as an output when the real time represented by the count in the real time counter and the compared desired output time correspond.

4,279,016

INSTRUCTION PRE-FETCH MICROPROCESSOR INTERRUPT SYSTEM

Joel C. Leininger; Floyd R. Bliss, both of Boca Raton, Fla., and Peter T. Fairchild, Woodstock, Ga., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 21, 1979, Ser. No. 50,888
Int. Cl.[3] G06F 3/04, 9/38
U.S. Cl. 364—200 24 Claims

1. In a data processing system which includes:

a microprocessor apparatus operable in instruction cycles between a running state wherein instructions are processed and a wait state wherein no instructions are processed by the microprocessor and wherein microprocessor instructions generate enable and disable interrupt commands, the microprocessor generating instructions for changing page information, performing storage operations, branch and link operations and return operations; a page storage unit for storing page information which is set and reset to a zero state by microprocessor instructions; a storage unit for storing data and instructions; an arithmetic and logic unit having associated status bits which are set and reset to a zero state by microprocessor instruc-

tions; a plurality of peripheral devices connected to the microprocessor, the plurality of peripheral devices generating interrupt requests to the microprocessor for operating in an interrupt cycle; and the system operating in a pre-fetch mode wherein a next succeeding instruction is fetched from the storage unit while a current instruction is being executed, an interrupt system for processing interrupt requests received by the microprocessor from the plurality of peripheral devices comprising:

instruction address register means coupled to the storage unit for holding the next succeeding address to be prefetched in a sequence of instructions and operable to be updated to the value of the next succeeding address;

storage address register means coupled to said instruction address register means and coupled to the storage unit for holding the next succeeding instruction address during execution of the current instruction;

first latch means coupled to the microprocessor for receiving and storing an interrupt request received from the microprocessor and generated by one of the plurality of peripheral devices;

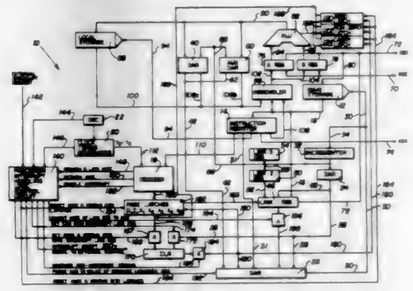
second latch means coupled to the storage unit and controlled by the microprocessor instructions for enabling and disabling interrupts that are received from the microprocessor when said first latch means has stored an interrupt request from the microprocessor;

interrupt link register means coupled to said instruction address register means for storing the values stored in said instruction address register means when an interrupt request is generated from one of the plurality of peripheral devices to the microprocessor;

interrupt means coupled to said first and second latch means for inhibiting the updating of the value of said instruction address register means to a next succeeding instruction to be pre-fetched during the first succeeding cycle following storage of an interrupt request by said first latch means;

means coupled to said first and second latch means and responsive to a successful branch operation resulting from the next instruction stored in said instruction address register for inhibiting operation of said interrupt means until completion of the successful branch operation; and

means coupled to said first and second latch means and responsive to storage of data in the storage unit for inhibiting operation of said interrupt means until completion of the storage cycle.



4,279,017

METHOD AND DEVICE FOR DETECTING THE PRESENCE OF ONE OR MORE PULSE CODE MODULATED MULTI-FREQUENCY CODE SIGNALS

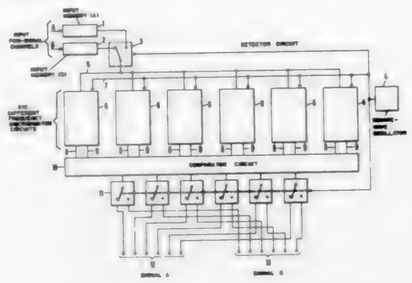
Bernardus W. Bos, Leidschendam, and Harke M. Wijbenga, Zoetermeet, both of Netherlands, assignors to Staat der Nederlanden (Staatsbedrijf der Posterijen, Telegrafie en Telefonie), The Hague, Netherlands

Filed Aug. 21, 1979, Ser. No. 68,406

Claims priority, application Netherlands, Sep. 8, 1978, 7809213

Int. Cl.³ G06F *15/20*; G01R *23/14*

U.S. Cl. 364—484 **13 Claims**



1. A method for detecting pulse code modulated multi-frequency code signals in at least one signal channel comprising the steps of:

(A) separately storing said signals from each channel,

(B) alternately selecting at least two successive sample signals from each of said channels,

(C) detecting at least one multi-frequency signal in each selected sample,

(D) modulating each detected signal by two separate given multiples to produce two types of signals from each sample,

(E) separately storing the resulting multiple-type signals,

(F) alternately selecting said separately stored multiple-type signals,

(G) comparing said selected multiple-type signals, and

(H) transferring said compared multiple-type signals for further processing.

4,279,018

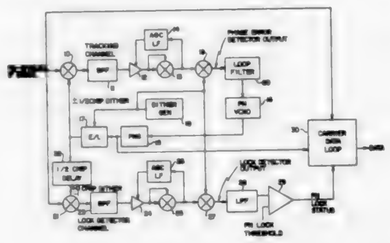
PN LOCK INDICATOR FOR DITHERED PN CODE TRACKING LOOP

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Lansing M. Carson, Tempe, Ariz.

Filed Mar. 6, 1979, Ser. No. 17,886

Int. Cl.³ H04L *7/08, 27/22*

U.S. Cl. 364—514 **6 Claims**



4. In a delay-lock dithered PN code tracking loop for tracking a received PN-spread IF signal, apparatus for an indication of lock in said PN code tracking loop, wherein said loop utilizes a local PN code signal dithered by $\pm\frac{1}{2}$ a code bit period in response to a dither control signal, a lock detector channel comprising

means for delaying said dithered local PN code signal by half a code bit period,

means for correlating said dithered and delayed local PN code signal with said received PN-spread IF signal to produce a DC signal proportional to the degree of correlation between said signals, and

means for phase detecting said DC signal with said dither control signal to produce a DC lock detector output signal proportional to the degree of correlation between said received PN-spread signal and said dithered and delayed local PN code.

4,279,019

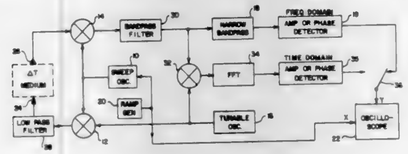
METHOD AND APPARATUS FOR DELAY ANALYSIS OF ENERGY TRANSMITTED THROUGH A MEDIUM

Richard C. Heyser, Tujunga, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed May 15, 1979, Ser. No. 39,154

Int. Cl.³ G06F *15/20*; G01S *9/23*

U.S. Cl. 364—569 **24 Claims**



1. A method for determining the manner by which wave energy is modified by a medium comprising the steps of

transmitting through said medium wave energy which is swept in frequency over a predetermined range of interest,

detecting said wave energy received through said medium at a remote point to obtain an output electrical signal which varies in frequency in a manner corresponding to the sweep of said wave energy, but delayed in time by an amount corresponding to the time delay of transmission through said medium, where said time delay may be zero,

providing a generated signal swept in frequency in a manner corresponding to the sweep of said wave energy, but offset in time by an amount corresponding to the time delay of transmission of a particular path through said medium, where said particular path through said medium may be a direct, zero-time-delay path, and mixing said swept signal with said output electrical signal developed from energy waves detected, thereby to produce an IF signal for analysis in the frequency domain, and

performing a further operation on the IF signal over the entire frequency spectrum of interest to produce a signal for display of amplitude or phase in the time domain.

4,279,020

POWER SUPPLY CIRCUIT FOR A DATA PROCESSOR

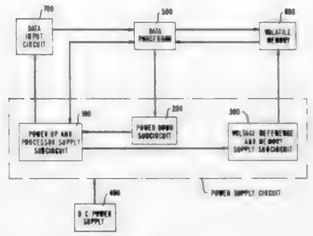
Ronald W. Christian, and Walter G. Kutzavitch, both of Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 18, 1978, Ser. No. 934,817

Int. Cl.³ G06F *1/00*

U.S. Cl. 364—900 **12 Claims**

1. A power supply circuit for a data processor to which a data input circuit is connected, operation of the data input circuit providing an input to the data processor, the power supply circuit including a power up circuit that is latched on responsive to the operation of the data input circuit and when latched on supplies power from a power source to the processor, the power up circuit comprising a single pair of complementary transistors arranged so that an output electrode of each transistor is connected to an input electrode of the other transistor, a first of the transistors having its third electrode adapted to be connected to the power source, and the second



transistor having its third electrode connected to the power input of the data processor, the operation of the data input circuit completing a path from the input electrode of the first transistor to a point that is essentially at a common reference potential to latch the power up circuit on.

4,279,021

PORTABLE DATA ENTRY APPARATUS INCLUDING PLURAL SELECTABLE FUNCTIONAL CONFIGURATIONS

Gary G. See, Chagrin Falls, and Robert J. Robbins, Walton Hills, both of Ohio, assignors to Telxon Corporation, Bath, Ohio

Filed Feb. 15, 1979, Ser. No. 12,400

Int. Cl.³ G06F *15/06*

U.S. Cl. 364—900 **13 Claims**



1. Apparatus comprising

a portable hand-held data entry device including a keyboard having an array of keys thereon, said keys being actuable by manual depression for data entry or data manipulation, wherein the operations performed by said data entry device upon actuation of said keys is established by coded indications provided to said device by coding means interconnectable therewith,

coding means removably interconnectable with said portable data entry device, said coding means providing coded indications thereto to select the functions to be performed by said portable data entry device upon actuation of said keys, and

key identification means associated with said coding means and comprising a sheet of material adapted to be removably laid over said array of keys, said sheet having sufficient pliance that said keys may each be actuated by depressing the corresponding portion of said sheet, and having an array of key identifiers carried thereon in an arrangement corresponding to the arrangement of said

keys on said keyboard, a frame member for carrying said pliant sheet of material, said frame member being substantially rigid and adapted to hold said pliant sheet by the perimeter thereof so as to hold said sheet of material, and thus said key identifiers, in a predetermined alignment with respect to said frame member, and

wherein said portable data entry device includes means for receiving and holding said frame member in a predetermined alignment with respect to said keyboard, said predetermined alignments between said keyboard and said frame member and said sheet material being selected so that proper alignment between said keyboard and said key identification means will necessarily result when said frame member is received and held by said portable data entry device,

whereby each of said key identifiers will be positioned over a corresponding key when said keyboard and key identification means are properly aligned with respect to one another, and with each of said key identifiers identifying the function of said corresponding key when said associated coding means is interconnected with said device, and whereby the operator controllable functions performed by said device may be tailored to specific end uses of the device by interconnecting an appropriate coding means and associated key identification means therewith.

4,279,022

ELECTRONIC CALCULATION/MEMORANDUM APPARATUS

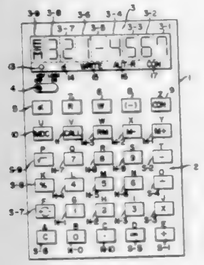
Kazuhiro Abe, Yokosuka, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan

Continuation of Ser. No. 904,773, May 11, 1978, abandoned. This application May 29, 1980, Ser. No. 154,289

Claims priority, application Japan, May 14, 1977, 52/55847; Dec. 9, 1977, 52/147807; Dec. 24, 1977, 52/155823

Int. Cl.³ G06F *3/02, 3/14*

U.S. Cl. 364—900 **29 Claims**



1. An electronic calculation/memorandum apparatus comprising:

a housing;

an alpha-numerical display on said housing;

a first random access memory means for storing a plurality of pairs of sequence of entered alphabetical index data and numerical characters, each pair being stored at a given location;

a second random access memory means for storing a sequence of numerical data;

a keyboard mounted on said housing and having a plurality of manually operable alpha-numerical keys at least some of which are associated with both an alphabetical character and a numerical character and a plurality of mode changing keys, one of said mode changing keys being a first letter key for switching, following manual operation thereof, the apparatus into a memorandum mode and for entering a sequence of alphabetical characters to be stored in a first part of one location of said first memory means, a second write key for causing after first manual operation, said previously entered sequence of alphabetical characters to be stored, and, after subsequent manual operation, a sequence of numerical characters entered after said first operation to be stored in a second part of said one location of said first memory means, a read key for causing, after manual operation, stored sequences to be displayed and a call key for causing, after manual operation thereof and operation of said write key, a stored sequence in said second memory means to be stored in said second part of said one location of said first memory means;

logic means connected to said, first random access memory means and second random access memory means, said display and said keyboard for carrying out arithmetic calculations upon sequences of numerical characters, storing the results thereof in a register and displaying said results in said alpha-numeric display and for controlling storage in said locations in accordance with manual operation of said letter, read and write keys and storage in said second memory means when the apparatus is in memorandum mode of said results in said register.

4,279,023

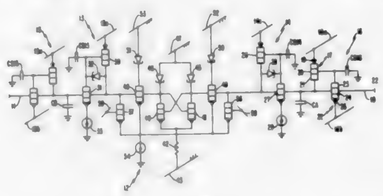
SENSE LATCH

Russell J. Houghton, Essex Junction, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 19, 1979, Ser. No. 105,050

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—174 **18 Claims**



1. A memory array comprising:

first and second bit lines, each bit line having a distributed capacitance,

a charge storage data cell coupled to one of said bit lines,

a charge storage reference cell coupled to the other of said bit lines,

a sense amplifier comprising;

first and second voltage nodes, and

first and second cross coupled latching transistors, each having an emitter, a base and a collector, the collector of each transistor being connected to a respective bit line and to the base of the other latching transistor and coupled to said first voltage node and the emitter of each transistor being connected in common and coupled to said second voltage node,

means for writing information into said data cell, and

means for reading information stored in the data cell by referring it to the state of the reference cell and turning on one of said cross coupled transistors to discharge both bit lines through said turned on cross coupled transistor to amplify the stored information and preset the bit lines to the voltage levels required to write the data cell.

4,279,024

WORD-BY-WORD ELECTRICALLY REPROGRAMMABLE NONVOLATILE MEMORY

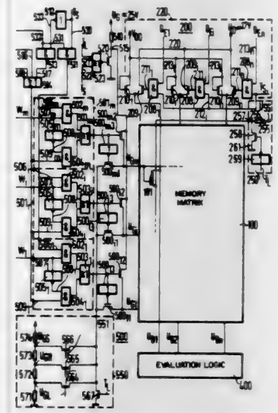
Hartmut Schrenk, Haar, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,746

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1978, 2828855

Int. Cl.³ G11C *11/40*

U.S. Cl. 365—203 **13 Claims**



1. A word-by-word electrically reprogrammable nonvolatile memory comprising:

a matrix including

a plurality of memory cells, each of said memory cells being chargeable and dischargeable to predetermined states including write and erase states;

a plurality of memory lines connected to said memory cells;

state control means, including voltage producing means, connected to said memory lines for selectively operating said memory cells towards said predetermined states; and

monitoring means connected to said memory cells and to said state control means for monitoring the charge state of said memory cells and terminating operating of said state control means in response to the monitored cells attaining said predetermined states and thereby providing variable duration state control signals.

4,279,025

RELEASABLE AIRBORNE BUOY

Vito Suppa, Paris, France, assignor to Thomson-CSF, Paris, France

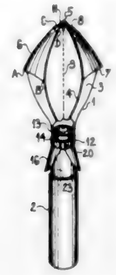
Filed Jul. 13, 1979, Ser. No. 57,422

Claims priority, application France, Jul. 18, 1978, 78 21276

Int. Cl.³ B63B *21/52;* H04B *1/59*

U.S. Cl. 367—3 **11 Claims**

1. A buoy capable of being dropped onto water from an aircraft, comprising an inflatable balloon attached to a container, wherein the balloon is inflated during its descent by a forced intake of air at the base of the balloon and said balloon contains a membrane made of a flexible material which is capable of blocking the air inlet or outlet openings of the balloon, the pressure of the balloon thus being equal to the maximum dynamic pressure of the air during the descent, said balloon having adjustable openings in the form of scoops and a sealed passage connecting the upper part of the scoops to the



lower part of the balloon and the forced intake of air taking place through the opening of these scoops.

4,279,026

SEISMOGRAPHIC DATA COLOR DISPLAY

Orbie N. Lambright, and Mangat R. Thapar, both of Tulsa, Okla., assignors to Cities Service Company, Tulsa, Okla.

Filed Aug. 31, 1978, Ser. No. 938,682

Int. Cl.³ G01V *1/34*

U.S. Cl. 367—70 **2 Claims**

1. A method of forming a color display from a sequence in input seismic digital data representing trace oscillations having positive and negative amplitude values wherein colors and their extents are indicative of trace amplitude values comprising the steps of:

(a) processing the sequence of input digital data to obtain a sequence of absolute amplitude values

(b) selecting an absolute amplitude value corresponding to the maximum amplitude for each oscillation, thereby obtaining a sequence of said maximum absolute amplitude values,

(c) classifying a predetermined number of the largest selected absolute amplitude values into a first range of values,

(d) classifying the remaining absolute amplitude values, according to magnitude, into five additional ranges descending in magnitude from said first range,

(e) forming a table in which each range is represented by a primary or secondary color,

(f) processing said sequence of input digital data to obtain a sequence of gain balanced seismic digital data,

(g) processing said sequence of input data to select data

having absolute amplitude values which fall within a first group of said ranges corresponding to a first primary color,

(h) preparing a visual representation of said positive and negative gain balanced data representing trace oscillations corresponding to said selected data,

(i) transferring an image of said visual representation to a sensitized sheet,

(j) desensitizing said sheet except in the region of said image,

(k) coloring said image so transferred with said primary color,

(l) resensitizing said sheet,

(m) in sequence, processing said sequence of input data to select trace amplitudes values which fall within a second group of ranges corresponding to a second primary color and repeating steps (h) through (l),

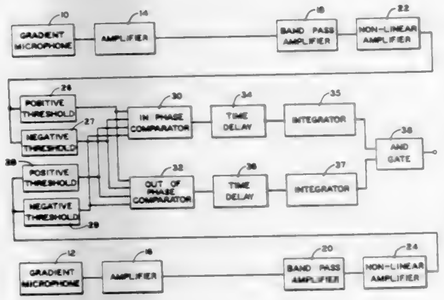
(n) in sequence, processing said sequence of input data to select trace amplitudes values which fall within a third group of ranges corresponding to a third primary color and repeating steps (h) through (k), whereby said primary colors by virtue of random complementary addition operate to generate six colors (three primary and three secondary colors) effective to indicate differing ranges of amplitude values in accordance with the table.

4,279,027

ACOUSTIC SENSOR

Peter H. Van Sloun, Hopkins, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 13, 1979, Ser. No. 75,346
Int. Cl.³ G01S *3/80*
U.S. Cl. 367—125 **5 Claims**



1. Apparatus for locating an acoustic source, comprising:

a first gradient microphone adapted to receive acoustic waves in the first axis and transmit a first signal corresponding to said wave;

a second gradient microphone adapted to receive acoustic waves in a second axis and transmit a second signal corresponding to said wave, second axis being orthogonal to said first axis;

signal processing means receiving said first and said second signals and comparing the phase of said signals, said signal processing means including positive signal means for producing a digital signal when said first or second signal is above a predetermined amplitude and a negative signal means for producing a different digital signal when said first or second signal is below a predetermined amplitude; and,

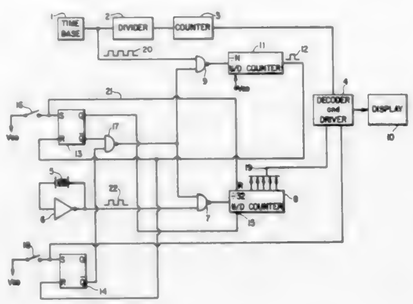
alarm means for producing a signal identifying a change in state of the phase comparison.

4,279,028

WATCH WITH BAROMETRIC PRESSURE INDICATOR

John Lowdenslager, Norwalk, and Alan E. Willis, Stamford, both of Conn., assignors to Timex Corporation, Waterbury, Conn.

Filed Oct. 10, 1979, Ser. No. 83,434
Int. Cl.³ G04B *47/00*
U.S. Cl. 368—11 **6 Claims**



3. In combination:

a digital display wristwatch comprising a quartz crystal controlled oscillator for generating a relatively high frequency time standard signal, divider means responsive to the time standard signal to produce low frequency timekeeping signals, counting circuit means responsive to the timekeeping signals adapted to count specific units of time and provide binary coded decimal information signals representative of time, decoder driver means responsive to the binary coded decimal information signals to provide drive signals to said digital display to display digital information correlated to the information signals whereby time information is presented on the digital display; and

an atmospheric pressure variation detecting means comprising an unsealed piezoelectric crystal oscillator circuit for generating barometric pulse signals having a frequency which varies with atmospheric pressure, a first NAND gate having one of its inputs being coupled to said barometric pulse signals and its other input coupled to a control signal output of a second NAND gate for periodically coupling said barometric pulse signals to a counter input terminal of an up/down counter, said up/down counter having a control up/down terminal being responsive to a high-low output state of the Q output of a first flip-flop circuit and the barometric pulse signals to first count-up and subsequently count-down the pulses of said barometric pulse signals to provide a binary code decimal difference signal representative of any frequency variation of said barometric pulse signals to said decoder driver, said first flip-flop circuit includes a Q output connected to one input of said second NAND gate and a reset connected to a reset of a second flip-flop and being connected to a time reference output of an N counter, said first flip-flop having a set terminal connected to a reset of said up/down counter and a first switch means for selectively setting said first flip-flop and resetting said up/down counter, said second flip-flop having a Q output connected to the other input of said second NAND gate and a set terminal connected to said decoder driver and to a second switch means for selectively setting the second flip-flop and enabling the decoder-driver to provide drive signals to display said difference signal, said N counter includes a counter input terminal connected to the output of a third NAND gate having one of its inputs coupled to the output of said time base and its other input connected to the output of said second NAND gate;

whereby said atmospheric pressure variation detecting means responds to a variation in atmospheric pressure a

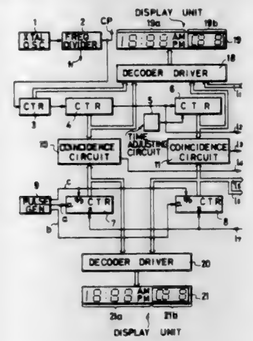
selected time period and is adapted to effect actuation of said digital display to display a digital number being correlated to atmospheric pressure variations.

4,279,029

ELECTRONIC TIMEPIECE

Hajime Oda; Masanori Fujita, and Nakanobu Moritani, all of Tokyo, Japan, assignors to Kabushiki Kaisha Seikosha, Tokyo, Japan

Filed Oct. 24, 1979, Ser. No. 87,750
Claims priority, application Japan, Oct. 26, 1978, 53/131896
Int. Cl.³ G04B *19/24, 23/02;* G04C *9/00*
U.S. Cl. 368—29 **2 Claims**



1. An electronic timepiece comprising:

a first counting circuit for counting time and at least one of date and the days of the week;

a first storage circuit for storing scheduled time and providing a corresponding output;

a first coincidence circuit for detecting the coincidence between time data from the first counting circuit and the output from the first storage circuit;

a second storage circuit for storing at least one from among data representative of the date, the days of the week and data consisting of a predetermined code and providing a corresponding output;

a second coincidence circuit for detecting the coincidence between the data from the second storage circuit and said at least one of date and the days of the week;

a display unit for displaying information representative of the output from the second storage circuit;

an alarm sound signal control means for controlling the occurrence of an alarm sound in response to both outputs of the first and second coincidence circuits;

means for effecting reset of the second storage circuit; and

a control circuit for controlling the reset action of the first and second storage circuits in response to at least an alarm sound stop signal from the alarm sound signal control means.

4,279,030

SPEECH-SYNTHESIZER TIMEPIECE

Sigeaki Masuzawa, Nara, and Mituhiro Saizi, Kyoto, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

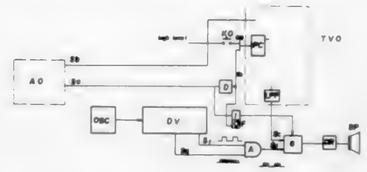
Filed Mar. 26, 1979, Ser. No. 23,754
Claims priority, application Japan, Mar. 25, 1978, 53-34683
Int. Cl.³ G04B *21/08, 21/02*
U.S. Cl. 368—63 **6 Claims**

1. A speech-synthesizer timepiece capable of providing an indication of updated time information, comprising;

audible sound warning signal generating means for developing an audible sound warning signal indicative of a forthcoming development of said indication of updated time information associated with said speech-synthesizer timepiece;

audible sound signal generating means for developing an audible sound signal representative of said indication of updated time information subsequent to the development of said audible sound warning signal by said audible sound warning signal generating means;

means responsive to said audible sound warning signal and to said audible sound signal for generating a first audible sound to provide a warning signal indicative of said forthcoming development of said indication of updated time information in accordance with said audible sound warning signal and for generating a second audible sound subsequent to the generation of said first audible sound and representing said indication of updated time information in accordance with said audible sound signal; and



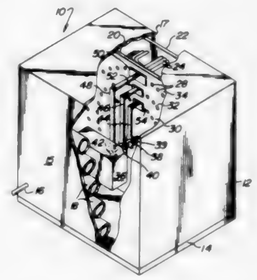
time interval counting means for providing a time count of the elapsed time within a predetermined time interval and for developing an output signal when said time interval counting means counts to the end of said predetermined time interval, said audible sound warning signal generating means developing said audible sound warning signal when the output signal from said time interval counting means is developed.

4,279,031

LUMINOUS CLOCK DISPLAY USING OPTICAL FIBERS

A. S. Dostoomian, Canton, Mass., assignor to Vanzetti Infrared & Computer Systems, Inc., Canton, Mass.

Filed Mar. 14, 1980, Ser. No. 130,290
Int. Cl.³ G04C *19/00;* G08B *5/00*
U.S. Cl. 368—82 **7 Claims**



1. A clock having a luminous display, comprising:

(a) an enclosed housing;

(b) a display face visible at one side of the housing;

(c) a stationary light source within the housing;

(d) optical fiber light conductors having first ends disposed in a mounting structure and arranged in annular concentric bands, to receive and conduct light through the optical fiber light conductor to second ends arranged in information patterns on the display face;

(e) a clock motor for providing rotational outputs corresponding to units of time;

(f) optical filters located between the light source and the first ends of the light conductors, each filter being

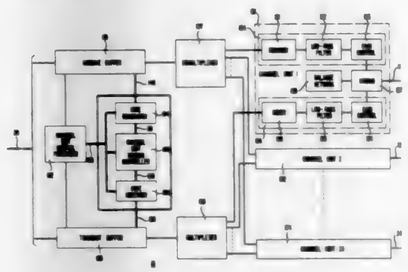
mounted on a discrete arm rotatably driven by an output shaft of the clock motor, such arms having lengths such that each filter when rotated traverses a circular path which matches one of the annular concentric bands of the first ends of the light conductors, whereby each filter modifies the light received by the first end of the associated conductors at specific segments of the filter rotation.

4,279,032

CHANNEL BANK LOOP-AROUND TEST ARRANGEMENT AND METHOD

Nicholas K. Smith, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 26, 1979, Ser. No. 33,720
Int. Cl.³ H04J 3/14
U.S. Cl. 370—15 **27 Claims**



1. A method of testing a PCM channel bank arrangement (10) having

a time division multiplex line (1T1) serving a plurality of PCM channels;

a plurality of analog lines (11–34);

a plurality of channel units (151–174) each coupling one of said PCM channels on said multiplex line (1T1) with one of said analog lines (11) and each having a receive path (12A) wherealong PCM signals are converted to analog signals, a transmit path (13A) wherealong analog signals are converted to PCM signals and a loop-around path (127) coupling said receive and said transmit paths (12A, 13A); and

a testing controller (105) coupled to said transmit path (12A) and said receive (13A) path of each of said channel units (151–74), the method

characterized by the steps of

circulating from said testing controller (105) via said loop-around path (127) and back to said testing controller (105) a sequence of prescribed PCM test code words, each said word defining an amplitude magnitude of a waveform having piecewise linearly positive and negative sloping portions; and

evaluating the circulated test code words for undesirable levels of signal degradation.

4,279,033

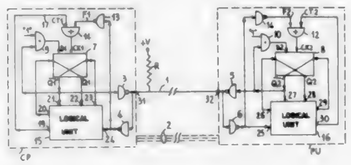
BIDIRECTIONAL TRANSMISSION CIRCUIT FOR INTERLOCKED SIGNALS

Romeo Brunelli, Milan, and Angelo Casamatta, Cornaredo, both of Italy, assignors to Honeywell Information Systems Italia S.p.A., Milan, Italy

Filed Mar. 22, 1979, Ser. No. 23,050
Claims priority, application Italy, Mar. 23, 1978, 21510 A/78
Int. Cl.³ H04L 5/14
U.S. Cl. 370—29 **5 Claims**

1. Circuit for the bidirectional transmission of signals, at least partially interlocked, between two units connected by means of a signal transmission means, said transmission means being terminated in one of the two units with first means for applying to said trasmissions means either one of two statuses, representative of two logical levels and with second means to detect the status of said transmission means and to provide an indication of said status, In the second unit the transmission means being terminated with a third means for applying to said transmission means either one of the said statuses, and with a fourth means for detecting the status of said transmission means and for providing an indication of said status, the first of said two statuses being taken by the said transmission means only when the said status is concurrently set by said first and third means, the second of said two statuses being taken by said transmission means when the said second status is set by either the first or third means only, comprising:

a first bistable element for the control of the said first means and capable of assuming a first logical status as a consequence of a control signal received from said first unit, of causing the application, when it is in this first logical status, of said first status to said transmission means, and of resuming a second logical status in response to a change of status of said transmission means detected by said second means, and



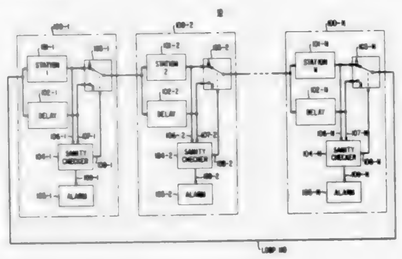
a second bistable element for the control of said third means, capable of assuming a first logical status in response to a status change of said transmission means, detected by said fourth means, and capable of causing the application, when it is in said first logical status, by said third means of the said second status to said transmission means, and further capable to assume a second logical status as a consequence of a reset command generated in said second unit.

4,279,034

DIGITAL COMMUNICATION SYSTEM FAULT ISOLATION CIRCUIT

Leslie A. Baxter, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 15, 1979, Ser. No. 94,494
Int. Cl.³ H04Q 9/00; G08C 25/00
U.S. Cl. 371—8 **5 Claims**



1. A fault isolation circuit for use in a digital loop communication system having a plurality of stations, each station interconnected with a next preceding and a next succeeding station over a digital communication path, said stations separated into groups, each group containing at least one said station,

said isolation circuit including

delay means having a bit propagation delay time equal to the bit propagation time of the combination of said associated group of stations,

means for propagating through said delay means data bits appearing at the input of said associated group of stations,

means for comparing the output bits from said group of stations with said propagated delayed bits, and

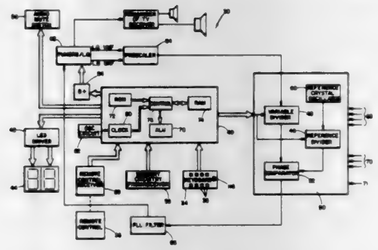
error detector means responsive to a detected error between said compared bits for isolating said output bits from said communication path and for substituting said propagated delayed bits on said communication path in place of said isolated bits.

4,279,035

CHANNEL NUMBER ENTRY SYSTEM

Peter C. Skerlos, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Dec. 27, 1979, Ser. No. 107,805
Int. Cl.³ H04B 1/16; H04N 5/50
U.S. Cl. 455—158 **11 Claims**



1. In a television receiver tuning system controlled by a microcomputer wherein channel selection is by means of a keyboard including a plurality of selectable digit keys for generating binary signals representing television channel numbers with said binary signals being transmitted to said microcomputer for display on a digital display, for storage in a matrix memory in said microcomputer, and for controlling television receiver tuning circuitry, and a selectable enter key for tuning in a selected channel, a method of selecting a desired channel number by which the possibility of an erroneous channel number entry is reduced, said method comprising the steps of:

selecting the desired channel number by actuating said selectable digit keys on said keyboard and displaying the selected channel number on said digital display;

storing the selected channel number in said matrix memory in said microcomputer for a predetermined period of time;

actuating said enter key; and

transmitting said selected channel number to tuning circuitry in said television receiver for tuning said television receiver to said selected channel number and retaining in said digital display the selected channel number if said enter key is selected within said predetermined period of time; or

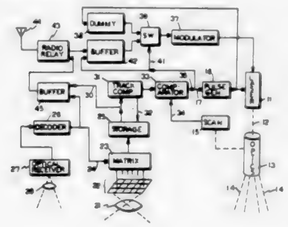
removing the selected channel number from memory storage in said microcomputer and from said digital display while remaining tuned to a currently tuned channel if said enter key is not selected within said predetermined period of time.

4,279,036

SECURE COMMUNICATION SYSTEM

Charles E. Pfund, 16 Balcarres Rd., West Newton, Mass.

Filed Jul. 2, 1962, Ser. No. 206,766
Int. Cl.³ H04B 9/00
U.S. Cl. 455—606 **17 Claims**



1. Apparatus for communicating with a mobile vehicle comprising means for transmitting a laser beam toward an orbiting satellite from a vehicle within the portion of the earth's surface beneath said satellite, means for detecting said laser beam received at said satellite to determine the angular orientation of said vehicle from said satellite, means for utilizing the angular orientation data so obtained to establish a narrow beam communication link from said satellite to said vehicle, and means for communicating with said vehicle from a remote point via said satellite and said narrow beam communication link.

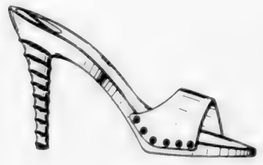
259,820
POCKET FOR JEANS OR THE LIKE
Martin Heinfling, Bayside, N.Y., assignor to Englishtown Sportswear, Ltd., New York, N.Y.
Filed May 5, 1980, Ser. No. 146,851
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—28



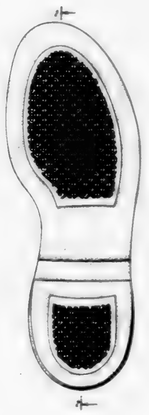
259,821
SWIMSUIT
Jacquelyn A. B. Myles, 1427 Newton Ave., Dayton, Ohio 45406
Continuation-in-part of Ser. No. 669,619, Mar. 22, 1976, abandoned. This application Jan. 12, 1979, Ser. No. 3,129
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—40



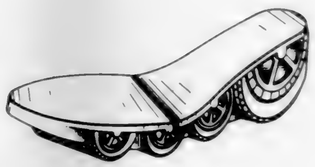
259,822
SHOE
Renate M. Melzi, and Edward R. Melzi, both of 3310 Ivanhoe La., Garland, Tex. 75042
Filed Jul. 11, 1979, Ser. No. 56,509
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—283



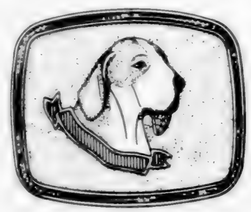
259,823
SHOE SOLE
James V. Greenlee, Wausau, Wis., assignor to Bata Shoe Company, Inc., Belcamp, Md.
Filed Aug. 15, 1979, Ser. No. 66,799
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



259,824
SHOE SOLE
Ralph Shanks, and Ralph Shanks, Jr., both of 4448 Sigma Rd., Suite 101, Dallas, Tex. 75240
Filed Dec. 26, 1978, Ser. No. 973,547
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—321



259,826
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,413
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,825
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,412
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



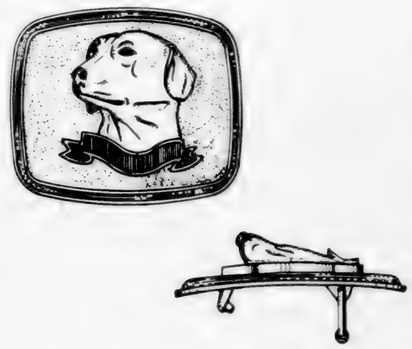
259,827
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,414
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,828
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,415
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,830
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,423
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



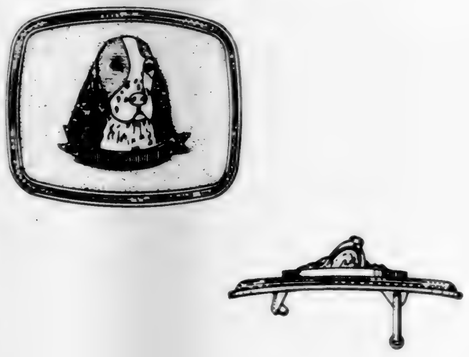
259,829
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,416
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



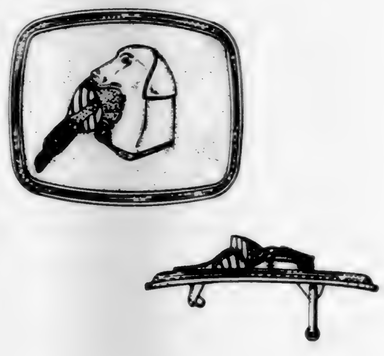
259,831
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,424
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



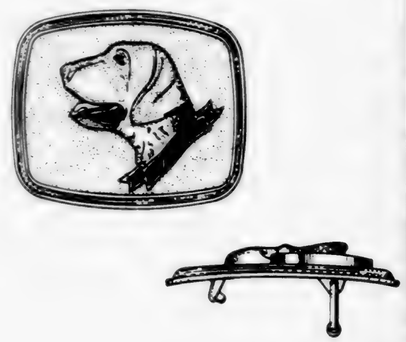
259,832
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,425
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



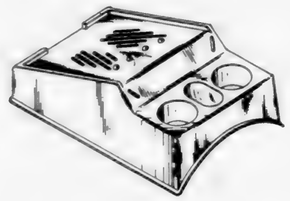
259,833
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,426
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,834
BELT BUCKLE (SHORTHAIR)
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,428
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



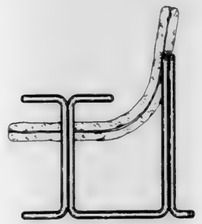
259,835
ARTICLE SUPPORT CONSOLE FOR AUTOMOBILES
Cornelius D. Page, Jr., Gastonia, N.C., assignor to Allied Plastics, Inc., Gastonia, N.C.
Filed Aug. 9, 1978, Ser. No. 932,685
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D3—40



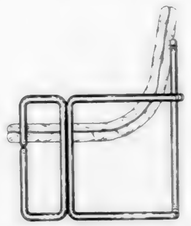
259,836
LUGGAGE BAG
Louis Schneider, Landsham, and Hans A. Muth, Hechendorf, both of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Mar. 14, 1979, Ser. No. 20,320
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 11455
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71



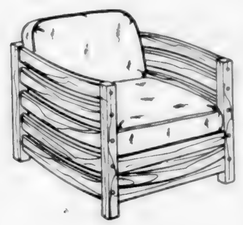
259,837
CHAIR
Steven D. Gageby, 12 Hay Camp Rd., North Oaks, Minn. 55110
Continuation-in-part of Ser. No. 677,613, Apr. 16, 1976. This application Jul. 5, 1978, Ser. No. 922,177
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—69



259,838
CHAIR
Steven D. Gageby, 12 Hay Camp Rd., North Oaks, Minn. 55110
Continuation-in-part of Ser. No. 677,614, Apr. 16, 1976. This application Jul. 5, 1978, Ser. No. 922,179
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—69



259,839
CHAIR
Jobie G. Redmond, High Point, N.C., assignor to Jack Daniel Distillery, Lem Motlow, Prop., Inc., Lynchburg, Tenn.
Filed Nov. 8, 1978, Ser. No. 958,844
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—70



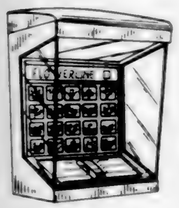
259,840
THROW CUSHION CHAIR
Jobie G. Redmond, High Point, N.C., assignor to Jack Daniel Distillery, Lem Motlow, Prop., Inc., Lynchburg, Tenn.
Filed Nov. 8, 1978, Ser. No. 958,847
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—70



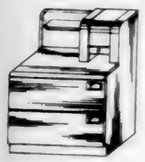
259,841
CHAIR
Marcello Miosi, 11044 Strathmore, Westwood, Calif. 90024
Filed Aug. 7, 1978, Ser. No. 932,106
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—74



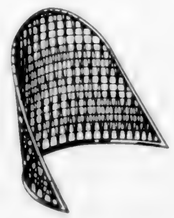
259,842
COMBINED MERCHANDISE ADVERTISING AND TELEPHONE ORDER BOOTH
Paul S. Kostoff, 19323 Parke La., Grosse Ile, Mich. 48138
Filed Sep. 28, 1978, Ser. No. 946,852
Term of patent 14 years
Int. Cl. D20—*02;* D25—*03*
U.S. Cl. D6—130



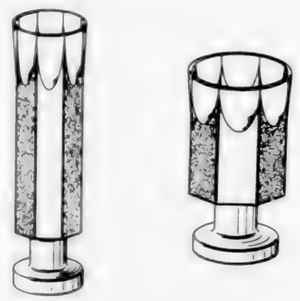
259,843
BEDSIDE TABLE
Esperia Murphy, P.O. Box 952, Vienna, Va. 22180
Filed Oct. 30, 1978, Ser. No. 955,699
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—163



259,844
CHAIR BACK
Donald E. Hanaford, 4601 S. 35th St., Phoenix, Ariz. 85040
Filed Oct. 16, 1978, Ser. No. 951,449
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197



259,845
GOBLET OR SIMILAR ARTICLE
Timo Sarpaneva, Helsinki, Finland, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland
Filed Oct. 10, 1978, Ser. No. 949,795
Claims priority, application Finland, May 3, 1978, 275
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—11

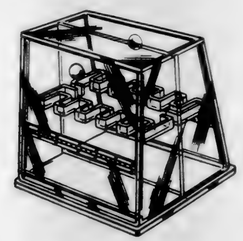




259,846
BEVERAGE CUP
Alain D. Perrin, Rueil Malmaison, France, assignor to Interdica S.A., Villars-sur-Glane, Switzerland
Filed Feb. 23, 1979, Ser. No. 14,759
Claims priority, application Hagne, Aug. 29, 1978, 67448
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—15



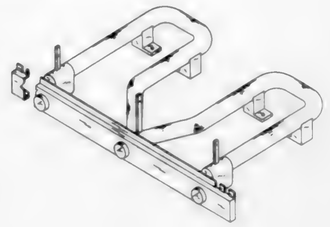
259,847
FLATWARE RACK
Robert L. Hamby, Dodge City, Kans., assignor to Leo L. Carrick and Della Carrick, both of Fort Collins, Colo.
Filed Mar. 27, 1979, Ser. No. 24,328
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—74



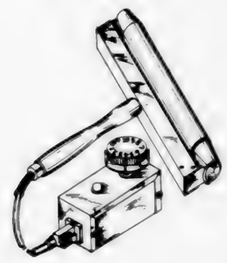
259,848
DEVICE WHICH IS SUITABLE FOR USE IN CLEANING MAGNETIC HEADS OF MAGNETIC TAPE RECORDING AND/OR PLAYBACK INSTRUMENTS
William C. Westrau, Seaford, England, assignor to Bib Hi-Fi Accessories Limited, Hemel Hempstead, England
Filed Dec. 15, 1978, Ser. No. 969,791
Claims priority, application United Kingdom, Oct. 10, 1978, 986771/78
Term of patent 14 years
Int. Cl. D7—*05;* D4—*01*
U.S. Cl. D7—161



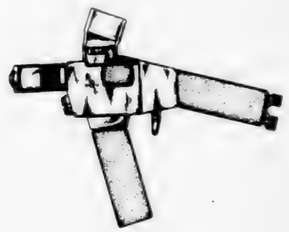
259,849
ANDIRON
Richard B. Estes, 20 Sandra La., Athens, Ala. 35611
Filed Apr. 18, 1978, Ser. No. 897,657
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D7—211



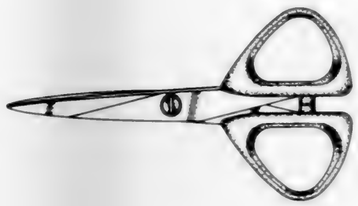
259,850
COMBINED HEAT APPLYING ROLLER AND CONTROL DEVICE THEREFOR
Rubin Feldman, 46 Rio Vista Dr., St. Louis, Mo. 63124; Wilbur Paddock, 7705 Underhill Dr., St. Louis, Mo. 63133, and James S. Eiteljorg, 1214 Orchard Village, Ballwin, Mo. 63011
Filed Jul. 21, 1977, Ser. No. 817,840
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



259,851
FLAME SPRAYING TORCH
Daniel Audemars, Echanchens; Wolfgang Simm, Lausanne, and Hans-Theo Steine, Crissier, all of Switzerland, assignors to Castolin S.A., Vaud, Switzerland
Filed Jul. 19, 1978, Ser. No. 926,219
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—30



259,852
SCISSORS
Naoyoshi Machida, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Seki, Japan
Filed Jan. 29, 1979, Ser. No. 7,642
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—57

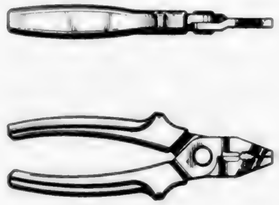




259,853
SCISSORS
Naoyoshi Machida, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Seki, Japan
Filed Jan. 29, 1979, Ser. No. 7,643
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—57

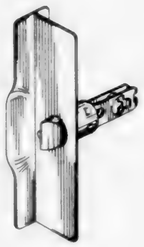


259,854
ENGINEERS' PLIERS
Ulf H. Wahlberg, Enköping, Sweden, assignor to Aktiebolaget Bahco Verktyg, Enköping, Sweden
Filed Sep. 29, 1977, Ser. No. 837,947
Claims priority, application Sweden, May 2, 1977, 770987
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—58

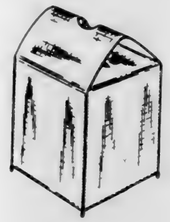


259,855
DRILL CHUCK
George C. Derbyshire, Sheffield, England, assignor to The Jacobs Manufacturing Co., Ltd., Sheffield, England
Filed Aug. 17, 1978, Ser. No. 934,524
Claims priority, application United Kingdom, May 26, 1978, 984831/78
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—68

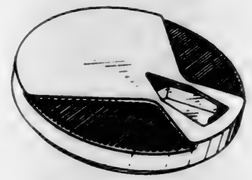
259,856
COMBINED DOOR LOCK BOLT AND COVER PLATE
David M. Clener, P.O. Box 288M, Geneva, Fla. 32732
Filed Jan. 15, 1979, Ser. No. 3,112
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—331



259,857
CONTAINER FOR BULK MATERIALS
Frank Nattrass, Knaresborough, England, assignor to Lolift Limited, England
Filed Sep. 8, 1977, Ser. No. 831,693
Claims priority, application United Kingdom, Mar. 8, 1977, 979164/77
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—432



259,858
PILL BOX
Henry Finkel, 342 Elm Ave., Westmount, Quebec, Canada (H3Z 1Z5)
Filed Dec. 26, 1978, Ser. No. 972,652
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—418



259,859
CONTAINER FOR LIQUIDS
John C. Tibbles, 85 Ngaio Gorge Rd., Wellington, New Zealand
Filed Jul. 3, 1978, Ser. No. 922,167
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



259,860
CARTON
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,465
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



259,861
CAP FOR DISPENSING DISINFECTANTS
Clayton N. Hirtle, 44332 Balch Park Dr., Springville, Calif. 93265
Filed Apr. 3, 1980, Ser. No. 136,810
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—450



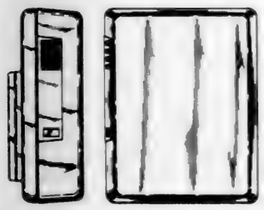
259,862
COMBINED ELECTRONIC CLOCK AND MIRROR
Chi T. You, 71-73, Pou Hsin Rd., Hsin Den Tjen, Taipei Hsien, Taiwan, Taiwan
Filed Nov. 28, 1978, Ser. No. 964,175
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—2



259,863
COMBINED AIR PRESSURE GAUGE AND DUAL TIRE AIR FILLING DEVICE
Chauncey B. Eller, 23100 Vista Grande Way, Colton, Calif. 92324
Filed Jul. 17, 1978, Ser. No. 925,223
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—86



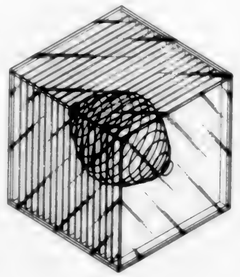
259,864
CASE FOR AUDIBLE SIGNAL GENERATOR FOR ENURESIS PREVENTION TRAINING DEVICE
Joe W. Snyder, Dundee, Oreg., assignor to Nite Train-R Enterprises, Inc., Newberg, Oreg.
Filed Nov. 13, 1978, Ser. No. 959,652
Term of patent 3½ years
Int. Cl. D10—*05*
U.S. Cl. D10—116



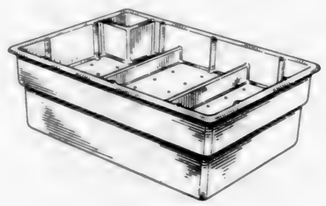
259,865
RADIATION-SENSITIVE PENDULUM TO BE HELD IN THE HAND
Michel Struby, 150 A, route d'Hermance, CH-1245 Collonge-Bellerive, Geneva, Switzerland
Filed Sep. 20, 1978, Ser. No. 944,209
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—47



259,866
DISAPPEARING SPHEROID DISPLAY
Karen G. A. Mortillaro, 8652 Salt Lake Dr., Huntington Beach, Calif. 92646
Filed Jan. 2, 1979, Ser. No. 111
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—131



259,867
HYDROPONIC GARDENING TRAY
Stewart T. Kenyon, 1134 Yonge St., Toronto, Ontario, Canada (M4W 2L8); Walter C. Kenyon, Toronto, and Helmut D. Julinot, Baltimore, both of Canada, assignors to Stewart T. Kenyon, Toronto, Canada
Filed Jan. 22, 1980, Ser. No. 114,175
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—155



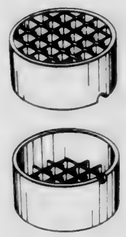
259,868
PLANTER
Helmut D. Julinot, Baltimore, Canada, assignor to Stewart Kenyon, Toronto, Canada
Filed Apr. 9, 1979, Ser. No. 28,157
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—156



259,869
HORSEMAN FIGURE
Charles A. MacLean, 23073 Beech, Dearborn, Mich. 48124
Filed Apr. 25, 1979, Ser. No. 33,126
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



259,870
SUPPORT TO HOLD POTTED PLANTS ABOVE WATER LEVEL
Thomas L. Marsatette, 6119 E. Gold Dust, Scottsdale, Ariz. 85253
Filed Dec. 26, 1979, Ser. No. 107,333
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—164



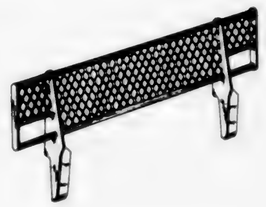
259,871
BOAT
William I. B. Crealock, 1401 Forest Ave., Carlsbad, Calif. 92008
Filed Feb. 23, 1978, Ser. No. 881,158
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—303



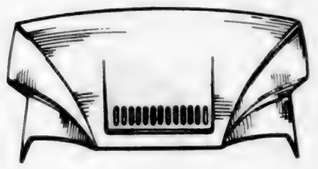
259,872
COVER PLATE FOR A MOTORCYCLE CRANK CASE
Donald G. Ramsey, 962 Cornell Ave., Youngstown, Ohio 44502
Filed Sep. 18, 1978, Ser. No. 943,291
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—126



259,873
GRILL GUARD FOR VANS
William J. Milner, Pleasantville, Iowa 50225
Filed Jul. 24, 1978, Ser. No. 927,115
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—171



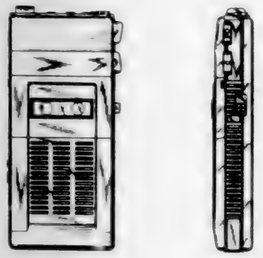
259,874
TRACTOR-TRAILER AERODYNAMIC DRAG REDUCER
Giuseppe Ferrero, Turin, Italy, assignor to Fiat Veicoli Industriali S.p.A., Turin, Italy
Filed Feb. 27, 1979, Ser. No. 15,843
Claims priority, application Italy, Sep. 22, 1978, 53724/78[U]
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—181



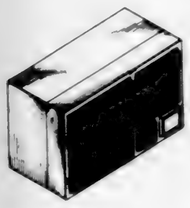
259,875
AUTOMOBILE AND TRUCK REAR VIEW MIRROR
Walter E. Hanson, 85 Arden Dr., Newport News, Va. 23601
Filed May 8, 1980, Ser. No. 148,189
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



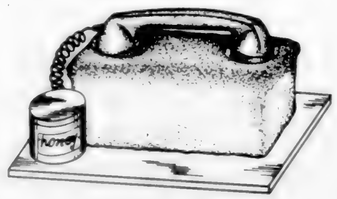
259,876
TAPE RECORDING MACHINE
Arthur J. Pulos, Fayetteville, and Michael Cridland, Manlius, both of N.Y., assignors to Dictaphone Corporation, Rye, N.Y.
Filed Dec. 11, 1978, Ser. No. 968,114
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—6



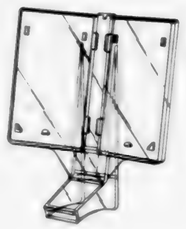
259,877
LOUDSPEAKER ENCLOSURE
Charles Barbera, 303 E. Elk St., Glendale, Calif. 91205
Filed Sep. 5, 1978, Ser. No. 939,899
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—34



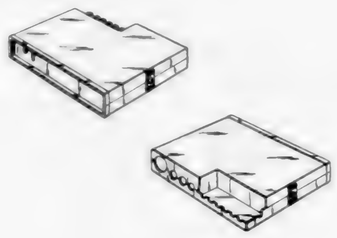
259,878
TELEPHONE
Wesley L. Thomas, 109 S. Catalina St., Los Angeles, Calif. 90004
Filed Dec. 13, 1978, Ser. No. 969,051
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



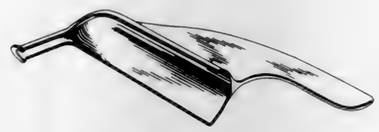
259,879
DISPLAY STAND FOR TELEPHONE ATTACHMENT
Irwin Pearl, Lido Beach, N.Y., assignor to Business Concepts Marketing Corporation, Island Park, N.Y.
Filed Oct. 2, 1978, Ser. No. 947,934
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D14—60



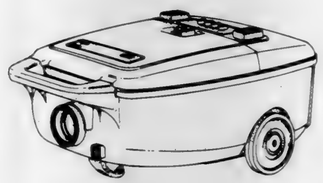
259,880
BRACKET MOUNTED MOTOR VEHICULAR RADIO RECEIVER HOUSING OR SIMILAR ARTICLE
Keisuke Iwata, Tokyo, Japan, assignor to Iwata Electric Co., Ltd., Japan
Filed Jul. 23, 1979, Ser. No. 59,988
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



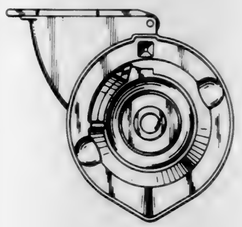
259,881
SCREW PROPELLOR PROTECTION DEVICE FOR BOATS
Michael R. Corboy, 13 Locksley Ave., Reservoir, Victoria, 3073, Australia
Filed Feb. 7, 1979, Ser. No. 9,873
Claims priority, application Australia, Aug. 9, 1978, 755040
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—4



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VACUUM CLEANER
Toshihiko Yoshida, Suita, and Noriharu Furuyabu, Ashiya, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Dec. 12, 1978, Ser. No. 968,669
Claims priority, application Japan, Jun. 14, 1978, 53-25008
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—52



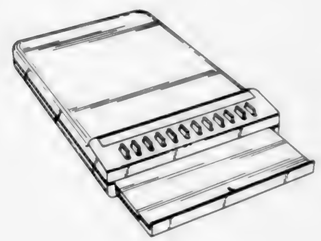
259,883
VEGETABLE SLICER HOUSING
Einar O. Engebretsen, Troy, Ohio, assignor to Hobart Corporation, Troy, Ohio
Filed Dec. 21, 1978, Ser. No. 971,950
Term of patent 14 years
Int. Cl. D15—*08*; D7—*04*
U.S. Cl. D15—97



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RIBBON CARTRIDGE
Morton L. Havey, Dallas, and Richard N. Pufpaff, Irving, both of Tex., assignors to Recognition Equipment Incorporated, Dallas, Tex.
Filed Aug. 30, 1978, Ser. No. 938,137
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D18—12



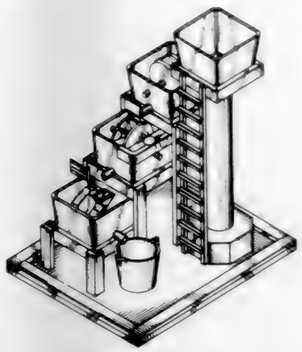
259,885
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Hans Haim, Herne, Fed. Rep. of Germany, assignor to Confon AG, St. Gallen, Switzerland
Filed May 9, 1979, Ser. No. 37,336
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—76



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PAPERWEIGHT OR SIMILAR ARTICLE
Robert M. Yates, Independence, Ohio, assignor to Michael Yates Carved Crystal, Inc., Cleveland, Ohio
Filed Oct. 19, 1977, Ser. No. 843,644
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—97



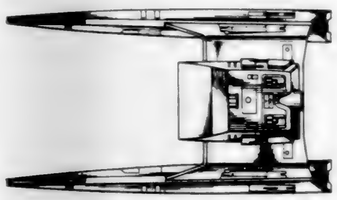
259,887
WATER TOY
James F. Crosshore, 43 E. Second Ave., Latrobe, Pa. 15650
Filed Oct. 16, 1978, Ser. No. 952,001
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



259,888
HAND MANIPULATIVE AQUATIC TOY
Robert A. Bantin, Little Valley, and Dean R. Kilbourn, Salamanca, both of N.Y., assignors to BKB Industries, Inc., Little Valley, N.Y.
Division of Ser. No. 853,637, Nov. 21, 1977, which is a continuation-in-part of Ser. No. 811,995, Jun. 30, 1977. This application Feb. 21, 1980, Ser. No. 123,124
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



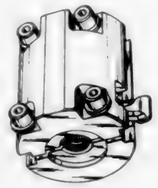
259,889
TOY SPACESHIP
Andrew G. Probert, El Segundo, Calif., assignor to Paramount Pictures Corporation, Los Angeles, Calif.
Filed Apr. 13, 1979, Ser. No. 29,928
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—87



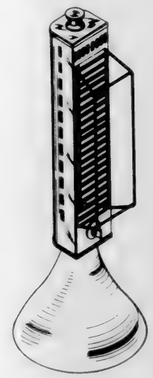
259,890
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Fannie B. West, 595 W. 91st Ave., Apt. 106, Denver, Colo. 80221
Filed Dec. 18, 1978, Ser. No. 970,816
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—166



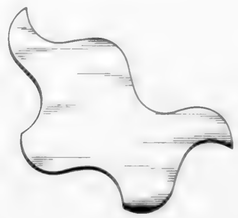
259,891
VALVE STEM CONNECTOR AND STRAIN INDICATOR
George R. Ogniewski, 3241 New York Ave., Costa Mesa, Calif. 92626
Filed Oct. 23, 1978, Ser. No. 953,976
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



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Konrad M. Boekamp, P.O. Box 2456, La Mesa, Calif. 92041
Filed Oct. 2, 1978, Ser. No. 948,031
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—122



259,893
FLOOR TILE
Bruno Fidel, 2692 86 St., Brooklyn, N.Y. 11223
Filed Dec. 26, 1978, Ser. No. 973,021
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—80



259,894
LIGHTER
Jean-Michel Collaud; Albert Girella; Maurice Herren; Niklaus Muller, and Roger Piola, all of Geneva, Switzerland, assignors to Caran D'Ache SA, Thonex, Switzerland
Filed Mar. 17, 1978, Ser. No. 888,686
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—36



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NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Celleco: *See—*
Jakobson, Karl F. O., 4,278,534, Cl. 209-211.000.

Abatjoglou, Anthony G., to Union Carbide Corporation. Osmium catalyzed hydroxylation of olefins with selenoxide cooxidants. 4,278,517, Cl. 204-158.00R.

Abcor, Inc.: *See—*
Jakabhazy, Stephen Z.; and Patel, Laxmidas R., 4,278,777, Cl. 525-276.000.

Abe, Hidetoshi: *See—*
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Abe, Kazuhiro, to Tokyo Shibaura Electric Co., Ltd. Electronic calculation/memorandum apparatus. 4,279,022, Cl. 364-900.000.

Abrams, Joseph L.; and Maynard, Arthur D. Magnetic conditioning of liquids. 4,278,549, Cl. 210-695.000.

Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, to Commissariat a l'Energie Atomique; and Stein Industrie S.A. Apparatus for the purification of a liquid metal for cooling in the core of a fast neutron reactor. 4,278,499, Cl. 176-37.000.

ACF Industries, Inc.: *See—*
Dugge, Richard H.; and Schlobohm, Arnold, 4,278,107, Cl. 13 -526.000.

Acme-Cleveland Corporation: *See—*
Goss, Harold R.; and Rebish, Edward J., 4,278,123, Cl. 164-28.000.

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Ford, Harold H., 4,278,196, Cl. 229-30.000.

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Pelino, William M., 4,278,979, Cl. 343-703.000.

Adams, Mark B., to University of Utah. Gradient tube rack and method. 4,278,176, Cl. 211-74.000.

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Prusain, Samuel B., 4,278,206, Cl. 239-327.000.

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Calcote, Hartwell F.; and Olson, Douglas B., 4,278,441, Cl. 23-232.00E.

AGA Aktiebolag: *See—*
Wiklund, Klas R., 4,277,895, Cl. 33-366.000.

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Kono, Hidehiko, 4,278,142, Cl. 180-168.000.

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Agraz-Guerena, Jorge; Katz, Lewis E.; and Morris, Bernard L., to Bell Telephone Laboratories, Incorporated. Sequentially annealed oxidation of silicon to fill trenches with silicon dioxide. 4,278,705, Cl. 427-93.000.

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Ahlborn, Gunther; Fiedler, Eberhard; Hubsch, Henry; and Kramer, Rolf, to Waggon Union GmbH. Truck for high speed rail cars. 4,278,030, Cl. 105-208.100.

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Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., to United States of America, Air Force. Electro-dynamic laser with acoustic absorbing electrode. 4,278,950, Cl. 331-94.50G.

Aichhorn, Anton: *See—*
Helletsberger, Harald; Aichhorn, Anton; and Bogusch, Erich, 4,278,449, Cl. 51-309.000.

Aigner, Hansjorg: *See—*
Dworak, Gert; and Aigner, Hansjorg, 4,278,574, Cl. 260-22.0CB.

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Takashima, Masaru, 4,278,544, Cl. 210-503.000.

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Longsworth, Ralph C., 4,277,949, Cl. 62-54.000.
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Hayashi, Masaharu, 4,278,160, Cl. 192-82.00T.

Ajima, Shigetoshi: *See—*
Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

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Ohta, Takeo; Akahira, Nobuo; Nakamura, Tatsushi; and Yamashita, Tadaoki, 4,278,734, Cl. 428-432.000.

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Gorike, Rudolf, 4,278,852, Cl. 179-182.00R.

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Gittler, Max, 4,278,149, Cl. 185-39.000.

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Allcock, Harry R.; Allen, Robert W.; and O'Brien, John P., 4,278,660, Cl. 424-78.000.

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Yee, Kwok C., 4,278,561, Cl. 252-408.000.

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Schmidt, Uwe; and Schneider, Dieter, 4,278,537, Cl. 209-469.000.

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Hawkins, Ronald G., 4,278,833, Cl. 174-42.000.
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Theeuwes, Felix, 4,278,087, Cl. 128-260.000.

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Reinhold, Earl R., 4,278,477, Cl. 148-6.14R.

American Cyanamid Company: *See—*
Granzow, Albrecht H., 4,278,588, Cl. 260-45.70P.
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Murdock, Keith C., 4,278,605, Cl. 260-367.000.
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Pfeiffer, Ronald E., 4,278,415, Cl. 425-466.000.
Song, John, 4,278,577, Cl. 260-23.00H.
Wissner, Allan, 4,278,806, Cl. 560-121.000.
Zwick, Maurice M.; and van Loo, William J., 4,278,634, Cl. 264-168.000.

American Electronic Laboratories, Inc.: *See—*
Klopach, Robert T.; and Hartman, Rickey E., 4,278,933, Cl. 324-58.00R.

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Garsky, Victor M., 4,278,596, Cl. 260-112.50R.

American Hospital Supply Corporation: *See—*
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Buhler, Rato R., 4,277,916, Cl. 51-217.00L.
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Lafortune, Ray; and Heeb, Waldemar, 4,278,093, Cl. 128-419.00P.

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Bowen, John C., 4,278,070, Cl. 126-417.000.

AMF Incorporated: *See—*
Hou, Kenneth C.; and Kilty, Michael F., 4,278,551, Cl. 210-767.000.

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Milholen, William F., 4,278,378, Cl. 414-32.000.

Ammermann, Eberhard: *See—*
Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, 4,278,800, Cl. 548-262.000.

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Moser, Jesse L.; and Shoemaker, John R., 4,278,314, Cl. 339-99.00R.
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Amrani, David. Process for separation and isolation of AHF, von Willebrand's ristocetin cofactor (VWF:RCF) and fibronectin from blood plasma. 4,278,594, Cl. 260-112.00B.

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Hestad, Alfred M., 4,278,843, Cl. 179-18.0BC.

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Bury, Roland P.; Mehlman, Stewart K.; and Andreini, Rockne J., 4,278,464, Cl. 75-51.000.

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Ritchie, Ronald J.; and Andrews, Daniel M., 4,278,991, Cl. 357-81.000.

Andronov, Valery A.; Boyarsky, Alexandr I.; Emelyanov, Viktor I.; and Nabutovsky, Iosif B. Method and regulating device for controlling high-voltage direct current transmission system. 4,279,009, Cl. 363-35.000.

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Inoue, Hidehiko; Nishikawa, Masao; and Anno, Nobuo, 4,278,266, Cl. 280-276.000.

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Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

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Applegate, Lynn E.: *See—*
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Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Arthur D. Little, Inc.: *See—*
Santhanam, Chakra J.; and Nadkarni, Ravindra M., 4,278,539, Cl. 210-724.000.

Arthur Shaw Manufacturing Limited: *See—*
Douglas, Jack E.; and Bigley, Richard J., 4,278,306, Cl. 308-6.00C.

Artweger, Wolfgang; and Burger, Anton, to "Wohn-Art"-Freizeitartikel Gesellschaft m.b.H. Cabin construction. 4,277,919, Cl. 52-2.000.

Asada, Hiroyuki: *See—*
Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, 4,279 614, Cl. 260-465.300.

Asai, Kozo. Adjustable headrest. 4,278,291, Cl. 297-391.000.

Asea Aktiebolag: *See—*
Archenholtz, Ake, 4,278,240, Cl. 266-216.000.
Sander, Lars, 4,278,349, Cl. 356-44.000.

Ashai Glass Company, Ltd.: *See—*
Matsuhiro, Kenzi; and Masuda, Yasushi, 4,278,329, Cl. 350-357.000.

Ashby, Bruce A.; and Schroeter, Siegfried H., to General Electric Company. Ultraviolet light absorbing agents and compositions and articles containing same. 4,278,804, Cl. 556-436.000.

Asher, Mark S.: *See—*
Horn, Stuart B.; Asher, Mark S.; and Dunmire, Howard L., 4,277,948, Cl. 62-6.000.

Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, to Kawasaki Steel Corporation. Method of producing hollow steel ingot and apparatus therefor. 4,278,124, Cl. 164-125.000.

Atanasovski, Marin. Method of casting photographs in dome-shaped structures. 4,278,626, Cl. 264-40.100.

Athearn, Lee F., to Duracell International Inc. Expandable casing for electro-chemical cells. 4,278,744, Cl. 429-181.000.

Audeh, Costandi A.: *See—*
Yan, Tsoung Y.; and Audeh, Costandi A., 4,278,469, Cl. 106-278.000.

Aumann, James T.: *See—*
Rowley, David S.; Aumann, James T.; and Waldes, Lothar H., 4,278,138, Cl. 175-320.000.

Automation Systems, Inc.: *See—*
Bartlett, Peter G., 4,278,926, Cl. 318-696.000.

Avanzini, Pier G., to Nira Nucleare Italiana Reattori Avanzati. Autoinductive electromagnetic pump and autoinductive direct converter for conducting fluids, particularly liquid metals. 4,278,404, Cl. 417-50.000.

Avco Corporation: *See—*
Waddington, Clive, 4,277,986, Cl. 74-750.00B.

Avco Everett Research Laboratory, Inc.: *See—*
Stickler, David B.; Von Rosenberg, Charles W., Jr.; and Gannon, Richard E., 4,278,445, Cl. 48-197.00R.
Von Rosenberg, Charles W., Jr.; Stickler, David B.; and Gannon, Richard E., 4,278,446, Cl. 48-197.00R.

Avery International Corporation: *See—*
Miniaci, Salvatore J.; and Christiansen, James O., 4,277,902, Cl. 40-2.00R.

B. F. Goodrich Company, The: *See—*
Miller, James R., 4,278,582, Cl. 260-29.6AN.

Baatz, Heinrich; and Rittscher, Dieter, to Steag Kernergie GmbH. Radioactivity-shielding transport or storage receptacle for radioactive wastes. 4,278,892, Cl. 250-506.000.

Baba, Fumio; Miyasaka, Kiyoshi; Yabu, Takashi; and Mogi, Jun-ichi, to Fujitsu Limited. Semiconductor device having cross wires. 4,278,989, Cl. 357-59.000.

Bacher, Michel, to Societe Anonyme Francaise du Ferodo. Hydraulic braking circuit for an automobile vehicle. 4,278,300, Cl. 303-115.000.

Bachl, Herbert, to Getwent Gesellschaft fur Technische und wissenschaftliche Energieumsatzehtwicklungen m.b.H. Fluid flow machine. 4,278,397, Cl. 415-83.000.

Bachofer, Kenneth W., to Modern Controls, Inc. Display panel driver circuit. 4,278,918, Cl. 315-169.400.

Badger Northland Inc.: *See—*
Rammer, William L.; and Swanson, Paul D., 4,278,408, Cl. 417-551.000.

Bain, Peter H., to Boeing Company, The. Electrically heated window. 4,278,875, Cl. 219-522.000.

Baker, Charles W.; Wilson, Robert J.; and Kempf, Dale F., to Eastman Kodak Company. Camera-processor apparatus. 4,278,338, Cl. 354-83.000.

Baker, Daniel A.: *See—*
Friedman, Ernest H.; Flammer, Charles M.; Baker, Daniel A.; and Vamvakas, Spiro, 4,278,096, Cl. 128-695.000.

Baldwin, Francis P.: *See—*
Ver Strate, Gary; and Baldwin, Francis P., 4,278,822, Cl. 570-257.000.

Ball Corporation: *See—*
Marcantonio, Arnold F.; and Dailey, Rodney E., 4,278,735, Cl. 428-432.000.
Sullivan, Richard W.; and Warwick, Robert N., 4,278,709, Cl. 427-233.000.
Sullivan, Richard W., 4,278,711, Cl. 427-284.000.

Barclay, Donald J.; and Vigar, James M. L., to International Business Machines Corporation. Low concentration trivalent chromium electroplating solution and process. 4,278,512, Cl. 204-41.000.

Bardenhagen, Dietrich; Raschka, Wolfgang; Glosmann, Josef; and Tolasch, Gerhard, to Hauni-Werke Korber & Co. KG. Apparatus for transferring cigarettes or the like from trays into magazines of packing machines or the like. 4,278,385, Cl. 414-419.000.

Barents, Roelof H.; and Rossell, John B., to Lever Brothers Company. Marzipan substitute. 4,278,700, Cl. 426-660.000.

Barnowski, Henry G.: *See—*
Chandalia, Kiran B.; and Barnowski, Henry G., 4,278,770, Cl. 521-99.000.

Baron, George B., to Dresser Industries, Inc. Slack prevention system for a crowd rope of a power shovel. 4,278,393, Cl. 414-690.000.

Barry, Richard L., to TRX, Inc. Method for making discrete electrical components. 4,278,706, Cl. 427-96.000.

Bartko, John; and Schlegel, Earl S., to Westinghouse Electric Corp. Forming of contoured irradiated regions in materials such as semiconductor bodies by nuclear radiation. 4,278,475, Cl. 148-1.500.

Bartko, John; and Schlegel, Earl S., to Westinghouse Electric Corp. Method of making ion implanted reverse-conducting thyristor. 4,278,476, Cl. 148-1.500.

Bartlett, Ian G.: *See—*
McKendrick, George A. R.; Bartlett, Ian G.; and Lymer, Donald A., 4,277,960, Cl. 68-205.00R.

Bartlett, Peter G., to Automation Systems, Inc. Step motor circuit. 4,278,926, Cl. 318-696.000.

Bartosek, Edward: *See—*
Dingethal, Frank H.; and Bartosek, Edward, 4,278,693, Cl. 426-129.000.

BASF Aktiengesellschaft: *See—*
Blum, Adolf; Lukas, Siegmar; Schwab, Hermann; and Strobel, Rolf, 4,278,433, Cl. 8-449.000.
Hiller, Heinrich; Eilingsfeld, Heinz; Reinicke, Helmut; and Traub, Fritz, 4,278,606, Cl. 260-380.000.
Kempe, Uwe; Dockner, Toni; Frank, Anton; and Karn, Helmut, 4,278,801, Cl. 548-342.000.
Merger, Franz; and Towae, Friedrich, 4,278,805, Cl. 560-25.000.
Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, 4,278,562, Cl. 252-430.000.
Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, 4,278,800, Cl. 548-262.000.
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

BASF Wyandotte Corporation: *See—*
Walton, William B., 4,278,129, Cl. 166-263.000.

Bass, Dieter, to Georg Fischer Aktiengesellschaft. Method and apparatus for controlling shot-blasting machines. 4,277,918, Cl. 51-415.000.

Battelle Memorial Institute: *See—*
de Pous, Olivier, 4,278,466, Cl. 75-175.500.

Batutis, Edward F.; Rodriguez, Edward; and Kugler, Walter R., to Bendix Corporation, The. Apparatus for separating solids and liquid components. 4,278,545, Cl. 210-521.000.

Bauer, Heinrich F.; and Feitzelmayer, Ernst, to Motoren-und Turbinen-Union Munich GmbH. Method for manufacturing an encapsulated probe on sheathed thermocouples. 4,277,886, Cl. 29-860.000.

Bauer, Jack N.: *See—*
DiGiulio, Adolph V.; and Bauer, Jack N., 4,278,767, Cl. 521-88.000.
DiGiulio, Adolph V.; and Bauer, Jack N., 4,278,768, Cl. 521-88.000.

Bauer, Siegfried; and Burckhart, Dieter, to Eltro GmbH Gesellschaft Fur Strahlungstechnik. Signal simulator. 4,278,430, Cl. 434-2.000.

Baumann, Hans D. Minute flow regulating valve. 4,278,234, Cl. 251-57.000.

Baxter, Leslie A., to Bell Telephone Laboratories, Incorporated. Digital communication system fault isolation circuit. 4,279,034, Cl. 371-8.000.

Baxter Travenol Laboratories, Inc.: *See—*
Norton, William W.; and Boehmer, Henry, 4,278,198, Cl. 229-55.000.
Pope, J. Lee, Jr., 4,278,084, Cl. 128-214.00R.
Shim, Norm, 4,278,085, Cl. 128-214.00F.

Bayer Aktiengesellschaft: *See—*
Botta, Artur; Rother, Heinz-Joachim; and Teichmann, Gunther, 4,278,791, Cl. 542-412.000.
Ebneth, Harold, 4,278,435, Cl. 8-471.000.
Harnisch, Horst, 4,278,795, Cl. 544-219.000.
Krock, Friedrich W.; Neeff, Rutger; and Kuth, Robert, 4,278,434, Cl. 8-471.000.
Marschner, Werner; and Minwegen, Heinz, 4,278,436, Cl. 8-549.000.
Seidler, Helmut; and Gehrke, Gunter, 4,278,607, Cl. 260-383.000.
Stoltefuss, Jurgen; Muller, Lutz; Puls, Walter; and Sitt, Rudiger, 4,278,683, Cl. 424-267.000.

Baynes, William R.; and Hock, Donal D., to Turco Manufacturing Co. Gymnasium set. 4,278,250, Cl. 272-113.000.

BBC Brown Boveri & Company Limited: *See—*
Jacob, Gernot; and Pelloni, Luciano, 4,278,522, Cl. 204-228.000.

Beatrice Foods Co.: *See—*
Hellwig, Oskar A., 4,277,963, Cl. 70-456.00B.

Bechtel, Jon H.; and Geary, Frederick J., to Robertshaw Controls Company. Primary oil burner safety control and intermittent ignition system. 4,278,419, Cl. 431-24.000.

Beckedorff, David L.; Sporer, Michael; and Watts, Bruce R., to Massachusetts Microcomputers, Inc. Programmable appliance controller. 4,279,012, Cl. 364-104.000.

Beckett, Meryl A. M. Van Eek nee, legal representative: *See—*
Van Eek, Wouter, deceased, 4,278,137, Cl. 175-267.000.

Becton Dickinson & Company: *See—*
Hales, Richard H., 4,278,651, Cl. 424-1.000.

Beecham Group Limited: *See—*
Corbett, David F.; and Eglington, Alfred J., 4,278,686, Cl. 424-274.000.

Begin, David E.: *See—*
Stephenson, George M.; and Begin, David E., 4,278,188, Cl. 222-182.000.

Belke, William H.; and Grim, George B., to Caterpillar Tractor Co. Combination rotating fluidized bed combustor and heat exchanger. 4,277,938, Cl. 60-39.350.

Bell & Howell Company: *See—*
Call, Daniel D.; and La Rue, Mervin W., Jr., 4,278,023, Cl. 101-235.000.

Bell Telephone Laboratories, Incorporated: *See—*
Agraz-Guerena, Jorge; Katz, Lewis E.; and Morris, Bernard L., 4,278,705, Cl. 427-93.000.
Baxter, Leslie A., 4,279,034, Cl. 371-8.000.
Christian, Ronald W.; and Kutzavitch, Walter G., 4,279,020, Cl. 364-900.000.
Henry, James L., 4,278,939, Cl. 324-117.00R.
Jones, David F., 4,278,844, Cl. 179-18.00B.
Mack, Iris M.; Rowe, Harrison E.; and Schmidt, Ronald V., 4,278,321, Cl. 350-96.120.
Morriss, Jeffrey C., 4,278,938, Cl. 324-117.00R.
Netravali, Arun N.; Robbins, John D.; and Stuller, John A., 4,278,996, Cl. 358-136.000.
Nicollian, Edward H.; Seidel, Harold; and Smith, George E., 4,278,947, Cl. 331-1.00R.
O'Connor, Paul B.; and Pearson, Arthur D., 4,278,458, Cl. 65-2.000.
Ostermayer, Frederick W., Jr., 4,278,353, Cl. 356-416.000.
Rizzo, Joseph F.; and Rudisill, John A., Jr., 4,278,848, Cl. 179-170.00D.
Simmons, George H., 4,278,842, Cl. 179-16.0EA.
Smith, Nicholas K., 4,279,032, Cl. 370-15.000.
Sund, Erling T., 4,278,849, Cl. 179-175.20C.
Turner, Dennis R., 4,278,520, Cl. 204-207.000.

Benco Industries, Inc.: *See—*
Leuthesser, Fred W., 4,277,904, Cl. 40-564.000.

Bendix Corporation, The: *See—*
Batutis, Edward F.; Rodriguez, Edward; and Kugler, Walter R., 4,278,545, Cl. 210-521.000.
Blakesley, Roland F., 4,278,313, Cl. 339-49.00R.
Gallusser, David O.; Frear, David L.; and Fischer, Charles P., 4,278,317, Cl. 339-258.00R.
Ruoff, Carl F., Jr., 4,278,920, Cl. 318-2.000.

Benke, Alan H.; Morris, Hue T.; and Nady, Louie A., to Stauffer Chemical Company. Continuous process for the production of dichloroacetamides. 4,278,799, Cl. 548-215.000.

Bennett, Peter S., to Storey Brothers and Company Limited. Preparation of padded articles. 4,278,629, Cl. 264-46.800.

Benz, Harry A., to United States of America, National Aeronautics and Space Administration. Image readout device with electronically variable spatial resolution. 4,279,001, Cl. 358-213.000.

Benzinger, James R., to Spaulding Fibre Company, Inc. Epoxy modified aniline-phenolic laminate. 4,278,733, Cl. 428-413.000.

Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, to Boehringer Mannheim GmbH. Diagnostic agents for the detection of proteolytic enzymes. 4,278,763, Cl. 435-23.000.

Bergman, Fred S.; and Radelet, Reginald P., to Lindsey Manufacturing Co. Apparatus and method of threading a closed framed opening by helicopters. 4,278,237, Cl. 254-134.3PA.

Bergwerksverband GmbH: *See—*
Bortz, Karl; Thesing, Heinrich; and Eichbaum, Friedrich, 4,278,296, Cl. 299-87.000.

Bernard, Walter J.: *See—*
Millard, Richard J.; Bernard, Walter J.; and Whitman, Alfred, 4,278,513, Cl. 204-42.000.

Berner, Walter, to Robert Bosch GmbH. RPM Regulator for fuel injection pumps in internal combustion engines. 4,278,058, Cl. 123-387.000.

Berry, James A.: *See—*
Sherman, Morton; and Berry, James A., 4,277,926, Cl. 52-303.000.

Berry, William W.: *See—*
Allen, Hanceford L.; and Berry, William W., 4,278,640, Cl. 423-10.000.

Bertrand, Hans: *See—*
Limque, Ferdinand; and Bertrand, Hans, 4,278,421, Cl. 432-152.000.

Bessouat, Roger; Marjollet, Jacques; and Palacio, Gerard, to Stein Industrie S.A. Apparatus for distribution of a mixture of vapor and liquid in a separator with horizontal axis. 4,278,053, Cl. 122-488.000.

Best, Robert M. Crypto microprocessor for executing enciphered programs. 4,278,837, Cl. 178-22.090.

Bettinger, George E.; Pohland, Hermann W.; and Applegate, Lynn E., to Du Pont de Nemours, E. I., and Company. Control of biological growth in reverse osmosis permeators. 4,278,548, Cl. 210-636.000.

Betton, Rene F.: *See—*
Seguela, Marie-Claude J.; Betton, Rene F.; and Gonzalez, Claude A., 4,278,387, Cl. 414-462.000.

Beulens, Theophiel, to Medical Development S.A. Method for manufacturing multi-layer hemodialyzers and improved multi-layer hemodialyzer obtained thereby. 4,278,542, Cl. 210-321.300.

Beuther, Harold; and Schulz, Johann G., to Gulf Research & Development Company. Energy generating process and novel fuel therefor. 4,278,443, Cl. 44-56.000.

Beyer, Robert E.; and Magoulas, John P., to Mobil Oil Corporation. Liquid hydrocarbons containing a fluorescent compound. 4,278,444, Cl. 44-59.000.

Beyl, Jean J. A., to Look. Combined ski boot and safety binding. 4,278,269, Cl. 280-613.000.

Biggs, Robert W.: *See*—
Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased, 4,278,162, Cl. 192-107.00C.

Bigley, Richard J.: *See*—
Douglas, Jack E.; and Bigley, Richard J., 4,278,306, Cl. 308-6.00C.

Billings, Charles A.; and Hofeldt, Robert H., to W. R. Grace & Co. Sealing compositions for minimizing soluble iron migration. 4,278,718, Cl. 428-64.000.

Billington, William P., to National Research Development Corporation. Dispensing apparatus and method. 4,278,183, Cl. 221-211.000.

Bingham, Loran S. Repair coupling for flexible electrical conduit. 4,278,836, Cl. 174-84.00S.

Binoche, Michel, to S K M. Societe Anonyme. Constant flow rate fluid supply device, particularly for a spray gun. 4,278,205, Cl. 239-75.000.

Biran, Joseph, to Hewlett-Packard Company. Method for coating the edge of a printed circuit board to improve its moisture resistance. 4,278,707, Cl. 427-96.000.

Birch, Peter R.; Ling, Kenneth V.; Power, Claude S.; Robinson, Alan J.; Mahoney, Terrence G.; and Las-Laskowski, Stanislaw F. Air classification apparatus. 4,278,532, Cl. 209-19.000.

Bird-Johnson Company: *See*—
Esthimer, William F.; Morin, Edward H.; and Trudell, Richard E., 4,277,945, Cl. 60-710.000.

Birkenmeyer, Robert D., to Upjohn Company, The. Lincomycin compounds. 4,278,789, Cl. 536-11.000.

Bjellqvist, Bengt; Reitberger, Torbjorn; and Morganstern, Kennard H., to Radiation Dynamics, Inc. Method for reducing the monomer residue content in polymer plastics. 4,278,518, Cl. 204-159.200.

BL Cars Limited: *See*—
Rawle, Michael D.; and Marshall, Peter E. G., 4,278,350, Cl. 356-155.000.

Blachly, Donald L.: *See*—
Mitchell, Richard L.; Brundage, Richard B.; and Blachly, Donald L., 4,278,117, Cl. 144-144.00R.

Black & Decker Inc.: *See*—
Alessio, Lorenzo E., 4,278,243, Cl. 269-16.000.

Blackmer, Richard H. Adjustable nasal cannula. 4,278,082, Cl. 128-207.180.

Blackwell, Roy N. Fishing reel with automatic variable drag. 4,278,217, Cl. 242-217.000.

Blake, John B. Clamping device. 4,278,246, Cl. 269-220.000.

Blakeslee, A. Eugene; and Mitchell, Kim W., to United States of America, Energy. Device for conversion of electromagnetic radiation into electrical current. 4,278,474, Cl. 136-249.000.

Blakesley, Roland F., to Bendix Corporation, The. Electrical contact with locking device. 4,278,313, Cl. 339-49.00R.

Blaupunkt-Werke GmbH: *See*—
Hugo, Rolf; and Schiller, Wilfried, 4,278,919, Cl. 315-393.000.

Blickle, Tibor: *See*—
Timko born Jozsa, Judit; Blickle, Tibor; Borlai, Oszkar; and Ujhidy, Aurel, 4,278,319, Cl. 350-3.780.

Bliss, Floyd R.: *See*—
Leininger, Joel C.; Bliss, Floyd R.; and Fairchild, Peter T., 4,279,016, Cl. 364-200.000.

Blomquist, Robert E.; and Reynolds, Charles R., to White-Sundstrand Machine Tool, Inc. Pallet shuttle system. 4,278,381, Cl. 414-349.000.

Blum, Adolf; Lukas, Siegmar; Schwab, Hermann; and Strobel, Rolf, to BASF Aktiengesellschaft. Resist printing process. 4,278,433, Cl. 8-449.000.

Boehland, Melvin G. Color changeable athletic jersey. 4,277,848, Cl. 2-115.000.

Boehmer, Henry: *See*—
Norton, William W.; and Boehmer, Henry, 4,278,198, Cl. 229-55.000.

Boehringer Mannheim GmbH: *See*—
Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, 4,278,763, Cl. 435-23.000.
Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, 4,278,680, Cl. 424-266.000.
Wulff, Karl; Stahler, Fritz; and Michal, Gerhard, 4,278,760, Cl. 435-8.000.

Boeing Company, The: *See*—
Bain, Peter H., 4,278,875, Cl. 219-522.000.
Hamm, Robert A.; and Whitener, Philip C., 4,278,485, Cl. 156-173.000.
Huber, Doyle W.; Smith, Richard H.; and Strong, Robert L., 4,277,868, Cl. 29-33.00Q.
Keller, Bruce E., 4,278,352, Cl. 356-358.000.
Riemer, Dietrich E.; and Corwin, Rudolph E., 4,278,831, Cl. 136-256.000.

Boer, Werner: *See*—
Lachner, Hans; and Boer, Werner, 4,278,005, Cl. 411-337.000.

Boge GmbH: *See*—
Leibeling, Heinz, 4,278,272, Cl. 280-708.000.

Bogusch, Erich: *See*—
Heiletsberger, Harald; Aichhorn, Anton; and Bogusch, Erich, 4,278,449, Cl. 51-309.000.

Bohme, Gunther. Piece of furniture for sitting and lying. 4,277,858, Cl. 5-66.000.

Bojkov, Ognyan D.: *See*—
Petrov, Nikolov Y.; Pavlova, Maria M.; and Bojkov, Ognyan D., 4,278,641, Cl. 423-49.000.

Boldt, Rainer: *See*—
Voigt, Gunter; and Boldt, Rainer, 4,278,636, Cl. 422-84.000.

Bolen, Charles E.: *See*—
Marzocchi, Alfred; Roberts, Michael C.; and Bolen, Charles E., 4,278,470, Cl. 106-281.00R.

Bona Fide Factory Products, Inc.: *See*—
Sobel, Marvin, 4,278,033, Cl. 109-59.00R.

Bonci, Darlene K.: *See*—
Harris, S. Richard; and Bonci, Darlene K., 4,278,653, Cl. 424-1.000.

Bonnet, Jean-Loup; and Fierfort, Claude, to Schlumberger Technology Corporation. Seal and pressure balance system for an electrode-type logging sonde. 4,278,942, Cl. 324-347.000.

Bonney, Oren V.: *See*—
Eis, Frederick G.; Bonney, Oren V.; and Sackett, Willard A., 4,278,541, Cl. 210-112.000.

Boomgaard, Dirk J.: *See*—
Wehrli, Henry A., III; Boomgaard, Dirk J.; and Lund, Alvin O., deceased, 4,278,150, Cl. 187-29.00R.

Boone, David E.: *See*—
Caspari, Gunter; and Boone, David E., 4,278,781, Cl. 526-150.000.

Borden, Peter G., to Varian Associates, Inc. Monolithic series-connected solar cell. 4,278,473, Cl. 136-249.000.

Borlai, Oszkar: *See*—
Timko born Jozsa, Judit; Blickle, Tibor; Borlai, Oszkar; and Ujhidy, Aurel, 4,278,319, Cl. 350-3.780.

Bormann, Dieter: *See*—
Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schriner, Elmar; and Heymes, Rene, 4,278,793, Cl. 544-27.000.

Borona, Russell T., to Westinghouse Electric Corp. Circuit breaker structure. 4,278,859, Cl. 200-144.00R.

Boros, Eugene J.; and Peck, David W., to Union Carbide Corporation. Process for production of 1-naphthyl methylcarbamate. 4,278,807, Cl. 560-134.000.

Borsanyi, Alexander S.; Ivanovich, Peter; and Vaughan, Urte, to American Hospital Supply Corporation. Peritoneal catheter. 4,278,092, Cl. 128-348.000.

Borsig GmbH: *See*—
Eiermann, Dankwart, 4,278,409, Cl. 418-61.00A.

Bortz, Karl; Thesing, Heinrich; and Eichbaum, Friedrich, to Bergwerksverband GmbH. Coal mining drum with adjustable linier edge cutters. 4,278,296, Cl. 299-87.000.

Borzone, Rocco R., to Howmedica, Inc. Soft tissue retainer for use with bone implants, especially bone staples. 4,278,091, Cl. 128-334.00C.

Bos, Bernardus W.; and Wijbenga, Harke M., to Staat der Nederlanden (Staatsbedrijf der Posterijen, Telegrafie en Telefonie). Method and device for detecting the presence of one or more pulse code modulated multi-frequency code signals. 4,279,017, Cl. 364-484.000.

Botta, Artur; Rother, Heinz-Joachim; and Teichmann, Gunther, to Bayer Aktiengesellschaft. Benzimidazolyl-2-alkane-phosphonic acids. 4,278,791, Cl. 542-412.000.

Bottum, Edward W. Heat pump. 4,277,946, Cl. 62-235.100.

Bouchard, Andre C.; and Jirmanus, Naila S., to GTE Products Corporation. Photoflash lamp, method of making same, and photoflash circuit. 4,278,420, Cl. 431-362.000.

Bouchard, Andre C.: *See*—
Waymouth, John F.; Bouchard, Andre C.; Fowler, Richard A.; and Hall, Harold H., Jr., 4,278,310, Cl. 316-24.000.

Boughtflower, Charles A.: *See*—
Davis, Kenneth P.; and Boughtflower, Charles A., 4,278,227, Cl. 248-487.000.

Bouldin, Eric W.; and Drexler, Jerome, to Drexler Technology Corporation. Reflective data storage medium made by silver diffusion transfer. 4,278,756, Cl. 430-414.000.

Bouldin, Eric W.: *See*—
Drexler, Jerome; and Bouldin, Eric W., 4,278,758, Cl. 430-616.000.

Boundy, Bruce K., to Westinghouse Electric Corp. Versatile, electrified space dividing wall panel system. 4,278,834, Cl. 174-48.000.

Bowen, John C., to Ametek, Inc. Solar energy collector assembly and sub-assemblies thereof. 4,278,070, Cl. 126-417.000.

Boyarsky, Alexandr I.: *See*—
Andronov, Valery A.; Boyarsky, Alexandr I.; Emelyanov, Viktor I.; and Nabutovsky, Iosif B., 4,279,009, Cl. 363-35.000.

Brabetz, Hartmut; Schafer, Heinz; and Gorzel, Dieter, to Wacker-Chemie GmbH. Alkai-soluble, water-resistant binders for non-woven materials. 4,278,727, Cl. 428-290.000.

Bracco Industria Chimica S.p.A.: *See*—
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Brandenstein, Manfred: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,278,305, Cl. 308-6.00C.
Olschewski, Armin; Kunkel, Heinrich; Brandenstein, Manfred; and Schurger, Rainer, 4,278,307, Cl. 308-201.000.

Braun Aktiengesellschaft: *See*—
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Braun, Franz: *See*—
Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, 4,278,763, Cl. 435-23.000.

Braun, Gert. Guide-rail assembly for longwall mining apparatus. 4,278,294, Cl. 299-34.000.

Brax, Harri J.; Porinchak, Joseph F.; and Weinberg, Alan S., to W. R. Grace & Co. Ethylene-vinyl acetate copolymer film laminate. 4,278,738, Cl. 428-515.000.

Breckinridge, James B.; Norton, Robert H.; Schindler, Rudolf A.; and Frosch, Robert A. Interferometer. 4,278,351, Cl. 356-345.000.

Breuer, Miklos M., to Gillette Company, The. Hair setting and bodying composition and method. 4,278,659, Cl. 424-71.000.

Briles, Wallace E.; and Dubin, Robert W. Device for capturing and retaining spilt fluids. 4,278,115, Cl. 141-86.000.

Brill-Edwards, Kenneth O. P., to Crescent Roofing Company Limited. Roofing panels. 4,278,071, Cl. 126-428.000.

Bristol-Myers Company: *See*—
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,278,675, Cl. 424-253.000.
Walker, Derek; Silvestri, Herbert H.; Sapino, Chester; and Johnson, David A., 4,278,600, Cl. 260-239.100.

Brixy, Heinz; and Hofer, Helmut, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Noise-temperature thermometer. 4,278,828, Cl. 136-232.000.

Brollos, Klaus: *See*—
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

Brown, David R.: *See*—
Keeffe, William M.; and Brown, David R., 4,278,910, Cl. 313-220.000.

Brown, John E., to West & Sons (Engineers) Limited. Seal unit. 4,278,260, Cl. 277-110.000.

Brown, Kenneth A.: *See*—
Brown, Michael D.; and Brown, Kenneth A., 4,277,874, Cl. 29-235.000.

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Brundage, Richard B.: *See*—
Mitchell, Richard L.; Brundage, Richard B.; and Blachly, Donald L., 4,278,117, Cl. 144-144.00R.

Brunelli, Romeo; and Casamatta, Angelo, to Honeywell Information Systems Italia S.p.A. Bidirectional transmission circuit for interlocked signals. 4,279,033, Cl. 370-29.000.

Bryant, Dannie: *See*—
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BS & B Safety Systems, Inc.: *See*—
Wood, Loren E.; Allen, Jerome D.; Clift, Miner E.; Kays, Jerry W.; and Forsythe, Calvin C., 4,278,181, Cl. 220-89.00A.

Buchele, Wesley F., to Iowa State University Research Foundation, Inc. Rotary tiller slot planter and method for using same. 4,278,036, Cl. 111-52.000.

Buchner, Norbert; and Liede, Dieter, to Robert Bosch Verpackungsmaschinen GmbH. Light weight package container made from multi-layer material. 4,278,716, Cl. 428-35.000.

Buchroeder, Richard A., to Applied Systems Corporation. Catadioptric virtual-zoom optical system. 4,278,330, Cl. 350-411.000.

Bucyrus-Erie Company: *See*—
Gregor, Robert A.; and Morgan, Ned L., 4,278,301, Cl. 305-11.000.

Budd Company, The: *See*—
Eggert, Walter S., Jr., 4,278,029, Cl. 105-224.100.

Buffa, Albert L. Safety plug for arc welder connectors. 4,278,312, Cl. 339-38.000.

Buhler, Rato R., to American Optical Corporation. Lens chucking apparatus. 4,277,916, Cl. 51-217.00L.

Buhrer, Erwin, to Georg Fischer Aktiengesellschaft. System for handling pattern devices in a molding plant for the production of mold halves in mold boxes. 4,278,125, Cl. 164-412.000.

Burba, Christian; Volland, Hans-Guenter; and Esper, Norbert, to Schering Aktiengesellschaft. Polyvinyl chloride plastisols. 4,278,713, Cl. 427-388.200.

Burckhart, Dieter: *See*—
Bauer, Siegfried; and Burckhart, Dieter, 4,278,430, Cl. 434-2.000.

Burdett, Kenneth A., to Dow Chemical Company, The. Process for preparing 2-isocyanatoalkyl esters of organic carboxylic acids. 4,278,809, Cl. 560-222.000.

Burger, Anton: *See*—
Artweger, Wolfgang; and Burger, Anton, 4,277,919, Cl. 52-2.000.

Burgess, Francis P.; Cormier, Raymond G.; Guiguizian, Jacques; and Lutz, Leo O., to Nashua Corporation. Sheet stripping apparatus. 4,278,341, Cl. 355-3.0SH.

Burlett, Frederick E. Full height sewer system manhole invert form assembly with angularly adjustable intersecting flow path. 4,278,229, Cl. 249-11.000.

Buros, Melvin S. Extended clear band carrier-strip. 4,278,880, Cl. 235-493.000.

Burroughs Corporation: *See*—
Clifford, James A.; and Pearson, Daniel E., 4,278,988, Cl. 357-51.000.
Nelson, Edward I.; Mueller, Harry B.; and Lane, John E., 4,278,965, Cl. 340-365.00P.
Ritchie, Ronald J.; and Andrews, Daniel M., 4,278,991, Cl. 357-81.000.

Bury, Roland P.; Mehlman, Stewart K.; and Andreini, Rockne J., to Union Carbide Corporation. Method for preventing slopping during subsurface pneumatic refining of steel. 4,278,464, Cl. 75-51.000.

Bush, Herbert A., Jr.: *See*—
Oxenreider, Terry R.; and Bush, Herbert A., Jr., 4,278,742, Cl. 429-88.000.

Butera, Anthony W. Posi-draft stabilizer. 4,278,068, Cl. 126-307.00A.

Butwell, Kenneth F.: *See*—
Sigmund, Paul W.; and Butwell, Kenneth F., 4,278,621, Cl. 261-114.00R.

Byk-Mallinckrodt CIL B.V.: *See*—
van Rossem, Hendrik, 4,278,167, Cl. 206-45.340.

Byrd, Geoffrey C.; and Stanier, Colin, to Imperial Chemical Industries Limited. Clamping diaphragms or membranes in electrolytic cells. 4,278,523, Cl. 204-252.000.

Cabot Corporation: *See*—
Rappas, Alkis S.; Menashi, Jameel; and Douglas, Donald A., 4,278,644, Cl. 423-58.000.

Cachier, Gerard; and Espaignol, Jacques, to Thomson-CSF. Solid-state millimeter wave source comprising a directive antenna. 4,278,951, Cl. 331-96.000.

Caggiula, Christopher A.: *See*—
Davis, Austin E.; Cormier, Raymond G.; and Caggiula, Christopher A., 4,278,345, Cl. 355-15.000.

Cailliot, Serge. Continuous centrifugal separator. 4,278,201, Cl. 233-27.000.

Calcote, Hartwell F.; and Olson, Douglas B., to Aerochem Research Laboratories, Inc. Flame sampling apparatus and method. 4,278,441, Cl. 23-232.00E.

Caldwell, Benton B. Portable electric wire reel. 4,278,214, Cl. 242-106.000.

California Institute of Technology: *See*—
Heyser, Richard C., 4,279,019, Cl. 364-569.000.

Call, Daniel D.; and La Rue, Mervin W., Jr., to Bell & Howell Company. Drive system for endorser. 4,278,023, Cl. 101-235.000.

Callahan, Thomas: *See*—
Donarumma, Angelo; and Callahan, Thomas, 4,278,691, Cl. 426-80.000.

Cameron, Larry E.; Cook, Kenneth J.; Neff, Vance E.; and Rowland, Keith L., to Valeron Corporation, The. Machine process controller. 4,279,013, Cl. 364-105.000.

Campbell, Barry, to R. A. Pearson Company. Case packing machine. 4,277,932, Cl. 53-497.000.

Campbell, Roy E.; and Wilkinson, John D., to Ortloff Corporation. Hydrocarbon gas processing. 4,278,457, Cl. 62-24.000.

Campen, Kenneth W., to Tecumseh Products Company. Ignition timing. 4,278,054, Cl. 123-146.50A.

Canon Kabushiki Kaisha: *See*—
Fukuda, Tadaji; and Sugiura, Susumu, 4,279,000, Cl. 358-213.000.
Ito, Fumio; Harigaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, 4,278,336, Cl. 354-51.000.
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.
Mashimo, Yukio, 4,278,337, Cl. 354-60.00R.
Tanaka, Kazuo, 4,278,331, Cl. 350-411.000.
Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, 4,278,340, Cl. 354-195.000.

Canzano, Fred D.: *See*—
Canzano, Pasquale S.; and Canzano, Fred D., 4,278,073, Cl. 126-437.000.

Canzano, Pasquale S.; and Canzano, Fred D. System, method and apparatus for storing and converting solar energy into heat and/or shaft work. 4,278,073, Cl. 126-437.000.

Cardini, Giuliano: *See*—
Rottigni, Claudio; and Cardini, Giuliano, 4,278,764, Cl. 435-144.000.

Caris, Richard F., to Interface, Inc. Weighing apparatus with overload protection for off-center loading. 4,278,139, Cl. 177-154.000.

Carl Hurth Maschinen- und Zahnradfabrik: *See*—
Eichinger, Hans; and Huebl, Julius, 4,278,028, Cl. 105-136.000.
Eichinger, Johann; and Huebl, Julius, 4,278,027, Cl. 105-131.000.

Carleton, John S.; and Senghaas, Karl A. Dental mirror warmer. 4,278,870, Cl. 219-219.000.

Carleton, William A.: *See*—
Mower, Michael L.; and Carleton, William A., 4,278,161, Cl. 192-84.00C.

Carondelet Foundry Company: *See*—
Culling, John H., 4,278,465, Cl. 75-122.000.

Carpenter, Dale, to Hillyard Enterprises, Inc. Coating composition for synthetic plastic substrates and methods for preparing and using same. 4,278,578, Cl. 260-27.00R.

Carreira, Emmanuel M., Sr., to Dobbins, Thomas A. Binocular stand for astronomical observations. 4,278,320, Cl. 350-26.000.

Carrier Drysys Limited: *See*—
Clarke, Ronald M.; and Johnston, Edward, 4,278,046, Cl. 118-695.000.

Carson, Lansing M.: *See*—
United States of America, National Aeronautics and Space Administration; and Carson, Lansing M., 4,279,018, Cl. 364-514.000.

Carter, Charles E. Pivotable dolly for holding transporting and hanging a door. 4,278,244, Cl. 269-17.000.

Casacci, Severin, to Neyrpic. Control mechanism for two cut-off devices mounted in series. 4,278,108, Cl. 137-613.000.

Casamatta, Angelo: *See*—
Brunelli, Romeo; and Casamatta, Angelo, 4,279,033, Cl. 370-29.000.

Casella, Anthony J.: *See*—
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Casio Computer Co., Ltd.: *See—*
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Caspari, Gunter; and Boone, David E., to Standard Oil Company (Indiana). Catalyst and process for the polymerization of ethylene and terminal olefins. 4,278,781, Cl. 526-150.000.

Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., to General Foods Corporation. Method for increasing preparation tolerance of a dry mix having a gum to form an oil-aqueous emulsion. 4,278,692, Cl. 426-96.000.

Cassonnet, Jean-Claude M.; Hiot, Guy; and Cohen, Violette, to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme). Arrangement for converting virtual addresses into physical addresses in a data processing system. 4,279,014, Cl. 364-200.000.

Castle, Ross M. Curtain rod for sliding glass door. 4,277,913, Cl. 49-70.000.

Caterpillar Tractor Co.: *See—*
Belke, William H.; and Grim, George B., 4,277,938, Cl. 60-39.350.
Cobb, Delwin E., 4,278,295, Cl. 299-69.000.
Crabb, Elmer R.; and Parr, Alta M., 4,277,964, Cl. 70-484.000.
Golan, Kenneth F.; and Winzeler, James E., 4,278,155, Cl. 192-4.00R.
Kessinger, Orville E., Jr., 4,278,151, Cl. 188-71.300.
Livesay, Richard E., 4,277,876, Cl. 29-402.010.
Livesay, Richard E., 4,278,303, Cl. 305-57.000.
Livesay, Richard E., 4,278,368, Cl. 404-117.000.
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Celotex Corporation, The: *See—*
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Cesti, Pietro; Marsili, Leonardo; and Pasqualucci, Carmine, to Archifar Laboratori Chimice Farmacologici S.p.A. Method of producing derivatives of 6-β-amidinopenicillanic acid. 4,278,792, Cl. 542-420.000.

Chalmers, Gerald W.: *See—*
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Chambless, Joe G.; and McGlasson, Paul E., to W-K-M Wellhead Systems, Inc. Means for tensioning tubing in a wellhead assembly. 4,278,278, Cl. 285-143.000.

Champlin, John H., Jr.: *See—*
Starai, Terrence M.; Champlin, John H., Jr.; and Johnson, Randall J., 4,278,957, Cl. 333-202.000.

Chandalia, Kiran B.; and Barnowski, Henry G., to Olin Corporation. Stabilization of high resilience polyurethane foam by including in the reaction mixture a polyol containing an effectively dispersed finely divided solid particulate material. 4,278,770, Cl. 521-99.000.

Chari, Madabushi V. K.; Jones, Donald W.; and Laskaris, Evangelos T., to Electric Power Research Institute. Apparatus for supporting a stator winding in a superconductive generator. 4,278,905, Cl. 310-52.000.

Chemed Corporation: *See—*
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Chemie Linz Aktiengesellschaft: *See—*
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Chen, Chung Y., to Eastman Kodak Company. Novel electron donor precursors and photographic elements containing them. 4,278,750, Cl. 430-218.000.

Chen, Nai Y.; and Reagan, William J., to Mobil Oil Corporation. Hydrocarbon manufacture from alcohols. 4,278,565, Cl. 252-455.00Z.

Chiao, Raymond Y.; Fetterman, Harold R.; and Schlossberg, Howard R., to United States of America, Air Force. Near millimeter wavelength modulator and tunable oscillator. 4,278,953, Cl. 332-7.510.

Chicago Bridge & Iron Company: *See—*
Shadid, Fahim E., 4,278,241, Cl. 266-241.000.

Chicago Pneumatic Tool Company: *See—*
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Chidester, James R.: *See—*
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Chien, James C. W.; Evnochides, Steven K.; and Howlett, Joseph A., to Gulf Oil Corporation. Platable propylene polymer compositions. 4,278,510, Cl. 204-14.00R.

Chimentin, Ermenegildo. Prefabricated burial chamber. 4,277,924, Cl. 52-136.000.

Chiou, Suchi. Telephone index for automatic dialing. 4,278,845, Cl. 179-90.00B.

Chiu, Herman S., to Union Carbide Corporation. Modified liquid smoke compositions and food casings prepared therefrom. 4,278,694, Cl. 426-135.000.

Chmela, Franz: *See—*
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Cho, Iue C.; Frederiksen, Christopher W.; and Hoer, Ralph A., to Ralston Purina Company. Protein isolate having low solubility characteristics and process for producing same. 4,278,597, Cl. 260-123.500.

Choi, Dai S., to Conoco, Inc. Rock bolt and installation system. 4,278,363, Cl. 405-260.000.

Choi, Ye-Chin: *See—*
Srinivasan, Vadake R.; and Choi, Ye-Chin, 4,278,766, Cl. 435-253.000.

Cholet, Jacques; Damotte, Bernard; and Laurent, Jean, to Institut Francais du Petrole. Optical recording device. 4,278,982, Cl. 346-108.000.

Choy, Clement K., to Procter & Gamble Company, The. Surfactant cake compositions. 4,278,571, Cl. 252-558.000.

Choyce, David P. Intraocular anterior chamber implants. 4,277,851, Cl. 3-13.000.

Chrisman, Max G.; Ganzala, Gary W.; and Tiede, Ralph L., to Owens-Corning Fiberglas Corporation. Method and apparatus for mixing and homogenizing molten glass. 4,278,460, Cl. 65-134.000.

Christensen, Inc.: *See—*
Rowley, David S.; Aumann, James T.; and Waldes, Lothar H., 4,278,138, Cl. 175-320.000.

Christian, Ronald W.; and Kutzavitch, Walter G., to Bell Telephone Laboratories, Incorporated. Power supply circuit for a data processor. 4,279,020, Cl. 364-900.000.

Christiansen, James O.: *See—*
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Christopher, Todd J., to RCA Corporation. PCM Detector for video reproducer apparatus. 4,278,992, Cl. 358-13.000.

Christophliemk, Peter; and Wust, Willi, to Henkel Kommanditgesellschaft auf Aktien; and Deutsche Gold- und Silber-Scheideanstalt Vonmals Roessler. Continuous process for the production of amorphous sodium aluminosilicate in an elongated reaction zone. 4,278,649, Cl. 423-329.000.

Chromalloy American Corporation: *See—*
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Chrysler Corporation: *See—*
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Chu, Chin-Chiun; and Kaeding, Warren W., to Mobil Oil Corporation. Shape selective reactions with zeolite catalyst modified with group IVB metal. 4,278,827, Cl. 585-467.000.

Chuo Hatsujo Kabushiki Kaisha: *See—*
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Ciba-Geigy AG: *See—*
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Ciba-Geigy Corporation: *See—*
Dexter, Martin; and Winter, Roland A. E., 4,278,589, Cl. 260-45.8NT.
Dexter, Martin; and Winter, Roland A. E., 4,278,590, Cl. 260-45.8NT.
Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, 4,278,613, Cl. 260-465.00D.
Traxler, Peter; Gruner, Johannes; and Nuesch, Jakob, 4,278,665, Cl. 424-181.000.
Wheeler, Ian R.; Robertson, George H.; and McGregor, David, 4,278,601, Cl. 260-314.500.

Ciman, Gelindo. Wind-driven power generator. 4,278,894, Cl. 290-44.000.

Cities Service Company: *See—*
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Clark, Gary T., to Eastman Kodak Company. Mono azo dyes from (2-alkoxy-5-alkanoylaminoanilino)alkoxy or aryloxy alkanes. 4,278,599, Cl. 260-207.000.

Clark, John A., Jr., to Harsco Corporation. Water heater. 4,278,069, Cl. 126-366.000.

Clarke, Ronald M.; and Johnston, Edward, to Carrier Drysys Limited. Paint spraying apparatus. 4,278,046, Cl. 118-695.000.

Clayton, Colin G.; and Wormald, Malcolm R., to United Kingdom Atomic Energy Authority. Coal ash monitors. 4,278,882, Cl. 250-255.000.

Clifford, James A.; and Pearson, Daniel E., to Burroughs Corporation. Semiconductor device for providing a selectable reference voltage. 4,278,988, Cl. 357-51.000.

Clift, Miner E.: *See—*
Wood, Loren E.; Allen, Jerome D.; Clift, Miner E.; Kays, Jerry W.; and Forsythe, Calvin C., 4,278,181, Cl. 220-89.00A.

Coats, Montgomery R.; Pendleton, Turner C., deceased; and Pendleton, Reine H., to Pendleton, Reine H.; Pendleton, Claude A.; and Coats, Sue Pendleton, a part interest. Apparatus and method for indicating sound levels. 4,277,980, Cl. 73-646.000.

Coats, Sue Pendleton: *See—*
Coats, Montgomery R.; Pendleton, Turner C., deceased; and Pendleton, Reine H., 4,277,980, Cl. 73-646.000.

Cobb, Delwin E., to Caterpillar Tractor Co. Impacting rock breaker. 4,278,295, Cl. 299-69.000.

Cockerill: *See—*
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Cockerill, Peter E.: *See—*
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Cohen, Violette: *See—*
Cassonnet, Jean-Claude M.; Hiot, Guy; and Cohen, Violette, 4,279,014, Cl. 364-200.000.

Cole, Graham M., to Dreamland Electrical Appliances Limited. Heating circuits. 4,278,874, Cl. 219-505.000.

Cole, Richard A.: *See—*
Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., 4,278,692, Cl. 426-96.000.

Coll-Palagos, Miguel, to Stauffer Chemical Company. Electroless metal plated laminates. 4,278,739, Cl. 428-623.000.

Collonia, Harald, to VDO Adolf Schindling AG. Device for the control of the traveling speed of a motor vehicle. 4,278,059, Cl. 123-399.000.

Comizzoli, Robert B.: *See—*
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Commissariat a l'Energie Atomique: *See—*
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.
Ailloud, Jean; and Monteil, Marcel, 4,278,500, Cl. 176-37.000.

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Cassonnet, Jean-Claude M.; Hiot, Guy; and Cohen, Violette, 4,279,014, Cl. 364-200.000.

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Condit, Paul B.: *See—*
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Congoleum Corporation: *See—*
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Conjura, Walter E., to Cosco Industries, Inc. Convertible seal press. 4,278,017, Cl. 101-3.0SP.

Conner, E. C.: *See—*
Conner, Eldon C.; and Conner, E. C., 4,277,999, Cl. 83-425.300.

Conner, Eldon C.; and Conner, E. C. Firewood sawmill. 4,277,999, Cl. 83-425.300.

Conoco, Inc.: *See—*
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Dudt, Philip J., 4,278,447, Cl. 48-210.000.

Consolidated Electronic Industries Proprietary Limited: *See—*
Medding, Reuben; and Kay, Peter D., 4,278,921, Cl. 318-254.000.

Container Corporation of America: *See—*
Nauheimer, James F., 4,278,170, Cl. 206-422.000.
Scheinbaum, Marc C.; and Winburn, Anne L., 4,278,197, Cl. 229-30.000.
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Control Technology, Inc.: *See—*
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Cook, Kenneth J.: *See—*
Cameron, Larry E.; Cook, Kenneth J.; Neff, Vance E.; and Rowland, Keith L., 4,279,013, Cl. 364-105.000.

Cooperrider, Myron T., to R. W. Beckett Corporation. Electromagnetic pump. 4,278,406, Cl. 417-199.00A.

Coran, Aubert Y.; and Patel, Raman, to Monsanto Company. Phenolic modified olefin polymers. 4,278,572, Cl. 260-3.000.

Corbett, David F.; and Eglington, Alfred J., to Beecham Group Limited. Carbapenum derivatives, a process for their preparation and their use in pharmaceutical compositions and intermediates. 4,278,686, Cl. 424-274.000.

Cormier, Raymond G.: *See—*
Burgess, Francis P.; Cormier, Raymond G.; Guiguizian, Jacques; and Lutz, Leo O., 4,278,341, Cl. 355-3.0SH.
Davis, Austin E.; Cormier, Raymond G.; and Caggiula, Christopher A., 4,278,345, Cl. 355-15.000.

Cort, Joseph H., to Vega Laboratories, Inc. Orally active MIF analogs with an effect on the central nervous system. 4,278,595, Cl. 260-112.50R.

Corvi-Mora, Camillo. Piperazines. 4,278,796, Cl. 544-400.000.

Corwin, Rudolph E.: *See—*
Riemer, Dietrich E.; and Corwin, Rudolph E., 4,278,831, Cl. 136-256.000.

Cosco Industries, Inc.: *See—*
Conjura, Walter E., 4,278,017, Cl. 101-3.0SP.

Cotton Machinery Company, Inc.: *See—*
Haney, Donald J.; and Gaudette, Andrew J., 4,278,016, Cl. 100-224.000.

Coulter Electronics, Inc.: *See—*
Hodgins, Bruce J.; Saltz, Ivan K.; and Ginsberg, Guenter, 4,278,086, Cl. 128-224.000.
Shine, Ian B., 4,278,936, Cl. 324-71.0CP.

Coulter Systems Corporation: *See—*
Kuehnle, Manfred R.; Hagenlocher, Arno K.; and Giardino, Nicholas A., 4,278,528, Cl. 204-298.000.

Coury, Arthur J.: *See—*
Skarstad, Paul M.; Untereker, Darrel F.; and Coury, Arthur J., 4,278,745, Cl. 429-213.000.

Cowan, Stuart I.: *See—*
Niemann, Elfriede; Stagg, Brian H.; and Cowan, Stuart I., 4,278,652, Cl. 424-1.000.

CPC International Inc.: *See—*
Velasco, Violeta S., 4,278,695, Cl. 426-289.000.

Crabb, Elmer R.; and Parr, Alta M., to Caterpillar Tractor Co. Door lock. 4,277,964, Cl. 70-484.000.

Crane, Jimmie W.: *See—*
Kelley, Charles H.; Crane, Jimmie W.; and Ray, Albert D., 4,278,102, Cl. 137-39.000.

Creed, Gerald J.; Dudis, Frank; Edwards, William J.; and Hurler, Herbert T., to Singer Company, The. Chain stitch conversion for lock stitch sewing machine. 4,278,037, Cl. 112-168.000.

Creffield, Geoffrey K.; Wickens, Anthony J.; Dowd, Anthony C. H.; and Henley, Vernon F. F., to United States Borax & Chemical Corporation. Anodizing aluminum. 4,278,737, Cl. 428-469.000.

Crescent Roofing Company Limited: *See—*
Brill-Edwards, Kenneth O. P., 4,278,071, Cl. 126-428.000.

Crocker, Zenas; and Jonah, Wilford B., to Synergistics Chemicals Limited. Process for separating bitumen from a bitumen sand deposit. 4,278,530, Cl. 209-3.000.

Crompton & Knowles Corp.: *See—*
Wineholt, Robert L.; and Feeman, James F., 4,278,616, Cl. 260-512.00C.

Cros, Pierre, to Spie-Batignolles. Hydroelectric power station. 4,278,895, Cl. 290-52.000.

Croscill Curtain Co. Inc.: *See—*
Schwartz, Herbert S., 4,278,714, Cl. 428-4.000.

Cross, Peter S.; and Shreve, William R., to Hewlett-Packard Company. Frequency trimming of surface acoustic wave devices. 4,278,492, Cl. 156-627.000.

Crossley, Peter A., to Fairchild Camera and Instrument Corporation. Method of producing a metal-semiconductor field-effect transistor. 4,277,882, Cl. 29-571.000.

Crossot, Eugene A. Framing and hanging assembly for a sheet material object. 4,277,903, Cl. 40-152.100.

Crowe, John J., to Union Carbide Corporation. Method of manufacturing a contoured stamping die. 4,277,988, Cl. 76-107.00R.

Cucinella, Salvatore; and Dozzi, Giovanni, to Anic S.p.A. Process for synthesizing alkoxyalanates of alkaline earth metals. 4,278,611, Cl. 260-448.0AD.

Culling, John H., to Carondelet Foundry Company. Corrosion-resistant alloys. 4,278,465, Cl. 75-122.000.

Cummings, Kenneth W.; and Perethian, Charles M., to First Champaign Corporation. Pockets for a fairing structure. 4,278,285, Cl. 296-78.100.

Cunningham, William W. Plate check valve. 4,278,106, Cl. 137-512.100.

Curington, Alfred R., to Reedrill, Inc. Variable volume pneumatic drill. 4,278,135, Cl. 173-29.000.

Custom Coating, Inc.: *See—*
Poteet, William C.; Terry, Claude E.; Hamrick, Glen F.; and Walls, Francis G., 4,278,482, Cl. 156-78.000.

Cyclonaire Corporation: *See—*
Jacobson, Wayne M., 4,278,367, Cl. 406-109.000.

Cymbal, William D.; and Kimberlin, Dan R., to General Motors Corporation. Vehicle floor mounted transmission shift lever with steering column backdrive linkage. 4,278,154, Cl. 192-4.00A.

Czech, Joachim: *See—*
Lorscheid, Willy; and Wingen, Ludwig, 4,278,360, Cl. 401-151.000.

Dagenais, Joseph E. Protection means for tracks in a track-laying vehicle. 4,278,391, Cl. 414-559.000.

Daigle, Donald J.: *See—*
Frank, Arlen W.; Daigle, Donald J.; and Kullman, Russell M. H., 4,278,811, Cl. 564-15.000.

Daikin Kogyo Co., Ltd.: *See—*
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

Dailey, Rodney E.: *See—*
Marcantonio, Arnold F.; and Dailey, Rodney E., 4,278,735, Cl. 428-432.000.

Daimer, Wolfgang: *See—*
Schmolzer, Gerhard; Daimer, Wolfgang; and Verdino, Heiner, 4,278,580, Cl. 260-29.2EP.

Dainippon Ink & Chemicals, Inc.: *See—*
Honda, Kiyoshi; Kuriyama, Kazuya; Murakami, Shigeru; Sugawara, Ryozo; and Nakamura, Chiaki, 4,278,728, Cl. 428-313.000.
Nakamura, Hidehisa; Hori, Ryoichi; Isomoto, Emiko; and Murakami, Yoichi, 4,278,575, Cl. 260-22.0CB.

Daley, Philip A.; Mouhot, Allan R.; and Felice, Dan C. Sawhorse. 4,278,148, Cl. 182-181.000.

Damotte, Bernard: *See—*
Cholet, Jacques; Damotte, Bernard; and Laurent, Jean, 4,278,982, Cl. 346-108.000.

Dangschat, Holmer, to Dr. Johannes Heidenhain GmbH. Precision adjustable table. 4,278,031, Cl. 108-4.000.

Danin, Colin. Article of furniture. 4,277,856, Cl. 5-3.000.

Danulat, Hans F.; John, Kamar P.; Klein, Helmut; and Lukatsch, Stephen, to Metallgesellschaft Aktiengesellschaft. Process of recovering an n-hexane product which is free from aromatic compounds. 4,278,505, Cl. 203-59.000.

Datotek, Inc.: *See—*
Morgan, Barrie O.; and Wilkinson, Mitchell M., 4,278,840, Cl. 179-1.50S.

Daugherty, Jack D.: *See—*
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.

Davis, Austin E.; Cormier, Raymond G.; and Caggiula, Christopher A., to Nashua Corporation. Drum cleaning apparatus. 4,278,345, Cl. 355-15.000.

Davis, Bill G. Temperature sensor valve. 4,278,056, Cl. 123-198.00D.

Davis, French and Associates, Inc.: *See—*
French, Larry A., 4,278,044, Cl. 118-256.000.

Davis, Kenneth P.; and Boughtflower, Charles A., to Magnatex Limited. Vehicle rear-view mirrors. 4,278,227, Cl. 248-487.000.

Dawson, Gregg W.: *See—*
Dawson, Paul R.; and Dawson, Gregg W., 4,277,970, Cl. 73-32.00R.

Dawson, Paul R.; and Dawson, Gregg W. Apparatus and method for specific gravity measurement. 4,277,970, Cl. 73-32.00R.

Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva,

Ljudmila F.; and Arsatiants, Raisa A. Method for preparing strains which produce aminoacids. 4,278,765, Cl. 435-172.000.

DECHEMA: *See—*
Kreysa, Gerhard, 4,278,521, Cl. 204-222.000.

Dedlow, Carl Eugene: *See—*
Whittingham, Barron S., 4,278,471, Cl. 127-37.000.

Dedolph, Richard R., to Gravi-Mechanics Co. Field transplant systems and methods and components thereof. 4,278,625, Cl. 264-39.000.

Deere & Company: *See—*
Regueiro, Jose F., 4,278,064, Cl. 123-577.000.
Westimayer, David A.; and Scholten, Stephen C., 4,278,302, Cl. 305-35.0EB.

De Facci, Claude; and Duerr, Peter C. Welding gas shield control. 4,278,864, Cl. 219-75.000.

de Gaillard, Alain, to Umicum S.A. Rotatable pneumatic gear motor having a deformable adjustable sealed chamber. 4,278,410, Cl. 418-108.000.

Degen, John K., to Degen, June Shirley. Power take-off device for rotary lawnmower. 4,277,935, Cl. 56-2.000.

Degen, June Shirley: *See—*
Degen, John K., 4,277,935, Cl. 56-2.000.

Degussa Aktiengesellschaft: *See—*
Wolff, Siegfried; and Tan, Ewe-Hong, 4,278,587, Cl. 260-42.370.

Degussa Aktiengesellschaft: *See—*
Stober, Reinhard; and Wirthwein, Rolf, 4,278,615, Cl. 260-502.00R.

de Koning, Martinus, to ITT Industries, Inc. Method for mounting a replacement shock absorber. 4,277,877, Cl. 29-402.080.

del Picchia Sergio: *See—*
del Picchia, Walter; Martins, Wagner W.; Silveira, Decio G.; and del Picchia Sergio, 4,279,008, Cl. 361-194.000.

Delisle, Jean-Paul: *See—*
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.

del Picchia, Walter; Martins, Wagner W.; Silveira, Decio G.; and del Picchia Sergio. Relay. 4,279,008, Cl. 361-194.000.

de Marcellus, Roland. Attachments for lawn edgers. 4,278,133, Cl. 172-14.000.

Demido, Michael, to General Motors Corporation. Hydraulic brake booster. 4,278,009, Cl. 91-47.000.

Denise, Pierre. Mechanism for controlling the displacement of a straight edge on a drawing board. 4,277,896, Cl. 33-443.000.

de Pous, Olivier, to Battelle Memorial Institute. Titanium alloy composition and method for the storage of hydrogen. 4,278,466, Cl. 75-175.500.

Derreumaux, Antoine; and Saunier, Bernard. Method for amperometric measurement of the free-chlorine content in a solution. 4,278,507, Cl. 204-1.00T.

Desgouilles, Henri F. M., to Composants Industrialises du Batiment, par abreviation C.I.B. Composite bituminous sheet, particularly for sealing members. 4,278,724, Cl. 428-193.000.

DeSilva, Manuel V. Fuel heating device. 4,278,062, Cl. 123-552.000.

DeSoto, Inc.: *See—*
Murphy, Edward J., 4,278,579, Cl. 260-29.300.

Deutsche Gold- und Silber-Scheideanstalt Vonmals Roessler: *See—*
Christophliemk, Peter; and Wust, Willi, 4,278,649, Cl. 423-329.000.

Dexter, Martin; and Winter, Roland A. E., to Ciba-Geigy Corporation. 2-[2-Hydroxy-3,5-di-(α,α-dimethylbenzyl)phenyl]-2H-benzotriazole and stabilized compositions. 4,278,589, Cl. 260-45.8NT.

Dexter, Martin; and Winter, Roland A. E., to Ciba-Geigy Corporation. 2-[2-Hydroxy-3,5-di-tert-octylphenyl]-2H-Benzotriazole and stabilized compositions. 4,278,590, Cl. 260-45.8NT.

Diamond Shamrock Corporation: *See—*
Gestaut, Lawrence J., 4,278,525, Cl. 204-265.000.

DiBattista, Dante P.; and Kuhn, Robert H., to General Electric Company. Apparatus for clamping a plurality of elements. 4,278,245, Cl. 269-22.000.

Dick, Harold R., to American Optical Corporation. Lens tape cutter. 4,277,891, Cl. 30-316.000.

Diederich, Paul W., Jr. Universal coupling adapter for remote fluid cooling or filtering. 4,278,275, Cl. 285-12.000.

Dielectrics Corporation: *See—*
Orson, Theodore, Sr., 4,277,864, Cl. 24-327.000.

DiGiulio, Adolph V.; and Bauer, Jack N., to Arco Polymers, Inc. Fire-retardant monocarboxylic acid copolymers. 4,278,767, Cl. 521-88.000.

DiGiulio, Adolph V.; and Bauer, Jack N., to Arco Polymers, Inc. Rubber-modified fire-retardant anhydride copolymers. 4,278,768, Cl. 521-88.000.

Dingethal, Frank H.; and Bartosek, Edward, to J. M. Schneider Inc. Shipper package. 4,278,693, Cl. 426-129.000.

Distillers Company (Carbon Dioxide) Limited, The: *See—*
Wheldon, Alfred G.; and Cockerill, Peter E., 4,278,012, Cl. 99-278.000.

Dixon, Guy E., to Panelfold Doors, Inc. Portable and operable wall systems. 4,277,920, Cl. 52-64.000.

Dobbins, Thomas A.: *See—*
Carreira, Emmanuel M., Sr., 4,278,320, Cl. 350-26.000.

Dockner, Toni: *See—*
Kempe, Uwe; Dockner, Toni; Frank, Anton; and Karn, Helmut, 4,278,801, Cl. 548-342.000.

Dockx, Jozef C. J.: *See—*
Van der Veken, Guido J. L.; and Dockx, Jozef C. J., 4,278,684, Cl. 424-270.000.

Dr. Ing Rudolf Hell G.m.b.H.: *See—*
Schulz, Joachim, 4,279,003, Cl. 358-280.000.

Dr. Johannes Heidenhain GmbH: *See—*
Dangschat, Holmer, 4,278,031, Cl. 108-4.000.

Doerffer, Jerzy; Madey, Jerzy; Kozlowski, Jan; and Niepiekto, Andrzej, to Politechnika Gdanska. Braking rudder device. 4,278,040, Cl. 114-170.000.

Donarumma, Angelo; and Callahan, Thomas. Coffee infusion bag. 4,278,691, Cl. 426-80.000.

Dorrance, William H., to Organization Control Services, Inc. Method for producing oxygen and hydrogen from water. 4,278,650, Cl. 423-579.000.

Dostoomian, A. S., to Vanzetti Infrared & Computer Systems, Inc. Luminous clock display using optical fibers. 4,279,031, Cl. 368-82.000.

Dotson, Ronald L., to Olin Corporation. Electrolytic cell for purifying aqueous solutions of alkali metal hydroxides. 4,278,527, Cl. 204-272.000.

Douglas, Donald A.: *See—*
Rappas, Alkis S.; Menashi, Jameel; and Douglas, Donald A., 4,278,644, Cl. 423-58.000.

Douglas, Jack E.; and Bigley, Richard J., to Arthur Shaw Manufacturing Limited. Load supporting roller assemblies. 4,278,306, Cl. 308-6.00C.

Dow Chemical Company, The: *See—*
Burdett, Kenneth A., 4,278,809, Cl. 560-222.000.
Hefner, Robert E., Jr., 4,278,533, Cl. 209-166.000.
Swart, Daniel J.; and Kelyman, Jacqueline S., 4,278,787, Cl. 528-191.000.
Warren, Norman E., 4,278,778, Cl. 525-346.000.

Dowd, Anthony C. H.: *See—*
Creffield, Geoffrey K.; Wickens, Anthony J.; Dowd, Anthony C. H.; and Henley, Vernon F. F., 4,278,737, Cl. 428-469.000.

Dozzi, Giovanni: *See—*
Cucinella, Salvatore; and Dozzi, Giovanni, 4,278,611, Cl. 260-448.0AD.

Dragerwerk Aktiengesellschaft: *See—*
McBride, William S., 4,278,637, Cl. 422-122.000.
Voigt, Gunter; and Boldt, Rainer, 4,278,636, Cl. 422-84.000.

Drake, Jerry D.; and Drake, Thomas L. Trailer. 4,278,375, Cl. 410-26.000.

Drake, Thomas L.: *See—*
Drake, Jerry D.; and Drake, Thomas L., 4,278,375, Cl. 410-26.000.

Dreamland Electrical Appliances Limited: *See—*
Cole, Graham M., 4,278,874, Cl. 219-505.000.

Dreiling, Sebastian E. Alignment bracket for drawer-guide systems. 4,278,309, Cl. 312-343.000.

Dresser Industries, Inc.: *See—*
Baron, George B., 4,278,393, Cl. 414-690.000.

Drew, Jeffrey M.: *See—*
Lubitz, Karl; Drew, Jeffrey M.; and Schuhmann, Werner P., 4,277,977, Cl. 73-587.000.

Drews, Ulrich: *See—*
Werner, Peter; and Drews, Ulrich, 4,278,061, Cl. 123-483.000.

Drexler, Jerome; and Bouldin, Eric W., to Drexler Technology Corporation. Process for making a reflective data storage medium. 4,278,758, Cl. 430-616.000.

Drexler, Jerome: *See—*
Bouldin, Eric W.; and Drexler, Jerome, 4,278,756, Cl. 430-414.000.

Drexler Technology Corporation: *See—*
Bouldin, Eric W.; and Drexler, Jerome, 4,278,756, Cl. 430-414.000.
Drexler, Jerome; and Bouldin, Eric W., 4,278,758, Cl. 430-616.000.

Drori, Mordeki. Back washing fluid filters. 4,278,540, Cl. 210-107.000.

Drummond, Russell F. Food product chiller. 4,277,954, Cl. 62-375.000.

Drzewiecki, Tadeusz M.; and Phillippi, Richard M., to United States of America, Army. Fluidic oil viscometer. 4,277,971, Cl. 73-55.000.

Dubin, Robert W.: *See—*
Briles, Wallace E.; and Dubin, Robert W., 4,278,115, Cl. 141-86.000.

Dubs, Bernard J.: *See—*
Lynn, Scott; and Dubs, Bernard J., 4,278,646, Cl. 423-226.000.

Dudis, Frank: *See—*
Creed, Gerald J.; Dudis, Frank; Edwards, William J.; and Hurler, Herbert T., 4,278,037, Cl. 112-168.000.

Dudt, Philip J., to Conoco, Inc. Methods for producing feedstock for a fixed bed gasifier from finely-divided coal. 4,278,447, Cl. 48-210.000.

Duerr, Peter C.: *See—*
De Facci, Claude; and Duerr, Peter C., 4,278,864, Cl. 219-75.000.

Dugan, William P., to General Dynamics, Pomona Division. Plug plating. 4,278,511, Cl. 204-15.000.

Dugge, Richard H.; and Schlobohm, Arnold, to ACF Industries, Inc. Automatic vacuum relief valve for hopper cars. 4,278,107, Cl. 137-526.000.

Duhe, Lance B. Pipe joint intersection contour scriber. 4,277,894, Cl. 33-21.00C.

Dumont, Claude: *See—*
Nedelec, Lucien; Guillaume, Jacques; and Dumont, Claude, 4,278,677, Cl. 424-263.000.

Dunmire, Howard L.: *See—*
Horn, Stuart B.; Asher, Mark S.; and Dunmire, Howard L., 4,277,948, Cl. 62-6.000.

Dunn, George L., to SmithKline Corporation. 7-Alpha-oxyiminoacylcephalosporins. 4,278,670, Cl. 424-246.000.

Du Pont de Nemours, E. I., and Company: *See—*
Bettinger, George E.; Pohland, Hermann W.; and Applegate, Lynn E., 4,278,548, Cl. 210-636.000.
Fremont, Joseph M.; and Garnett, Donald I., 4,278,563, Cl. 252-441.000.

Gervay, Joseph E.; and Pilette, Yvan P., 4,278,752, Cl. 430-281.000.
Knight, Ernest, Jr., 4,278,661, Cl. 424-85.000.

Duracell International Inc.: *See—*
Athearn, Lee F., 4,278,744, Cl. 429-181.000.

Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schrinner, Elmar; and Heymes, Rene, to Hoechst Aktiengesellschaft. Cephem derivative. 4,278,793, Cl. 544-27.000.

Durenec, Peter, to United States of America, Army. Cryogenic cooler having telescoping multistage regenerator-displacers. 4,277,947, Cl. 62-6.000.

Durgarian, Sergei G.: *See—*
Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V., 4,278,774, Cl. 525-100.000.

Duro Metal Products Company: *See—*
Hall, Roy L., 4,277,990, Cl. 81-63.000.

Durr, Frederick E.: *See—*
Murdock, Keith C.; and Durr, Frederick E., 4,278,689, Cl. 424-330.000.

Durrell, Robert L.: *See—*
Hibbs, Joseph E.; Chalmers, Gerald W.; Durrell, Robert L.; and Smith, Walter C., 4,278,026, Cl. 102-254.000.

Dworak, Gert; and Aigner, Hansjorg, to Vianova Kunstharz, A.G. Polysiloxane-modified paint binders and process for producing the binders. 4,278,574, Cl. 260-22.0CB.

Dynamit Nobel AG: *See—*
Gebauer, Peter; and Sturm, Karl G., 4,278,769, Cl. 521-90.000.

E. J. Brooks Company: *See—*
Moberg, Sigurd M., 4,278,281, Cl. 292-320.000.

E. W. Mold & Tool Co. Inc.: *See—*
Wilds, Robert W.; Meyer, Robert E.; Grannen, Walter A., III; and Bryant, Dannie, 4,278,417, Cl. 425-577.000.

Eade, Robert A.; and Quaintance, Peter V. C. Concert shell. 4,278,145, Cl. 181-30.000.

Eagle Aircraft Co.: *See—*
Wilson, Weldon D., 4,278,221, Cl. 244-136.000.

Eagle-Picher Industries, Inc.: *See—*
Smith, Donald C.; and Hoffman, Jack D., 4,278,558, Cl. 252-186.000.

Easterling, Mahlon E.: *See—*
United States of America, National Aeronautics and Space Administration; Easterling, Mahlon E.; and Winkelstein, Robin A., 4,278,978, Cl. 343-100.0CL.

Eastern Company, The: *See—*
Lobello, John, 4,278,006, Cl. 411-47.000.

Eastman Kodak Company: *See—*
Baker, Charles W.; Wilson, Robert J.; and Kempf, Dale F., 4,278,338, Cl. 354-83.000.
Chen, Chung Y., 4,278,750, Cl. 430-218.000.
Clark, Gary T., 4,278,599, Cl. 260-207.000.
Fearnside, William T.; and Lee, Teh-Hsuang, 4,278,995, Cl. 358-54.000.
Hinshaw, Gerald C.; and Condit, Paul B., 4,278,598, Cl. 260-157.000.
Sidhu, Jasbir; Simons, Michael J.; and Mijovic, Miroslav V., 4,278,748, Cl. 430-212.000.
Specht, Donald P.; Payne, Kenneth L.; and Farid, Samir Y., 4,278,751, Cl. 430-281.000.

Ebneth, Harold, to Bayer Aktiengesellschaft. Process for the partial metallization of textile structures. 4,278,435, Cl. 8-471.000.

Edelman, Brian S.; and Robinson, Ralph L., Jr., to Ford Motor Company. Binary output processing in a digital computer using a time-sorted stack. 4,279,015, Cl. 364-200.000.

Edinen Centar Po Physika: *See—*
Antonov, Lyubomir Y., 4,278,838, Cl. 179-1.0SM.

Edwards, William J.: *See—*
Creed, Gerald J.; Dudis, Frank; Edwards, William J.; and Hurler, Herbert T., 4,278,037, Cl. 112-168.000.

Egawa, Takeshi: *See—*
Uchida, Isamu; Yamazaki, Yasuo; and Egawa, Takeshi, 4,278,339, Cl. 354-155.000.

Egger, Helmut; and Reinshagen, Hellmuth, to Sandoz Ltd. Substituted 14-desoxy-mutilin compositions. 4,278,674, Cl. 424-250.000.

Eggert, Walter S., Jr., to Budd Company, The. Resilient railway car truck suspension. 4,278,029, Cl. 105-224.100.

Eglington, Alfred J.: *See—*
Corbett, David F.; and Eglington, Alfred J., 4,278,686, Cl. 424-274.000.

Egnell, Rolf A.; and Hansson, Bengt L., to Kommanditbolaget United Stirling. Exhaust gas recirculation apparatus. 4,277,942, Cl. 60-517.000.

Ehlers, Eberhard: *See—*
Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schrinner, Elmar; and Heymes, Rene, 4,278,793, Cl. 544-27.000.

Eichbaum, Friedrich: *See—*
Bortz, Karl; Thesing, Heinrich; and Eichbaum, Friedrich, 4,278,296, Cl. 299-87.000.

Eichin, Harry P.: *See—*
Nausedas, Joseph A.; and Eichin, Harry P., 4,277,930, Cl. 53-396.000.

Eichinger, Hans; and Huebl, Julius, to Carl Hurth Maschinen- und Zahnradfabrik. Resilient railway truck articulated shaft housing. 4,278,028, Cl. 105-136.000.

Eichinger, Johann; and Huebl, Julius, to Carl Hurth Maschinen- und Zahnradfabrik. Resilient railway truck double axle drive. 4,278,027, Cl. 105-131.000.

Eiermann, Dankwart, to Borsig GmbH; and Wankel GmbH, a part interest. Compressor. 4,278,409, Cl. 418-61.00A.

Eigenbrod, Lester K.; Kidder, Gerald F.; and Zeunik, Robert L., to Union Carbide Corporation. Cryogenic liquid transfer termination apparatus. 4,277,950, Cl. 62-55.000.

Eilingsfeld, Heinz: *See—*
Hiller, Heinrich; Eilingsfeld, Heinz; Reinicke, Helmut; and Traub, Fritz, 4,278,606, Cl. 260-380.000.

Eis, Frederick G.; Bonney, Oren V.; and Sackett, Willard A., to Amstar Corporation. Separator employing an annular vertical feedwell with associated concentric annular baffle plate and method of using same to separate solids from liquids. 4,278,541, Cl. 210-112.000.

Ekman Engineering AG: *See—*
Ekman, Kjell R., 4,278,276, Cl. 285-49.000.

Ekman, Kjell R., to Ekman Engineering AG. Device for a coupling unit having connectable and disconnectable parts. 4,278,276, Cl. 285-49.000.

Electric Power Research Institute: *See—*
Chari, Madabushi V. K.; Jones, Donald W.; and Laskaris, Evangelos T., 4,278,905, Cl. 310-52.000.
Hingorani, Narain G., 4,278,832, Cl. 174-14.00R.
Levenson, Milton; and Zebroski, Edwin L., 4,278,559, Cl. 252-301.10R.

Eli Lilly and Company: *See—*
Flom, Merlyn G., 4,278,570, Cl. 252-546.000.
Thakkar, Arvind L., 4,278,603, Cl. 260-345.300.
Zimmerman, Dennis M., 4,278,797, Cl. 546-112.000.

Elie, Xavier: *See—*
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.

Elineau, Hubert, to MecanARBED S.a.r.L. Method of and apparatus for stacking channel bars. 4,278,377, Cl. 414-30.000.

Eliscu, Joshua, to Elisola Enterprises, Inc. Table apparatus for holding and moving cels for producing animated motion pictures. 4,278,332, Cl. 352-87.000.

Elisola Enterprises, Inc.: *See—*
Eliscu, Joshua, 4,278,332, Cl. 352-87.000.

Elmi, Steele J., to Finetex, Inc. Antiperspirant composition. 4,278,655, Cl. 424-47.000.

Elmore, Charles E., to Vermont American Corporation. Storage means for removable tips for hand tool. 4,278,119, Cl. 145-62.000.

Elston, Lewis W.: *See—*
Hurst, David R.; and Elston, Lewis W., 4,278,450, Cl. 55-80.000.

Eltro GmbH Gesellschaft Fur Strahlungstechnik: *See—*
Bauer, Siegfried; and Burckhart, Dieter, 4,278,430, Cl. 434-2.000.

Elwell, John L., Jr., to United States of America, Air Force. Solvent mixture for dissolving and removing epoxy resinous compounds. 4,278,557, Cl. 252-171.000.

Emelyanov, Viktor I.: *See—*
Andronov, Valery A.; Boyarsky, Alexandr I.; Emelyanov, Viktor I.; and Nabutovsky, Iosif B., 4,279,009, Cl. 363-35.000.

Emerson Electric Co.: *See—*
Mitchell, Richard L.; Brundage, Richard B.; and Blachly, Donald L., 4,278,117, Cl. 144-144.00R.

Endo, Hiroshi: *See—*
Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, 4,278,346, Cl. 355-45.000.

Engels, George. "Adjustment device for tool bit holders". 4,277,993, Cl. 82-37.000.

English Clays Lovering Pochin & Co., Ltd.: *See—*
Falcon-Steward, Hugh R., 4,278,208, Cl. 241-16.000.

Enjo, Naonori: *See—*
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

Envirotech Corporation: *See—*
Rahman, Michael, 4,278,617, Cl. 261-30.000.

Era, Susumu: *See—*
Nanaumi, Ken; Shoji, Fusaji; Kohkame, Hisashi; and Era, Susumu, 4,278,786, Cl. 528-179.000.

Eranosian, Florence, executrix: *See—*
Eranosian, John, deceased, 4,278,386, Cl. 414-421.000.

Eranosian, John, deceased (by Eranosian, Florence, executrix). Structure for supporting cooking pot for re-fried beans. 4,278,386, Cl. 414-421.000.

Erbe Elektromedizin KG: *See—*
van Gerven, Hans, 4,278,090, Cl. 128-303.100.

Erickson, John W., to Kobe, Inc. Pumping stage for multi-stage centrifugal pump. 4,278,399, Cl. 415-199.100.

Erker, Joseph W., to Ohio Nuclear, Inc. Current amplifier with automatic drift correction for tomographic scanners. 4,278,889, Cl. 250-445.00T.

Ernest, Lorraine D. Slug trap. 4,277,907, Cl. 43-131.000.

Ernst, Horst M.: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,278,305, Cl. 308-6.00C.

Ersoy, Metin, to Schaeffer-Homberg GmbH. Machine for the attachment of buttons, rivets or the like. 4,278,194, Cl. 227-18.000.

Ertingshausen, Gerhard: *See—*
Law, Wai-Tak; and Ertingshausen, Gerhard, 4,278,440, Cl. 23-230.00B.

Esaka, Takasige: *See—*
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

Espaignol, Jacques: *See—*
Cachier, Gerard; and Espaignol, Jacques, 4,278,951, Cl. 331-96.000.

Espenscheid, Wilton F.: *See—*
Yan, Tsoung-yuan; and Espenscheid, Wilton F., 4,278,292, Cl. 299-5.000.

Esper, Norbert: *See—*
Burba, Christian; Volland, Hans-Guenter; and Esper, Norbert, 4,278,713, Cl. 427-388.200.

Esposito, John W. Fishing chair. 4,278,289, Cl. 297-188.000.

Esthimer, William F.; Morin, Edward H.; and Trudell, Richard E., to Bird-Johnson Company. Control system for equalizing the torques of multiple engines driving a common load. 4,277,945, Cl. 60-710.000.

Estrada, Jose: *See—*
Florio, John D., 4,277,847, Cl. 2-12.000.

Etablissements Sim S.A.: *See—*
Segard, Yves-Andre, 4,277,914, Cl. 51-112.000.

Etat Francais represented by the Delegue General pour l'Armement: *See—*
Finance, Robert J., 4,278,219, Cl. 244-100.00R.

Ethyl Corporation: *See—*
Malec, Robert E., 4,278,554, Cl. 252-52.00R.
Zaiko, Edward J.; and Ranken, Paul F., 4,278,516, Cl. 204-158.0HA.
Zaweski, Edward F.; and Harstick, Christian S., 4,278,555, Cl. 252-52.00A.

Ethyl Products Company: *See—*
Kirk, Donald C., Jr., 4,278,189, Cl. 222-321.000.

Euteco Impianti S.p.A.: *See—*
Rottigni, Claudio; and Cardini, Giuliano, 4,278,764, Cl. 435-144.000.

Evans, Carroll F.: *See—*
Pearlstein, Fred; and Evans, Carroll F., 4,278,515, Cl. 204-55.00Y.

Evans, David N.: *See—*
Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., 4,278,692, Cl. 426-96.000.

Evans, Robert T.; and Giroux, Richard L., to Halliburton Company. Access valve for drill stem testing. 4,278,130, Cl. 166-332.000.

Evnochides, Steven K.: *See—*
Chien, James C. W.; Evnochides, Steven K.; and Howlett, Joseph A., 4,278,510, Cl. 204-14.00R.

Evtuhov, Viktor, to United States of America, Air Force. Autopointing laser system. 4,278,948, Cl. 331-94.50C.

Exxon Research & Engineering Co.: *See—*
Ver Strate, Gary; and Baldwin, Francis P., 4,278,822, Cl. 570-257.000.

Facet Enterprises, Inc.: *See—*
Mower, Michael L.; and Carleton, William A., 4,278,161, Cl. 192-84.00C.

Fachbach, Heinz: *See—*
List, Hans; Skatsche, Othmar; Thien, Gerhard; Fachbach, Heinz; Greier, Josef; and Wagner, Johann, 4,278,055, Cl. 123-195.00S.

Fadner, Thomas A., to Graphic Arts Technical Foundation. Substitutive additives for isopropyl alcohol in fountain solution for lithographic offset printing. 4,278,467, Cl. 106-2.000.

Faggian, Lucio; and Platone, Edoardo, to Anic S.p.A. Process for synthesizing pyran nitriles. 4,278,602, Cl. 260-345.100.

Fahmi, Ibrahim. Clothes hanger with multiple clothes supports. 4,278,177, Cl. 211-116.000.

Fahrenholtz, Kenneth E.; Guthrie, Robert W.; and Kierstead, Richard W., to Hoffmann-La Roche Inc. Adrenergic blocking agents. 4,278,608, Cl. 260-401.000.

Fairchild Camera and Instrument Corporation: *See—*
Crossley, Peter A., 4,277,882, Cl. 29-571.000.

Fairchild, Peter T.: *See—*
Leininger, Joel C.; Bliss, Floyd R.; and Fairchild, Peter T., 4,279,016, Cl. 364-200.000.

Fairfax Investment Corp.: *See—*
Thunell, Charles R., 4,278,395, Cl. 414-786.000.

Falcon-Steward, Hugh R., to English Clays Lovering Pochin & Co., Ltd. Comminution of materials. 4,278,208, Cl. 241-16.000.

Faneuf, Daniel. Identification card holder. 4,277,863, Cl. 24-3.00R.

Fansteel Inc.: *See—*
Heisner, Marvin M., 4,278,372, Cl. 408-183.000.

Farid, Samir Y.: *See—*
Specht, Donald P.; Payne, Kenneth L.; and Farid, Samir Y., 4,278,751, Cl. 430-281.000.

Farrell, Terry J.: *See—*
Roth, Helmut; and Farrell, Terry J., 4,278,159, Cl. 192-58.00B.

Fauteux, Denis J. Self supporting stand for hand held hair drier. 4,278,223, Cl. 248-125.000.

Fava, Ronald A., to Arco Polymers, Inc. Maleimide-styrene copolymer blend with polyphenylene oxide. 4,278,775, Cl. 525-132.000.

Fearnside, William T.; and Lee, Teh-Hsuang, to Eastman Kodak Company. Color line sensor for use in film scanning apparatus. 4,278,995, Cl. 358-54.000.

Feeman, James F.: *See—*
Wineholt, Robert L.; and Feeman, James F., 4,278,616, Cl. 260-512.00C.

Feitzelmayer, Ernst: *See—*
Bauer, Heinrich F.; and Feitzelmayer, Ernst, 4,277,886, Cl. 29-860.000.

Feld, Gerhard: *See—*
Schmidt-Kufeke, Klaus-Peter; and Feld, Gerhard, 4,278,871, Cl. 219-384.000.

Felder, Ernst; and Pitre, Davide, to Bracco Industria Chimica S.p.A. Method of preparing a 3-alkoxy-2-alkyl-propionic acid ester derivative and intermediate therefor. 4,278,808, Cl. 560-183.000.

Felice, Dan C.: *See—*
Daley, Philip A.; Mouhot, Allan R.; and Felice, Dan C., 4,278,148, Cl. 182-181.000.

Fels, Karl. Load transport carriage. 4,278,283, Cl. 296-26.000.

Fetterman, Harold R.: *See—*
Chiao, Raymond Y.; Fetterman, Harold R.; and Schlossberg, Howard R., 4,278,953, Cl. 332-7.510.

Fiat Auto S.p.A.: *See—*
Povero, Mario, 4,277,941, Cl. 60-307.000.

Fiat Societa Per Azioni: *See—*
Martinelli, Gabriele, 4,278,401, Cl. 416-230.000.

Fiat Trattori S.p.A.: *See—*
Perin, Philippe, 4,278,144, Cl. 180-329.000.

Fichot, Julie Y., to General Electric Company. Low thermal resistance, low stress semiconductor package. 4,278,990, Cl. 357-81.000.

Fiedler, Eberhard: *See—*
Ahlborn, Gunther; Fiedler, Eberhard; Hubsch, Henry; and Kramer, Rolf, 4,278,030, Cl. 105-208.100.

Fierfort, Claude: *See—*
Bonnet, Jean-Loup; and Fierfort, Claude, 4,278,942, Cl. 324-347.000.

Filippova, Valentina G.: *See—*
Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V., 4,278,774, Cl. 525-100.000.

Filss, Peter, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method of purifying hot gases. 4,278,645, Cl. 423-210.000.

Finance, Robert J., to Etat Francais represented by the Delegue General pour l'Armement. Device for detecting hard landings. 4,278,219, Cl. 244-100.00R.

Finetex, Inc.: *See—*
Elmi, Steele J., 4,278,655, Cl. 424-47.000.

Firestone Tire & Rubber Company, The: *See—*
McDonald, Peter, 4,278,121, Cl. 152-209.00R.

First Champaign Corporation: *See—*
Cummings, Kenneth W.; and Perethian, Charles M., 4,278,285, Cl. 296-78.100.

Fischer, Charles P.: *See—*
Gallusser, David O.; Frear, David L.; and Fischer, Charles P., 4,278,317, Cl. 339-258.00R.

Fisher, Charles B.; and Fisher, Sidney T. Quantized angle modulator. 4,278,952, Cl. 332-1.000.

Fisher, Sidney T.: *See—*
Fisher, Charles B.; and Fisher, Sidney T., 4,278,952, Cl. 332-1.000.

Fitzpatrick, John A.; and Fitzpatrick, Susan B. Photographic image painting process. 4,278,022, Cl. 101-129.000.

Fitzpatrick, Susan B.: *See—*
Fitzpatrick, John A.; and Fitzpatrick, Susan B., 4,278,022, Cl. 101-129.000.

Flammer, Charles M.: *See—*
Friedman, Ernest H.; Flammer, Charles M.; Baker, Daniel A.; and Vamvakas, Spiro, 4,278,096, Cl. 128-695.000.

Flippin, James S., to J. I. Case Company. Hydraulic control system for excavating machine. 4,277,898, Cl. 37-86.000.

Flom, Merlyn G., to Eli Lilly and Company. Cosmetic cleanser formulation. 4,278,570, Cl. 252-546.000.

Florent, Gerard: *See—*
Lobmann, Michele; and Florent, Gerard, 4,278,662, Cl. 424-89.000.

Florio, John D., to Estrada, Jose. Headband for joggers. 4,277,847, Cl. 2-12.000.

Fluid Data Systems: *See—*
Glassey, Gene, 4,277,981, Cl. 73-701.000.

Fluid and Electric Control Company: *See—*
Weaver, Richard A., 4,278,015, Cl. 100-53.000.

Fogg, Lawrence C.: *See—*
Toy, Madeline S.; Stringham, Roger S.; and Fogg, Lawrence C., 4,278,703, Cl. 427-54.100.

Folz, Raymond L. Remote volume control for television set. 4,278,997, Cl. 358-194.100.

Food Automation-Service Techniques, Inc.: *See—*
Koether, Bernard G.; and Matison, Gary G., 4,278,872, Cl. 219-497.000.

Forberg, Halvor G. Method of mixing particulate components. 4,278,355, Cl. 366-300.000.

Ford, Harold H., to Acme General Corporation. Storage tray. 4,278,196, Cl. 229-30.000.

Ford Motor Company: *See—*
Edelman, Brian S.; and Robinson, Ralph L., Jr., 4,279,015, Cl. 364-200.000.
Mikkor, Mati; and Shinozaki, Samuel S., 4,278,708, Cl. 427-126.100.

Forrest, Charles P. Neck exercising device. 4,278,249, Cl. 272-94.000.

Forsythe, Calvin C.: *See—*
Wood, Loren E.; Allen, Jerome D.; Clift, Miner E.; Kays, Jerry W.; and Forsythe, Calvin C., 4,278,181, Cl. 220-89.00A.

Fowler, Richard A.: *See—*
Waymouth, John F.; Bouchard, Andre C.; Fowler, Richard A.; and Hall, Harold H., Jr., 4,278,310, Cl. 316-24.000.

Frank, Anton: *See—*
Kempe, Uwe; Dockner, Toni; Frank, Anton; and Karn, Helmut, 4,278,801, Cl. 548-342.000.

Frank, Arlen W.; Daigle, Donald J.; and Kullman, Russell M. H., to United States of America, Agriculture. Process for the preparation of tris(aminomethyl)phosphine oxide and its ternary salts. 4,278,811, Cl. 564-15.000.

Franssen, Johannes P. T.: *See—*
Vrijssen, Gerardus A. H. M.; and Franssen, Johannes P. T., 4,278,912, Cl. 313-331.000.

Frear, David L.: *See—*
Gallusser, David O.; Frear, David L.; and Fischer, Charles P., 4,278,317, Cl. 339-258.00R.

Frederiksen, Christopher W.: *See—*
Cho, Iue C.; Frederiksen, Christopher W.; and Hoer, Ralph A., 4,278,597, Cl. 260-123.500.

Freedman, Robert, to Shell Oil Company. High frequency induction log for determining resistivity and dielectric constant of the earth. 4,278,941, Cl. 324-341.000.

Frehner, Stanford. Retaining ties. 4,278,364, Cl. 405-273.000.

Fremery, Max: *See—*
Korff, Joachim; Fremery, Max; and Zimmermann, Johannes, 4,278,819, Cl. 568-594.000.

Fremont, Joseph M.; and Garnett, Donald I., to Du Pont de Nemours, E. I., and Company. Copper chloride containing catalysts for the preparation of furan compounds. 4,278,563, Cl. 252-441.000.

French, Larry A., to Davis, French and Associates, Inc. Remote marking tool. 4,278,044, Cl. 118-256.000.

Freund, William P.; and Hulvey, Stephen R., to Alloy Engineering Company, The. Bell-type coil annealing furnace inner cover. 4,278,242, Cl. 266-263.000.

Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased (by Healy, Antoinette M., executrix), to S. K. Wellman Corp., The. Friction disc. 4,278,162, Cl. 192-107.00C.

Friedman, Ernest H.; Flammer, Charles M.; Baker, Daniel A.; and Vamvakas, Spiro, to Friedman, Ernest H. Coronary artery disease diagnosis method. 4,278,096, Cl. 128-695.000.

Friedrich Wilh. Schwing GmbH: *See—*
Guthoff, Wilfried, 4,277,899, Cl. 37-103.000.

Fritzvold, Bjorn H., to Myrens Verksted A/S. Method for bleaching pulp with ozone. 4,278,496, Cl. 162-19.000.

Frosch, Robert A.: *See—*
Breckinridge, James B.; Norton, Robert H.; Schindler, Rudolf A.; and Frosch, Robert A., 4,278,351, Cl. 356-345.000.

Fry, Timothy S., to GKN Group Services Limited. Sprung vehicles. 4,278,270, Cl. 280-675.000.

Fuhrmann, Wolfgang: *See—*
Zurner, Hansjurgen; and Fuhrmann, Wolfgang, 4,278,233, Cl. 251-57.000.

Fuji Electric Co., Ltd.: *See—*
Kandatsu, Kiyoshi, 4,278,958, Cl. 335-16.000.

Fuji Photo Film Co., Ltd.: *See—*
Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, 4,278,757, Cl. 430-512.000.
Okamoto, Yoshihiko; Yoshizawa, Tamotu; Ohta, Takahiro; and Murata, Koichi, 4,278,347, Cl. 355-68.000.

Fujii, Akira, to Stanley Drug Products, Inc. Method of treating a water soluble capsule. 4,278,633, Cl. 264-134.000.

Fujimaki, Hiroto: *See—*
Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, to Taiho Pharmaceutical Company, Limited. Pharmaceutical composition and methods of use containing 1,1,3,5-substituted biuret compound. 4,278,672, Cl. 424-248.400.

Fujisaki, Hitoshi, to Hitachi Denshi Kabushiki Kaisha. Suppressed carrier modulator using differential amplifier. 4,278,954, Cl. 332-9.00T.

Fujita, Makoto; Omiya, Shoji; and Hino, Izumi, to Matsushita Electric Industrial Co., Ltd. Container for holding at least one recording disk and disk playing system. 4,278,258, Cl. 369-36.000.

Fujita, Masanori: *See—*
Oda, Hajime; Fujita, Masanori; and Moritani, Nakanobu, 4,279,029, Cl. 368-29.000.

Fujito, Katsuyuki: *See—*
Nakayama, Yoshikazu; Tateishi, Fumikazu; and Fujito, Katsuyuki, 4,278,318, Cl. 350-3.780.

Fujitsu Limited: *See—*
Baba, Fumio; Miyasaka, Kiyoshi; Yabu, Takashi; and Mogi, Junichi, 4,278,989, Cl. 357-59.000.
Ohno, Kenichi; Hosomizu, Tohru; and Nawata, Kazumasa, 4,278,897, Cl. 307-455.000.

Fukazawa, Kazuo; and Yamada, Akira, to RCA Corporation. Video disc locked groove clearance system. 4,278,846, Cl. 369-128.000.

Fukuda, Tadaji; and Sugiura, Susumu, to Canon Kabushiki Kaisha. Photoelectric information input apparatus. 4,279,000, Cl. 358-213.000.

Fukutome, Hiroshi: *See—*
Matsuda, Minoru; Iwasaki, Hirotsugu; Tamai, Yasukatsu; Iino, Masashi; and Fukutome, Hiroshi, 4,278,442, Cl. 44-1.00R.

Funk, Ernest J.; Wing, Thomas; Lane, Jack C.; and Westbrook, Edward S., IV, to Quintel Corporation. Locking mechanism for use in a chuck for an optical alignment and exposure apparatus. 4,278,348, Cl. 355-73.000.

Furukawa Electric Co. Ltd.: *See—*
Matsui, Kazumi; Takasue, Takashi; and Iwasaki, Masami, 4,278,164, Cl. 198-334.000.

Furutani, Toshinobu: *See—*
Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, 4,278,509, Cl. 204-1.00T.

Futaba Denshi Kogyo K.K.: *See—*
Kobori, Youichi, 4,278,917, Cl. 315-169.100.

G.A.O. Gesellschaft fur Automation und Organisation mbH: *See—*
Hoppe, Joachim; Haghiri-Tehrani, Yahya; and Gauch, Wolfgang, 4,278,722, Cl. 428-192.000.

GAF Corporation: *See—*
Tracy, David J., 4,278,821, Cl. 568-723.000.

Galileo Electro-Optics Corp.: *See—*
Tosswill, Christopher H., 4,278,891, Cl. 250-505.000.

Gallusser, David O.; Frear, David L.; and Fischer, Charles P., to Bendix Corporation, The. Formed socket contact with reenforcing ridge. 4,278,317, Cl. 339-258.00R.

Ganguly, Biswa N.; and Paranjpe, Suresh C., to Mead Corporation, The. Moving image scanner. 4,278,999, Cl. 358-213.000.

Gannon, Richard E.: *See—*
Stickler, David B.; Von Rosenberg, Charles W., Jr.; and Gannon, Richard E., 4,278,445, Cl. 48-197.00R.
Von Rosenberg, Charles W., Jr.; Stickler, David B.; and Gannon, Richard E., 4,278,446, Cl. 48-197.00R.

Ganzala, Gary W.: *See—*
Chrisman, Max G.; Ganzala, Gary W.; and Tiede, Ralph L., 4,278,460, Cl. 65-134.000.

Garagnani, Enea: *See—*
Marzola, Roberto; and Garagnani, Enea, 4,278,586, Cl. 260-42.180.

Garcia, Juan M.; and Spector, George. Soccer kicking aid. 4,278,257, Cl. 273-411.000.

Gardel, William: *See—*
Mizoule, Henri; and Gardel, William, 4,277,911, Cl. 46-135.00R.

Gardner, Donald M.: *See—*
Heaps, John F.; and Gardner, Donald M., 4,278,782, Cl. 526-326.000.

Gargrave, Robert J. Matrix element. 4,277,994, Cl. 83-133.000.

Garnett, Donald I.: *See—*
Fremont, Joseph M.; and Garnett, Donald I., 4,278,563, Cl. 252-441.000.

Garsky, Victor M., to American Home Products Corporation. Analgesic pentapeptides. 4,278,596, Cl. 260-112.50R.

Gauch, Wolfgang: *See—*
Hoppe, Joachim; Haghiri-Tehrani, Yahya; and Gauch, Wolfgang, 4,278,722, Cl. 428-192.000.

Gaudette, Andrew J.: *See—*
Haney, Donald J.; and Gaudette, Andrew J., 4,278,016, Cl. 100-224.000.

GCA Corporation: *See—*
Loveless, W. L.; Trott, Richard J.; Heath, Robert H.; and Glick, William L., 4,278,366, Cl. 406-88.000.

Gearhart, Junior A., to Kerr-McGee Refining Corporation. Process for separating bituminous materials with solvent recovery. 4,278,529, Cl. 208-309.000.

Geary, Frederick J.: *See—*
Bechtel, Jon H.; and Geary, Frederick J., 4,278,419, Cl. 431-24.000.

Gebauer, Peter; and Sturm, Karl G., to Dynamit Nobel AG. Blowing agent concentrate. 4,278,769, Cl. 521-90.000.

Gebr. Hofmann GmbH & Co. KG: *See—*
Mueller, Richard; and Himmler, Guenther, 4,277,976, Cl. 73-457.000.

Gehrke, Gunter: *See—*
Seidler, Helmut; and Gehrke, Gunter, 4,278,607, Cl. 260-383.000.

Geiser, Milton L., to Kerr Glass Manufacturing Corporation. Child-resistant closure and container. 4,278,178, Cl. 215-215.000.

General Battery Corporation: *See—*
Oxenreider, Terry R.; and Bush, Herbert A., Jr., 4,278,742, Cl. 429-88.000.

General Dynamics, Pomona Division: *See—*
Dugan, William P., 4,278,511, Cl. 204-15.000.

General Electric Company: *See—*
Ashby, Bruce A.; and Schroeter, Siegfried H., 4,278,804, Cl. 556-436.000.
DiBattista, Dante P.; and Kuhn, Robert H., 4,278,245, Cl. 269-22.000.
Fichot, Julie Y., 4,278,990, Cl. 357-81.000.
Gowdy, Harold W., 4,277,900, Cl. 38-77.830.
Hull, Peter R., 4,278,398, Cl. 415-160.000.
Metoff, Rudolph, 4,278,911, Cl. 313-318.000.
Milkovic, Miran, 4,278,940, Cl. 324-127.000.
Petrides, Christie, 4,278,873, Cl. 219-501.000.
Pinkham, Clinton L., 4,277,975, Cl. 73-362.0AR.
Puckette, Charles M., 4,277,978, Cl. 73-632.000.

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Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., 4,278,692, Cl. 426-96.000.

General Motors Corporation: *See—*
Cymbal, William D.; and Kimberlin, Dan R., 4,278,154, Cl. 192-4.00A.
Demido, Michael, 4,278,009, Cl. 91-47.000.

General Signal Corporation: *See—*
Werych, Ewald R., 4,278,877, Cl. 219-544.000.

Georg Fischer Aktiengesellschaft: *See—*
Bass, Dieter, 4,277,918, Cl. 51-415.000.
Buhrer, Erwin, 4,278,125, Cl. 164-412.000.

Georgia Tech Research Institute: *See—*
Hurst, David R.; and Elston, Lewis W., 4,278,450, Cl. 55-80.000.

Geri, Sergio: *See—*
Mauro, Gastone; Lagana, Carlo; Geri, Sergio; and Strepparola, Ezio, 4,278,776, Cl. 525-178.000.

Gervay, Joseph E.; and Pilette, Yvan P., to Du Pont de Nemours, E. I., and Company. Flame retardant radiation sensitive element. 4,278,752, Cl. 430-281.000.

Gestaut, Lawrence J., to Diamond Shamrock Corporation. Oxygen cathode for alkali-halide electrolysis cell. 4,278,525, Cl. 204-265.000.

Getwent Gesellschaft fur Technische und wissenschaftliche Energieumatzehtwicklungen m.b.H.: *See*—
Bachl, Herbert, 4,278,397, Cl. 415-83.000.

Ghebresillassie, Francesco. Thermos jar carrier & lunch tray. 4,278,172, Cl. 206-544.000.

Gianfranco, Velo D. Three-dimensional componental module at "T" modified for the industrial preformation of buildings. 4,277,921, Cl. 52-79.400.

Giardino, David A., to Chicago Pneumatic Tool Company. Overspeed control means for pneumatic tools. 4,278,103, Cl. 137-50.000.

Giardino, Nicholas A.: *See*—
Kuehnle, Manfred R.; Hagenlocher, Arno K.; and Giardino, Nicholas A., 4,278,528, Cl. 204-298.000.

Gibson, James O.; and Gibson, Mark G. Production of carbon fiber-tantalum carbide composites. 4,278,729, Cl. 428-368.000.

Gibson, Mark G.: *See*—
Gibson, James O.; and Gibson, Mark G., 4,278,729, Cl. 428-368.000.

Gilardini S.p.A.: *See*—
Nardi, Giovanni, 4,278,455, Cl. 55-337.000.

Gilbert, Harold J. Board game apparatus. 4,278,255, Cl. 273-248.000.

Gillette Company, The: *See*—
Breuer, Miklos M., 4,278,659, Cl. 424-71.000.

Gingerich, Richard G. W.: *See*—
Vanderpool, Clarence D.; MacInnis, Martin B.; McClintic, Robert P.; and Gingerich, Richard G. W., 4,278,463, Cl. 75-0.50A.

Ginsberg, Guenter: *See*—
Hodgins, Bruce J.; Saltz, Ivan K.; and Ginsberg, Guenter, 4,278,086, Cl. 128-224.000.

Giroux, Richard L.: *See*—
Evans, Robert T.; and Giroux, Richard L., 4,278,130, Cl. 166-332.000.

Gittler, Max, to Aladdin Toy Motors, Inc. Translationally movable idler gear as clutch for spring driven motor. 4,278,149, Cl. 185-39.000.

Givaudan Corporation: *See*—
Lamparsky, Dietmar, 4,278,817, Cl. 568-374.000.

GKN Group Services Limited: *See*—
Fry, Timothy S., 4,278,270, Cl. 280-675.000.

Gladkova, Natalya K.: *See*—
Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V., 4,278,774, Cl. 525-100.000.

Glassey, Gene, to Fluid Data Systems. Lead screw actuated fluid gauge. 4,277,981, Cl. 73-701.000.

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Spear, Gilmore M., 4,278,370, Cl. 407-115.000.

Glick, William L.: *See*—
Loveless, W. L.; Trott, Richard J.; Heath, Robert H.; and Glick, William L., 4,278,366, Cl. 406-88.000.

Glickler, Sheldon L.: *See*—
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.

Glosmann, Josef: *See*—
Bardenhagen, Dietrich; Raschka, Wolfgang; Glosmann, Josef; and Tolasch, Gerhard, 4,278,385, Cl. 414-419.000.

Godejahn, Gordon C., Jr., to Rockwell International Corporation. Process for fabrication of high density VLSI circuits, having self-aligned gates and contacts for FET devices and conducting lines. 4,277,881, Cl. 29-571.000.

Godfrey, James W.: *See*—
Arnett, Coleman C.; Godfrey, James W.; and Miller, Mark R., 4,278,968, Cl. 340-545.000.

Golan, Kenneth F.; and Winzeler, James E., to Caterpillar Tractor Co. Draw works transmission control. 4,278,155, Cl. 192-4.00R.

Goldman, Theodore D., to Rohm and Haas Company. Isolation and improvement of impact modifier polymer powders. 4,278,576, Cl. 260-23.0AR.

Gonzalez, Claude A.: *See*—
Seguela, Marie-Claude J.; Betton, Rene F.; and Gonzalez, Claude A., 4,278,387, Cl. 414-462.000.

Goodyear Aerospace Corporation: *See*—
Venkatu, Doulatabad A., 4,278,153, Cl. 188-251.00M.

Gorike, Rudolf, to AKG Akustische u. Kino-Gertate Gesellschaft m.b.H. Earphone construction. 4,278,852, Cl. 179-182.00R.

Gorzel, Dieter: *See*—
Brabetz, Hartmut; Schafer, Heinz; and Gorzel, Dieter, 4,278,727, Cl. 428-290.000.

Goss, Harold R.; and Rebish, Edward J., to Acme-Cleveland Corporation. Simplified foundry core making machine and method. 4,278,123, Cl. 164-28.000.

Gotberg, John, to Gotbert Patent Company. Drawer associating construction. 4,278,308, Cl. 312-330.00R.

Gotbert Patent Company: *See*—
Gotberg, John, 4,278,308, Cl. 312-330.00R.

Goto, Satoshi; Takei, Yoshiaki; Imaho, Ichiro; and Nomori, Hiroyuki, to Konishiroku Photo Industry Co., Ltd. Photosensitive elements for electrophotography. 4,278,746, Cl. 430-59.000.

Gotoh, Norio: *See*—
Watanabe, Junichi; Aoyama, Takahiko; and Gotoh, Norio, 4,278,147, Cl. 181-256.000.

Gould Inc.: *See*—
Halasz, Laszlo, 4,278,983, Cl. 346-140.00R.
Wu, Jiing-Liang, 4,278,860, Cl. 200-148.00R.

Goupy, Marcel: *See*—
Roubinet, Pierre; and Goupy, Marcel, 4,278,282, Cl. 293-132.000.

Gowdy, Harold W., to General Electric Company. Iron steam chamber construction. 4,277,900, Cl. 38-77.830.

Graf, Gerhard: *See*—
Hill, Bernhard; Schmidt, Klaus P.; and Graf, Gerhard, 4,278,981, Cl. 346-108.000.

Graham, James R.: *See*—
Hatfield, James R.; Moseman, Merlin H.; Graham, James R.; and Hirt, Thomas J., 4,278,788, Cl. 528-494.000.

Grambo, Ronald E.: *See*—
Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased, 4,278,162, Cl. 192-107.00C.

Grannen, Walter A., III: *See*—
Wilds, Robert W.; Meyer, Robert E.; Grannen, Walter A., III; and Bryant, Dannie, 4,278,417, Cl. 425-577.000.

Granzow, Albrecht H., to American Cyanamid Company. Phosphine oxide flame retarded, rubber-modified, polyphenylene ether resin compositions. 4,278,588, Cl. 260-45.70P.

Granzow, Albrecht H., to American Cyanamid Company. Flame retardant poly(butylene terephthalate) composition. 4,278,591, Cl. 260-45.75D.

Graphic Arts Technical Foundation: *See*—
Fadner, Thomas A., 4,278,467, Cl. 106-2.000.

Gravi-Mechanics Co.: *See*—
Dedolph, Richard R., 4,278,625, Cl. 264-39.000.

Grebe, Karl, to Rockwell-Golde, G.m.b.H. Assembly for generating adjustment movements at automobile ventilation devices. 4,278,922, Cl. 318-264.000.

Gregor, Robert A.; and Morgan, Ned L., to Bucyrus-Erie Company. Tread belt and drive having involute gear drive. 4,278,301, Cl. 305-11.000.

Greier, Josef: *See*—
List, Hans; Skatsche, Othmar; Thien, Gerhard; Fachbach, Heinz; Greier, Josef; and Wagner, Johann, 4,278,055, Cl. 123-195.00S.

Grey, Donald M., to Sperry Corporation. Bale wagon. 4,278,379, Cl. 414-44.000.

Griffiths, Trevor J.; Sharpe, Raymond; and Hunt, Peter, to Lucas Industries Limited. Electric generator arrangement. 4,278,928, Cl. 322-29.000.

Grim, George B.: *See*—
Belke, William H.; and Grim, George B., 4,277,938, Cl. 60-39.350.

Grohe, Lester R., to Northrop Corporation. Axial gap permanent magnet motor. 4,278,927, Cl. 318-721.000.

Gruen, Dieter M.; Krauss, Alan R.; and Siskind, Barry, to United States of America, Energy. Method and means of directing an ion beam onto an insulating surface for ion implantation or sputtering. 4,278,890, Cl. 250-492.00B.

Gruner, Johannes: *See*—
Traxler, Peter; Gruner, Johannes; and Nuesch, Jakob, 4,278,665, Cl. 424-181.000.

Grunner, Erich. Apparatus for molding tires of motor vehicles. 4,278,416, Cl. 425-577.000.

GTE Automatic Electric Laboratories, Inc.: *See*—
Rogers, Robert G., 4,278,930, Cl. 323-285.000.

GTE Laboratories Incorporated: *See*—
Natansohn, Samuel; and Su, Sophia R., 4,278,643, Cl. 423-54.000.
Regan, Robert J.; and Haugsjaa, Paul O., 4,278,916, Cl. 315-92.000.
Stobbs, William, 4,278,985, Cl. 357-15.000.

GTE Products Corporation: *See*—
Bouchard, Andre C.; and Jirmanus, Naila S., 4,278,420, Cl. 431-362.000.
Keeffe, William M.; and Brown, David R., 4,278,910, Cl. 313-220.000.
MacInnis, Martin B.; and Kim, Tai K., 4,278,642, Cl. 423-54.000.
Rebentisch, Hugo E.; and Tuday, Thomas, 4,278,228, Cl. 248-548.000.
Vanderpool, Clarence D.; MacInnis, Martin B.; McClintic, Robert P.; and Gingerich, Richard G. W., 4,278,463, Cl. 75-0.50A.
Waymouth, John F.; Bouchard, Andre C.; Fowler, Richard A.; and Hall, Haroid H., Jr., 4,278,310, Cl. 316-24.000.

Guarino, Nicholas, to Varian Associates, Inc. Lock and elevator arrangement for loading workpieces into the work chamber of an electron beam lithography system. 4,278,380, Cl. 414-217.000.

Gueritee, Nicolas. Pure 17 alpha-ethynyl(5 alpha), androst-2-ene,17 beta-ol, process for its preparation and therapeutical applications of the same. 4,278,668, Cl. 424-238.000.

Guiguizian, Jacques: *See*—
Burgess, Francis P.; Cormier, Raymond G.; Guiguizian, Jacques; and Lutz, Leo O., 4,278,341, Cl. 355-3.0SH.

Guillaume, Jacques: *See*—
Nedelec, Lucien; Guillaume, Jacques; and Dumont, Claude, 4,278,677, Cl. 424-263.000.

Gulf Oil Corporation: *See*—
Chien, James C. W.; Evnochides, Steven K.; and Howlett, Joseph A., 4,278,510, Cl. 204-14.00R.

Gulf Research & Development Company: *See*—
Beuther, Harold; and Schulz, Johann G., 4,278,443, Cl. 44-56.000.

Gunnewig, Hubert, to Westfalia Separator AG. Continuouly operating centrifugal separator drum for the concentration of suspended solids. 4,278,200, Cl. 233-16.000.

Gusyatiner, Mikhail M.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boria A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Gutehoffnungshutte Stockrade AG: *See*—
van der Piepen, Rolf; and Vollhardt, Frohmut, 4,278,451, Cl. 55-227.000.

Guthlein, Werner: *See*—
Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, 4,278,763, Cl. 435-23.000.

Guthoff, Wilfried, to Friedrich Wilh. Schwing GmbH. Excavating machine with position indication of its work implement. 4,277,899, Cl. 37-103.000.

Guthrie, Robert W.: *See*—
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; and Kierstead, Richard W., 4,278,608, Cl. 260-401.000.

H. Lundbeck & Co. A/S: *See*—
Krogsgaard-LarsenPovl, 4,278,676, Cl. 424-256.000.

Haas, Howard C.; Jasne, Stanley J.; and Moreau, Robert D., to Polaroid Corporation. Preparation of 2-Methylene-1,3-propanediamide. 4,278,803, Cl. 556-419.000.

Habich, Adolph B.; and Hunt, Ronald E., to International Business Machins Corporation. Daisy wheel printer carrier. 4,278,356, Cl. 400-59.000.

Hackforth GmbH & Co. KG: *See*—
Hackforth, Josef; and Walter, Jurgen, 4,277,958, Cl. 64-11.00R.

Hackforth, Josef; and Walter, Jurgen, to Hackforth GmbH & Co. KG. Flexible shaft coupling. 4,277,958, Cl. 64-11.00R.

Hagemeister, Frederick C.: *See*—
Mueller, Edward E.; Harrod, Michael K.; and Hagemeister, Frederick C., 4,278,383, Cl. 414-412.000.

Hagenlocher, Arno K.: *See*—
Kuehnle, Manfred R.; Hagenlocher, Arno K.; and Giardino, Nicholas A., 4,278,528, Cl. 204-298.000.

Haggar, Jan. Fluid specimen holder for biological fluid testing. 4,278,437, Cl. 23-230.00B.

Haghiri-Tehrani, Yahya: *See*—
Hoppe, Joachim; Haghiri-Tehrani, Yahya; and Gauch, Wolfgang, 4,278,722, Cl. 428-192.000.

Halasz, Laszlo, to Gould Inc. Ink jet writing device. 4,278,983, Cl. 346-140.00R.

Hales, Richard H., to Becton Dickinson & Company. Supported receptor and use thereof in an assay. 4,278,651, Cl. 424-1.000.

Hall, Harold H., Jr.: *See*—
Waymouth, John F.; Bouchard, Andre C.; Fowler, Richard A.; and Hall, Harold H., Jr., 4,278,310, Cl. 316-24.000.

Hall, John B.: *See*—
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.

Hall, Roy L., to Duro Metal Products Company. Ratchet wrench. 4,277,990, Cl. 81-63.000.

Hallbert, Charles G.: *See*—
Lobo, Gustavo, Jr.; and Hallbert, Charles G., 4,278,209, Cl. 241-30.000.

Halle, Reidar; and Peterson, David, to Argus Chemical Corporation. 2-Chloro-2-alkyl substituted peroxyesters. 4,278,612, Cl. 260-453.0RZ.

Halliburton Company: *See*—
Evans, Robert T.; and Giroux, Richard L., 4,278,130, Cl. 166-332.000.

Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, to Kaken Chemical Co., Ltd. Substituted oxy-cyclohexylacetic acid derivatives. 4,278,678, Cl. 424-263.000.

Hamilton, Joel A.: *See*—
Mahaffy, Reid A.; and Hamilton, Joel A., 4,277,931, Cl. 53-412.000.

Hamm, Robert A.; and Whitener, Philip C., to Boeing Company, The. Method of forming composite wound structure. 4,278,485, Cl. 156-173.000.

Hamrick, Glen F.: *See*—
Poteet, William C.; Terry, Claude E.; Hamrick, Glen F.; and Walls, Francis G., 4,278,482, Cl. 156-78.000.

Haney, Donald J.; and Gaudette, Andrew J., to Cotton Machinery Company, Inc. Apparatus for making modules. 4,278,016, Cl. 100-224.000.

Hanotier, Jacques D. V., to Labofina S.A. Process for the preparation of terephthalic acid. 4,278,810, Cl. 562-412.000.

Hanson, Donald L., to Remo Inc. Pedal adjustable drum. 4,278,003, Cl. 84-411.00A.

Hansson, Bengt L.: *See*—
Egnell, Rolf A.; and Hansson, Bengt L., 4,277,942, Cl. 60-517.000.

Hansson, Gote I. Sinkerdrill. 4,278,136, Cl. 175-93.000.

Hanstein, Friedrich: *See*—
Moench, Theodor P.; and Hanstein, Friedrich, 4,278,723, Cl. 428-192.000.

Hanyu, Susumu; and Koide, Akio, to Janome Sewing Machine Industry Co. Detachable presser foot. 4,278,039, Cl. 112-240.000.

Harada, Hiroshi: *See*—
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.

Harigaya, Isao: *See*—
Ito, Fumio; Harigaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, 4,278,336, Cl. 354-51.000.

Harner, Kermit I.; and Patrick, John P., to United Technologies Corporation. Integral rocket-ramjet closed loop fuel control system. 4,277,940, Cl. 60-243.000.

Harnisch, Horst, to Bayer Aktiengesellschaft. Process for the preparation of pyrene compounds. 4,278,795, Cl. 544-219.000.

Harnischfeger Corporation: *See*—
Myers, Robert D., 4,278,863, Cl. 219-73.100.

Harper, Jon J.: *See*—
Zeitlin, Martin A.; and Harper, Jon J., 4,278,503, Cl. 203-28.000.

Harper, Robert, to United States of America, Navy. Diamond supported helix assembly and method. 4,278,914, Cl. 315-3.500.

Harris, S. Richard; and Bonci, Darlene K., to New England Nuclear Corporation. Methods and kits for double antibody immunoassay providing a colored pellet for easy visualization. 4,278,653, Cl. 424-1.000.

Harrod, Michael K.: *See*—
Mueller, Edward E.; Harrod, Michael K.; and Hagemeister, Frederick C., 4,278,383, Cl. 414-412.000.

Harsco Corporation: *See*—
Clark, John A., Jr., 4,278,069, Cl. 126-366.000.

Harstick, Christian S.: *See*—
Zaweski, Edward F.; and Harstick, Christian S., 4,278,555, Cl. 252-52.00A.

Hart, Dale H.; and Volkmann, Josef F., to Hi Shear Corporation. Safety bolt. 4,278,120, Cl. 411-190.000.

Hartley, David; and Oxford, Alexander W., to Allen & Hanburys Limited. Pharmacologically active compounds. 4,278,673, Cl. 424-249.000.

Hartman, Rickey E.: *See*—
Klopach, Robert T.; and Hartman, Rickey E., 4,278,933, Cl. 324-58.00R.

Hartwell, Charles A. Stabilizer. 4,277,869, Cl. 29-149.50R.

Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., to Warner-Lambert Co. Antibacterial amide compounds and means for using the same. 4,278,681, Cl. 424-266.000.

Hastings, John W.; and Tu, Shiao-Chun, to President and Fellows of Harvard College. Enzyme assay and kit therefor. 4,278,761, Cl. 435-8.000.

Hatfield, James R.; Moseman, Merlin H.; Graham, James R.; and Hirt, Thomas J., to InterNorth, Inc. Removal of residual catalyst from polyolefin polymers. 4,278,788, Cl. 528-494.000.

Hathaway, John C.; and Poppe, Lawrence J., to United States of America, Interior. Sample mount for X-ray diffraction. 4,278,883, Cl. 250-277.0CH.

Haugsjaa, Paul O.: *See*—
Regan, Robert J.; and Haugsjaa, Paul O., 4,278,916, Cl. 315-92.000.

Hauni-Werke Korber & Co. KG.: *See*—
Bardenhagen, Dietrich; Raschka, Wolfgang; Glosmann, Josef; and Tolasch, Gerhard, 4,278,385, Cl. 414-419.000.

Hausermann Abrading & Process Co.: *See*—
Hausermann, Marten C.; and Mues, Melvin V., 4,277,915, Cl. 51-157.000.

Hausermann, Marten C.; and Mues, Melvin V., to Hausermann Abrading & Process Co. Apparatus for shaping electrodes. 4,277,915, Cl. 51-157.000.

Hawkes, Ivor. Vibratory wire strain gage. 4,277,973, Cl. 73-862.410.

Hawkins, Ronald G., to Aluminum Company of America. Damping spacer with hub interlock. 4,278,833, Cl. 174-42.000.

Hayashi, Masaharu, to Aisin Seiki Kabushiki Kaisha. Viscous fluid coupling. 4,278,160, Cl. 192-82.00T.

Hayashi, Masaki; Shimoji, Katsuichi; and Arai, Yoshinobu, to Ono Pharmaceutical Co. Prostaglandin analogues. 4,278,688, Cl. 424-305.000.

Haynes, George R., to Shell Oil Company. Inhibition of biosynthesis of triglycerides by certain N-β-phenethyl-N-thienylalkylamines. 4,278,687, Cl. 424-275.000.

Healy, Antoinette M., executrix: *See*—
Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased, 4,278,162, Cl. 192-107.00C.

Healy, Thomas A., deceased: *See*—
Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased, 4,278,162, Cl. 192-107.00C.

Heaps, John F.; and Gardner, Donald M., to Monsanto Company. Allyl alcohol polymers. 4,278,782, Cl. 526-326.000.

Heath, Robert B., to Rainsfords Metal Products Pty. Ltd. Seat belt load indicator. 4,278,043, Cl. 116-28.00R.

Heath, Robert H.: *See*—
Loveless, W. L.; Trott, Richard J.; Heath, Robert H.; and Glick, William L., 4,278,366, Cl. 406-88.000.

Hecker, Klaus J.: *See*—
Alpers, Frederick C.; and Hecker, Klaus J., 4,278,976, Cl. 343-6.50R.

Heeb, Waldemar: *See*—
Lafortune, Ray; and Heeb, Waldemar, 4,278,093, Cl. 128-419.00P.

Heerdt, Ruth: *See*—
Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, 4,278,680, Cl. 424-266.000.

Hefner, Robert E., Jr., to Dow Chemical Company, The. Conditioner for flotation of oxidized coal. 4,278,533, Cl. 209-166.000.

Hehl, Karl. Injection unit with adjustable plastification cylinder. 4,278,354, Cl. 366-78.000.

Heierli, Werner, to Heliotherm AG. Process and device for the recuperation of heat from selected ranges of the solar spectrum. 4,278,075, Cl. 126-445.000.

Heilen, Gerd: *See*—
Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, 4,278,800, Cl. 548-262.000.

Heisner, Marvin M., to Fansteel Inc. Adjustable boring bar mechanism. 4,278,372, Cl. 408-183.000.

Heliotherm AG: *See*—
Heierli, Werner, 4,278,075, Cl. 126-445.000.

Hellerberger, Harald; Aichhorn, Anton; and Bogusch, Erich, to Tyrolit-Schleifmittelwerke Swarovski K.G. Method for improving the quality of abrasive grains. 4,278,449, Cl. 51-309.000.

Hellwig, Oskar A., to Beatrice Foods Co. Key loop. 4,277,963, Cl. 70-456.00B.

Hemsher, Frank J., to Control Technology, Inc. Visual signaling system. 4,278,966, Cl. 340-366.00R.

Henkel KGaA: *See*—
Stober, Reinhard; and Wirthwein, Rolf, 4,278,615, Cl. 260-502.00R.

Henkel Kommanditgesellschaft auf Aktien: *See*—
Christophliemk, Peter; and Wust, Willi, 4,278,649, Cl. 423-329.000.

Henley, Vernon F. F.: *See*—
Creffield, Geoffrey K.; Wickens, Anthony J.; Dowd, Anthony C. H.; and Henley, Vernon F. F., 4,278,737, Cl. 428-469.000.

Henry, James L., to Bell Telephone Laboratories, Incorporated. Electromagnetic arrangement for measuring electrical current. 4,278,939, Cl. 324-117.00R.

Hensley, Albert L., Jr.; Quick, Leonard M.; and Hopkins, P. Donald, to Standard Oil Company (Indiana). Hydrotreating process. 4,278,566, Cl. 252-465.000.

Herbst, Darrel E.: *See*—
Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., 4,278,692, Cl. 426-96.000.

Hestad, Alfred M., to Anaconda-Ericsson Inc. Two-way amplifier arrangement. 4,278,843, Cl. 179-18.0BC.

Hewlett-Packard Company: *See*—
Biran, Joseph, 4,278,707, Cl. 427-96.000.
Cross, Peter S.; and Shreve, William R., 4,278,492, Cl. 156-627.000.

Heymer, Gero: *See*—
Jodden, Klaus; Stephan, Hans-Werner; and Heymer, Gero, 4,278,647, Cl. 423-317.000.

Heymes, Rene: *See*—
Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schriner, Elmar; and Heymes, Rene, 4,278,793, Cl. 544-27.000.

Heyser, Richard C., to California Institute of Technology. Method and apparatus for delay analysis of energy transmitted through a medium. 4,279,019, Cl. 364-569.000.

Hi Shear Corporation: *See*—
Hart, Dale H.; and Volkmann, Josef F., 4,278,120, Cl. 411-190.000.

Hibbs, Joseph E.; Chalmers, Gerald W.; Durrell, Robert L.; and Smith, Walter C., to United States of America, Navy. Rocket motor igniter, arming firing device. 4,278,026, Cl. 102-254.000.

Higashigawa, Keizo; and Shinoda, Kazuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Acceleration pump for a carburetor. 4,278,618, Cl. 261-34.00A.

Hiland, Larry K.: *See*—
Madison, James B.; and Hiland, Larry K., 4,278,667, Cl. 424-232.000.
Madison, James B.; and Hiland, Larry K., 4,278,679, Cl. 424-263.000.

Hill, Bernhard; Schmidt, Klaus P.; and Graf, Gerhard, to U.S. Philips Corporation. Optical printer. 4,278,981, Cl. 346-108.000.

Hiller, Heinrich; Eilingsfeld, Heinz; Reinicke, Helmut; and Traub, Fritz, to BASF Aktiengesellschaft. Preparation of 1-amino-2-phenoxy-4-hydroxyanthraquinone. 4,278,606, Cl. 260-380.000.

Hillyard Enterprises, Inc.: *See*—
Carpenter, Dale, 4,278,578, Cl. 260-27.00R.

Hilt, Merlyn R., to Hilt Tire Feedbunk, Inc. Apparatus for inverting tires. 4,278,413, Cl. 425-383.000.

Hilt Tire Feedbunk, Inc.: *See*—
Hilt, Merlyn R., 4,278,413, Cl. 425-383.000.

Himmler, Guenther: *See*—
Mueller, Richard; and Himmler, Guenther, 4,277,976, Cl. 73-457.000.

Hingorani, Narain G., to Electric Power Research Institute. Method and means for cleaning the gas insulated environment of an electrical apparatus. 4,278,832, Cl. 174-14.00R.

Hino, Izumi: *See*—
Fujita, Makoto; Omiya, Shoji; and Hino, Izumi, 4,278,258, Cl. 369-36.000.

Hinshaw, Gerald C.; and Condit, Paul B., to Eastman Kodak Company. Positive-working immobile intramolecular nucleophilic displacement compounds and photographic elements containing same. 4,278,598, Cl. 260-157.000.

Hiot, Guy: *See*—
Cassonnet, Jean-Claude M.; Hiot, Guy; and Cohen, Violette, 4,279,014, Cl. 364-200.000.

Hiraga, Ryozo: *See*—
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.

Hiramatsu, Yasuzo: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Hirata, Noritsugu: *See*—
Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, 4,278,340, Cl. 354-195.000.

Hirbod, Farrokh. Ceramic kiln support apparatus. 4,278,425, Cl. 432-259.000.

Hirohata, Michio: *See*—
Ito, Fumio; Harigaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, 4,278,336, Cl. 354-51.000.

Hirose, Tomiyuki, to Tomy Kogyo Co., Inc. Game having a spirally traversing channel. 4,278,253, Cl. 273-121.00R.

Hirt, Thomas J.: *See*—
Hatfield, James R.; Moseman, Merlin H.; Graham, James R.; and Hirt, Thomas J., 4,278,788, Cl. 528-494.000.

Hisaki, Masakatu: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, to Daikin Kogyo Co., Ltd. Fluorine-containing betaine compounds, and production and use thereof. 4,278,552, Cl. 252-3.000.

Hitachi Chemical Co., Ltd.: *See*—
Nishikawa, Akio; Suzuki, Hiroshi; and Kohkame, Hisashi, 4,278,780, Cl. 525-488.000.

Hitachi Denshi Kabushiki Kaisha: *See*—
Fujisaki, Hitoshi, 4,278,954, Cl. 332-9.00T.

Hitachi Koki Company, Limited: *See*—
Nakano, Hiroshige; Katagiri, Shigenobu; and Nishino, Shinichi, 4,278,021, Cl. 101-93.290.

Hitachi, Ltd.: *See*—
Imaizumi, Ichiro; Kimura, Masatoshi; and Uehara, Keijiro, 4,278,987, Cl. 357-48.000.
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; Shibuya, Yoshimichi; and Yokokura, Hisao, 4,278,326, Cl. 350-343.000.
Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, 4,278,328, Cl. 350-349.000.
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.
Nanaumi, Ken; Shoji, Fusaji; Kohkame, Hisashi; and Era, Susumu, 4,278,786, Cl. 528-179.000.
Nishikawa, Akio; Suzuki, Hiroshi; and Kohkame, Hisashi, 4,278,780, Cl. 525-488.000.
Nishimiya, Torazo; and Okumura, Masamitsu, 4,278,959, Cl. 335-262.000.
Ogura, Toshio, 4,278,915, Cl. 315-39.710.
Shida, Toichi, 4,278,051, Cl. 122-406.00A.
Yajima, Hiroshi; Komoda, Norihisa; and Horiuchi, Susumu, 4,278,104, Cl. 137-118.000.
Yamashita, Yoshiaki; Kambara, Hiroyuki; Kambayashi, Hiroaki; and Okada, Yasuyuki, 4,279,004, Cl. 360-48.000.

Hitachi Metals, Ltd.: *See*—
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Hitzel, Volker: *See*—
Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, 4,278,680, Cl. 424-266.000.

Hock, Donal D.: *See*—
Baynes, William R.; and Hock, Donal D., 4,278,250, Cl. 272-113.000.

Hodgins, Bruce J.; Saltz, Ivan K.; and Ginsberg, Guenter, to Coulter Electronics, Inc. Variable stop syringe. 4,278,086, Cl. 128-224.000.

Hodgson, Thomas D.; and Jordan, Tony W. J., to United Kingdom Atomic Energy Authority. Apparatus and method for transporting items. 4,278,531, Cl. 209-11.000.

Hoechst Aktiengesellschaft: *See*—
Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schriner, Elmar; and Heymes, Rene, 4,278,793, Cl. 544-27.000.
Jodden, Klaus; Stephan, Hans-Werner; and Heymer, Gero, 4,278,647, Cl. 423-317.000.
Kleber, Rolf; and Jaeckel, Lothar, 4,278,773, Cl. 525-6.000.
Niemann, Elfriede; Stagg, Brian H.; and Cowan, Stuart I., 4,278,652, Cl. 424-1.000.
Salbeck, Gerhard; Schonowsky, Hubert; Horlein, Gerhard; Langeluddeke, Peter; and Kocher, Helmut, 4,278,461, Cl. 71-87.000.

Hoer, Ralph A.: *See*—
Cho, Iue C.; Frederiksen, Christopher W.; and Hoer, Ralph A., 4,278,597, Cl. 260-123.500.

Hoesch Werke Aktiengesellschaft: *See*—
Knieps, Horst H., 4,278,014, Cl. 100-26.000.

Hofeldt, Robert H.: *See*—
Billings, Charles A.; and Hofeldt, Robert H., 4,278,718, Cl. 428-64.000.

Hofer, Helmut: *See*—
Brixy, Heinz; and Hofer, Helmut, 4,278,828, Cl. 136-232.000.

Hoff, Stephen J., to Hoffco, Inc. Combined flywheel and clutch driver, and control and warning device. 4,277,936, Cl. 56-11.700.

Hoffco, Inc.: *See*—
Hoff, Stephen J., 4,277,936, Cl. 56-11.700.

Hoffman, Jack D.: *See*—
Smith, Donald C.; and Hoffman, Jack D., 4,278,558, Cl. 252-186.000.

Hoffmann-La Roche Inc.: *See*—
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; and Kierstead, Richard W., 4,278,608, Cl. 260-401.000.
Liu, Chao-Min; Prosser, Barbara; and Westley, John, 4,278,663, Cl. 424-119.000.
Wick, Alexander E., 4,278,798, Cl. 546-298.000.

Hofmann, Otto; and Nagler, Georg, to Tele-Alarm, Nachrichtentechntehe Gerate GmbH. Switching arrangement for recording a value-balance. 4,278,879, Cl. 235-380.000.

Homestead, Peter W., to Scott Paper Company. Folding seating piece. 4,278,287, Cl. 297-59.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Inoue, Hidehiko; Nishikawa, Masao; and Anno, Nobuo, 4,278,266, Cl. 280-276.000.
Izumi, Seiji; and Ookubo, Kiyokazu, 4,277,983, Cl. 74-477.000.
Suzuki, Hitoshi; and Omagari, Masaharu, 4,278,297, Cl. 301-6.00D.

Honda, Kiyoshi; Kuriyama, Kazuya; Murakami, Shigeru; Sugawara, Ryozo; and Nakamura, Chiaki, to Dainippon Ink & Chemicals, Inc. Embossed interior finishing materials having excellent cigarette mark resistance. 4,278,728, Cl. 428-313.000.

Honda, Yasuo: *See*—
Tadokoro, Tomoo; and Honda, Yasuo, 4,278,639, Cl. 422-171.000.

Honeywell Inc.: *See*—
Singh, Gurnam, 4,278,195, Cl. 228-123.000.
Van Sloun, Peter H., 4,279,027, Cl. 367-125.000.

Honeywell Information Systems Italia S.p.A.: *See*—
Brunelli, Romeo; and Casamatta, Angelo, 4,279,033, Cl. 370-29.000.

Honna, Takaji: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Hooker Chemicals & Plastics Corp.: *See*—
Rosenfeld, Jerold C., 4,278,785, Cl. 528-176.000.

Hooper, David C.; Johnson, George A.; and Peter, Donald, to Lever Brothers Company. Deodorant composition. 4,278,658, Cl. 424-65.000.

Hopkins Agricultural Chemical Co.: *See*—
McCormick, Charles L., 4,278,790, Cl. 536-84.000.

Hopkins, P. Donald: *See*—
Hensley, Albert L., Jr.; Quick, Leonard M.; and Hopkins, P. Donald, 4,278,566, Cl. 252-465.000.

Hoppe, Joachim; Haghiri-Tehrani, Yahya; and Gauch, Wolfgang, to G.A.O. Gesellschaft fur Automation und Organisation mbH. Multilayer edge sealed record carrier. 4,278,722, Cl. 428-192.000.

Hopper, Thomas P., to Sunworks, Inc. Solar collector of a liquid heat exchange type. 4,278,076, Cl. 126-450.000.

Hori, Ryoichi: *See*—
Nakamura, Hidehisa; Hori, Ryoichi; Isomoto, Emiko; and Murakami, Yoichi, 4,278,575, Cl. 260-22.0CB.

Hori, Ryuzo: *See*—
Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, 4,278,509, Cl. 204-1.00T.

Horii, Kazuo: *See*—
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.

Horikiri, Yoshito: *See*—
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.

Horiuchi, Susumu: *See*—
Yajima, Hiroshi; Komoda, Norihisa; and Horiuchi, Susumu, 4,278,104, Cl. 137-118.000.

Horizons Research Incorporated: *See*—
Lewis, James M.; and McInerney, Eugene F., 4,278,753, Cl. 430-283.000.

Horlein, Gerhard: *See*—
Salbeck, Gerhard; Schonowsky, Hubert; Horlein, Gerhard; Langeluddeke, Peter; and Kocher, Helmut, 4,278,461, Cl. 71-87.000.

Hormanns, Rolf, to Schlegel GmbH. Method of engaging a self-clamping sealing strip on a retaining flange. 4,278,487, Cl. 156-305.000.

Horn, Stuart B.; Asher, Mark S.; and Dunmire, Howard L., to United States of America, Army. Cryogenic cooler with annular regenerator and clearance seals. 4,277,948, Cl. 62-6.000.

Horowitz, Charles, to Sloan Valve Company. Electrical connector mounting bracket. 4,278,226, Cl. 248-314.000.

Horsley, John K., to Molins Limited. Web splicing apparatus. 4,278,489, Cl. 156-361.000.

Hosomizu, Tohru: *See*—
Ohno, Kenichi; Hosomizu, Tohru; and Nawata, Kazumasa, 4,278,897, Cl. 307-455.000.

Hostetter, Morgan D. Proportioning apparatus. 4,278,132, Cl. 169-13.000.

Hou, Kenneth C.; and Kilty, Michael F., to AMF Incorporated. Wound cartridge filters. 4,278,551, Cl. 210-767.000.

Houghton, Russell J., to International Business Machines Corporation. Sense latch. 4,279,023, Cl. 365-174.000.

Howard, Curtis E.: *See*—
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,278,128, Cl. 166-250.000.

Howard, Douglas C.: *See*—
Price, Ernest H.; and Howard, Douglas C., 4,278,110, Cl. 137-805.000.

Howlett, Joseph A.: *See*—
Chien, James C. W.; Evnochides, Steven K.; and Howlett, Joseph A., 4,278,510, Cl. 204-14.00R.

Howmedica, Inc.: *See*—
Borzone, Rocco R., 4,278,091, Cl. 128-334.00C.
Huck, Charles M.; Studer, John E.; and Sauer, Philip H., 4,278,089, Cl. 128-278.000.

Hsien, Shou-Chung. Gyroscope-monocycle. 4,277,912, Cl. 46-269.000.

Hsu, Sheng T., to RCA Corporation. Method for forming an improved gate member utilizing special masking and oxidation to eliminate projecting points on silicon islands. 4,277,884, Cl. 29-571.000.

Huang, Gin G.: *See*—
Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., 4,278,681, Cl. 424-266.000.

Huber, Doyle W.; Smith, Richard H.; and Strong, Robert L., to Boeing Company, The. Machine and method for single pass taper milling. 4,277,868, Cl. 29-33.00Q.

Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, to Boehringer Mannheim GmbH. Hypoglycaemically and hypolipidaemically active derivatives of phenylacetic acid. 4,278,680, Cl. 424-266.000.

Hubsch, Henry: *See*—
Ahlborn, Gunther; Fiedler, Eberhard; Hubsch, Henry; and Kramer, Rolf, 4,278,030, Cl. 105-208.100.

Huck, Charles M.; Studer, John E.; and Sauer, Philip H., to Howmedica, Inc. Wound drainage device. 4,278,089, Cl. 128-278.000.

Hudgin, Richard H., to Princeton Polymer. Thermal barrier. 4,278,721, Cl. 428-122.000.

Huebl, Julius: *See*—
Eichinger, Hans; and Huebl, Julius, 4,278,028, Cl. 105-136.000.
Eichinger, Johann; and Huebl, Julius, 4,278,027, Cl. 105-131.000.

Hug, Niklaus, to Rommag P. Worwag & Co. Vacuum cleaner. 4,278,456, Cl. 55-429.000.

Huggins, Ernest E. J., to Post Office, The. Location of contact faults on electrically conductive cables. 4,278,931, Cl. 324-52.000.

Hughes Aircraft Company: *See*—
Anderson, Edward A.; Rawls, Rose M.; and Tull, James A., 4,278,479, Cl. 148-23.000.
Hyman, Julius, Jr., 4,277,939, Cl. 60-202.000.

Hughes, Michael A.; Johnson, Jeremy S. M.; and Winn, Graham C. E., to International Business Machines Corporation. Video display terminal with partitioned screen. 4,278,973, Cl. 340-721.000.

Hugo, Rolf; and Schiller, Wilfried, to Blaupunkt-Werke GmbH. Television vertical deflection circuit utilizing comparators. 4,278,919, Cl. 315-393.000.

Hull, Peter R., to General Electric Company. Apparatus for maintaining variable vane clearance. 4,278,398, Cl. 415-160.000.

Hulvey, Stephen R.: *See*—
Freund, William P.; and Hulvey, Stephen R., 4,278,242, Cl. 266-263.000.

Hunt, Peter: *See*—
Griffiths, Trevor J.; Sharpe, Raymond; and Hunt, Peter, 4,278,928, Cl. 322-29.000.

Hunt, Ronald E.: *See*—
Habich, Adolph B.; and Hunt, Ronald E., 4,278,356, Cl. 400-59.000.

Hunter, Mike E. Load restraining panel. 4,278,376, Cl. 410-130.000.

Hunter, Robert K., Jr.: *See*—
Vincett, Paul S.; Pundsack, Arnold L.; Hunter, Robert K., Jr.; and McCrary, Wylee D., 4,278,335, Cl. 354-3.000.

Hurler, Herbert T.: *See*—
Creed, Gerald J.; Dudis, Frank; Edwards, William J.; and Hurler, Herbert T., 4,278,037, Cl. 112-168.000.

Hurst, David R.; and Elston, Lewis W., to Georgia Tech Research Institute. Method for the recovery of clean pyrolysis off-gas and a rotary recycling means therefor. 4,278,450, Cl. 55-80.000.

Huse, Per, to O. Mustad & Son A/S. Apparatus for detaching releasable snoods from a fishing line. 4,277,905, Cl. 43-4.000.

Hutt, Marland P., Jr.: *See*—
Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., 4,278,681, Cl. 424-266.000.

Hyde, Frederick H. Chain saw sharpening apparatus. 4,277,987, Cl. 76-25.00A.

Hyman, Julius, Jr., to Hughes Aircraft Company. Ion beam profile control apparatus and method. 4,277,939, Cl. 60-202.000.

Ichinose, Kazuaki, to Tokyo Shibaura Denki Kabushiki Kaisha. Phase comparison circuit. 4,278,903, Cl. 307-514.000.

Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, to Snow Brand Milk Products Co., Ltd. Cyclone separator. 4,278,452, Cl. 55-261.000.

Ignacio, Isidro D.: *See*—
Pickett, Teddy L.; Ignacio, Isidro D.; and Rojas, Marco, 4,278,035, Cl. 111-2.000.

Ihara, Susumu; Kashiuchi, Yoshinobu; and Jinguji, Isamu, to Sumitomo Electric Industries, Ltd. Electrode assembly for a moisture meter. 4,278,934, Cl. 324-61.00P.

Ihara, Susumu; and Nakamura, Kizashi, to Sumitomo Electric Industries, Ltd. Electrodes for moisture meter. 4,278,935, Cl. 324-61.00P.

Iida, Toshihiko: *See*—
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabeshiri, Takamichi; and Kano, Toshiji, to Kanegafuchi Kagaku Kogyo Kabu-

shiki Kaisha. Apparatus for electrolysis of an aqueous alkali metal chloride solution. 4,278,526, Cl. 204-266.000.
Iino, Masashi: *See*—
Matsuda, Minoru; Iwasaki, Hirotsugu; Tamai, Yasukatsu; Iino, Masashi; and Fukutome, Hiroshi, 4,278,442, Cl. 44-1.00R.
Ikco Corporation: *See*—
White, Raymond R., 4,278,316, Cl. 339-258.00R.
Imaho, Ichiro: *See*—
Goto, Satoshi; Takei, Yoshiaki; Imaho, Ichiro; and Nomori, Hiroyuki, 4,278,746, Cl. 430-59.000.
Imaizumi, Ichiro; Kimura, Masatoshi; and Uehara, Keijiro, to Hitachi, Ltd. Junction isolated IC with thick EPI portion having sides at least 20 degrees from (110) orientations. 4,278,987, Cl. 357-48.000.
Immler, Josef, to Siemens Aktiengesellschaft. Circuit arrangement for monitoring the phase sequence of a rotary field. 4,278,937, Cl. 324-86.000.
Imperial Chemical Industries Limited: *See*—
Byrd, Geoffrey C.; and Stanier, Colin, 4,278,523, Cl. 204-252.000.
Roesler, Frank C., deceased, 4,278,546, Cl. 210-626.000.
Indian Head Inc.: *See*—
Rady, Robert R., 4,277,887, Cl. 30-92.000.
Ingenjorsfirman N. A. Sandberg Industrikonstruktioner AB: *See*—
Sandberg, Nils A., 4,278,365, Cl. 406-30.000.
Inoue, Hidehiko; Nishikawa, Masao; and Anno, Nobuo, to Honda Giken Kogyo Kabushiki Kaisha. Front fork construction for motorcycle. 4,278,266, Cl. 280-276.000.
Inoue, Shoichi: *See*—
Taniyama, Susumu; Shimaoka, Goro; and Inoue, Shoichi, 4,278,783, Cl. 528-23.000.
Institut Francais du Petrole: *See*—
Cholet, Jacques; Damotte, Bernard; and Laurent, Jean, 4,278,982, Cl. 346-108.000.
Institute Po Obshta I Neorganichna Chimia: *See*—
Petrov, Nikolov Y.; Pavlova, Maria M.; and Bojkov, Ognyan D., 4,278,641, Cl. 423-49.000.
Interface, Inc.: *See*—
Caris, Richard F., 4,278,139, Cl. 177-154.000.
International Business Machines Corporation: *See*—
Andrew, Jerry C.; and Tanner, Roberta R., 4,278,342, Cl. 355-3.0CH.
Barclay, Donald J.; and Vigar, James M. L., 4,278,512, Cl. 204-41.000.
Houghton, Russell J., 4,279,023, Cl. 365-174.000.
Hughes, Michael A.; Johnson, Jeremy S. M.; and Winn, Graham C. E., 4,278,973, Cl. 340-721.000.
Leininger, Joel C.; Bliss, Floyd R.; and Fairchild, Peter T., 4,279,016, Cl. 364-200.000.
Loy, Michael M.; and Sorokin, Peter P., 4,278,902, Cl. 307-426.000.
Matla, Arno; and Matthaei, Horst D., 4,278,357, Cl. 400-144.200.
Meier, Johann H., 4,278,019, Cl. 101-93.040.
Oaten, Albert W., 4,278,020, Cl. 101-93.050.
Petvai, Steve I., 4,278,493, Cl. 156-643.000.
Piston, Albert O.; and Sherk, Thomas A., 4,278,909, Cl. 313-217.000.
Tan, Swie-In, 4,278,867, Cl. 219-121.0LD.
International Business Machins Corporation: *See*—
Habich, Adolph B.; and Hunt, Ronald E., 4,278,356, Cl. 400-59.000.
International Flavors & Fragrances Inc.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vimals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.
International Minerals & Chemical Corporation: *See*—
Allen, Hanceford L.; and Berry, William W., 4,278,640, Cl. 423-10.000.
InterNorth, Inc.: *See*—
Hatfield, James R.; Moseman, Merlin H.; Graham, James R.; and Hirt, Thomas J., 4,278,788, Cl. 528-494.000.
Iowa State University Research Foundation, Inc.: *See*—
Buchele, Wesley F., 4,278,036, Cl. 111-52.000.
Ipsen Industries International Gesellschaft mit beschrankter Haftung: *See*—
Limque, Ferdinand; and Bertrand, Hans, 4,278,421, Cl. 432-152.000.
Irish, Ellwood: *See*—
Rebentisch, Hugo E.; and Irish, Ellwood, 4,277,923, Cl. 52-126.000.
Irvin, Howard B., to Phillips Petroleum Company. Polymer solution purification. 4,278,506, Cl. 203-68.000.
Ishida, Kohji, to Pioneer Electronic Corporation. Chopper type switching circuit. 4,278,944, Cl. 329-103.000.
Ishidoshiro, Hiroshi: *See*—
Sando, Yoshikazu; and Ishidoshiro, Hiroshi, 4,277,860, Cl. 8-151.000.
Ishiyama, Nobuo: *See*—
Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, 4,278,678, Cl. 424-263.000.
Ishizawa, Shizuo: *See*—
Nakamura, Ken; Sugihara, Kunihiko; and Ishizawa, Shizuo, 4,278,063, Cl. 123-568.000.
Ishizuka, Hiroshi; and Suzuki, Kazuo. Diamond abrasive grits. 4,278,448, Cl. 51-295.000.
Isobe, Toshiaki; and Yokoyama, Tatsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Feedback type air fuel ratio controlling system. 4,278,060, Cl. 123-440.000.
Isomoto, Emiko: *See*—
Nakamura, Hidehisa; Hori, Ryoichi; Isomoto, Emiko; and Murakami, Yoichi, 4,278,575, Cl. 260-22.0CB.
Ito, Fumio; Harigaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, to Canon Kabushiki Kaisha. Operation detecting device for camera. 4,278,336, Cl. 354-51.000.
Ito, Koichi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Yamamoto, Yasushi, 4,278,666, Cl. 424-184.000.
Itoh, Masamitsu: *See*—
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.
ITT Industries, Inc.: *See*—
de Koning, Martinus, 4,277,877, Cl. 29-402.080.
Miskin, Leslie, 4,278,998, Cl. 358-198.000.
Ivanovich, Peter: *See*—
Borsanyi, Alexander S.; Ivanovich, Peter; and Vaughan, Urte, 4,278,092, Cl. 128-348.000.
Iwama, Hideto: *See*—
Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, 4,278,340, Cl. 354-195.000.
Iwanami, Eiichi, to Kabushiki Kaisha Daini Seikosha. Electronic circuit for timepiece. 4,278,899, Cl. 307-304.000.
Iwasaki, Hirotsugu: *See*—
Matsuda, Minoru; Iwasaki, Hirotsugu; Tamai, Yasukatsu; Iino, Masashi; and Fukutome, Hiroshi, 4,278,442, Cl. 44-1.00R.
Iwasaki, Masami: *See*—
Matsui, Kazumi; Takasue, Takashi; and Iwasaki, Masami, 4,278,164, Cl. 198-334.000.
Izumi, Seiji; and Ookubo, Kiyokazu, to Honda Giken Kogyo Kabushiki Kaisha. Interlocking device for shift rod in power transmission. 4,277,983, Cl. 74-477.000.
Izumi, Tokio: *See*—
Nagai, Sumiyoshi; and Izumi, Tokio, 4,278,656, Cl. 424-62.000.
J. I. Case Company: *See*—
Flippin, James S., 4,277,898, Cl. 37-86.000.
Johnson, Stephen D., 4,278,394, Cl. 414-694.000.
Parquet, Donald J., 4,278,011, Cl. 91-445.000.
Wernimont, Theodore A., 4,278,857, Cl. 200-83.00R.
J. M. Schneider Inc.: *See*—
Dingethal, Frank H.; and Bartosek, Edward, 4,278,693, Cl. 426-129.000.
Jackson, Archie A. Glass carrying rack. 4,278,175, Cl. 211-41.000.
Jackson, Lynden A., to Post Office, The. Submarine communication cable including optical fibres within an electrically conductive tube. 4,278,835, Cl. 174-70.00R.
Jacob, Gernot; and Pelloni, Luciano, to BBC Brown Boveri & Company Limited. Apparatus for treating contaminated water. 4,278,522, Cl. 204-228.000.
Jacobsen, Evan. Smoking device. 4,278,099, Cl. 131-178.000.
Jacobson, Wayne M., to Cyclonaire Corporation. Feeder apparatus for pneumatic conveying lines. 4,278,367, Cl. 406-109.000.
Jacoby, Charles J.: *See*—
Kopacz, Thomas J.; and Jacoby, Charles J., 4,278,488, Cl. 156-351.000.
Jaeckel, Lothar: *See*—
Kleber, Rolf; and Jaeckel, Lothar, 4,278,773, Cl. 525-6.000.
Jakabhazy, Stephen Z.; and Patel, Laxmidas R., to Abcor, Inc. Grafted polymers and method of preparing and using same. 4,278,777, Cl. 525-276.000.
Jakobs, Ewald; and Lang, Gernot, to Rochling-Burbach Weiterverarbeitung GmbH. Device for rough turning and shaft turning. 4,278,369, Cl. 407-113.000.
Jakobson, Karl F. O., to AB Celleco. Method for separation of material mixtures, containing abrasive particles, in a hydrocyclone separator. 4,278,534, Cl. 209-211.000.
Jani, William. Port apparatus for well piping. 4,278,131, Cl. 166-332.000.
Janich, Hans-Jurgen. Slide valve for pipelines. 4,278,236, Cl. 251-159.000.
Janome Sewing Machine Industry Co.: *See*—
Hanyu, Susumu; and Koide, Akio, 4,278,039, Cl. 112-240.000.
Janssen Pharmaceutica N.V.: *See*—
Van der Veken, Guido J. L.; and Dockx, Jozef C. J., 4,278,684, Cl. 424-270.000.
Japan Electric Industry Development Assoc.: *See*—
Kagami, Akiyasu; and Mimura, Yoshiyuki, 4,278,913, Cl. 313-495.000.
Jasne, Stanley J.: *See*—
Haas, Howard C.; Jasne, Stanley J.; and Moreau, Robert D., 4,278,803, Cl. 556-419.000.
Jelks, Edward C., to United States of America, Navy. Apparatus and method for submicron pattern generation. 4,278,710, Cl. 427-250.000.
Jenq, Cheng-Yih, to Casella, Anthony J. Method of making printed circuit board by induction heating of the conductive metal particles on a plastic substrate. 4,278,702, Cl. 427-45.100.
Jinguji, Isamu: *See*—
Ihara, Susumu; Kashiuchi, Yoshinobu; and Jinguji, Isamu, 4,278,934, Cl. 324-61.00P.
Jirmanus, Naila S.: *See*—
Bouchard, Andre C.; and Jirmanus, Naila S., 4,278,420, Cl. 431-362.000.
Jodden, Klaus; Stephan, Hans-Werner; and Heymer, Gero, to Hoechst Aktiengesellschaft. Production of phosphorous acid. 4,278,647, Cl. 423-317.000.
Johannes, Gerald E. Slurry type explosive. 4,278,480, Cl. 149-2.000.

Johannesson, Brian J., to NCR Canada Ltd. - NCR Canada Ltee. Printing means. 4,278,018, Cl. 101-93.000.
John, Kamar P.: *See*—
Danulat, Hans F.; John, Kamar P.; Klein, Helmut; and Lukatsch, Stephen, 4,278,505, Cl. 203-59.000.
John Wyeth & Brother Limited: *See*—
Ward, Terence J., 4,278,685, Cl. 424-274.000.
Johns-Manville Corporation: *See*—
Walton, Harris G., 4,278,648, Cl. 423-319.000.
Johnson, David A.: *See*—
Walker, Derek; Silvestri, Herbert H.; Sapino, Chester; and Johnson, David A., 4,278,600, Cl. 260-239.100.
Johnson, David B. Implement for smoothing particulate material surfaces. 4,278,134, Cl. 172-373.000.
Johnson, George A.: *See*—
Hooper, David C.; Johnson, George A.; and Peter, Donald, 4,278,658, Cl. 424-65.000.
Johnson, Jeremy S. M.: *See*—
Hughes, Michael A.; Johnson, Jeremy S. M.; and Winn, Graham C. E., 4,278,973, Cl. 340-721.000.
Johnson, Lawrence N. Pivotal roller mounting system. 4,278,388, Cl. 414-534.000.
Johnson, Ralph E., to Singer Company, The. Combined needle guard and hook beak for a sewing machine hook. 4,278,038, Cl. 112-228.000.
Johnson, Randall J.: *See*—
Starai, Terrence M.; Champlin, John H., Jr.; and Johnson, Randall J., 4,278,957, Cl. 333-202.000.
Johnson, Stephen D., to J. I. Case Company. Releasable boom lock. 4,278,394, Cl. 414-694.000.
Johnston, Edward: *See*—
Clarke, Ronald M.; and Johnston, Edward, 4,278,046, Cl. 118-695.000.
Johnston, Everett A.; and Ryan, Edward W., to United States of America, National Aeronautics and Space Administration. Thrust reverser for a long duct fan engine. 4,278,220, Cl. 244-110.00B.
Jonah, Wilford B.: *See*—
Crocker, Zenas; and Jonah, Wilford B., 4,278,530, Cl. 209-3.000.
Jones, David F., to Bell Telephone Laboratories, Incorporated. Communication system selective call screening arrangement. 4,278,844, Cl. 179-18.00B.
Jones, Donald W.: *See*—
Chari, Madabushi V. K.; Jones, Donald W.; and Laskaris, Evangelos T., 4,278,905, Cl. 310-52.000.
Jones, James W. Tracheal tube. 4,278,081, Cl. 128-207.150.
Joppe, R. Brent; and Postema, Leonard F. Water slide. 4,278,247, Cl. 272-56.50R.
Jordan, Tony W. J.: *See*—
Hodgson, Thomas D.; and Jordan, Tony W. J., 4,278,531, Cl. 209-11.000.
Jung, Johann: *See*—
Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, 4,278,800, Cl. 548-262.000.
Kabushiki Kaisha Daini Seikosha: *See*—
Iwanami, Eiichi, 4,278,899, Cl. 307-304.000.
Kondo, Kenichi; Kuronuma, Ryuichi; and Kaneko, Noboru, 4,278,325, Cl. 350-331.00T.
Kondo, Kenichi, 4,278,974, Cl. 340-784.000.
Kabushiki Kaisha Seikosha: *See*—
Oda, Hajime; Fujita, Masanori; and Moritani, Nakanobu, 4,279,029, Cl. 368-29.000.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Nakaho, Junichi, 4,278,215, Cl. 242-107.200.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Mitsuya, Kinpei; Miyamoto, Noriaki; and Shiraki, Masao, 4,278,259, Cl. 277-12.000.
KACO GmbH & Co.: *See*—
Uhrner, Klaus-Jurgen, 4,278,218, Cl. 277-40.000.
Kadija, Igor V., to Olin Corporation. Diaphragms for use in the electrolysis of alkali metal chlorides. 4,278,524, Cl. 204-252.000.
Kaeding, Warren W.: *See*—
Chu, Chin-Chiun; and Kaeding, Warren W., 4,278,827, Cl. 585-467.000.
Kaesen, Donald A., to Marley-Wylain Company, The. Liquid level responsive proximity switch. 4,278,858, Cl. 200-84.00B.
Kagami, Akiyasu; and Mimura, Yoshiyuki, to Kasei Optonix, Ltd.; and Japan Electric Industry Development Assoc. Phosphor and low-velocity electron excited fluorescent display device utilizing the same. 4,278,913, Cl. 313-495.000.
Kajimura, Mutsuhiko; and Maeda, Tetsuji, to Sekisui Kaseihin Kogyo Kabushiki Kaisha. Expandable styrene-maleic anhydride copolymer particles and a process for molding the same. 4,278,627, Cl. 264-45.400.
Kajitani, Makoto: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.
Kaken Chemical Co., Ltd.: *See*—
Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, 4,278,678, Cl. 424-263.000.
Kalaus, Gyorgy: *See*—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, 4,278,682, Cl. 424-267.000.
Kalisz, George T.: *See*—
Ryan, Thomas L.; and Kalisz, George T., 4,278,072, Cl. 126-429.000.
Kalnoki-kis, Tibor, to Union Carbide Corporation. Nonaqueous cell. 4,278,741, Cl. 429-48.000.
Kaltenbach & Voight GmbH & Co.: *See*—
Lingenhole, Bernhard; and Strohmaier, Ernst, 4,278,427, Cl. 433-100.000.
Kamath, Venkatesh: *See*—
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.
Kambara, Hiroyuki: *See*—
Yamashita, Yoshiaki; Kambara, Hiroyuki; Kambayashi, Hiroaki; and Okada, Yasuyuki, 4,279,004, Cl. 360-48.000.
Kambayashi, Hiroaki: *See*—
Yamashita, Yoshiaki; Kambara, Hiroyuki; Kambayashi, Hiroaki; and Okada, Yasuyuki, 4,279,004, Cl. 360-48.000.
Kamerling, Marc A., to Optical Coating Laboratory, Inc. Contrast enhancement filter and method. 4,278,736, Cl. 428-437.000.
Kametaka, Norio; Marumo, Kuniomi; and Nozawa, Tutomu, to Showa Denka K.K. Process for preparing monoalkylene glycol monoethers. 4,278,820, Cl. 568-678.000.
Kamimura, Kuniaki: *See*—
Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, 4,278,346, Cl. 355-45.000.
Kamiya, Soji: *See*—
Nara, Tamotsu; and Kamiya, Soji, 4,278,740, Cl. 428-653.000.
Kanaya, Yoshihiro: *See*—
Mizuno, Sueo; Nozu, Toshihiro; Kanaya, Yoshihiro; and Koumura, Masahiko, 4,278,862, Cl. 219-10.55B.
Kandatsu, Kiyoshi, to Fuji Electric Co., Ltd. Electromagnetically operated multi-pole circuit breaker. 4,278,958, Cl. 335-16.000.
Kanebo, Ltd.: *See*—
Tezuka, Keizo; Okuyama, Genichiro; Tokunaga, Kazunobu; and Otani, Yasuhisa, 4,278,657, Cl. 424-63.000.
Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,278,526, Cl. 204-266.000.
Kaneko, Eiji: *See*—
Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, 4,278,328, Cl. 350-349.000.
Kaneko, Noboru: *See*—
Kondo, Kenichi; Kuronuma, Ryuichi; and Kaneko, Noboru, 4,278,325, Cl. 350-331.00T.
Kano, Ichiro: *See*—
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.
Kano, Toshiji: *See*—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,278,526, Cl. 204-266.000.
Kanzaki Kokyukoki Mfg. Co., Ltd.: *See*—
Yano, Kazuhiko; and Ohtsuki, Kazuhiko, 4,278,156, Cl. 192-48.910.
Kao Soap Co., Ltd.: *See*—
Miya, Bunji, deceased; Miya, Fumiaki, heir; and Nawashiro, Yukiko, heir, 4,278,567, Cl. 252-466.00J.
Kapadia, Jayant K.; and Matty, Thomas C., to Westinghouse Electric Corp. Fail-safe pulse providing apparatus. 4,278,900, Cl. 307-311.000.
Kaplan, Leonard A., to RCA Corporation. Current scaling circuitry. 4,278,946, Cl. 330-288.000.
Kaplan, Steven H., to Raytheon Company. Integrated circuit manufacturing method. 4,277,883, Cl. 29-571.000.
Karn, Helmut: *See*—
Kempe, Uwe; Dockner, Toni; Frank, Anton; and Karn, Helmut, 4,278,801, Cl. 548-342.000.
Karpati, Egon: *See*—
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, 4,278,682, Cl. 424-267.000.
Karr, Lawrence J.; and Kaye, Stanton H. Time-temperature indication. 4,277,974, Cl. 73-339.00R.
Kasei Optonix, Ltd.: *See*—
Kagami, Akiyasu; and Mimura, Yoshiyuki, 4,278,913, Cl. 313-495.000.
Kashiuchi, Yoshinobu: *See*—
Ihara, Susumu; Kashiuchi, Yoshinobu; and Jinguji, Isamu, 4,278,934, Cl. 324-61.00P.
Katagiri, Shigenobu: *See*—
Nakano, Hiroshige; Katagiri, Shigenobu; and Nishino, Shinichi, 4,278,021, Cl. 101-93.290.
Katakabe, Noboru: *See*—
Sasaki, Toshiharu; Katakabe, Noboru; and Yokoyama, Yoshihiro, 4,279,006, Cl. 360-90.000.
Kato, Masaaki: *See*—
Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, 4,278,865, Cl. 219-99.000.
Kato, Toshio, to Tanaka Business Machines Co. Ltd. Passing person counting apparatus. 4,278,878, Cl. 235-92.0PK.
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, to Canon Kabushiki Kaisha. Alignment apparatus. 4,278,893, Cl. 250-548.000.
Katsunuma, Nobuhiko. Glucocorticoid sparing factor and process for the production of the same. 4,278,593, Cl. 260-112.00R.
Katz, Lewis E.: *See*—
Agraz-Guerena, Jorge; Katz, Lewis E.; and Morris, Bernard L., 4,278,705, Cl. 427-93.000.

Kawakami, Hideaki: *See*—
Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, 4,278,328, Cl. 350-349.000.

Kawamura, Hiromitsu; Nakajima, Tokuyoshi; Shibuya, Yoshimichi; and Yokokura, Hisao, to Hitachi, Ltd. Liquid crystal display element. 4,278,326, Cl. 350-343.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See*—
Watanabe, Junichi; Aoyama, Takahiko; and Gotoh, Norio, 4,278,147, Cl. 181-256.000.

Kawasaki Steel Corporation: *See*—
Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, 4,278,124, Cl. 164-125.000.

Kawazu, Ryuji: *See*—
Yamashita, Yoshio; Kunishi, Mitsumasa; and Kawazu, Ryuji, 4,278,754, Cl. 430-323.000.

Kay, Peter D.: *See*—
Medding, Reuben; and Kay, Peter D., 4,278,921, Cl. 318-254.000.

Kaye, Stanton H.: *See*—
Karr, Lawrence J.; and Kaye, Stanton H., 4,277,974, Cl. 73-339.00R.

Kays, Jerry W.: *See*—
Wood, Loren E.; Allen, Jerome D.; Clift, Miner E.; Kays, Jerry W.; and Forsythe, Calvin C., 4,278,181, Cl. 220-89.00A.

Keeffe, William M.; and Brown, David R., to GTE Products Corporation. High pressure arc discharge lamp having concave shaped outer jacket. 4,278,910, Cl. 313-220.000.

Keely, William A.: *See*—
Nevins, Glenn T.; and Keely, William A., 4,278,866, Cl. 219-121.0EC.

Keiper Automobiltechnik GmbH: *See*—
Werner, Paul; and Strowik, Willibald, 4,278,290, Cl. 297-362.000.

Kellar, John D.: *See*—
Pereman, Gordon F.; and Kellar, John D., 4,278,193, Cl. 225-2.000.

Kellen, Paul F.: *See*—
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.

Keller, Bruce E., to Boeing Company, The. Support system for extensible bellows. 4,278,352, Cl. 356-358.000.

Kelley, Charles H.; Crane, Jimmie W.; and Ray, Albert D. Disaster activated shut-off valve. 4,278,102, Cl. 137-39.000.

Kelly, Michael J.: *See*—
Rakli, Fridtjov B.; and Kelly, Michael J., 4,278,654, Cl. 424-5.000.

Kelyman, Jacqueline S.: *See*—
Swart, Daniel J.; and Kelyman, Jacqueline S., 4,278,787, Cl. 528-191.000.

Kemlite Corporation: *See*—
Morse, Donald B., 4,278,491, Cl. 156-501.000.

Kempe, Uwe; Dockner, Toni; Frank, Anton; and Karn, Helmut, to BASF Aktiengesellschaft. Preparation of 5-hydroxymethylimidazoles. 4,278,801, Cl. 548-342.000.

Kemper, Yves J., to Vadetec Corporation. Torque transmitting body for traction drive transmissions and normal friction force developing method. 4,277,982, Cl. 74-191.000.

Kempf, Dale F.: *See*—
Baker, Charles W.; Wilson, Robert J.; and Kempf, Dale F., 4,278,338, Cl. 354-83.000.

Kennedy Sky-Lites, Inc.: *See*—
Weisner, Kent A.; and Walls, Lester L., Jr., 4,278,414, Cl. 425-388.000.

Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See*—
Brixy, Heinz; and Hofer, Helmut, 4,278,828, Cl. 136-232.000.
Filss, Peter, 4,278,645, Cl. 423-210.000.

Kerr Glass Manufacturing Corporation: *See*—
Geiser, Milton L., 4,278,178, Cl. 215-215.000.

Kerr-McGee Refining Corporation: *See*—
Gearhart, Junior A., 4,278,529, Cl. 208-309.000.

Kerst, Herman, to Chemed Corporation. Method for deoxygenation of water. 4,278,635, Cl. 422-14.000.

Kesavan, Krishnamurthy: *See*—
Silvestri, George J., Jr.; and Kesavan, Krishnamurthy, 4,277,943, Cl. 60-646.000.

Kessinger, Orville E., Jr., to Caterpillar Tractor Co. Brake assembly for a vehicle. 4,278,151, Cl. 188-71.300.

Kessler, Harry T., Jr.: *See*—
Anderson, Ronald L.; and Kessler, Harry T., Jr., 4,278,097, Cl. 130-5.00D.

Khurges, Evgeny M.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Kiba, Gunji; and Mizuno, Hiroyuki. Device for mounting the molding of a bonded type windshield. 4,278,286, Cl. 296-93.000.

Kibun Company Limited: *See*—
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.

Kida, Makoto: *See*—
Numazawa, Akio; Matoba, Taketo; and Kida, Makoto, 4,277,984, Cl. 74-492.000.

Kidder, Gerald F.: *See*—
Eigenbrod, Lester K.; Kidder, Gerald F.; and Zeunik, Robert L., 4,277,950, Cl. 62-55.000.

Kierstead, Richard W.: *See*—
Fahrenholtz, Kenneth E.; Guthrie, Robert W.; and Kierstead, Richard W., 4,278,608, Cl. 260-401.000.

Kifferstein, Harry P. Rhythm indicating exercisers. 4,278,248, Cl. 272-68.000.

Kilty, Michael F.: *See*—
Hou, Kenneth C.; and Kilty, Michael F., 4,278,551, Cl. 210-767.000.

Kim, Tai K.: *See*—
MacInnis, Martin B.; and Kim, Tai K., 4,278,642, Cl. 423-54.000.

Kimberlin, Dan R.: *See*—
Cymbal, William D.; and Kimberlin, Dan R., 4,278,154, Cl. 192-4.00A.

Kimberly-Clark Corporation: *See*—
Kopacz, Thomas J.; and Jacoby, Charles J., 4,278,488, Cl. 156-351.000.
Reeves, William G.; and Thomas, Douglas C., 4,278,088, Cl. 128-270.000.

Kime, Wellesley R. Rapid response steam generating apparatus. 4,278,050, Cl. 122-39.000.

Kimura, Masatoshi: *See*—
Imaizumi, Ichiro; Kimura, Masatoshi; and Uehara, Keijiro, 4,278,987, Cl. 357-48.000.

Kimura, Yoshinori; Sunayama, Masuki; and Okamoto, Yoshiki, to Tokyo Shibaura Denki Kabushiki Kaisha. Navigation-monitoring apparatus. 4,278,975, Cl. 343-6.00R.

King, Palmer F. Fluid clutch. 4,278,157, Cl. 192-58.00R.

Kinser, C. Wayne. Simulated log building structure. 4,277,925, Cl. 52-233.000.

Kirk, Donald C., Jr., to Ethyl Products Company. Accumulative pressure pump. 4,278,189, Cl. 222-321.000.

Kishi, Hiroyasu, to Sanyo Electric Co., Ltd.; and Tokyo Sanyo Electric Co., Ltd. Pulsive component detecting apparatus. 4,278,901, Cl. 307-350.000.

Kishimoto, Kazuo: *See*—
Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,278,526, Cl. 204-266.000.

Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, to Victor Company of Japan, Limited. Method and system for automatically providing flat frequency response to audio signals recorded on magnetic tapes. 4,279,005, Cl. 360-66.000.

Kiuchi, Hiroshi: *See*—
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.

Kiwala, Jacob: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.

Kiyonaga, Kazuo, to Union Carbide Corporation. Process for upgrading iron ore pellets. 4,278,462, Cl. 75-5.000.

Klann, Paul A. Pedalboard. 4,278,004, Cl. 84-434.000.

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Weiffen, Karl-Heinz, 4,278,536, Cl. 209-422.000.

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Lachner, Hans; and Boer, Werner, 4,278,005, Cl. 411-337.000.

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Erickson, John W., 4,278,399, Cl. 415-199.100.

Kobori, Youichi, to Futaba Denshi Kogyo K.K. Driving circuit for fluorescent display device. 4,278,917, Cl. 315-169.100.

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Nishikawa, Akio; Suzuki, Hiroshi; and Kohkame, Hisashi, 4,278,780, Cl. 525-488.000.

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Kokusai Denshin Denwa Co., Ltd.: *See*—
Sato, Masanori; Niiro, Yasuhiko; and Wakabayashi, Hiroharu, 4,278,850, Cl. 179-175.31R.

Koltveit, Arthur O. Jointed tool. 4,277,992, Cl. 81-177.0UJ.

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Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,278,526, Cl. 204-266.000.

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Konishiroku Photo Industry Co., Ltd.: *See*—
Goto, Satoshi; Takei, Yoshiaki; Imaho, Ichiro; and Nomori, Hiroyuki, 4,278,746, Cl. 430-59.000.

Konkle, John H. Mobile vehicle invalid lift assembly. 4,278,389, Cl. 414-540.000.

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Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, 4,278,562, Cl. 252-430.000.

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Nielsen, Jacob A.; and Prydtz, Ole, 4,278,165, Cl. 198-365.000.

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Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

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Doerffer, Jerzy; Madey, Jerzy; Kozlowski, Jan; and Niepiekto, Andrzej, 4,278,040, Cl. 114-170.000.

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Krause, Hans H. Tilt indicating device. 4,278,854, Cl. 200-52.00A.

Krauss, Alan R.: *See*—
Gruen, Dieter M.; Krauss, Alan R.; and Siskind, Barry, 4,278,890, Cl. 250-492.00B.

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Kritske, Victor J., to Mayline Co., Inc. Two direction brake for a drafting table. 4,278,032, Cl. 108-6.000.

Krock, Friedrich W.; Neeff, Rutger; and Kuth, Robert, to Bayer Aktiengesellschaft. Transfer printing process and printing inks and temporary supports for carrying out this process. 4,278,434, Cl. 8-471.000.

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DiBattista, Dante P.; and Kuhn, Robert H., 4,278,245, Cl. 269-22.000.

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Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, 4,278,763, Cl. 435-23.000.

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Yamashita, Yoshio; Kunishi, Mitsumasa; and Kawazu, Ryuji, 4,278,754, Cl. 430-323.000.

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Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

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Hanotier, Jacques D. V., 4,278,810, Cl. 562-412.000.

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Lamparsky, Dietmar, to Givaudan Corporation. Novel prenyl 4-carsnoees. 4,278,817, Cl. 568-374.000.

Lampert, Armin: *See*—
Nilsson, Karl E.; and Lampert, Armin, 4,278,638, Cl. 422-166.000.

Landa, Benzion, to Savin Corporation. Method and apparatus for xeroradiography. 4,278,884, Cl. 250-315.200.

Landgraf, Hermann; and Wohlgemuth, Juergen, to Siemens Aktiengesellschaft. D.C. Subfractional horsepower motor with flux shunt for variable RPM adjustment. 4,278,907, Cl. 310-191.000.

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Funk, Ernest J.; Wing, Thomas; Lane, Jack C.; and Westbrook, Edward S., IV, 4,278,348, Cl. 355-73.000.

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Nelson, Edward I.; Mueller, Harry B.; and Lane, John E., 4,278,965, Cl. 340-365.00P.

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Jakobs, Ewald; and Lang, Gernot, 4,278,369, Cl. 407-113.000.

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Lapeyre, Pierre A. Exercise monitor system and method. 4,278,095, Cl. 128-689.000.

Larson, Dennis L. Log splitter for garden tractors. 4,278,118, Cl. 144-193.00A.

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Call, Daniel D.; and La Rue, Mervin W., Jr., 4,278,023, Cl. 101-235.000.

Las-Laskowski, Stanislaw F.: *See*—
Birch, Peter R.; Ling, Kenneth V.; Power, Claude S.; Robinson, Alan J.; Mahoney, Terrence G.; and Las-Laskowski, Stanislaw F., 4,278,532, Cl. 209-19.000.

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Lee, Robert D.; and Ulmer, Richard W., to Motorola, Inc. Regulated negative voltage supply. 4,278,929, Cl. 323-311.000.

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Leibeling, Heinz, to Boge GmbH. Hydropneumatic spring suspension device for vehicles. 4,278,272, Cl. 280-708.000.

Leininger, Joel C.; Bliss, Floyd R.; and Fairchild, Peter T., to International Business Machines Corporation. Instruction pre-fetch microprocessor interrupt system. 4,279,016, Cl. 364-200.000.

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Parker, Sidney A., 4,277,955, Cl. 62-510.000.

Lenz, Brent L. Skate. 4,278,264, Cl. 280-11.280.

Lerner, Armand; and Lerner, Sylvain S. Sound barrier. 4,278,146, Cl. 181-210.000.

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Yamarik, George J.; and Levengood, James L., 4,278,400, Cl. 416-97.00R.

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Marschall, Peter; Schlosser, Ewald; and Wolk, Claus, 4,278,949, Cl. 331-94.50H.
Schroder, Ernst; and Wermuth, Jurgen, 4,278,945, Cl. 330-278.000.

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Muller, Manfred K.; and Uchiya, Tomoyoshi, 4,278,960, Cl. 337-365.000.

Limque, Ferdinand; and Bertrand, Hans, to Ipsen Industries International Gesellschaft mit beschrankter Haftung. Industrial furnaces for the heat treatment of metallic workpieces. 4,278,421, Cl. 432-152.000.

Lin, Pin-Houn, to Reino International Corporation. Automatic alarm system for detecting obstacles behind a backing vehicle. 4,278,962, Cl. 340-34.000.

Lindner, Alfred: *See*—
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

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Lindquist, Bjorn V. Cam cleat. 4,278,042, Cl. 114-218.000.

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Bergman, Fred S.; and Radelet, Reginald P., 4,278,237, Cl. 254-134.3PA.

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Lipshutz, Victor G.; and Stark, Edward, to Technicon Instruments Corporation. Fluid sample cell. 4,278,887, Cl. 250-432.000.

List, Hans; Skatsche, Othmar; Thien, Gerhard; Fachbach, Heinz; Greier, Josef; and Wagner, Johann, to List, Hans. Low-noise-level internal combustion Vee-engines. 4,278,055, Cl. 123-195.00S.

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Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

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Lobo, Gustavo, Jr.; and Hallbert, Charles G., to Lobo-Kane, Inc. Apparatus for reconditioning bagged material. 4,278,209, Cl. 241-30.000.

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Lobo, Gustavo, Jr.; and Hallbert, Charles G., 4,278,209, Cl. 241-30.000.

Logic Devices, Inc.: *See*—
Allen, Paul E., 4,278,230, Cl. 249-81.000.

Lohr, Raymond J. Target game. 4,278,256, Cl. 273-368.000.

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Beyl, Jean J. A., 4,278,269, Cl. 280-613.000.

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McGahee, Welbourne D., 4,278,231, Cl. 249-95.000.

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Loughlin, Joseph B.: *See*—
Streczyn, Michael; and Loughlin, Joseph B., 4,278,970, Cl. 340-599.000.

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Srinivasan, Vadake R.; and Choi, Ye-Chin, 4,278,766, Cl. 435-253.000.

Louthan, Rector P.: *See*—
Stacy, Carl J.; and Louthan, Rector P., 4,278,585, Cl. 260-42.150.

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Lubitz, Karl; Drew, Jeffrey M.; and Schuhmann, Werner P., to Siemens Aktiengesellschaft. Method and apparatus for inspection of ceramic parts for defects. 4,277,977, Cl. 73-587.000.

Luca, Sebastiano F. Absorbent for animal excreta. 4,278,047, Cl. 119-1.000.

Lucas Industries Limited: *See*—
Griffiths, Trevor J.; Sharpe, Raymond; and Hunt, Peter, 4,278,928, Cl. 322-29.000.
Lane, Jeffrey A., 4,277,956, Cl. 64-9.00R.
Lane, Jeffrey A., 4,277,957, Cl. 64-9.00R.
Seilly, Alec H., 4,278,904, Cl. 310-27.000.

Lucke Apparate-Bau GmbH: *See*—
Lucke, Florian, 4,277,867, Cl. 28-220.000.

Lucke, Florian, to Lucke Apparate-Bau GmbH. Apparatus for the continuous delivery of a yarn or the like in loose form. 4,277,867, Cl. 28-220.000.

Luedtke, Warren J., to Security Plastics, Inc. Trigger lock system for pump. 4,278,187, Cl. 222-153.000.

Luick, Woodrow W. Convertible rotary mower-vacuum sweeper. 4,277,937, Cl. 56-17.500.

Lukander, Tuula A.: *See*—
von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., 4,278,885, Cl. 250-370.000.

Lukas, Siegmar: *See*—
Blum, Adolf; Lukas, Siegmar; Schwab, Hermann; and Strobel, Rolf, 4,278,433, Cl. 8-449.000.

Lukatsch, Stephen: *See*—
Danulat, Hans F.; John, Kamar P.; Klein, Helmut; and Lukatsch, Stephen, 4,278,505, Cl. 203-59.000.

Lumin, Inc.: *See*—
Liu, Hua-Kuang, 4,278,755, Cl. 430-396.000.

Lund, Alvin O., deceased: *See*—
Wehrli, Henry A., III; Boomgaard, Dirk J.; and Lund, Alvin O., deceased, 4,278,150, Cl. 187-29.00R.

Lund, Helen B., executrix: *See*—
Wehrli, Henry A., III; Boomgaard, Dirk J.; and Lund, Alvin O., deceased, 4,278,150, Cl. 187-29.00R.

Lunden, Clarence D., to United States of America, Air Force. Coupler for feeding extensible transmission line. 4,278,955, Cl. 333-33.000.

Lutz, Leo O.: *See*—
Burgess, Francis P.; Cormier, Raymond G.; Guiguizian, Jacques; and Lutz, Leo O., 4,278,341, Cl. 355-3.0SH.

Lymer, Donald A.: *See*—
McKendrick, George A. R.; Bartlett, Ian G.; and Lymer, Donald A., 4,277,960, Cl. 68-205.00R.

Lynn, Scott; and Dubs, Bernard J., to University of California, The Regents of the. Oxidative removal of hydrogen sulfide from gaseous streams. 4,278,646, Cl. 423-226.000.

Lyon Metal Products, Incorporated: *See*—
Steinke, Mark H., 4,278,361, Cl. 403-189.000.

Lyons, Robert A. Ball and paddle game and exercise apparatus. 4,278,252, Cl. 273-118.00R.

MacInnis, Martin B.; and Kim, Tai K., to GTE Products Corporation. Method for removing molybdenum from tungstate solutions by solvent extraction. 4,278,642, Cl. 423-54.000.

MacInnis, Martin B.: *See*—
Vanderpool, Clarence D.; MacInnis, Martin B.; McClintic, Robert P.; and Gingerich, Richard G. W., 4,278,463, Cl. 75-0.50A.

Mack, Iris M.; Rowe, Harrison E.; and Schmidt, Ronald V., to Bell Telephone Laboratories, Incorporated. Power divider with randomly varying incremental power transfer. 4,278,321, Cl. 350-96.120.

Mader, Hermann. Semiconductor diode. 4,278,986, Cl. 357-33.000.

Madey, Jerzy: *See*—
Doerffer, Jerzy; Madey, Jerzy; Kozlowski, Jan; and Niepiekto, Andrzej, 4,278,040, Cl. 114-170.000.

Madison, James B.; and Hiland, Larry K., to Chromalloy American Corporation. Method of treating tardive dyskinesia by oral dosage form of a physostigmine compound. 4,278,667, Cl. 424-232.000.

Madison, James B.; and Hiland, Larry K., to Chromalloy American Corporation. Combination of two or more drugs in a single dosage form wherein one of the drugs is a physostigmine compound. 4,278,679, Cl. 424-263.000.

Maeda, Chiaki: *See*—
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Esaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

Maeda, Masahiro, to Minolta Camera Kabushiki Kaisha. Illumination control apparatus for projection device. 4,278,334, Cl. 353-85.000.

Maeda, Tetsuji: *See*—
Kajimura, Mutsuhiko; and Maeda, Tetsuji, 4,278,627, Cl. 264-45.400.

Magnatex Limited: *See*—
Davis, Kenneth P.; and Boughtflower, Charles A., 4,278,227, Cl. 248-487.000.

Magnolato, Daniele, to Societe d'Assistance Technique pour Produits Nestle S.A. Deacidifying coffee extract with chitosan. 4,278,696, Cl. 426-422.000.

Magoulas, John P.: *See*—
Beyer, Robert E.; and Magoulas, John P., 4,278,444, Cl. 44-59.000.

Magyar Tudomanyos Akademia Muszakikemiai Kutato Intezete: *See*—
Timko born Jozsa, Judit; Blickle, Tibor; Borlai, Oszkar; and Ujhidy, Aurel, 4,278,319, Cl. 350-3.780.

Mahaffy & Harder Engineering Co.: *See*—
Mahaffy, Reid A.; and Hamilton, Joel A., 4,277,931, Cl. 53-412.000.

Mahaffy, Reid A.; and Hamilton, Joel A., to Mahaffy & Harder Engineering Co. Packaging techniques for semi-rigid packages. 4,277,931, Cl. 53-412.000.

Mahlein, Hans F., to Siemens Aktiengesellschaft. Coupling device for coupling of two waveguides. 4,278,322, Cl. 350-96.180.

Mahoney, Terrence G.: *See*—
Birch, Peter R.; Ling, Kenneth V.; Power, Claude S.; Robinson, Alan J.; Mahoney, Terrence G.; and Las-Laskowski, Stanislaw F., 4,278,532, Cl. 209-19.000.

Makino Milling Machine Co., Ltd.: *See*—
Utsumi, Keizo, 4,277,880, Cl. 29-568.000.

Makitalo, Valto J.: *See*—
Lilja, Launo L.; Makitalo, Valto J.; and Koivunen, Timo T., 4,278,494, Cl. 159-16.00A.

Mako Compressors Inc.: *See*—
Klein, Jordan N., 4,278,453, Cl. 55-275.000.

Malec, Robert E., to Ethyl Corporation. Antioxidant. 4,278,554, Cl. 252-52.00R.

Maniquis, Dux C. L., to Alchaldean International Pty. Limited. Rotary sieve for separation of solids from liquids. 4,278,543, Cl. 210-403.000.

Mankey, Harry S.: *See*—
Oswald, Norman D.; and Mankey, Harry S., 4,278,140, Cl. 180-6.480.
Oswald, Norman D.; and Mankey, Harry S., 4,278,141, Cl. 180-6.480.

Mann, Albrecht, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft (M.A.N.). System to supervise operation of a bearing. 4,278,881, Cl. 250-227.000.

Mansolillo, Robert D., to Congoleum Corporation. Process for producing decorative surface covering. 4,278,483, Cl. 156-79.000.

Marcantonio, Arnold F.; and Dailey, Rodney E., to Ball Corporation. Aqueous metal coordination compounds as protective coatings for glass. 4,278,735, Cl. 428-432.000.

Marchesini, Wainer, to WAM dei Fratelli Marchesini s.n.c. Apparatus for severing packages containing granular or powder-like matter and severing the matter therefrom. 4,278,384, Cl. 414-412.000.

Marik, Charles J., to Motorola, Inc. Tangent function generator for AM stereo. 4,278,839, Cl. 179-1.0GS.

Marjollet, Jacques: *See*—
Bessouat, Roger; Marjollet, Jacques; and Palacio, Gerard, 4,278,053, Cl. 122-488.000.

Marley-Wylain Company, The: *See*—
Kaessen, Donald A., 4,278,858, Cl. 200-84.00B.

Marmon Company: *See*—
Schrencongost, Ray B., 4,278,001, Cl. 84-1.260.

Marschall, Peter; Schlosser, Ewald; and Wolk, Claus, to Licentia Patent-Verwaltungs-G.m.b.H. Semiconductor laser structure and manufacture. 4,278,949, Cl. 331-94.50H.

Marschner, Werner; and Minwegen, Heinz, to Bayer Aktiengesellschaft. Dyeing process. 4,278,436, Cl. 8-549.000.

Marshall, Peter E. G.: *See*—
Rawle, Michael D.; and Marshall, Peter E. G., 4,278,350, Cl. 356-155.000.

Marsili, Leonardo: *See*—
Cesti, Pietro; Marsili, Leonardo; and Pasqualucci, Carmine, 4,278,792, Cl. 542-420.000.

Martin, Hans, to Sueddeutsche Kuehlerfabrik Julius Fr. Behr GmbH & Co. KG. Fluid-friction clutch. 4,278,158, Cl. 192-58.00B.

Martin, Henry: *See*—
Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, 4,278,613, Cl. 260-465.00D.

Martin, Real. Antiskid traction device for vehicle wheel. 4,278,203, Cl. 238-14.000.

Martinelli, Gabriele, to Fiat Societa Per Azioni. Blade for wind motors. 4,278,401, Cl. 416-230.000.

Martinez, George, Jr. Method and apparatus for conserving energy in an air conditioning system. 4,277,952, Cl. 62-115.000.

Marting Mfg. Inc.: *See*—
Van Dusseldorp, Larry R., 4,278,049, Cl. 119-53.500.

Martins, Wagner W.: *See*—
del Picchia, Walter; Martins, Wagner W.; Silveira, Decio G.; and del Picchia Sergio, 4,279,008, Cl. 361-194.000.

Marumo, Kuniomi: *See*—
Kametaka, Norio; Marumo, Kuniomi; and Nozawa, Tutomu, 4,278,820, Cl. 568-678.000.

Marzocchi, Alfred; Roberts, Michael C.; and Bolen, Charles E., to Owens-Corning Fiberglas Corporation. Bituminous composite reinforced with a filler coated with the reaction product of bitumen and an organosilicon compound. 4,278,470, Cl. 106-281.00R.

Marzola, Roberto; and Garagnani, Enea, to Montedison S.p.A. Glass fiber-reinforced polyolefins. 4,278,586, Cl. 260-42.180.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See*—
Urlaub, Alfred; and Chmela, Franz, 4,278,057, Cl. 123-276.000.
Zurner, Hansjurgen; and Fuhrmann, Wolfgang, 4,278,233, Cl. 251-57.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft (M.A.N.): *See*—
Mann, Albrecht, 4,278,881, Cl. 250-227.000.

Mashimo, Yukio, to Canon Kabushiki Kaisha. Electric motor drive device for camera. 4,278,337, Cl. 354-60.00R.

Mashko, Sergei V.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatmer, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Massachusetts Institute of Technology: *See*—
Suh, Nam P., 4,278,622, Cl. 264-11.000.

Massachusetts Microcomputers, Inc.: *See*—
Beckedorff, David L.; Sporer, Michael; and Watts, Bruce R., 4,279,012, Cl. 364-104.000.

Masuda, Eiji; Sato, Chikara; and Suzuki, Yasoji, to Tokyo Shibaura Denki Kabushiki Kaisha. Integration circuit. 4,278,943, Cl. 328-127.000.

Masuda, Yasushi: *See*—
Matsuhiro, Kenzi; and Masuda, Yasushi, 4,278,329, Cl. 350-357.000.

Masuzawa, Sigeaki; and Saizi, Mituhiro, to Sharp Kabushiki Kaisha. Speech-synthesizer timepiece. 4,279,030, Cl. 368-63.000.

Matison, Gary G.: *See*—
Koether, Bernard G.; and Matison, Gary G., 4,278,872, Cl. 219-497.000.

Matla, Arno; and Matthaei, Horst D., to International Business Machines Corporation. Apparatus for controlling impression in a daisy wheel printer. 4,278,357, Cl. 400-144.200.

Matoba, Taketo: *See*—
Numazawa, Akio; Matoba, Taketo; and Kida, Makoto, 4,277,984, Cl. 74-492.000.

Matsuda, Kichiro: *See*—
Nakagawa, Yasuo; Shimada, Keizo; Nakamura, Tsutomu; and Matsuda, Kichiro, 4,278,779, Cl. 525-432.000.

Matsuda, Minoru; Iwasaki, Hirotsugu; Tamai, Yasukatsu; Iino, Masashi; and Fukutome, Hiroshi. Method for reducing caking property of coal. 4,278,442, Cl. 44-1.00R.

Matsuda, Mutsuhide: *See*—
Ito, Fumio; Hariqaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, 4,278,336, Cl. 354-51.000.

Matsuhiro, Kenzi; and Masuda, Yasushi, to Ashai Glass Company, Ltd. Electrochromic device with transmissive counter electrode. 4,278,329, Cl. 350-357.000.

Matsui, Kazumi; Takasue, Takashi; and Iwasaki, Masami, to Furukawa Electric Co. Ltd. Belt conveyor transportation system utilizing magnetic attraction. 4,278,164, Cl. 198-334.000.

Matsumoto, Masafumi; and Kotani, Matahira, to Sharp Kabushiki Kaisha. Constant flow rate liquid supply pump. 4,278,984, Cl. 346-140.00R.

Matsumoto, Shinichi: *See*—
Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, 4,278,509, Cl. 204-1.00T.

Matsuno, Jun-ichi: *See*—
Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, 4,278,124, Cl. 164-125.000.

Matsushita Electric Industrial Company: *See*—
Minakuchi, Hiroshi, 4,278,925, Cl. 318-314.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Fujita, Makoto; Omiya, Shoji; and Hino, Izumi, 4,278,258, Cl. 369-36.000.
Nakayama, Yoshikazu; Tateishi, Fumikazu; and Fujito, Katsuyuki, 4,278,318, Cl. 350-3.780.
Ohta, Takeo; Akahira, Nobuo; Nakamura, Tatsuhi; and Yamashita, Tadaoki, 4,278,734, Cl. 428-432.000.
Sasaki, Toshiharu; Katakabe, Noboru; and Yokoyama, Yoshihiro, 4,279,006, Cl. 360-90.000.

Matsushita, Yoshihiro: *See*—
Ochiai, Michihiko; Morimoto, Akira; and Matsushita, Yoshihiro, 4,278,671, Cl. 424-246.000.

Matsuzaki, Akio, to Casio Computer Co., Ltd. Key button structure for electronic devices. 4,278,861, Cl. 200-340.000.

Matsuzaki, Tokuo: *See*—
Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, 4,278,614, Cl. 260-465.300.

Matthaei, Horst D.: *See*—
Matla, Arno; and Matthaei, Horst D., 4,278,357, Cl. 400-144.200.

Matty, Thomas C.: *See*—
Kapadia, Jayant K.; and Matty, Thomas C., 4,278,900, Cl. 307-311.000.

Maurer, Gerald L.; and Stefanini, Virginia E., to National Research Laboratories. Method of making an organic metal salt or complex. 4,278,610, Cl. 260-438.100.

Maurer, Rudolf. Method of cooling cooked products by interval showering. 4,278,698, Cl. 426-506.000.

Mauro, Gastone; Lagana, Carlo; Geri, Sergio; and Strepparola, Ezio, to Montedison S.p.A. Vulcanizable mixes based on fluoroelastomers and comprising elastomeric fluoropolyamides as processing aids. 4,278,776, Cl. 525-178.000.

Mawatari, Masahiko; and Tamura, Masaaki, to Tokyo Shibaura Denki Kabushiki Kaisha. Digital servo apparatus. 4,278,924, Cl. 318-314.000.

Mayline Co., Inc.: *See*—
Kritske, Victor J., 4,278,032, Cl. 108-6.000.

Maynard, Arthur D.: *See*—
Abrams, Joseph L.; and Maynard, Arthur D., 4,278,549, Cl. 210-695.000.

Mayo, George L., to Pyle, Stoddard H.; and Roberts, Wayne R. Wood member cutting apparatus. 4,277,998, Cl. 83-404.100.

McAllister, Jack G. Frame assembly apparatus and method of making same. 4,277,922, Cl. 52-81.000.

McBride, William S., to Dragerwerk Aktiengesellschaft. Chemical oxygen generator. 4,278,637, Cl. 422-122.000.

McCabe, Francis J., to Prefco Products, Inc. Method for installing an angle blade damper. 4,277,870, Cl. 29-157.00R.

McClintic, Robert P.: *See*—
Vanderpool, Clarence D.; MacInnis, Martin B.; McClintic, Robert P.; and Gingerich, Richard G. W., 4,278,463, Cl. 75-0.50A.

McCormick, Charles L., to Hopkins Agricultural Chemical Co. Novel cellulose solutions. 4,278,790, Cl. 536-84.000.

McCrary, Wylee D.: *See*—
Vincett, Paul S.; Pundsack, Arnold L.; Hunter, Robert K., Jr.; and McCrary, Wylee D., 4,278,335, Cl. 354-3.000.

McCreary Tire & Rubber Company: *See*—
McGaughey, Robert S., 4,278,484, Cl. 156-123.00R.

McDermott Incorporated: *See*—
Williams, Billy W., 4,278,041, Cl. 114-210.000.

McDonald, Peter, to Firestone Tire & Rubber Company, The. All-season pneumatic tire tread. 4,278,121, Cl. 152-209.00R.

McDuffee, Richard L., to Twinoak Products, Inc. For toilet bowl cleaning. 4,277,853, Cl. 4-228.000.

McFarland, Douglas F. Wind power generator. 4,278,896, Cl. 290-55.000.

McGahee, Welbourne D., to Loop-A-Line, Inc. Mold for fabricating fishing lures etc. 4,278,231, Cl. 249-95.000.

McGaughey, Robert S., to McCreary Tire & Rubber Company. Pneumatic side wall bonding in radial tire manufacture. 4,278,484, Cl. 156-123.00R.

McGlasson, Paul E.: *See*—
Chambless, Joe G.; and McGlasson, Paul E., 4,278,278, Cl. 285-143.000.

McGraw-Edison Company: *See*—
Schroeder, James E.; and Rasmussen, John F., 4,278,961, Cl. 338-21.000.

McGregor, David: *See*—
Wheeler, Ian R.; Robertson, George H.; and McGregor, David, 4,278,601, Cl. 260-314.500.

McInerney, Eugene F.: *See*—
Lewis, James M.; and McInerney, Eugene F., 4,278,753, Cl. 430-283.000.

McKendrick, George A. R.; Bartlett, Ian G.; and Lymer, Donald A., to Tybar Engineering Pty. Ltd. Synchronization of multiple stream liquid application processes. 4,277,960, Cl. 68-205.00R.

McMahon, Donald H.; and Soref, Richard A., to Sperry Corporation. Liquid crystal matrices. 4,278,327, Cl. 350-347.00V.

McMullan, James P. Instrument mounting fixture. 4,278,869, Cl. 219-217.000.

McReynolds, Oliver B. Seismic explosive charge loader and anchor. 4,278,025, Cl. 181-116.000.

McWilliams, Richard L. Container closure. 4,278,179, Cl. 215-245.000.

Mead Corporation, The: *See*—
Ganguly, Biswa N.; and Paranjpe, Suresh C., 4,278,999, Cl. 358-213.000.
Wood, Prentice J., 4,278,168, Cl. 206-183.000.

MecanARBED S.a.r.L.: *See*—
Elineau, Hubert, 4,278,377, Cl. 414-30.000.

Mecham, Lynn. Spare tire carrier. 4,278,191, Cl. 224-42.210.

Medding, Reuben; and Kay, Peter D., to Consolidated Electronic Industries Proprietary Limited. Constant speed electric motor. 4,278,921, Cl. 318-254.000.

Medical Development S.A.: *See*—
Beulens, Theophiel, 4,278,542, Cl. 210-321.300.

Medtronic, Inc.: *See*—
Skarstad, Paul M.; Untereker, Darrel F.; and Coury, Arthur J., 4,278,745, Cl. 429-213.000.
Zobel, Don W., 4,278,094, Cl. 128-419.0PG.

Mehlman, Stewart K.: *See*—
Bury, Roland P.; Mehlman, Stewart K.; and Andreini, Rockne J., 4,278,464, Cl. 75-51.000.

Meier, Johann H., to International Business Machines Corporation. All-points addressable dot printer. 4,278,019, Cl. 101-93.040.

Meisel, Thomas C., Jr., to Caterpillar Tractor Co. Log skidder with folding arch. 4,278,392, Cl. 414-569.000.

Mellen, Jerre L., to Albany International Corp. Suction dewatering system with automatically adjusting suction slot. 4,278,497, Cl. 162-252.000.

Menashi, Jameel: *See*—
Rappas, Alkis S.; Menashi, Jameel; and Douglas, Donald A., 4,278,644, Cl. 423-58.000.

Merger, Franz; and Towae, Friedrich, to BASF Aktiengesellschaft. Process for the preparation of an aryl mono-, di-, and/or polyurethane. 4,278,805, Cl. 560-25.000.

Messerschmitt-Bolkow-Blohm GmbH: *See*—
Nilsson, Karl E.; and Lampert, Armin, 4,278,638, Cl. 422-166.000.

Metallgesellschaft Aktiengesellschaft: *See*—
Danulat, Hans F.; John, Kamar P.; Klein, Helmut; and Lukatsch, Stephen, 4,278,505, Cl. 203-59.000.
Lohrberg, Karl; Wullenweber, Heinz; Muller, Jurgen; and Sermond, Bernd, 4,278,568, Cl. 252-472.000.

Metoff, Rudolph, to General Electric Company. Circular fluorescent lamp unit. 4,278,911, Cl. 313-318.000.

Meyer, Gary D., to Milwaukee Electric Tool Corporation. Safety interlock for electro-magnetic drill stand. 4,278,371, Cl. 408-76.000.

Meyer, Robert E.: *See*—
Wilds, Robert W.; Meyer, Robert E.; Grannen, Walter A., III; and Bryant, Dannie, 4,278,417, Cl. 425-577.000.

Mezrich, Reuben S.: *See*—
Vilkomerson, David H. R.; and Mezrich, Reuben S., 4,277,979, Cl. 73-633.000.

Michal, Gerhard: *See*—
Wulff, Karl; Stahler, Fritz; and Michal, Gerhard, 4,278,760, Cl. 435-8.000.

Michalski, John D.: *See*—
Lawrence, Hopeton S.; and Michalski, John D., 4,278,538, Cl. 209-580.000.

Mijovic, Miroslav V.: *See*—
Sidhu, Jasbir; Simons, Michael J.; and Mijovic, Miroslav V., 4,278,748, Cl. 430-212.000.

Mikkor, Mati; and Shinozaki, Samuel S., to Ford Motor Company. Conductive corrosion resistant material and alkali metal/polysulfide battery employing same. 4,278,708, Cl. 427-126.100.

Miles Laboratories, Inc.: *See*—
White, William I., 4,278,439, Cl. 23-230.00B.

Milholen, William F., to AMI Industries, Inc. Brick stacker having automatic void row forming. 4,278,378, Cl. 414-32.000.

Milkovic, Miran, to General Electric Company. Means for automatically compensating DC magnetization in a transformer. 4,278,940, Cl. 324-127.000.

Millard, Richard J.; Bernard, Walter J.; and Whitman, Alfred, to Sprague Electric Company. Two-stage differential anodization process. 4,278,513, Cl. 204-42.000.

Miller, David W., to Pandrol Limited. Rail clip. 4,278,204, Cl. 238-349.000.

Miller, James R., to B. F. Goodrich Company, The. Removal of residual acrylonitrile monomer. 4,278,582, Cl. 260-29.6AN.

Miller, Mark R.: *See*—
Arnett, Coleman C.; Godfrey, James W.; and Miller, Mark R., 4,278,968, Cl. 340-545.000.

Millhoan, William H., to PPG Industries, Inc. Strap retainer and compression block. 4,278,171, Cl. 206-451.000.

Milwaukee Electric Tool Corporation: *See*—
Meyer, Gary D., 4,278,371, Cl. 408-76.000.

Mimura, Yoshiyuki: *See*—
Kagami, Akiyasu; and Mimura, Yoshiyuki, 4,278,913, Cl. 313-495.000.

Minakuchi, Hiroshi, to Matsushita Electric Industrial Company. Phase-locked loop speed control system using programmable counter for frequency pulling. 4,278,925, Cl. 318-314.000.

Miniaci, Salvatore J.; and Christiansen, James O., to Avery International Corporation. Baggage identification tag. 4,277,902, Cl. 40-2.00R.

Ministry of International Trade & Industry: *See*—
Kono, Hidehiko, 4,278,142, Cl. 180-168.000.

Minolta Camera Kabushiki Kaisha: *See*—
Maeda, Masahiro, 4,278,334, Cl. 353-85.000.
Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, 4,278,346, Cl. 355-45.000.
Uchida, Isamu; Yamazaki, Yasuo; and Egawa, Takeshi, 4,278,339, Cl. 354-155.000.

Minwegen, Heinz: *See*—
Marschner, Werner; and Minwegen, Heinz, 4,278,436, Cl. 8-549.000.

Miskin, Leslie, to ITT Industries, Inc. Sound channel circuit for frequency-modulated signals. 4,278,998, Cl. 358-198.000.

Mitamura, Shuichi: *See*—
Tsuchihashi, Genichi; Oguro, Katsuyuki; and Mitamura, Shuichi, 4,278,802, Cl. 569-72.000.

Mitchell, Kim W.: *See*—
Blakeslee, A. Eugene; and Mitchell, Kim W., 4,278,474, Cl. 136-249.000.

Mitchell, Richard L.; Brundage, Richard B.; and Blachly, Donald L., to Emerson Electric Co. Three dimensional duplicating carving machine. 4,278,117, Cl. 144-144.00R.

Mitsubishi Chemical Industries Limited: *See*—
Murayama, Tetsuo; Otsuka, Shigenori; and Tajima, Tsunemitsu, 4,278,747, Cl. 430-82.000.

Mitsubishi Gas Chemical Company Inc.: *See*—
Taniyama, Susumu; Shimaoka, Goro; and Inoue, Shoichi, 4,278,783, Cl. 528-23.000.

Mitsuya, Kinpei; Miyamoto, Noriaki; and Shiraki, Masao, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Device for sealing spinning rotor in an open-end spinning apparatus. 4,278,259, Cl. 277-12.000.

Miura, Takeshi; and Yamamoto, Yasuo, to Nippon Oil Seal Industry Co., Ltd. Sealing device. 4,278,261, Cl. 277-153.000.

Miya, Bunji, deceased (by Miya, Kazu, heir); by Miya, Fumiaki, heir; and by Nawashiro, Yukiko, heir, to Kao Soap Co., Ltd. Process for preparation of copper-iron-aluminum hydrogenation catalyst. 4,278,567, Cl. 252-466.00J.

Miya, Fumiaki, heir: *See*—
Miya, Bunji, deceased; Miya, Fumiaki, heir; and Nawashiro, Yukiko, heir, 4,278,567, Cl. 252-466.00J.

Miya, Kazu, heir: *See*—
Miya, Bunji, deceased; Miya, Fumiaki, heir; and Nawashiro, Yukiko, heir, 4,278,567, Cl. 252-466.00J.

Miyai, Naomichi: *See*—
Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, 4,278,124, Cl. 164-125.000.

Miyake, Hidekazu: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Miyamoto, Noriaki: *See*—
Mitsuya, Kinpei; Miyamoto, Noriaki; and Shiraki, Masao, 4,278,259, Cl. 277-12.000.

Miyasaka, Kiyoshi: *See*—
Baba, Fumio; Miyasaka, Kiyoshi; Yabu, Takashi; and Mogi, Jun-ichi, 4,278,989, Cl. 357-59.000.

Miyazaki, Shizuo: *See*—
Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, 4,278,865, Cl. 219-99.000.

Miyoshi, Eiji: *See*—
Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, 4,278,865, Cl. 219-99.000.

Mizoule, Henri; and Gardel, William. Changing the color of a doll's eyes. 4,277,911, Cl. 46-135.00R.

Mizumoto, Morihide, to Olympus Optical Co., Ltd. Medical camera system. 4,278,077, Cl. 128-4.000.

Mizuno, Hiroyuki: *See*—
Kiba, Gunji; and Mizuno, Hiroyuki, 4,278,286, Cl. 296-93.000.

Mizuno, Sueo; Nozu, Toshihiro; Kanaya, Yoshihiro; and Koumura, Masahiko, to Rinnai Kabushiki Kaisha. Combination microwave and gas oven. 4,278,862, Cl. 219-10.55B.

Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Toyo Rubber Industry Co., Ltd., The. Rubber boot for use in universal joint. 4,278,262, Cl. 277-212.0FB.

Moberg, Sigurd M., to E. J. Brooks Company. Seal. 4,278,281, Cl. 292-320.000.

Mobil Oil Corporation: *See*—
Beyer, Robert E.; and Magoulas, John P., 4,278,444, Cl. 44-59.000.
Chen, Nai Y.; and Reagan, William J., 4,278,565, Cl. 252-455.00Z.
Chu, Chin-Chiun; and Kaeding, Warren W., 4,278,827, Cl. 585-467.000.
Pelrine, Bruce P., 4,278,564, Cl. 252-450.000.
Yan, Tsoung Y.; and Audeh, Costandi A., 4,278,469, Cl. 106-278.000.
Yan, Tsoung-yuan; and Espenscheid, Wilton F., 4,278,292, Cl. 299-5.000.

Modern Controls, Inc.: *See*—
Bachofer, Kenneth W., 4,278,918, Cl. 315-169.400.

Modular Data Systems, Inc.: *See*—
Wolschlager, Gerald J., 4,277,972, Cl. 73-862.160.

Moench, Theodor P.; and Hanstein, Friedrich, to Rohm GmbH. Shaped body of extruded acrylic glass. 4,278,723, Cl. 428-192.000.

Mogi, Jun-ichi: *See*—
Baba, Fumio; Miyasaka, Kiyoshi; Yabu, Takashi; and Mogi, Jun-ichi, 4,278,989, Cl. 357-59.000.

Molins Limited: *See*—
Horsley, John K., 4,278,489, Cl. 156-361.000.

Monsanto Company: *See*—
Coran, Aubert Y.; and Patel, Raman, 4,278,572, Cl. 260-3.000.
Heaps, John F.; and Gardner, Donald M., 4,278,782, Cl. 526-326.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,824, Cl. 585-428.000.
Tremont, Samuel J.; and Williamson, Alex N., 4,278,825, Cl. 585-428.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,826, Cl. 585-428.000.

Monsheimer, Rolf; and Pfleiderer, Ernst, to Rohm GmbH. Soaking method. 4,278,432, Cl. 8-94.180.

Montedison S.p.A.: *See*—
Marzola, Roberto; and Garagnani, Enea, 4,278,586, Cl. 260-42.180.
Mauro, Gastone; Lagana, Carlo; Geri, Sergio; and Strepparola, Ezio, 4,278,776, Cl. 525-178.000.

Monteil, Marcel: *See*—
Ailloud, Jean; and Monteil, Marcel, 4,278,500, Cl. 176-37.000.

Montgomery, Robert L.; and Smith, Stuart B., to Southeastern Foam Products, Inc. Method for pre-expanding and molding expandable thermoplastic polymer particles. 4,278,628, Cl. 264-45.500.

Mookherjee, Braja D.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.

Moreau, Robert D.: *See*—
Haas, Howard C.; Jasne, Stanley J.; and Moreau, Robert D., 4,278,803, Cl. 556-419.000.

Morel, Andre. Breaking machine with automatic recycling of the fibres and the process for its operation. 4,278,207, Cl. 241-4.000.

Morgan, Barrie O.; and Wilkinson, Mitchell M., to Datotek, Inc. Dynamic frequency and time voice encryption system and method. 4,278,840, Cl. 179-1.50S.

Morgan, Ned L.: *See*—
Gregor, Robert A.; and Morgan, Ned L., 4,278,301, Cl. 305-11.000.

Morganstern, Kennard H.: *See—*
Bjellqvist, Bengt; Reitberger, Torbjorn; and Morganstern, Kennard H., 4,278,518, Cl. 204-159.200.

Morihisa, Mitsuo. DC-DC Converter for solid state watches. 4,279,010, Cl. 363-60.000.

Morimoto, Akira: *See—*
Ochiai, Michihiko; Morimoto, Akira; and Matsushita, Yoshihiro, 4,278,671, Cl. 424-246.000.

Morimoto, Syogo: *See—*
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Morin, Edward H.: *See—*
Esthimer, William F.; Morin, Edward H.; and Trudell, Richard E., 4,277,945, Cl. 60-710.000.

Morishita, Hirosada: *See—*
Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, 4,278,328, Cl. 350-349.000.

Moritani, Nakanobu: *See—*
Oda, Hajime; Fujita, Masanori; and Moritani, Nakanobu, 4,279,029, Cl. 368-29.000.

Morris, Bernard L.: *See—*
Agraz-Guerena, Jorge; Katz, Lewis E.; and Morris, Bernard L., 4,278,705, Cl. 427-93.000.

Morris, Hue T.: *See—*
Benke, Alan H.; Morris, Hue T.; and Nady, Louie A., 4,278,799, Cl. 548-215.000.

Morriss, Jeffrey C., to Bell Telephone Laboratories, Incorporated. Electromagnetic arrangement for measuring electrical current. 4,278,938, Cl. 324-117.00R.

Morrissey, Ronald J., to Technic, Inc. Bright palladium electrodeposition solution. 4,278,514, Cl. 204-47.000.

Morse, Donald B., to Kemlite Corporation. Machine for making resin panels. 4,278,491, Cl. 156-501.000.

Moseman, Merlin H.: *See—*
Hatfield, James R.; Moseman, Merlin H.; Graham, James R.; and Hirt, Thomas J., 4,278,788, Cl. 528-494.000.

Moser, Jesse L.; and Shoemaker, John R., to AMP Incorporated. Connector assembly for flat cable conductors in multiple rows. 4,278,314, Cl. 339-99.00R.

Moshentseva, Vera N.: *See—*
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Motoren-und Turbinen-Union Munich GmbH: *See—*
Bauer, Heinrich F.; and Feitzelmayer, Ernst, 4,277,886, Cl. 29-860.000.

Motorola, Inc.: *See—*
Lee, Robert D.; and Ulmer, Richard W., 4,278,929, Cl. 323-311.000.
Marik, Charles J., 4,278,839, Cl. 179-1.0GS.
Starai, Terrence M.; Champlin, John H., Jr.; and Johnson, Randall J., 4,278,957, Cl. 333-202.000.

Mouhot, Allan R.: *See—*
Daley, Philip A.; Mouhot, Allan R.; and Felice, Dan C., 4,278,148, Cl. 182-181.000.

Mower, Michael L.; and Carleton, William A., to Facet Enterprises, Inc. Coupling arrangement for an electromagnetic clutch. 4,278,161, Cl. 192-84.00C.

Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, to BASF Aktiengesellschaft. Manufacture of an ethylene oxide catalyst. 4,278,562, Cl. 252-430.000.

Mueller, Edward E.; Harrod, Michael K.; and Hagemeister, Frederick C., to Whirl-Air-Flow Corporation. Bag opening and emptying apparatus. 4,278,383, Cl. 414-412.000.

Mueller, Harry B.: *See—*
Nelson, Edward I.; Mueller, Harry B.; and Lane, John E., 4,278,965, Cl. 340-365.00P.

Mueller, Richard; and Himmler, Guenther, to Gebr. Hofmann GmbH & Co. KG. Process and apparatus for measurement of nonuniformity of mass in a rotor. 4,277,976, Cl. 73-457.000.

Mues, Melvin V.: *See—*
Hausermann, Marten C.; and Mues, Melvin V., 4,277,915, Cl. 51-157.000.

Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, to Hitachi, Ltd. Guest-host liquid crystal display device. 4,278,328, Cl. 350-349.000.

Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive material. 4,278,757, Cl. 430-512.000.

Muller, Erwin: *See—*
Saleck, Wilhelm; Wolff, Erich; and Muller, Erwin, 4,278,759, Cl. 430-627.000.

Muller, Jurgen: *See—*
Lohrberg, Karl; Wullenweber, Heinz; Muller, Jurgen; and Sermond, Bernd, 4,278,568, Cl. 252-472.000.

Muller, Lutz: *See—*
Stoltefuss, Jurgen; Muller, Lutz; Puls, Walter; and Sitt, Rudiger, 4,278,683, Cl. 424-267.000.

Muller, Manfred K.; and Uchiya, Tomoyoshi, to Limitor AG; and Uchiya Thermostat Co. Temperature controlled bimetal switch. 4,278,960, Cl. 337-365.000.

Munther, Christian. Drawing instruments. 4,277,893, Cl. 33-18.00R.

Murakami, Shigeru: *See—*
Honda, Kiyoshi; Kuriyama, Kazuya; Murakami, Shigeru; Sugawara, Ryozo; and Nakamura, Chiaki, 4,278,728, Cl. 428-313.000.

Murakami, Yoichi: *See—*
Nakamura, Hidehisa; Hori, Ryoichi; Isomoto, Emiko; and Murakami, Yoichi, 4,278,575, Cl. 260-22.0CB.

Murata, Koichi: *See—*
Okamoto, Yoshihiko; Yoshizawa, Tamotu; Ohta, Takahiro; and Murata, Koichi, 4,278,347, Cl. 355-68.000.

Murata Manufacturing Co., Ltd.: *See—*
Takaya, Tadashi, 4,278,851, Cl. 179-179.000.

Murayama, Tetsuo; Otsuka, Shigenori; and Tajima, Tsunemitsu, to Mitsubishi Chemical Industries Limited. Electrophotographic plate comprising a conductive substrate and a photosensitive layer containing an organic photoconductor layer composed of a hydrazone compound. 4,278,747, Cl. 430-82.000.

Murdock, Keith C., to American Cyanamid Company. Heteroalkylenebisanthraquinones. 4,278,605, Cl. 260-367.000.

Murdock, Keith C.; and Durr, Frederick E., to American Cyanamid Company. 1,4-Bis(substituted-amino)-5,8-dihydroxy-anthraquinones and leuco bases thereof. 4,278,689, Cl. 424-330.000.

Murphy, Edward J., to DeSoto, Inc. Aqueous coating systems containing bisphenol-formaldehyde ethers. 4,278,579, Cl. 260-29.300.

Muschelknautz, Horst, deceased: *See—*
Sauka, Klaus; and Muschelknautz, Horst, deceased, 4,278,298, Cl. 303-3.000.

Muschelknautz, Ingeborg: *See—*
Sauka, Klaus; and Muschelknautz, Horst, deceased, 4,278,298, Cl. 303-3.000.

Myers, Harry K., Jr.: *See—*
Schneider, Abraham; and Myers, Harry K., Jr., 4,278,823, Cl. 585-22.000.

Myers, Robert D., to Harnischfeger Corporation. Method of making welded structure. 4,278,863, Cl. 219-73.100.

Myrens Verksted A/S: *See—*
Fritzvold, Bjorn H., 4,278,496, Cl. 162-19.000.

N. V. Bekaert S.A.: *See—*
Wieme, Andre, 4,278,726, Cl. 428-229.000.

Nabutovsky, Iosif B.: *See—*
Andronov, Valery A.; Boyarsky, Alexandr I.; Emelyanov, Viktor I.; and Nabutovsky, Iosif B., 4,279,009, Cl. 363-35.000.

Nadkarni, Ravindra M.: *See—*
Santhanam, Chakra J.; and Nadkarni, Ravindra M., 4,278,539, Cl. 210-724.000.

Nady, Louie A.: *See—*
Benke, Alan H.; Morris, Hue T.; and Nady, Louie A., 4,278,799, Cl. 548-215.000.

Nagae, Yoshiharu: *See—*
Mukoh, Akio; Abe, Hidetoshi; Kawakami, Hideaki; Nagae, Yoshiharu; Morishita, Hirosada; and Kaneko, Eiji, 4,278,328, Cl. 350-349.000.

Nagai, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Parking brake release apparatus. 4,278,143, Cl. 180-282.000.

Nagai, Sumiyoshi; and Izumi, Tokio, to Sansho Pharmaceutical Co., Ltd. Cosmetic composition containing kojic acid ester. 4,278,656, Cl. 424-62.000.

Nagano, Masashi, to Shimano Industrial Company Limited. Rear hub for a bicycle having improved spoke protector mounting. 4,278,265, Cl. 280-160.100.

Nagler, Georg: *See—*
Hofmann, Otto; and Nagler, Georg, 4,278,879, Cl. 235-380.000.

Naito, Hideki: *See—*
Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, 4,278,757, Cl. 430-512.000.

Naito, Motoharu: *See—*
Yasui, Toshio; and Naito, Motoharu, 4,278,971, Cl. 340-635.000.

Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, to Bristol-Myers Company. Bronchodilating process. 4,278,675, Cl. 424-253.000.

Nakagawa, Susumu: *See—*
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,278,675, Cl. 424-253.000.

Nakagawa, Yasuo; Shimada, Keizo; Nakamura, Tsutomu; and Matsuda, Kichiro. Aromatic polyamide composition. 4,278,779, Cl. 525-432.000.

Nakaho, Junichi, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Kabushiki Kaisha Tokai Rika Denki Seisakusho. Webbing lock mechanism. 4,278,215, Cl. 242-107.200.

Nakajima, Tokuyoshi: *See—*
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; Shibuya, Yoshimichi; and Yokokura, Hisao, 4,278,326, Cl. 350-343.000.

Nakajima, Zenji: *See—*
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.

Nakamura, Chiaki: *See—*
Honda, Kiyoshi; Kuriyama, Kazuya; Murakami, Shigeru; Sugawara, Ryozo; and Nakamura, Chiaki, 4,278,728, Cl. 428-313.000.

Nakamura, Hidehisa; Hori, Ryoichi; Isomoto, Emiko; and Murakami, Yoichi, to Dainippon Ink & Chemicals, Inc. Modified acrylic copolymer and coating composition comprising such copolymer. 4,278,575, Cl. 260-22.0CB.

Nakamura, Ken; Sugihara, Kunihiko; and Ishizawa, Shizuo, to Nissan Motor Company, Limited. Internal combustion engine with an exhaust gas purifying system. 4,278,063, Cl. 123-568.000.

Nakamura, Kizashi: *See—*
Ihara, Susumu; and Nakamura, Kizashi, 4,278,935, Cl. 324-61.00P.

Nakamura, Tatsushi: *See—*
Ohta, Takeo; Akahira, Nobuo; Nakamura, Tatsushi; and Yamashita, Tadaoki, 4,278,734, Cl. 428-432.000.

Nakamura, Tsutomu: *See—*
Nakagawa, Yasuo; Shimada, Keizo; Nakamura, Tsutomu; and Matsuda, Kichiro, 4,278,779, Cl. 525-432.000.

Nakano, Hiroshige; Katagiri, Shigenobu; and Nishino, Shinichi, to Hitachi Koki Company, Limited. Magnetic interference prevention system. 4,278,021, Cl. 101-93.290.

Nakayama, Yoshikazu; Tateishi, Fumikazu; and Fujito, Katsuyuki, to Matsushita Electric Industrial Co., Ltd. Holographic reconstructing apparatus. 4,278,318, Cl. 350-3.780.

Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, to Hitachi, Ltd.; and Hitachi Metals, Ltd. Mold binder material. 4,278,581, Cl. 260-29.60M.

Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V. Block-copolymers of vinyltrialkylsilane-hexaorganocyclotrisiloxanes and method for producing same. 4,278,774, Cl. 525-100.000.

Nanaumi, Ken; Shoji, Fusaji; Kohkame, Hisashi; and Era, Susumu, to Hitachi, Ltd. Aromatic polyamides containing ether linkages and process for producing same. 4,278,786, Cl. 528-179.000.

Nara, Tamotsu; and Kamiya, Soji, to Taiho Kogyo Co., Ltd. Aluminum-tin base bearing alloy and composite. 4,278,740, Cl. 428-653.000.

Nardi, Giovanni, to Gilardini S.p.A. Air filter and air filter container. 4,278,455, Cl. 55-337.000.

Nashua Corporation: *See—*
Burgess, Francis P.; Cormier, Raymond G.; Guiguizian, Jacques; and Lutz, Leo O., 4,278,341, Cl. 355-3.0SH.
Davis, Austin E.; Cormier, Raymond G.; and Caggiula, Christopher A., 4,278,345, Cl. 355-15.000.

Natansohn, Samuel; and Su, Sophia R., to GTE Laboratories Incorporated. Resin sorption process for extracting tungsten. 4,278,643, Cl. 423-54.000.

National Research Development Corporation: *See—*
Billington, William P., 4,278,183, Cl. 221-211.000.

National Research Laboratories: *See—*
Maurer, Gerald L.; and Stefanini, Virginia E., 4,278,610, Cl. 260-438.100.

National Starch and Chemical Corporation: *See—*
Tessler, Martin M., 4,278,573, Cl. 260-17.4GC.

National Tax Administration Agency: *See—*
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.

Nauheimer, James F., to Container Corporation of America. Cushioning insert for frangible objects. 4,278,170, Cl. 206-422.000.

Nausedas, Joseph A.; and Eichin, Harry P., to Union Carbide Corporation. Bags wicketed on a flexible binding. 4,277,930, Cl. 53-396.000.

Nawashiro, Yukiko, heir: *See—*
Miya, Bunji, deceased; Miya, Fumiaki, heir; and Nawashiro, Yukiko, heir, 4,278,567, Cl. 252-466.00J.

Nawata, Kazumasa: *See—*
Ohno, Kenichi; Hosomizu, Tohru; and Nawata, Kazumasa, 4,278,897, Cl. 307-455.000.

NCR Canada Ltd. - NCR Canada Ltee: *See—*
Johannesson, Brian J., 4,278,018, Cl. 101-93.000.

Nedelec, Lucien; Guillaume, Jacques; and Dumont, Claude, to Roussel Uclaf. Tetrahydropyridinyl indoles. 4,278,677, Cl. 424-263.000.

Neeff, Rutger: *See—*
Krock, Friedrich W.; Neeff, Rutger; and Kuth, Robert, 4,278,434, Cl. 8-471.000.

Neff, Vance E.: *See—*
Cameron, Larry E.; Cook, Kenneth J.; Neff, Vance E.; and Rowland, Keith L., 4,279,013, Cl. 364-105.000.

Neiman SA: *See—*
Lipschutz, Paul, 4,277,962, Cl. 70-423.000.

Nelli, Pierre. Fish line guide assembly. 4,277,906, Cl. 43-24.000.

Nelson, Edward I.; Mueller, Harry B.; and Lane, John E., to Burroughs Corporation. Photo-optical keyboard having n-key rollover. 4,278,965, Cl. 340-365.00P.

Nemesi, Stephen A., to Wehr Corporation. Filter apparatus with reverse flow cleaning. 4,278,454, Cl. 55-302.000.

Netravali, Arun N.; Robbins, John D.; and Stuller, John A., to Bell Telephone Laboratories, Incorporated. Technique for encoding pictorial information. 4,278,996, Cl. 358-136.000.

Nevins, Glenn T.; and Keely, William A., to Teledyne Industries, Inc. Automatic electron beam deflecting circuit. 4,278,866, Cl. 219-121.0EC.

New England Nuclear Corporation: *See—*
Harris, S. Richard; and Bonci, Darlene K., 4,278,653, Cl. 424-1.000.

Neyrpic: *See—*
Casacci, Severin, 4,278,108, Cl. 137-613.000.

NGK Insulators, Ltd.: *See—*
Ozaki, Sei; and Otsu, Shuichi, 4,278,412, Cl. 425-198.000.

NGK Spark Plug Co., Ltd.: *See—*
Saito, Shigeo; and Tsunooka, Tsutomu, 4,278,000, Cl. 84-1.160.

Nicolaides, Ernest D.: *See—*
Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., 4,278,681, Cl. 424-266.000.

Nicollian, Edward H.; Seidel, Harold; and Smith, George E., to Bell Telephone Laboratories, Incorporated. Precision frequency source using integrated circuit elements. 4,278,947, Cl. 331-1.00R.

Niegisch, Walter D., to Union Carbide Corporation. Ultra-fine fibers and method for making same. 4,278,623, Cl. 264-28.000.

Nielsen, Axel L. Adjustable liquid level control for pumps. 4,278,402, Cl. 417-38.000.

Nielsen, Jacob A.; and Prydtz, Ole, to Kosan Crisplant A/S. Tray conveyor. 4,278,165, Cl. 198-365.000.

Niemann, Elfriede; Stagg, Brian H.; and Cowan, Stuart I., to Hoechst Aktiengesellschaft. Process for determining ferritin. 4,278,652, Cl. 424-1.000.

Niepiekto, Andrzej: *See—*
Doerffer, Jerzy; Madey, Jerzy; Kozlowski, Jan; and Niepiekto, Andrzej, 4,278,040, Cl. 114-170.000.

Niiro, Yasuhiko: *See—*
Sato, Masanori; Niiro, Yasuhiko; and Wakabayashi, Hiroharu, 4,278,850, Cl. 179-175.31R.

Nikaido, Teruo, to Tomy Kogyo Co., Inc. Floating toy. 4,277,906, Cl. 46-92.000.

Nilssen, Ole K. Simple, high-efficiency inverter circuits. 4,279,011, Cl. 363-133.000.

Nilsson, Karl E.; and Lampert, Armin, to Messerschmitt-Bolkow-Blohm GmbH. Gas generator construction. 4,278,638, Cl. 422-166.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Ogita, Minoru; and Takeyama, Masahiro, 4,278,980, Cl. 343-748.000.

Nippon Kogaku K.K.: *See—*
Wakabayashi, Hiroshi; and Okuyama, Takeshi, 4,278,853, Cl. 200-16.00D.

Nippon Oil Seal Industry Co., Ltd.: *See—*
Miura, Takeshi; and Yamamoto, Yasuo, 4,278,261, Cl. 277-153.000.

Nippon Stud Welding Co. Ltd.: *See—*
Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, 4,278,865, Cl. 219-99.000.

Nippon Zeon Co. Ltd.: *See—*
Sekiya, Masayoshi, 4,278,583, Cl. 260-29.70H.

Nippondenso Co., Ltd.: *See—*
Yasui, Toshio; and Naito, Motoharu, 4,278,971, Cl. 340-635.000.

Nira Nucleare Italiana Reattori Avanzati: *See—*
Avanzini, Pier G., 4,278,404, Cl. 417-50.000.

Nishikawa, Akio; Suzuki, Hiroshi; and Kohkame, Hisashi, to Hitachi, Ltd.; and Hitachi Chemical Co., Ltd. Thermosetting resin composition comprising epoxy compound and reaction product of unsaturated dicarboxylic acid anhydride and excess diamine. 4,278,780, Cl. 525-488.000.

Nishikawa, Masao: *See—*
Inoue, Hidehiko; Nishikawa, Masao; and Anno, Nobuo, 4,278,266, Cl. 280-276.000.

Nishimiya, Torazo; and Okumura, Masamitsu, to Hitachi, Ltd. Current-stroke proportional type solenoid valve. 4,278,959, Cl. 335-262.000.

Nishimura, Akimasa: *See—*
Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, 4,278,340, Cl. 354-195.000.

Nishino, Shinichi: *See—*
Nakano, Hiroshige; Katagiri, Shigenobu; and Nishino, Shinichi, 4,278,021, Cl. 101-93.290.

Nishioka, Takesaburo: *See—*
Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, 4,278,124, Cl. 164-125.000.

Nissan Motor Company, Limited: *See—*
Nakamura, Ken; Sugihara, Kunihiko; and Ishizawa, Shizuo, 4,278,063, Cl. 123-568.000.
Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, 4,278,299, Cl. 303-6.00C.
Yasuhara, Seishi; Tamazawa, Tsuyoshi; and Yamauchi, Katsuto, 4,278,407, Cl. 417-292.000.

Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, to Kureha Kagaku Kogyo Kabushiki Kaisha. Organic friction material. 4,278,584, Cl. 260-38.000.

Nojiro, Kikuo: *See—*
Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, 4,278,699, Cl. 426-624.000.

Nomori, Hiroyuki: *See—*
Goto, Satoshi; Takei, Yoshiaki; Imaho, Ichiro; and Nomori, Hiroyuki, 4,278,746, Cl. 430-59.000.

Noren, Kurt L. R.; and Noren, Lennart N. Apparatus for preparing a hot liquid medium, preferably warm or hot beverages, such as tea and coffee. 4,278,013, Cl. 99-288.000.

Noren, Lennart N.: *See—*
Noren, Kurt L. R.; and Noren, Lennart N., 4,278,013, Cl. 99-288.000.

Northern Telecom Limited: *See—*
Osborne, Brian T., 4,278,315, Cl. 339-113.00B.

Northrop Corporation: *See—*
Grohe, Lester R., 4,278,927, Cl. 318-721.000.

Norton, Robert H.: *See—*
Breckinridge, James B.; Norton, Robert H.; Schindler, Rudolf A.; and Frosch, Robert A., 4,278,351, Cl. 356-345.000.

Norton, William W.; and Boehmer, Henry, to Baxter Travenol Laboratories, Inc. Flexible collapsible container with a stiffening member. 4,278,198, Cl. 229-55.000.

Nossen, Edward J., to RCA Corporation. Range determining system. 4,278,977, Cl. 343-6.5LC.

Novitsky, Eduard G.: *See—*
Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V., 4,278,774, Cl. 525-100.000.

Nowak, Peter; and Rieger, Reinhard. Apparatus for maintaining a rotating member at a constant speed. 4,278,923, Cl. 318-302.000.

Nozawa, Tutomu: *See—*
Kametaka, Norio; Marumo, Kuniomi; and Nozawa, Tutomu, 4,278,820, Cl. 568-678.000.

Nozu, Toshihiro: *See—*
Mizuno, Suco; Nozu, Toshihiro; Kanaya, Yoshihiro; and Koumura, Masahiko, 4,278,862, Cl. 219-10.55B.

Nuesch, Jakob: *See—*
Trauler, Peter; Gruner, Johannes; and Nuesch, Jakob, 4,278,665, Cl. 424-181.000.

Numazawa, Akio; Matoba, Taketo; and Kida, Makoto, to Toyota Jidosha Kogyo Kabushiki Kaisha. Steering shaft support device. 4,277,984, Cl. 74-492.000.

Nyegaard & Co. A/S: *See—*
Rakli, Fridtjov B.; and Kelly, Michael J., 4,278,654, Cl. 424-5.000.

O. Mustad & Son A/S: *See—*
Huse, Per, 4,277,905, Cl. 43-4.000.

Oaten, Albert W., to International Business Machines Corporation. Print wire actuator block assembly for printers. 4,278,020, Cl. 101-93.050.

Oberg, Edwin T., to West End Glass Co. Limited. Glass cutting means. 4,277,889, Cl. 30-164.950.

O'Brien, John P.: *See—*
Allcock, Harry R.; Allen, Robert W.; and O'Brien, John P., 4,278,660, Cl. 424-78.000.

Ochiai, Michihiko; Morimoto, Akira; and Matsushita, Yoshihiro, to Takeda Chemical Industries, Ltd. 7-[2-(2-Aminothiazol-4-yl)-2-(syn)-methoxyiminoacetamido] cephalosporins. 4,278,671, Cl. 424-246.000.

O'Connell, Betty. Dance/gymnastic footlet. 4,277,897, Cl. 36-106.000.

O'Connor, Paul B.; and Pearson, Arthur D., to Bell Telephone Laboratories, Incorporated. Optical fiber fabrication method and apparatus. 4,278,458, Cl. 65-2.000.

Oda, Hajime; Fujita, Masanori; and Moritani, Nakanobu, to Kabushiki Kaisha Seikosha. Electronic timepiece. 4,279,029, Cl. 368-29.000.

Ogino, Yasuo: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.

Ogita, Minoru; and Takeyama, Masahiro, to Nippon Gakki Seizo Kabushiki Kaisha. Antenna input circuit for radio receiver. 4,278,980, Cl. 343-748.000.

Ogura, Katsuyuki: *See—*
Tsuchihashi, Genichi; Ogura, Katsuyuki; and Mitamura, Shuichi, 4,278,802, Cl. 549-72.000.

Ogura, Toshio, to Hitachi, Ltd. Magnetrons. 4,278,915, Cl. 315-39.710.

Ohdan, Kyoji: *See—*
Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, 4,278,614, Cl. 260-465.300.

Ohio Nuclear, Inc.: *See—*
Erker, Joseph W., 4,278,889, Cl. 250-445.00T.

Ohlson, Kjell F. Arrangement for suspending a pivoted side-board. 4,278,284, Cl. 296-36.000.

Ohno, Kenichi; Hosomizu, Tohru; and Nawata, Kazumasa, to Fujitsu Limited. Large scale semiconductor integrated circuit device. 4,278,897, Cl. 307-455.000.

Ohta, Takahiro: *See—*
Okamoto, Yoshihiko; Yoshizawa, Tamotu; Ohta, Takahiro; and Murata, Koichi, 4,278,347, Cl. 355-68.000.

Ohta, Takeo; Akahira, Nobuo; Nakamura, Tatsushi; and Yamashita, Tadaoki, to Matsushita Electric Industrial Co., Ltd. Optical information recording material and method of recording and reproducing information using same material. 4,278,734, Cl. 428-432.000.

Ohtsuki, Kazuhiko: *See—*
Yano, Kazuhiko; and Ohtsuki, Kazuhiko, 4,278,156, Cl. 192-48.910.

Okada, Yasuyuki: *See—*
Yamashita, Yoshiaki; Kambara, Hiroyuki; Kambayashi, Hiroaki; and Okada, Yasuyuki, 4,279,004, Cl. 360-48.000.

Okajima, Hidekazu: *See—*
Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, 4,278,340, Cl. 354-195.000.

Okamoto, Yoshihiko; Yoshizawa, Tamotu; Ohta, Takahiro; and Murata, Koichi, to Fuji Photo Film Co., Ltd. Cathode-ray tube image recording device. 4,278,347, Cl. 355-68.000.

Okamoto, Yoshiki: *See—*
Kimura, Yoshinori; Sunayama, Masuki; and Okamoto, Yoshiki, 4,278,975, Cl. 343-6.00R.

Okazaki, Seiji: *See—*
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Oki Electric Industry Co., Ltd.: *See—*
Yamashita, Yoshio; Kunishi, Mitsumasa; and Kawazu, Ryuji, 4,278,754, Cl. 430-323.000.

Okita, Taka-aki: *See—*
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,278,675, Cl. 424-253.000.

Okuda, Kensuke: *See—*
Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

Okumura, Masamitsu: *See—*
Nishimiya, Torazo; and Okumura, Masamitsu, 4,278,959, Cl. 335-262.000.

Okuyama, Genichiro: *See—*
Tezuka, Keizo; Okuyama, Genichiro; Tokunaga, Kazunobu; and Otani, Yasuhisa, 4,278,657, Cl. 424-63.000.

Okuyama, Takeshi: *See—*
Wakabayashi, Hiroshi; and Okuyama, Takeshi, 4,278,853, Cl. 200-16.00D.

Olin Corporation: *See—*
Chandalia, Kiran B.; and Barnowski, Henry G., 4,278,770, Cl. 521-99.000.
Dotson, Ronald L., 4,278,527, Cl. 204-272.000.
Kadija, Igor V., 4,278,524, Cl. 204-252.000.
Raynor, Robert J., 4,278,772, Cl. 521-110.000.

Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., to SKF Kugellagerfabriken GmbH. Linear motion bearing. 4,278,305, Cl. 308-6.00C.

Olschewski, Armin; Kunkel, Heinrich; Brandenstein, Manfred; and Schurger, Rainer, to SKF Kugellagerfabriken GmbH. Cage for a rolling bearing. 4,278,307, Cl. 308-201.000.

Olson, Douglas B.: *See—*
Calcote, Hartwell F.; and Olson, Douglas B., 4,278,441, Cl. 23-232.00E.

Olympus Optical Co., Ltd.: *See—*
Mizumoto, Morihide, 4,278,077, Cl. 128-4.000.
Tanaka, Masahiro; and Konoshima, Katunaga, 4,278,101, Cl. 134-167.00C.

Omagari, Masaharu: *See—*
Suzuki, Hitoshi; and Omagari, Masaharu, 4,278,297, Cl. 301-6.00D.

Omiya, Shoji: *See—*
Fujita, Makoto; Omiya, Shoji; and Hino, Izumi, 4,278,258, Cl. 369-36.000.

Omure, Yukio: *See—*
Hisamoto, Iwao; Enjo, Naonori; Maeda, Chiaki; Etaka, Takasige; Omure, Yukio; Iida, Toshihiko; and Aomi, Hideki, 4,278,552, Cl. 252-3.000.

O'Neal, James E., to Vernon E. Ramsey, Inc. Method of making wire-bound shipping carton. 4,277,878, Cl. 29-432.000.

Ono Pharmaceutical Co.: *See—*
Hayashi, Masaki; Shimoji, Katsuichi; and Arai, Yoshinobu, 4,278,688, Cl. 424-305.000.

Onodera, Bunei. Method of producing nutrient food by fermenting water oats with a *Bacillus subtilis* . 4,278,690, Cl. 426-52.000.

Onoye, Hideo: *See—*
Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, 4,279,005, Cl. 360-66.000.

Oofusa, Masaatsu: *See—*
Takahashi, Kihei; Terada, Seiko; and Oofusa, Masaatsu, 4,278,111, Cl. 139-35.000.

Ookubo, Kiyokazu: *See—*
Izumi, Seiji; and Ookubo, Kiyokazu, 4,277,983, Cl. 74-477.000.

Oory, Robert F.; and Arndt, Charles J., to Rotec Industries, Inc. Concrete discharge hopper. 4,278,190, Cl. 222-561.000.

Opp, Gerald R. Portable latch for gasoline nozzles. 4,278,116, Cl. 141-392.000.

Optical Coating Laboratory, Inc.: *See—*
Kamerling, Marc A., 4,278,736, Cl. 428-437.000.

Organization Control Services, Inc.: *See—*
Dorrance, William H., 4,278,650, Cl. 423-579.000.

Orson, Theodore, Sr., to Dielectrics Corporation. Spring operated clip. 4,277,864, Cl. 24-327.000.

Ortega, Robert, to Purex Corporation. Three port valve with drain passage. 4,278,109, Cl. 137-625.470.

Ortloff Corporation: *See—*
Campbell, Roy E.; and Wilkinson, John D., 4,278,457, Cl. 62-24.000.

Osborne, Brian T., to Northern Telecom Limited. System for interconnection of multiple insulated wires. 4,278,315, Cl. 339-113.00B.

Osment, David L. Method of constructing simulated vegetation for models. 4,278,481, Cl. 156-61.000.

Ostermayer, Frederick W., Jr., to Bell Telephone Laboratories, Incorporated. Optical inspection of gold surfaces. 4,278,353, Cl. 356-416.000.

Oswald, Leo A.: *See—*
Pistole, Robert G.; Stoll, Walter A.; and Oswald, Leo A., 4,278,490, Cl. 156-425.000.

Oswald, Norman D.; and Mankey, Harry S., to Standard Manufacturing Company, Incorporated. Undercarriage for adverse terrain vehicle. 4,278,140, Cl. 180-6.480.

Oswald, Norman D.; and Mankey, Harry S., to Standard Manufacturing Company, Incorporated. Undercarriage for adverse terrain vehicle. 4,278,141, Cl. 180-6.480.

Otani, Yasuhisa: *See—*
Tezuka, Keizo; Okuyama, Genichiro; Tokunaga, Kazunobu; and Otani, Yasuhisa, 4,278,657, Cl. 424-63.000.

Otsu, Shuichi: *See—*
Ozaki, Sei; and Otsu, Shuichi, 4,278,412, Cl. 425-198.000.

Otsuka, Shigenori: *See—*
Murayama, Tetsuo; Otsuka, Shigenori; and Tajima, Tsunemitsu, 4,278,747, Cl. 430-82.000.

Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of activating oxygen concentration cell. 4,278,509, Cl. 204-1.00T.

Outokumpu Oy: *See—*
Lilja, Launo L.; Makitalo, Valto J.; and Koivunen, Timo T., 4,278,494, Cl. 159-16.00A.
von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., 4,278,885, Cl. 250-370.000.

Owens, Charles A. Fluid pressure indicator switch apparatus. 4,278,856, Cl. 200-82.00R.

Owens-Corning Fiberglas Corporation: *See—*
Ahmad, Abu, 4,278,045, Cl. 118-323.000.
Chrisman, Max G.; Ganzala, Gary W.; and Tiede, Ralph L., 4,278,460, Cl. 65-134.000.
Marzocchi, Alfred; Roberts, Michael C.; and Bolen, Charles E., 4,278,470, Cl. 106-281.00R.
Pistole, Robert G.; Stoll, Walter A.; and Oswald, Leo A., 4,278,490, Cl. 156-425.000.
Shannon, Richard F., 4,278,720, Cl. 428-109.000.

Owens-Illinois, Inc.: *See—*
Pemberton, Ernest H.; Pezzin, John J.; Riggs, Darius O.; and Sorbie, Thomas B., 4,278,173, Cl. 209-522.000.

Oxenreider, Terry R.; and Bush, Herbert A., Jr., to General Battery Corporation. Manifold vented battery cover. 4,278,742, Cl. 429-88.000.

Oxford, Alexander W.: *See—*
Hartley, David; and Oxford, Alexander W., 4,278,673, Cl. 424-249.000.

Ozaki, Sei; and Otsu, Shuichi, to NGK Insulators, Ltd. Extrusion die assembly for forming honeycomb structures. 4,278,412, Cl. 425-198.000.

Palacio, Gerard: *See—*
Bessouat, Roger; Marjollet, Jacques; and Palacio, Gerard, 4,278,053, Cl. 122-488.000.

Pandrol Limited: *See—*
Miller, David W., 4,278,204, Cl. 238-349.000.

Panelfold Doors, Inc.: *See—*
Dixon, Guy E., 4,277,920, Cl. 52-64.000.

Paranjpe, Suresh C.: *See—*
Ganguly, Biswa N.; and Paranjpe, Suresh C., 4,278,999, Cl. 358-213.000.

Pardoe, John A., to United Kingdom Atomic Energy Authority. Forming of materials by extrusion. 4,277,968, Cl. 72-262.000.

Parker, Sidney A., to Lennox Industries, Inc. Twin compressor mechanism in one enclosure. 4,277,955, Cl. 62-510.000.

Parquet, Donald J., to J. I. Case Company. Automatic hydraulic shut-off system. 4,278,011, Cl. 91-445.000.

Parr, Alta M.: *See—*
Crabb, Elmer R.; and Parr, Alta M., 4,277,964, Cl. 70-484.000.

Partus, Fred P., to Western Electric Company, Inc. Method and apparatus for exhausting optical fiber preform tubes. 4,278,459, Cl. 65-18.000.

Pasqualucci, Carmine: *See—*
Cesti, Pietro; Marsili, Leonardo; and Pasqualucci, Carmine, 4,278,792, Cl. 542-420.000.

Patel, Laxmidas R.: *See—*
Jakabhazy, Stephen Z.; and Patel, Laxmidas R., 4,278,777, Cl. 525-276.000.

Patel, Raman: *See—*
Coran, Aubert Y.; and Patel, Raman, 4,278,572, Cl. 260-3.000.

Patrick, John P.: *See—*
Harner, Kermit I.; and Patrick, John P., 4,277,940, Cl. 60-243.000.

Paurat, Friedrich-Wilhelm; and Paurat, Roland. Apparatus for advancing a low-height drift through a subterranean structure. 4,278,293, Cl. 299-31.000.

Paurat, Roland: *See—*
Paurat, Friedrich-Wilhelm; and Paurat, Roland, 4,278,293, Cl. 299-31.000.

Pavlova, Maria M.: *See—*
Petrov, Nikolov Y.; Pavlova, Maria M.; and Bojkov, Ognyan D., 4,278,641, Cl. 423-49.000.

Payne, Kenneth L.: *See—*
Specht, Donald P.; Payne, Kenneth L.; and Farid, Samir Y., 4,278,751, Cl. 430-281.000.

Pearlstein, Fred; and Evans, Carroll F., to United States of America, Army. Method for removal of sodium carbonate from cyanide plating baths. 4,278,515, Cl. 204-55.00Y.

Pearson, Arthur D.: *See—*
O'Connor, Paul B.; and Pearson, Arthur D., 4,278,458, Cl. 65-2.000.

Pearson, Daniel E.: *See—*
Clifford, James A.; and Pearson, Daniel E., 4,278,988, Cl. 357-51.000.

Peck, David W.: *See—*
Boros, Eugene J.; and Peck, David W., 4,278,807, Cl. 560-134.000.

Pelino, William M., to ACR Electronics, Inc. Method and apparatus for testing survival radios. 4,278,979, Cl. 343-703.000.

Pelloni, Luciano: *See—*
Jacob, Gernot; and Pelloni, Luciano, 4,278,522, Cl. 204-228.000.

Pelrine, Bruce P., to Mobil Oil Corporation. Method for modifying the shape selectivity of ferrierite. 4,278,564, Cl. 252-450.000.

Pemberton, Ernest H.; Pezzin, John J.; Riggs, Darius O.; and Sorbie, Thomas B., to Owens-Illinois, Inc. Combined plug and air warp neck finish gauge. 4,278,173, Cl. 209-522.000.

Pendleton, Claude A.: *See—*
Coats, Montgomery R.; Pendleton, Turner C., deceased; and Pendleton, Reine H., 4,277,980, Cl. 73-646.000.

Pendleton, Reine H.: *See—*
Coats, Montgomery R.; Pendleton, Turner C., deceased; and Pendleton, Reine H., 4,277,980, Cl. 73-646.000.

Pendleton, Turner C., deceased: *See—*
Coats, Montgomery R.; Pendleton, Turner C., deceased; and Pendleton, Reine H., 4,277,980, Cl. 73-646.000.

Pennington, Chester R., to Timber Products Inspection & Testing Service. Quality control stamping hammer. 4,278,024, Cl. 101-405.000.

Pentapharm AG: *See—*
Svendsen, Lars G., 4,278,762, Cl. 435-13.000.

Pereman, Gordon F.; and Kellar, John D., to PPG Industries, Inc. Glass breaking and separating apparatus and method. 4,278,193, Cl. 225-2.000.

Perethian, Charles M.: *See—*
Cummings, Kenneth W.; and Perethian, Charles M., 4,278,285, Cl. 296-78.100.

Perez, Sergio J. Double ten cigarette dispenser. 4,278,185, Cl. 221-104.000.

Perin, Philippe, to Fiat Trattori S.p.A. Reversible driving station for tractor vehicle. 4,278,144, Cl. 180-329.000.

Persson, Torsten B., to Scan-Web i/s. Method and apparatus for distributing a disintegrated material onto a layer forming surface. 4,278,113, Cl. 141-1.000.

Peter, Donald: *See—*
Hooper, David C.; Johnson, George A.; and Peter, Donald, 4,278,658, Cl. 424-65.000.

Peterson, David: *See—*
Halle, Reidar; and Peterson, David, 4,278,612, Cl. 260-453.0RZ.

Peterson, Gunnar S. S., to Sepson Aktiebolag. Vehicle winch. 4,278,239, Cl. 254-323.000.

Petrides, Christie, to General Electric Company. Temperature-responsive control means. 4,278,873, Cl. 219-501.000.

Petrov, Nikolov Y.; Pavlova, Maria M.; and Bojkov, Ognyan D., to Institute Po Obshta I Neorganichna Chimia. Method for extracting rhenium and tungsten from wastes of rhenium-tungsten alloys. 4,278,641, Cl. 423-49.000.

Petvai, Steve I., to International Business Machines Corporation. Method for cleaning surfaces by ion milling. 4,278,493, Cl. 156-643.000.

Peyrelongue, Jean-Pierre: *See—*
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.

Pezzin, John J.: *See—*
Pemberton, Ernest H.; Pezzin, John J.; Riggs, Darius O.; and Sorbie, Thomas B., 4,278,173, Cl. 209-522.000.

Pfeiffer, Ronald E., to American Cyanamid Company. Apparatus for melt spinning hollow fibers. 4,278,415, Cl. 425-466.000.

Pfleiderer, Ernst: *See—*
Monsheimer, Rolf; and Pfleiderer, Ernst, 4,278,432, Cl. 8-94.180.

Pfund, Charles E. Secure communication system. 4,279,036, Cl. 455-606.000.

Phelps, Dennis B. Inclined vial holder. 4,278,225, Cl. 248-311.300.

Philip Morris Incorporated: *See—*
Thatcher, Richard E., 4,278,100, Cl. 131-196.000.

Phillippi, Richard M.: *See—*
Drzewiecki, Tadeusz M.; and Phillippi, Richard M., 4,277,971, Cl. 73-55.000.

Phillips Petroleum Company: *See—*
Irvin, Howard B., 4,278,506, Cl. 203-68.000.
Stacy, Carl J.; and Louthan, Rector P., 4,278,585, Cl. 260-42.150.

Pickett, Teddy L.; Ignacio, Isidro D.; and Rojas, Marco, to United States of America, Agriculture. Machine for planting containerized tree and shrub seedlings. 4,278,035, Cl. 111-2.000.

Pike, Clinton B. Furnace. 4,278,067, Cl. 126-152.00R.

Pilette, Yvan P.: *See—*
Gervay, Joseph E.; and Pilette, Yvan P., 4,278,752, Cl. 430-281.000.

Pinkham, Clinton L., to General Electric Company. Digital thermometer. 4,277,975, Cl. 73-362.0AR.

Pioneer Electronic Corporation: *See—*
Ishida, Kohji, 4,278,944, Cl. 329-103.000.

Pirro, Michael S., Jr. Accumulator conveyor. 4,278,166, Cl. 198-781.000.

Pistole, Robert G.; Stoll, Walter A.; and Oswald, Leo A., to Owens-Corning Fiberglas Corporation. Sleeve for changing diameter of collapsible mandrel. 4,278,490, Cl. 156-425.000.

Piston, Albert O.; and Sherk, Thomas A., to International Business Machines Corporation. Modified conductor array for plasma display panel. 4,278,909, Cl. 313-217.000.

Pitre, Davide: *See—*
Felder, Ernst; and Pitre, Davide, 4,278,808, Cl. 560-183.000.

Platone, Edoardo: *See—*
Faggian, Lucio; and Platone, Edoardo, 4,278,602, Cl. 260-345.100.

Pohland, Hermann W.: *See—*
Bettinger, George E.; Pohland, Hermann W.; and Applegate, Lynn E., 4,278,548, Cl. 210-636.000.

Polaroid Corporation: *See—*
Haas, Howard C.; Jasne, Stanley J.; and Moreau, Robert D., 4,278,803, Cl. 556-419.000.
Sachdev, Krishna G., 4,278,814, Cl. 564-160.000.

Poler, Stanley. Intraocular lens with astigmatism correction. 4,277,852, Cl. 3-13.000.

Politechnika Gdanska: *See—*
Doerffer, Jerzy; Madey, Jerzy; Kozlowski, Jan; and Niepiekto, Andrzej, 4,278,040, Cl. 114-170.000.

Pont-A-Mousson S.A.: *See—*
Tosi, Pierre G., 4,278,152, Cl. 188-71.900.

Pope, J. Lee, Jr., to Baxter Travenol Laboratories, Inc. Non air-blocking filter. 4,278,084, Cl. 128-214.00R.

Poppe, Lawrence J.: *See—*
Hathaway, John C.; and Poppe, Lawrence J., 4,278,883, Cl. 250-277.0CH.

Porinchak, Joseph F.: *See—*
Brax, Harri J.; Porinchak, Joseph F.; and Weinberg, Alan S., 4,278,738, Cl. 428-515.000.

Portnoff, Lawrence A. Device for cutting multiple plies of material. 4,277,890, Cl. 30-273.000.

Poss, Glen. Portable sauna. 4,277,855, Cl. 4-524.000.

Post Office, The: *See—*
Huggins, Ernest E. J., 4,278,931, Cl. 324-52.000.
Jackson, Lynden A., 4,278,835, Cl. 174-70.00R.

Postema, Leonard F.: *See—*
Joppe, R. Brent; and Postema, Leonard F., 4,278,247, Cl. 272-56.50R.

Poteet, William C.; Terry, Claude E.; Hamrick, Glen F.; and Walls, Francis G., to Custom Coating, Inc. Apparatus and method for production of polyurethane carpet backing. 4,278,482, Cl. 156-78.000.

Povero, Mario, to Fiat Auto S.p.A. Device for the reduction of the emission of pollutant gases produced by internal combustion, spark-ignition, engines for motor vehicles. 4,277,941, Cl. 60-307.000.

Powell, Justin C., to Texaco Inc. Process for preparing an alkenyl-substituted dicarboxylic acid anhydride. 4,278,604, Cl. 260-346.740.

Powell, Roger A. Solar energy conversion apparatus. 4,278,829, Cl. 136-248.000.

Power, Claude S.: *See—*
Birch, Peter R.; Ling, Kenneth V.; Power, Claude S.; Robinson, Alan J.; Mahoney, Terrence G.; and Las-Laskowski, Stanislaw F., 4,278,532, Cl. 209-19.000.

PPG Industries, Inc.: *See—*
Millhoan, William H., 4,278,171, Cl. 206-451.000.
Pereman, Gordon F.; and Kellar, John D., 4,278,193, Cl. 225-2.000.

Prefco Products, Inc.: *See—*
McCabe, Francis J., 4,277,870, Cl. 29-157.00R.

Preudent and Fellows of Harvard College: *See—*
Hastings, John W.; and Tu, Shiao-Chun, 4,278,761, Cl. 435-8.000.

Price, Ernest H.; and Howard, Douglas C. Demand responsive flow controller. 4,278,110, Cl. 137-805.000.

Priepke, Edward H., to Sperry Corporation. Forage harvester feed roll mounting mechanism. 4,278,210, Cl. 241-222.000.

Princeton Polymer: *See—*
Hudgin, Richard H., 4,278,721, Cl. 428-122.000.

Procter & Gamble Company, The: *See—*
Choy, Clement K., 4,278,571, Cl. 252-558.000.

Prosser, Barbara: *See—*
Liu, Chao-Min; Prosser, Barbara; and Westley, John, 4,278,663, Cl. 424-119.000.

Prussin, Samuel B., to AE Development Corporation. Non-pressurized dispensing system. 4,278,206, Cl. 239-327.000.

Prydtz, Ole: *See—*
Nielsen, Jacob A.; and Prydtz, Ole, 4,278,165, Cl. 198-365.000.

Puch, Diethelm: *See—*
Zahner, Peter; and Puch, Diethelm, 4,278,358, Cl. 400-144.200.

Puckette, Charles M., to General Electric Company. Adaptive input circuit. 4,277,978, Cl. 73-632.000.

Pullman Incorporated: *See—*
Knippel, Willis H., 4,278,382, Cl. 414-388.000.

Puls, Walter: *See—*
Stoltefuss, Jurgen; Muller, Lutz; Puls, Walter; and Sitt, Rudiger, 4,278,683, Cl. 424-267.000.

Pundsack, Arnold L.: *See—*
Vincett, Paul S.; Pundsack, Arnold L.; Hunter, Robert K., Jr.; and McCrary, Wylee D., 4,278,335, Cl. 354-3.000.

Purex Corporation: *See—*
Ortega, Robert, 4,278,109, Cl. 137-625.470.

Pyle, Stoddard H.: *See—*
Mayo, George L., 4,277,998, Cl. 83-404.100.

Quaintance, Peter V. C.: *See—*
Eade, Robert A.; and Quaintance, Peter V. C., 4,278,145, Cl. 181-30.000.

Queen's University at Kingston: *See—*
Romero-Sierra, Cesar; and Webb, John C., 4,278,715, Cl. 428-22.000.

Quick, Leonard M.: *See—*
Hensley, Albert L., Jr.; Quick, Leonard M.; and Hopkins, P. Donald, 4,278,566, Cl. 252-465.000.

Quigg, Paul S.: *See—*
Selbe, Rexford L.; Waropay, Vincent M.; Quigg, Paul S.; and Reily, William S., 4,278,468, Cl. 106-111.000.

Quintel Corporation: *See—*
Funk, Ernest J.; Wing, Thomas; Lane, Jack C.; and Westbrook, Edward S., IV, 4,278,348, Cl. 355-73.000.

R. A. Pearson Company: *See—*
Campbell, Barry, 4,277,932, Cl. 53-497.000.

R. W. Beckett Corporation: *See—*
Cooperrider, Myron T., 4,278,406, Cl. 417-199.00A.

Radelet, Reginald P.: *See—*
Bergman, Fred S.; and Radelet, Reginald P., 4,278,237, Cl. 254-134.3PA.

Radiation Dynamics, Inc.: *See—*
Bjellqvist, Beagt; Reitberger, Torbjorn; and Morganstern, Kennard H., 4,278,518, Cl. 204-159.200.

Rady, Robert R., to Indian Head Inc. Conduit cutting apparatus. 4,277,887, Cl. 30-92.000.

Rahman, Michael, to Envirotech Corporation. Humidifier. 4,278,617, Cl. 261-30.000.

Raidel, John E. Suspension system with central elastomer spring. 4,278,271, Cl. 280-687.000.

Rainsfords Metal Products Pty. Ltd.: *See—*
Heath, Robert B., 4,278,043, Cl. 116-28.00R.

Rainwater, Richard C. Toy with staggering motion. 4,277,909, Cl. 46-103.000.

Rakli, Fridtjov B.; and Kelly, Michael J., to Nyegaard & Co. A/S. Process for the preparation of a sterile injectable physiologically acceptable solution of an X-ray contrast agent and solutions of the X-ray contrast agent and a buffer. 4,278,654, Cl. 424-5.000.

Ralston Purina Company: *See—*
Cho, Iue C.; Frederiksen, Christopher W.; and Hoer, Ralph A., 4,278,597, Cl. 260-123.500.

Rambauske, Werner R., to Raytheon Company. Method of manufacturing a foraminous plate. 4,277,966, Cl. 72-148.000.

Rammer, William L.; and Swanson, Paul D., to Badger Northland Inc. Manure transfer pump. 4,278,408, Cl. 417-551.000.

Ranco Incorporated: *See—*
Rossi, Guglielmo, 4,278,855, Cl. 200-67.00D.

Ranken, Paul F.: *See—*
Zaiko, Edward J.; and Ranken, Paul F., 4,278,516, Cl. 204-158.0HA.

Rankin, E. Edward. Apparatus for retrieving drill collars. 4,278,127, Cl. 166-63.000.

Rappas, Alkis S.; Menashi, Jameel; and Douglas, Donald A., to Cabot Corporation. Process for partitioning Mo and W from a mixed $CaMoO_4$-$CaWO_4$ precipitate. 4,278,644, Cl. 423-58.000.

Raschka, Wolfgang: *See—*
Bardenhagen, Dietrich; Raschka, Wolfgang; Glosmann, Josef; and Tolasch, Gerhard, 4,278,385, Cl. 414-419.000.

Rashbaum, Abraham. Lockable automobile trunk extension. 4,278,280, Cl. 292-263.000.

Rasmussen, John F.: *See—*
Schroeder, James E.; and Rasmussen, John F., 4,278,961, Cl. 338-21.000.

Rationator-Maschinenbau GmbH: *See—*
Schindel, Hugo, 4,277,929, Cl. 53-331.500.

Rautala, Pekka: *See—*
von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., 4,278,885, Cl. 250-370.000.

Rawle, Michael D.; and Marshall, Peter E. G., to BL Cars Limited. Hub alignment. 4,278,350, Cl. 356-155.000.

Rawls, Rose M.: *See—*
Anderson, Edward A.; Rawls, Rose M.; and Tull, James A., 4,278,479, Cl. 148-23.000.

Ray, Albert D.: *See—*
Kelley, Charles H.; Crane, Jimmie W.; and Ray, Albert D., 4,278,102, Cl. 137-39.000.

Ray, Gene S. Skier's warning device. 4,278,274, Cl. 280-821.000.

Raynor, Robert J., to Olin Corporation. Semi-flexible foam polymer used in packaging. 4,278,772, Cl. 521-110.000.

Raytheon Company: *See—*
Kaplan, Steven H., 4,277,883, Cl. 29-571.000.
Rambauske, Werner R., 4,277,966, Cl. 72-148.000.

RBU, Reaktor-Brennelment Union GmbH: *See—*
Sondermann, Thomas, 4,278,560, Cl. 252-301.10R.

RCA Corporation: *See—*
Christopher, Todd J., 4,278,992, Cl. 358-13.000.
Fukazawa, Kazuo; and Yamada, Akira, 4,278,846, Cl. 369-128.000.
Hsu, Sheng T., 4,277,884, Cl. 29-571.000.
Kaplan, Leonard A., 4,278,946, Cl. 330-288.000.
Nossen, Edward J., 4,278,977, Cl. 343-6.5LC.
Vilkomerson, David H. R.; and Mezrich, Reuben S., 4,277,979, Cl. 73-633.000.
White, Lawrence K.; Comizzoli, Robert B.; and Schnable, George L., 4,278,508, Cl. 204-1.00T.
Williams, Brown F., 4,278,704, Cl. 427-75.000.

Reagan, William J.: *See—*
Chen, Nai Y.; and Reagan, William J., 4,278,565, Cl. 252-455.00Z.

Reale, Lucio V. Furnace. 4,278,034, Cl. 110-234.000.

Rebentisch, Hugo E.; and Irish, Ellwood, to Unistrut Corporation. Support pedestal assembly for a raised floor system. 4,277,923, Cl. 52-126.000.

Rebentisch, Hugo E.; and Tuday, Thomas, to GTE Products Corporation. Collapsible support structures. 4,278,228, Cl. 248-548.000.

Rebentish, Boris A.: *See—*
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Rebish, Edward J.: *See—*
Goss, Harold R.; and Rebish, Edward J., 4,278,123, Cl. 164-28.000.

Reedrill, Inc.: *See—*
Curington, Alfred R., 4,278,135, Cl. 173-29.000.

Reeves, William G.; and Thomas, Douglas C., to Kimberly-Clark Corporation. Bag tampon containing discrete pieces of absorbent. 4,278,088, Cl. 128-270.000.

Regan, Robert J.; and Haugsjaa, Paul O., to GTE Laboratories Incorporated. Instant-on light source. 4,278,916, Cl. 315-92.000.

Regehr, Ulrich. Separator apparatus for evaporator plant. 4,278,495, Cl. 159-27.00A.

Regennitter, Jack; and Ward, Ronald C., to Regennitter, Jack. Multiple station temperature monitor system. 4,278,841, Cl. 179-5.00R.

Regie Nationale des Usines Renault: *See—*
Roubinet, Pierre; and Goupy, Marcel, 4,278,282, Cl. 293-132.000.

Regueiro, Jose F., to Deere & Company. Fuel control system for a dual-fueled power unit. 4,278,064, Cl. 123-577.000.

Reid, John H. Conservation of momentum in a barrier oxidation ditch. 4,278,547, Cl. 210-629.000.

Reily, William S.: *See—*
Selbe, Rexford L.; Waropay, Vincent M.; Quigg, Paul S.; and Reily, William S., 4,278,468, Cl. 106-111.000.

Reinhold, Earl R., to Amchem Products, Inc. Metal treatment. 4,278,477, Cl. 148-6.14R.

Reinicke, Helmut: *See—*
Hiller, Heinrich; Eilingsfeld, Heinz; Reinicke, Helmut; and Traub, Fritz, 4,278,606, Cl. 260-380.000.

Reino International Corporation: *See—*
Lin, Pin-Houn, 4,278,962, Cl. 340-34.000.

Reinshagen, Hellmuth: *See—*
Egger, Helmut; and Reinshagen, Hellmuth, 4,278,674, Cl. 424-250.000.

Reitberger, Torbjorn: *See—*
Bjellqvist, Bengt; Reitberger, Torbjorn; and Morganstern, Kennard H., 4,278,518, Cl. 204-159.200.

Reli Corporation: *See—*
Woods, Richard E., 4,278,969, Cl. 340-576.000.

Remo Inc.: *See—*
Hanson, Donald L., 4,278,003, Cl. 84-411.00A.

Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, to BASF Aktiengesellschaft. γ-Azolyl compounds, agents containing them for regulating plant growth, and the manufacture thereof. 4,278,800, Cl. 548-262.000.

Research Corporation: *See—*
Allcock, Harry R.; Allen, Robert W.; and O'Brien, John P., 4,278,660, Cl. 424-78.000.

Research-Cottrell, Inc.: *See—*
Lefevre, Marcel R., 4,278,620, Cl. 261-109.000.

Reynolds, Charles R.: *See—*
Blomquist, Robert E.; and Reynolds, Charles R., 4,278,381, Cl. 414-349.000.

Rheinmetall GmbH: *See—*
von Seidlitz, Henning, 4,278,007, Cl. 89-24.000.

Rhode, James B., to United States of America, Navy. Frequency comparator for electronic clocks. 4,278,898, Cl. 307-528.000.

Richter Gedeon Vegyeszeti Gyar Rt.: *See—*
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, 4,278,682, Cl. 424-267.000.

Richter, Stefan. Spacer for the bricks of a facing brickwork to be placed in front of an inner brickwork. 4,277,927, Cl. 52-749.000.

Ricoh Co., Ltd.: *See—*
Kurokawa, Junji, 4,278,343, Cl. 355-10.000.

Ridenour, Ralph G. Tubing joint assembly method. 4,277,879, Cl. 29-508.000.

Rider, Ronald E., to Xerox Corporation. Adapter for raster output scanning printer. 4,279,002, Cl. 358-257.000.

Rieck, Kenneth H. Checkrein releasable latching mechanism. 4,277,934, Cl. 54-70.000.

Rieger, Reinhard: *See—*
Nowak, Peter; and Rieger, Reinhard, 4,278,923, Cl. 318-302.000.

Riemer, Dietrich E.; and Corwin, Rudolph E., to Boeing Company, The. Process for fabricating solar cells and the product produced thereby. 4,278,831, Cl. 136-256.000.

Riggs, Darius O.: *See—*
Pemberton, Ernest H.; Pezzin, John J.; Riggs, Darius O.; and Sorbie, Thomas B., 4,278,173, Cl. 209-522.000.

Riley, Richard E.; and Turner, Bradley D., to Spectrol Electronics Corp. Cermet resistor and method of making same. 4,278,725, Cl. 428-208.000.

Rinnai Kabushiki Kaisha: *See—*
Mizuno, Sueo; Nozu, Toshihiro; Kanaya, Yoshihiro; and Koumura, Masahiko, 4,278,862, Cl. 219-10.55B.

Ritchie, Ronald J.; and Andrews, Daniel M., to Burroughs Corporation. IC Package with heat sink and minimal cross-sectional area. 4,278,991, Cl. 357-81.000.

Rittscher, Dieter: *See—*
Baatz, Heinrich; and Rittscher, Dieter, 4,278,892, Cl. 250-506.000.

Rizzo, Joseph F.; and Rudisill, John A., Jr., to Bell Telephone Laboratories, Incorporated. Automatically adjustable bidirectional-to-unidirectional transmission network. 4,278,848, Cl. 179-170.00D.

Robbins, John D.: *See—*
Netravali, Arun N.; Robbins, John D.; and Stuller, John A., 4,278,996, Cl. 358-136.000.

Robbins, Robert J.: *See—*
See, Gary G.; and Robbins, Robert J., 4,279,021, Cl. 364-900.000.

Robert Bosch GmbH: *See—*
Berner, Walter, 4,278,058, Cl. 123-387.000.
Werner, Peter; and Drews, Ulrich, 4,278,061, Cl. 123-483.000.

Robert Bosch Verpackungsmaschinen GmbH: *See—*
Buchner, Norbert; and Liede, Dieter, 4,278,716, Cl. 428-35.000.

Roberts, Michael C.: *See—*
Marzocchi, Alfred; Roberts, Michael C.; and Bolen, Charles E., 4,278,470, Cl. 106-281.00R.

Roberts, Wayne R.: *See—*
Mayo, George L., 4,277,998, Cl. 83-404.100.

Robertshaw Controls Company: *See—*
Bechtel, Jon H.; and Geary, Frederick J., 4,278,419, Cl. 431-24.000.

Robertson, George H.: *See—*
Wheeler, Ian R.; Robertson, George H.; and McGregor, David, 4,278,601, Cl. 260-314.500.

Robinson, Alan J.: *See—*
Birch, Peter R.; Ling, Kenneth V.; Power, Claude S.; Robinson, Alan J.; Mahoney, Terrence G.; and Las-Laskowski, Stanislaw F., 4,278,532, Cl. 209-19.000.

Robinson, Ralph L., Jr.: *See—*
Edelman, Brian S.; and Robinson, Ralph L., Jr., 4,279,015, Cl. 364-200.000.

Rochling-Burbach Weiterverarbeitung GmbH: *See—*
Jakobs, Ewald; and Lang, Gernot, 4,278,369, Cl. 407-113.000.

Rockwell-Golde, G.m.b.H.: *See—*
Grebe, Karl, 4,278,922, Cl. 318-264.000.

Rockwell International Corporation: *See—*
Godejahn, Gordon C., Jr., 4,277,881, Cl. 29-571.000.
Kostello, Edward M.; and Schulte, Kenneth L., Jr., 4,277,985, Cl. 74-713.000.

Rodriguez, Edward: *See—*
Batutis, Edward F.; Rodriguez, Edward; and Kugler, Walter R., 4,278,545, Cl. 210-521.000.

Roesler, Frank C., deceased (by Roesler, Johanna, executrix), to Imperial Chemical Industries Limited. Treatment of a liquid by circulation and gas contacting. 4,278,546, Cl. 210-626.000.

Roesler, Johanna, executrix: *See—*
Roesler, Frank C., deceased, 4,278,546, Cl. 210-626.000.

Rogers, Robert G., to GTE Automatic Electric Laboratories, Inc. Current sensing circuit for power supply with series control transistor. 4,278,930, Cl. 323-285.000.

Rohm GmbH: *See—*
Moench, Theodor P.; and Hanstein, Friedrich, 4,278,723, Cl. 428-192.000.
Monsheimer, Rolf; and Pfleiderer, Ernst, 4,278,432, Cl. 8-94.180.

Rohm and Haas Company: *See—*
Goldman, Theodore D., 4,278,576, Cl. 260-23.0AR.

Rojas, Marco: *See—*
Pickett, Teddy L.; Ignacio, Isidro D.; and Rojas, Marco, 4,278,035, Cl. 111-2.000.

Romero-Sierra, Cesar; and Webb, John C., to Queen's University at Kingston. Preservation of green plant tissues. 4,278,715, Cl. 428-22.000.

Rommag P. Worwag & Co.: *See—*
Hug, Niklaus, 4,278,456, Cl. 55-429.000.

Rosen, Julius S., to American Optical Corporation. Quick-release clamp for microtomes. 4,278,263, Cl. 279-1.00R.

Rosenfeld, Jerold C., to Hooker Chemicals & Plastics Corp. Polyester composition, process therefor and molded articles therefrom. 4,278,785, Cl. 528-176.000.

Rossell, John B.: *See—*
Barents, Roelof H.; and Rossell, John B., 4,278,700, Cl. 426-660.000.

Rossi, Guglielmo, to Ranco Incorporated. Snap action switch. 4,278,855, Cl. 200-67.00D.

Rotec Industries, Inc.: *See—*
Oory, Robert F.; and Arndt, Charles J., 4,278,190, Cl. 222-561.000.

Roth, Helmut; and Farrell, Terry J., to Chrysler Corporation. Temperature controlled viscous fan drive. 4,278,159, Cl. 192-58.00B.

Roth, Johann, to Braun Aktiengesellschaft. Camera with action indicator. 4,278,333, Cl. 352-170.000.

Rother, Heinz-Joachim: *See—*
Botta, Artur; Rother, Heinz-Joachim; and Teichmann, Gunther, 4,278,791, Cl. 542-412.000.

Rottigni, Claudio; and Cardini, Giuliano, to Euteco Impianti S.p.A. Process for preparing citric acid by fermentation of carbohydrates. 4,278,764, Cl. 435-144.000.

Roubinet, Pierre; and Goupy, Marcel, to Regie Nationale des Usines Renault. Elastic guard braces for attaching bumpers to automobiles. 4,278,282, Cl. 293-132.000.

Roussel Uclaf: *See—*
Nedelec, Lucien; Guillaume, Jacques; and Dumont, Claude, 4,278,677, Cl. 424-263.000.

Rowe, Harrison E.: *See—*
Mack, Iris M.; Rowe, Harrison E.; and Schmidt, Ronald V., 4,278,321, Cl. 350-96.120.

Rowland, Keith L.: *See—*
Cameron, Larry E.; Cook, Kenneth J.; Neff, Vance E.; and Rowland, Keith L., 4,279,013, Cl. 364-105.000.

Rowley, David S.; Aumann, James T.; and Waldes, Lothar H., to Christensen, Inc. Composite heavy metal drill collar. 4,278,138, Cl. 175-320.000.

Rozinov, Mikhail N.: *See—*
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Ruberg, Richardt E., to Zyliss Zysset AG. Kitchen appliance for storing perishable goods. 4,278,114, Cl. 141-65.000.

Rubruck, Manfred, to Siemens Aktiengesellschaft. Control arrangement for a roll carrier. 4,278,213, Cl. 242-75.100.

Rudd, Wallace C.; and Udall, Humfrey N., to Thermatool Corp. Methods and apparatus for heating metal parts with magnetically driven travelling electric arc. 4,278,868, Cl. 219-123.000.

Rudisill, John A., Jr.: *See—*
Rizzo, Joseph F.; and Rudisill, John A., Jr., 4,278,848, Cl. 179-170.00D.

Ruoff, Carl F., Jr., to Bendix Corporation, The. Method and apparatus for generating position or path control programs using force feedback. 4,278,920, Cl. 318-2.000.

Rushforth, Harold E. Golf tee awl and awl retaining sheath. 4,277,892, Cl. 30-368.000.

Rutten, Leon, to Cockerill. Centrifugal shotting turbine. 4,277,965, Cl. 72-53.000.

Ryan, Edward W.: *See*—
Johnston, Everett A.; and Ryan, Edward W., 4,278,220, Cl. 244-110.00B.

Ryan, Thomas L.; and Kalisz, George T., to Rykal Solar Corporation. Forced air solar heating system. 4,278,072, Cl. 126-429.000.

Rykal Solar Corporation: *See*—
Ryan, Thomas L.; and Kalisz, George T., 4,278,072, Cl. 126-429.000.

S K M, Societe Anonyme: *See*—
Binoche, Michel, 4,278,205, Cl. 239-75.000.

S. K. Wellman Corp., The: *See*—
Frichette, Ross S.; Grambo, Ronald E.; Biggs, Robert W.; and Healy, Thomas A., deceased, 4,278,162, Cl. 192-107.00C.

Sachdev, Krishna G., to Polaroid Corporation. Preparation of 2-methylene-1,3-propanediamide by a fluoride anion-initiated β-elimination reaction. 4,278,814, Cl. 564-160.000.

Sackett, Willard A.: *See*—
Eis, Frederick G.; Bonney, Oren V.; and Sackett, Willard A., 4,278,541, Cl. 210-112.000.

Sagami Chemical Research Center: *See*—
Tsuchihashi, Genichi; Ogura, Katsuyuki; and Mitamura, Shuichi, 4,278,802, Cl. 549-72.000.

Sahay, Ravi B., to Xerox Corporation. Recirculating duplex documents copier. 4,278,344, Cl. 355-14.0SH.

Saijo, Takao: *See*—
Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, 4,278,346, Cl. 355-45.000.

Saito, Shigeo; and Tsunooka, Tsutomu, to NGK Spark Plug Co., Ltd. Piezoelectric transducer for electrical string instruments and pickup means comprising the same. 4,278,000, Cl. 84-1.160.

Saito, Takanori: *See*—
Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, 4,278,346, Cl. 355-45.000.

Saizi, Mituhiro: *See*—
Masuzawa, Sigeaki; and Saizi, Mituhiro, 4,279,030, Cl. 368-63.000.

Sakai, Junji: *See*—
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Sakai, Katzuji: *See*—
Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, 4,278,452, Cl. 55-261.000.

Sakassi, Masao: *See*—
Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, 4,278,678, Cl. 424-263.000.

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Salon, Guy: *See*—
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.

Saltz, Ivan K.: *See*—
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Iijima, Tokuzo; Samejima, Yasushi; Kishimoto, Kazuo; Komabashiri, Takamichi; and Kano, Toshiji, 4,278,526, Cl. 204-266.000.

Sandberg, Nils A., to Ingenjorsfirman N. A. Sandberg Industrikonstruktioner AB; and Trelleborg AB. Control system for controlling a plant including a mobile suction device for sucking suspendible material. 4,278,365, Cl. 406-30.000.

Sander, Lars, to Asea Aktiebolag. Fiber optical temperature sensors. 4,278,349, Cl. 356-44.000.

Sando Iron Works Co. Ltd.: *See*—
Sando, Yoshikazu; and Ishidoshiro, Hiroshi, 4,277,860, Cl. 8-151.000.

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Egger, Helmut; and Reinshagen, Helmuth, 4,278,674, Cl. 424-250.000.

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Nagai, Sumiyoshi; and Izumi, Tokio, 4,278,656, Cl. 424-62.000.

Santhanam, Chakra J.; and Nadkarni, Ravindra M., to Arthur D. Little, Inc. Method for removing heavy metals from aqueous liquids. 4,278,539, Cl. 210-724.000.

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Kishi, Hiroyasu, 4,278,901, Cl. 307-350.000.

Sapino, Chester: *See*—
Walker, Derek; Silvestri, Herbert H.; Sapino, Chester; and Johnson, David A., 4,278,600, Cl. 260-239.100.

Sarnecki, Mildred A. Waterproof backed towel. 4,278,719, Cl. 428-78.000.

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Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, 4,278,757, Cl. 430-512.000.

Sasaki, Toshiharu; Katakabe, Noboru; and Yokoyama, Yoshihiro, to Matsushita Electric Industrial Co., Ltd. Magnetic tape recording and/or reproducing apparatus. 4,279,006, Cl. 360-90.000.

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Masuda, Eiji; Sato, Chikara; and Suzuki, Yasoji, 4,278,943, Cl. 328-127.000.

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Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, 4,278,678, Cl. 424-263.000.

Sato, Ryuichi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Yamamoto, Yasushi, 4,278,666, Cl. 424-184.000.

Sato, Yoichiro: *See*—
Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, 4,278,452, Cl. 55-261.000.

Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., to Texaco Inc. Petroleum recovery chemical retention prediction technique. 4,278,128, Cl. 166-250.000.

Sauer, Philip H.: *See*—
Huck, Charles M.; Studer, John E.; and Sauer, Philip H., 4,278,089, Cl. 128-278.000.

Sauka, Klaus; and Muschelknautz, Horst, deceased (by Muschelknautz, Ingeborg), to Voith Turbo GmbH & Co. K.G. Braking system utilizing both a dynamic and a mechanical brake. 4,278,298, Cl. 303-3.000.

Saunier, Bernard: *See*—
Derreumaux, Antoine; and Saunier, Bernard, 4,278,507, Cl. 204-1.00T.

Sauter, Hubert: *See*—
Rentzea, Costin; Sauter, Hubert; Ammermann, Eberhard; Heilen, Gerd; and Jung, Johann, 4,278,800, Cl. 548-262.000.

Savin Corporation: *See*—
Landa, Benzion, 4,278,884, Cl. 250-315.200.

Savoca, Paul F.; and Lindner, Melvin. Thermostatically controlled heater. 4,278,876, Cl. 219-535.000.

Sazegar, Frank. Ski and pole carrying bracket. 4,278,192, Cl. 224-315.000.

Scan-Web i/s: *See*—
Persson, Torsten B., 4,278,113, Cl. 141-1.000.

Schaeffer-Homberg GmbH: *See*—
Ersoy, Metin, 4,278,194, Cl. 227-18.000.

Schafer, Heinz: *See*—
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Scheicher, Hans. Method for the preparation of implants, and implants. 4,278,630, Cl. 264-60.000.

Scheinbaum, Marc C.; and Winburn, Anne L., to Container Corporation of America. Carry-out tray. 4,278,197, Cl. 229-30.000.

Scheingold, William S.; and Youngflesh, Frank C., to AMP Incorporated. Surface to surface connector. 4,278,311, Cl. 339-17.0CF.

Schempp, Heinrich: *See*—
Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, 4,278,613, Cl. 260-465.00D.

Schering Aktiengesellschaft: *See*—
Burba, Christian; Volland, Hans-Guenter; and Esper, Norbert, 4,278,713, Cl. 427-388.200.

Scherrer, Norbert, to Societe Europeenne de Propulsion. Method for lifting an immersed device and returning it into position, and for carrying out said method. 4,278,362, Cl. 405-191.000.

Schiff, Robert D. Personal safety restraint assembly for vehicle occupants. 4,278,273, Cl. 280-802.000.

Schiller, Wilfried: *See*—
Hugo, Rolf; and Schiller, Wilfried, 4,278,919, Cl. 315-393.000.

Schindel, Hugo, to Rationator-Maschinenbau GmbH. Gripping head for screwing on a threaded closure. 4,277,929, Cl. 53-331.500.

Schindler, Rudolf A.: *See*—
Breckinridge, James B.; Norton, Robert H.; Schindler, Rudolf A.; and Frosch, Robert A., 4,278,351, Cl. 356-345.000.

Schlegel, Earl S.: *See*—
Bartko, John; and Schlegel, Earl S., 4,278,475, Cl. 148-1.500.
Bartko, John; and Schlegel, Earl S., 4,278,476, Cl. 148-1.500.

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Hormanns, Rolf, 4,278,487, Cl. 156-305.000.

Schlobohm, Arnold: *See*—
Dugge, Richard H.; and Schlobohm, Arnold, 4,278,107, Cl. 137-526.000.

Schlossberg, Howard R.: *See*—
Chiao, Raymond Y.; Fetterman, Harold R.; and Schlossberg, Howard R., 4,278,953, Cl. 332-7.510.

Schlosser, Ewald: *See*—
Marschall, Peter; Schlosser, Ewald; and Wolk, Claus, 4,278,949, Cl. 331-94.50H.

Schlumberger Technology Corporation: *See*—
Bonnet, Jean-Loup; and Fierfort, Claude, 4,278,942, Cl. 324-347.000.

Schmidt, Klaus P.: *See*—
Hill, Bernhard; Schmidt, Klaus P.; and Graf, Gerhard, 4,278,981, Cl. 346-108.000.

Schmidt-Kufeke, Klaus-Peter; and Feld, Gerhard. Arrangement for effecting the superfine perforation of film-like sheeting with the aid of high-voltage pulses. 4,278,871, Cl. 219-384.000.

Schmidt, Ronald V.: *See*—
Mack, Iris M.; Rowe, Harrison E.; and Schmidt, Ronald V., 4,278,321, Cl. 350-96.120.

Schmidt, Uwe; and Schneider, Dieter, to Alpine Aktiengesellschaft. Apparatus for separating heavy solids and light solids from a mixture thereof. 4,278,537, Cl. 209-469.000.

Schmitt, Frederick L.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.

Schmolzer, Gerhard; Daimer, Wolfgang; and Verdino, Heiner, to Vianova Kunstharz, A.G. Cathodically depositable paint binders and process for producing same. 4,278,580, Cl. 260-29.2EP.

Schnable, George L.: *See*—
White, Lawrence K.; Comizzoli, Robert B.; and Schnable, George L., 4,278,508, Cl. 204-1.00T.

Schneider, Abraham; and Myers, Harry K., Jr., to Suntech, Inc. Hydrogenolysis of 2,5-norbornadiene saturated endo-endo hexacyclic dimer. 4,278,823, Cl. 585-22.000.

Schneider, Dieter: *See*—
Schmidt, Uwe; and Schneider, Dieter, 4,278,537, Cl. 209-469.000.

Schneider, Klaus-Jurgen: *See*—
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

Scholten, Stephen C.: *See*—
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Salbeck, Gerhard; Schonowsky, Hubert; Horlein, Gerhard; Langeludeke, Peter; and Kocher, Helmut, 4,278,461, Cl. 71-87.000.

Schottel-Werft. Josef Becker GmbH & Co. KG: *See*—
Krautkremer, Franz; and Krautkraemer, Gerd, 4,278,431, Cl. 440-42.000.

Schrader, Edward H. Method and apparatus for corrugating paperboard. 4,278,486, Cl. 156-231.000.

Schramm, Konrad: *See*—
Uhlmann, Gert; Schramm, Konrad; and Kohler, Georg, 4,278,498, Cl. 176-36.00R.

Schreiber, William L.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.

Schrencongost, Ray B., to Marmon Company. Selective keyer biasing to enhance percussion effect. 4,278,001, Cl. 84-1.260.

Schrenk, Hartmut, to Siemens Aktiengesellschaft. Word-by-word electrically reprogrammable nonvolatile memory. 4,279,024, Cl. 365-203.000.

Schrinner, Elmar: *See*—
Durckheimer, Walter; Bormann, Dieter; Ehlers, Eberhard; Schrinner, Elmar; and Heymes, Rene, 4,278,793, Cl. 544-27.000.

Schroder, Ernst; and Wermuth, Jurgen, to Licentia Patent-Verwaltungs-G.m.b.H. Circuit for the generation of a control variable for the control of the transfer constant of electronically actuable amplifying and attenuating members. 4,278,945, Cl. 330-278.000.

Schroeder, James E.; and Rasmussen, John F., to McGraw-Edison Company. Insulating coating for surge arrester valve element. 4,278,961, Cl. 338-21.000.

Schroeter, Siegfried H.: *See*—
Ashby, Bruce A.; and Schroeter, Siegfried H., 4,278,804, Cl. 556-436.000.

Schuch, Joseph N., to Under Sea Industries, Inc. Diving snorkel. 4,278,080, Cl. 128-201.110.

Schuhmann, Werner P.: *See*—
Lubitz, Karl; Drew, Jeffrey M.; and Schuhmann, Werner P., 4,277,977, Cl. 73-587.000.

Schulte, Kenneth L., Jr.: *See*—
Kostello, Edward M.; and Schulte, Kenneth L., Jr., 4,277,985, Cl. 74-713.000.

Schulz, Joachim, to Dr. Ing Rudolf Hell G.m.b.H. Picture contrast-increasing arrangements. 4,279,003, Cl. 358-280.000.

Schulz, Johann G.: *See*—
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Schurger, Rainer: *See*—
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Schuss, Werner: *See*—
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Schwab, Hermann: *See*—
Blum, Adolf; Lukas, Siegmar; Schwab, Hermann; and Strobel, Rolf, 4,278,433, Cl. 8-449.000.

Schwartz, Herbert S., to Croscill Curtain Co. Inc. Bow construction. 4,278,714, Cl. 428-4.000.

Schwartz, Robert. Relator assembly. 4,278,426, Cl. 433-54.000.

Schwarzmann, Matthias: *See*—
Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, 4,278,562, Cl. 252-430.000.

Science Applications, Inc.: *See*—
Toy, Madeline S.; Stringham, Roger S.; and Fogg, Lawrence C., 4,278,703, Cl. 427-54.100.

Scott Paper Company: *See*—
Homestead, Peter W., 4,278,287, Cl. 297-59.000.

Scribner, Albert W. Capacitance control system for pneumatic punch press feeders. 4,277,997, Cl. 83-225.000.

Scudder, Monty. Machine for manufacturing wreaths. 4,277,885, Cl. 29-780.000.

Seaman, Florence. Travel pillow. 4,277,859, Cl. 5-434.000.

Security Plastics, Inc.: *See*—
Luedtke, Warren J., 4,278,187, Cl. 222-153.000.

See, Gary G.; and Robbins, Robert J., to Telxon Corporation. Portable data entry apparatus including plural selectable functional configurations. 4,279,021, Cl. 364-900.000.

Segard, Yves-Andre, to Etablissements Sim S.A. Apparatus for grinding articles with two rotating grinding discs. 4,277,914, Cl. 51-112.000.

Seguela, Marie-Claude J.; Betton, Rene F.; and Gonzalez, Claude A. Device for transferring an invalid from his invalid chair into a motor vehicle and conversely. 4,278,387, Cl. 414-462.000.

Seidel, Harold: *See*—
Nicollian, Edward H.; Seidel, Harold; and Smith, George E., 4,278,947, Cl. 331-1.00R.

Seidler, Helmut; and Gehrke, Gunter, to Bayer Aktiengesellschaft. Process for the preparation of dimethoxyanthraquinones. 4,278,607, Cl. 260-383.000.

Seilly, Alec H., to Lucas Industries Limited. Electromagnetic devices. 4,278,904, Cl. 310-27.000.

Seitz-Werke GmbH: *See*—
Ahlers, Egon, 4,277,928, Cl. 53-67.000.

Sekisui Kaseihin Kogyo Kabushiki Kaisha: *See*—
Kajimura, Mutsuhiko; and Maeda, Tetsuji, 4,278,627, Cl. 264-45.400.

Sekiya, Masayoshi, to Nippon Zeon Co. Ltd. Paper coating composition. 4,278,583, Cl. 260-29.70H.

Selbe, Rexford L.; Waropay, Vincent M.; Quigg, Paul S.; and Reily, William S., to United States Gypsum Company. Gypsum fire barrier for cable fires. 4,278,468, Cl. 106-111.000.

Senghaas, Karl A.: *See*—
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Separek Teknik AB: *See*—
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Seri, Kenji: *See*—
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Sermond, Bernd: *See*—
Lohrberg, Karl; Wullenweber, Heinz; Muller, Jurgen; and Sermond, Bernd, 4,278,568, Cl. 252-472.000.

Seufert, Arnold. Process and apparatus for the production of sterile filtered blood clotting factors. 4,278,592, Cl. 260-112.00B.

Shadid, Fahim E., to Chicago Bridge & Iron Company. Top cone cooling system for basic oxygen furnace. 4,278,241, Cl. 266-241.000.

Shafer, Jon L. Control for hydraulic accumulator system. 4,278,403, Cl. 417-38.000.

Shakulov, Rustem S.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. Bonded mat of directionally oriented strands and randomly oriented strands. 4,278,720, Cl. 428-109.000.

Sharp, Everett H., to Leeds & Northrup Company. Boiler control system. 4,278,052, Cl. 122-449.000.

Sharp Kabushiki Kaisha: *See*—
Masuzawa, Sigeaki; and Saizi, Mituhiro, 4,279,030, Cl. 368-63.000.
Matsumoto, Masafumi; and Kotani, Matahira, 4,278,984, Cl. 346-140.00R.

Sharpe, Raymond: *See*—
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Shell Oil Company: *See*—
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Sherk, Thomas A.: *See*—
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Sherman, Morton; and Berry, James A., to Celotex Corporation, The. Vented insulation system for existing structure. 4,277,926, Cl. 52-303.000.

Shibuya, Yoshimichi: *See*—
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; Shibuya, Yoshimichi; and Yokokura, Hisao, 4,278,326, Cl. 350-343.000.

Shida, Toichi, to Hitachi, Ltd. Method of preventing recirculation pump cavitation and forced recirculation pump type steam-generating apparatus using the method. 4,278,051, Cl. 122-406.00A.
Shim, Kyung-sup, to Stauffer Chemical Company. Process for preparing phenols and thiophenols. 4,278,816, Cl. 568-67.000.
Shim, Norm, to Baxter Travenol Laboratories, Inc. Method and apparatus for metered infusion of fluids. 4,278,085, Cl. 128-214.00F.
Shimada, Keizo: *See*—
Nakagawa, Yasuo; Shimada, Keizo; Nakamura, Tsutomu; and Matsuda, Kichiro, 4,278,779, Cl. 525-432.000.
Shimano Industrial Company Limited: *See*—
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Shimaoka, Goro: *See*—
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Shimoji, Katsuichi: *See*—
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Shimp, Alan B., to Westinghouse Electric Corp. Single-phase fault detecting circuit breaker. 4,279,007, Cl. 361-47.000.
Shin-Etsu Chemical Co., Ltd.: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Yamamoto, Yasushi, 4,278,666, Cl. 424-184.000.
Shine, Ian B., to Coulter Electronics, Inc. Biological cell parameter change test method and apparatus. 4,278,936, Cl. 324-71.0CP.
Shinoda, Kazuo: *See*—
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Shinohara, Toshio: *See*—
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Shinozaki, Samuel S.: *See*—
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Shiraki, Masao: *See*—
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Shoemaker, John R.: *See*—
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Shoji, Fusaji: *See*—
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Showa Denka K.K.: *See*—
Kametaka, Norio; Marumo, Kuniomi; and Nozawa, Tutomu, 4,278,820, Cl. 568-678.000.
Shreve, William R.: *See*—
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Shriver, Joe E., to Sperry Corporation. Tensioning mechanism for forage harvester feed roll assembly. 4,278,211, Cl. 241-222.000.
Shum, Yick M.: *See*—
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,278,128, Cl. 166-250.000.
Siccardi, Frank J. Heating and ventilating system for poultry houses. 4,278,423, Cl. 432-222.000.
Sidhu, Jasbir; Simons, Michael J.; and Mijovic, Miroslav V., to Eastman Kodak Company. Absorbed hydrazide nucleating agents and photographic elements containing such agents. 4,278,748, Cl. 430-212.000.
Siegel, Alan G. Musical instrument stand. 4,278,222, Cl. 248-121.000.
Siemens Aktiengesellschaft: *See*—
Immler, Josef, 4,278,937, Cl. 324-86.000.
Kullmann, Dieter, 4,278,906, Cl. 310-52.000.
Landgraf, Hermann; and Wohlgemuth, Juergen, 4,278,907, Cl. 310-191.000.
Lubitz, Karl; Drew, Jeffrey M.; and Schuhmann, Werner P., 4,277,977, Cl. 73-587.000.
Mahlein, Hans F., 4,278,322, Cl. 350-96.180.
Rubruck, Manfred, 4,278,213, Cl. 242-75.100.
Schrenk, Hartmut, 4,279,024, Cl. 365-203.000.
Straihammer, Reinhard; Klose, Hans J.; and Schuss, Werner, 4,278,428, Cl. 433-105.000.
Straihammer, Reinhard; and Schuss, Werner, 4,278,429, Cl. 433-126.000.
Sigmund, Paul W.; and Butwell, Kenneth F., to Union Carbide Corporation. Vapor-liquid contacting system. 4,278,621, Cl. 261-114.00R.
Sih, John C., to Upjohn Company, The. 19,20-Didehydro-PG_2 sulfonyl amides. 4,278,812, Cl. 564-98.000.
Sih, John C., to Upjohn Company, The. 19,20-Didehydro-13,14-dihydro-PG_2, sulfonyl amides. 4,278,813, Cl. 564-98.000.
Sih, John C., to Upjohn Company, The. 19-Keto-PG amides. 4,278,815, Cl. 564-189.000.
Sih, John C., to Upjohn Company, The. 2-Decarboxy-2-hydroxymethyl-19,20-didehydro-13,14-dihydro-PG_2 compounds. 4,278,818, Cl. 568-379.000.
Silveira, Decio G.: *See*—
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Silver, Donna H.: *See*—
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Silvestri, George J., Jr.; and Kesavan, Krishnamurthy, to Westinghouse Electric Corp. Method and apparatus for supplying steam to a turbine. 4,277,943, Cl. 60-646.000.
Silvestri, George J., Jr., to Westinghouse Electric Corp. Method and apparatus for regeneratively superheating auxiliary steam. 4,277,944, Cl. 60-670.000.
Silvestri, Herbert H.: *See*—
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Simboni, Orit; and Silver, Donna H. Negative heel protector cushion. 4,278,079, Cl. 128-149.000.
Siminoff, Roger H. Fast-wind tuning machine for stringed musical instrument. 4,278,002, Cl. 84-304.000.
Simjian, Luther G. Golf putting device. 4,278,254, Cl. 273-183.00C.
Simmons, George H., to Bell Telephone Laboratories, Incorporated. Circuit for eliminating spurious pulses in a dial pulse stream. 4,278,842, Cl. 179-16.0EA.
Simon, Joseph A. Method of cold forming tubes with interior thicker wall sections. 4,277,969, Cl. 72-266.000.
Simons, Michael J.: *See*—
Sidhu, Jasbir; Simons, Michael J.; and Mijovic, Miroslav V., 4,278,748, Cl. 430-212.000.
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Creed, Gerald J.; Dudis, Frank; Edwards, William J.; and Hurler, Herbert T., 4,278,037, Cl. 112-168.000.
Johnson, Ralph E., 4,278,038, Cl. 112-228.000.
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Sipila, Heikki J.: *See*—
von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., 4,278,885, Cl. 250-370.000.
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Gruen, Dieter M.; Krauss, Alan R.; and Siskind, Barry, 4,278,890, Cl. 250-492.00B.
Sitt, Rudiger: *See*—
Stoltefuss, Jurgen; Muller, Lutz; Puls, Walter; and Sitt, Rudiger, 4,278,683, Cl. 424-267.000.
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Skerlos, Peter C., to Zenith Radio Corporation. Channel number entry system. 4,279,035, Cl. 455-158.000.
SKF Kugellagerfabriken GmbH: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,278,305, Cl. 308-6.00C.
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Skrzypek, Frank M. Heat exchanger for furnace flue. 4,278,126, Cl. 165-122.000.
Sloan Valve Company: *See*—
Horowitz, Charles, 4,278,226, Cl. 248-314.000.
Smith, Donald C.; and Hoffman, Jack D., to Eagle-Picher Industries, Inc. Quick cure catalyst for polyester molding compositions. 4,278,558, Cl. 252-186.000.
Smith, George E.: *See*—
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Wallischeck, Karl H.; and Smith, James H., 4,278,010, Cl. 91-420.000.
Smith Kline - RIT: *See*—
Lobmann, Michele; and Florent, Gerard, 4,278,662, Cl. 424-89.000.
Smith, Nicholas K., to Bell Telephone Laboratories, Incorporated. Channel bank loop-around test arrangement and method. 4,279,032, Cl. 370-15.000.
Smith, Peter W. Male ended valve. 4,278,235, Cl. 251-144.000.
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Huber, Doyle W.; Smith, Richard H.; and Strong, Robert L., 4,277,868, Cl. 29-33.00Q.
Smith, Stuart B.: *See*—
Montgomery, Robert L.; and Smith, Stuart B., 4,278,628, Cl. 264-45.500.
Smith, Walter C.: *See*—
Hibbs, Joseph E.; Chalmers, Gerald W.; Durrell, Robert L.; and Smith, Walter C., 4,278,026, Cl. 102-254.000.
Smith, William E., to Stryker Corporation. Lavage handpiece. 4,278,078, Cl. 128-66.000.
Smith, William G.; and Yuhash, Ladd, to United States of America, Army. Separate loading ammunition automatic cannon. 4,278,008, Cl. 89-156.000.
SmithKline Corporation: *See*—
Dunn, George L., 4,278,670, Cl. 424-246.000.
Snow Brand Milk Products Co., Ltd.: *See*—
Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, 4,278,452, Cl. 55-261.000.
Sobel, Marvin, to Bona Fide Factory Products, Inc. Tamper resistant safe. 4,278,033, Cl. 109-59.00R.
Societe Anonyme Etablissements Vasseur & Cie: *See*—
Vasseur, Gilbert M., 4,278,267, Cl. 280-406.00R.
Societe Anonyme Francaise du Ferodo: *See*—
Bacher, Michel, 4,278,300, Cl. 303-115.000.
Societe d'Assistance Technique pour Produits Nestle S.A.: *See*—
Magnolato, Daniele, 4,278,696, Cl. 426-422.000.

Societe Europeenne de Propulsion: *See*—
Scherrer, Norbert, 4,278,362, Cl. 405-191.000.
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Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, 4,278,299, Cl. 303-6.00C.
Sogo, Yukio: *See*—
Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, 4,278,452, Cl. 55-261.000.
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Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,824, Cl. 585-428.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,826, Cl. 585-428.000.
Sondermann, Thomas, to RBU, Reaktor-Brennelment Union GmbH. Method for manufacturing gadolinium-containing nuclear fuels. 4,278,560, Cl. 252-301.10R.
Song, Chang J. Jewelry clasp and method. 4,277,866, Cl. 24-238.000.
Song, John, to American Cyanamid Company. Bis(sulfonamide) stabilizers for synthetic polymers. 4,278,577, Cl. 260-23.00H.
Sontheimer, Carl G. Rotary slicing tool for making neat, complete slices in a food processor. 4,277,995, Cl. 83-150.000.
Sony Corporation: *See*—
Suzuki, Toshio, 4,278,993, Cl. 358-22.000.
Sorbie, Thomas B.: *See*—
Pemberton, Ernest H.; Pezzin, John J.; Riggs, Darius O.; and Sorbie, Thomas B., 4,278,173, Cl. 209-522.000.
Soref, Richard A.: *See*—
McMahon, Donald H.; and Soref, Richard A., 4,278,327, Cl. 350-347.00V.
Sorokin, Peter P.: *See*—
Loy, Michael M.; and Sorokin, Peter P., 4,278,902, Cl. 307-426.000.
Southeastern Foam Products, Inc.: *See*—
Montgomery, Robert L.; and Smith, Stuart B., 4,278,628, Cl. 264-45.500.
Spaulding Fibre Company, Inc.: *See*—
Benzinger, James R., 4,278,733, Cl. 428-413.000.
Spear, Gilmore M., to Gleason Works, The. Cutting tool. 4,278,370, Cl. 407-115.000.
Spears, Leslie G. Elongate garment for women and girls. 4,277,849, Cl. 2-144.000.
Specht, Donald P.; Payne, Kenneth L.; and Farid, Samir Y., to Eastman Kodak Company. Photopolymerization co-initiator compositions comprising amine-substituted ketocoumarins and certain acetic acid derivative activators. 4,278,751, Cl. 430-281.000.
Spector, George: *See*—
Garcia, Juan M.; and Spector, George, 4,278,257, Cl. 273-411.000.
Spectrol Electronics Corp.: *See*—
Riley, Richard E.; and Turner, Bradley D., 4,278,725, Cl. 428-208.000.
Spengler, Ernst M., to Stanztechnik GmbH R & S. Force application apparatus, especially for severing materials. 4,277,996, Cl. 83-171.00Q.
Sperry Corporation: *See*—
Grey, Donald M., 4,278,379, Cl. 414-44.000.
McMahon, Donald H.; and Soref, Richard A., 4,278,327, Cl. 350-347.00V.
Priepke, Edward H., 4,278,210, Cl. 241-222.000.
Shriver, Joe E., 4,278,211, Cl. 241-222.000.
Spicuzza, John P., Jr., to ARCO Polymers, Inc. Fast-cooling styrene polymer foams. 4,278,730, Cl. 428-407.000.
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Spicuzza, John P., Jr., to ARCO Polymers, Inc. Antilumping expandable styrene polymers. 4,278,732, Cl. 428-407.000.
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Cros, Pierre, 4,278,895, Cl. 290-52.000.
Spinner, Georg; and Treczka, Leo, to Spinner GmbH Elektrotechnische Fabrik. HF-Attenuator. 4,278,956, Cl. 333-81.00A.
Spinner GmbH Elektrotechnische Fabrik: *See*—
Spinner, Georg; and Treczka, Leo, 4,278,956, Cl. 333-81.00A.
Sporer, Michael: *See*—
Beckedorff, David L.; Sporer, Michael; and Watts, Bruce R., 4,279,012, Cl. 364-104.000.
Sprague Electric Company: *See*—
Millard, Richard J.; Bernard, Walter J.; and Whitman, Alfred, 4,278,513, Cl. 204-42.000.
Srinivasan, Vadake R.; and Choi, Ye-Chin, to Louisiana State University Foundation. Mutant microorganisms useful for the production of single cell protein and amino acids. 4,278,766, Cl. 435-253.000.
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Bos, Bernardus W.; and Wijbenga, Harke M., 4,279,017, Cl. 364-484.000.
Staat, Karl-Hans; Zacharias, Theodor; and Terdenge, Bernhard, to Kocks Technik GmbH & Co. Push benches. 4,277,967, Cl. 72-224.000.
Stacy, Carl J.; and Louthan, Rector P., to Phillips Petroleum Company. Rubber compositions. 4,278,585, Cl. 260-42.150.
Stagg, Brian H.: *See*—
Niemann, Elfriede; Stagg, Brian H.; and Cowan, Stuart I., 4,278,652, Cl. 424-1.000.
Stahler, Fritz: *See*—
Wulff, Karl; Stahler, Fritz; and Michal, Gerhard, 4,278,760, Cl. 435-8.000.
Stamicarbon, B.V.: *See*—
Van Eek, Wouter, deceased, 4,278,137, Cl. 175-267.000.
Standard Manufacturing Company, Incorporated: *See*—
Oswald, Norman D.; and Mankey, Harry S., 4,278,140, Cl. 180-6.480.
Oswald, Norman D.; and Mankey, Harry S., 4,278,141, Cl. 180-6.480.
Standard Oil Company (Indiana): *See*—
Caspari, Gunter; and Boone, David E., 4,278,781, Cl. 526-150.000.
Hensley, Albert L., Jr.; Quick, Leonard M.; and Hopkins, P. Donald, 4,278,566, Cl. 252-465.000.
Worrell, J. Robert, 4,277,875, Cl. 29-253.000.
Zeitlin, Martin A.; and Harper, Jon J., 4,278,503, Cl. 203-28.000.
Stanier, Colin: *See*—
Byrd, Geoffrey C.; and Stanier, Colin, 4,278,523, Cl. 204-252.000.
Stanley Drug Products, Inc.: *See*—
Fujii, Akira, 4,278,633, Cl. 264-134.000.
Stanztechnik GmbH R & S: *See*—
Spengler, Ernst M., 4,277,996, Cl. 83-171.00Q.
Starai, Terrence M.; Champlin, John H., Jr.; and Johnson, Randall J., to Motorola, Inc. UHF Filter assembly. 4,278,957, Cl. 333-202.000.
Stark, Edward: *See*—
Lipshutz, Victor G.; and Stark, Edward, 4,278,887, Cl. 250-432.000.
Stauffer Chemical Company: *See*—
Benke, Alan H.; Morris, Hue T.; and Nady, Louie A., 4,278,799, Cl. 548-215.000.
Coll-Palagos, Miguel, 4,278,739, Cl. 428-623.000.
Shim, Kyung-sup, 4,278,816, Cl. 568-67.000.
Weil, Edward D., 4,278,771, Cl. 521-107.000.
Steag Kernergie GmbH: *See*—
Baatz, Heinrich; and Rittscher, Dieter, 4,278,892, Cl. 250-506.000.
Stefanini, Virginia E.: *See*—
Maurer, Gerald L.; and Stefanini, Virginia E., 4,278,610, Cl. 260-438.100.
Stein Industrie S.A.: *See*—
Abramson, Roger; Delisle, Jean-Paul; Elie, Xavier; Salon, Guy; and Peyrelongue, Jean-Pierre, 4,278,499, Cl. 176-37.000.
Bessouat, Roger; Marjollet, Jacques; and Palacio, Gerard, 4,278,053, Cl. 122-488.000.
Steinhaus GmbH, Firma: *See*—
Wolff, Kurt, 4,278,535, Cl. 209-399.000.
Steinke, Alexander, to Kraftwerk Union Aktiengesellschaft. Spring element for holding down nuclear reactor fuel assembly. 4,278,501, Cl. 176-78.000.
Steinke, Mark H., to Lyon Metal Products, Incorporated. Channel interconnection apparatus. 4,278,361, Cl. 403-189.000.
Stephan, Hans-Werner: *See*—
Jodden, Klaus; Stephan, Hans-Werner; and Heymer, Gero, 4,278,647, Cl. 423-317.000.
Stephenson, George M.; and Begin, David E., to Stephenson, George M. Remote delivery nozzle assembly for pressurized container. 4,278,188, Cl. 222-182.000.
Stevens, Christopher; and Stevens, John B. Chemical recovery apparatus. 4,278,502, Cl. 202-206.000.
Stevens, John B.: *See*—
Stevens, Christopher; and Stevens, John B., 4,278,502, Cl. 202-206.000.
Stickler, David B.; Von Rosenberg, Charles W., Jr.; and Gannon, Richard E., to Avco Everett Research Laboratory, Inc. Subsonic-velocity entrained-bed gasification of coal. 4,278,445, Cl. 48-197.00R.
Stickler, David B.: *See*—
Von Rosenberg, Charles W., Jr.; Stickler, David B.; and Gannon, Richard E., 4,278,446, Cl. 48-197.00R.
Stirn, Richard J.: *See*—
United States of America, National Aeronautics and Space Administration; Stirn, Richard J.; and Yeh, Yea-Chuan M., 4,278,830, Cl. 136-255.000.
Stobbs, William, to GTE Laboratories Incorporated. Monolithic integrated circuit structure incorporating Schottky contact diode bridge rectifier. 4,278,985, Cl. 357-15.000.
Stober, Reinhard; and Wirthwein, Rolf, to Degussa Aktiengesellschaft; and Henkel KGaA. Process for the production of aromatic peroxycarboxylic acids. 4,278,615, Cl. 260-502.00R.
Stoll, Walter A.: *See*—
Pistole, Robert G.; Stoll, Walter A.; and Oswald, Leo A., 4,278,490, Cl. 156-425.000.
Stoltefuss, Jurgen; Muller, Lutz; Puls, Walter; and Sitt, Rudiger, to Bayer Aktiengesellschaft. Saccharase inhibiting 3,4,5-trihydroxypiperidine derivatives. 4,278,683, Cl. 424-267.000.
Storey Brothers and Company Limited: *See*—
Bennett, Peter S., 4,278,629, Cl. 264-46.800.
Stork, Gilbert: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.
Straihammer, Reinhard; Klose, Hans J.; and Schuss, Werner, to Siemens Aktiengesellschaft. Dental handpiece. 4,278,428, Cl. 433-105.000.
Straihammer, Reinhard; and Schuss, Werner, to Siemens Aktiengesellschaft. Dental handpiece. 4,278,429, Cl. 433-126.000.
Streczyn, Michael; and Loughlin, Joseph B. Alarm circuit for detecting overheated condition. 4,278,970, Cl. 340-599.000.
Strenkert, Lynn A. Process and apparatus for stoichiometric combustion of fuel oil. 4,278,418, Cl. 431-8.000.
Strepparola, Ezio: *See*—
Mauro, Gastone; Lagana, Carlo; Geri, Sergio; and Strepparola, Ezio, 4,278,776, Cl. 525-178.000.

Stringham, Roger S.: *See—*
Toy, Madeline S.; Stringham, Roger S.; and Fogg, Lawrence C., 4,278,703, Cl. 427-54.100.

Strobel, Rolf: *See—*
Blum, Adolf; Lukas, Siegmar; Schwab, Hermann; and Strobel, Rolf, 4,278,433, Cl. 8-449.000.

Strohmaier, Ernst: *See—*
Lingenhole, Bernhard; and Strohmaier, Ernst, 4,278,427, Cl. 433-100.000.

Strong, Robert L.: *See—*
Huber, Doyle W.; Smith, Richard H.; and Strong, Robert L., 4,277,868, Cl. 29-33.00Q.

Strongwater, Murray. Glove and method for making same. 4,277,850, Cl. 2-163.000.

Strowik, Willibald: *See—*
Werner, Paul; and Strowik, Willibald, 4,278,290, Cl. 297-362.000.

Stryker Corporation: *See—*
Smith, William E., 4,278,078, Cl. 128-66.000.

Stubenrauch, James B. Adjustable socket wrench. 4,277,991, Cl. 81-163.000.

Studer, John E.: *See—*
Huck, Charles M.; Studer, John E.; and Sauer, Philip H., 4,278,089, Cl. 128-278.000.

Stuller, John A.: *See—*
Netravali, Arun N.; Robbins, John D.; and Stuller, John A., 4,278,996, Cl. 358-136.000.

Sturm, Elmar; Schempp, Heinrich; and Martin, Henry, to Ciba-Geigy Corporation. Sulfur-containing oxime compounds, processes for producing them, and their use for protecting cultivated plants. 4,278,613, Cl. 260-465.00D.

Sturm, Karl G.: *See—*
Gebauer, Peter; and Sturm, Karl G., 4,278,769, Cl. 521-90.000.

Su, Sophia R.: *See—*
Natansohn, Samuel; and Su. Sophia R., 4,278,643, Cl. 423-54.000.

Sueddeutsche Kuehlerfabrik Julius Fr. Behr GmbH & Co. KG: *See—*
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Sugawara, Ryozo: *See—*
Honda, Kiyoshi; Kuriyama, Kazuya; Murakami, Shigeru; Sugawara, Ryozo; and Nakamura, Chiaki, 4,278,728, Cl. 428-313.000.

Sugihara, Kunihiko: *See—*
Nakamura, Ken; Sugihara, Kunihiko; and Ishizawa, Shizuo, 4,278,063, Cl. 123-568.000.

Sugiura, Susumu: *See—*
Fukuda, Tadaji; and Sugiura, Susumu, 4,279,000, Cl. 358-213.000.

Suh, Nam P., to Massachusetts Institute of Technology. Method for forming metal, ceramic or polymer compositions. 4,278,622, Cl. 264-11.000.

Sullivan, Richard W.; and Warwick, Robert N., to Ball Corporation. Method of applying water soluble internal coating to hot cans. 4,278,709, Cl. 427-233.000.

Sullivan, Richard W., to Ball Corporation. Apparatus and method for the lubrication of cans. 4,278,711, Cl. 427-284.000.

Sulzer Brothers Ltd.: *See—*
Tiefenthaler, Edelbert, 4,278,619, Cl. 261-62.000.

Sumitomo Electric Industries, Ltd.: *See—*
Ihara, Susumu; Kashiuchi, Yoshinobu; and Jinguji, Isamu, 4,278,934, Cl. 324-61.00P.
Ihara, Susumu; and Nakamura, Kizashi, 4,278,935, Cl. 324-61.00P.

Sunayama, Masuki: *See—*
Kimura, Yoshinori; Sunayama, Masuki; and Okamoto, Yoshiki, 4,278,975, Cl. 343-6.00R.

Sund, Erling T., to Bell Telephone Laboratories, Incorporated. Test arrangement for automatic number identification systems. 4,278,849, Cl. 179-175.20C.

Sung, Rodney L.; and Zoleski, Benjamin H., to Texaco Inc. Diesel lubricant containing benzotriazole derivatives. 4,278,553, Cl. 252-50.000.

Suntech, Inc.: *See—*
Schneider, Abraham; and Myers, Harry K., Jr., 4,278,823, Cl. 585-22.000.

Sunworks, Inc.: *See—*
Hopper, Thomas P., 4,278,076, Cl. 126-450.000.

Suppa, Vito, to Thomson-CSF. Releasable airborne buoy. 4,279,025, Cl. 367-3.000.

Surface Technology, Inc.: *See—*
Thomann, Thomas G., 4,278,712, Cl. 427-304.000.

Sutton, George W.: *See—*
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.

Suzuki, Akiyoshi: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.

Suzuki, Hiroshi: *See—*
Nishikawa, Akio; Suzuki, Hiroshi; and Kohkame, Hisashi, 4,278,780, Cl. 525-488.000.

Suzuki, Hitoshi; and Omagari, Masaharu, to Honda Giken Kogyo Kabushiki Kaisha. Wheel for an elastic U-shaped tire. 4,278,297, Cl. 301-6.00D.

Suzuki, Kazuo: *See—*
Ishizuka, Hiroshi; and Suzuki, Kazuo, 4,278,448, Cl. 51-295.000.

Suzuki, Toshio, to Sony Corporation. Color picture-in-picture television receiver. 4,278,993, Cl. 358-22.000.

Suzuki, Yasoji: *See—*
Masuda, Eiji; Sato, Chikara; and Suzuki, Yasoji, 4,278,943, Cl. 328-127.000.

Svehaug, Oswald C. Rocking mechanism for beds. 4,277,857, Cl. 5-62.000.

Svendsen, Lars G., to Pentapharm AG. Method for the quantitative determination of plasminogen activators. 4,278,762, Cl. 435-13.000.

Swanson, Paul D.: *See—*
Rammer, William L.; and Swanson, Paul D., 4,278,408, Cl. 417-551.000.

Swanson, Thomas A. Method and apparatus for cleaning sailboat bolt line tracks. 4,278,472, Cl. 134-8.000.

Swart, Daniel J.; and Kelyman, Jacqueline S., to Dow Chemical Company, The. Alternating copolyestercarbonate resins. 4,278,787, Cl. 528-191.000.

Synergistics Chemicals Limited: *See—*
Crocker, Zenas; and Jonah, Wilford B., 4,278,530, Cl. 209-3.000.

Syntex (U.S.A.) Inc.: *See—*
Alvarez, Francisco S., 4,278,669, Cl. 424-243.000.

Szabo, Gustav. Removable seismic gap filler. 4,278,232, Cl. 249-183.000.

Szabo, Lajos: *See—*
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, 4,278,682, Cl. 424-267.000.

Szabo, Stephan L. Knife. 4,277,888, Cl. 30-162.000.

Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, to Richter Gedeon Vegyeszeti Gyar Rt. Vasodilating method of treatment using a indolo-quinolizine-monoester, diester or nitrile. 4,278,682, Cl. 424-267.000.

Szasz, Tibor, to TMC Corporation. Ski brake. 4,278,268, Cl. 280-605.000.

Szporny, Laszlo: *See—*
Szantay, Csaba; Szabo, Lajos; Kalaus, Gyorgy; Karpati, Egon; and Szporny, Laszlo, 4,278,682, Cl. 424-267.000.

Tada, Takeo, to TDK Electronics Co., Ltd. Process for producing flexible magnets. 4,278,556, Cl. 252-62.540.

Tadokoro, Tomoo; and Honda, Yasuo, to Toyo Kogyo Co., Ltd. Catalytic converter for purifying gases. 4,278,639, Cl. 422-171.000.

Tagaya, Kiyoshi: *See—*
Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

Taguchi, Tetsuya: *See—*
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Taiho Kogyo Co., Ltd.: *See—*
Nara, Tamotsu; and Kamiya, Soji, 4,278,740, Cl. 428-653.000.

Taiho Pharmaceutical Company, Limited: *See—*
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Tait, David A. G. A.C. Bridges. 4,278,932, Cl. 324-57.00R.

Tajima, Tsunemitsu: *See—*
Murayama, Tetsuo; Otsuka, Shigenori; and Tajima, Tsunemitsu, 4,278,747, Cl. 430-82.000.

Takada, Juichiro. Double-safety emergency locking belt retractor. 4,278,216, Cl. 242-107.40A.

Takada, Kazutoshi: *See—*
Noguchi, Kazuo; Fujimaki, Hiroto; Tagaya, Kiyoshi; Ajima, Shigetoshi; Takada, Kazutoshi; and Okuda, Kensuke, 4,278,584, Cl. 260-38.000.

Takahashi, Kihei; Terada, Seiko; and Oofusa, Masaatsu, to Yoshida Kogyo, K.K. Apparatus for manufacturing a woven slide fastener stringer. 4,278,111, Cl. 139-35.000.

Takahashi, Kihei, to Yoshida Kogyo, K.K. Yarn feeder. 4,278,112, Cl. 139-452.000.

Takahashi, Ryoji: *See—*
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Takashima, Masaru, to Aikoh, Co., Ltd. Filter medium for fluid. 4,278,544, Cl. 210-503.000.

Takasue, Takashi: *See—*
Matsui, Kazumi; Takasue, Takashi; and Iwasaki, Masami, 4,278,164, Cl. 198-334.000.

Takaya, Tadashi, to Murata Manufacturing Co., Ltd. Piezoelectric buzzer. 4,278,851, Cl. 179-179.000.

Takazawa, Ietsugu. Curtain hanger. 4,277,865, Cl. 24-345.000.

Takeda Chemical Industries, Ltd.: *See—*
Ochiai, Michihiko; Morimoto, Akira; and Matsushita, Yoshihiro, 4,278,671, Cl. 424-246.000.

Takei, Yoshiaki: *See—*
Goto, Satoshi; Takei, Yoshiaki; Imaho, Ichiro; and Nomori, Hiroyuki, 4,278,746, Cl. 430-59.000.

Takeyama, Masahiro: *See—*
Ogita, Minoru; and Takeyama, Masahiro, 4,278,980, Cl. 343-748.000.

Takikawa, Katsuo: *See—*
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Tamai, Yasukatsu: *See—*
Matsuda, Minoru; Iwasaki, Hirotsugu; Tamai, Yasukatsu; Iino, Masashi; and Fukutome, Hiroshi, 4,278,442, Cl. 44-1.00R.

Tamazawa, Tsuyoshi: *See—*
Yasuhara, Seishi; Tamazawa, Tsuyoshi; and Yamauchi, Katsuto, 4,278,407, Cl. 417-292.000.

Tamura, Masaaki: *See—*
Mawatari, Masahiko; and Tamura, Masaaki, 4,278,924, Cl. 318-314.000.

Tamura, Shuichi: *See—*
Ito, Fumio; Harigaya, Isao; Taguchi, Tetsuya; Tamura, Shuichi; Hirohata, Michio; and Matsuda, Mutsuhide, 4,278,336, Cl. 354-51.000.

Tan, Ewe-Hong: *See—*
Wolff, Siegfried; and Tan, Ewe-Hong, 4,278,587, Cl. 260-42.370.

Tan, Swie-In, to International Business Machines Corporation. System for chip joining by short wavelength radiation. 4,278,867, Cl. 219-121.0LD.

Tanahashi, Fumitaka. Wireless detection and warning system. 4,278,967, Cl. 340-539.000.

Tanaka Business Machines Co. Ltd.: *See—*
Kato, Toshio, 4,278,878, Cl. 235-92.0PK.

Tanaka, Kazuo, to Canon Kabushiki Kaisha. Photographic objective which prevents variation in angular field of view during focusing. 4,278,331, Cl. 350-411.000.

Tanaka, Masahiro; and Konoshima, Katunaga, to Olympus Optical Co., Ltd. Apparatus for cleaning endoscope. 4,278,101, Cl. 134-167.00C.

Tanaka, Yoshio. Post card. 4,278,199, Cl. 229-92.800.

Taneda, Kozo: *See—*
Ido, Kazuo; Sogo, Yukio; Taneda, Kozo; Sakai, Katzuji; and Sato, Yoichiro, 4,278,452, Cl. 55-261.000.

Tanigawa, Takatoshi: *See—*
Nakazawa, Tetsuo; Sakai, Junji; Morimoto, Syogo; Tanigawa, Takatoshi; Takahashi, Ryoji; and Okazaki, Seiji, 4,278,581, Cl. 260-29.60M.

Taniyama, Susumu; Shimaoka, Goro; and Inoue, Shoichi, to Mitsubishi Gas Chemical Company Inc. Method of curing an organoalkoxysilane compound. 4,278,783, Cl. 528-23.000.

Tanner, Roberta R.: *See—*
Andrew, Jerry C.; and Tanner, Roberta R., 4,278,342, Cl. 355-3.0CH.

Tateishi, Fumikazu: *See—*
Nakayama, Yoshikazu; Tateishi, Fumikazu; and Fujito, Katsuyuki, 4,278,318, Cl. 350-3.780.

Taylor, William I.: *See—*
Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., 4,278,569, Cl. 252-522.00R.

TDK Electronics Co., Ltd.: *See—*
Tada, Takeo, 4,278,556, Cl. 252-62.540.

Technic, Inc.: *See—*
Morrissey, Ronald J., 4,278,514, Cl. 204-47.000.

Technicon Instruments Corporation: *See—*
Lipshutz, Victor G.; and Stark, Edward, 4,278,887, Cl. 250-432.000.

Tecumseh Products Company: *See—*
Campen, Kenneth W., 4,278,054, Cl. 123-146.50A.

Teichmann, Gunther: *See—*
Botta, Artur; Rother, Heinz-Joachim; and Teichmann, Gunther, 4,278,791, Cl. 542-412.000.

Tele-Alarm, Nachrichtentechntehe Gerate GmbH: *See—*
Hofmann, Otto; and Nagler, Georg, 4,278,879, Cl. 235-380.000.

Teledyne Industries, Inc.: *See—*
Nevins, Glenn T.; and Keely, William A., 4,278,866, Cl. 219-121.0EC.

Telxon Corporation: *See—*
See, Gary G.; and Robbins, Robert J., 4,279,021, Cl. 364-900.000.

Teplyakov, Vladimir V.: *See—*
Nametkin, Nikolai S.; Durgarian, Sergei G.; Novitsky, Eduard G.; Filippova, Valentina G.; Gladkova, Natalya K.; and Teplyakov, Vladimir V., 4,278,774, Cl. 525-100.000.

Terada, Seiko: *See—*
Takahashi, Kihei; Terada, Seiko; and Oofusa, Masaatsu, 4,278,111, Cl. 139-35.000.

Terdenge, Bernhard: *See—*
Staat, Karl-Hans; Zacharias, Theodor; and Terdenge, Bernhard, 4,277,967, Cl. 72-224.000.

Terry, Claude E.: *See—*
Poteet, William C.; Terry, Claude E.; Hamrick, Glen F.; and Walls, Francis G., 4,278,482, Cl. 156-78.000.

Tessler, Martin M., to National Starch and Chemical Corporation. Preparation of cationic starch graft copolymers from starch, N,N-methylenebisacrylamide, and polyamines. 4,278,573, Cl. 260-17.4GC.

Texaco Inc.: *See—*
Powell, Justin C., 4,278,604, Cl. 260-346.740.
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,278,128, Cl. 166-250.000.
Sung, Rodney L.; and Zoleski, Benjamin H., 4,278,553, Cl. 252-50.000.
Vanderford, James R., 4,278,964, Cl. 340-347.0DA.

Tezuka, Keizo; Okuyama, Genichiro; Tokunaga, Kazunobu; and Otani, Yasuhisa, to Kanebo, Ltd. Creamy or milky skin cosmetic compositions containing natural materials as emulsifying agents. 4,278,657, Cl. 424-63.000.

Thakkar, Arvind L., to Eli Lilly and Company. Novel polymorphic crystalline form of dibenzopyranone. 4,278,603, Cl. 260-345.300.

Thapar, Mangat R.: *See—*
Lambright, Orbie N.; and Thapar, Mangat R., 4,279,026, Cl. 367-70.000.

Thatcher, Richard E., to Philip Morris Incorporated. Method and apparatus for separating tobacco from rejected cigarettes. 4,278,100, Cl. 131-196.000.

Thebaud, Sacha. Chair provided with interlacing and intermeshing seat and back portions supported by arcuate support members. 4,278,288, Cl. 217-118.000.

Theeuwes, Felix, to Alza Corporation. Device with integrated operations for controlling release of agent. 4,278,087, Cl. 128-260.000.

Thermatool Corp.: *See—*
Rudd, Wallace C.; and Udall, Humfrey N., 4,278,868, Cl. 219-123.000.
Udall, Humfrey N., 4,277,871, Cl. 29-157.30C.

Thesing, Heinrich: *See—*
Bortz, Karl; Thesing, Heinrich; and Eichbaum, Friedrich, 4,278,296, Cl. 299-87.000.

Thien, Gerhard: *See—*
List, Hans; Skatsche, Othmar; Thien, Gerhard; Fachbach, Heinz; Greier, Josef; and Wagner, Johann, 4,278,055, Cl. 123-195.00S.

Thomann, Thomas G., to Surface Technology, Inc. Method for activating non-noble metal colloidal dispersion by controlled oxidation for electroless plating. 4,278,712, Cl. 427-304.000.

Thomas, Douglas C.: *See—*
Reeves, William G.; and Thomas, Douglas C., 4,278,088, Cl. 128-270.000.

Thompson, David L., to Volz, David M. Diffusion tube support collar. 4,278,422, Cl. 432-188.000.

Thompson, Jack E. Generation of electrical energy. 4,278,743, Cl. 429-119.000.

Thomson-CSF: *See—*
Cachier, Gerard; and Espaignol, Jacques, 4,278,951, Cl. 331-96.000.
Suppa, Vito, 4,279,025, Cl. 367-3.000.

Thorn Electrical Industries Limited: *See—*
Antonis, Basil, 4,278,908, Cl. 313-177.000.

Thorneburg, James L. Socks with integrally knit cushions in heel, arch and ball. 4,277,959, Cl. 66-182.000.

Thunell, Charles R., to Fairfax Investment Corp. Method for stocking wallboard into a building. 4,278,395, Cl. 414-786.000.

Tidquist, Quinton. Method of stack cutting. 4,278,478, Cl. 148-9.00R.

Tiede, Ralph L.: *See—*
Chrisman, Max G.; Ganzala, Gary W.; and Tiede, Ralph L., 4,278,460, Cl. 65-134.000.

Tiefenthaler, Edelbert, to Sulzer Brothers Ltd. Steam throttle valve. 4,278,619, Cl. 261-62.000.

TII Corporation: *See—*
Wortman, Donald W., 4,278,847, Cl. 179-170.0NC.

Timber Products Inspection & Testing Service: *See—*
Pennington, Chester R., 4,278,024, Cl. 101-405.000.

Timex Corporation: *See—*
Lowdenslager, John; and Willis, Alan E., 4,279,028, Cl. 368-11.000.

Timko born Jozsa, Judit; Blickle, Tibor; Borlai, Oszkar; and Ujhidy, Aurel, to Magyar Tudomanyos Akademia Muszakikemiai Kutato Intezete. Process and apparatus for the determination of the physical characteristics of dispersed systems by holography. 4,278,319, Cl. 350-3.780.

Titzenthaler, Eckart: *See—*
Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, 4,278,562, Cl. 252-430.000.

TMC Corporation: *See—*
Szasz, Tibor, 4,278,268, Cl. 280-605.000.

Tokunaga, Kazunobu: *See—*
Tezuka, Keizo; Okuyama, Genichiro; Tokunaga, Kazunobu; and Otani, Yasuhisa, 4,278,657, Cl. 424-63.000.

Tokyo Sanyo Electric Co., Ltd.: *See—*
Kishi, Hiroyasu, 4,278,901, Cl. 307-350.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Ichinose, Kazuaki, 4,278,903, Cl. 307-514.000.
Kimura, Yoshinori; Sunayama, Masuki; and Okamoto, Yoshiki, 4,278,975, Cl. 343-6.00R.
Masuda, Eiji; Sato, Chikara; and Suzuki, Yasoji, 4,278,943, Cl. 328-127.000.
Mawatari, Masahiko; and Tamura, Masaaki, 4,278,924, Cl. 318-314.000.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Abe, Kazuhiro, 4,279,022, Cl. 364-900.000.

Tolasch, Gerhard: *See—*
Bardenhagen, Dietrich; Raschka, Wolfgang; Glosmann, Josef; and Tolasch, Gerhard, 4,278,385, Cl. 414-419.000.

Tomich, Wayne K. Wall mounted log chute. 4,278,163, Cl. 193-34.000.

Tomy Kogyo Co., Inc.: *See—*
Hirose, Tomiyuki, 4,278,253, Cl. 273-121.00R.
Nikaido, Teruo, 4,277,908, Cl. 46-92.000.

Toriumi, Shiro; Saijo, Takao; Endo, Hiroshi; Kamimura, Kuniaki; and Saito, Takanori, to Minolta Camera Kabushiki Kaisha. Reading and printing apparatus. 4,278,346, Cl. 355-45.000.

Tosi, Pierre G., to Pont-A-Mousson S.A. Control mechanism for disc brakes. 4,278,152, Cl. 188-71.900.

Tosswill, Christopher H., to Galileo Electro-Optics Corp. Far field imaging. 4,278,891, Cl. 250-505.000.

Towae, Friedrich: *See—*
Merger, Franz; and Towae, Friedrich, 4,278,805, Cl. 560-25.000.

Toy, Madeline S.; Stringham, Roger S.; and Fogg, Lawrence C., to Science Applications, Inc. Method and means for producing fluorocarbon finishes on fibrous structures. 4,278,703, Cl. 427-54.100.

Toyama, Masamichi; Hirata, Noritsugu; Iwama, Hideto; Okajima, Hidekazu; and Nishimura, Akimasa, to Canon Kabushiki Kaisha.

Camera having an automatic focus adjusting device. 4,278,340, Cl. 354-195.000.

Toyo Kogyo Co., Ltd.: *See—*
Tadokoro, Tomoo; and Honda, Yasuo, 4,278,639, Cl. 422-171.000.

Toyo Rubber Industry Co., Ltd., The: *See—*
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.

Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Yamamoto, Yasushi, to Shin-Etsu Chemical Co., Ltd. Novel organosilicon compounds and anti-transplanted tumor agents containing the same. 4,278,666, Cl. 424-184.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Higashigawa, Keizo; and Shinoda, Kazuo, 4,278,618, Cl. 261-34.00A.
Isobe, Toshiaki; and Yokoyama, Tatsuo, 4,278,060, Cl. 123-440.000.
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.
Nakaho, Junichi, 4,278,215, Cl. 242-107.200.
Numazawa, Akio; Matoba, Taketo; and Kida, Makoto, 4,277,984, Cl. 74-492.000.
Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, 4,278,509, Cl. 204-1.00T.

Tozuka, Masao: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.

Tracy, David J., to GAF Corporation. ω,ω-Bis(dialkylhydroxyphenyl) alkanols as intermediates in making effective antioxidants. 4,278,821, Cl. 568-723.000.

Tracy, Kurt L. Ratchet wrench handle. 4,277,989, Cl. 81-62.000.

Traub, Fritz: *See—*
Hiller, Heinrich; Eilingsfeld, Heinz; Reinicke, Helmut; and Traub, Fritz, 4,278,606, Cl. 260-380.000.

Traut, Earl W. Linear bearing devices. 4,278,304, Cl. 308-6.00R.

Traxler, Peter; Gruner, Johannes; and Nuesch, Jakob, to Ciba-Geigy Corporation. Papulacandin derivatives and pharmaceutical compositions containing same. 4,278,665, Cl. 424-181.000.

Treczka, Leo: *See—*
Spinner, Georg; and Treczka, Leo, 4,278,956, Cl. 333-81.00A.

Trelleborg AB: *See—*
Sandberg, Nils A., 4,278,365, Cl. 406-30.000.

Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., to Monsanto Company. Dehydrocoupling of toluene. 4,278,824, Cl. 585-428.000.

Tremont, Samuel J.; and Williamson, Alex N., to Monsanto Company. Dehydrocoupling of toluene. 4,278,825, Cl. 585-428.000.

Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., to Monsanto Company. Dehydrocoupling of toluene. 4,278,826, Cl. 585-428.000.

Triumph Werke Nurnberg A.G.: *See—*
Zahner, Peter; and Puch, Diethelm, 4,278,358, Cl. 400-144.200.

Trott, Richard J.: *See—*
Loveless, W. L.; Trott, Richard J.; Heath, Robert H.; and Glick, William L., 4,278,366, Cl. 406-88.000.

Trudell, Richard E.: *See—*
Esthimer, William F.; Morin, Edward H.; and Trudell, Richard E., 4,277,945, Cl. 60-710.000.

TRW Inc.: *See—*
Wolfe, John R., III, 4,278,373, Cl. 408-188.000.

TRX, Inc.: *See—*
Barry, Richard L., 4,278,706, Cl. 427-96.000.

Tsai, Kuo L. Water-saving toilet bowl. 4,277,854, Cl. 4-420.000.

Tsuchihashi, Genichi; Ogura, Katsuyuki; and Mitamura, Shuichi, to Sagami Chemical Research Center. Novel α-thio-alkanoic acid derivatives. 4,278,802, Cl. 549-72.000.

Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, to Nissan Motor Company, Ltd. Pressure control valve assembly for an automotive split brake system. 4,278,299, Cl. 303-6.00C.

Tsunada, Naomasa: *See—*
Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, 4,278,299, Cl. 303-6.00C.

Tsunooka, Tsutomu: *See—*
Saito, Shigeo; and Tsunooka, Tsutomu, 4,278,000, Cl. 84-1.160.

Tsuruoka, Masao: *See—*
Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, 4,278,614, Cl. 260-465.300.

Tu, Shiao-Chun: *See—*
Hastings, John W.; and Tu, Shiao-Chun, 4,278,761, Cl. 435-8.000.

Tuday, Thomas: *See—*
Rebentisch, Hugo E.; and Tuday, Thomas, 4,278,228, Cl. 248-548.000.

Tull, James A.: *See—*
Anderson, Edward A.; Rawls, Rose M.; and Tull, James A., 4,278,479, Cl. 148-23.000.

Turco Manufacturing Co.: *See—*
Baynes, William R.; and Hock, Donal D., 4,278,250, Cl. 272-113.000.

Turner, Bradley D.: *See—*
Riley, Richard E.; and Turner, Bradley D., 4,278,725, Cl. 428-208.000.

Turner, Dennis R., to Bell Telephone Laboratories, Incorporated. Continuous gold electroplating apparatus. 4,278,520, Cl. 204-207.000.

Twinoak Products, Inc.: *See—*
McDuffee, Richard L., 4,277,853, Cl. 4-228.000.

Tybar Engineering Pty. Ltd.: *See—*
McKendrick, George A. R.; Bartlett, Ian G.; and Lymer, Donald A., 4,277,960, Cl. 68-205.00R.

Tyrolit-Schleifmittelwerke Swarovski K.G.: *See—*
Helletsberger, Harald; Aichhorn, Anton; and Bogusch, Erich, 4,278,449, Cl. 51-309.000.

Ube Industries, Ltd.: *See—*
Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, 4,278,614, Cl. 260-465.300.

Uchida, Isamu; Yamazaki, Yasuo; and Egawa, Takeshi, to Minolta Camera Kabushiki Kaisha. Pentagonal prism module for camera viewfinder. 4,278,339, Cl. 354-155.000.

Uchida, Kiyoshi: *See—*
Otsuka, Yasuhiro; Hori, Ryuzo; Matsumoto, Shinichi; Uchida, Kiyoshi; and Furutani, Toshinobu, 4,278,509, Cl. 204-1.00T.

Uchiya Thermostat Co.: *See—*
Muller, Manfred K.; and Uchiya, Tomoyoshi, 4,278,960, Cl. 337-365.000.

Uchiya, Tomoyoshi: *See—*
Muller, Manfred K.; and Uchiya, Tomoyoshi, 4,278,960, Cl. 337-365.000.

Udall, Humfrey N., to Thermatool Corp. Heat exchanger panels and method of manufacture. 4,277,871, Cl. 29-157.30C.

Udall, Humfrey N.: *See—*
Rudd, Wallace C.; and Udall, Humfrey N., 4,278,868, Cl. 219-123.000.

Uehara, Keijiro: *See—*
Imaizumi, Ichiro; Kimura, Masatoshi; and Uehara, Keijiro, 4,278,987, Cl. 357-48.000.

Uhlmann, Gert; Schramm, Konrad; and Kohler, Georg, to Kraftwerk Union Aktiengesellschaft. Earthquake-proof mounting support for control-rod drives of nuclear reactors. 4,278,498, Cl. 176-36.00R.

Uhrner, Klaus-Jurgen, to KACO GmbH & Co. Seal. 4,278,218, Cl. 277-40.000.

Ujhidy, Aurel: *See—*
Timko born Jozsa, Judit; Blickle, Tibor; Borlai, Oszkar; and Ujhidy, Aurel, 4,278,319, Cl. 350-3.780.

Ulmer, Richard W.: *See—*
Lee, Robert D.; and Ulmer, Richard W., 4,278,929, Cl. 323-311.000.

Umemura, Sumio; Ohdan, Kyoji; Matsuzaki, Tokuo; Asada, Hiroyuki; and Tsuruoka, Masao, to Ube Industries, Ltd. Process for the catalytical preparation of acrylonitrile. 4,278,614, Cl. 260-465.300.

Umicum S.A.: *See—*
de Gaillard, Alain, 4,278,410, Cl. 418-108.000.

Under Sea Industries, Inc.: *See—*
Schuch, Joseph N., 4,278,080, Cl. 128-201.110.

Union Carbide Corporation: *See—*
Abatjoglou, Anthony G., 4,278,517, Cl. 204-158.00R.
Boros, Eugene J.; and Peck, David W., 4,278,807, Cl. 560-134.000.
Bury, Roland P.; Mehlman, Stewart K.; and Andreini, Rockne J., 4,278,464, Cl. 75-51.000.
Chiu, Herman S., 4,278,694, Cl. 426-135.000.
Crowe, John J., 4,277,988, Cl. 76-107.00R.
Eigenbrod, Lester K.; Kidder, Gerald F.; and Zeunik, Robert L., 4,277,950, Cl. 62-55.000.
Kalnoki-kis, Tibor, 4,278,741, Cl. 429-48.000.
Kiyonaga, Kazuo, 4,278,462, Cl. 75-5.000.
Law, Wai-Tak; and Ertingshausen, Gerhard, 4,278,440, Cl. 23-230.00B.
Nausedas, Joseph A.; and Eichin, Harry P., 4,277,930, Cl. 53-396.000.
Niegisch, Walter D., 4,278,623, Cl. 264-28.000.
Sigmund, Paul W.; and Butwell, Kenneth F., 4,278,621, Cl. 261-114.00R.

Union Rheinische Braunkohlen Kraftstoff Aktiengesellschaft: *See—*
Korff, Joachim; Fremery, Max; and Zimmermann, Johannes, 4,278,819, Cl. 568-594.000.

Unistrut Corporation: *See—*
Rebentisch, Hugo E.; and Irish, Ellwood, 4,277,923, Cl. 52-126.000.

United Kingdom Atomic Energy Authority: *See—*
Clayton, Colin G.; and Wormald, Malcolm R., 4,278,882, Cl. 250-255.000.
Hodgson, Thomas D.; and Jordan, Tony W. J., 4,278,531, Cl. 209-11.000.
Pardoe, John A., 4,277,968, Cl. 72-262.000.

United States Borax & Chemical Corporation: *See—*
Creffield, Geoffrey K.; Wickens, Anthony J.; Dowd, Anthony C. H.; and Henley, Vernon F. F., 4,278,737, Cl. 428-469.000.

United States Gypsum Company: *See—*
Selbe, Rexford L.; Waropay, Vincent M.; Quigg, Paul S.; and Reily, William S., 4,278,468, Cl. 106-111.000.

United States of America
Agriculture: *See—*
Frank, Arlen W.; Daigle, Donald J.; and Kullman, Russell M. H., 4,278,811, Cl. 564-15.000.
Pickett, Teddy L.; Ignacio, Isidro D.; and Rojas, Marco, 4,278,035, Cl. 111-2.000.

Air Force: *See—*
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.
Chiao, Raymond Y.; Fetterman, Harold R.; and Schlossberg, Howard R., 4,278,953, Cl. 332-7.510.
Elwell, John L., Jr., 4,278,557, Cl. 252-171.000.
Evtuhov, Viktor, 4,278,948, Cl. 331-94.50C.
Lunden, Clarence D., 4,278,955, Cl. 333-33.000.

Army: *See—*
Drzewiecki, Tadeusz M.; and Phillippi, Richard M., 4,277,971, Cl. 73-55.000.
Durenec, Peter, 4,277,947, Cl. 62-6.000.
Horn, Stuart B.; Asher, Mark S.; and Dunmire, Howard L., 4,277,948, Cl. 62-6.000.
Pearlstein, Fred; and Evans, Carroll F., 4,278,515, Cl. 204-55.00Y.
Smith, William G.; and Yuhash, Ladd, 4,278,008, Cl. 89-156.000.
Waldman, Steven B., 4,278,323, Cl. 350-96.200.

Energy: *See—*
Blakeslee, A. Eugene; and Mitchell, Kim W., 4,278,474, Cl. 136-249.000.
Gruen, Dieter M.; Krauss, Alan R.; and Siskind, Barry, 4,278,890, Cl. 250-492.00B.
Wallace, Steven A., 4,278,886, Cl. 250-393.000.

Interior: *See—*
Hathaway, John C.; and Poppe, Lawrence J., 4,278,883, Cl. 250-277.0CH.

National Aeronautics and Space Administration; administrator; with respect to an invention of:
Carson, Lansing M. PN Lock indicator for dithered PN code tracking loop. 4,279,018, Cl. 364-514.000.
Easterling, Mahlon E.; and Winkelstein, Robin A. Baseband signal combiner for large aperture antenna array. 4,278,978, Cl. 343-100.0CL.
Stirn, Richard J.; and Yeh, Yea-Chuan M. Schottky barrier solar cell. 4,278,830, Cl. 136-255.000.

National Aeronautics and Space Administration: *See—*
Benz, Harry A., 4,279,001, Cl. 358-213.000.
Johnston, Everett A.; and Ryan, Edward W., 4,278,220, Cl. 244-110.00B.

Navy: *See—*
Alpers, Frederick C.; and Hecker, Klaus J., 4,278,976, Cl. 343-6.50R.
Harper, Robert, 4,278,914, Cl. 315-3.500.
Hibbs, Joseph E.; Chalmers, Gerald W.; Durrell, Robert L.; and Smith, Walter C., 4,278,026, Cl. 102-254.000.
Jelks, Edward C., 4,278,710, Cl. 427-250.000.
Rhode, James B., 4,278,898, Cl. 307-528.000.

U.S. Philips Corporation: *See—*
Hill, Bernhard; Schmidt, Klaus P.; and Graf, Gerhard, 4,278,981, Cl. 346-108.000.
Van der Valk, Nicolaas J. L., 4,278,994, Cl. 358-25.000.
Vrijssen, Gerardus A. H. M.; and Franssen, Johannes P. T., 4,278,912, Cl. 313-331.000.
Wagner, Wolfgang, 4,278,888, Cl. 250-445.00T.

United Technologies Corporation: *See—*
Harner, Kermit I.; and Patrick, John P., 4,277,940, Cl. 60-243.000.
Wallischeck, Karl H.; and Smith, James H., 4,278,010, Cl. 91-420.000.
Yamarik, George J.; and Levengood, James L., 4,278,400, Cl. 416-97.00R.

University of California, The Regents of the: *See—*
Lynn, Scott; and Dubs, Bernard J., 4,278,646, Cl. 423-226.000.

University of Utah: *See—*
Adams, Mark B., 4,278,176, Cl. 211-74.000.

Untereker, Darrel F.: *See—*
Skarstad, Paul M.; Untereker, Darrel F.; and Coury, Arthur J., 4,278,745, Cl. 429-213.000.

Upjohn Company, The: *See—*
Birkenmeyer, Robert D., 4,278,789, Cl. 536-11.000.
Sih, John C., 4,278,812, Cl. 564-98.000.
Sih, John C., 4,278,813, Cl. 564-98.000.
Sih, John C., 4,278,815, Cl. 564-189.000.
Sih, John C., 4,278,818, Cl. 568-379.000.

Urlaub, Alfred; and Chmela, Franz, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Method of burning applied-ignition fuels in an air-compressing direct-injection internal combustion engine. 4,278,057, Cl. 123-276.000.

Uroshevich, Miroslav, to Alpha Solarco Inc. Flat plate solar collector. 4,278,074, Cl. 126-444.000.

Utsumi, Keizo, to Makino Milling Machine Co., Ltd. Tracing milling machine with an automatic tool changer. 4,277,880, Cl. 29-568.000.

Uusitalo, Seppo J.: *See—*
von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., 4,278,885, Cl. 250-370.000.

Vadetec Corporation: *See—*
Kemper, Yves J., 4,277,982, Cl. 74-191.000.

Vagias, Ernest. Traction device for a vehicle wheel. 4,278,122, Cl. 152-225.00C.

Valeron Corporation, The: *See—*
Cameron, Larry E.; Cook, Kenneth J.; Neff, Vance E.; and Rowland, Keith L., 4,279,013, Cl. 364-105.000.

Vamvakas, Spiro: *See—*
Friedman, Ernest H.; Flammer, Charles M.; Baker, Daniel A.; and Vamvakas, Spiro, 4,278,096, Cl. 128-695.000.

Van Cleave, Jon S. Preventative treatment for *Otitis externae*. 4,278,664, Cl. 424-148.000.

Vanderford, James R., to Texaco Inc. Seismic playback system. 4,278,964, Cl. 340-347.0DA.

Vander Horst, John. Hub seals for thrust-assisted centrifugal pump. 4,278,396, Cl. 415-63.000.

van der Piepen, Rolf; and Vollhardt, Frohmut, to Gutehoffnungshutte Stockrade AG. Apparatus for extracting granular or finely divided solid materials from a gas under pressure. 4,278,451, Cl. 55-227.000.

Vanderpool, Clarence D.; MacInnis, Martin B.; McClintic, Robert P.; and Gingerich, Richard G. W., to GTE Products Corporation. Process for recovering cobalt. 4,278,463, Cl. 75-0.50A.

Van der Valk, Nicolaas J. L., to U.S. Philips Corporation. Circuit arrangement in a color television encoder. 4,278,994, Cl. 358-25.000.

Van der Veken, Guido J. L.; and Dockx, Jozef C. J., to Janssen Pharmaceutica N.V. Non-toxic anthelminthic pour-on composition. 4,278,684, Cl. 424-270.000.

Van Dusseldorp, Larry R., to Marting Mfg. Inc. Animal feeder. 4,278,049, Cl. 119-53.500.

Van Eek, Wouter, deceased (by Beckett, Meryl A. M. Van Eek nee, legal representative), to Stamicarbon, B.V. Apparatus for extracting minerals through a borehole. 4,278,137, Cl. 175-267.000.

van Gerven, Hans, to Erbe Elektromedizin KG. Cryosurgical device. 4,278,090, Cl. 128-303.100.

van Loo, William J.: *See—*
Zwick, Maurice M.; and van Loo, William J., 4,278,634, Cl. 264-168.000.

van Rossem, Hendrik, to Byk-Mallinckrodt CIL B.V. Package for radiopharmaceutical compositions. 4,278,167, Cl. 206-45.340.

Van Sloun, Peter H., to Honeywell Inc. Acoustic sensor. 4,279,027, Cl. 367-125.000.

Vanzetti Infrared & Computer Systems, Inc.: *See—*
Dostoomian, A. S., 4,279,031, Cl. 368-82.000.

Varian Associates, Inc.: *See—*
Borden, Peter G., 4,278,473, Cl. 136-249.000.
Guarino, Nicholas, 4,278,380, Cl. 414-217.000.

Vasseur, Gilbert M., to Societe Anonyme Etablissements Vasseur & Cie. Equipments for attaching trailers. 4,278,267, Cl. 280-406.00R.

Vaughan, Urte: *See—*
Borsanyi, Alexander S.; Ivanovich, Peter; and Vaughan, Urte, 4,278,092, Cl. 128-348.000.

VDO Adolf Schindling AG: *See—*
Collonia, Harald, 4,278,059, Cl. 123-399.000.

Vega Laboratories, Inc.: *See—*
Cort, Joseph H., 4,278,595, Cl. 260-112.50R.

Velasco, Violeta S., to CPC International Inc. Preparing beverage mix containing dextrose hydrate and coated citric acid. 4,278,695, Cl. 426-289.000.

Venkatu, Doulatabad A., to Goodyear Aerospace Corporation. Brake friction material with reinforcement material. 4,278,153, Cl. 188-251.00M.

Verdier, Henri. Riding saddle. 4,277,933, Cl. 54-44.000.

Verdino, Heiner: *See—*
Schmolzer, Gerhard; Daimer, Wolfgang; and Verdino, Heiner, 4,278,580, Cl. 260-29.2EP.

Vermont American Corporation: *See—*
Elmore, Charles E., 4,278,119, Cl. 145-62.000.

Vernon E. Ramsey, Inc.: *See—*
O'Neal, James E., 4,277,878, Cl. 29-432.000.

Ver Strate, Gary; and Baldwin, Francis P., to Exxon Research & Engineering Co. Low molecular weight terminally-functional saturated hydrocarbon polymer. 4,278,822, Cl. 570-257.000.

Vianova Kunstharz, A.G.: *See—*
Dworak, Gert; and Aigner, Hansjorg, 4,278,574, Cl. 260-22.0CB.
Schmolzer, Gerhard; Daimer, Wolfgang; and Verdino, Heiner, 4,278,580, Cl. 260-29.2EP.

Victor Company of Japan, Limited: *See—*
Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, 4,279,005, Cl. 360-66.000.

Vigar, James M. L.: *See—*
Barclay, Donald J.; and Vigar, James M. L., 4,278,512, Cl. 204-41.000.

Vilkomerson, David H. R.; and Mezrich, Reuben S., to RCA Corporation. Scan-control apparatus for pulse-echo ultrasonic imaging system incorporating oscillated transducer. 4,277,979, Cl. 73-633.000.

Villyard, Charles S. Socket heat fusion apparatus. 4,278,424, Cl. 432-224.000.

Vinals, Joaquin F.: *See—*
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.

Vincett, Paul S.; Pundsack, Arnold L.; Hunter, Robert K., Jr.; and McCrary, Wylee D., to Xerox Corporation. Camera with development and viewing means. 4,278,335, Cl. 354-3.000.

Vock, Manfred H.: *See—*
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,278,098, Cl. 131-276.000.

Vogt, Volker: *See—*
Mross, Wolf D.; Titzenthaler, Eckart; Koopmann, Juergen; Schwarzmann, Matthias; and Vogt, Volker, 4,278,562, Cl. 252-430.000.

Voigt, Gunter; and Boldt, Rainer, to Dragerwerk Aktiengesellschaft. Calibrating device for a breath alcohol measuring instrument. 4,278,636, Cl. 422-84.000.

Voith Turbo GmbH & Co. K.G.: *See—*
Sauka, Klaus; and Muschelknautz, Horst, deceased, 4,278,298, Cl. 303-3.000.

Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, to BASF Aktiengesellschaft. Isolation of a conjugated diolefin from a C_4- or C_5-hydrocarbon mixture. 4,278,504, Cl. 203-53.000.

Volkmann, Josef F.: *See—*
Hart, Dale H.; and Volkmann, Josef F., 4,278,120, Cl. 411-190.000.

Volland, Hans-Guenter: *See—*
Burba, Christian; Volland, Hans-Guenter; and Esper, Norbert, 4,278,713, Cl. 427-388.200.

Vollhardt, Frohmut: *See—*
van der Piepen, Rolf; and Vollhardt, Frohmut, 4,278,451, Cl. 55-227.000.

Volz, David M.: *See—*
Thompson, David L., 4,278,422, Cl. 432-188.000.

von Alfthan, Georg C.; Lukander, Tuula A.; Rautala, Pekka; Sipila, Heikki J.; and Uusitalo, Seppo J., to Outokumpu Oy. Apparatus for measuring the concentrations of elements in a material by the capture gamma method. 4,278,885, Cl. 250-370.000.

von Hagens, Gunther. Animal and vegetal tissues permanently preserved by synthetic resin impregnation. 4,278,701, Cl. 427-4.000.

Von Rosenberg, Charles W., Jr.; Stickler, David B.; and Gannon, Richard E., to Avco Everett Research Laboratory, Inc. Very-high-velocity entrained-bed gasification of coal. 4,278,446, Cl. 48-197.00R.

Von Rosenberg, Charles W., Jr.: *See—*
Stickler, David B.; Von Rosenberg, Charles W., Jr.; and Gannon, Richard E., 4,278,445, Cl. 48-197.00R.

von Seidlitz, Hennmg, to Rheinmetall GmbH. Hand lever for operating the wedge-type breechblock of an artillery gun. 4,278,007, Cl. 89-24.000.

Vowles, Alexander E.: *See—*
Weideman, Christiaan R., 4,277,862, Cl. 15-110.000.

Vrijssen, Gerardus A. H. M.; and Franssen, Johannes P. T., to U.S. Philips Corporation. Electric discharge tube having a glass-sealed electric leadthrough and method of manufacturing such an electric leadthrough. 4,278,912, Cl. 313-331.000.

Vugrek, Andrija, to Western Electric Company, Inc. Cable feeding tool. 4,278,238, Cl. 254-134.3FT.

W-K-M Wellhead Systems, Inc.: *See—*
Chambless, Joe G.; and McGlasson, Paul E., 4,278,278, Cl. 285-143.000.

W. R. Grace & Co.: *See—*
Billings, Charles A.; and Hofeldt, Robert H., 4,278,718, Cl. 428-64.000.
Brax, Harri J.; Porinchak, Joseph F.; and Weinberg, Alan S., 4,278,738, Cl. 428-515.000.

Wacker-Chemie GmbH: *See—*
Brabetz, Hartmut; Schafer, Heinz; and Gorzel, Dieter, 4,278,727, Cl. 428-290.000.

Waddington, Clive, to Avco Corporation. Stepless, variable stroke drive having a non-rotating cam. 4,277,986, Cl. 74-750.00B.

Waggon Union GmbH: *See—*
Ahlborn, Gunther; Fiedler, Eberhard; Hubsch, Henry; and Kramer, Rolf, 4,278,030, Cl. 105-208.100.

Wagner, Johann: *See—*
List, Hans; Skatsche, Othmar; Thien, Gerhard; Fachbach, Heinz; Greser, Josef; and Wagner, Johann, 4,278,055, Cl. 123-195.00S.

Wagner, Ulrich: *See—*
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

Wagner, Wolfgang, to U.S. Philips Corporation. Apparatus for determining the spatial distribution of the absorption of radiation in a body. 4,278,888, Cl. 250-445.00T.

Wakabayashi, Hiroharu: *See—*
Sato, Masanori; Niiro, Yasuhiko; and Wakabayashi, Hiroharu, 4,278,850, Cl. 179-175.31R.

Wakabayashi, Hiroshi; and Okuyama, Takeshi, to Nippon Kogaku K.K. Battery case including a main switch device. 4,278,853, Cl. 200-16.00D.

Waldes, Lothar H.: *See—*
Rowley, David S.; Aumann, James T.; and Waldes, Lothar H., 4,278,138, Cl. 175-320.000.

Waldman, Steven B., to United States of America, Army. Optical fiber slip ring. 4,278,323, Cl. 350-96.200.

Wales, Beverly A.: *See—*
Wales, Richard L., 4,278,065, Cl. 124-20.00R.

Wales, Richard L., to Wales, Beverly A.; and Wilkins, Allen, part interest to each. Slingshot type gun. 4,278,065, Cl. 124-20.00R.

Walker, Derek; Silvestri, Herbert H.; Sapino, Chester; and Johnson, David A., to Bristol-Myers Company. Production of penicillins. 4,278,600, Cl. 260-239.100.

Walker, Ralph S.: *See—*
Young, James E.; Walker, Ralph S.; and Chidester, James R., 4,278,083, Cl. 128-214.00R.

Wallace, Steven A., to United States of America, Energy. In-line assay monitor for uranium hexafluoride. 4,278,886, Cl. 250-393.000.

Wallischeck, Karl H.; and Smith, James H., to United Technologies Corporation. Fluid flow regulator valve. 4,278,010, Cl. 91-420.000.

Walls, Francis G.: *See—*
Poteet, William C.; Terry, Claude E.; Hamrick, Glen F.; and Walls, Francis G., 4,278,482, Cl. 156-78.000.

Walls, Lester L., Jr.: *See—*
Weisner, Kent A.; and Walls, Lester L., Jr., 4,278,414, Cl. 425-388.000.

Walraven, Willem. Method and apparatus for analysis of saccharides. 4,278,438, Cl. 23-230.00M.

Walter, Jurgen: *See—*
Hackforth, Josef; and Walter, Jurgen, 4,277,958, Cl. 64-11.00R.

Walter, Lothar: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Ernst, Horst M., 4,278,305, Cl. 308-6.00C.

Walton, Harris G., to Johns-Manville Corporation. Method of improving siliceous filter aid dispersion in wet process orthophosphoric acid production systems. 4,278,648, Cl. 423-319.000.

Walton, William B., to BASF Wyandotte Corporation. Stimulation of oil and gas wells with phosphate ester surfactants. 4,278,129, Cl. 166-263.000.

WAM dei Fratelli Marchesini s.n.c.: *See—*
Marchesini, Wainer, 4,278,384, Cl. 414-412.000.

Wankel GmbH: *See—*
Eiermann, Dankwart, 4,278,409, Cl. 418-61.00A.

Ward, Ronald C.: *See—*
Regennitter, Jack; and Ward, Ronald C., 4,278,841, Cl. 179-5.00R.

Ward, Terence J., to John Wyeth & Brother Limited. Amide derivatives. 4,278,685, Cl. 424-274.000.

Warner-Lambert Co.: *See—*
Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., 4,278,681, Cl. 424-266.000.

Waropay, Vincent M.: *See—*
Selbe, Rexford L.; Waropay, Vincent M.; Quigg, Paul S.; and Reily, William S., 4,278,468, Cl. 106-111.000.

Warren, Norman E., to Dow Chemical Company, The. Synergistic prevulcanization inhibitor for halopolymer with diaminopropane and cyclohexylthiophthalimide. 4,278,778, Cl. 525-346.000.

Warwick, Robert N.: *See—*
Sullivan, Richard W.; and Warwick, Robert N., 4,278,709, Cl. 427-233.000.

Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, to Nippon Stud Welding Co. Ltd. Gas shielded stud welding method. 4,278,865, Cl. 219-99.000.

Watanabe, Junichi; Aoyama, Takahiko; and Gotoh, Norio, to Kawasaki Jukogyo Kabushiki Kaisha. Muffler for engine, particularly motorcycle engine. 4,278,147, Cl. 181-256.000.

Watts, Bruce R.: *See—*
Beckedorff, David L.; Sporer, Michael; and Watts, Bruce R., 4,279,012, Cl. 364-104.000.

Watts, John D. Fluid separator. 4,278,550, Cl. 210-741.000.

Wauters, Ronald P.: *See—*
Cassanelli, Robert R.; Wauters, Ronald P.; Cole, Richard A.; Evans, David N.; and Herbst, Darrel E., 4,278,692, Cl. 426-96.000.

Waymouth, John F.; Bouchard, Andre C.; Fowler, Richard A.; and Hall, Harold H., Jr., to GTE Products Corporation. Method of making a percussively-ignited photoflash lamp. 4,278,310, Cl. 316-24.000.

Weaver, Richard A., to Fluid and Electric Control Company. Material handling apparatus. 4,278,015, Cl. 100-53.000.

Webb, John C.: *See—*
Romero-Sierra, Cesar; and Webb, John C., 4,278,715, Cl. 428-22.000.

Wegleitner, Karlheinz; Krulla, Wilfried; and Willim, Richard, to Chemie Linz Aktiengesellschaft. Process for preparing pure cyanuric acid. 4,278,794, Cl. 544-192.000.

Wehr Corporation: *See—*
Nemesi, Stephen A., 4,278,454, Cl. 55-302.000.

Wehrli, Henry A., III; Boomgaard, Dirk J.; and Lund, Alvin O., deceased (by Lund, Helen B., executrix), to Westinghouse Electric Corp. Elevator system. 4,278,150, Cl. 187-29.00R.

Weideman, Christiaan R., to Vowles, Alexander E. Toothbrush. 4,277,862, Cl. 15-110.000.

Weiffen, Karl-Heinz, to Klockner-Humboldt-Deutz AG. Method of starting an electro-pneumatically actuated wet-settling machine. 4,278,536, Cl. 209-422.000.

Weikel Associates, Inc.: *See—*
Weikel, David S., 4,278,359, Cl. 400-303.000.

Weikel, David S., to Weikel Associates, Inc. Control circuit for use with a dot matrix printer. 4,278,359, Cl. 400-303.000.

Weil, Edward D., to Stauffer Chemical Company. Flame retardant compositions. 4,278,771, Cl. 521-107.000.

Weinberg, Alan S.: *See—*
Brax, Harri J.; Porinchak, Joseph F.; and Weinberg, Alan S., 4,278,738, Cl. 428-515.000.

Weisner, Kent A.; and Walls, Lester L., Jr., to Kennedy Sky-Lites, Inc. Apparatus for making plastic skylights. 4,278,414, Cl. 425-388.000.

Weitz, Hans-Martin: *See—*
Volkamer, Klaus; Brollos, Klaus; Lindner, Alfred; Wagner, Ulrich; Weitz, Hans-Martin; and Schneider, Klaus-Jurgen, 4,278,504, Cl. 203-53.000.

Wermuth, Jurgen: *See—*
Schroder, Ernst; and Wermuth, Jurgen, 4,278,945, Cl. 330-278.000.

Werner, Paul; and Strowik, Willibald, to Keiper Automobiltechnik GmbH. Motor-driven adjustable seat, particularly a motor vehicle seat. 4,278,290, Cl. 297-362.000.

Werner, Peter; and Drews, Ulrich, to Robert Bosch GmbH. Method and apparatus for adjusting fuel injection control. 4,278,061, Cl. 123-483.000.

Werner, Wolfgang: *See—*
Berger, Dieter; Braun, Franz; Guthlein, Werner; Kuhr, Manfred; and Werner, Wolfgang, 4,278,763, Cl. 435-23.000.

Wernimont, Theodore A., to J. I. Case Company. Vibration resistant electrical switch. 4,278,857, Cl. 200-83.00R.

Werych, Ewald R., to General Signal Corporation. Electrical heating unit with flattened embedded heating coil. 4,278,877, Cl. 219-544.000.

Wesley, Ronald E. Water skiing tow apparatus. 4,278,212, Cl. 242-54.00R.

West End Glass Co. Limited: *See—*
Oberg, Edwin T., 4,277,889, Cl. 30-164.950.

West & Sons (Engineers) Limited: *See—*
Brown, John E., 4,278,260, Cl. 277-110.000.

Westberg, Johan E. H., to Separek Teknik AB. Centrifuge rotor and collapsible separation container for use therewith. 4,278,202, Cl. 233-27.000.

Westbrook, Edward S., IV: *See—*
Funk, Ernest J.; Wing, Thomas; Lane, Jack C.; and Westbrook, Edward S., IV, 4,278,348, Cl. 355-73.000.

Western Electric Company, Inc.: *See—*
Lawrence, Hopeton S.; and Michalski, John D., 4,278,538, Cl. 209-580.000.
Partus, Fred P., 4,278,459, Cl. 65-18.000.
Vugrek, Andrija, 4,278,238, Cl. 254-134.3FT.
Wong, Ching-Ping, 4,278,784, Cl. 528-27.000.

Westfalia Separator AG: *See—*
Gunnewig, Hubert, 4,278,200, Cl. 233-16.000.

Westimayer, David A.; and Scholten, Stephen C., to Deere & Company. Grouser bar track assembly for snowmobile. 4,278,302, Cl. 305-35.0EB.

Westinghouse Electric Corp.: *See—*
Bartko, John; and Schlegel, Earl S., 4,278,475, Cl. 148-1.500.
Bartko, John; and Schlegel, Earl S., 4,278,476, Cl. 148-1.500.
Borona, Russell T., 4,278,859, Cl. 200-144.00R.
Boundy, Bruce K., 4,278,834, Cl. 174-48.000.
Kapadia, Jayant K.; and Matty, Thomas C., 4,278,900, Cl. 307-311.000.
Shimp, Alan B., 4,279,007, Cl. 361-47.000.
Silvestri, George J., Jr.; and Kesavan, Krishnamurthy, 4,277,943, Cl. 60-646.000.
Silvestri, George J., Jr., 4,277,944, Cl. 60-670.000.
Wehrli, Henry A., III; Boomgaard, Dirk J.; and Lund, Alvin O., deceased, 4,278,150, Cl. 187-29.00R.
Yoldas, Bulent E., 4,278,632, Cl. 264-66.000.

Westley, John: *See—*
Liu, Chao-Min; Prosser, Barbara; and Westley, John, 4,278,663, Cl. 424-119.000.

Weyer, Rudi: *See—*
Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, 4,278,680, Cl. 424-266.000.

Wheeler, Ian R.; Robertson, George H.; and McGregor, David, to Ciba-Geigy Corporation. Process for conditioning phthalocyanine pigment. 4,278,601, Cl. 260-314.500.

Wheldon, Alfred G.; and Cockerill, Peter E., to Distillers Company (Carbon Dioxide) Limited, The. Plant for the extraction of hops by extraction with liquid carbon dioxide. 4,278,012, Cl. 99-278.000.

Whirl-Air-Flow Corporation: *See—*
Mueller, Edward E.; Harrod, Michael K.; and Hagemeister, Frederick C., 4,278,383, Cl. 414-412.000.

White, Lawrence K.; Comizzoli, Robert B.; and Schnable, George L., to RCA Corporation. Method of detecting a cathodic corrosion site on a metallized substrate. 4,278,508, Cl. 204-1.00T.

White, Raymond R., to Ilsco Corporation. Rejector fuse clip assembly. 4,278,316, Cl. 339-258.00R.

White-Sundstrand Machine Tool, Inc.: *See—*
Blomquist, Robert E.; and Reynolds, Charles R., 4,278,381, Cl. 414-349.000.

White, William I., to Miles Laboratories, Inc. Sensitizers for peroxidative activity tests. 4,278,439, Cl. 23-230.00B.

Whitener, Philip C.: *See—*
Hamm, Robert A.; and Whitener, Philip C., 4,278,485, Cl. 156-173.000.

Whitman, Alfred: *See—*
Millard, Richard J.; Bernard, Walter J.; and Whitman, Alfred, 4,278,513, Cl. 204-42.000.

Whittingham, Barron S., to Dedlow, Carl Eugene. Process for extracting sugar from cellulose and cellulosic materials. 4,278,471, Cl. 127-37.000.

Wick, Alexander E., to Hoffmann-La Roche Inc. 1-Ethyl-1,4-dihydro-6-(2-naphthyl)-4-oxonicotinic acid and esters thereof. 4,278,798, Cl. 546-298.000.

Wickens, Anthony J.: *See—*
Creffield, Geoffrey K.; Wickens, Anthony J.; Dowd, Anthony C. H.; and Henley, Vernon F. F., 4,278,737, Cl. 428-469.000.

Widmyer, Richard H.: *See—*
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,278,128, Cl. 166-250.000.

Wieme, Andre, to N. V. Bekaert S.A. Energy absorbing elements comprising rigid non-elastomeric layer and visco-elastic layer with twisted fiber bundles embedded therein. 4,278,726, Cl. 428-229.000.

Wijbenga, Harke M.: *See—*
Bos, Bernardus W.; and Wijbenga, Harke M., 4,279,017, Cl. 364-484.000.

Wiklund, Klas R., to AGA Aktiebolag. Apparatus for indicating angular position in a vertical direction. 4,277,895, Cl. 33-366.000.

Wilds, Robert W.; Meyer, Robert E.; Grannen, Walter A., III; and Bryant, Dannie, to E. W. Mold & Tool Co. Inc. Internally locked core centering mold assembly. 4,278,417, Cl. 425-577.000.

Wilkins, Allen: *See—*
Wales, Richard L., 4,278,065, Cl. 124-20.00R.

Wilkinson, John D.: *See—*
Campbell, Roy E.; and Wilkinson, John D., 4,278,457, Cl. 62-24.000.

Wilkinson, Mitchell M.: *See—*
Morgan, Barrie O.; and Wilkinson, Mitchell M., 4,278,840, Cl. 179-1.50S.

Williams, Billy W., to McDermott Incorporated. Anchor handling guides. 4,278,041, Cl. 114-210.000.

Williams, Brown F., to RCA Corporation. Method for forming an electrical contact to a solar cell. 4,278,704, Cl. 427-75.000.

Williams, Hugh M. Watercolor paper stretcher. 4,277,901, Cl. 38-102.200.

Williams, Theodore L. Security lock nut assembly for padlocks. 4,277,961, Cl. 70-54.000.

Williamson, Alex N.: *See—*
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,824, Cl. 585-428.000.
Tremont, Samuel J.; and Williamson, Alex N., 4,278,825, Cl. 585-428.000.
Tremont, Samuel J.; Williamson, Alex N.; and Solodar, Arthur J., 4,278,826, Cl. 585-428.000.

Williamson, Robert D. Method and apparatus for beverage dispensing control and quantity monitoring. 4,278,186, Cl. 222-36.000.

Willim, Richard: *See—*
Wegleitner, Karlheinz; Krulla, Wilfried; and Willim, Richard, 4,278,794, Cl. 544-192.000.

Willis, Alan E.: *See—*
Lowdenslager, John; and Willis, Alan E., 4,279,028, Cl. 368-11.000.

Willis, Clyde P. Escapement mechanism for automatic fastener insert mechanisms. 4,278,184, Cl. 221-233.000.

Willis, Wilburn C., to Aluminum Company of America. Container closure with breakable annular ring. 4,278,180, Cl. 215-252.000.

Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. 2,6,6-Trimethyl-α-(iso)propenyl-1-cyclohexene-1-methanols and -1,3-cyclohexadiene-1-methanols and organoleptic uses thereof. 4,278,098, Cl. 131-276.000.

Wilson, Robert J.: *See—*
Baker, Charles W.; Wilson, Robert J.; and Kempf, Dale F., 4,278,338, Cl. 354-83.000.

Wilson, Weldon D., to Eagle Aircraft Co. Agriculture spray plane. 4,278,221, Cl. 244-136.000.

Winburn, Anne L.: *See—*
Scheinbaum, Marc C.; and Winburn, Anne L., 4,278,197, Cl. 229-30.000.

Wineholt, Robert L.; and Feeman, James F., to Crompton & Knowles Corp. 4,4'-Thiodiphenol-formaldehyde condensation products. 4,278,616, Cl. 260-512.00C.

Wing, Thomas: *See—*
Funk, Ernest J.; Wing, Thomas; Lane, Jack C.; and Westbrook, Edward S., IV, 4,278,348, Cl. 355-73.000.

Wingen, Ludwig: *See—*
Lorscheid, Willy; and Wingen, Ludwig, 4,278,360, Cl. 401-151.000.

Winkelstein, Robin A.: *See—*
United States of America, National Aeronautics and Space Administration; Easterling, Mahlon E.; and Winkelstein, Robin A., 4,278,978, Cl. 343-100.0CL.

Winn, Graham C. E.: *See—*
Hughes, Michael A.; Johnson, Jeremy S. M.; and Winn, Graham C. E., 4,278,973, Cl. 340-721.000.

Winter, Roland A. E.: *See—*
Dexter, Martin; and Winter, Roland A. E., 4,278,589, Cl. 260-45.8NT.
Dexter, Martin; and Winter, Roland A. E., 4,278,590, Cl. 260-45.8NT.

Winzeler, James E.: *See—*
Golan, Kenneth F.; and Winzeler, James E., 4,278,155, Cl. 192-4.00R.

Wirthwein, Rolf: *See—*
Stober, Reinhard; and Wirthwein, Rolf, 4,278,615, Cl. 260-502.00R.

Wissner, Allan, to American Cyanamid Company. 15-Deoxy-16-substituted-19-chloro-20-nor prostane derivatives of the E and F series. 4,278,806, Cl. 560-121.000.

Witte, Ernst-Christian: *See—*
Hubner, Manfred; Kuhnle, Hans; Witte, Ernst-Christian; Heerdt, Ruth; Weyer, Rudi; and Hitzel, Volker, 4,278,680, Cl. 424-266.000.

Wohlgemuth, Juergen: *See—*
Landgraf, Hermann; and Wohlgemuth, Juergen, 4,278,907, Cl. 310-191.000.

"Wohn-Art"-Freizeitartikel Gesellschaft m.b.H.: *See—*
Artweger, Wolfgang; and Burger, Anton, 4,277,919, Cl. 52-2.000.

Wolfe, John R., III, to TRW Inc. Indexable insert drill. 4,278,373, Cl. 408-188.000.

Wolff, Erich: *See—*
Saleck, Wilhelm; Wolff, Erich; and Muller, Erwin, 4,278,759, Cl. 430-627.000.

Wolff, Kurt, to Steinhaus GmbH, Firma. Screen decks. 4,278,535, Cl. 209-399.000.

Wolff, Siegfried; and Tan, Ewe-Hong, to Degussa Aktiengesellschaft. Vulcanizable rubber mixture based on halogen free rubber for vulcanizing these rubber mixtures and use of the rubber mixtures. 4,278,587, Cl. 260-42.370.

Wolk, Claus: *See—*
Marschall, Peter; Schlosser, Ewald; and Wolk, Claus, 4,278,949, Cl. 331-94.50H.

Wolosianski, Alexandre. Apparatus for screw-threading. 4,278,374, Cl. 409-74.000.

Wolschlager, Gerald J., to Modular Data Systems, Inc. Engine dynamometer. 4,277,972, Cl. 73-862.160.

Won, Vann Y. Electrode assembly for determining the identification of metals and metal alloys. 4,278,519, Cl. 204-195.00F.

Wong, Ching-Ping, to Western Electric Company, Inc. Encapsulated electronic devices and encapsulating compositions. 4,278,784, Cl. 528-27.000.

Woo, Peter W. K.: *See*—
Haskell, Theodore H.; Hutt, Marland P., Jr.; Nicolaides, Ernest D.; Woo, Peter W. K.; and Huang, Gin G., 4,278,681, Cl. 424-266.000.

Wood, Loren E.; Allen, Jerome D.; Clift, Miner E.; Kays, Jerry W.; and Forsythe, Calvin C., to BS & B Safety Systems, Inc. Safety pressure relief device. 4,278,181, Cl. 220-89.00A.

Wood, Prentice J., to Mead Corporation, The. Article carrier and blank therefor. 4,278,168, Cl. 206-183.000.

Woods, Richard E., to Reli Corporation. Driver warning system. 4,278,969, Cl. 340-576.000.

Wormald, Malcolm R.: *See*—
Clayton, Colin G.; and Wormald, Malcolm R., 4,278,882, Cl. 250-255.000.

Worrell, J. Robert, to Standard Oil Company (Indiana). VMP Riser release tool. 4,277,875, Cl. 29-253.000.

Wortman, Donald W., to TII Corporation. Transformerless hybrid circuits. 4,278,847, Cl. 179-170.0NC.

Wozniak, Stephen G., to Apple Computer, Inc. Digitally-controlled color signal generation means for use with display. 4,278,972, Cl. 340-703.000.

Wright, Peter J., to Ciba-Geigy AG. Receiving elements containing graft gelatin polymers as dye mordants. 4,278,749, Cl. 430-213.000.

Wu, Jing-Liang, to Gould Inc. Arc driven single pressure type circuit breaker. 4,278,860, Cl. 200-148.00R.

Wulff, Karl; Stahler, Fritz; and Michal, Gerhard, to Boehringer Mannheim GmbH. Method and composition for determining an oxidized pyridine co-enzyme. 4,278,760, Cl. 435-8.000.

Wullenweber, Heinz: *See*—
Lohrberg, Karl; Wullenweber, Heinz; Muller, Jurgen; and Sermond, Bernd, 4,278,568, Cl. 252-472.000.

Wust, Willi: *See*—
Christophliemk, Peter; and Wust, Willi, 4,278,649, Cl. 423-329.000.

Xerox Corporation: *See*—
Rider, Ronald E., 4,279,002, Cl. 358-257.000.
Sahay, Ravi B., 4,278,344, Cl. 355-14.0SH.
Vincett, Paul S.; Pundsack, Arnold L.; Hunter, Robert K., Jr.; and McCrary, Wylee D., 4,278,335, Cl. 354-3.000.

Yabu, Takashi: *See*—
Baba, Fumio; Miyasaka, Kiyoshi; Yabu, Takashi; and Mogi, Junichi, 4,278,989, Cl. 357-59.000.

Yabuuchi, Takahiro: *See*—
Fujimura, Hajime; Hiramatsu, Yasuzo; Yabuuchi, Takahiro; Hisaki, Masakatu; Takikawa, Katsuo; Honna, Takaji; Miyake, Hidekazu; and Kajitani, Makoto, 4,278,672, Cl. 424-248.400.

Yajima, Hiroshi; Komoda, Norihisa; and Horiuchi, Susumu, to Hitachi, Ltd. System for controlling the number of waste liquid disposal units in operation. 4,278,104, Cl. 137-118.000.

Yamada, Akira: *See*—
Fukazawa, Kazuo; and Yamada, Akira, 4,278,846, Cl. 369-128.000.

Yamaguchi, Jiro: *See*—
Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, 4,278,757, Cl. 430-512.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Nagai, Hiroshi, 4,278,143, Cl. 180-282.000.

Yamamoto, Takemi: *See*—
Aso, Kazuo; Nishioka, Takesaburo; Yamamoto, Takemi; Miyai, Naomichi; and Matsuno, Jun-ichi, 4,278,124, Cl. 164-125.000.

Yamamoto, Toshiyuki: *See*—
Hamazaki, Yasuhiko; Seri, Kenji; Ishiyama, Nobuo; Yamamoto, Toshiyuki; Sakasai, Masao; and Sato, Reiko, 4,278,678, Cl. 424-263.000.

Yamamoto, Yasuo: *See*—
Miura, Takeshi; and Yamamoto, Yasuo, 4,278,261, Cl. 277-153.000.

Yamamoto, Yasushi: *See*—
Toyoshima, Shigeshi; Sato, Ryuichi; Ito, Koichi; Shinohara, Toshio; and Yamamoto, Yasushi, 4,278,666, Cl. 424-184.000.

Yamarik, George J.; and Levengood, James L., to United Technologies Corporation. Coolable rotor blade. 4,278,400, Cl. 416-97.00R.

Yamasaki, Tetsuro: *See*—
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,278,675, Cl. 424-253.000.

Yamashita, Haruhiro: *See*—
Naito, Takayuki; Nakagawa, Susumu; Yamasaki, Tetsuro; Okita, Taka-aki; and Yamashita, Haruhiro, 4,278,675, Cl. 424-253.000.

Yamashita, Tadaoki: *See*—
Ohta, Takeo; Akahira, Nobuo; Nakamura, Tatsushi; and Yamashita, Tadaoki, 4,278,734, Cl. 428-432.000.

Yamashita, Yoshiaki; Kambara, Hiroyuki; Kambayashi, Hiroaki; and Okada, Yasuyuki, to Hitachi, Ltd. Method for controlling rotary memory device. 4,279,004, Cl. 360-48.000.

Yamashita, Yoshio; Kunishi, Mitsumasa; and Kawazu, Ryuji, to Oki Electric Industry Co., Ltd. Resists and method of manufacturing semiconductor elements by using the same. 4,278,754, Cl. 430-323.000.

Yamauchi, Katsuto: *See*—
Yasuhara, Seishi; Tamazawa, Tsuyoshi; and Yamauchi, Katsuto, 4,278,407, Cl. 417-292.000.

Yamazaki, Masami: *See*—
Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, 4,279,005, Cl. 360-66.000.

Yamazaki, Yasuo: *See*—
Uchida, Isamu; Yamazaki, Yasuo; and Egawa, Takeshi, 4,278,339, Cl. 354-155.000.

Yan, Tsoung Y.; and Audeh, Costandi A., to Mobil Oil Corporation. Process for repairing asphalt pavement. 4,278,469, Cl. 106-278.000.

Yan, Tsoung-yuan; and Espenscheid, Wilton F., to Mobil Oil Corporation. Clay stabilization in uranium leaching and restoration. 4,278,292, Cl. 299-5.000.

Yankovsky, Nikolai K.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Yano, Kazuhiko; and Ohtsuki, Kazuhiko, to Kanzaki Kokyukoki Mfg. Co., Ltd. Clutch engaging and disengaging means. 4,278,156, Cl. 192-48.910.

Yasuhara, Seishi; Tamazawa, Tsuyoshi; and Yamauchi, Katsuto, to Nissan Motor Company, Ltd. Device for controlling an amount of fuel injection in a diesel engine. 4,278,407, Cl. 417-292.000.

Yasui, Toshio; and Naito, Motoharu, to Nippondenso Co., Ltd. Electric control circuit for safety apparatus in automotive vehicles. 4,278,971, Cl. 340-635.000.

Yee, Kwok C., to Allied Chemical Corporation. Fluorinated benzenesulfonate diacetylenes. 4,278,561, Cl. 252-408.000.

Yeh, Yea-Chuan M.: *See*—
United States of America, National Aeronautics and Space Administration; Stirn, Richard J.; and Yeh, Yea-Chuan M., 4,278,830, Cl. 136-255.000.

Yoder, Marvel J.: *See*—
Ahouse, David R.; Daugherty, Jack D.; Glickler, Sheldon L.; Kellen, Paul F.; Sutton, George W.; Korff, David; and Yoder, Marvel J., 4,278,950, Cl. 331-94.50G.

Yokokura, Hisao: *See*—
Kawamura, Hiromitsu; Nakajima, Tokuyoshi; Shibuya, Yoshimichi; and Yokokura, Hisao, 4,278,326, Cl. 350-343.000.

Yokotsuji, Yasushi: *See*—
Mizutani, Hitoshi; Nakajima, Zenji; Horikiri, Yoshito; Harada, Hiroshi; and Yokotsuji, Yasushi, 4,278,262, Cl. 277-212.0FB.

Yokoyama, Tatsuo: *See*—
Isobe, Toshiaki; and Yokoyama, Tatsuo, 4,278,060, Cl. 123-440.000.

Yokoyama, Yoshihiro: *See*—
Sasaki, Toshiharu; Katakabe, Noboru; and Yokoyama, Yoshihiro, 4,279,006, Cl. 360-90.000.

Yoldas, Bulent E., to Westinghouse Electric Corp. Low-temperature formation of clear vitreous silica-titania material. 4,278,632, Cl. 264-66.000.

Yoneyama, Masakazu: *See*—
Mukunoki, Yasuo; Yoneyama, Masakazu; Yamaguchi, Jiro; Naito, Hideki; and Sasaki, Jun, 4,278,757, Cl. 430-512.000.

Yoshida Kogyo, K.K.: *See*—
Takahashi, Kihei; Terada, Seiko; and Oofusa, Masaatsu, 4,278,111, Cl. 139-35.000.
Takahashi, Kihei, 4,278,112, Cl. 139-452.000.

Yoshida, Takao; Mookherjee, Braja D.; Kamath, Venkatesh; Hall, John B.; Taylor, William I.; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. 2,2,3-Trimethyl-3-cyclopenten-1-ylalkyl, alkenyl and alkylidene, cyclohexanols, organo-leptic uses thereof in perfume compositions, colognes and perfumed articles. 4,278,569, Cl. 252-522.00R.

Yoshida, Takeshi: *See*—
Watanabe, Hiroyuki; Miyoshi, Eiji; Kojima, Haruo; Yoshida, Takeshi; Kato, Masaaki; and Miyazaki, Shizuo, 4,278,865, Cl. 219-99.000.

Yoshinari, Hideki: *See*—
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; Kano, Ichiro; and Suzuki, Akiyoshi, 4,278,893, Cl. 250-548.000.

Yoshizawa, Kiyoshi; Nojiro, Kikuo; Itoh, Masamitsu; Kiuchi, Hiroshi; and Horii, Kazuo, to National Tax Administration Agency; and Kibun Company Limited. Method of purifying distillers solubles and use of the purified matter. 4,278,699, Cl. 426-624.000.

Yoshizawa, Tamotu: *See*—
Okamoto, Yoshihiko; Yoshizawa, Tamotu; Ohta, Takahiro; and Murata, Koichi, 4,278,347, Cl. 355-68.000.

Young, James E.; Walker, Ralph S.; and Chidester, James R. Flow regulating device for arterial catheter systems. 4,278,083, Cl. 128-214.00R.

Youngfleish, Frank C.: *See*—
Scheingold, William S.; and Youngfleish, Frank C., 4,278,311, Cl. 339-17.0CF.

Yuhash, Ladd: *See*—
Smith, William G.; and Yuhash, Ladd, 4,278,008, Cl. 89-156.000.

Zacharias, Theodor: *See*—
Staat, Karl-Hans; Zacharias, Theodor; and Terdenge, Bernhard, 4,277,967, Cl. 72-224.000.

Zahner, Peter; and Puch, Diethelm, to Triumph Werke Nurnberg A.G. Type carrier with impression control formation. 4,278,358, Cl. 400-144.200.

Zaiko, Edward J.; and Ranken, Paul F., to Ethyl Corporation. Method for the preparation of 2-fluoro-4-monobromomethylbiphenyl. 4,278,516, Cl. 204-158.0HA.

Zaweski, Edward F.; and Harstick, Christian S., to Ethyl Corporation. Lubricant composition. 4,278,555, Cl. 252-52.00A.

Zebroski, Edwin L.: *See*—
Levenson, Milton; and Zebroski, Edwin L., 4,278,559, Cl. 252-301.10R.

Zeitlin, Martin A.; and Harper, Jon J., to Standard Oil Company (Indiana). Low bromine content glacial acetic acid. 4,278,503, Cl. 203-28.000.

Zenith Radio Corporation: *See*—
Skerlos, Peter C., 4,279,035, Cl. 455-158.000.

Zeunik, Robert L.: *See*—
Eigenbrod, Lester K.; Kidder, Gerald F.; and Zeunik, Robert L., 4,277,950, Cl. 62-55.000.

Zhdanova, Nelli I.: *See*—
Debabov, Vladimir G.; Kozlov, Jury I.; Zhdanova, Nelli I.; Khurges, Evgeny M.; Yankovsky, Nikolai K.; Rozinov, Mikhail N.; Shakulov, Rustem S.; Rebentish, Boris A.; Livshits, Vitaly A.; Gusyatiner, Mikhail M.; Mashko, Sergei V.; Moshentseva, Vera N.; Kozyreva, Ljudmila F.; and Arsatiants, Raisa A., 4,278,765, Cl. 435-172.000.

Zimmerman, Dennis M., to Eli Lilly and Company. Intermediates to phenylmorphans and method of preparation thereof. 4,278,797, Cl. 546-112.000.

Zimmerman, Harry M. Cam-lock fitting. 4,278,279, Cl. 285-255.000.

Zimmermann, Johannes: *See*—
Korff, Joachim; Fremery, Max; and Zimmermann, Johannes, 4,278,819, Cl. 568-594.000.

Zinz, Alvin G., Sr. Flipper rest. 4,278,066, Cl. 124-41.00A.

Zipfel, Lothar. Adjustable mount for optical components. 4,278,324, Cl. 350-288.000.

Zobel, Don W., to Medtronic, Inc. Pacemaker with pulse width adjustment circuitry. 4,278,094, Cl. 128-419.0PG.

Zoleski, Benjamin H.: *See*—
Sung, Rodney L.; and Zoleski, Benjamin H., 4,278,553, Cl. 252-50.000.

Zurner, Hansjurgen; and Fuhrmann, Wolfgang, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Arrangement for actuating gas-change valves. 4,278,233, Cl. 251-57.000.

Zwick, Maurice M.; and van Loo, William J., to American Cyanamid Company. Biconstituent acrylic fibers by melt spinning. 4,278,634, Cl. 264-168.000.

Zyliss Zysset AG: *See*—
Ruberg, Richardt E., 4,278,114, Cl. 141-65.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF JULY, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Berger, Abe, to M&T Chemicals Inc. Silicone containing bis-thioether aromatic amines. Re. 30,677, Cl. 556-423.000.

Brilli, Fosco. Method for forming inserts in shoe soles and the product obtained. Re. 30,672, Cl. 36-14.000.

Caswell, Robert L.: *See*—
Evans, Gregory W.; and Caswell, Robert L., Re. 30,679, Cl. 364-523.000.

Dai-Ichi Kogyo Seiyaku Co., Ltd.: *See*—
Mori, Shigeo; and Fujita, Takeshi, Re. 30,676, Cl. 521-110.000.

Eaton Corp.: *See*—
Van Zeeland, Donald L.; and Schuchmann, Russell P., Re. 30,678, Cl. 361-44.000.

Evans, Gregory W.; and Caswell, Robert L., to Rockwell International Corporation. Character generating method and system. Re. 30,679, Cl. 364-523.000.

Feinbloom, William. Side view mirror employing prism for blind spot correction. Re. 30,673, Cl. 350-288.000.

Fujita, Takeshi: *See*—
Mori, Shigeo; and Fujita, Takeshi, Re. 30,676, Cl. 521-110.000.

Johns-Manville Corporation: *See*—
Wenda, Alojzy; and Olds, Leonard E., Re. 30,674, Cl. 65-29.000.

M&T Chemicals Inc.: *See*—
Berger, Abe, Re. 30,677, Cl. 556-423.000.

Mori, Shigeo; and Fujita, Takeshi, to Dai-Ichi Kogyo Seiyaku Co., Ltd. Flame resistant polyurethane foam and process for producing the same. Re. 30,676, Cl. 521-110.000.

Olds, Leonard E.: *See*—
Wenda, Alojzy; and Olds, Leonard E., Re. 30,674, Cl. 65-29.000.

Rockwell International Corporation: *See*—
Evans, Gregory W.; and Caswell, Robert L., Re. 30,679, Cl. 364-523.000.

Schole, Murray L. Dentifrice. Re. 30,675, Cl. 424-54.000.

Schuchmann, Russell P.: *See*—
Van Zeeland, Donald L.; and Schuchmann, Russell P., Re. 30,678, Cl. 361-44.000.

Van Zeeland, Donald L.; and Schuchmann, Russell P., to Eaton Corp. Dormant oscillator ground to neutral protection for ground fault interrupters. Re. 30,678, Cl. 361-44.000.

Wenda, Alojzy; and Olds, Leonard E., to Johns-Manville Corporation. Method and apparatus for feeding a glass melting furnace. Re. 30,674, Cl. 65-29.000.

LIST OF DESIGN PATENTEES

A. Ahlstrom Osakeyhtio: *See*—
Sarpaneva, Timo, 259,845, Cl. D7-11.000.

Aktiebolaget Bahco Verktyg: *See*—
Wahlberg, Ulf H., 259,854, Cl. D8-58.000.

Allied Plastics, Inc.: *See*—
Page, Cornelius D., Jr., 259,835, Cl. D3-40.000.

American Cyanamid Company: *See*—
Grodin, Adam J., 259,860, Cl. D9-432.000.

Audemars, Daniel; Simm, Wolfgang; and Steine, Hans-Theo, to Castolin S.A. Flame spraying torch. 259,851, 7-14-81, Cl. D8-30.000.

Bantin, Robert A.; and Kilbourn, Dean R., to BKB Industries, Inc. Hand manipulative aquatic toy. 259,888, 7-14-81, Cl. D21-59.000.

Barbera, Charles. Loudspeaker enclosure. 259,877, 7-14-81, Cl. D14-34.000.

Bata Shoe Company, Inc.: *See*—
Greenlee, James V., 259,823, Cl. D2-320.000.

Bayerische Motoren Werke Aktiengesellschaft: *See*—
Schneider, Louis; and Muth, Hans A., 259,836, Cl. D3-71.000.

Bib Hi-Fi Accessories Limited: *See*—
Westran, William C., 259,848, Cl. D7-161.000.

BKB Industries, Inc.: *See*—
Bantin, Robert A.; and Kilbourn, Dean R., 259,888, Cl. D21-59.000.

Boekamp, Konrad M. Free standing space heater. 259,892, 7-14-81, Cl. D23-122.000.

Business Concepts Marketing Corporation: *See*—
Pearl, Irwin, 259,879, Cl. D14-60.000.

Caran D'Ache SA: *See*—
Collaud, Jean-Michel; Girella, Albert; Herren, Maurice; Muller, Niklaus; and Piola, Roger, 259,894, Cl. D27-36.000.

Carrick, Della: *See*—
Hamby, Robert L., 259,847, Cl. D7-74.000.

Carrick, Leo L.: *See*—
Hamby, Robert L., 259,847, Cl. D7-74.000.

Castolin S.A.: *See*—
Audemars, Daniel; Simm, Wolfgang; and Steine, Hans-Theo, 259,851, Cl. D8-30.000.

Ciener, David M. Combined door lock bolt and cover plate. 259,856, 7-14-81, Cl. D8-331.000.

Collaud, Jean-Michel; Girella, Albert; Herren, Maurice; Muller, Niklaus; and Piola, Roger, to Caran D'Ache SA. Lighter. 259,894, 7-14-81, Cl. D27-36.000.

Confon AG: *See*—
Haim, Hans, 259,885, Cl. D19-76.000.

Corboy, Michael R. Screw propellor protection device for boats. 259,881, 7-14-81, Cl. D15-4.000.

Crealock, William I. B. Boat. 259,871, 7-14-81, Cl. D12-303.000.

Cridland, Michael: *See*—
Pulos, Arthur J.; and Cridland, Michael, 259,876, Cl. D14-6.000.

Crousshore, James F. Water toy. 259,887, 7-14-81, Cl. D21-59.000.

Derbyshire, George C., to Jacobs Manufacturing Co., Ltd., The. Drill chuck. 259,855, 7-14-81, Cl. D8-68.000.

Dictaphone Corporation: *See*—
Pulos, Arthur J.; and Cridland, Michael, 259,876, Cl. D14-6.000.

Eiteljorg, James S.: *See*—
Feldman, Rubin; Paddock, Wilbur; and Eiteljorg, James S., 259,850, Cl. D8-30.000.

Eller, Chauncey B. Combined air pressure gauge and dual tire air filling device. 259,863, 7-14-81, Cl. D10-86.000.

Engebretsen, Einar O., to Hobart Corporation. Vegetable slicer housing. 259,883, 7-14-81, Cl. D15-97.000.

Englishtown Sportswear, Ltd.: *See*—
Heinfling, Martin, 259,820, Cl. D2-28.000.

Estes, Richard B. Andiron. 259,849, 7-14-81, Cl. D7-211.000.

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Van Brouwer, Ryk, 259,826, Cl. D2-440.000.
Van Brouwer, Ryk, 259,827, Cl. D2-440.000.
Van Brouwer, Ryk, 259,828, Cl. D2-440.000.
Van Brouwer, Ryk, 259,829, Cl. D2-440.000.
Van Brouwer, Ryk, 259,830, Cl. D2-440.000.
Van Brouwer, Ryk, 259,831, Cl. D2-440.000.
Van Brouwer, Ryk, 259,832, Cl. D2-440.000.
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Struby, Michel. Radiation-sensitive pendulum to be held in the hand. 259,865, 7-14-81, Cl. D10-47.000.

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ISSUED JULY 14, 1981

NOTE.—First number, class; second number, subclass; third number, patent number

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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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PATENTS

July 21, 1981

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Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,122,263, Re. S.N. 237,961, Filed Feb. 25, 1981, Cl. 544/114, PRODUCTION OF 2-(O-ALKYLTHIOPHENYL)-1,3-DIAZOCYCLOALKENE HYDROHALIDES, Helmut Hagen, et al., Owner of Record: *BASF Aktiengesellschaft, Ludwigshafen, Germany,* Attorney or Agent: Herbert B. Keil, et al., Ex. Gp.: 121

4,148,434, Re. S.N. 253,421, Filed Apr. 9, 1981, Cl. 235/435, METHOD OF PRODUCING A BINARY CODE AND MEANS FOR USING THE SAME, John L. Lorenzo, Owner of Record: *Pitney Bowes, Inc., Stamford, Conn.,* Attorney or Agent: Peter Vrahotes, et al., Ex. Gp.: 235

4,217,164, Re. S.N. 226,859, Filed Jan. 21, 1981, Cl. 156/541, LABELLING SYSTEM, Herbert Lamers, Owner of Record: *Gar Doc, Inc., Milford, N.H.,* Attorney or Agent: John C. Fox, et al., Ex. Gp.: 161

PATENT NOTICES

Certificates of Correction for the Week of July 21, 1981

3,933,889	4,243,408	4,254,435	4,259,937
3,955,213	4,243,582	4,254,788	4,260,596
3,970,648	4,244,006	4,255,207	4,260,644
4,008,326	4,244,402	4,255,248	4,261,420
4,009,082	4,244,954	4,255,258	4,261,542
4,045,449	4,245,336	4,255,270	4,261,761
4,066,625	4,245,351	4,255,339	4,261,768
4,068,953	4,246,586	4,255,472	4,261,830
4,183,639	4,246,704	4,255,475	4,261,962
4,186,263	4,246,712	4,255,480	4,262,092
4,192,265	4,247,239	4,255,922	4,262,501
4,196,834	4,247,248	4,256,073	4,262,792
4,199,131	4,247,618	4,256,158	4,262,929
4,202,086	4,248,320	4,256,619	4,262,996
4,203,893	4,248,539	4,256,638	4,263,288
4,208,923	4,248,909	4,256,867	4,263,310
4,211,915	4,248,994	4,256,896	4,263,789
4,213,955	4,248,998	4,257,144	4,263,945
4,218,394	4,249,734	4,257,627	4,264,045
4,218,502	4,249,805	4,257,964	4,264,112
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4,233,490	4,250,508	4,258,427	4,264,455
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4,236,829	4,252,835	4,259,372	4,266,265
4,237,092	4,253,179	4,259,488	4,266,378
4,238,254	4,253,882	4,259,516	4,267,310
4,242,183	4,254,031	4,259,673	4,267,468
4,243,311	4,254,074	4,259,920	4,267,839

National Technical Information Service

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DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE AIR FORCE

AF/JACP
1900 Half St., S.W.
Washington, D.C. 20324

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U.S. DEPARTMENT OF THE NAVY

Director, Navy Patent Program/
Patent Counsel for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

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Patent 4,238,093. Aircraft Launcher. Filed Dec. 21, 1978. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,464. Air Revitalization Materials. Filed Aug. 9, 1978. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,240,272. Arctic Canteen. Filed June 18, 1979. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,240,599. Vehicle Launching Device. Filed Apr. 30, 1979. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,241,167. Electrolytic Blocking Contact to InP. Filed May 25, 1979. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,243,024. G-Protection System Sensing a Change in Acceleration and Tilt Angle. Filed Apr. 2, 1979. Patented Jan. 6, 1981. Not available NTIS.

Patent 4,245,558. Infrared Proximity Fuze Electronic Amplifier. Filed Sept. 26, 1963. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,472. Controlled Store Separation System. Filed Dec. 18, 1978. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,571. High Resolution Quantizer. Filed Mar. 23, 1978. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,248,630. Method of Adding Alloy Additions in Melting Aluminum Base Alloys for Ingot Casting. Filed Sept. 7, 1979. Patented Feb. 3, 1981. Not available NTIS.

Patent 4,248,683. Localized Anodic Thinning. Filed Apr. 22, 1980. Patented Feb. 3, 1981. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

Patent application 6–119,337. Partial Interlaminar Separation System for Composites. Filed Feb. 7, 1980.

Patent application 6–147,695. Receiving and Tracking Phase Modulated Signals. Filed May 7, 1980.

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Patent application 6-217,336. Improved Attachment System for Silica Tiles. Filed Dec. 17, 1980.

Patent application 6-218,587. Texturing Polymer Surfaces by Transfer Casting. Filed Dec. 19, 1980.

Patent application 6-219,639. A Method for Producing a Solidified Body of Silicon. Filed Dec. 24, 1980.

Patent application 6-219,680. Method of Forming Frozen Spheres in a Force-Free Drop Tower. Filed Dec. 24, 1980.

Patent application 6-219,681. Absorbent Product and Articles Made Therefrom. Filed Dec. 24, 1980.

Patent application 6-220,212. Gyrotron Transmitting Tube. Filed Dec. 24, 1980.

Patent application 6-220,214. An Improved Solid Electrolyte Cell. Filed Dec. 24, 1980.

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Patent application 6-225,500. Tactile Sensing System. Filed Jan. 16, 1981.

Patent 4,213,064. Redundant Operation of Counter Modules. Filed Apr. 4, 1978. Patented July 15, 1980. Not available NTIS.

Patent 4,213,684. System for Forming a Quadrified Image Comprising Angularly Related Fields of View of a Three Dimensional Object. Filed Mar. 20, 1978. Patented July 22, 1980. Not available NTIS.

Patent 4,216,542. Method and Apparatus for Quadriphase-Shift-Key and Linear Phase Modulation. Filed Mar. 6, 1979. Patented Aug. 5, 1980. Not available NTIS.

Patent 4,219,203. Thermal Barrier Pressure Seal. Filed Dec. 29, 1978. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,220,171. Curved Centerline Air Intake for a Gas Turbine Engine. Filed May 14, 1979. Patented Sept. 2, 1980. Not available NTIS.

Patent 4,221,005. Pseudonoise Code Tracking Loop. Filed May 21, 1979. Patented Sept. 2, 1980. Not available NTIS.

Patent 4,225,102. Aerodynamic Side-Force Alleviator Means. Filed Mar. 12, 1979. Patented Sept. 30, 1980. Not available NTIS.

Patent 4,229,182. Recovery of Aluminum from Composite Propellants. Filed Sept. 29, 1978. Patented Oct. 21, 1980. Not available NTIS.

Patent 4,243,323. Interferometer. Filed Nov. 30, 1978. Patented Jan. 6, 1981. Not available NTIS.

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	Sunnyvale Patent Library*	(408) 736-0795
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Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
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Michigan	Detroit Public Library	(313) 833-1450
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	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
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North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
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Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
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RENE D. TEGTMEYER, Assistant Commissioner
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CONDITION OF PATENT APPLICATIONS AS OF May 30, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-13-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	2-15-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	7-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	12-28-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	1-07-80
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	8-02-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director .... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-29-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	10-16-78
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,980, inclusive
Plant Patents ..... Numbers 2,399 to 2,406, inclusive

REISSUES

JULY 21, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,680

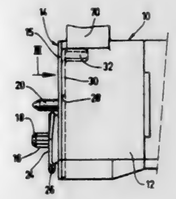
CONNECTING ARRANGEMENT FOR A MACHINE TOOL

Willy Kress, Bisingen, and Josef Seifert, Grosselfingen, both of Fed. Rep. of Germany, assignors to Firma Kress elektrik GmbH & Co., Bisingen, Fed. Rep. of Germany

Original No. 4,103,511, dated Aug. 1, 1978, Ser. No. 729,006, Oct. 4, 1976. Application for reissue Feb. 12, 1979, Ser. No. 11,306

Int. Cl.[3] **F16C** *1/06, 1/12*

U.S. Cl. 64—4 **10 Claims**



1. Connecting arrangement for a machine tool having an electromotor driving device in a housing and an exchangeable operating device comprising a driving shaft projecting from the housing of the driving device and a receiving coupling part in a housing of the operating device receiving the driving shaft, so that the housings of the driving device and operating device may be fixed together in a centered manner, wherein the housings of the driving device and operating device have flat, perfectly equal contact surfaces disposed perpendicularly in relation to the driving shaft, and wherein the housings are fixed mutually untwistably on their contact surface by means of axially outward protruding centering pins on one contact surface and centering openings on the other contact surface receiving the centering pins, further comprising coupling means operated from the outside of said contact surfaces when said contact surfaces are fitted against each other in a twist-secure manner.

Re. 30,681
Patent Not Issued For This Number

Re. 30,682

CRANKCASE EMISSION SEPARATOR AND COLLECTOR

Elmer W. Bush, 2010 Trimble Way, Sacramento, Calif. 95825

Original No. 4,089,309, dated May 16, 1978, Ser. No. 645,900, Dec. 31, 1975. Application for reissue May 15, 1980, Ser. No. 150,015

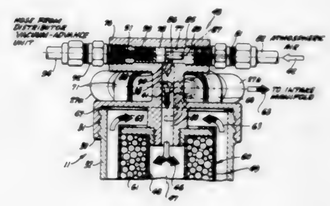
Int. Cl.[3] **F02M** *25/06;* **B01D** *39/06*

U.S. Cl. 123—573 **16 Claims**

1. A crankcase emission fluid separator for use with an engine having a crankcase, an air intake leading to a combustion chamber and a vacuum source, said separator comprising:

a housing forming an enclosure and including inlet means adapted to be coupled to said engine crankcase for admitting emisions therefrom to the interior of said housing, outlet means adapted to be coupled to said air intake for furnishing separated fluids thereto, vacuum port means adapted to be coupled to said vacuum source, and air intake means for introducing ambient air into said housing; and

means within said housing for conditioning engine crankcase emissions entering said housing via said inlet means and leaving said housing via said outlet means to separate liquid and solid components from gaseous components



thereof, said conditioning means including a container having first and second apertured walls and a plurality of relatively inert particles located in said container between said walls and providing a barrier through which said emissions pass from said inlet means to said outlet means, fluid conduit means having a first end terminating adjacent one of said first and second container walls and a second end in fluid communication with said inlet means and said air intake means, and valve means coupled to said vacuum port means for controlling the quantity of ambient air admitted to said fluid conduit means in accordance with the magnitude of said vacuum source, said valve means including bias means for limiting the admission of ambient air into said fluid conduit means to a minimum amount when the magnitude of said vacuum source is a minimum and for permitting the amount of ambient air admitted to said fluid conduit means to increase as the magnitude of said vacuum source increases.

Re. 30,683

FLUID COUPLING DEVICE AND BIMETAL COIL ADJUSTMENT FOR USE THEREIN

Kenneth R. Streeter, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Original No. 4,116,316, dated Sep. 26, 1978, Ser. No. 827,414, Aug. 24, 1977. Continuation of Ser. No. 687,264, May 17, 1976, Pat. No. 4,054,193. Application for reissue Aug. 6, 1979, Ser. No. 64,225

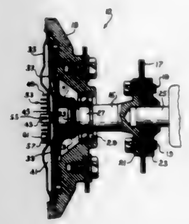
The portion of the term of this patent subsequent to Oct. 18, 1994, has been disclaimed.

Int. Cl.[3] **F16D** *43/25, 35/00*

U.S. Cl. 192—82 T **10 Claims**

6. *A fluid coupling device including a first rotatable member, cover means associated with said first member to define a fluid*

chamber therebetween, a valve plate disposed to separate said fluid chamber into a fluid operating chamber and a fluid reservoir chamber, a second rotatable member disposed in said fluid operating chamber and rotatable relative to said first member, valve means operable to control fluid communication between said operating chamber and said reservoir chamber, temperature-responsive means controlling said valve means, said temperature-responsive means including a bimetal element having a first end portion operatively connected to said valve means and a second end



portion, bracket means fixed relative to said device and including a generally flat terminal portion extending away from said cover means, a clip member including means receiving said second end portion of said bimetal element and substantially preventing rotational movement of said second end portion relative to said first end portion, said clip member being disposed in engagement with said terminal portion of said bracket means to maintain said second end portion of said bimetal element fixed relative to said first end portion.

Re. 30,685

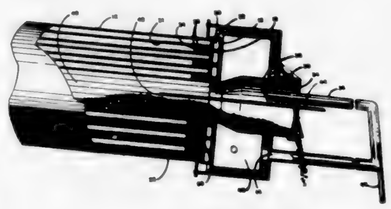
PROCESS FOR RECYCLING ASPHALT-AGGREGATE COMPOSITIONS

Robert L. Mendenhall, 1770 Industrial Rd., Las Vegas, Nev. 89102

Original No. 4,000,000, dated Dec. 28, 1976, Ser. No. 488,518, Jul. 15, 1974. Continuation-in-part of Ser. No. 286,613, Sep. 5, 1972, abandoned, and Ser. No. 360,464, May 15, 1973, Pat. No. 3,845,941. Application for reissue Feb. 6, 1978, Ser. No. 875,397

Int. Cl.[3] **C08J** *3/18;* **C08K** *5/01;* **C08L** *95/00*

U.S. Cl. 106—280 **10 Claims**



1. In a process for recycling used asphalt-aggregate composition comprising heating and mixing said composition in a heating and mixing chamber, the improvement comprising adding to said composition an amount of petroleum hydrocarbon having at least 55% aromatics, *and heating and mixing the composition at a temperature of at least about 200° F.* to achieve a product having a penetration of between about 25 and about 300 dmm at 77° F.

Re. 30,684

DIGITAL MASS FLOW CONTROL SYSTEM

Kenneth W. Bullivant, Glassboro, N.J., assignor to K-Tron International, Inc., Scottsdale, Ariz.

Original No. 3,724,720, dated Apr. 3, 1973, Ser. No. 169,398, Aug. 5, 1971. Application for reissue Apr. 3, 1975, Ser. No. 564,965

Int. Cl.[3] **G05G** *11/12*

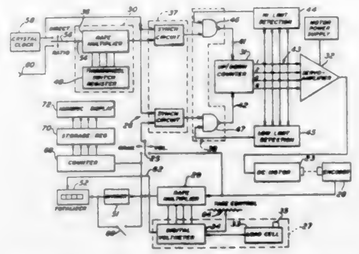
U.S. Cl. 222—55 **38 Claims**

18. A digital mass flow indicator system for use with a motor driven conveyor belt having means for feeding material onto the belt, comprising:

weighing means associated with said conveyor belt for producing a digital signal representative of the instantaneous mass of material on said conveyor belt;

encoder means associated with said conveyor belt for producing a digital signal in the form of a pulse train whose instantaneous frequency is representative of the instantaneous rate of movement of said conveyor belt;

digital rate multiplier means responsive to the digital signals produced by said weighing means and said encoder means for producing a digital signal in the form of a pulse train, *each pulse in said train representing an instantaneous incre-*



ment of mass on said belt, the frequency of said pulse train representing instantaneous mass flow; and

means for scaling the pulse train digital signal produced by said multiplier means to produce a digital signal pulse train in which each pulse is representative of an increment of mass delivered by said conveyor belt *in predetermined dimensions.*

Re. 30,686

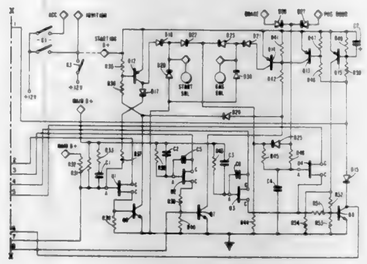
REMOTE STARTING SYSTEM FOR A COMBUSTION ENGINE

Jeffry C. Bucher, R.D. No. 1, Aspers, Pa. 17304

Original No. 4,080,537, dated Mar. 21, 1978, Ser. No. 643,664, Dec. 23, 1975. Application for reissue Dec. 8, 1978, Ser. No. 967,719

Int. Cl.[2] **H02P** *9/04*

U.S. Cl. 290—38 R **11 Claims**



1. A system to enable a user to start, from a remote location, a combustion engine having an electric starter motor and a source of electrical potential associated therewith, said system comprising:

a receiver for receiving a control signal selectively generated by said user;

means coupled to said receiver and responsive to selective, repetitive receptions of said control signal for selective, repetitive, user-controlled pumping of fuel into said engine prior to activation of a starting operation; **[**and**]**

means also coupled to said receiver and responsive to the last of said receptions of said control signal for activating said starting operation and connecting said potential source to said starter motor; *and*

means for preventing any said selective pumping by said user after said starting operation has been activated until said starting operation has been terminated.

Re. 30,687

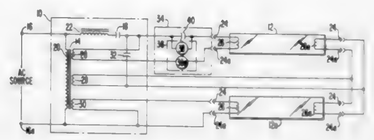
ENERGY SAVING DEVICE FOR A STANDARD FLUORESCENT LAMP SYSTEM

Edward W. Morton, Bronx, N.Y., and John F. Gilmore, Verona, N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Original No. 4,082,981, dated Apr. 4, 1978, Ser. No. 772,790, Feb. 28, 1977. Application for reissue Dec. 4, 1979, Ser. No. 100,314

Int. Cl.[3] **H05B** *41/36;* **H01J** *17/34*

U.S. Cl. 315—58 **9 Claims**



7. An adapter-container device for connection to one fluorescent lamp of a standard two fluorescent lamp rapid-start series-sequence fixture, wherein said one fluorescent lamp has electrodes operatively positioned therein proximate the ends thereof, each of said electrodes connected at its ends to two pin contacts positioned at each end of said one lamp, said adapter-container comprising an outer protective jacket having end members disposed at either end thereof, one of said end members having two receptacle contacts operatively positioned so as to receive said two pin contacts at one end of said one lamp, the other of said end members having two pin members operatively positioned and readily adaptable to fit into said standard rapid-start fluorescent lamp fixture, a power reducing means included within said adapter-container device and comprising electrode preheat means operable upon application of energizing potential to said fixture to pass electrode heating current to the pin members of said one lamp which are received by said one end member of said adapter-container device in order to preheat the said lamp electrode which connects to said adapter-container-received pin members, an impedance means of predetermined value enclosed within said adapter-container device, and upon energization of said lamp, said impedance means being included in series circuit with said one lamp to decrease by a predetermined amount the operating current through said one lamp.

PLANT PATENTS

GRANTED JULY 21, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,751
Patent Not Issued For This Number

4,752
CHRYSANTHEMUM NAMED COUGAR
Leonard H. Shoesmith, Woking, England, assignor to Pan-American Plant Company, West Chicago, Ill.
Filed Jul. 18, 1980, Ser. No. 170,075
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—76 **1 Claim**

1. A new variety of chrysanthemum plant for the fall garden, substantially as herein shown and described, particularly characterized by its profuse production of medium sized flowers having a unique bronze coloration and which form a mound shaped display; by its vigorous growth and caespitose habits; and by its adaptability to year-round pot production under photoperiod culture.

4,753
CHRYSANTHEMUM NAMED HUSKEY
Leonard H. Shoesmith, Westfield-Woking, England, assignor to Pan-American Plant Company, West Chicago, Ill.
Filed Jul. 18, 1980, Ser. No. 170,092
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of *Chrysanthemum morifolium*, substantially as herein shown and described, particularly suitable for Fall garden culture and having a vigorous growth habit and a profuse production of flowers borne on strong, upright stems; this variety also being adaptable for year-around four inch pot production under photoperiod control.

PATENTS

GRANTED JUL. 21, 1981

ERRATA

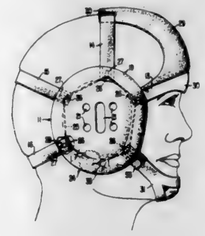
For CLASS	See PATENT NO.
172-004	2,279,138
474-082	2,279,172
411-487	2,279,190
294-162	2,279,366
369-247	2,279,423
355-027	2,279,491
416-244 A	2,279,575
414-667	2,279,604
424-246	2,279,818
518-700	2,279,830
369-043	2,280,023
369-219	2,280,024
235-001 D	2,280,034
235-094 R	2,280,035
235-379	2,280,036
235-454	2,280,037
375-004	2,280,219

PATENTS

GRANTED JULY 21, 1981

GENERAL AND MECHANICAL

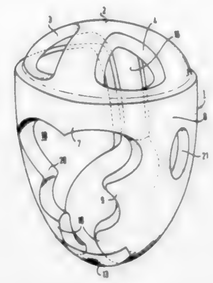
4,279,037
ADJUSTABLE HEADGEAR SUSPENSION
Frank S. Morgan, 5405 N. 27th Rd., Arlington, Va. 22207
Continuation-in-part of Ser. No. 749,800, Aug. 2, 1968, abandoned. This application Oct. 15, 1970, Ser. No. 81,013
Int. Cl.³ A42B *7/00*
U.S. Cl. 2—421 **13 Claims**



1. In an adjustable headgear suspension comprising,
head protective means,
securing means coupled to said protective means for engaging the wearer's head and securing said head protective means in protective relationship to the wearer's head,
said securing means comprising,
a flexible-inextensible eyebrow-engaging head strap means adapted to engage and utilize the wearer's eyebrows as an anchor against vertical displacement when tension is applied to any member of the said securing means,
a flexible-inextensible rear head-engaging strap positioned to utilize the depression at the base of the wearer's skull as an anchor against vertical displacement when tension is applied to any member of said securing means, and
at least one flexible-inextensible head strap passing meridionally around the top of the wearer's head and positioned at substantially equal intervals between the said eyebrow-engaging head strap means and said rear head-engaging strap,
universal tension equalizing means associated with at least one of said head protective means, said universal equalizing means being coupled to said securing means and adapted to simultaneously uniformly vary the tension on said securing means to achieve and automatically maintain uniform tension on said securing means.

4,279,038
HEADPROTECTOR MADE OF ELASTIC MATERIAL FOR ATHLETES
Georg F. Brückner; Bernd Gelke, both of Berlin; Bernd-Jürgen Schoen, Grafenau, and Fritz Berger, Ottobeuren, all of Fed. Rep. of Germany, assignors to Metzeler Schaum GmbH, Memmingen, Fed. Rep. of Germany
Filed Nov. 5, 1979, Ser. No. 90,981
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1978, 2847869
Int. Cl.³ A63B *71/10*
U.S. Cl. 2—425 **6 Claims**

1. Headprotector for athletes, comprising a soft and elastic one-piece uncoated seamless body of form-molded polyurethane integral foam surrounding the head on all sides, extending to the beginning of the neck vertebrae on the back of the head, and having a bowl-shaped region covering the chin, said molded body having openings formed therein for the eyes, nose, mouth and ears, parting slot means for size adjustment extending from said mouth opening over said chin bowl, and two parallel longitudinal slots extending over the occipital region of the head and ending at the lower edge of said molded body forming a free strap therebetween, said free strap extending from the upper region of the molded body to the beginning of the neck vertebrae.



4,279,039
SWIM CAP WITH INTEGRAL EYE PROTECTION
Daniel C. Drew, Jasper, Ind., assignor to American Aquatic Concepts and Enterprises, Inc., Jasper, Ind.
Filed Jun. 25, 1979, Ser. No. 51,860
Int. Cl.³ A61F *9/02*; A42B *1/12*
U.S. Cl. 2—428 **15 Claims**

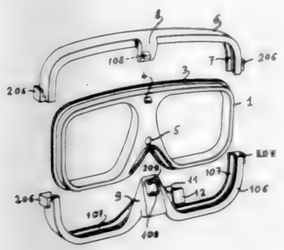


1. Swimming apparel comprising, in combination, a unitary elastic cap defining an inner surface and an outer surface and having a marginal edge, two goggle means secured to said cap for covering and protecting a swimmer's eyes, each of said goggle means defining a unitary lens assembly having a pair of means disposed adjacent said outer surface for securing straps thereto, a head strap secured between one of said strap securing means on each of said lens assemblies and disposed about a rearward portion of said outer surface of said cap, whereby said cap and said head strap cooperate to retain said apparel on the swimmer's head.

4,279,040
DIVING MASK
Giovanni Garofalo, Rapallo, Italy, assignor to AMF Incorporated, White Plains, N.Y.
Filed Aug. 18, 1980, Ser. No. 179,357
Claims priority, application Italy, Aug. 28, 1979, 15252/79[U]
Int. Cl.³ A61F *9/02*
U.S. Cl. 2—428 **4 Claims**

1. A diving mask comprising an eyeglass mounting frame; an outer frame made in two pieces which can be connected together by means of coupling members; and a rubber face piece

provided with a front aperture, the peripheral rim of which overlaps the outer rim of the said eyeglass mounting frame, and is clamped between the outer rim of the said eyeglass mounting



frame and the internal rim of the said outer frame; and fastening means on the outer frame and on the eyeglass mounting frame for fastening the said members together at least in correspondence of the mask median axis.

4,279,041

ENDOPROSTHESIS COMPOSED OF A SOCKET AND A HEAD RECEIVABLE AND LOCKABLE IN THE SOCKET

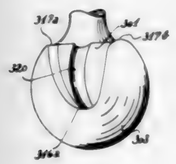
Hans-Wilhelm Buchholz, Möwenstrasse 12, 2000 Hamburg 60, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,895

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829676

Int. Cl.³ A61F *1/03*

U.S. Cl. 3—1.912 **10 Claims**



1. In an endoprosthesis composed of a first member constituting a prosthesis socket provided interiorly with a chamber presenting a receiving surface, a second member constituting a prosthesis head arranged to be inserted into the socket to be received in the chamber and presenting a surface engaging the receiving surface when the head is received in the chamber, and a shaft firmly connected to the head, the improvement wherein: said head is arranged to be inserted into said socket by insertion movement, relative to said socket, from an insertion position to an inserted position, and to be movable, relative to said socket, between the inserted position and an installed state; said head and socket are constructed such that movement between the inserted position and the installed state is effected by rotation of said head relative to said socket; said chamber presents an insertion opening corresponding in configuration to said head when said head is in the insertion position; at least one of said members is shaped for locking said head in said socket when said head is in the installed state; said surfaces of said head and said socket have mutually matched, approximately spherical forms and are provided with deformations which mate with one another only when said head is in the inserted position relative to said socket; said socket presents a boundary edge formed to present at least one corner which encloses said head when said head is in the installed state and which defines one said deformation with which said socket is provided, said corner extending in the direction toward said shaft to a location beyond the plane of maximum width of said head, perpendicular to the direction of insertion movement, when said head is in its inserted position, and said surface of said head is provided with a groove extending in the direction toward said shaft and defining one said deformation with which said head is provided, the depth of said groove being approximately equal to the constriction presented to said insertion opening by said corner.

4,279,042

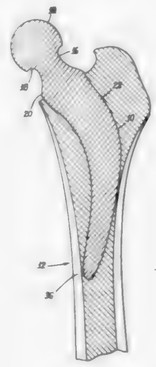
HIP PROSTHESIS

Thomas P. Andriacchi, Chicago; Jorge O. Galante, Oak Brook, and Steven J. Hampton, Villa Park, all of Ill., assignors to Rush-Presbyterian-St. Luke's Medical Center, Chicago, Ill.

Filed Nov. 26, 1979, Ser. No. 97,410

Int. Cl.³ A61F *1/03*

U.S. Cl. 3—1.913 **3 Claims**



1. A femoral insert for a hip joint prosthesis, comprising a convex spherical head axially secured to a collarless elongated neck and a stem secured to said neck opposite from said head, said stem including a proximal portion having a proximal medial endpoint, and a distal portion having a distal medial endpoint, said proximal portion and said distal portion being angularly joined to define a lateral apex having an apical height, said proximal medial endpoint and said distal medial endpoint defining a medial length, the ratio of said apical height to said medial length being greater than about 0.35.

4,279,043

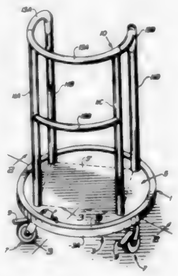
TRANSFER STAND

Bobbie L. Saunders, 5611 W. Circle Z, Tucson, Ariz. 85713

Filed Oct. 15, 1979, Ser. No. 84,782

Int. Cl.³ A61G *1/02*

U.S. Cl. 5—81 R **5 Claims**



1. A device for rotational and lateral movement of a person able to stand but not to walk, said device comprising in combination:

a. a base having an upper surface and a lower surface;

b. four castors attached to the bottom surface of said base to effect rolling of said device across a floor, wherein said castors include brake mechanisms;

c. a platform rotatably disposed above said base;

d. bearing means disposed between said base and said platform for rotatably supporting said platform on said base, said platform having an upper surface;

e. a support structure grippable by the person for supporting he person in a central standing position on the upper surface of said platform, said support structure being rigidly attached to the upper surface of said base, said support structure including

i. first, second, third and fourth vertical post elements extending from first, second, third, and fourth points on the upper surface of said platform, said first, second, third, and fourth points lying on the four corners of a roughly rectangular standing area substantially centrally disposed on the upper surface of said platform;

ii. first and second horizontal gripping elements, said first horizontal gripping element extending between and being rigidly connected to the upper ends of said first and second vertical post elements, said second vertical gripping element extending between and being rigidly connected to the upper end of said third and fourth vertical post elements, the distance between said third and fourth vertical post eleements being sufficiently large that said first and second horizontal gripping elements each extend substantially forward and rearward of a person standing substantially centrally in said substantially rectangular standing gear;

iii. a first front cross bar element extending between and rigidly connected to the upper ends of said second and third post elements; and

f. a brake mechanism activatable to frictionally engage said base with said platform to prevent rotation therebetween.

4,279,044

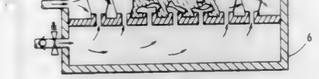
FLUID SUPPORT SYSTEM FOR A MEDICAL PATIENT

Owen Douglas, 7905 - 90th Ave. SW., Tacoma, Wash. 98498

Filed Nov. 16, 1979, Ser. No. 94,980

Int. Cl.³ A61G *7/04*; A47C *27/10*

U.S. Cl. 5—453 **18 Claims**



1. A fluid support system comprising a plurality of flexible inflatable cells, the cells arranged in at least one group, each cell having a top portion, a central portion and a lower portion, the top portion being substantially hemispherical in vertical cross-section, the central portion being generally cylindrical and the lower portion tapering downward and inward; a board positioned beneath the cells, each cell connected at its bottom end to the board; a plurality of apertures in the board, an aperture aligned with each cell; means for supplying pressurized fluid to said apertures for inflation of said cells; the cells positioned relative to each other whereby upon inflation, the cells abut at their central portions and deform to a polygonal cross-section when viewed from the top; means for feeding pressurized fluid into spaces between said lower portions of said cells; and a boundary means surrounding a number of cells to define a group, the boundary means forming a lateral seal around the group, whereby the pressure in the sealed spaces between the lower portions of the cells can be made equal to or greater than the pressure on the interior of the cells, causing the cells below a patient resting on the support system to be deflated and to collapse to a level near the board.

4,279,045

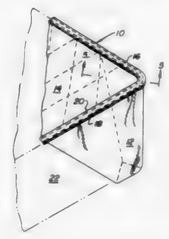
CORNER POCKET FOR SECURING MATTRESS COVERS AND THE LIKE

Joseph Vitale, Charlotte, N.C., assignor to PRF Corporation, Monroe, N.C.

Filed Jan. 21, 1980, Ser. No. 113,899

Int. Cl.³ A47G *9/02*

U.S. Cl. 5—497 **3 Claims**



1. A mattress cover for overlying the exposed upper surface of a mattress or box spring comprising a substantially flat panel member secured to said mattress by pocket means at each corner thereof, said pocket means comprising a substantially rectangular flexible member having notches at opposite corners thereof, a first fold wherein said notches overlie each other, a second fold along a line perpendicular to said first fold and bisecting a corner of said notches, and the resulting polygon being fastened together along the exposed sides of said notches and fastened to said mattress cover along the longer side adjacent the sides of said notches.

4,279,046

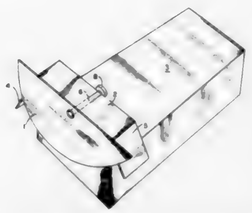
FOLDAWAY BED CENTER

John E. Comparetto, 108 Cropper St., Chincoteague, Va. 23336, and Richard A. Hamilton, Jr., 1561 Potomac Heights Dr., Oxon Hill, Md. 20022

Filed Apr. 3, 1979, Ser. No. 26,637

Int. Cl.³ A47C *21/04*

U.S. Cl. 5—503 **19 Claims**



1. A foldable writing desk, storage and entertainment center apparatus attachable to the head of a bed comprising

a series of panels attached by hinging mechanisms characterized by a rotatable backboard member attached to a hinged section parallel or near parallel to the bed surface,

a rotational axis means included between the rotatable backboard member and the hinged section,

the rotational axis means comprising an axle which articulates with a dial which is contiguous with the rotated

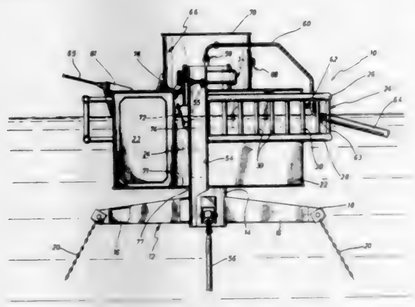
backboard member and in which at the end of the axle opposite the dial a section bracket attaches to the hinged section,
wing units attached to the hinged section,
means to clamp other mechanisms to the bed structure,
means to tilt or rotate the asembly sideways,
means to manually move the wings of the device into position,
modulator cutouts in the panels of the apparatus for insertion of radio, speakers, drawer space, telephone hookups, oxygen hookups, and electrical outlets,
acoustical material attached to the panels for sound insulation,
container sections affixed to the panels,
means to move the entire assembly to and from its closed or storage position.

4,279,047

FLUID TRANSFER BUOY

Willem J. van Heijst, Monaco, Monaco, assignor to Bluewater Terminal Systems N.V., Curaco, Netherlands Antilles

Filed Jan. 18, 1979, Ser. No. 4,343
Int. Cl.³ B63B *21/52*
U.S. Cl. 9—8 P **7 Claims**



7. A fluid transfer buoy for transferring fluid materials to and from a vessel moored thereto comprising:
a frame having a load-bearing shaft;
connection means comprising a lower portion of said frame for connecting said buoy to anchor line extending to a sea floor;
a buoyancy chamber having an opening therein arranged to receive said load-bearing shaft;
a bearing operable to support said buoyancy chamber for rotation about said load-bearing shaft, said buoyancy chamber being operable to buoyantly support said bearing above the surface of a body of water and said buoyancy chamber being operable to rotate about said frame once said frame is connected to anchor lines; and
means for preventing relative rotational movement between said buoyancy chamber and said load-bearing shaft.

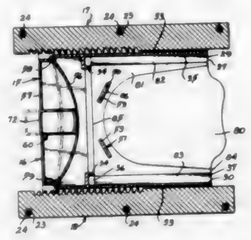
4,279,048

HEEL ASSEMBLY FOR WATER SKI BINDER

Robert Bundschuh, Miami Lakes; George Thorne, Fort Lauderdale, and David Cottis, Winter Haven, all of Fla., assignors to Cypress Gardens Skis, Cypress Gardens, Fla.

Filed Feb. 6, 1980, Ser. No. 118,900
Int. Cl.³ A63C *9/12*
U.S. Cl. 9—310 AA **10 Claims**

1. A heel assembly for a water ski binder comprising a pair of opposed side rails having elongated grooves therein, a base member slidably received within said grooves of said opposed side rails, said base member being generally bifurcated having two elongated channel members with opposing slots formed therein, wall means uniting said channel members and defining an opening therebetween in said base member, at least one lug means integrally formed with said base member and extending therefrom adjacent to said opening in said base member, first locking means carried by said base member for selectively locking said base member to said side rails, a heel member having a heel-engaging portion and edge portions, said edge



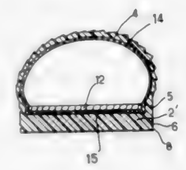
portions being slidably received within said open channel members of said base member so that said heel-engaging portion extends outwardly through said slots, means formed integrally with said heel member for engaging said lug means on said base member, and second locking means on each of said edge portions for interlocking with said channel members, whereby said heel member is secured to said base member without additional fastening means.

4,279,049

PROCESS FOR MANUFACTURING FOOTWEAR FROM A PLASTIC MATERIAL SUCH AS POLYURETHANE

Michel Coiquaud, Bordeaux, France, assignor to Etablissements Simon Souillac, France

Filed Nov. 7, 1979, Ser. No. 91,935
Claims priority, application France, May 29, 1979, 79 13582; Sep. 28, 1979, 79 24217
Int. Cl.³ A43D *9/00*; A43B *3/12*
U.S. Cl. 12—142 S **13 Claims**



1. A process for manufacturing plastic footwear comprising:
a. molding polyurethane into the shape of footwear, having at least a sole portion and an upper portion designed to at least partially cover a foot, by utilizing a mold having a textured surface to imitate a traditional material, said upper portion and said sole portion being molded together;
b. painting each portion of the shape in the color of a traditional material;
c. brushing the shape in a manner as real leather is tanned.

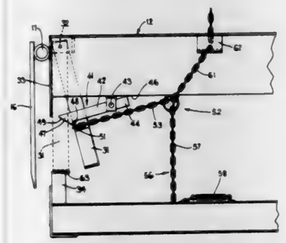
4,279,050

LEG LATCH FOR IN-PIT DOCK LEVELERS

Ronald E. Abbott, Marion, Ohio, assignor to Overhead Door Corporation, Dallas, Tex.

Filed Nov. 29, 1979, Ser. No. 99,112
Int. Cl.³ E01D *1/00*
U.S. Cl. 14—71.3 **11 Claims**

10. In a dock leveler having a base structure, a ramp structure hinged at its rear edge to the base structure and movable from a generally horizontal position to upwardly and downwardly inclined positions, a lip plate hingedly connected to said ramp structure adjacent the front edge thereof and swingably movable between pendent and extended positions, an extending mechanism connected to said lip plate for automatically moving same into said extended position in response to upward swinging of said ramp structure from said horizontal position into a raised position wherein the ramp is substantially upwardly inclined, support means coacting between said ramp and base structures for supporting the ramp structure in said generally horizontal position, said support means including a first support fixedly secured to one of said structures and a second support movably supported on the other of said structures and movable relative thereto between an operable ramp-



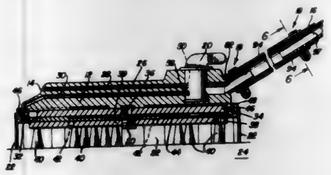
supporting position and an inoperable nonsupporting position, and latch means for retaining said second support in said inoperable nonsupporting position, said second support being normally maintained in said operable position when said latch means is released, the improvement comprising activating means connected to said second support for automatically moving said second support toward said inoperable position for latching engagement with said latch means whenever said ramp structure is swingably moved into said raised position, said activating means being wholly independent of said lip plate and of said extending mechanism, and latch release means fixedly mounted on said one structure and disposed for operative coaction with said latch means to release said latch means from said second support solely when said ramp structure is swingably moved into a lowermost position wherein it is inclined downwardly.

4,279,051

COMBINATION WATER SPRAY AND ROTARY BRUSH ATTACHMENT

Elmer L. Malcolm, Rte. 2, Gentry, Ark. 72734

Filed Aug. 15, 1979, Ser. No. 66,558
Int. Cl.³ A46B *13/06*
U.S. Cl. 15—29 **8 Claims**



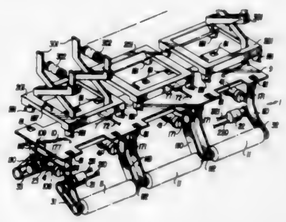
1. A combination water spray and rotary brush attachment for cleaning a surface by spraying or brushing, the attachment being connected to a source of water supply under pressure for forming the spray and for powering the brush, wherein the attachment comprises housing means for receiving water under pressure, spray means communicating with a spray water line contained within the housing means, and brushing means communicating with a brush water line attached to the housing means and including a brushing assembly and water powered drive means connected to the brushing assembly for imparting rotary motion to the brushing assembly, control means on the housing for switching the direction of water from said spray means to said brush means, the drive means being powered by water supplied through the control means and the brushing assembly being lubricated by water also used to power the drive means, said control means comprising a hollow cylindrical body provided with a pair of spaced water control outlets, one of said outlets for directing water to said spray water line and the other of said outlets for directing water to said brush water line, said body being further provided with a water intake port for introducing water into said hollow cylindrical body, whereby the direction of the water introduced into said hollow body can be controlled to flow into the spray water line or said brush water line, said drive means comprising a power disk having about its periphery a plurality of pockets, the pockets receiving water from said brush water line to an inlet in the housing means, whereby the power disk is rotatable to impart rotary motion to the brush assembly, said brush assembly comprising a circular brush plate receiving a plurality of fiber bundles for exerting brushing action, the brush plate being connected by shaft means to the power disk, the housing means further including a bottom plate disposed between the brush plate and the power disk, the bottom plate having a bottom plate orifice for removing water directed into said pockets of the power disk.

4,279,052

FLUE WALL COKE BUILD-UP REMOVAL DEVICE

Gerald D. Evrard, Cannelton, Ind.; Henry S. Cook, Abilene, Tex., and Anthony J. Kamalich, Owensboro, Ky., assignors to Southwire Co., Carrollton, Ga. and National Steel Corp., Pittsburgh, Pa.

Filed Feb. 8, 1980, Ser. No. 119,919
Int. Cl.³ B22D *43/00*
U.S. Cl. 15—93 A **20 Claims**



1. A device for cleaning opposed walls of a furnace pit comprising:
(a) a plurality of rotary means for removing built-up deposits upon each of the opposed walls of the furnace pit;
(b) means for carrying the plurality of removing means;
(c) means, connected to said carrying means, for independently adjusting the speed of the plurality of removing means along each opposed wall of the furnace pit; and
(d) means, connected to said carrying means, for allowing floating adjustment of each of the plurality of removing means against the opposed walls of the furnace pit.

4,279,053

TRI- OR TETRA-LOCULAR PAINT BRUSH BRISTLES

Robert H. Payne, Wilmington, Del., and Robert L. Rackley, Parkersburg, W. Va., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 24, 1979, Ser. No. 78,044
Int. Cl.³ A46B *15/00*
U.S. Cl. 15—159 A **8 Claims**

1. In a monofilamentary paintbrush bristle of thermoplastic

polymeric material having a diameter of about from 4 to 20 mils (0.10 to 0.51 mm), the improvement wherein the filament is tri- or tetra-locular and comprises three or four enclosed, longitudinal, noncircular voids, the voids being separated by



an interior web, the cross-sectional area of the filament having a void content of about from 20 to 50%, and wherein the interior web comprises about from 10 to 25% of the total cross-sectional area of the filament.

4,279,054

SCREEN-WIPER BLADE WITH REPLACEABLE BLADE RUBBER

Theodore Hancou, Geneva, Switzerland, assignor to Societe d'Exploitation de Brevets J.B., Fribourg, Switzerland

Filed May 21, 1979, Ser. No. 40,791

Claims priority, application Switzerland, Jun. 2, 1978, 6058/78

Int. Cl.³ B60S *1/38*

U.S. Cl. 15—250.42 **9 Claims**



1. A screen-wiper blade with replaceable blade rubber, comprising

(a) a deformable harness,

(b) pairs of claws on said harness,

(c) a flexible vertebra gripped at the extremities by said claws,

(d) a wiper blade rubber fitted on said vertebra, the said vertebra being constituted by an elongated thin metallic plate having a longitudinal slot over the major part of its length,

(e) a longitudinal bead on said blade facing the harness,

(f) a thin wall disposed in said slot and effecting separation of the bead from the effective blade edge, and

(g) a nipple adjacent one of the extremities of the blade rubber and situated on the same side of the body as the bead, said thin plate having at one extremity a cutaway portion forming a fork and the said nipple is formed at its lower part with a groove facing the extremity of the blade rubber opposite to the said nipple, said fork cooperating with said groove.

4,279,055

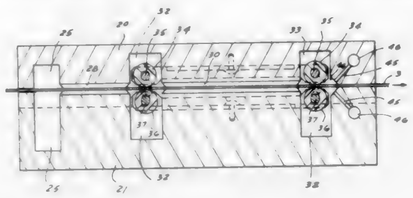
FILM PROCESSING INVOLVING NOXIOUS SUBSTANCE REMOVAL

Hans Jaggi, Ardsley; Pat Mathison, Larchmont, and Paul DeBartolo, New Rochelle, all of N.Y., assignors to PES Photographic Equipment Service Inc., New Rochelle, N.Y.

Filed Sep. 8, 1980, Ser. No. 184,892

Int. Cl.³ B08B *5/02*

U.S. Cl. 15—302 **12 Claims**



1. A device for processing webs, particularly photographic films, carrying a noxious substance which must be removed therefrom, comprising wall means defining a web passage having an inlet and an outlet; first means for applying to opposite major surfaces of a web in the region of said inlet a suction sufficient to remove a portion of a noxious substance on the web; second means intermediate said first means and said outlet for applying to said opposite major surfaces of the web additional suction to remove another portion of the noxious substance; and third means in the region of said outlet for applying to said opposite major surfaces pressurized air flowing in direction towards said second means, so as to force residual noxious substance to the vicinity of said second means for aspiration thereby.

4,279,056

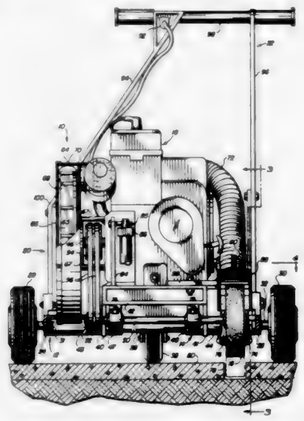
PAVEMENT JOINT AND CRACK CLEANING MACHINE

Carl C. Jacobson, Jr., Tempe, and Gaius P. Crosby, Mesa, both of Ariz., assignors to Crafco, Inc., Phoenix, Ariz.

Filed Nov. 30, 1979, Ser. No. 99,085

Int. Cl.³ A47L *5/14*

U.S. Cl. 15—373 **11 Claims**



1. A machine for cleaning expansion joints or random cracks in a paved surface comprising:

(a) a carriage of open configuration having a spaced pair of side rails, a front cross rail and a rear crossbar;

(b) wheel means on said carriage for movement thereof on the paved surface and by which said carriage is steeringly manipulated;

(c) a platform pivotably connected on one of its ends to said carriage so as to extend centrally between the side rails thereof, said platform pivotably movable toward and away from the paved surface;

(d) a rotary brush including means for rotatably journaling said rotary brush on the other end of said platform for movement therewith into and out of the joint or crack to be cleaned;

(e) an engine mounted on said platform;

(f) an air blower device connected to said engine and having an air outlet port;

(g) said engine having an output shaft which is coupled to drive said air blower device;

(h) means connected between the output shaft of said engine and said rotary brush for rotational driving thereof; and

(i) a nozzle including means for coupling thereof to the outlet port of said air blower device, said nozzle mounted on said carriage so that its outlet end is adjacent the rear of said rotary brush and positioned proximate the paved surface.

4,279,057

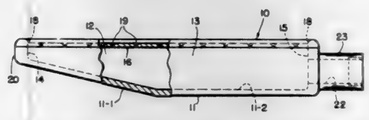
PORTABLE SPOTTING TOOL FOR CARPETS

Edward A. Restivo, 81 Willowick Dr., Fairport, N.Y. 14450

Filed Mar. 3, 1980, Ser. No. 126,417

Int. Cl.³ A47L *9/02*

U.S. Cl. 15—415 R **9 Claims**



1. A portable spot removing device for fabric covers, comprising a vacuum source,

a hollow, generally flat tool having a plane upper wall, a lower wall spaced beneath and attached to said upper wall, and forward and rear walls, respectively, extending transversely between said upper and lower walls,

said upper wall having therethrough a plurality of spaced apertures, and disposed to be placed horizontally beneath the portion of the fabric cover that is to be cleaned, and

means for connecting said vacuum source to the interior of said tool,

said means comprising a tubular member connected at one end to an opening in said rear wall of said tool, and having its opposite end operatively connected to said vacuum source, and

at least a portion of said lower wall of said tool being inclined upwardly from adjacent said rear wall to said forward wall, whereby the thickness of the tool is tapered adjacent its forward wall to ease its insertion beneath a fabric cover and the item which it covers.

4,279,058

PROCESS FOR REMOVING MEAT FROM BONES

Francis J. Ivey, Chesapeake, Va., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 2, 1979, Ser. No. 63,287

Int. Cl.³ A22C *17/00*

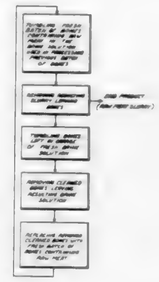
U.S. Cl. 17—46 **16 Claims**

1. A process for removing residual meat from whole raw bones from which the major portion of the meat has already been removed comprising the steps of:

tumbling a fresh batch of said bones in a brine solution used in processing a previous batch of said bones for a predetermined period of time and below that temperature at which said residual meat is cooked to abrade said residual meat from said fresh batch of said bones by a combined action of said used brine solution and of said fresh batch of said bones falling and rubbing repeatedly upon themselves to form a raw meat slurry;

removing said slurry from said tumbled fresh batch of said bones as an end product of said process;

tumbling said previously tumbled fresh batch of said bones in a fresh brine solution for said predetermined period of



time and below that temperature at which said residual meat is cooked to abrade any remaining portions of said residual meat from said previously tumbled fresh batch of said bones by said combined action;

removing cleaned bones from said tumbled fresh brine solution;

replacing said removed cleaned bones with a new batch of said bones; and

repeating the above process steps.

4,279,059

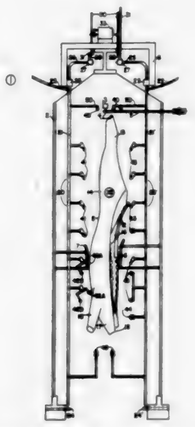
CARCASS CLEANING UNIT

Maynard E. Anderson, Hallsville; Robert T. Marshall, Columbia, and William C. Stringer, Rocheport, all of Mo., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Nov. 15, 1979, Ser. No. 94,539

Int. Cl.³ A22B *5/00*

U.S. Cl. 17—51 **5 Claims**



1. An apparatus for cleaning carcasses of slaughtered animals for use in combination with a conventional overhead rail and hook carcass conveyor system, said apparatus comprising:

a. a first spray bar assembly adapted for positioning on one

side of said conveyor system and a second spray bar assembly adapted for positioning on the other side of said conveyor system, wherein said first and second spray bar assemblies each comprise a vertically-oriented spray bar and an array of spray nozzles adjustably mounted on said spray bar, wherein each of said spray nozzles is adapted for emitting a planar, fan-shaped spray pattern which applies a substantially uniform force per unit area across the entire carcass surface area it contacts, and wherein said array of spray nozzles is arranged such that a plurality of said fan-shaped spray patterns are substantially contiguous, thereby producing a composite spray pattern which directs foreign matter downwardly and off the surface of said carcass as it sweeps laterally across said carcass; and

b. means for synchronously oscillating said first and second spray bar assemblies about the vertical axes of said respective spray bars, wherein said composite spray pattern produced by each of said spray bar assemblies is swept laterally across said carcass.

4,279,060

METHOD OF AND APPARATUS FOR THE PRODUCTION OF OPEN NON-WOVEN FABRIC FROM FIBROUS MATERIAL

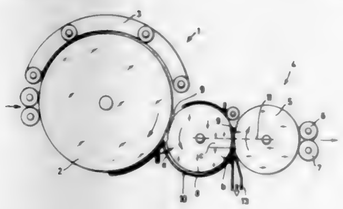
Walter Wirth, Dülmen, Fed. Rep. of Germany, assignor to Hergeth KG Maschinenfabrik und Apparatebau, Dülmen, Fed. Rep. of Germany

Filed Jul. 3, 1979, Ser. No. 54,646

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1978, 2830367

Int. Cl.³ D01G *15/50*

U.S. Cl. 19—106 R **13 Claims**



1. A method of producing an open non-woven fabric from fibrous material comprising the steps of delivering fiber flocks through a carding zone during which time the fiber flocks are loosened and spread to form a non-woven fabric, subjecting the spread-out non-woven fabric to a jamming effect in a converging jamming zone defined in part by a stationary surface opposing a moving surface downstream of the carding zone to form a non-woven fabric of matted fibers, releasing the jamming effect at a downstream end of the stationary surface to form an open non-woven fabric, the releasing step being formed in an area defined by the first-mentioned moving surface and another moving surface in spaced opposed relationship thereto, the latter moving surfaces each being generally cylindrical surfaces and each having an axis of rotation, the length of the releasing area being defined between a line through the axes of the cylindrical surfaces and a downstream end of the stationary surface, and confining the open non-woven fabric during the releasing step by supporting the same through surface portions of the cylindrical surfaces during the rotation thereof from the downstream end of the stationary surface to the line through the axes of the cylindrical surfaces.

4,279,061

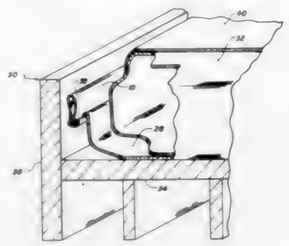
FLEXIBLE SHEET SECURING APPARATUS

Philip J. Santo, 3750 Monroe Ave., Pittsford, N.Y. 14534

Filed Dec. 3, 1979, Ser. No. 99,654

Int. Cl.³ A47C *21/02*

U.S. Cl. 24—72.5 **6 Claims**



1. Apparatus for securing a flexible sheet comprising:

a substantially U-shaped member of resilient material having a web portion, and opposed first and second legs of substantially equal length extending from said web portion, said first leg having a lip directed away from said second leg;

a retention member connected to said second leg at the end of said second leg opposite said web portion, extending across the space between said opposed legs for less than such space, said second leg having a concave curvature immediately above the area of connection between said second leg and said retention member, such area being substantially thicker than either said second leg or said retention member, said retention member having a lip directed toward said second leg, whereby a flexible sheet inserted between said first leg and said retention member is secured when said lip on said first leg is engaged by said lip of said retention member.

4,279,062

SNAP SHACKLE

Michel Boissonnet, Thiers, France, assignor to Societe a Responsabilite Limitee: Wichard, Thiers, France

Filed May 23, 1979, Ser. No. 41,721

Claims priority, application France, Apr. 4, 1979, 79 09230

Int. Cl.³ A44B *13/00;* **B64D** *17/38*

U.S. Cl. 24—305 **11 Claims**



1. A snap shackle comprising:

a shackle body;

an attachment on one said of said of said body, whereby an object can be secured to said one side at said attachment;

a fixed arm extending in one direction from the other side of said body and having an outer end defining an outer pivot axis;

a movable arm pivoted on said outer end of said fixed arm at said outer pivot axis and having a free and engageable with a portion of said body, said movable arm being pivotal about said outer axis between an open position extending away from said body in said one direction and a closed position forming an eye with said fixed arm and with said free end engaging said portion, whereby another object can be secured to the eye formed by this movable arm;

a retainer stirrup pivotal on said body about a stirrup axis generally parallel to said outer axis and having

a pair of legs each having a pair of ends one of which is formed with a foot pivoted on said body, one of said feet at least lying at said stirrup axis, and

a bight interconnecting the other ends of said legs and displaceable between a holding position with said bight engaging around and said legs flanking said free end in said closed position, and a freeing position disengaged from said free end and permitting said movable arm to pivot freely about said outer axis; and

biasing means for urging said stirrup into said holding position.

4,279,063

CLOTHES PEG

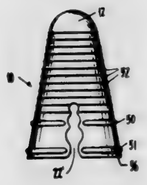
Clive E. Joseph, 1 Church Sq., St. Kilda, Victoria, Australia

Filed Aug. 23, 1979, Ser. No. 69,044

Claims priority, application Australia, Aug. 30, 1978, PD5726

Int. Cl.³ D06F *55/00;* **B65D** *21/02*

U.S. Cl. 24—138 **5 Claims**



1. A stackable clothes peg having a body portion with an open bottom end, said body portion tapering inwardly and upwardly from said open end so that one peg may be placed over another peg to allow the pegs to be stacked, said body portion having a rib extending at least about a portion of the periphery of said portion, said rib being located intermediate the open end of said peg and a top portion of said peg, said rib projecting outwardly of said body portion, said body portion having a flange adjacent the open end of said body portion, said flange projecting inwardly of said body portion such that a plurality of pegs may be stacked to be releasably locked together by placing one peg over another peg such that the flange on said one peg is forced over the rib on said another peg so that the flange is locked behind the rib and to release the stacked pegs a portion of said another peg adjacent the open end of said another peg is pressed inwardly to release the flange on said one peg from the rib on said another peg, said body portion also having securing means for attaching garments to a clothes line.

4,279,064

COVER-ATTACHING DEVICE FOR A TRUCK, TRAILER OR SIMILAR VEHICLE

Sture B. R. Simme, Maratongatan 39 A, S-531 00 Lidköping, Sweden

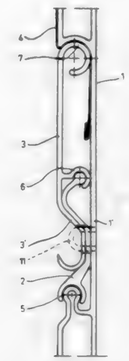
Filed Aug. 10, 1979, Ser. No. 65,424

Claims priority, application Sweden, Aug. 16, 1978, 7808674

Int. Cl.³ A47H *13/00;* **A44B** *21/00*

U.S. Cl. 24—248 R **8 Claims**

1. A device for releasable attachment of a flexible part, such as a flexible cover, to a solid part, such as a flap, side wall or similar, particularly on a truck, trailer or similar vehicle, characterized by a link section having resilience pivotally attached to the flap by a first pivot, and a locking section having resilience, pivotally attached to a link section by a second pivot formed at its free upper end as to be capable of fastening the cover by engagement with a correspondingly formed rigid part of the flap, the total height of the link section and the locking section being insignificantly greater than the distance between the first pivot and said rigid part of the flap with the cover fastened and, owing to the inherent resilience of the sections, the second pivot being capable, with the cover fastened, of being made to snap across a line between the first pivot and said rigid part to a locking position wherein a flap mates into slots in the locking and link sections, and a flap ring is attached to the flap and, when the device is in the locked position, extends out through the mating slots in the link section and the locking section so as to be able to accommodate a sealing rope.



4,279,065

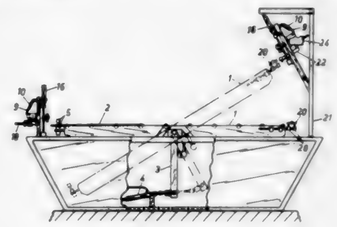
MACHINE DESIGNED TO FILL HOLLOW PROFILE RODS WITH A GRANULAR MATERIAL

Sten Sernevi, Glarhallavägen 4, S-260 43 Arild, Sweden

Filed Oct. 18, 1979, Ser. No. 85,991

Int. Cl.³ B23P *19/02;* **B65B** *1/06, 7/28;* **E06B** *3/24*

U.S. Cl. 29—33 K **5 Claims**



1. A machine designed to fill hollow profile rods (2), preferably spacer rods for insulating window panes, with a granular material (23), such as a desiccating agent, and to thereafter seal off the profile rods (2) at both ends, characterised in that the machine comprises conveyor belts (1) arranged on a tiltable frame (3) to displace profile rods (2) positioned in parallel thereon, means (8) to advance strips (7) of a sealing material, a member (15) to cut end pieces (19) from the strips (7), means (17) to press one such end piece (19) into one of the ends of each profile rod (2), means (20) to advance the unsealed ends of profile rods (2) in an obliquely upwards direction into a distribution chamber (22) holding a granular material (23), in which position the granular material (23) flows downwads into the profile rods (2) so as to fill the latter, and means (17) to press

end pieces (19) into said last-mentioned ends of the profile rods (2) after filling thereof.

4,279,066

METHOD OF ATTACHING A SOLAR COLLECTOR PLATE TO A TUBE WATER WAY

Harry J. Riley, Wembley, Australia, assignor to S. W. Hart & Co. Pty. Ltd., Welshpool, Australia

Filed Nov. 28, 1979, Ser. No. 98,414
Claims priority, application Japan, Sep. 4, 1979, 54-133474
Int. Cl.³ B23P *15/26*
U.S. Cl. 29—157.3 C **6 Claims**



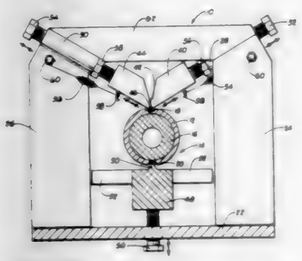
1. A method of attaching a solar collector plate to a tube water way which comprises fluting the collector plate to a diameter appropriate for receiving the tube water way, fluting a backing strip to a diameter substantially the same as the diameter of the fluting of the collector plate, sandwiching the tube water way between the collector plate and backing strip in the fluting thereof, placing the assembly in a press and die, and, in the press and die, punching pierce tags from the collector plate into the backing strip and then closing the pierce tags.

4,279,067

WELL PUMP BREAKING TOOL

Harry E. Jenks, P.O. Box 742, Elkhart, Kans. 67950

Continuation-in-part of Ser. No. 915,789, Jun. 15, 1978, Pat. No. 4,216,625. This application Sep. 28, 1979, Ser. No. 80,087
Int. Cl.³ B23P *19/00*; **B26F** *3/00*
U.S. Cl. 29—239 **6 Claims**



6. A well pump breaking tool for engaging an upper and lower elongated slot cut along the length of a barrel of a well pump, the barrel surrounding a hollow plunger, the well pump breaking tool comprising:

a base plate;

first and second vertical arms mounted on opposite sides of the base plate and extending upwardly therefrom;

a horizontal strap, the ends of the strap attached to the top of the first and second vertical arm;

a well pump support mounted above the center of the base plate and between the first and second arms, the support having a pointed protuberance extending upwardly therefrom, the lower slot in the barrel received on top of the protuberance, the barrel and plunger resting thereon;

first and second bolt collars mounted on top of the first and second vertical arms, the collars angled downwardly toward the center of the base plate;

first and second adjustment bolts received in the first and second collar;

first and second well pump jaws having pointed end portions, the jaws attached to the adjustment bolts, the pointed end portions of the jaws received in the upper slot of the barrel, by threading the adjustment bolt downwardly the pointed end portions apply pressure on opposite sides of the upper slot until the barrel is broken along the length of the upper slot thereby releasing hollow plunger from the barrel; and

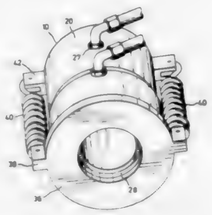
a third adjustment bolt threadably received through the center of the base plate and attached to the bottom of the well pump support, by threading the third adjustment bolt upwardly and downwardly the well pump support is adjusted vertically on top of the base plate for receiving different sizes of well pumps.

4,279,068

PORTABLE HYDRAULIC GEAR PULLING DEVICE

Joseph Altmayer, Kitchener, Canada, assignor to E & E Seegmiller Limited, Kitchener, Canada

Filed Dec. 4, 1979, Ser. No. 100,248
Int. Cl.³ E21B *19/00*
U.S. Cl. 29—252 **2 Claims**



1. A fluid gear or like pulling device comprising

a body having a through axial bore adapted to admit a shaft;

opposed piston chambers extending radially of said bore;

pistons in said piston chambers and having a free end adapted to enter into said through bore;

means for pressurizing said piston chambers with fluid to force said pistons outwardly of their chambers and into said through bore;

a press ram mounted in said body for movement axially thereof;

and means for moving said press ram axially of said body said body being sleeve shaped, said piston chambers extending through said sleeve shaped body from outside to inside, the outer end of said chambers being formed by the inner side of a ring that extends around the outside of said body.

4,279,069

FABRICATION OF A NONVOLATILE MEMORY ARRAY DEVICE

Moiz M. E. Beguwala, Placentia, and Francis M. Erdmann, Anaheim, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 21, 1979, Ser. No. 13,351
Int. Cl.³ H01L *21/26*
U.S. Cl. 29—571 **7 Claims**



1. Forming a memory array having fixed threshold MOS and memory MNOS devices by the process of

defining active device regions of semiconductor material of a substrate,

diffusing dopants into portions of said active regions to form source and drain regions therein,

producing a first dielectric layer over the channel portions of said active regions between the source and drain regions in said active regions,

producing a first layer of conductive material over said first dielectric layer,

removing said first dielectric layer and said first conductive layer from the regions to be formed into MNOS memory devices,

said first layer of conductive material and first dielectric layer remaining over the active regions of the MOS defined regions,

producing a second dielectric layer of ultra-thin oxide over the MNOS channel portions of said active regions from which said first dielectric layer and said first conductive layer have been removed,

producing a third dielectric layer of nitride over the array,

producing a second layer of conductive material over said third dielectric layer,

removing portions of said third dielectric layer and said second layer of conductive material from the regions where the MOS devices are formed which are areas different from the first mentioned removing step,

producing a protective masking layer over the first and second conductive layers to be used to define the channel regions of said devices which will become the active channel regions,

providing dopants to said channel region of all of said active regions between the edge of said protective masking layer and the respective edge of the associated source and drain regions, and

establishing electrical connections to each source, gate and drain region.

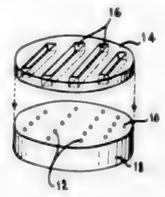
4,279,070

METHOD OF MAKING INTEGRATED WAVEGUIDE CAVITIES

Chente Chao, Minnetonka, Minn.; Edward M. Nakaji, and Robert L. Bernick, both of Torrance, Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 4, 1980, Ser. No. 127,017
Int. Cl.³ H01P *11/00*
U.S. Cl. 29—583 **6 Claims**

1. A process for fabricating integrated waveguide cavities comprising the steps of: forming a semiconductor device on one side of a wafer; bonding a heat sink to the opposite side of the wafer away from said device; forming a slot in a metal having a thickness equal to a desired waveguide height; placing the metal plate over the surface of the wafer and aligning said slot with said semiconductor device; thermal compression bonding the plate to the wafer, and separating the semiconductor-waveguide cavity module from the remainder of the wafer package by cutting.

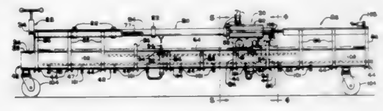


4,279,071

APPARATUS FOR INSTALLING ROLLS ON A CONVEYOR SHAFT

Tom J. Lord, Athens, Ga., and William V. Snyder, Carlisle, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 22, 1979, Ser. No. 22,906
Int. Cl.³ B23Q *15/00*; **B23P** *21/00*
U.S. Cl. 29—717 **9 Claims**



1. An apparatus for positioning a ring made of a resilient, flexible material on an elongated shaft to provide a roll for conveying articles wherein an outer peripheral dimension of the shaft is equal to or greater than the inner peripheral dimension of the ring at the time of positioning the ring on the shaft, comprising:

means for securing the shaft in a predetermined path against movement in a first direction along the path;

means for supporting the shaft intermediate the shaft ends to maintain the shaft in the path;

means for displacing said supporting means toward and away from the path;

means for urging the ring in the first direction along the path to move the ring over the shaft;

a drive rack having grooves;

means including projections means for incrementally engaging the grooves of said rack;

means for mounting said rack on said urging means and said engaging means along the path with said projection means of said engaging means movable in said grooves of said drive rack;

motor means for moving said drive rack and said engaging means relative to one another to move said urging means in the first direction along the path; and

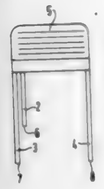
means responsive to said urging means for acting on said displacing means to move said supporting means away from the path as said urging means moves along the path toward said supporting means and to move said supporting means toward the path as said urging means moves along the path away from said supporting means.

4,279,072

ARRANGEMENT FOR THE DISASSEMBLY OF A CIRCUIT BOARD

Roland Maurer, Lauterbach, Fed. Rep. of Germany, assignor to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 68,598
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 7827034[U]
Int. Cl.³ H05K 3/00
U.S. Cl. 29—764 5 Claims



1. A device for use with a housing of an electrical instrument for ejecting from such housing a modular drive means including a circuit board and electromechanical and electronic components carried by said board, the latter coupled by frictional forces to the housing, said device including a plurality of ejecting posts which are sized to be pushed through corresponding openings in a wall of the housing to press against said drive means to overcome said frictional forces and eject said board together with said components from said housing.

4,279,073

METHOD FOR RELEASING PRINTED WIRING BOARDS FROM PRINTED WIRING BOARD RACKS

Marvin Packer, Broomall, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 101,486
Int. Cl.³ H05K 3/34
U.S. Cl. 29—832 5 Claims

1. In a process of assembling printed circuit boards without lead clinching of the components to the printed circuit board which comprises coating a side of the printed circuit board into which the electronic components are inserted with a sprayable, non-flowing, water soluble adhesive composition, inserting the coated board in a printed circuit board rack, removing the printed circuit board, inserting the electronic components therein, and storing the printed circuit board containing the components in the printed circuit board rack prior to soldering the components thereto, the improvement comprises:

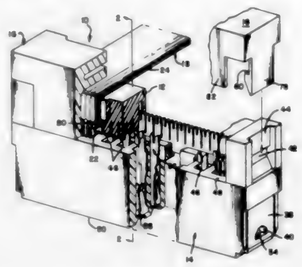
coating the printed circuit board racks with a water rinsable, non-corrosive composition which is compatible with the non-flowing water-soluble adhesive composition comprising about 100 parts by weight of a polyethylene glycol having a molecular weight range of from about 3000 to about 3700, 20 to about 200 parts by weight of a polyethylene glycol having a molecular weight range of from about 380 to about 420 and from about 0 to about 35 parts by weight of water.

4,279,074

METHOD OF TERMINATING FLAT MULTI-CONDUCTOR TRANSMISSION CABLE

Dale R. Zell, Elizabethtown, and Leroy J. Morningstar, Middletown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 939,756, Sep. 5, 1978. This application Nov. 1, 1979, Ser. No. 90,362
Int. Cl.³ H01R 43/04
U.S. Cl. 29—866 3 Claims



1. A method of terminating flat, multi-conductor transmission cable of the type having at least one ground conductor between adjacent signal conductors, all said conductors being secured in fixed, parallel, closely spaced relationship within and insulating web, said method comprising:

transversely slitting said insulative web at a position spaced from the end of the cable and displacing said insulating web to expose said ground and said signal conductors;

seating said exposed conductors in a cable engaging face of a connector cover member having a plurality of parallel conductor alignment channels therein, alternate ones of said channels having greater depth and receiving said ground conductors therein, and simultaneously cutting said exposed conductors to length to provide a proper mass termination of said transmission cable; and

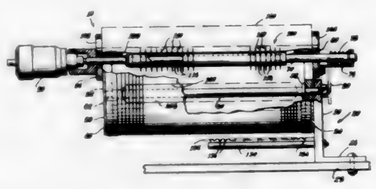
applying a connector housing to said cover with terminals and a bussing bar carried by said housing effecting termination of the signal and ground conductors, respectively, and latching said cover and housing together.

4,279,075

METHOD AND APPARATUS FOR MAKING A WIRE STYLUS BOARD

Joachim C. Bronder, Trumbull, Conn., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sep. 14, 1979, Ser. No. 75,589
Int. Cl.³ H01R 43/00; B23P 23/00
U.S. Cl. 29—872 11 Claims



1. The method of making a wire stylus board comprising

winding a number of turns of a wire on a drum,

securing a portion of each wire to a support strip on said drum,

cutting groups of said wires simultaneously,

removing the cut wires from the surface of the drum, and

connecting their ends together to form a single terminal whereby electrical signals can be connected to all of said cut wires at the same time.

4,279,076

SCISSORS

Dennis B. Jackson, Nunawading, Australia, assignor to Wiltshire Cutlery Company Proprietary Limited, South Melbourne, Australia

Filed Nov. 19, 1979, Ser. No. 95,270
Int. Cl.³ B26B 13/00; B21K 11/00
U.S. Cl. 30—254 6 Claims



1. Scissors including, two blades, pivot means connecting the two blades for relative movement between opened and closed conditions of said scissors, each said blade having:

inner and outer substantially parallel broad surfaces, the inner broad surfaces of said blades being in opposed relationship,

a working surface;

a raked surface being interposed between each said working surface and the said outer surface of the respective said blade, the included angle between said raked surface and the said inner surface being less than the included angle between the inner surface and the said working surface, and

a cutting edge and a back edge which respectively form opposite longitudinal edges of said blade, the cutted edge of each said blade being defined at the junction of the respective said inner and working surfaces of said blade and the width of the inner surface of each blade being such that the cutting edge of the blade is at least level with the back edge of the other said blade in the closed condition of said scissors and each said cutting edge being disposed at and following the path of the back edge of the other blade in said closed condition.

4,279,077

POCKET CAN OPENER

William L. Freeman, Salt Lake City, Utah

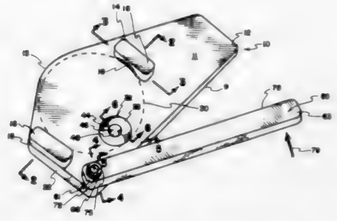
Continuation of Ser. No. 938,574, Aug. 31, 1978, abandoned. This application Apr. 21, 1980, Ser. No. 141,822
Int. Cl.³ B67B 7/30
U.S. Cl. 30—442 9 Claims

1. A non-extensible, non-retractable portable can lid removing device having fixed pivotable features only comprising:

flat body means, manual bias applying clamp means and an eccentric pivot site relatively pivotably uniting the flat body means and the manual bias applying clamp means;

the flat body means comprising an essentially circular region having an area substantially equal to the area of a can of predetermined diameter adapted to be received at said circular region having a plurality of non-rotatable abutment means along a fixed radius co-axial with said essentially circular region adapted to contiguously slidably engage a portion of the top edge of the bead at the one end of the can;

the clamp means comprising pivotable non-extensible lever means by which the clamp means are relatively displaced pivotably inwardly between an open position and a second closed position, the clamp means also comprising non-rotatable abutment means slidably engaging the outside portion of the bead in the closed position along the periphery of the circular region, the engaging means being remote from the eccentric pivot site;



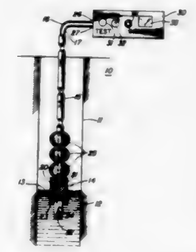
lid cutting means carried directly adjacent the flat body means in such a position as to have its cutting edge superimposed upon the periphery of said circular region to cut the lid from the can upon adequate relatively manual rotation of the can and the device when one end of the can is correctly positioned over the circular region and the clamp means of the device are in the closed position.

4,279,078

FLUID PRESENCE DETECTOR

Stanley E. Hinshaw, and Charles F. Cole, Jr., both of Ponca City, Okla., assignors to Conoco, Inc., Ponca City, Okla.

Filed Feb. 12, 1980, Ser. No. 120,946
Int. Cl.³ G01F 23/04
U.S. Cl. 33—126.5 2 Claims



1. A water level indicator circuit used in cooperation with a probe attached to a long wire, said probe having first and second electrodes for contacting the surface of the water with first and second leads communicating from said first and second elctrodes, respectively, to an input of said indicator circuit, an improved indicator circuit comprising:

(a) a low current high gain transistor means having a collector, an emitter, and a base,

(b) a power source having sufficient potential to properly reverse bias said low current high gain transistor means when said probe is not contacting said water and sufficient voltage to properly forward bias said low current high gain transistor means when said probe is contacting said surface of the water,

(c) a meter,

(d) current adjusting means,

(e) means for coupling in series said power source, meter, current adjusting means and the collector and emitter of said low current high gain transistor, and

(f) means for resistively coupling one of said electrodes to said power source and said remaining electrode to said negative terminal of said power source and to the base of

said transistor through a resistance signal to bias said transistor to cutoff whereby when said electrodes are out of water said transistor is at cutoff and when said electrodes are in water said transistor is fully conductive.

4,279,079

DIRECT FEELING GAGE FOR THE MEASUREMENT OF THE SIZES OF MOVING WORKPIECES, IN PARTICULAR FOR MEASUREMENTS WITH INTERMITTENT CONTACT BETWEEN THE FEELING MEANS AND THE WORKPIECE

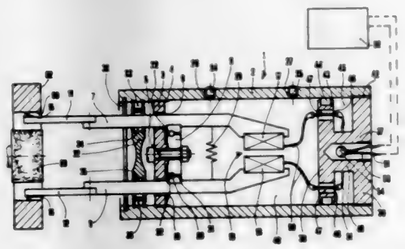
Giorgio Gamberini, Pieve Di Cento, and Giorgio Bozzoli, Corpo Di Reno, both of Italy, assignors to Finike Italiana Marposs S.p.A., S. Marino di Bentivoglio, Italy

Continuation of Ser. No. 513,393, Oct. 9, 1974, abandoned. This application Sep. 14, 1979, Ser. No. 75,747

Claims priority, application Italy, Oct. 25, 1973, 3521 A/73

Int. Cl.³ G01B *7/12*

U.S. Cl. 33—149 J **9 Claims**



1. Gage for the measurement of the sizes of moving workpieces comprising: an outer casing defining an internal chamber and first and second passage surfaces connecting the internal chamber with the space outside the casing; support means located in said chamber and fixed to the casing; at least one mobile arm supported by the support means, said arm including a first section located in said chamber and a second section, projecting outside said casing through said first passage surfaces; a feeler fixed to said second section for contacting the workpieces to be measured; a measuring transducer coupled to said mobile arm, said transducer including an element fixed to said first section of the arm; supply and detecting means for said transducer; connecting means for connecting the tranducer to the supply and detecting means, said connecting means passing through said second passage surfaces; first sealing means for sealing said first passage surfaces while permitting the movement of said mobile arm; second sealing means for sealing said second passage surfaces; a viscous fluid filling said internal chamber; and wherein said first section and said transducer element have large facing surfaces adapted to displace a quantity of viscous fluid, upon movements of the arm, to obtain a damping effect on the arm, due substantially to paddling action, for permitting the measurement of workpieces having discontinuous surfaces and measurements involving an intermittent contact between said feeler and the workpiece.

4,279,080

TOUCH SIGNALLING PROBE

Tadao Nakaya, Utsunomiya, Japan, assignor to Mitutoyo Mfg. Co. Ltd., Tokyo, Japan

Filed Aug. 26, 1980, Ser. No. 181,657

Claims priority, application Japan, Aug. 28, 1979, 54-118251[U]

Int. Cl.³ G01B *7/02*

U.S. Cl. 33—174 L **1 Claim**

1. A touch signalling probe comprising:

a probe shaft having a pointed end;

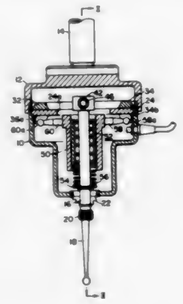
a touch sensor on the pointed end of said probe shaft;

a insulated contact base plate fixed to a probe case and having an aperture in the center through which said probe shaft can be penetrated;

two sets of upper contact pair attached on the upper side of said insulated contact base plate, each set of which has two contact members arranged in the vicinity in the insulated state, and which are symmetrically located with respect to said probe shaft;

two sets of lower contact pair attached under the reverse side of said insulated contact base plate, each set of which has two contact members arranged in the vicinity in the insulated state, and which are located in the direction of a right angle against said two sets of upper contact pair;

two upper contact arms insulatedly fixed to said probe shaft,



and keeping contact over with each of contact members of both said upper contact pairs;

a probe tube slidingly moving along said probe shaft;

two lower contact arms insulatedly fixed to said probe tube and keeping contact over with each of contact members of both said lower contact pairs;

a spring insulated between said probe shaft and said probe tube in order to provide urging force by which said upper contact arms and said lower contact arms put to maintain said upper contact pairs and said lower contact pairs between said upper contact arms and said lower contact arms; and

detecting lead wires connecting said respective contact members in series.

4,279,081

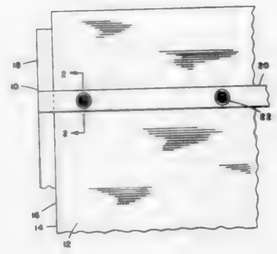
WALLBOARD T-SQUARE

Steven D. Wing, East Amherst, and Richard E. Smith, Williamsville, both of N.Y., assignors to National Gypsum Company, Dallas, Tex.

Filed Oct. 2, 1979, Ser. No. 81,138

Int. Cl.³ B43L *7/02*

U.S. Cl. 33—479 **2 Claims**



1. An improved T-square comprising an edge abutting portion and a main elongate body portion extending at an angle to said edge abutting portion, said body portion having at least one retractable pin assembly mounted thereon, said pin assembly including a small diameter sharp pin and means for lowering and retracting said pin, whereby said pin may be lowered sufficiently to push said pin into a board disposed under said body portion and may be retracted sufficiently to withdraw said pins to above the bottom side of said body portion, said means for lowering and retracting said pin being comprised of a hollow retainer, an axially movable insert in said retainer, said pin being mounted in the bottom of said insert, said insert including a post extending radially outward from the side thereof, said retainer including an axially extending recess in an inner wall and a short sidewardly extending recess connected with said axially extending recess, said pin being slidably disposed within said recesses, and spring means disposed to retract said movable insert and said pin when said post is disposed in the axially extending recess and to be held in a restrained position when said post is disposed in the short sidewardly extending recess.

4,279,082

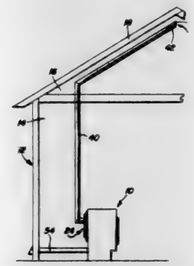
SOLAR ASSIST AND FILTER CONSTRUCTION FOR DRYER INLET

Buck C. Commander, Rte. 11, Box 461-A, Pensacola, Fla. 32504

Filed Oct. 19, 1979, Ser. No. 86,577

Int. Cl.³ F26B *11/04*

U.S. Cl. 34—82 **2 Claims**



1. In combination with a building having a first closed interior portion to be heated and/or cooled relative to the exterior of said building and a second interior portion vented to the exterior of the building and subject to heating through direct or indirect solar energy heating thereof, a dryer disposed in said first interior portion and including an air inlet and an air outlet, said air outlet being ducted to the exterior of said building, an air inlet manifold for said air inlet and including a pair of intake air openings, valve means for selectively inversely opening and closing said intake openings, one of said air intake openings opening into said first interior portion and air passage means communicating the other air intake opening with said second interior portion, said dryer including one wall thereof through which said air inlet opens, said manifold including an open sided housing secured over the exterior surface of said one wall of said dryer through which said air inlet opens, said housing including an interior air filter panel dividing the interior of said housing into first and second compartments, said inlet opening into said second compartment and said pair of intake openings opening into said first compartment, said panel comprising means for filtering air entering said first compartment and passing through said panel into said second compartment.

4,279,083

SHOE CONSTRUCTION WITH REPLACEABLE SOLE

Carl W. Dilg, 1715 N. 500 East, Provo, Utah 84601

Filed Feb. 1, 1980, Ser. No. 117,576

Int. Cl.³ A43B *3/24*

U.S. Cl. 36—101 **9 Claims**



1. A shoe construction comprising

a shoe body having an upper portion which fits about the top of a foot, and a lower portion which is joined at its perimeter to the upper portion and which fits under the foot,

a first layer of material permanently fixed at its upper side to the undersurface of said lower portion of the shoe body and having a perimeter which is contiguous with the perimeter of the lower portion of the shoe body, the side of said first layer which faces downwardly including a layer of attachment means having a perimeter substantially contiguous with said first layer perimeter for attaching to and detaching from a second corresponding layer of detachable material,

a layer of detachable material, one side of which includes a layer of attachment means having a perimeter substantially contiguous with said first layer perimeter for attaching to and detaching from the first layer of material, and

a shoe sole permanently fixed to the other side of said second layer of material.

4,279,084

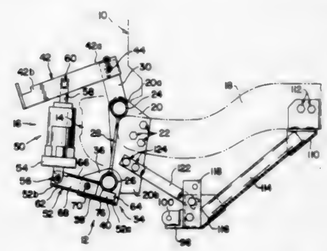
SNOWPLOW BLADE LIFT MOUNT ASSEMBLY

William H. Low, Chardon; Vernon L. Hetrick, North Olmsted, and Paul McCoy, Lyndhurst, all of Ohio, assignors to Meyer Products, Inc., Cleveland, Ohio

Filed Nov. 15, 1979, Ser. No. 94,818

Int. Cl.³ E01H *5/04*

U.S. Cl. 37—42 R **33 Claims**



1. A plow blade lift mount assembly mountable on the front of a vehicle including longitudinally extending vehicle frame members having front ends and laterally extending bumper means at said front ends of said frame members, comprising support means mounted on said frame members behind said bumper means and having upper and lower ends with respect thereto, lift arm means pivotally interconnected with said upper end of said support means and extending forwardly over said bumper means, support arms means on said lower end of said support means and extending forwardly below said bumper means, extendable and retractable lift arm actuating means forwardly of said bumper means and having opposite ends pivotally interconnected one with said support arm means and the other with said lift arm means, fastening means releasably

connecting said support arm means with said support means, and removable pivot pin means pivotally interconnecting said lift arm means and said support means, said fastening means and pivot pin means being located behind a vertical plane tangent to the forwardmost edge of said bumper means.

4,279,085

EXCAVATING BUCKETS

Carroll H. Arnold, Westminster, Mass., assignor to Wain-Roy, Inc., Hubbardston, Mass.

Filed Mar. 10, 1980, Ser. No. 129,489
Int. Cl.³ E02F 3/76
U.S. Cl. 37—103 11 Claims



1. In an excavating bucket including two sides and a curved bottom connecting said sides, said bottom having a front scooping edge, that improvement comprising:

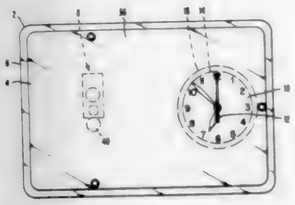
a plurality of rippers protruding downwardly from said bottom and facing towards said scooping edge, said rippers being staggered at varying distances from said edge towards the back of said bucket and at varying distances from the sides of said bucket.

4,279,086

DECORATIVE PANEL AND HANGING DEVICE THEREFOR

Orville Phillips, 524 E. 20th St., New York, N.Y. 10009

Filed Jul. 30, 1979, Ser. No. 61,848
Int. Cl.³ G09F 1/12
U.S. Cl. 40—152.1 7 Claims



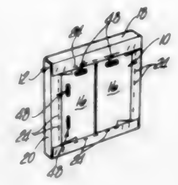
1. A decorative panel comprising two transparent sheets, a face sheet and a rear sheet, one upon the other, means for removably retaining a sheet of display material between said transparent sheets without securing means visibility from the front of said panel, hanging means, a first hanging means rotatable about 360° and extending from the back of said rear sheet, means for securing said first hanging means against rotation at a desired position, and second hanging means spaced from said first hanging means, said second hanging means comprising a device rotatably secured to the rear of said panel, said means for holding said device against rotation in a desired position, adjustable means carried on said device for adjustably moving a hanging strap means in a lateral direction with respect to means rotatably securing said device to the rear of said panel.

4,279,087

BOX FRAME FOR FABRIC PRINTS AND THE LIKE

Andrew S. Crawford, 523 Sunset Rd., Ann Arbor, Mich. 48103

Filed May 7, 1979, Ser. No. 36,479
Int. Cl.³ G09F 1/12
U.S. Cl. 40—158 R 8 Claims



1. Display apparatus for providing a rigid mounting for display of flexible material items such as fabric prints and the like, said apparatus comprising:

a closed three-dimensional polygonal box formed of folded sheet material, said closed polygonal box including a front surface area formed by the outer surface of a central region of said sheet material;

a corresponding number of box sides extending rearwardly of said front surface formed by portions of said sheet material folded together away from said central region;

oppositely extending flap pairs formed by sections of said sheet material contiguous to said folded box sides and folded to extend toward each other and spaced from said central region, at least one flap pair including flap tabs consisting of inwardly bent folded portions of each of said flaps of sufficient depth and length to engage substantially the full width of the inside of said central region parallel to said sides, said flaps being of a length to position said flap tabs on opposite flaps in abutment with their outer juxtaposed surfaces;

means for securing said flaps and flap tabs in their respective folded positions; and

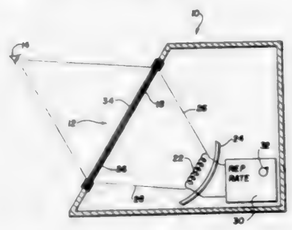
flexible material being stretched over the front surface of said central region and attached to the flap pairs on the rear of the box whereby to provide a display in combination with the three-dimensional box which serves as an integral rigid support for the material.

4,279,088

VISUAL STIMULATION APPARATUS USEFUL IN THERAPEUTIC TREATMENT

Robert W. Hyre, 4056 Brookfield Clr., Chattanooga, Tenn. 37412

Filed Nov. 15, 1979, Ser. No. 94,673
Int. Cl.³ G09F 13/04
U.S. Cl. 40—442 5 Claims



1. Visual stimulation apparatus useful for therapeutic treatment of psychological and psychic disorders by inducing information in a patient's memory system which is deemed by the patient to be self derived, comprising in combination,

display means presenting a visual message at a viewing plane consciously visible to a viewer by an afterglow mechanism of the eye with a message content acceptable to the viewer,

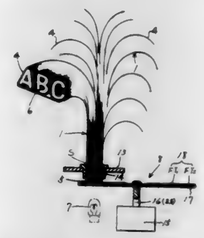
and means displaying the message to the viewer making it visible only with light flashes of a duration and repetition rate insufficient in view of the persistance of the eye to cause said message to persist and with sufficient intensity to cause the message to leave a perceptible afterglow image in the viewer's eye mechanism and of short enough duration and contrast that the context of the visual message affects the subconscious mind of the viewer but is visible consciously only by the afterglow phenomenon, wherein the visual message comprises an overt and a covert portion both of a motionless printed message type, wherein the covert portion is not consciously visible to the viewer in said afterglow, wherein the first overt message is displayed at said plane upon a partially opaque surface such as paper that is made transparent by a bright light directed therethrough, said second covert message is displayed on a second surface behind said opaque surface, and the means including the light displaying the messages flashes a lamp at a high intensity to display the overt message at highly visible intensity at said viewing plane, and wherein the covert message is on a similar partially opaque surface such as paper, and including means lighting the viewing surface of the first message at said viewing plane sufficiently to comfortably view the message displayed thereon without displaying the covert message.

4,279,089

OPTICAL ILLUMINATION DEVICE

Tatsuo Murakami, 522 Kamiumamachi, Sanchome, Higashioji Higashiiru, Shibutaaidori Higashiyama-ku, Kyoto, Japan

Filed Sep. 6, 1979, Ser. No. 73,012
Claims priority, application Japan, Jul. 11, 1978, 53/137624; Sep. 8, 1978, 53/124255[U]
Int. Cl.³ G09F 13/18
U.S. Cl. 40—547 3 Claims



1. An optical illumination device having a plurality of optical fibers comprising

adjacent fibers abutting each other in a linear arrangement and each having a light receiving end and an illuminating end;

an integral band member having a shape that varies in direction along its length to form a predetermined indicia forming configuration;

said band having an outer edge located at said illuminating ends of said fibers so that said band extends coterminous with said fibers for a substantial distance;

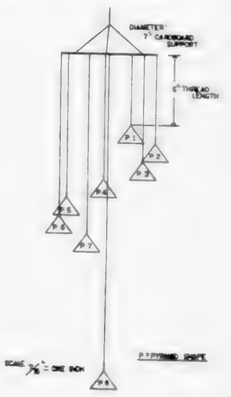
said band having an outer surface to which said abutting fibers are fastened, which surface is in a plane perpendicular to the plane of said illuminated ends of said fibers, whereby said fiber arrangement forms the same predetermined configuration as said band member; a flat surface, indicia forming member is provided having outer edges formed in the same shape as said predetermined configuration, said flat surface member connected to said outer edge of said band member at an angle perpendicular thereto whereby said fibers are arranged along the periphery of said flat surface member thereby providing an illuminated outline of said member when said fibers are illuminated.

4,279,090

ENERGY RELEASING NOVELTIES

Manley R. Shofner, and Lenora M. Huett, both of P.O. Box 1041, Pioneer, Calif. 95666

Filed May 2, 1979, Ser. No. 35,327
Int. Cl.³ G09F 7/22; A63H 1/32
U.S. Cl. 40—617 2 Claims



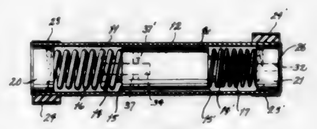
1. A new article of manufacture comprising a mobile consisting of a circular support, a plurality of pyramid shapes depending at different levels and at equally spaced apart points from the circumference of said circular support in spiral arrangement and wherein the bottom edge of each pyramid shape in said spiral arrangement is level with the peak of the succeeding pyramid shape of said plurality of pyramid shapes and wherein said circular support is maintained in a horizontally level position, and a base pyramid shape depending from the center of said circular support below said plurality of pyramid shapes for receiving energy released therefrom.

4,279,091

FIREARM RECOIL REDUCER

Jesse B. Edwards, 269 Herbert St., Alton, Ill. 62002

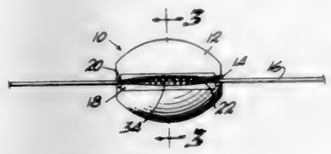
Filed Dec. 3, 1979, Ser. No. 99,557
Int. Cl.³ F41C 27/00
U.S. Cl. 42—1 V 10 Claims



1. In combination with a firearm having components including a barrel, a receiver, and stock integrated into fixed relationship so that no relative movement between said firearm components may occur when firing, a recoil reducing mechanism disposed within said stock, said mechanism comprising housing means forming a sleeve having one end directed toward said receiver and an opposite end directed away from said receiver, closures at the opposite ends of said sleeve, a pair of radially projecting lugs externally of said sleeve at the opposite ends thereof and on opposite sides thereof, a piston slideably received within said sleeve for slideable movement therein

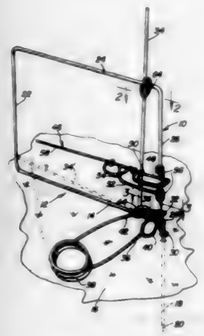
upon recoil of said firearm when firing, and resilient means for biasing said piston into a central position between the opposite ends of said sleeve, a reservoir within said piston for containing a quantity of lubricant, and means for supplying said lubricant from said reservoir to an outer surface of said piston for providing lubricant between said piston and sleeve.

4,279,092
FISHING WEIGHT
Duane Hutson, 1315 Country Club Prado, Coral Gables, Fla. 33134
Filed Jan. 24, 1980, Ser. No. 114,895
Int. Cl.³ A01K *95/00*
U.S. Cl. 43—44.91 **17 Claims**



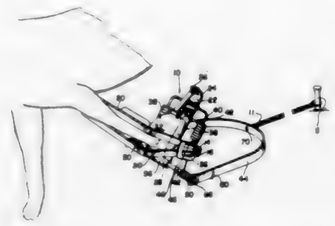
1. A fishing weight comprising:
- a body having an axis, with a specific gravity greater than one, formed with an axial channel and connected radial slot therein;
- a resilient substantially incompressible axial cavity containing insert having legs, said insert being captured within the axial channel and radial slot of the body; and
- a substantially closed radial aperture defined by the legs of the insert, said aperture intersecting the entire length of the axial cavity of the insert, said legs being formed to provide a recess between each leg and a proximate wall of the radial slot for flexion of the legs.

4,279,093
HUMANE ANIMAL TRAP
Paul J. Iddings, Box 217, Big Horn, Wyo. 82833
Filed Oct. 24, 1979, Ser. No. 88,069
Int. Cl.³ A01M *23/30*
U.S. Cl. 43—81.5 **7 Claims**



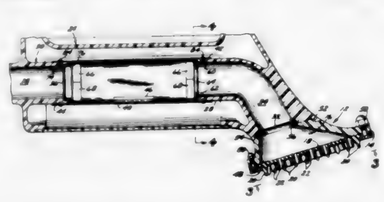
1. An animal trap including a base structure defining a first elongated base bar, a second elongated bar having one end pivotally anchored relative to one end of said base bar for angular displacement between a first "cocked" position disposed at generally right angles relative to said base bar and a second "closed" position closely adjacent and generally paralleling said base bar, a follower loosely engaged with said one ends of said bars and slidable therealong, spring means operatively connected between said base bar and said follower yieldingly biasing said follower along said base bar toward the other end thereof, said base structure including a pair of uprights projecting upwardly from opposite ends of said base bar and an upper member interconnecting the upper ends of said uprights, a safety latch ring slidably mounted on said upper member and from the latter downwardly along each of said uprights, said second bar being slidably received through said latch ring.

4,279,094
ANIMAL TRAP ATTACHMENT
John R. Beck, R.D. 2, Knox, Pa. 16232
Filed Mar. 4, 1980, Ser. No. 127,052
Int. Cl.³ A01M *23/26*
U.S. Cl. 43—96 **7 Claims**



1. An attachment to be connected between an animal trap and its anchoring chain for resiliently resisting the pull of an animal caught by the jaws of the trap comprising, in combination, a clamp to be secured to the frame of the trap; a pivot rod mounted on said clamp; a bail connected to the chain and being pivotally mounted on said rod against the frame; and spring means acting between said bail and the frame to resist pivotal movement therebetween.

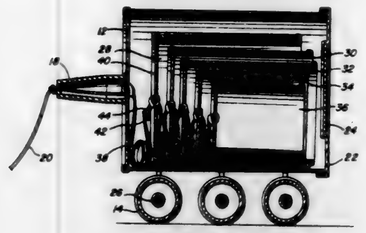
4,279,095
FLEA VACUUM SYSTEM
Helen C. Aasen, P.O. Box 1561, Long Beach, Calif. 90801
Filed Jan. 2, 1980, Ser. No. 109,036
Int. Cl.³ A01M *1/06*
U.S. Cl. 43—139 **7 Claims**



1. A vacuum cleaner attachment for ridding house pets of fleas comprising:
- a nozzle having a pointed suction head defining a plenum extending from a transverse partition to an inlet passageway, an array of firm, pliable fingers about the perimeter of said transverse partition and a plurality of flexible, annular tubes within said perimeter of said partition and in communication with said plenum,
- a hollow collection canister having an integrally formed handle, an inlet neck connected to said nozzle at said inlet passageway, a displaceable access panel, and an exhaust pipe defining an exhaust passageway connectable to a vacuum cleaner hose,
- a removable transverse, coarse filter positioned across said inlet passageway,
- a transverse porous, fine filter positioned upstream of said exhaust passageway, and

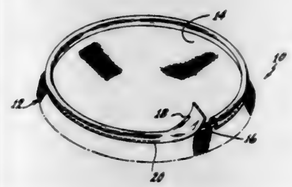
- a removable, disposable tubular bag with sealable ends positioned within said canister between said inlet passageway and said exhaust passageway, and connected to said inlet neck at one end and said exhaust pipe at the other end.

4,279,096
PULL TOY
Debra K. Guidry, P.O. Box 1152, 115 St. Peters Ct., Donaldsonville, La. 70346
Filed Mar. 7, 1980, Ser. No. 128,096
Int. Cl.³ A63H *33/00, 33/06*
U.S. Cl. 46—11 **8 Claims**



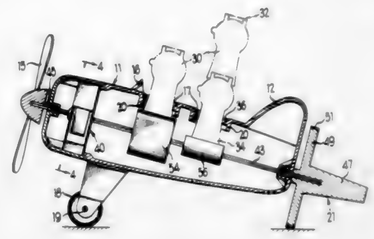
1. A pull toy comprising a plurality of cylindrical shaped components of different diameters, said components arranged in a linear fashion and being progressively smaller in diameter from the largest to the smallest, whereby a portion of each component except the largest is nested in the next larger cylindrical component, said pull toy further including means for flexibly connecting successive components and means to pull said toy, said largest cylindrical component having an open end, the other cylindrical components being fully nested in said largest cylindrical component, said toy including a lid to cover said open end and enclose said other cylindrical components in said largest component, said connecting means containing fastening means, said fastening means capable of being unfastened whereby each cylindrical component can be separated, said flexible connected components capable of moving out of said open end when said lid is removed and said toy is pulled by said pull means.

4,279,097
SOFT PLAYING DISC
Gary W. Walker, 3475 Chartered Oak Dr., Carlsbad, Calif. 92008
Filed Jun. 2, 1980, Ser. No. 155,495
Int. Cl.³ A63H *27/00;* **B32B** *3/02;* **A42B** *1/02*
U.S. Cl. 46—74 D **4 Claims**



1. A disc shaped playing device comprising a circular section of a flexible sheet of carpeting material having a backing and a piling extending from one surface of the backing and having a strip of flexible carpet binding tape tensioned, extending and secured around the periphery of the sheet so that the edges thereof are crimped under for holding the sheet in a slightly cupped shape with a concave surface and a convex surface with the piling extending from the convex surface.

4,279,098
TOY AIRPLANE
Ralph J. Kulesza, Chicago, Ill.; James M. Alcock, Salt Lake City, Utah, and Burton C. Meyer, Downers Grove, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Jan. 24, 1979, Ser. No. 6,036
Int. Cl.³ A63H *11/10*
U.S. Cl. 46—101 **7 Claims**

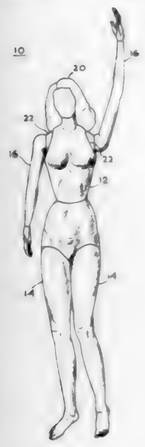


1. A toy airplane selectively capable of aerial barrel rolling and random taxi maneuvers comprising:
- a fuselage;
- a propeller rotatably mounted on the front of said fuselage;
- a hand graspable handle rotatably mounted on the rear of said fuselage;
- three wheels connected to said fuselage for supporting said fuselage on a surface, two of said wheels mounted on said fuselage side by side for rotation around an axis generally transverse to the length of said fuselage, said third wheel mounted on said fuselage spaced from said side by side wheels for rotation around an axis extending generally parallel to the length of said fuselage;
- barrel rolling means for simultaneously rotating said propeller and said fuselage around an axis extending generally parallel to the length of said fuselage when said fuselage is supported by said handle;
- random taxi means for simultaneously rotating said propeller around said axis extending along the length of said fuselage and said fuselage around an upstanding axis through said side by side wheels generally perpendicular to the length of said fuselage, when said fuselage is supported on a surface by said wheels;
- drive means mounted within said fuselage and connected to said propeller for rotating the same; and
- winding means for winding said drive means.

4,279,099
FIGURE TOY
Robert F. Dyer, Rancho Palos Verdes; J. Stephen Lewis, Pacific Palisades; Janice E. Rosential, Manhattan Beach; James P. Mills-Winkler, Torrance, and Robert F. Schroeder, Long Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 10, 1979, Ser. No. 102,068
Int. Cl.³ A63H *13/00*
U.S. Cl. 46—119 **4 Claims**

1. In combination with a figure toy including an upper torso having a shoulder region, an arm having a spherical surface at its upper end and a shoulder joint on said arm for connecting said spherical surface to said shoulder region, the improvement which comprises:
- an opening provided in said shoulder region;
- a shoulder assembly projecting through said opening and contoured to have the external appearance of at least a portion of a shoulder on said figure toy;
- a pivot swingably connecting said shoulder assembly to said upper torso in said opening for movement in a manner simulating natural shoulder movement; and
- an aperture and an aligned cavity provided in said shoulder

assembly for rotatably receiving said shoulder joint and said spherical surface, respectively, said upper torso, arm



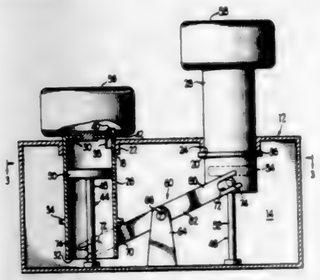
and shoulder assembly forming a substantial part of the external contour of said figure toy.

4,279,100

SOUNDING TOY

Denni F. Rivette, Chicago; Burton C. Meyer, Downers Grove, and Donald F. Nix, Hanover Park, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Sep. 28, 1979, Ser. No. 79,944
Int. Cl.³ A63H 5/00; G10D 7/00; A63H 33/00
U.S. Cl. 46—179 **15 Claims**



1. A variable pitch sounding toy comprising:
a housing;
a first variable volume chamber within said housing;
a second variable volume chamber within said housing;
an air actuated sounding mechanism in fluid communication with said first and second chambers;
an engageable element operatively connected to said first chamber to vary the volume of said first chamber forcing air into said second chamber through said sounding mechanism;
a movable member operatively connected to said element to vary the volume of said second chamber, and a cylinder connected to said first chamber and slidably mounted within said housing, said second chamber defined within the interior of said cylinder, said toy further including a piston slidably mounted within said cylinder and fixed to said housing defining said second chamber within said cylinder.

4,279,101

MODULAR HYDROPONIC SYSTEM

Frank W. Leroux, 5575 Williamsdale Ct., Seminole, Fla. 33541

Filed Aug. 30, 1979, Ser. No. 71,271
Int. Cl.³ A01G 31/00
U.S. Cl. 47—64 **5 Claims**



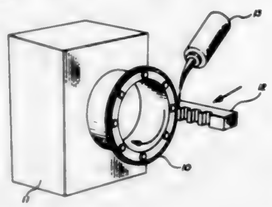
1. A hydroponic system comprising a plurality of plant support units in fluid communication and disposed end to end to form a continuous flow modular hydroponic system, each plant support unit including a nutrient tray of liquid nutrient impervious material to operatively house a nutrient therein, a support means comprising a support structure defining at least one support surface to operatively support each said plant support unit and a nutrient feed supply comprising a pump and storage tank to feed nutrient therefrom to a supply pipe operatively coupled to the first of said plant support units, the adjacent plant support units being coupled together by interconnecting feed pipes, the last of said plant support unit being coupled to said nutrient feed supply by a return feed pipe, each said plant support unit comprising a nutrient tray having a ledge formed about the upper inner peripheral portion thereof and a plant cartridge support member having a corresponding ledge formed about the periphery thereof configured to matingly engage said ledge of said nutrient tray to form a nutrient compartment within said tray, said plant cartridge support member including at least one cartridge aperture formed thereon to operatively support a corresponding plant cartridge, at least one cartridge operatively configured to support a plant therein, said plant medium cartridge comprising a cylindrical hollow member having a coupling member formed about the upper portion thereof to operatively couple said plant cartridge to said plant cartridge support member and a retainer means formed on the lower portion thereof to operatively retain a planting medium within said hollow member, said retainer means comprising at least one retainer member extending inwardly relative to the side wall and from above the bottom portion of said substantially cylindrical hollow member to operatively engage the lower portion of the planting medium.

4,279,102

METHOD OF MANUFACTURING NARROW TRACK FERRITE HEAD CORES

Douglas J. Heanenfent, Minneapolis; Robert A. Johnson, Minnetonka, and Allan L. Holmstrand, Bloomington, all of Minn., assignors to Magnetic Peripherals Inc., Minneapolis, Minn.

Filed Jul. 24, 1978, Ser. No. 927,325
Int. Cl.³ B24B 1/00; G11B 5/42
U.S. Cl. 51—322 **3 Claims**



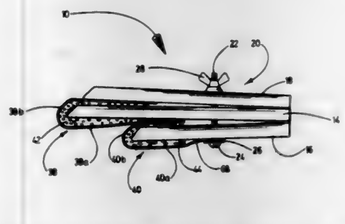
1. A method of forming the opposite sides of a projection of a magnetic transducing core formed of ferrite grains, said projection having a transducing surface at its end which a flux gap intersects, said flux gap splitting the projection and intersecting said opposing sides, and said opposing sides comprising substantially surfaces formed by abrasively removing parts of individual ferrite grains, comprising the steps of:
(a) mounting on a precision spindle, a diamond dust grinding wheel having diamond grit no coarser than 2,000 size, and having a polymer matrix, said spindle-mounted grinding wheel having axial peripheral runout of less than about 0.0025 mm. per side and radial runout of less than about 0.0025 mm. when rotated at a peripheral speed of about 35 meters per second;
(b) rotating the wheel at a peripheral speed of at least about 35 meters per second;
(c) feeding a ferrite bar into the rotating wheel at a speed of about 5 cm. per minute or less along a path substantially parallel to the sides of the wheel; and
(d) applying a fluid coolant comprising water containing a wetting agent to the wheel adjacent the cutting interface, whereby friction and impact between the wheel and the bar are kept sufficiently low to allow abrading of individual ferrite grains with substantially no dislodging of individual ferrite grains adjacent the sides of the wheel during the ferrite bar feeding step.

4,279,103

HAND TOOL FOR USE IN SANDING LOUVER BOARDS

Jesse Rodarte, 410 N. Eighth, Fowler, Calif. 93625

Continuation-in-part of Ser. No. 903,703, Dec. 11, 1978, abandoned. This application Dec. 7, 1979, Ser. No. 101,096
Int. Cl.³ B24D 15/04
U.S. Cl. 51—389 **1 Claim**



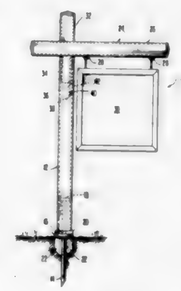
1. A hand-tool of a block-like configuration having utility in the painting industry and adapted to be employed in simultaneously sand finishing commonly facing surfaces of a pair of louver boards comprising:
A. an elongated body including a pair of pad-supporting plates, each being of an elongated, planar shape, the plates of said pair being characterized by a common width and different lengths, and disposed in superimposed relation with adjacent ends of the plates at one end of the body being arranged in substantial co-planar alignment and the opposite ends thereof being provided with segmented working surfaces, each including a first side surface and an end surface, said working surface of said pair of plates being arranged in a mutually staggered relationship;
B. means defining a pair of sanding pads for said working surfaces including a pair of backing strips formed of a resilient backing material and adhesively affixed to said working surfaces in a substantially covering relationship with the first side surfaces, the end surfaces and second side surfaces opposite the first side surfaces thereof, and a pair of flexible sanding strips formed of a flexible material, each sand strip being characterized by a head and a tail segment, and an abrasive working surface extended between the segments suitable for use in sand finishing operations, said sanding strips being disposed in overlapped relationships with said backing strips, said head and tail segments being extended beyond each of the opposite ends of the backing strips;
C. means for securing to said body said sanding strips including a rigid cap plate disposed on one pad-supporting plate, in superimposed relation with an adjacent surface thereof, opposite to said working surface, for clamping therebetween the head segment of said one of the sanding strips, and tail segment engaging surfaces defined on adjacently disposed surfaces of the pad-supporting plates of said pair for clamping therebetween the tail segment of one and the head segment of the other of the sanding strips of said pair;
D. means for securing said plates against displacement relative to one another including a bore projected through the plates perpendicularly to the planes thereof, a screw extended through said bore, and a nut mounted on said screw; and
E. means for securing the tail segment of the other strip of said pair, including a washer mounted on said screw and seated on the tail segment of the other sanding strip of the pair.

4,279,104

SIGN POST CONSTRUCTION HAVING RECIPROCABLE DRIVER FOR PLACEMENT AND REMOVAL

Alvin T. Classen, 1403 Rosch St., Norfolk, Nebr. 68701

Filed Aug. 22, 1979, Ser. No. 68,783
Int. Cl.³ E02D 5/74; G09F 7/18
U.S. Cl. 52—38 **5 Claims**



1. A sign post construction, comprising:
(a) a central apertured ground abutment plate (16),
(b) an elongated anchor spike (14) extending through the ground abutment plate aperture and rigidly secured thereto at a position intermediate its length,
(c) an impact plate (18) rigidly and centrally secured to the top of the anchor spike,
(d) a hollow post tube (12) slidably disposed over the impact plate and anchor spike,
(e) a centrally apertured spiker plate (20) rigidly secured to and closing a lower end of the post tube, the anchor spike slidably extending through the striker plate aperture and the striker plate being disposed intermediate the ground abutment and impact plates such that the striker plate may be manually reciprocatingly driven downwardly, via the hollow post tube, against the ground abutment plate to drive the anchor spike into the ground, and upwardly against the impact plate to remove the anchor spike from the ground,
(f) the post tube and impact plate having complementary, non-circular cross-sections to prevent the post tube from rotating relative to the anchor spike, and
(g) sign carrying means removably mounted to the post tube.

4,279,105

GROUND-BASED PORTABLE AND COLLAPSIBLE STRUCTURES

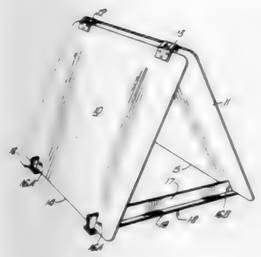
John S. Cameron, 28 Cockels Loan, Renfrew, Scotland

Filed May 29, 1979, Ser. No. 43,372

Claims priority, application United Kingdom, Jun. 6, 1978, 26384/78

Int. Cl.³ E04B *1/346*; E01F *13/00*

U.S. Cl. 52—71 **7 Claims**



1. A ground-based portable and collapsible structure, e.g. a road sign, comprising two similar substantially rectangular plates hinged together and to be disposed in use in downwardly-diverging relationship with restricting means joining the two plates remote from the hinge axis to limit the angle to which the plates can open from one another, characterised in that the restricting means comprises a pair of bar means to be disposed in use on the ground in spaced and parallel relationship and affording respective pairs of upwardly-opening reentrant slots which by alignment of the bar means may be brought into precise registry in two upwardly-converging planes intersecting at an angle of at least about 60° and at most about 75° and in which are engaged the hinge-remote edges of the plates.

4,279,106

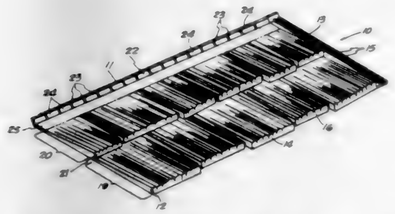
ROOFING PANEL

Charles H. Gleason, 245 W. Lorraine, Glendale, Calif. 91206, and James O. Greenleaf, 6669 Juliet La., Canoga Park, Calif. 91307

Filed Nov. 5, 1979, Ser. No. 91,570

Int. Cl.³ E04D *1/08, 1/34*

U.S. Cl. 52—100 **3 Claims**



1. A roofing panel for interfitting with other roofing panels to form a roofing surface, comprising:

a rigid molded shell having a decorative surface and an oppositely directed shallow cavity;

said shell having a top edge margined band extending across the full width of the shell and angularly directed upwardly and away from the decorative surface and a plurality of spaced thin-wall sections of the marginal band forming tabs of said band adapted to be selectively broken away and removed from the remainder of the band;

a side edge margin of the shell including continuous rib means facing in the same direction as the decorative surface; and

a rigid foam body received in the molded shell cavity including a slot extending along and spaced from the shell lower edge adapted for receiving the top edge marginal of another roofing panel therein, and a faced-off outwardly directed surface adapted for receipt onto the rib means of another roofing panel.

4,279,107

SYSTEMS FOR ANCHORING STRUCTURAL MEMBERS

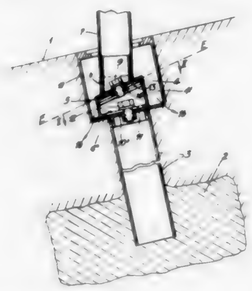
Jean-Jacques Bollmann, Flühgasse 49, CH-8008 Zurich, Switzerland

Filed Aug. 3, 1979, Ser. No. 63,495

Claims priority, application Switzerland, Aug. 3, 1978, 8259/78

Int. Cl.³ E02D *27/42*

U.S. Cl. 52—169.13 **11 Claims**



1. A system for adjustably anchoring a structural member in ground regardless of surface gradient, and comprising:

a section member fixedly positioned in a portion of an opening extending beneath ground, said section member including both upper and lower end portions, with the upper end portion positioned more closely to the ground surface than said lower end portion;

a separate retaining member also positioned within said opening and including a substantially sleeve-shaped upper end portion integrally attached to a substantially flange-shaped lower end portion, with the sleeve-shaped upper end portion engaging an end portion of a structural member extending into said opening;

inclined adjusting means for adjustably coupling said flange-shaped lower end portion of said retaining member to said section member to provide for selective positioning of the longitudinal axis of the structural member relative to the ground surface;

said inclined adjusting means comprising a one-piece bearing plate assembly rotatably and slidably mounted on the upper end portion of said section member, said bearing plate assembly including a first planar bearing surface confronting said retaining member, said first bearing surface being inclined an appreciable angle relative to an imaginary plane extending perpendicular to a longitudinal axis of said section member;

said inclined adjusting means further comprising said flange-shaped end portion of said retaining member including a second, planar bearing surface contacting said first bearing surface, said second bearing surface being inclined an appreciable angle relative to an imaginary plane extending perpendicular to a longitudinal axis of said sleeve-shaped portion of said retaining member;

whereby relative sliding and, or rotative movement of said first and second inclined bearing surfaces causes a corresponding re-orientation of the longitudinal axis of the structural member attached to the retaining member.

4,279,108

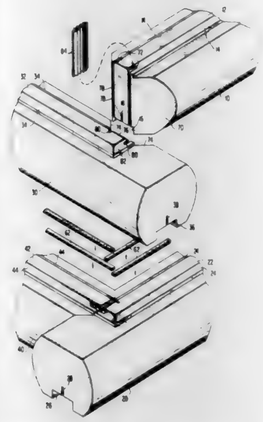
JOINT CONSTRUCTION FOR LOG BUILDINGS

Richard L. Collister, Jr, 1114 Margaret St., Missoula, Mont. 59801

Filed Jul. 25, 1979, Ser. No. 60,695

Int. Cl.³ E04B *1/10*

U.S. Cl. 52—233 **7 Claims**



1. A log building construction comprising a plurality of courses of logs, each log of solid wood having a tongue on the upper surface and a rectilinear groove in the bottom surface interfitted with the groove and tongue respectively of adjacent logs, said tongue having beveled side edges to define with the corners of said rectilinear groove a pair of elongaged expansion chambers for preventing the propagation of drafts, a check groove in the bottom of said rectilinear groove and compressible gasket means on the upper surface of each tongue on opposite sides of said check groove engaging the bottom surface of the rectilinear groove.

4,279,109

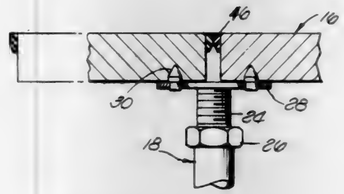
ACCESS FLOOR MOUNTING ASSEMBLY

Joseph Madl, Jr., 2161 Vista Entrata, Newport Beach, Calif. 92660

Continuation-in-part of Ser. No. 796,161, May 12, 1977, abandoned. This application May 25, 1979, Ser. No. 42,546

Int. Cl.³ E04F *15/024*

U.S. Cl. 52—263 **10 Claims**



1. A removable panel system, comprising:

a plurality of panels;

a plurality of pedestals, each terminating in a panel support plate;

first means, precisely positioned on the top of each of said plates;

a second means disposed on the underside of each of said panels, adjacent the edges thereof, for cooperating in a precision fit engagement with said first means; and

one of said first and second means being a precisely located aperture and the other being a pin which has a tapered end portion to initially index and guide the panel and a vertical walled base portion which fits precisely and snugly in said aperture to precisely align said pedestals and said panels carried thereby over a permanent surface;

said vertical walled base portion of the pin abutting the interior wall of said aperture to resist lateral loads on said panel, said pins being spaced and dimensioned relative to the dimensions of said panels that substantially all lateral loads are transmitted through said first and second means rather than from the edge of one panel to another and so that said panels, and said plates form a structural diaphragm which resists lateral movement of said panels when said panels are subjected to a lateral load.

4,279,110

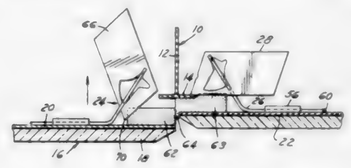
CEILING MIRROR ASSEMBLY

Paul H. Palazzolo, 21154 Hale, Mount Clemens, Mich. 48043, and Joseph J. Dinardo, 2869 Ellsworth, Richmond, Mich. 48062

Filed Mar. 19, 1979, Ser. No. 22,065

Int. Cl.³ E04B *5/57*

U.S. Cl. 52—302 **12 Claims**



1. A suspended ceiling mirror assembly to be positioned on a substantially horizontal support surface comprising in combination:

a panel having a mirrored portion adhered to a subpanel portion;

a hanger joined to the subpanel;

a locking member pivotably joined to the hanger, the locking member having a first stable position overlying the support surface for suspending the panel on the support surface but rotatable on the hanger upward in a substantially vertical plane so to allow for disengagement with the support surface; and

said hanger and locking member hidden from view when the panel is suspended on the support surface.

4,279,111

RETAINING CLIP FOR SOFFIT FIXING ON STEEL BEAMS OR COLUMNS

Dennis J. Hacker, Albuquerque, N. Mex., assignor to High Efficiency Insulation Technologies, Inc., Albuquerque, N. Mex.

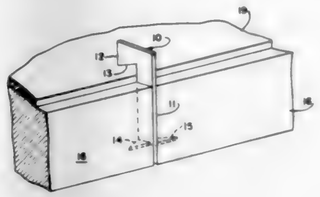
Continuation-in-part of Ser. No. 823,217, Aug. 10, 1977, abandoned. This application Jul. 30, 1979, Ser. No. 62,246

Int. Cl.³ E04B *1/38*

U.S. Cl. 52—714 **1 Claim**

1. A device for supporting an insulation panel having an adhesive surface on one side thereof to the under side of a structural member comprising a clip having a main body with an angularly related tapered portion formed on one end thereof for engagement with the web of a structural member, said tapered portion lying in the same plane as the said body and tapering toward said body, a pair of tapered tail portions at the opposite end of said main body adapted to be oppositely bent

to a 90° angle with respect to said body to which the ends of an insulating panel may be impaled and retained thereon thus



allowing the said adhesive to harden and to retain the said panel to the said undersurface of said structural member.

4,279,112

METHOD FOR IMPROVING THE THERMIC INSULATION OF A BUILDING WITH A RIGID FRAME STRUCTURE

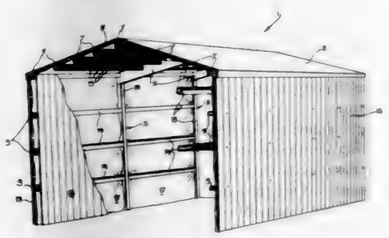
Yves Bertrand, c/o Les Batisses d'Acier Hercule Ltee., Rte. Kennedy, Ste. Marie de Beauce, Quebec, Canada

Filed Oct. 25, 1979, Ser. No. 88,180

Claims priority, application Canada, Jan. 19, 1979, 319985

Int. Cl.[3] **E04B** *1/00*

U.S. Cl. 52—741 **7 Claims**



1. The improved method for thermally insulating a building having a rigid metallic frame comprised of columns, beams, braces and rafters rigidly fixed to each other and designed to support sheet metal roof and wall panels which are bolted or similarly secured thereto, said method comprising the steps of:

placing a thick layer of insulating material onto the inner surfaces of the roof and wall panels before they are secured to the metallic frame, and then securing said panels to said frame, said layer of insulating material being compressed and pinched between the roof and wall panels and the parts of said rigid metallic frame to which they are fastened; and

subsequently completing the insulating of said building by gluing rigid coverings made of insulating material onto every column, beam, brace and rafter of said rigid frame, said rigid coverings being previously cut and shaped so as to completely cover the visible portions of said rigid frame appearing within said building under the layer of insulating material pinched between said frame and said roof and wall panels when the building is assembled, and said rigid coverings being in engagement with and being glued to said layer of insulating material whereby an essentially integral insulating layer is provided within the building.

4,279,113

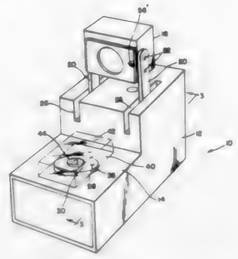
COIN GUARD FOR COIN PROTECTION

Immanuel Haim, 865 E. Decker Dr., Seven Hills, Ohio 44131

Filed Nov. 16, 1979, Ser. No. 94,844

Int. Cl.[3] **B65B** *51/10, 51/12*

U.S. Cl. 53—219 **2 Claims**



1. In a device for protectively encasing and packaging coins for handling and display, comprising a generally rectangular hollow housing having one end elevated and being offset downwardly, intermediate the ends, thereof to provide a generally flat horizontal work surface below said elevated end, a generally rectangular forming member pivotally mounted to said elevated end and elevatable relative to said work surface, generally circular resilient pad means arranged on said forming member, insulation means flatly arranged on said work surface and having a generally centrally disposed coin receiving area, a plurality of heating coils arranged in said insulation means and spacedly encircling said coin receiving area, said device adapted to support a first thermoplastic sheet flatly disposed on said insulation means, a coin generally centrally flatly arranged on said first sheet, and a second thermoplastic sheet superposed on said coin and generally coinciding with said first sheet, whereby when said forming member is pivotally lowered relative to said work surface said pad means will engage and compress said second and first sheets and the coin therebetween against said insulation means and a heating coil thereof, a main switch means connected to a power source, and selector switch means for selectively energizing said coils, transformer means in said housing having primary and secondary windings, means coupling said secondary winding to said selector switch means, and means connecting said primary winding to said main switch for energizing a preselected one of said heating coils to encirclingly thermally bond said sheets together and encase said coin therebetween in a package conforming to the size of coin.

4,279,114

EQUIPMENT FOR MOUNTING A SCREW-CAP ON A CONTAINER

Günter Bode, Ohrum, Fed. Rep. of Germany, assignor to Schmalbach Lubeca GmbH, Brunswick, Fed. Rep. of Germany

Filed Nov. 9, 1979, Ser. No. 92,811

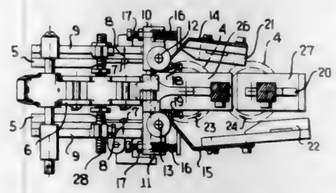
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 7833887

Int. Cl.[3] **B67B** *3/20;* **B65B** *7/28*

U.S. Cl. 53—314 **6 Claims**

1. A device for applying a screw cap on a container; said device comprising a horizontal conveyor for containers, a chute for delivering caps to a cap transfer point, said chute being inclined toward said horizontal conveyor, a guide shoe arranged in the area of said cap transfer point above said chute, resilient holding elements arranged upstream of said cap transfer point for holding a cap by its skirt in an inclined position to the path of travel of a container until the cap is picked up by the container, levers having friction surfaces for gripping a cap by its skirt for turning the cap, and at least two resilient cap

hold-down plates arranged downstream of said guide shoe; the improvement residing in said levers being independent of said resilient holding elements said levers having pivots aligned transversely of said conveyor, and said levers being of such different lengths that their friction surfaces grip a cap by its



skirt sequentially and separately for turning caps first opposite to the direction of screw-on and then in the direction of screw-on, and said friction surfaces of said levers each extending alongside and below the plane of a separate one of said hold-down plates.

4,279,115

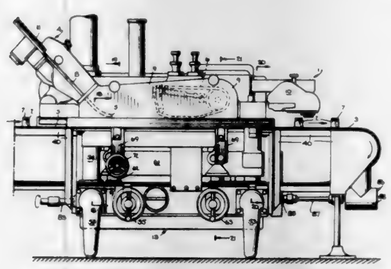
HIGH SPEED STRAIGHT LINE CONTAINER SEALING MACHINE

Cecil P. Roberts, Carroll, and Charles S. Ochs, Lancaster, both of Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio

Filed Mar. 12, 1979, Ser. No. 20,011

Int. Cl.[3] **B65B** *7/28;* **B67B** *3/20*

U.S. Cl. 53—314 **8 Claims**



1. In a straight line sealing machine having a container conveyor of fixed height with a cap applicator and a sealing head mounted on a sealing chamber positioned above said conveyor and container gripping side belts positioned on opposite sides of said conveyor, an improved mounting means for said sealing chamber and said side belts comprising the combination of:

a machine base;

a side belt support assembly;

a first column support means movably mounted on said base and mounting said sealing chamber at its top;

first adjusting means for adjusting the height of the first column support means for changing the height of said sealing chamber relative to said base;

a second column support means movably mounted on said base and mounting said side belt support assembly;

second adjusting means for adjusting the height of the second column support means for changing the height of said side belt support assembly relative to said base and independently of said first adjusting means;

third adjusting means on said side belt support assembly for adjusting the side belt spacing;

a drive shaft in said base;

first coupling means connecting said drive shaft to said sealing chamber independently of the sealing chamber height; and

second coupling means connecting said drive shaft to said side belt support assembly independently of the side belt assembly height.

4,279,116

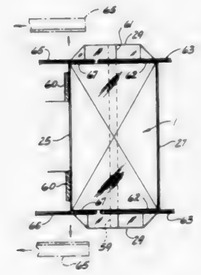
METHOD OF AND APPARATUS FOR WRAPPING

Robert C. James; Dennis P. Horsman, and Richard D. Sorenson, all of Sheboygan, Wis., assignors to Hayssen Manufacturing Company, Sheboygan, Wis.

Filed May 4, 1979, Ser. No. 36,175

Int. Cl.[3] **B65B** *11/22*

U.S. Cl. 53—466 **15 Claims**



7. The method of wrapping a unit such as a ream of paper to be wrapped, the unit have a rectangular top and bottom, rectangular sids and rectangular ends, comprising:

supporting the unit at its bottom on elevator means with the elevator means in a lowered position;

positioning a wrapper for the unit above the unit, the wrapper comprising a sheet of material larger than the top of the unit and having rearward and forward portions extending beyond the planes of the rearward and forward sides of the unit a sufficient distance for being folded down upon the rearward and forward sides of the unit and under the bottom of the unit and end portions extending beyond the ends of the unit;

raising the elevator means from said lowered position to a raised position to lift the unit to a raised position and, as the unit is raised, causing the rearward and forward portions of the wrapper to fold down on the rearward and forward sides of the unit;

folding said rearward and forward portions of the wrapper in under the bottom of the unit;

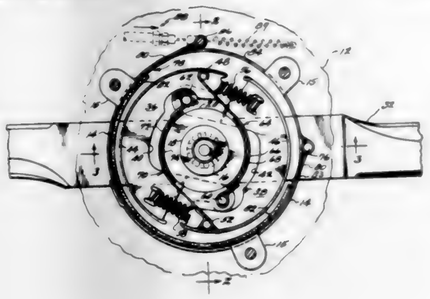
moving the unit with the wrapper wrapped therearound forward; and, as the unit is moved forward with the wrapper wrapped therearound, folding forward sections of said end portions back on the ends of the unit by engagement with a pair of fixed end folders, and folding rearward sections of said end portions forward on the ends of the unit by moving a pair of rearward end folders forward, independently of the forward movement of the unit, from a retracted position with said rearward end folders in a position for folding said rearward sections on the ends of the unit, then returning said rearward end folders to their retracted position while the next unit to be wrapped is being raised by moving said rearward end folders away from the ends of the unit in a first direction substantially perpendicular to the ends of the unit to a clearance position for the raising of the next unit during their return, and moving said rearward end folders rearwardly and then in a second direction substantially opposite to said first direction to their retracted and folding position for operation on the wrapper of the next unit when it has been lifted to the raised position.

4,279,117

COMBINED CLUTCH AND BRAKE ARRANGEMENT FOR A ROTARY LAWNMOWER BLADE

Randall K. Lawrence, Fairview, and Aaron A. Stevens, Spring Hill, both of Tenn., assignors to The Murray Ohio Manufacturing Co., Brentwood, Tenn.

Filed Jan. 30, 1980, Ser. No. 116,970
Int. Cl.³ A01D *69/10*
U.S. Cl. 56—11.3 **6 Claims**



1. A combined clutch and brake arrangement for a rotary lawnmower having a source of rotational movement and a blade, said arrangement comprising:
a drive disk joined to said source for rotation therewith;
support means for said blade;
at least one centrifugally movable shoe pivotally connected to said support means;
a flexible drive band positioned adjacent to said drive disk, said band being connected at one of its ends to said shoe at a location spaced from the pivotal connection of the shoe to said support means, the other end of said band being connected to said support means at said pivotal connection whereby said drive band surrounds a portion of said drive disk;
spring means urging said shoe about its pivotal connection to bring said drive band into frictional engagement with the periphery of the drive disk enabling translation of the rotation of the disk to said shoe, the support means and said blade, the rotation of said shoe producing centrifugal movement thereof about its pivotal connection to increase the frictional engagement of the drive band with the drive disk;
a brake band positioned adjacent said shoe; and
means for selectively moving said brake band into engagement with the shoe to decelerate said shoe, the support means and said blade and to displace the shoe about its pivotal connection in opposition to said centrifugal movement and the urging of the spring means to interrupt the frictional engagement of the drive band with the periphery of the drive disk.

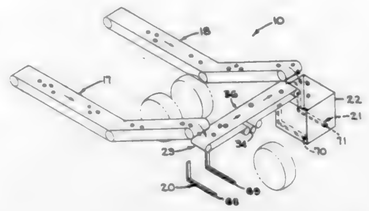
4,279,118

FRUIT HARVESTING MACHINE WITH BIN FILLING SYSTEM

Martin H. Col, and Ronald L. Peters, both of Modesto, Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Jan. 11, 1980, Ser. No. 111,509
Int. Cl.³ A01G *19/06*
U.S. Cl. 56—329 **10 Claims**

1. In a fruit harvester of a type wherein fruit is shaken from a tree and directed into receptacles, including a main frame movable along a path, means for movably engaging a fruit tree and shaking the tree while so engaged, a collection surface adapted to collect the fruit as it falls from the tree, two parallel conveyors disposed on either side of the main frame and arranged to receive the fruit from said collection surface, said conveyors being adapted to transport the fruit to points behind the collection surface and terminating at locations on opposite sides of the main frame, the improvement comprising:
means for supporting two receptacles so that a first receptacle will be located beneath the termination point of one conveyor and a second receptacle will be located beneath the termination point of the other conveyor, and



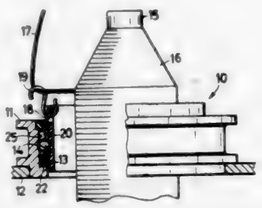
means for selectively intercepting fruit from either of the two parallel conveyors, but not from both of the parallel conveyors simultaneously, and transporting that fruit so that it is deposited in the receptable associated with the opposite conveyor.

4,279,119

ROTARY RING FOR SPINNING AND TWISTING FRAME

Angelo Marzoli, Palazzolo Sull'Oglio, Italy, assignor to F. lli Marzoli & C. S.p.A., Italy

Filed Jul. 19, 1979, Ser. No. 58,993
Claims priority, application Italy, Jul. 25, 1978, 26077 A/78
Int. Cl.³ D01H *7/56*
U.S. Cl. 57—124 **7 Claims**



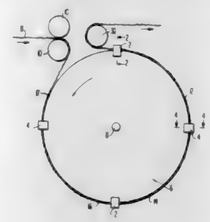
1. A rotary ring for spinning and twisting frames with spindles receiving thread thereon, comprising
ring tails on the spinning and twisting frames,
an annular stator fastened to each of said ring rails,
an annular rotor rotatably mounted coaxially within said stator and with the spindle,
revolving members mounted between said rotor and said stator,
a hook fitted on said rotor for passing the thread therethrough when being processed, the thread driving said hook to rotation,
and braking means inserted between said stator and said rotor,
characterized in that said rotor is driven in rotary movement, placing said revolving members in rotation by contact therewith, said braking means consequently rotating with said revolving members by contact therewith, said braking means rotating about said rotor and under the action of the centrifugal forces thus acting thereon, frictionally engaging the internal walls of said stator thus slightly delaying the speed of said rotor relative to the spin of the spindle.

4,279,120

SELF TWIST YARN AND METHOD AND APPARATUS FOR MAKING SUCH YARNS

Alan H. Norris, Rome, Ga., assignor to WWG Industries, Inc., Rome, Ga.

Continuation-in-part of Ser. No. 913,674, Jun. 8, 1978, abandoned, and a continuation of Ser. No. 916,567, Jun. 19, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,211
Int. Cl.³ D02G *3/26, 3/28;* **D01H** *7/90, 7/92*
U.S. Cl. 57—204 **60 Claims**



1. A method of twisting a textile strand to provide longitudinally spaced zones which are twisted in opposite directions, comprising the steps of
moving the strand in a longitudinal direction,
moving a first strand twisting device concurrently with the strand and operatively engaging a first location on the strand with said first strand twisting device,
rotating the strand with said first strand twisting device to provide the strand with opposite twists on opposite sides of the first location, bringing the twisted strand into parallel adjacent relationship with a second strand, and
releasing the twisted strand to permit it to untwist at least partially and to twist itself to said second strand.

36. Apparatus for twisting a textile strand to provide longitudinally spaced zones which are twisted in opposite directions, comprising
means for moving the strand in a longitudinal direction,
means for moving a first strand twisting device concurrently with the strand and into operative engagement with a first location on the strand,
said first strand twisting device including means for rotating the strand at the first location to provide the strand with opposite twists on opposite sides of the first location,
means for bringing the twisted strand into parallel adjacent relationship with a second strand and releasing the twisted strand to permit it to untwist at least partially to twist itself to said second strand.

4,279,121

STRANDED NICKEL BRAZE ALLOY PREFORMS

Edward J. Ryan, Wallingford; David A. Rutz, Manchester, both of Conn., and Jack W. Lee, Palm Beach Gardens, Fla., assignors to United Techaologies Corporation, Hartford, Conn.

Continuation of Ser. No. 895,161, Jan. 10, 1978, abandoned. This application Oct. 3, 1979, Ser. No. 81,515
Int. Cl.³ D02G *1/00;* **B32B** *15/02, 15/04*
U.S. Cl. 57—258 **4 Claims**

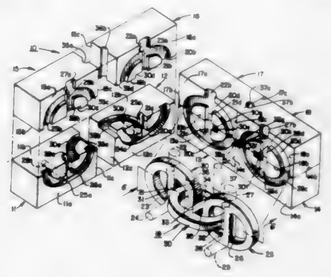
1. A nickel alloy braze preform which comprises a plurality of fine wire strands, which are mechanically held in proximity to each other by twisting or braiding the strands together to form a stranded preform, each of said strands having a boride surface layer, the total cross-sectional area of the strands being in excess of about 0.0015 square inch and the ratio of surface area to volume of the plurality of strands being in excess of about 100 in^{-1}, said stranded preform being used in place of a single borided wire (which would have a particular cross-sectional area and boride surface layer thickness) said plurality of strands having a cross-sectional area essentially equal to the cross-sectional area of said single wire, while having an increased surface area relative to that of the single wire, so that the depth of the borided layer may be reduced, while maintaining the total boron level equal to or in excess of the single boride wire, so that stranded preform has the ability to withstand bending strands without significant spallation of the borided surface layer.

4,279,122

METHOD OF MAKING CHAIN

James B. Rogers, Lakeland, Fla., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 19, 1979, Ser. No. 77,081
Int. Cl.³ B21L *5/02*
U.S. Cl. 59—10 **16 Claims**



1. A method of making a chain comprising casting at least two links integrally so that the two links interlock and are joined together, and then severing said links along said joint to provide at least two separate, interlocked links.

4,279,123

EXTERNAL GAS TURBINE ENGINE COOLING FOR CLEARANCE CONTROL

James G. Griffin, West Hartford, and Frederick M. Schwarz, Glastonbury, both of Conn., assignors to United Technologies Corporation, Hatford, Conn.

Filed Dec. 20, 1978, Ser. No. 971,288
Int. Cl.³ F02C *7/18*
U.S. Cl. 60—226 R **4 Claims**



1. A turbofan engine operating over a range of power having a fan discharge duct, and having rotating machinery and a casing surrounding said rotating machinery, and where there are seal means extending inwardly from said casing, means for controlling the clearance between the tip of the rotating machinery and the seal means, said casing having a plurality of axially spaced flanges extending outwardly therefrom, at least one tube circumferentially mounted about said engine case adjacent to at least one of said flanges having a wall adjacent to said casing that is substantially coextensive with the expance between adjacent flanges and conforming to the shape of the casing, connection means interconnecting the fan discharge duct and said tube whereby the cool fan discharge air is directed through apertures formed in said tube to impinge on the side wall of said flange and said flange being sufficiently structured so that the effect of cooling causes the engine case to

shrink to reduce the diameter of the seal means and the clearance between the said tip and said seal means, means for selectively turning the flow of air on and off at a given power condition of said range of power, and said wall of said tube being spaced from said casing and spanning substantially the distance between adjacent flanges defining a cavity for supporting a film of air supplied by the impinged air.

4,279,124

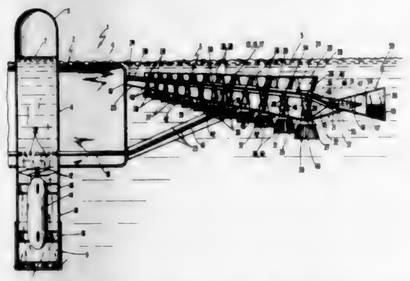
SYSTEM FOR EXTRACTING SUBSURFACE WAVE ENERGY

Edward J. Schremp, 226 S. Fairfax St., Alexandria, Va. 22314

Continuation-in-part of Ser. No. 858,087, Dec. 6, 1977, abandoned. This application Jan. 10, 1979, Ser. No. 5,661

Int. Cl.³ F03B *13/12*

U.S. Cl. 60—505 **69 Claims**



1. An apparatus for extracting wave energy from a large body of water, comprising:

impeller means positioned below the surface of the water and responsive to wave induced subsurface water movement;

said impeller means comprising pluralities of wave responsive impellers distributed in a series of generally concentric rings so as to form a three-dimensionally ordered generally annular array of impellers effectively surrounding and thereby sheltering a given bounded central region at and below the surface of the water; and

means coupled to said impeller means for performing useful work.

4,279,125

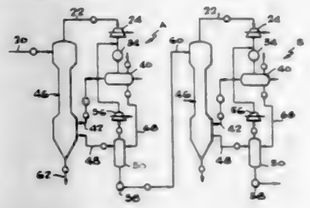
PROCESS AND SYSTEM FOR RECOVERY OF ENERGY FROM GEOTHERMAL BRINES AND OTHER HOT WATER CONTAINING SOURCES

Samuel G. Woinsky, Irvine, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation-in-part of Ser. No. 589,068, Jun. 23, 1975, abandoned, Ser. No. 763,533, Jan. 28, 1977, abandoned, and Ser. No. 836,293, Sep. 26, 1977, Pat. No. 4,213,302. This application Feb. 1, 1979, Ser. No. 8,793

Int. Cl.³ F03G *7/00*; **F01K** *23/02*

U.S. Cl. 60—641F **4 Claims**



1. Process for recovery of energy from hot water-containing fluids containing uncondensible gas, said hot water-containing fluids including geothermal brines and other hot water sources, which comprises

(a) flashing said hot water-containing fluid to flash off a mixture of steam and uncondensible gas and substantially reduce the amount of uncondensible gas in said hot water-containing fluid,

(b) work expanding said mixture to recover energy,

(c) introducing said flashed hot water-containing fluid into a first heat transfer zone and directly contacting said flashed hot water-containing fluid therein, with a first working fluid in liquid form, to provide a first heated working fluid comprising water vapor and uncondensible gas, and a cooled water-containing fluid,

(d) expanding said first heated working fluid in an expander to produce work,

(e) discharging said expanded first working fluid from said expander,

(f) cooling said discharged first working fluid, to provide a condensed working fluid comprising condensed water vapor and uncondensible gas,

(g) separating in an accumulator zone said condensed first working fluid from said condensed water vapor and uncondensible gas,

(h) returning said separated first working fluid under pressure to said heat transfer zone for reheating therein,

(i) venting said uncondensible gas from said accumulator zone,

(j) withdrawing said cooled water-containing fluid at a moderately elevated temperature from said heat transfer zone,

(k) introducing said withdrawn water-containing fluid into a second heat transfer zone and directly contacting said withdrawn water-containing fluid therein, with a second working fluid in liquid form, to provide a second heated working fluid, comprising water vapor and an uncondensible gas,

(l) withdrawing said second heated working fluid from said second heat transfer zone,

(m) expanding said withdrawn second working fluid to produce work,

(n) cooling said expanded second working fluid, to produce a condensed second working fluid comprising condensed water vapor and uncondensible gas,

(o) separating said condensed second working fluid from condensed water and any uncondensible gas, and

(p) returning said separated second working fluid under pressure to said second heat transfer zone, said flashing of said hot water-containing fluid being controlled to substantially reduce the concentration of uncondensible gas in the hot water-containing fluid prior to its introduction into said first heat transfer zone and thereby decreasing the amount of working fluid vented from the accumulator, along with said vented gas, and wherein said first working fluid comprises a single organic fluid selected from the group consisting of aromatics, paraffins, naphthenes, olefins and ethers, and said second working fluid comprises a mixture of said organic fluids.

4,279,126

METHOD OF UTILIZING RESIDUAL HEAT IN THE PRODUCTION OF CELLULOSE AND AN INSTALLATION FOR CARRYING OUT THE METHOD

Gösta Rosenblad, Gothenburg, Sweden, assignor to Generator Industri AB, Sweden

Filed Dec. 13, 1978, Ser. No. 969,060

Claims priority, application Sweden, Dec. 21, 1977, 7714563

Int. Cl.³ F01K *25/14*

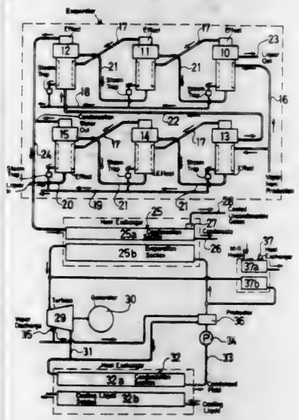
U.S. Cl. 60—651 **14 Claims**

1. A method of utilizing residual heat in a pulp mill of a paper making process and where spent cooling liquor is evaporated in a multiple-effect evaporator using vapor evaporated from the liquor as a heating medium, comprising the steps of:

(a) providing, from at least one last effect of the multiple-effect evaporator, outlet vapor holding a saturation pressure in a range immediately below atmospheric pressure;

(b) condensing said outlet vapor in one side of a heat exchanger;

(c) supplying, for evaporation in the other side of the heat exchanger, a working fluid having in vaporous form, a volume substantially lower than that of the outlet vapor from the evaporator for the amount of heat extracted from the outlet vapor in the exchanger and at a temperature sufficiently lower than that of the outlet vapor in the heat exchanger so as to cause heat transfer;



(d) expanding, in a turbine, the vapor of the evaporated working fluid for producing mechanical work by a steam power process;

(e) condensing the vapor of the evaporated working fluid in a condenser;

(f) pumping the condensed working fluid to a higher pressure; and

(g) returning the condensed working fluid to the heat exchanger for further evaporation.

4,279,127

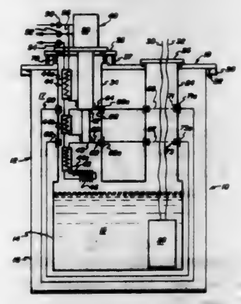
REMOVABLE REFRIGERATOR FOR MAINTAINING LIQUEFIED GAS INVENTORY

Ralph C. Longsworth, Allentown, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Division of Ser. No. 17,009, Mar. 2, 1979. This application Mar. 3, 1980, Ser. No. 126,759

Int. Cl.³ F25B *45/00*

U.S. Cl. 62—77 **5 Claims**



1. A method for removing a refrigeration source from an apparatus containing a regulated atmosphere wherein the refrigeration source is removable through a normally closed access means without exposing the contained atmosphere to ambient conditions outside of said apparatus comprising:

fitting a gas tight receptacle to said access means;

establishing an atmosphere within said receptacle;

withdrawing said refrigeration source into said gas tight receptacle;

closing said gas tight receptacle between said apparatus and said refrigeration source; and

removing said refrigeration source from said gas tight receptacle.

4,279,128

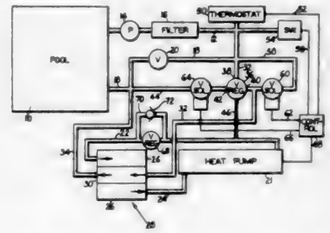
HEAT PUMP SWIMMING POOL HEATER

David J. Leniger, Vancouver, Wash., assignor to Alfred R. Edwards and Gene R. Price, both of Vancouver, Wash.

Filed Apr. 30, 1979, Ser. No. 34,273

Int. Cl.³ F25B *27/02*, *13/00*

U.S. Cl. 62—238.6 **8 Claims**



1. A heating system for a swimming pool in which water from the pool is circulated by a pump from the pool through a pool outlet line and back into the pool through a pool return line, said system comprising:

(a) a three-way regulator valve having an inflow port which is connected to the pool outlet line, having a first outflow port which is connected to the pool return line and a second outflow port, said valve being operable in a manner such that the amount of fluid entering said inflow port can be selectively divided between said first and second outflow ports;

(b) heat pump means transferring heat to a heat transfer fluid which is circulated through said heat pump means in a closed loop;

(c) a heat exchanger having a primary coil which is interconnected to said heat pump in a manner for circulation of said heat transfer fluid through said primary coil and a secondary coil which is interconnected between said second outflow port of said regulator valve and the return line for circulating the pool water through said secondary coil;

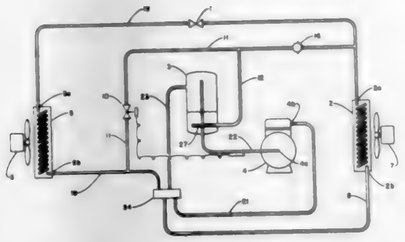
(d) control means associated with said regulator valve for selectively controlling the relative amounts of pool water from said inflow port which are directed to said first and second outflow ports respectively, said control means being sensitive to the pressure of said heat transfer fluid between said heat pump and said primary coil so that an increasingly greater portion of the pool water leaves said regulator valve through said first outflow port when said pressure decreases, and an increasingly greater portion of the pool water leaves said regulator valve through said second outflow port when said pressure increases.

4,279,129

HOT GAS DEFROST SYSTEM

Peter L. Cann, Canastota, and Paul S. Sacks, Cazenovia, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 947,980, Oct. 2, 1978, Pat. No. 4,215,555.
This application Dec. 12, 1979, Ser. No. 103,833
Int. Cl.³ F25B *47/00*
U.S. Cl. 62—278 **4 Claims**



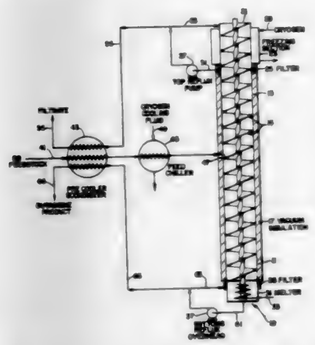
1. A component of a refrigeration system which acts as a combination accumulator and re-evaporator, said refrigeration system including a compressor, condenser and evaporator whereon frost may be formed during refrigeration system operation, the component comprising a unitary shell which is connected to receive refrigerant from the evaporator and from a compressor discharge line and to discharge refrigerant to a compressor suction line, said component during heat transfer operation receiving gaseous refrigerant from the evaporator, no refrigerant flow from the compressor discharge line and discharging the gaseous refrigerant to the compressor suction line; and in the defrost mode of operation said component receiving refrigerant from the evaporator at least a part of which is in the liquid state, hot gaseous refrigerant from the compressor discharge line and discharging gaseous refrigerant to the compressor suction line.

4,279,130

RECOVERY OF 1,3-BUTADIENE BY FRACTIONAL CRYSTALLIZATION FROM FOUR-CARBON MIXTURES

Ray N. Finch, and William D. Nash, both of Odessa, Tex., assignors to El Paso Products Company, Odessa, Tex.

Filed May 22, 1979, Ser. No. 41,308
Int. Cl.³ B01D *9/04*
U.S. Cl. 62—544 **17 Claims**



1. A continuous fractional crystallization process for recovering 1,3-butadiene product as a first C_4 component product and for isolating a filtrate product from a C_4-hydrocarbon mixture, comprising:

A. precooling said C_4-hydrocarbon mixture to a temperature at which crystallization is initiated by at least partial heat exchange with said 1,3-butadiene product and by heat exchange with a cryogen;

B. feeding said precooled mixture to a continuous crystallization column having a freezing section at one end and a melting section at the other end;

C. withdrawing 1,3-butadiene from said other end, returning a reflux portion thereof to said melting section, and sending the remainder as said 1,3-butadiene product to product disposal; and

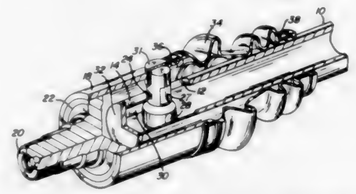
D. withdrawing a spent filtrate, comprising C_4-hydrocarbons other than said 1,3-butadiene product from said one end, returning a reflux filtrate portion to said freezing section, and sending the remainder as filtrate product to filtrate disposal.

4,279,131

CONSTANT VELOCITY JOINT

William L. Pringle, Grosse Pointe Shores, Mich., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1979, Ser. No. 68,122
Int. Cl.³ F16D *3/30*
U.S. Cl. 64—21 **3 Claims**



1. A constant velocity universal joint, comprising:

first and second rotatable bodies, at least one of said bodies being angularly and axially displaceable with respect to the other, the first of said bodies having an axial elongated slot extending transversely through said body adjacent one end thereof, said second body having an internal hollow cavity loosely housing the slotted portion of said first body,

an elongated torque transmitting member extending longitudinally in the transverse direction of said first body in said slot and engaging opposite sidewalls thereof for transmitting rotary motion between said bodies,

rotary mounting means fixedly mounted in said second body and journaling opposite ends of said member,

said member being connected to said second body at right angles to the axis of rotation thereof and being slidable and pivotable within said slot in the first body in the direction of the length thereof so as to permit substantial angular and axial articulation of said bodies,

said slot in the first body having a channel approximately semicircular in cross section extending along the longitudinal centerline of each of the opposite sidewalls thereof, and

centering means comprising ball-shape means on each of the long sides of said member engaging said channels so as to maintain the centerpoint of said member coincident with the longitudinal axis of said slot during angular and axial movements of said bodies.

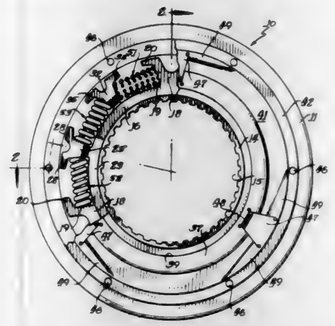
4,279,132

VIBRATION DAMPER ASSEMBLY

Paul E. Lamarche, Utica, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 16, 1978, Ser. No. 951,823
Int. Cl.³ F16D *3/14, 47/02*
U.S. Cl. 64—27 C **13 Claims**

1. A vibration damper assembly to transmit torque between driving and driven members, comprising an input member operatively connected to torque input means, a hub operatively connected to torque output means and having three circumferentially equally spaced radial arms, a pair of equalizers journalled on opposite sides of and floating independently of said hub, each equalizer including an annular plate have three circumferentially equally spaced radial arms, said arms of said equalizers alternating between each adjacent pair of hub



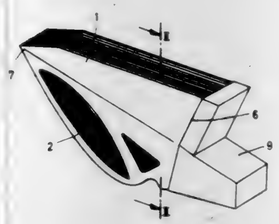
arms, compression spring sets interposed between said hub arms and equalizer arms to form three groups of spring sets acting in parallel with each group having three spring sets acting in series, and a pair of cover plates substantially enclosing said hub, equalizers and spring sets and operatively connected to said input member, each cover plate having three circumferentially equally spaced integral drive means therein interposed in the path of the spring sets.

4,279,133

LAYING-IN COMB FOR WARP KNITTING MACHINES

Peter Riesen, Elgg, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed May 5, 1980, Ser. No. 146,601
Claims priority, application Switzerland, May 18, 1979, 4643/79
Int. Cl.³ D04B *23/06, 23/08, 23/10, 23/12*
U.S. Cl. 66—84 R **14 Claims**



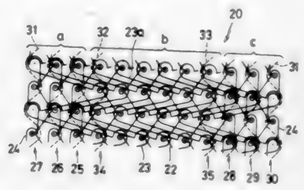
1. A laying-in comb for warp knitting machines, said comb having a plurality of spaced apart aligned sinkers, each said sinker having a head at one end, a securing end at the opposite end, a top edge extending between said ends, and a bottom edge longitudinally offset from said top edge at least at said securing end, said offset decreasing from said securing end to said head.

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WARP-KNIT STRINGER TAPE FOR SLIDE FASTENERS

Yoshio Matsuda, Nyuzen, Japan, assignor to Yoshida Kogyo, K.K., Tokyo, Japan

Filed Jun. 20, 1979, Ser. No. 50,294
Claims priority, application Japan, Jul. 7, 1978, 53-82761
Int. Cl.³ D04B *21/00*
U.S. Cl. 66—195 **14 Claims**



1. A warp-knit stringer tape for slide fasteners having a pair of spaced edge portions and a central portion extending between said edge portions, said stringer tape comprising:

(a) a first set of yarns forming a knit ground structure containing stitch loops in every course and wale of said tape;

(b) a second set of yarns knitted in said ground structure and each extending coursewise across at least three wales, sinker loops of said second set of yarns being located, on one of opposite surfaces of the stringer tape, over said first set of yarns of said ground structure;

(c) a third set of yarns forming a plurality of chains of loops knitted in said ground structure and extending along wales in at least one of said edge portions; and

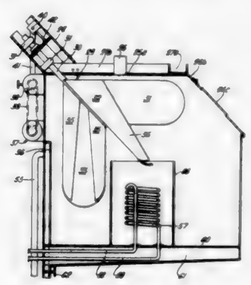
(d) a fourth set of yarns laid in said ground structure and extending in and along the last-named wales.

4,279,135

DYEING, WASHING AND/OR MILLING

Andrew G. Cox, Bulls, New Zealand, assignor to Manawatu Textile Dyers Limited, Bulls, New Zealand

Filed Aug. 16, 1979, Ser. No. 67,197
Claims priority, application New Zealand, Mar. 28, 1979, 190029
Int. Cl.³ D06F *17/06*; D06B *3/30*
U.S. Cl. 68—15 **24 Claims**



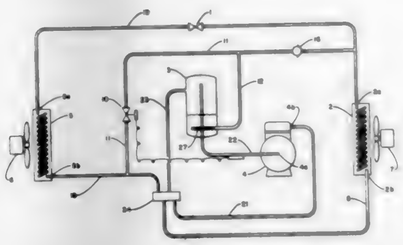
1. A dyeing, washing and/or milling apparatus including a substantially circular working fluid reservoir; an island disposed centrally within said reservoir so as to define an annular channel within said reservoir; a plurality of paddle members mounted above said reservoir for uni-directional rotation about a fixed axis so that during rotation thereof said paddle members are displaced into and out of said channel to circulate working fluid therein around said channel; and supplementary circulation means to increase the circulation of a working fluid within

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HOT GAS DEFROST SYSTEM

Peter L. Cann, Canastota, and Paul S. Sacks, Cazenovia, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Division of Ser. No. 947,980, Oct. 2, 1978, Pat. No. 4,215,555.
This application Dec. 12, 1979, Ser. No. 103,833
Int. Cl.³ F25B 47/00
U.S. Cl. 62—278 **4 Claims**



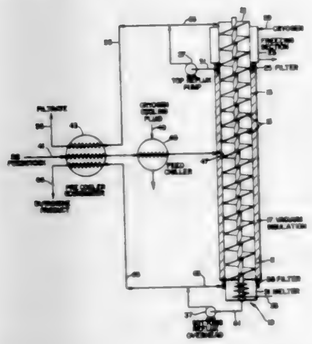
1. A component of a refrigeration system which acts as a combination accumulator and re-evaporator, said refrigeration system including a compressor, condenser and evaporator whereon frost may be formed during refrigeration system operation, the component comprising a unitary shell which is connected to receive refrigerant from the evaporator and from a compressor discharge line and to discharge refrigerant to a compressor suction line, said component during heat transfer operation receiving gaseous refrigerant from the evaporator, no refrigerant flow from the compressor discharge line and discharging the gaseous refrigerant to the compressor suction line; and in the defrost mode of operation said component receiving refrigerant from the evaporator at least a part of which is in the liquid state, hot gaseous refrigerant from the compressor discharge line and discharging gaseous refrigerant to the compressor suction line.

4,279,130

RECOVERY OF 1,3-BUTADIENE BY FRACTIONAL CRYSTALLIZATION FROM FOUR-CARBON MIXTURES

Ray N. Finch, and William D. Nash, both of Odessa, Tex., assignors to El Paso Products Company, Odessa, Tex.

Filed May 22, 1979, Ser. No. 41,308
Int. Cl.³ B01D 9/04
U.S. Cl. 62—544 **17 Claims**



1. A continuous fractional crystallization process for recovering 1,3-butadiene product as a first C_4 component product and for isolating a filtrate product from a C_4-hydrocarbon mixture, comprising:

A. precooling said C_4-hydrocarbon mixture to a temperature at which crystallization is initiated by at least partial heat exchange with said 1,3-butadiene product and by heat exchange with a cryogen;

B. feeding said precooled mixture to a continuous crystallization column having a freezing section at one end and a melting section at the other end;

C. withdrawing 1,3-butadiene from said other end, returning a reflux portion thereof to said melting section, and sending the remainder as said 1,3-butadiene product to product disposal; and

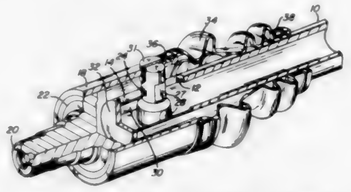
D. withdrawing a spent filtrate, comprising C_4-hydrocarbons other than said 1,3-butadiene product from said one end, returning a reflux filtrate portion to said freezing section, and sending the remainder as filtrate product to filtrate disposal.

4,279,131

CONSTANT VELOCITY JOINT

William L. Pringle, Grosse Pointe Shores, Mich., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1979, Ser. No. 68,122
Int. Cl.³ F16D 3/30
U.S. Cl. 64—21 **3 Claims**



1. A constant velocity universal joint, comprising:

first and second rotatable bodies, at least one of said bodies being angularly and axially displaceable with respect to the other, the first of said bodies having an axial elongated slot extending transversely through said body adjacent one end thereof, said second body having an internal hollow cavity loosely housing the slotted portion of said first body,

an elongated torque transmitting member extending longitudinally in the transverse direction of said first body in said slot and engaging opposite sidewalls thereof for transmitting rotary motion between said bodies,

rotary mounting means fixedly mounted in said second body and journaling opposite ends of said member,

said member being connected to said second body at right angles to the axis of rotation thereof and being slidable and pivotable within said slot in the first body in the direction of the length thereof so as to permit substantial angular and axial articulation of said bodies,

said slot in the first body having a channel approximately semicircular in cross section extending along the longitudinal centerline of each of the opposite sidewalls thereof, and

centering means comprising ball-shape means on each of the long sides of said member engaging said channels so as to maintain the centerpoint of said member coincident with the longitudinal axis of said slot during angular and axial movements of said bodies.

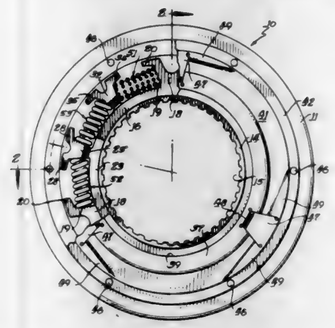
4,279,132

VIBRATION DAMPER ASSEMBLY

Paul E. Lamarche, Utica, Mich., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 16, 1978, Ser. No. 951,823
Int. Cl.³ F16D 3/14, 47/02
U.S. Cl. 64—27 C **13 Claims**

1. A vibration damper assembly to transmit torque between driving and driven members, comprising an input member operatively connected to torque input means, a hub operatively connected to torque output means and having three circumferentially equally spaced radial arms, a pair of equalizers journalled on opposite sides of and floating independently of said hub, each equalizer including an annular plate have three circumferentially equally spaced radial arms, said arms of said equalizers alternating between each adjacent pair of hub



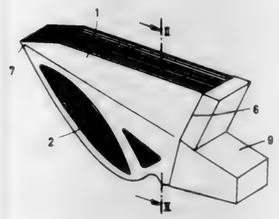
arms, compression spring sets interposed between said hub arms and equalizer arms to form three groups of spring sets acting in parallel with each group having three spring sets acting in series, and a pair of cover plates substantially enclosing said hub, equalizers and spring sets and operatively connected to said input member, each cover plate having three circumferentially equally spaced integral drive means therein interposed in the path of the spring sets.

4,279,133

LAYING-IN COMB FOR WARP KNITTING MACHINES

Peter Riesen, Elgg, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed May 5, 1980, Ser. No. 146,601
Claims priority, application Switzerland, May 18, 1979, 4643/79
Int. Cl.³ D04B 23/06, 23/08, 23/10, 23/12
U.S. Cl. 66—84 R **14 Claims**



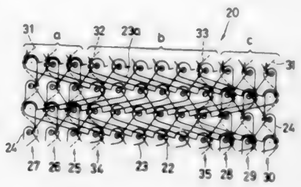
1. A laying-in comb for warp knitting machines, said comb having a plurality of spaced apart aligned sinkers, each said sinker having a head at one end, a securing end at the opposite end, a top edge extending between said ends, and a bottom edge longitudinally offset from said top edge at least at said securing end, said offset decreasing from said securing end to said head.

4,279,134

WARP-KNIT STRINGER TAPE FOR SLIDE FASTENERS

Yoshio Matsuda, Nyuzen, Japan, assignor to Yoshida Kogyo, K.K., Tokyo, Japan

Filed Jun. 20, 1979, Ser. No. 50,294
Claims priority, application Japan, Jul. 7, 1978, 53-82761
Int. Cl.³ D04B 21/00
U.S. Cl. 66—195 **14 Claims**



1. A warp-knit stringer tape for slide fasteners having a pair of spaced edge portions and a central portion extending between said edge portions, said stringer tape comprising:

(a) a first set of yarns forming a knit ground structure containing stitch loops in every course and wale of said tape;

(b) a second set of yarns knitted in said ground structure and each extending coursewise across at least three wales, sinker loops of said second set of yarns being located, on one of opposite surfaces of the stringer tape, over said first set of yarns of said ground structure;

(c) a third set of yarns forming a plurality of chains of loops knitted in said ground structure and extending along wales in at least one of said edge portions; and

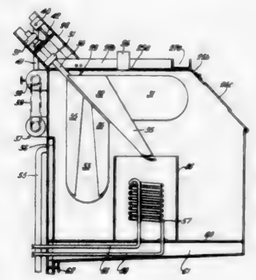
(d) a fourth set of yarns laid in said ground structure and extending in and along the last-named wales.

4,279,135

DYEING, WASHING AND/OR MILLING

Andrew G. Cox, Bulls, New Zealand, assignor to Manawatu Textile Dyers Limited, Bulls, New Zealand

Filed Aug. 16, 1979, Ser. No. 67,197
Claims priority, application New Zealand, Mar. 28, 1979, 190029
Int. Cl.³ D06F 17/06; D06B 3/30
U.S. Cl. 68—15 **24 Claims**



1. A dyeing, washing and/or milling apparatus including a substantially circular working fluid reservoir; an island disposed centrally within said reservoir so as to define an annular channel within said reservoir; a plurality of paddle members mounted above said reservoir for uni-directional rotation about a fixed axis so that during rotation thereof said paddle members are displaced into and out of said channel to circulate working fluid therein around said channel; and supplementary circulation means to increase the circulation of a working fluid within

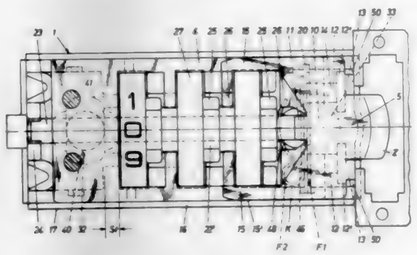
said reservoir over the circulation produced by said paddle means.

4,279,136

COMBINATION LOCK FOR SUITCASES, BAGS OR THE LIKE

Peter Milles, Steimel-Alberthofen, Fed. Rep. of Germany, assignor to S. Franzen Sohne (GmbH & Co.), Fed. Rep. of Germany

Filed Jun. 4, 1979, Ser. No. 45,428
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2828057; Feb. 17, 1979, 2906144
Int. Cl.³ E05B 65/52, 37/02
U.S. Cl. 70—71 3 Claims



1. A combination lock for suitcases, bags, or the like, with a fastening hasp having a main shaft, a plurality of engageable blocking sleeves and number-setting dials arranged on said shaft, the movement of said sleeves when the correct combination of said lock is set establishing engagement slots, a latching slide member having a pair of fingers adapted to be moved axially into said engagement slots, spring means for normally urging said latching slide member into a latched position, and a latching slide portion projecting from said latching slide member for selective latching engagement with said hasp, characterized by said latching being coupled to said latching slide member for axial movement with respect thereto, said spring means including a spring element for normally resisting said movement, at least one of said blocking sleeves having a flange portion occupying said engagement slots to exclude said fingers of said latching slide member therefrom, said fingers being spaced a predetermined distance from each other, whereby said axial movement of said latching slide portion is prevented, including a chamber for receiving said one of said blocking sleeves upon its disengagement from its respective one of said dials, wherein said spring means is normally housed in said chamber and includes a first spring to normally maintain said sleeves and said dials engaged and a second spring to normally maintain said latching slide portion in the latching position with said hasp, and further including a support housing having a mounting slot therein, and wherein said chamber has a partitioning wall to provide a base for the spring action of at least said first spring, said wall extending into said chamber adjacent to but spaced from said main shaft, wherein said second spring is a leaf spring having at least one prong-end, said lock further including an inner support housing with a wall portion thereof having an aperture aligned opposite said prong-end of said second spring.

4,279,137

SECURITY DEVICE

Roy O. Cook, 2016 Main St., Houston, Tex. 77056

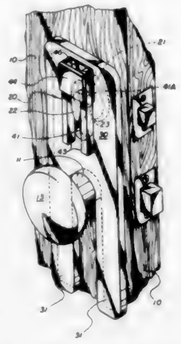
Filed Sep. 6, 1979, Ser. No. 73,144
Int. Cl.³ E05B 63/00
U.S. Cl. 70—416 1 Claim

1. A security device for use in conjunction with a door having a knob and a dead bolt, said device comprising:

a rigid, planar body portion including a pair of spaced apart legs forming the lower part thereof so spaced so as to straddle the shaft of said knob;

a vertically elongated aperture through said body of such size as to permit the handle of said dead bolt to pass therethrough and so arranged as to permit the body above the aperture to pivot about the handle shaft; and

means to prevent said handle from rotating sufficiently to open said dead bolt, said preventing means including said



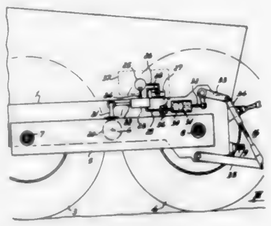
legs, a pair of struts affixed to said body portion on opposite sides of said elongated aperture and separated by a distance less than the length of the handle of said dead bolt, and a plate member connecting said struts adjacent the upper reaches of said elongated aperture, said plate, struts and body portion forming a cavity for receiving one end of said dead bolt handle yet blocking rotation of said handle.

4,279,138

VEHICLE WITH A LIFTING DEVICE RESPONSIVE TO GROUND IRREGULARITIES

Cornelis Van Der Lely, Zug, and Cornelis J. G. Bom, Rozenburg, both of Netherlands, assignors to C. Van Der Lely N. V., Maasland, Netherlands

Filed Apr. 16, 1979, Ser. No. 30,377
Claims priority, application Netherlands, Apr. 20, 1978, 7804194
Int. Cl.³ A01B 63/114
U.S. Cl. 172—4 50 Claims



1. A vehicle comprising an agricultural tractor having a hitching device for the attachment of agricultural machinery and implements, hydraulic control means being provided which is adapted to adjust said hitching device automatically in operation in response to unevenness of the ground over which the vehicle travels, at least two non-coaxial wheels being provided which are pivotable with respect to the rest of the vehicle about a common substantially horizontal transverse axis between the axes of rotation of said wheels, said wheels being interconnected by a frame, movement of which about said axis in response to ground unevenness, with respect to the rest of the vehicle, causes actuation of said control means for adjustment of said hitching device.

48. An agricultural tractor having a hitching device for the attachment of implements, hydraulic control means comprising a hydraulic cylinder and a control valve being provided which is adapted to adjust said hitching device automatically in operation in response to unevenness of the ground over which it travels by said cylinder, at least one sensing member being provided for sensing the occurrence of said unevenness, said sensing member actuating said control valve, a hydraulic pump for pressurizing at least said control means at a pressure having a relationship to the tractor's velocity, a throttle valve in a line provided between said control valve and said hydraulic cylinder, said throttle valve being adjustable as a function of the pressure of the hydraulic fluid pressurizing said control means.

4,279,139

METHOD OF ROLLING ANGLE STRUCTURAL SHAPES

Fernand Schmitz, Lorentzweiler, Luxembourg, assignor to ARBED Acieries Reunies de Burbach-Eich-Dudelange, Societe Anonyme, Luxembourg, Luxembourg

Filed Jul. 2, 1979, Ser. No. 55,038
Int. Cl.³ B21B 1/08
U.S. Cl. 72—234 8 Claims



1. A process for the rolling of a structural shape having two flanges joining at substantially a right angle the process consisting of:

(a) rolling a rectangular-section bar to form at least one convex bulge along a surface of a resulting rolled blank and a pair or wings separated by said bulge and of a thickness of about one-half the thickness of said bar, said blank having a flat planar unrecessed surface on its side opposite said bulge;

(b) thereafter in a second pass rolling said blank to reduce the thickness of said wings to about one third the thickness formed in step (a) and to transform said bulge into a triangular-section ridge while maintaining a flat planar unrecessed surface on the side opposite said ridge;

(c) rolling the blank of step (b) in a third pass to round outer edges along a surface of said blank opposite the surface on which said ridge is formed while maintaining a flat planar unrecessed surface on the side opposite said ridge between the rounder outer edges; and

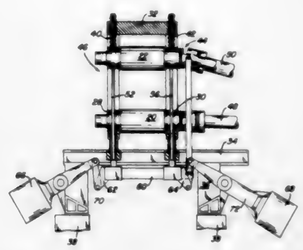
(d) after step (c) and without intervening steps bending said wings at a right angle to one another whereby said ridge forms a vertex between flanges of a structural shape resulting from the bending.

4,279,140

MILL ROLL BALANCE SYSTEM

John Gana, Buckingham Township, Bucks County, Pa., and Dwight L. Torlay, Lawrenceville Township, Mercer County, N.J., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Oct. 17, 1979, Ser. No. 86,003
Int. Cl.³ B21B 31/04
U.S. Cl. 72—237 12 Claims



1. A mill roll balance system for a rolling mill of the type having a housing and two vertically displaced rolls which are driven from one side thereof and a mechanism for vertically driving the upper roll both toward and away from the lower roll, which is not vertically movable, said mill roll balance system comprising:

steelyard rod means extending from a point below the bottom of the housing through the housing and terminating in its upper extent in a supportive relationship with the upper roll;

separator means located below the housing of the rolling mill, said steelyard rod means and said separator means being movable with said upper roll as the latter is vertically moved, said separator means acting as a terminus for the lower portion of said steelyard rod means;

unbalanced counterweight means connected to said separator means for providing an upward and unbalanced force to the separator means so that the drive side of the rolls has a greater upward force than the non-driven side of the rolls for counteracting the downward forces from the vertical driving mechanism when such mechanism forces such top roll toward such lower roll thereby stabilizing such lower roll at a given desired position; and

a rigid beam assembly in supportive relationship with the separator means for guiding the separator means in a substantially vertical direction and counteracting any resultant horizontal forces upon the separator means due to the unbalanced forces resultant from said unbalanced counterweight means.

4,279,141

POWER TOOL

Robert Gallart, 107 Pershing Ave., Locust Valley, N.Y. 11560

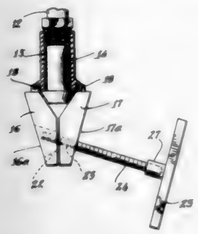
Filed Feb. 21, 1979, Ser. No. 13,517
Int. Cl.³ B21D 1/12, 37/04
U.S. Cl. 72—482 6 Claims

1. An improved expandable jaw power tool, said tool including a piston moveable in a cylinder, force means coupled to said cylinder for driving said piston between a pair of spreadable jaws, said jaws coupled to said cylinder for pivotally separating when said piston is driven between said jaws by said force means said improvement including:

a tapped hole extending through one jaw of said pair of jaws, said tapped hole retaining of threaded shaft,

a slotted hole extending through the second jaw of said pair of jaws and substantially in alignment with said tapped hole in said one jaw, and of sufficient inside diameter for passing said threaded shaft therethrough,

said threaded shaft screw-coupled into said tapped hole and of sufficient length for extending into said slotted hole and



a power distributing bar coupled to said shaft and secured thereto for remotely applying expansion power between said second jaw and said bar which is normally applied between said one jaw and said second jaw.

4,279,142

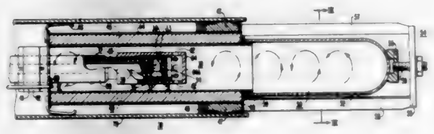
TECHNIQUE FOR IN SITU CALIBRATION OF A GAS DETECTOR

William H. McIntyre, Orrville, Ohio, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Division of Ser. No. 616,712, Sep. 25, 1975, Pat. No. 4,247,380. This application Aug. 31, 1979, Ser. No. 71,592

Int. Cl.³ G01M *19/00*

U.S. Cl. 73—1 G **1 Claim**



1. A method for calibrating a gas measuring probe having a gas sensing device located within a housing for generating electrical signals in response to the gas constituents of a monitored gas, comprising the steps of, flowing calibration gas into said housing, and deflecting the flow of said calibration gas to produce a spiral tubular calibration gas flow pattern within said housing to sweep said monitored gas from said gas sensing device and expose said gas sensing device to said calibration gas.

4,279,143

ELECTRONIC PINKING DETECTOR

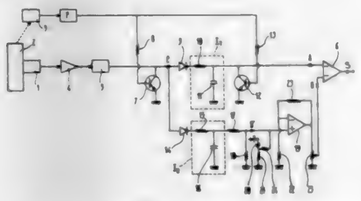
Serge C. Guipaud, Castelnaudary, France, assignor to Societe Pour l'Equipement de Vehicules, Issy-les-Moulineaux, France

Filed Dec. 26, 1979, Ser. No. 107,051

Claims priority, application France, Feb. 23, 1979, 79 04707

Int. Cl.³ G01L *23/22;* **F02P** *5/14*

U.S. Cl. 73—35 **12 Claims**



1. An electronic device for detecting pinking and capable of providing a signal S for altering the ignition displacement of an internal combustion engine, which device comprises, firstly, a vibration pick-up secured to the internal combustion engine for supplying a band-pass filter for selecting the frequency band corresponding to the pinking vibrations and, secondly, a comparator, the output of which provides signal S, and the two inputs A and B of which receive the output from the band-pass filter following different treatments carried out along two parallel channels, the channel which corresponds to the input B comprising an integrator I_2 followed by an amplifier, wherein, between the band-pass filter and the two channels, a gate is interposed which is opened only in a predetermined angular zone in the operation of the internal combustion engine.

4,279,144

TESTING VENTILATED CIGARETTES

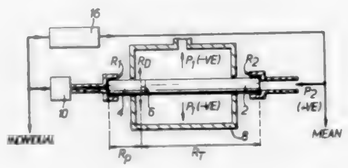
Reginald C. Bolt, London, England, assignor to Molins Limited, London, England

Filed Aug. 29, 1979, Ser. No. 70,726

Claims priority, application United Kingdom, Sep. 1, 1978, 35318/78

Int. Cl.³ G01N *15/08*

U.S. Cl. 73—38 **14 Claims**



1. A method of testing ventilated filter cigarettes comprising surrounding the wrapper of each cigarette in turn, including the ventilated area, with an axially extending, substantially enclosed, chamber at a predetermined pressure; connecting the tobacco end of the cigarette to a source of variable pressure; connecting the filter end of the cigarette to a transducer; controlling the pressure at the tobacco end of the cigarette so that the mean pressure (over a number of cigarettes) at the filter end transducer is zero; and measuring the said pressure at the tobacco end.

4,279,145

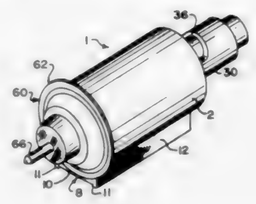
FUEL EFFICIENCY DISPLAY

Vernon F. Thompson, St. Louis, Mo., assignor to Tomco, Inc., St. Louis, Mo.

Filed Dec. 26, 1979, Ser. No. 106,555

Int. Cl.³ G01M *15/00*

U.S. Cl. 73—115 **4 Claims**



1. A fuel efficiency display device in the form of an intake manifold suction measuring and display device comprising an elongated housing with a hollow, open bottomed outer shell having a flat faced mounting boss extending lengthwise of and along the outside of said shell, a central, open ended sleeve with a cylindrical bore, said sleeve being spaced from and

connected to an inside wall of said shell by spiders and connected at its upper end to said shell by an uninterrupted annular wall, the lower open end of said shell being defined by a wall having a circular portion proportioned to admit a truncated conical part of a suction-responsive diaphragm assembly, said wall flaring inwardly, upwardly through said circular portion complementarily to said diaphragm assembly and proportioned to provide a press fit between said wall and the truncated conical part of said diaphragm assembly, said diaphragm assembly also including a cylindrical hollow boss projecting from said truncated conical part and a link, operatively connected to a diaphragm to move with said diaphragm, projecting through and beyond said boss; a hollow, open-ended cylindrical sight tube, the outside diameter of which is such as to provide a snug sliding fit with the bore defining wall of the said open ended sleeve in the housing, and the inside diameter of which is such as to provide a press fit with the outside surface of the cylindrical diaphragm assembly boss, said sight tube projecting, within said housing, to embrace said boss and projecting above the annular wall of the housing a substantial distance, said sight tube having a sight port in and through its wall above the annular wall of the housing and below the upper end of the sight tube; and an indicator spool, slidably journalled in said sight tube and connected at its lower end to said diaphragm assembly link and normally biased to a position at which it projects beyond the sight port, said indicator spool having indicia on it, visible through said sight port, to indicate the amount of suction being generated in said intake manifold when the diaphragm assembly is connected therewith.

4,279,146

APPARATUS FOR MEASURING THE AIR QUANTITY SUPPLIED TO AN INTERNAL COMBUSTION ENGINE

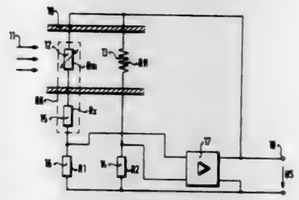
Wolf Wessel, Oberriexingen, and Dieter Handtmann, Sindelfingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 2, 1979, Ser. No. 63,631

Claims priority, application Fed. Rep. of Germany, Oct. 3, 1978, 2843019

Int. Cl.³ G01F *1/68*

U.S. Cl. 73—118 **2 Claims**



1. An apparatus for measuring the air quantity supplied to an internal combustion engine having an air intake manifold comprising, in combination, a bridge circuit comprising a first bridge arm and a second bridge arm and having a measurement sensor disposed in said air intake manifold, a measurement resistor, said measurement sensor and said measurement resistor being connected in series and disposed in said first bridge arm, three resistors disposed in said second bridge arm, a first resistor of said three resistors being located in said air intake manifold for the purpose of detecting the temperature of the medium to be measured and being connected in series with a second resistor of said three resistors to form a series combination which is connected in series with a third resistor of said three resistors, said apparatus further comprising a temperature control means for controlling the temperature of said measurement sensor to maintain the voltage at the connection of said measurement sensor and said measurement resistor essentially equal to the voltage at the connection of said series combination and said third resistor, said first and second resistors having different temperature coefficients and having resistance values such that a controllable excess temperature beyond the temperature of the medium to be measured is produced at said measurement sensor by said temperature control means independently of the temperature of the medium to be measured.

4,279,147

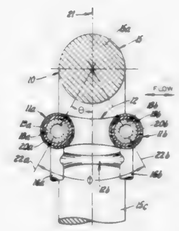
DIRECTIONAL HEAT LOSS ANEMOMETER TRANSDUCER

Robert S. Djorup, 20 Lovewell Rd., Wellesley, Mass. 02181

Filed Jan. 10, 1980, Ser. No. 110,841

Int. Cl.³ G01W *1/02*

U.S. Cl. 73—189 **8 Claims**



1. A directional heat loss anemometer transducer comprising:

(a) at least two similar, thermally and physically separated cylindrical resistive electrical conductors;

(b) each of said conductors having a length at least equal to the largest cross section dimension of the conductor;

(c) a cylindrical support member centrally disposed between and alongside said two resistive electrical conductors;

(d) said cylindrical support member having a straight central portion and a mounting portion on at least one end of said central portion;

(e) said electrical conductors being disposed as a parallel pair finitely separated, and mounted parallel to and in close proximity to the straight central portion of the cylindrical support member;

(f) said cylindrical support member straight central portion being disposed so that a plane containing the parallel central axes of said two resistive electrical conductors is spaced from the cylindrical support member central portion and is perpendicular to a plane containing the central axis of said cylindrical support member straight central portion and disposed between said two resistive electrical conductors, said cylindrical support and resistive electrical conductor axial centers defining an acute angle between center lines through each of said resistive electrical conductors and said cylindrical support when viewed in cross section;

(g) a thermo insulating connective bridging means operatively disposed between said two resistive electrical conductors and closing the space between said resistive electrical conductors, thereby preventing connected flow completely around one conductor of said two resistive electrical conductors, independent of the other conductor;

(h) said two resistive electrical conductors being supported in the protected lee of the support member straight central portion by attachment means to the support member; and,

(i) each of said resistive electrical conductors being provided with electrical connection means, whereby each resistive electrical conductor can be electrically heated by an electrical current passed through each conductor.

4,279,148

ANTI-CLOGGING FLUME AND STRUCTURE FOR METERING FLUID FLOW

Joseph C. Fitzgerald, 439 Minorca Ave., Coral Gables, Fla. 33134

Filed May 5, 1980, Ser. No. 146,637
Int. Cl.³ G01F *1/20*
U.S. Cl. 73—215 **7 Claims**



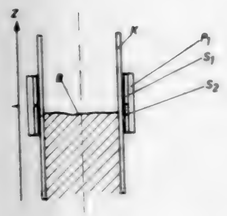
1. A flume for use in measuring flow through a pipe, said flume being adapted for installation in the pipe, said flume comprising; a length having an inlet and an outlet end and an interior surface and an exterior surface, said inlet end being generally circular, said outlet end having a V-shaped cross section, said length having a floor and side walls extending between the ends and defining a flow guide, said flow guide walls and floor converging smoothly upwardly from said inlet end to said outlet end, said walls and floor at said outlet defining a V-shaped weir spillway, means on the flume adjacent the inlet end to constrain substantially all the flow through the pipe to flow along the flow guide, means to support the outlet end of the flume, said flume having a hole in the floor portion adjacent the inlet end at substantially the lowest portion of the floor, a conduit for fluid communication with a remote source of pressurized gas, connector means to connect the conduit in fluid communication with the hole to bubble gas from the source through a liquid flowing over the flow above the hole, said conduit and said means to connect being supported by said flume exteriorly of said flow guide, and said means to connect comprising a fitting fixed to the exterior surface about the hole.

4,279,149

PROCESS FOR MEASURING THE LEVEL OF METAL IN VESSELS, ESPECIALLY IN CONTINUOUS CASTING MOLDS

Franz-Rudolf Block, Roetgen, Fed. Rep. of Germany, assignor to ARBED Aciéries Réunies de Burbach-Eich-Dudelange, Société Anonyme, Luxembourg, Luxembourg

Filed Oct. 24, 1979, Ser. No. 87,708
Claims priority, application Luxembourg, Oct. 25, 1978, 80410
Int. Cl.³ G01F *23/28*
U.S. Cl. 73—290 R **12 Claims**



1. A method of detecting the level of the top of a column of molten metal in a continuous casting mold which comprises the steps of:

surrounding the column with a primary coil and energizing the primary coil with an electric current to induce a magnetic field within the column;

disposing a pair of symmetrical secondary coils in a coaxial relationship with said primary coil and connecting said secondary coils in a circuit opposition whereby secondary currents are induced in said secondary coils by said magnetic field; and

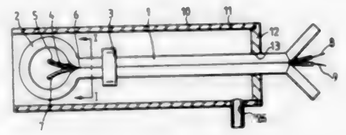
detecting the resultant voltage induced in said secondary coils, thereby deriving a value representing the position of the top of said column with respect to a plane of symmetry of said secondary coils and hence an asymmetrical orientation of said column relative to said secondary coils.

4,279,150

APPARATUS FOR DETERMINING VAPOR CONTENT OF A GAS/VAPOR MIXTURE

Thomas Land, Grindleford, England, assignor to Land Pyrometers Limited, Dronfield, England

Filed Dec. 28, 1979, Ser. No. 108,002
Claims priority, application United Kingdom, Jan. 11, 1979, 00837/79
Int. Cl.³ G01N *25/64*
U.S. Cl. 73—338 **21 Claims**



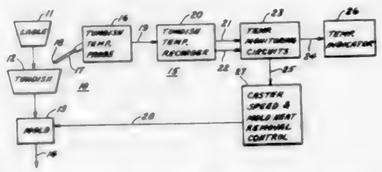
1. Apparatus for determining the vapour content of a gas/-vapour mixture, said apparatus comprising two temperature sensing devices, one of said devices being adapted to measure the temperature of a gas/vapour mixture in which said device is immersed; a wick in contact with the other of said devices; a cooling device for condensing vapour from said gas/vapour mixture to maintain a liquid supply for said wick, said other temperature sensing device being adapted to measure the temperature of said liquid evaporating from said wick, said cooling device comprising a reservoir for collection of said condensed vapour and in which part of said wick in located, and a tube; said apparatus further comprising a sampling chamber in which said tube is mounted, means for circulating a cooling medium through said tube, and means for drawing the gas/-vapour mixture through said sampling chamber so that vapour condenses out of said gas/vapour mixture onto a surface of said tube to form said reservoir, wherein two parts of said tube extend alongside and in contact with one another to form a V-shaped reservoir in which said condensed vapour collects.

4,279,151

TEMPERATURE MEASURING SYSTEM

Jack A. Anderson, Porter, Ind., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Aug. 7, 1979, Ser. No. 64,468
Int. Cl.³ G01K *7/04*
U.S. Cl. 73—343 R **13 Claims**



1. A temperature measuring system having temperature probe means which is at times subject to error or discontinuous operation and is insertable into heated material, and means responsive to the probe means for determining material temperature and producing a temperature signal proportional thereto, the improvement comprising:

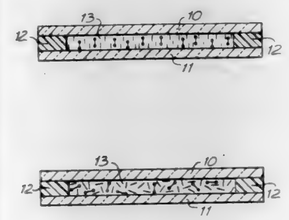
(a) monitor circuit means for periodically sampling the temperature signal and periodically holding separate indicator and control temperature signal values at corresponding indicator and control outputs, the held indicator signal representing either present good or abnormal temperature measurements, the held control signal representing the last good temperature measurement to be made which may be the present one.

4,279,152

TEMPERATURE RESPONSIVE DEVICE

William A. Crossland, Harlow, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 22, 1979, Ser. No. 13,868
Claims priority, application United Kingdom, Mar. 2, 1978, 8393/78
Int. Cl.³ C09K *3/34;* **G02F** *1/13;* **G01K** *11/06, 11/16*
U.S. Cl. 73—356 **8 Claims**



1. A temperature indicator that provides a visual indication as to whether its temperature is above or below each of at least two predetermined threshold values, comprising at least two temperature responsive cells each of said cells comprises a liquid layer the major constituent of which is a liquid that exhibits a nematic-isotropic or smectic-isotropic phase transition, in which layer a pleochroic dye has been dispersed, which layer is bounded by cell walls formed by two plates at least one of which is transparent and wherein the interior of said walls are such that homeotropic alignment is induced in said liquid without the application of an electric field when its temperature is below that of said phase transition and wherein the liquid in one cell has a different phase transition temperature from that of the liquid in another cell.

4,279,153

APPARATUS FOR MEASURING THE TEMPERATURE OF A GAS FLOW TRAVERSING A GRID OF BLADES

Robert Kervistin, Le Mee sur Seine, and Alain M. J. Lardellier, Melun, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Victor, France

Filed Sep. 7, 1979, Ser. No. 73,361
Claims priority, application France, Sep. 12, 1978, 78 26636
Int. Cl.³ G01K *11/00*
U.S. Cl. 73—357 **14 Claims**

1. An apparatus for measuring the temperature of a gas flow, said apparatus comprising:

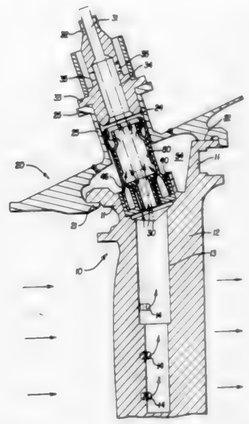
a crankcase having an axis;

a grid of blades constituted by a plurality of stationary blades having heels, said blades being disposed in said crankcase and affixed by their heels to said crankcase with the vanes of said blades extending towards said axis;

a channel extending through at least a portion of the length of at least one of said vanes, said channel extending towards said axis from an aperture in said heel of said vane, said aperture facing the interior surface of said crankcase;

a plurality of openings in said at least one vane, spaced along a line of generation on the surface thereof, said openings extending into said channel so as to communicate the gases in said crankcase with said channel;

an aperture in the surface of said crankcase and facing said aperture in said heel wherein said apertures and said channel form a gas escape circuit;



a temperature sounder including an electrical connection for delivering a signal corresponding to the temperature of said sounder;

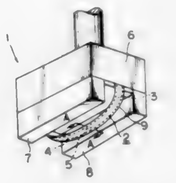
means for maintaining said sounder in said escape circuit and in communication with said gases, said means comprising a nozzle fixed in said escape circuit and surrounding said sounder.

4,279,154

SURFACE TEMPERATURE MEASURING DEVICE

Tsuneo Nakamura, Tokyo, Japan, assignor to Anritsu Keiki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 28, 1979, Ser. No. 80,170
Claims priority, application Japan, Sep. 30, 1978, 53-133553[U]
Int. Cl.³ G01K *1/16, 7/02*
U.S. Cl. 73—359 R **9 Claims**



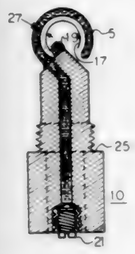
1. In a surface temperature measuring device for measuring the temperature of the surface of a body wherein the temperature sensing section includes a thermocouple member having an outer surface portion adapted for heat and pressure contact with the surface of the body to measure the temperature thereof, the improvement which comprises a slippery, electrically insulted layer of film integrally bonded to at least said outer surface portion of said thermocouple member, said layer of film being between 5 and 100μ thick and formed of a resin selected from the group consisting of fluorocarbon resin, polyamide resins and polyimide resins, there being further included a pair of laterally spaced apart, resilient metal strips extending in parallel with and along both sides of the thermocouple

member, each said strip having an outer surface part adapted to pressure contact the surface of the body whose temperature is to be measured, said outer surface portion of said thermocouple member cooperating with said outer surface parts of said strips, whereby said thermocouple member including said film layer is deformable in association with said strips and may be brought into pressure contact with the surface of the body, said layer being provided over at least said outer surface portion of said thermocouple member and at least said outer surface part of each of said strips.

4,279,155
BOURDON TUBE TRANSDUCER

Hayati Balkanli, P.O. Box 35725, Houston, Tex. 77035

Filed Jan. 24, 1980, Ser. No. 115,003
Int. Cl.³ G01K 5/36; G01L 9/12
U.S. Cl. 73—368.6 4 Claims

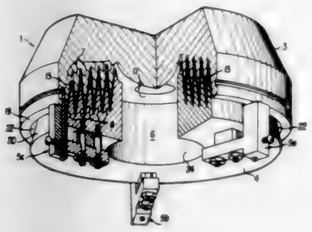


1. An environmental parameter transducer comprising:
a bourdon tube means for sensing an environmental parameter at a remote port;
an electrical circuit controlled by the bourdon tube means;
means for providing an electrical reactance in the electrical circuit means, including an electrical conductive plate that has the same curvature as the bourdon tube means, of the same material as the bourdon tube means; and
means for retaining the conductor in a parallel configuration with the bourdon tube means separated therefrom by a preselected distance and electrically insulated therefrom.

4,279,156
PARTICLE COLLECTOR AND FRACTIONATOR

John P. Bell, Raleigh, N.C., assignor to The United States of America as represented by the Administrator of the United States Environmental Protection Agency, Washington, D.C.

Filed Nov. 29, 1979, Ser. No. 89,011
Int. Cl.³ G01N 1/24
U.S. Cl. 73—863.22 12 Claims

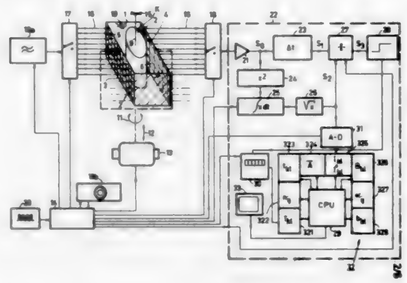


1. A particle collector and fractionator, comprising
(a) a bottom fractionating member having a plurality of concentric corrugations circumscribed by an edge portion,
(b) a top fractionating member having a plurality of concentric corrugations which are complementary to the concentric corrugations of said bottom fractionating member, and which are likewise circumscribed by an edge portion,
(c) at least one spacer bracket for spacing the corrugations of said top fractionating member over the corrugations of said bottom fractionating members in complementary relationship and forming an annular, concentrically corrugated gas flow path between said members which is circumscribed by a 360° gas slit defined between said edge portions of said fractionating members, and
(d) means for withdrawing particle laden gas from the center of said annular, concentrically corrugated flow path,
whereby particles in a stream of particle laden gas flowing into said flow path from said 360° gas slit and out through said gas withdrawal means are collected in each of the valley portions of said corrugations of said fractionating members.

4,279,157
METHOD OF AND DEVICE FOR DETERMINING THE INTERNAL STRUCTURE OF A BODY BY MEANS OF ACOUSTIC BEAMS

Hermann Schomberg, Hamburg, and Manfred Tasto, Henstedt-Ulzburg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 6, 1979, Ser. No. 45,900
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827423
Int. Cl.³ G01N 29/00
U.S. Cl. 73—618 17 Claims

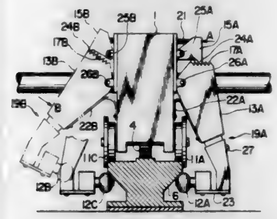


1. In a method for determining the internal structure of a body comprising the steps of:
passing a plurality of acoustic beams through a body in different directions from one or more acoustic transmission elements to one or more separate acoustic reception elements; measuring the value of the transit time of each of said beams through the body; and utilizing the measured transit time values to calculate the value of the acoustic refractive index at points in a matrix associated with the body; the improvement comprising the steps of:
first assuming a distribution of acoustic refractive index values at preselected points in the matrix, which approximate known body structure, said assumed distribution taking into account the geometry of the transmission and reception elements;
using said assumed distribution to calculate the path of each of said beams throught the body;
calculating an assumed transit time for each beam along the determined paths; and
then comparing the assumed transit time with the measured value of the transit time to generate step-wise corrections for the calculated value of the acoustic refractive index at points in the matrix.

4,279,158
ULTRASONIC FLAW DETECTOR DRIVING APPARATUS

Sigeru Kajiyama; Kimio Kanda, both of Hitachi, and Sakae Sugiyama, Ibaraki, all of Japan, assignors to Hitachi, Ltd. and Babcock-Hitachi Kabushiki Kaisha, both of Tokyo, Japan

Filed Jul. 26, 1979, Ser. No. 61,050
Claims priority, application Japan, Jul. 28, 1978, 53-92939
Int. Cl.³ G01N 29/04
U.S. Cl. 73—637 10 Claims

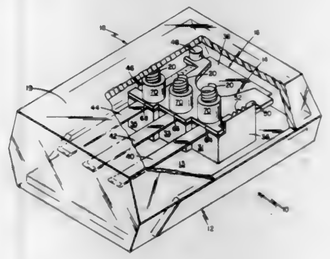


1. An ultrasonic flaw detector driving apparatus movable on a guide rail for enabling a detecting of a flaw of an object for inspection, the ultrasonic flaw detector driving apparatus includes a main frame, characterized in that means are provided for movably holding the main frame of said driving apparatus on said guide rail including
at least one arm mounted on at least one side face of said main frame of said driving apparatus in such a manner so as to allow the arm to move in an opening and a closing direction, teeth formed at one end of said arm, a pawl mounted on said driving apparatus, said pawl being adapted to be brought into engagment with and to be disengaged from said teeth, first resilient means for providing a force acting on the at least one arm in such direction so as to cause said teeth to be engaged by said pawl, and roller means mounted on said at least one arm, the roller means being adapted to be brought into rolling contact with said guide rail, said at least one arm extends in a direction substantially perpendicular to a longitudinal direction of the guide rail when said at least one arm is in a closed position.

4,279,159
VIBROMETER

J. Laureance Powell, 19 Hiddenfield St., Andover, Mass. 01810, and Richard A. Powell, 6102 N. Gleawood, Chicago, Ill. 60660

Filed Jul. 16, 1979, Ser. No. 57,572
Int. Cl.³ G01D 21/00
U.S. Cl. 73—651 25 Claims

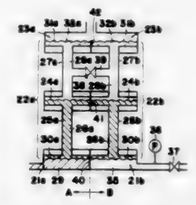


1. A vibrometer comprising:
a support adapted for removable mounting on a vehicle and defining a generally planar reed support surface;
a reed clamp defining a generally planar reed support surface and mounted on said support with said reed support surface thereof facing said reed support surface of said support;
a reed unit disposed between and engaging said reed support surfaces, said reed unit comprising a base portion and at least two projecting vibratory reed portions and being movable relative to said support between at least two predetermined positions, one of said reed portions having an effective length that is a predetermined amount greater than that of the other of said reed portions when said reed unit is in either of said predetermined positions, and each of said reed portions being of greater effective length when said reed unit is in one of said positions than when said reed unit is in the other of said positions thereof;
cooperating indicia on said reed unit and one of said support and said clamp indicating in which of said predetermined positions said reed unit is located; and,
a cover over and generally surrounding said reeds, the generally vertical end of said cover nearest the free ends of said reed portions being essentially transparent whereby an observer may observe vibration of the ends of said portions.

4,279,160
PRESSURE MEASURING APPARATUS WITH TEMPERATURE COMPENSATING MEANS

Tomihiro Fukada, Nagareyama, and Mitsuru Kamei, Mito, both of Japan, assignors to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Oct. 23, 1979, Ser. No. 87,530
Claims priority, application Japan, Oct. 25, 1978, 53-146856[U]
Int. Cl.³ G01L 19/04
U.S. Cl. 73—708 6 Claims



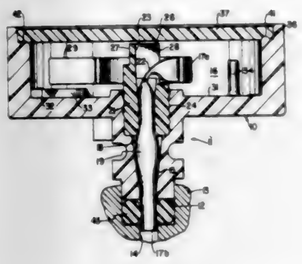
1. A pressure measuring apparatus using pressure transmission media and having a measuring system divided by partitions into three, i.e. a pressure receiving portion, a pressure transmitting portion and a pressure detecting portion, said pressure transmitting portion being divided by a pressure transmission wall into two, i.e. a section on the side of said pressure receiving portion which contains a liquid NaK alloy, and a section on the side of said pressure detecting portion which contains a heat-resisting inert liquid, so that a pressure of a fluid to be measured which is introduced into said pressure receiving portion is transmitted to said pressure detecting portion through the pressure transmitting portion so as to be measured with a pressure detector provided in said pressure detecting portion, characterized in that said apparatus further comprises a compensation system which has substantially the same construction as the measuring system and is disposed in substantially the same surroundings as that in which the measuring system is disposed, and that the compensation system contains in its pressure transmitting portion a liquid NaK alloy and a heat-resisting inert liquid, the volumes of which are equal to those contained in the pressure transmitting portion of the measuring system, and contains in its pressure receiving portion a gas, whereby the apparatus permits carrying out temperature compensation by subtracting a detected pressure in the compensation system from that in the measuring system.

4,279,161

GAUGE

Paul O. Huston, 31 Lenape Dr., Montville, N.J. 07045, and Alfred Munn, Three Wills Ave., Wayne, N.J. 07470

Filed Aug. 8, 1979, Ser. No. 64,915
Int. Cl.³ G01L *7/04*
U.S. Cl. 73—743 **13 Claims**



1. A gauge for indicating fluid pressure having a casing with an outwardly protruding mounting stem and a viewing crystal, the gauge comprising:

a Bourdon tube pressure responsive element mounted in the casing and having a pointer displaceable along a predetermined path in response to the pressure of the fluid, a substantially tubular portion of said Bourdon tube axially traversing the mounting stem through a central bore therein; and

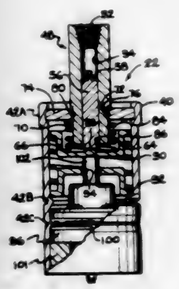
means rotatably securing said tube to the casing for locating said pointer at a first position before assumbly of the viewing crystal which retains said Bourdon tube against translational movement along the axis of the stem, said securing means comprising a sleeve surrounding said tubular portion within the stem and having a radial slot to embrace a substantially radially protruding section of said Bourdon tube thereby to exert both axial and rotational control over the Bourdon tube.

4,279,162

PRESSURE TRANSDUCER

Daniel L. Neill, Belleville, and Leonard T. Tribe, Ann Arbor, both of Mich., assignors to Kelsey-Hayes Company, Romulus, Mich.

Filed Nov. 23, 1979, Ser. No. 96,861
Int. Cl.³ G01L *7/16, 9/02*
U.S. Cl. 73—746 **12 Claims**



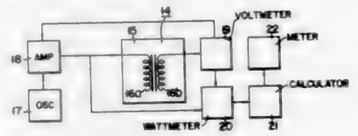
1. A transducer for hydraulic systems comprising, in combination, a housing having an inner surface including at least one inwardly directed stop, an elongate cylinder member defining an inlet at one end in communication with a cylinder, a piston slidably disposed within said cylinder, mounting means disposed adjacent one end of said cylinder for receiving said cylinder member, means for rotatably securing said cylinder member to said mounting means, a first spring mount slidably disposed within said housing in generally abutting relationship with said piston, a first spring disposed between said first spring mount and said mounting means, a second spring mount disposed in generally abutting relationship against said inwardly directed stop, a second spring disposed between said first and second spring mounts and transducer means including a translating member disposed in generally abutting relationship with said first spring mount for providing an electrically significant output representative of a hydraulic pressure applied to said piston.

4,279,163

STRESS MEASURING APPARATUS

Yoshikazu Takekoshi, and Takeshi Yagisawa, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki and Shibaura Engineering Works Co., Ltd., Tokyo, both of, Japan

Filed May 23, 1979, Ser. No. 41,884
Claims priority, application Japan, Jun. 2, 1978, 53/66335; Jun. 6, 1978, 53/67203; Apr. 6, 1979, 54/41010
Int. Cl.³ F16B *31/02*
U.S. Cl. 73—761 **6 Claims**



1. A stress measuring apparatus for sensing a magnetic state of an object to measure a stress of the object comprising:

a magnetic sensor for sensing magnetic state of the object;

an AC power source for feeding an AC power to said magnetic sensor;

calculating means for calculating a variation of a core loss on the basis of an output supplied from said magnetic sensor; and

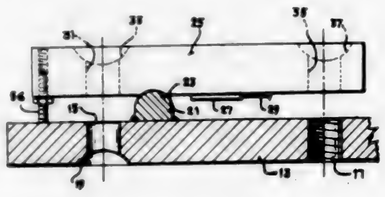
means for converting the variation of the core loss into a stress of the object.

4,279,164

METALLURGICAL SPECIMEN TESTER

Merrill P. Hawke, Lytle; Pete Elizalde, Jr., and Robert L. Harris, both of San Antonio, all of Tex., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 115,843
Int. Cl.³ G01N *3/08*
U.S. Cl. 73—826 **5 Claims**



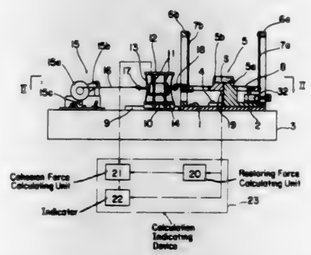
1. A metallurgical specimen tester for testing a plurality of like specimens in tension over a relatively long period of time, said specimen tester comprising a steel plate having at least two aligned spaced apart openings therein, one of said openings being threaded, an upstanding pivot positioned on the upper surface of said steel plate between said openings, a cantilever beam positioned in substantially parallel relationship above said steel plate and spaced therefrom, two aligned spaced apart openings in said cantilever beam in axial alignment with the openings in said steel plate, the lower surface of said cantilever beam being in contact with the upper end of said upstanding pivot, a specimen disposed in two of the axially aligned openings in said steel plate and said cantilever beam, a hardened steel stud positioned in two of the other axially aligned openings in said steel plate and said cantilever beam, and a threaded nut in engagement with one end of said stud whereby the torquing of said threaded nut causes one end of said cantilever beam to rotate downward around said pivot and apply a tension force to the specimen positioned between the other end of said cantilever beam and said steel plate.

4,279,165

APPARATUS FOR MEASURING COHESION FORCE OF PARTICULATE MATERIALS

Tohei Yokoyama; Shintaro Asakura, both of Kyoto; Kiyoshi Urayama, Yahata, and Kenji Fujii, Kyoto, all of Japan, assignors to Kabushiki Kaisha Hosokawa Funtai Kogaku Kenkyusho, Osaka, Japan

Filed Nov. 13, 1979, Ser. No. 93,774
Claims priority, application Japan, Aug. 9, 1979, 54/101656
Int. Cl.³ G01N *3/08*
U.S. Cl. 73—826 **6 Claims**



1. An apparatus for measuring the cohesion force of a particulate material comprising,

a bottomed container (**5**) composed of a fixed container segment (**5***a*) and a movable container segment (**5***b*) separable from each other for containing the particulate material (S) as compactly placed therein,

drive means (**15**) for moving the movable container segment (**5***b*) in a direction substantially perpendicular to the plane of separation of the container (**5**) to divide the particulate material (S) in the container (**5**) into two, and

an external force detecting unit (**14**) for detecting the external force to be applied to the movable container segment (**5***b*) by the drive means (**15**),

the apparatus being characterized in that at least the movable container segment (**5***b*) of the two container segments (**5***a*), (**5***b*) is suspended from and retained by swingable or deflectable support means.

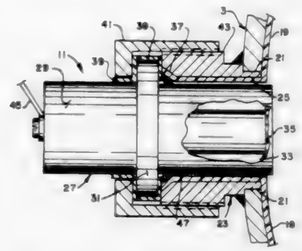
4,279,166

FIELD REPLACEABLE ELECTRODE ASSEMBLY FOR MAGNETIC FLOWMETER

Felix J. Gryn, Hatfield, and James E. Young, Harleysville, both of Pa., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Aug. 9, 1979, Ser. No. 65,168
Int. Cl.³ G01F *1/58*
U.S. Cl. 73—861.12 **12 Claims**

1. An electrode assembly adapted to be sealably installed on a meter body or the like, said meter body having a liner on the inside thereof of suitable electrical insulation material and an opening therethrough for accommodating said electrode assembly, said electrode assembly comprising a fitting adapted to be sealably secured to said meter body and to extend outwardly therefrom, said fitting having an axial bore therethrough and a tapered seat at the exterior end thereof, said liner being a continuous coating of a suitable applied-in-place electrical insulating material covering the interior of said meter body adjacent said opening and extending into said axial bore of said fitting, said assembly further comprising an electrode adapted to be inserted in and removed from said bore from the exterior of said meter body, said electrode having a flange extending outwardly therefrom, means for electrically insulating said flange from said fitting, fastener means cooperable with said flange and said fitting for holding said electrode within said bore in a sensing position in which it is in sensing relation with fluid flowing through said meter body, and means in said tapered seat for sealing said electrode with respect to said fitting.

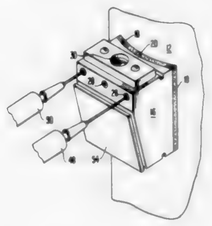


4,279,167

LIQUID COUPLING FOR DOPPLER SONIC FLOWMETER

Tom L. Erb, and Wendell D. Miller, both of Austin, Tex., assignors to Ramsey Engineering Company, St. Paul, Minn.

Filed Oct. 1, 1979, Ser. No. 80,730
Int. Cl.³ G01F *1/66;* **G01N** *29/02*
U.S. Cl. 73—861.25 **23 Claims**



19. A method of coupling transducer means of a sonic flowmeter apparatus to a conduit within which the flow of a media is to be measured, said method comprising the steps of:

(a) providing a liquid-tight cavity between a wall of said conduit and said transducer means; and

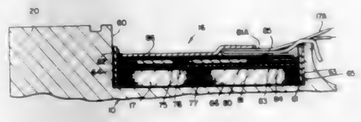
(b) substantially filling said liquid-tight cavity with a liquid having a substantially constant sound transmission temperature coefficient by inserting a hypodermic needle through membrane means provided in a wall of said liquid-tight cavity.

4,279,168

MASS RATE OF FLOW METER WITH ELECTROMAGNETIC INTERFERENCE COMPENSATION

John S. Wyler, Andover, Mass., and Richard A. Pfuntner, Alfred, Me., assignors to General Electric Company, Wilmington, Mass.

Filed Oct. 12, 1979, Ser. No. 84,391
Int. Cl.³ G01F *1/80*
U.S. Cl. 73—861.35 **11 Claims**



1. In a mass rate of flow meter including a housing means for defining a passage for a fluid, swirl generator means, unrestrained rotor means and restrained turbine means axially displaced along a longitudinal axis through the housing means, first sensing means for detecting the passage of a predetermined point on the rotor means past a predetermined point on the housing means, and a second sensing means including magnet means on the rotor means and turbine means for detecting the passage of another predetermined point on the rotor means past a predetermined point on the turbine means, the improvement of sensing coil means for the second sensing means that is characterized by reduced sensitivity to electromagnetic interference, said sensing means comprising:

A. sensing coil means mounted to the housing means in a coaxial, axially coextensive relationship with at least a portion of the turbine means,

B. bucking coil means mounted coaxially with said sensing coil means and electrically connected with said sensing coil means, and

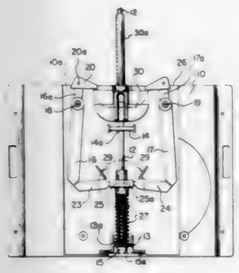
C. phase correcting means disposed between said sensing coil means and said bucking coil means and including a shorted turn of nonmagnetic, electrically conductive material for shifting the selective phase of signals produced in said sensing coil means and said bucking coil means in response to electromagnetic interference.

4,279,169

TIMER LATCH MECHANISMS

John P. Hancovsky, Greensburg, Pa., assignor to Fonas Corporation, Latrobe, Pa.

Filed Oct. 17, 1979, Ser. No. 85,407
Int. Cl.³ G05G *17/00*
U.S. Cl. 74—3.54 **6 Claims**



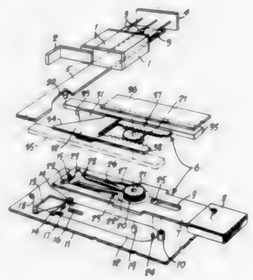
1. A timer latch mechanism comprising a housing, a latch chamber in said housing having an opening at one end, guide means extending centrally of said chamber toward said opening, a pair of elongate arms on opposite sides of said guide means pivoted intermediate their ends in said chamber, one end of each arm extending to a point adjacent said opening, a resiliently biased pawl pivoted on said one end of each arm, said pawls normally extending transversely to said arms toward said guide means in a closed latch position and pivotable to an open unlatched position generally parallel to said arms, the other end of each said arm being pivotally connected to one end of a transverse link, a trip arm slidably mounted on said guide means, resilient biasing means urging said trip arm toward said opening, the other end of each said link being pivotally connected to said trip arm, stop means on the housing limiting the movement of said trip arm toward said opening, timer means on said housing, actuator means on said timer means to move said trip arm against the resilient biasing means and away from said stop means at a preselected time whereby the said other ends of said elongate arms are moved toward each other and the pawls are moved away from each other, and gate means slidable on said guide means in and out of said opening, said gate means being held by said pawls in said opening and released from said pawls when the trip arm is moved by the timer actuator means, said gate means being adapted to be fixed to a means which is desired to be selectively latched and released.

4,279,170

PUSHBUTTON TUNER

Nardino Righi, and Mario C. Ferrari, both of Milan, Italy, assignors to Ri-El Richerche Elettroniche S.p.A., Cologno Monzese, Italy

Filed Jul. 25, 1979, Ser. No. 60,520
Claims priority, application Italy, Jul. 28, 1978, 12729 A/78
Int. Cl.³ H03J *5/12*; G05G *1/02*
U.S. Cl. 74—10.33 **10 Claims**



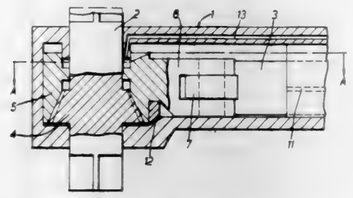
1. A pushbutton tuner particularly adapted for automobile radio sets, comprising a plurality of pushbutton assemblies arranged side by side and parallel to each other, each pushbutton assembly being movable in its longitudinal direction toward and away from a control bar slidably arranged transversely with respect to the pushbutton assemblies and operatively connected with the tuner group of the radio set, wherein the improvement comprises of the fact that the transverse control bar carries at least one abutment element for each pushbutton assembly, while each pushbutton assembly carries two plates presenting inclined edges which intersect each other so as to form a V-shaped notch, at least one plate being movable and adjustable with respect to the other in the longitudinal direction of the pushbutton assembly, said V-shaped notch adapted to cooperate with the respective abutment element provided on the transverse control bar, whereby, whenever a pushbutton assembly is pushed to a position for the selection of the desired frequency, one of the said inclined edges of the V-shaped notch of the pushbutton assembly abuts against the respective abutment element on the control bar and promotes the shifting of said transverse control bar in its longitudinal direction, until the other one of said inclined edges of the V-shaped notch abuts against said abutment element.

4,279,171

TORQUE APPLICATOR

Tor T. Fylling, Olaf Schous vei 18, Oslo 5, Norway

Filed Jun. 8, 1979, Ser. No. 46,840
Claims priority, application Norway, Jun. 13, 1978, 782057
Int. Cl.³ B25B *13/46*; F16H *27/02*
U.S. Cl. 74—128 **4 Claims**



1. A torque applicator, comprising:

a housing;

a double-acting piston and rotatable torque applicator stem mounted within said housing and actuated by said double-acting piston;

two coupling members being mounted on said torque applicator stem, each coupling member including teeth alternately engageable with the teeth on the other coupling member, one of said coupling members being non-movably mounted on said stem and the other of said coupling members being mounted for axial movement on said stem;

said movable coupling member including a radial arm having a free end cooperating with said double-acting piston to cause a reciprocating rotary movement of the axially movable coupling member with respect to said stem; and

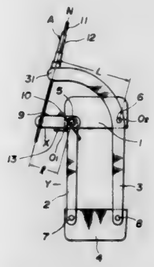
means for applying a pressurized fluid alternately on one face and the opposite face of said movable coupling member in synchronization with the actuation of said double-acting piston.

4,279,172

DERAILLEUR FOR A BICYCLE

Masashi Nagano, and Mitsuhide Isobe, both of Sakai, Japan, assignors to Shimano Industrial Company Limited, Osaka, Japan

Filed Dec. 20, 1977, Ser. No. 862,630
Claims priority, application Japan, Dec. 28, 1976, 51/157886
Int. Cl.³ F16H *11/04*
U.S. Cl. 474—82 **6 Claims**



1. A derailleur for a bicycle, controllable by a Bowden cable having an inner wire and an outer sheath to change the bicycle speed by shifting a driving chain when said driving chain is moving, said derailleur comprising:

(a) a pantograph mechanism,

said pantograph mechanism comprising; a stationary member; first and second linkage members each pivoted by one of their ends to said stationary member; and a movable member pivotally mounted to the other ends of each of said linkage members; said second linkage member extending at one of its ends outwardly to form an extension, said extension having at its distal end a first retaining means for retaining one of said inner wire or outer sheath, said movable member carrying a chain guide for guiding said driving chain;

(b) a pivotal member pivoted to one of said stationary member, movable member or first linkage member of said pantograph mechanism;

said pivotal member having at its distal end a second retaining means for retaining the other of said inner wire or outer sheath, the perpendicular distance from the center line of second retaining means to the pivot point of said pivotal member being smaller than that from the center line of said first retaining means to the pivot point around which said extension of the second linkage member pivots,

(c) an abutment for limiting the movement of said pivotal member in a direction away from said extension of said linkage member, and

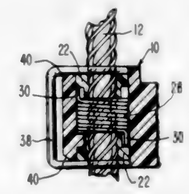
(d) a spring between said pivotal member and another member movable relative thereto, said spring biasing said pivotal member in the direction away from said extension of the second linkage member against said abutment and biasing said movable member toward one change state; whereby when a shifting force is applied between the inner wire and outer sheath during motion of said driving chain, said extension of said linkage member moves toward said pivotal member whereby said movable member changes positions and said spring provides a return force for returning said movable member after said driving chain has been shifted, and provides storage of a force for shifting said movable member when said driving chain is at rest.

4,279,173

BACKLASH FREE ADJUSTING MECHANISM

Fred G. Krebs, Rochester, and Daniel B. Abbott, Farmington Hills, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Feb. 5, 1979, Ser. No. 9,347
Int. Cl.³ F16H *55/18*
U.S. Cl. 74—441 **10 Claims**



1. Backlash free adjusting apparatus comprising,

a helical shaft having a spiral thread extending from end to end thereof,

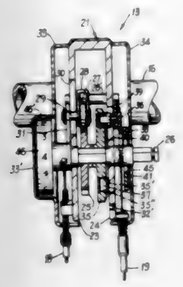
carrier support means disposed on said shaft for movement along said shaft,

oppositely disposed concentric members threadedly engaging said helical shaft and slideable there along,

spring means interposed between said concentric members and captivated by said concentric members so as to prevent rotation thereof, and

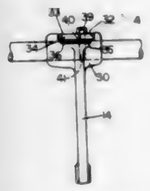
means in said support means for restraining one of said concentric members against rotation while the opposite member is permitted to rotate effective upon rotation of said helical shaft to force the two concentric members apart thereby closing the gaps between the threads of the helical shaft and the concentric members effectively eliminating any backlash in the apparatus.

4,279,174
SINGLE LEVER 10-SPEED BICYCLE SHIFTER
Haldon Ross, Olney, Ill., assignor to AMF Incorporated, White Plains, N.Y.
Filed Feb. 2, 1979, Ser. No. 8,908
Int. Cl.³ B62M 9/00; F16H 7/22
U.S. Cl. 74—473 P 2 Claims



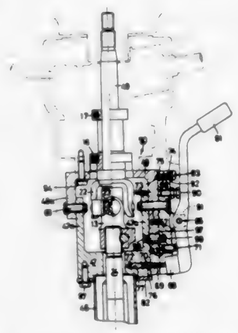
1. In a multiple-speed bicycle having a derailleur mechanism and a manually actuated control mechanism for operating said derailleur mechanism, said bicycle having a front wheel fork having an upper stem, and a handlebar stem positioned inside and clamped to said fork stem, the improvement of said manually actuated control mechanism being positioned inside said handlebar stem above said fork stem, said improvement comprising a housing formed on said handlebar stem above said fork stem, said housing being relatively flat in the fore and aft direction of said bicycle and being positioned to protrude ahead of said fork stem, a handlebar clamp formed on the front of said housing for clamping a handlebar to said handlebar stem, said manually actuated control mechanism being positioned inside said housing, and said handlebar stem, housing and clamp being integrally formed with each other as a unitary single piece member.

4,279,175
ADJUSTMENT FOR SHIFT FORK ON A SHIFT RAIL OF A TRANSMISSION
Michal A. Breed, Muskego, and George T. Prince, West Allis, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Nov. 2, 1979, Ser. No. 90,607
Int. Cl.³ G05G 9/14; F16D 1/00
U.S. Cl. 74—473 R 10 Claims



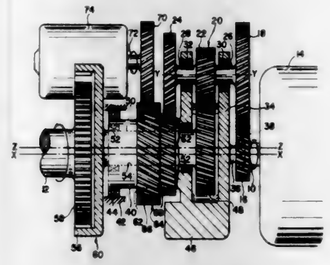
1. An adjustable device on a shift rail and shift fork of the vehicle transmission comprising, a vehicle transmission including at least one reciprocally mounted shift rail, a shift lever mounted for reciprocating said shift rail, a shift fork mounted on said shift rail adapted for shifting a clutch in at least one gear ratio in the transmission, an adjustable device adjustably positioning said shift fork on a said shift rail including a sleeve portion of said shift fork embracing said shift rail, a transverse primary slot formed in said sleeve portion of said shift rail, an axially elongated opening in said slot extending through one side of said sleeve portion, a selected one of a plurality of plates having a length approximately equal to the width of said transverse slot and having a hole a selected predetermined dimension from one end of said plate, a bolt extending through said hole of said plate in said opening in said sleeve portion of said shift fork thereby fastening the shift fork on the shift rail in a predetermined axial position.

4,279,176
LOCKING DEVICE FOR A TILT STEERING WHEEL
Fumio Minamitani, Yokohama, Japan, assignor to Isuzu Motors Ltd., Tokyo, Japan
Filed Dec. 3, 1979, Ser. No. 99,794
Claims priority, application Japan, Dec. 8, 1978, 53-150985; Jul. 3, 1979, 54-83413
Int. Cl.³ B62D 1/18; G05G 5/06
U.S. Cl. 74—493 6 Claims



1. A locking device for a tilt steering wheel in which an intermediate shaft connected to a steering gear mechanism and a wheel shaft are linked together by means of a universal joint, and at said linked position, a first bracket for rotatably supporting said wheel shaft and a second bracket secured to a steering column are pivotally joined by a pair of pivot pins, said device comprising:
- an adjusting plate rotatably and slidably supported on said first bracket by one of said pivot pins;
- connection pin means for connecting said first and second brackets so as to prevent relative rotation therebetween;
- setting storage pin means for connecting said bracket and said adjusting plate so as to prevent rotation therebetween;
- an operating body means for releasing said setting storage pin means from said adjusting plate;
- springs for biasing said connection pin means toward a position in which said first and second brackets are connected;
- retaining means for restricting relative rotation between said adjusting plate and said first bracket; said retaining means adapted to retain said adjusting plate in a plurality of positions relative to said first bracket; and
- said connection pin means and said setting storage pin means being arranged for sequential axial registration in each of said relative positions and whereby said connection pin means are released from the force of said springs by axial motion of said operating body means in said positions in which said operating body means, said setting storage pin means and said connection pin means are in axial registration.

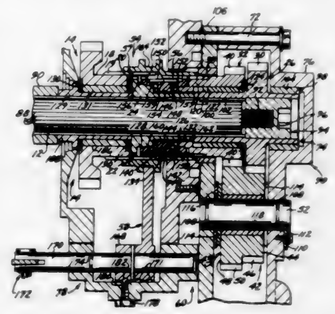
4,279,177
VARIABLE SPEED TRANSMISSION
Masaaki Yamashita, 3-18 4-chome, Inabaso, Amagasaki-shi, Hyogo-ken, Japan
Filed Apr. 18, 1979, Ser. No. 31,166
Claims priority, application Japan, Apr. 18, 1978, 53/046368
Int. Cl.³ F16H 37/06
U.S. Cl. 74—675 6 Claims



1. A variable speed transmission comprising:
(a) an input shaft rotatable about a first axis;
(b) an output shaft in axial alignment with the input shaft;
(c) an internal gear assembly comprising an internal gear and a pinion in mesh therewith, the internal gear assembly being connected to either of the input shaft and the output shaft, with the internal gear connected on the input side and the pinion on the output side; the internal diameter of the internal gear being somewhat larger than the external diameter of the pinion;
(d) a first sun gear fixedly and coaxially mounted on the other of the input shaft and the output shaft;
(e) a planet gear set in mesh with the first sun gear;
(f) a planet carrier rotatably carrying the planet gear set and adapted for rotation about the first axis;
(g) an eccentric shaft connected at one end to the internal gear assembly and rotatably supported by the planet carrier for rotation about a second axis which is offset from and parallel to the first axis and which is subject to angular displacement about the first axis, the eccentric shaft being further revolvable with the planet carrier about the first axis;
(h) a second sun gear fixedly and coaxially mounted on the other end of the eccentric shaft and meshing with the planet gear set; and
(i) means interposed between the input shaft and the output shaft for continuously varying their speed ratio.

4,279,178
OVERDRIVE GEAR ARRANGEMENT
William Todd, Duarte, Calif., assignor to Todd Overdrive Company, Marine Del Rey, Calif.
Filed Jun. 27, 1979, Ser. No. 52,495
Int. Cl.³ F16H 3/02, 3/08
U.S. Cl. 74—745 9 Claims

1. In an automotive drive line power transfer case for a four-wheel drive vehicle including a splined main drive shaft coupled to and driven from a vehicle transmission coupled to transmit power to four wheels of the vehicle, an overdrive adapter gear arrangement comprising:
- a bearing having an interiorally splined bearing support and having a smooth outer surface positioned on said main drive shaft proximate to the coupling of said main drive shaft to said vehicle transmission,
- a main drive gear journaled for rotation upon said bearing and having an externally toothed section coupled to drive said four wheels and an externally splined hub section extending axially and rearwardly, relative to said vehicle transmission,
- a direct drive gear internally splined to said main drive shaft for rotation therewith and longitudinally displaced rearwardly from said axially extending hub section of said main drive gear and having external splines thereon,
- an overdrive driving gear internally splined to said main drive shaft for rotation therewith and longitudinally displaced rearwardly from said direct drive gear and from said axially extended hub section of said main drive gear and including a forward sleeve with a smooth outer surface, a section with externally directed idler engaging teeth thereon located rearwardly of said forward sleeve, and a rearward sleeve located rearwardly from said section with externally directed idler engaging teeth and remote from said main drive gear supported upon said main drive shaft,
- an encircling bearing disposed about said rearward sleeve of said overdrive driving gear,
- bearing means disposed about said forward sleeve of said overdrive driving gear,
- an overdrive driven gear having externally directed idler engaging teeth thereon and journaled for rotation upon



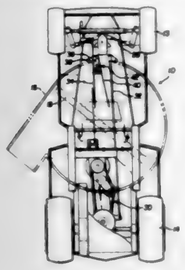
said bearing means for rotation about said main drive shaft and longitudinally displaced rearwardly from said direct drive gear and from said axially extended hub section of said main drive gear and displaced forwardly from said idler engaging teeth of said overdrive driving gear,
- idler gear means disposed upon an idler shaft mounted in said transfer case parallel to said main drive shaft and having a forwardly located toothed section meshed with said idler engaging teeth of said overdrive driven gear and a rearwardly located toothed section meshed with said idler engaging teeth of said overdrive driving gear for providing a mechanical speed advantage from said overdrive driving gear to said overdrive driven gear, and
- an internally splined shift collar means disposed about said main drive shaft in continuous splined engagement with said external splines of said hub section of said main drive gear and longitudinally reciprocal rearwardly for engagement with said overdrive driven gear and longitudinally reciprocal forwardly for alternative engagement with said direct drive gear.

4,279,179
IGNITION SYSTEM CONTROL
John H. Marto, Oshkosh, Wis., assignor to J. I. Case Company, Racine, Wis.
Filed Aug. 23, 1979, Ser. No. 69,160
Int. Cl.³ B60K 41/02; A01D 75/28
U.S. Cl. 74—850 1 Claim

1. An ignition system control for a garden tractor which includes a chassis, a mower drive control linkage, and a transmission drive control linkage, said ignition system contol comprising:
- a control switch actuator mounted to said chassis between

said drive control linkages, each of said drive control linkages being independently movable between engaged and disengaged positions, and said control switch actuator being connected to the electrical starting circuit of said tractor, and said control switch actuator including contact means;

a control member connected between said drive control linkages in a transverse bridge-like fashion above said contact means and the opposite ends of said control member being movable in response to the movement of either drive control linkage, means for mounting one end of said control member to an actuator means for both free rotative and vertical movement, said actuator means connected to one of said drive control linkages for longitudinal movement along the tractor chassis in response to the movement of said one drive control linkage, and the other end of said control member being mounted to the other of said drive control linkages for longitudinal movement along the tractor chassis in response to the movement of said other drive control linkage; and



said control switch actuator being normally open to prevent engine starting and said switch actuator being closed by the movement of said drive control linkages to their disengaged position thereby causing said control member to engage said contact means and close said control switch actuator permitting engine starting.

4,279,180

MULTI-SPINDLE LATHES

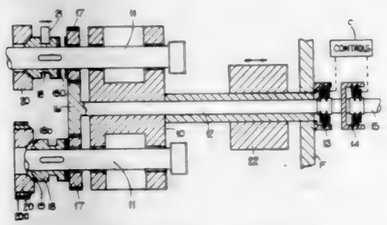
Geoffrey E. S. Tomlinson, Solihull, and Roy S. Dolman, Polesworth, Nr. Tamworth, both of England, assignors to White-BSA Tools Ltd., Birmingham, England

Filed May 22, 1979, Ser. No. 41,518

Claims priority, application United Kingdom, May 24, 1978, 22135/78

Int. Cl.³ B23B *3/00, 3/34, 19/02*

U.S. Cl. 82—1 C **10 Claims**



1. A multi-spindle machine tool comprising a frame, a spindle carrier mounted on said frame for indexing movement relative thereto, a plurality of work spindles rotatably carried by said spindle carrier, a main drive shaft from which said work spindles are driven, a main clutch and a main brake provided for said main drive shaft, a brake device provided for each said work spindle, a dog clutch for each said work spindle which can be actuated to place said work spindle into and out of driving engagement with said main drive shaft, and a control operative during a machining cycle of said machine tool to disengage said main clutch and apply said main brake thereby to arrest rotation of all said work spindles, subsequently to disengage said dog clutch and apply said brake device for each of at least one of said work spindles, and finally to release said main brake and engage said main clutch thereby to re-start rotation of the remainder of said work spindles.

9. A method of arresting at least one rotatable work spindle during a machining cycle of a multi-spindle machine tool having a main drive shaft provided with a main brake and a main clutch, and a plurality of rotatable work spindles each of which is provided with a respective brake device and a respective dog clutch, each said work spindle being capable of being placed into and out of driving engagement with said main drive shaft by actuation of said respective dog clutch, said method comprising the steps of:

arresting all of said work spindles by disengaging said main clutch and applying said main brake; disengaging said respective dog clutch of each work spindle which is to be arrested and applying said respective brake device to hold that work spindle against rotation; and re-starting rotation of the remaining work spindles by releasing said main brake and engaging said main clutch.

4,279,181

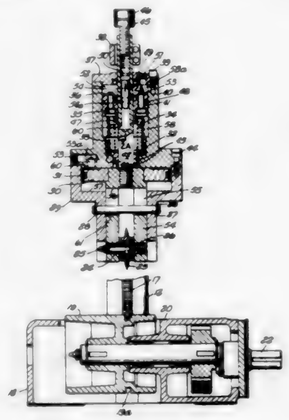
TOOL CONTROL HEAD FOR PIPE AND TUBING CUTTING MACHINE

Orville J. Birkestrand, 129A Casuda Canyon Dr., Monterrey Park, Calif. 91754

Filed May 29, 1979, Ser. No. 42,761

Int. Cl.³ B23B *21/00, 5/14*

U.S. Cl. 82—21 A **8 Claims**



1. A machine tool device for advancing a tool against a work specimen, comprising:

first means including a first piston within a housing and an output shaft connected to move with said first piston, said first piston being advanced in response to application of air under pressure to a first surface of said first piston;

a free turning tool on said output shaft;

a closed hydraulic circuit within said housing including a second piston and first and second chambers, one on each side of said second piston, said second piston being operatively connected to said first piston such that the volume of said first chamber decreases as said first piston is advanced;

second means comprising at least one check valve and a corresponding associated first passage for controlled transfer of hydraulic fluid between said first and second chambers, said check valve having an inertial characteristic such as to close said first passage in response to hydraulic pressure against said check valve as said first chamber volume decreases, said closure being at a time corresponding to a first predetermined point of said tool advancement as permitted by said check valve inertial characteristic;

third means comprising a by-pass passage and variable flow valve between said first and second chambers, said by-pass permitting hydraulic flow between said first and second chambers at a reduced rate compared to the flow through said check valve prior to its closure, said reduced flow rate permitting continued advancement of said tool from said first predetermined point to a second predetermined point at a reduced velocity; and

resilient fourth means for restoring said first piston and therefore said tool to a withdrawal point when said air pressure is released, said check valve contemporaneously opening to permit relatively rapid back flow of said hydraulic fluid from said second to said first chamber.

4,279,182

MACHINE TOOL

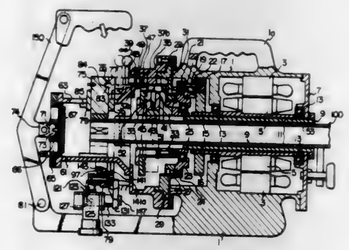
Fumiko Miyagawa; Yoshiharu Ikenaka, and Makoto Sakaguchi, all of Osaka, Japan, assignors to Rex Industries Co., Ltd., Osaka, Japan

Filed Nov. 8, 1979, Ser. No. 92,581

Claims priority, application Japan, Dec. 1, 1978, 53-147758

Int. Cl.³ B23B *19/02, 3/22*

U.S. Cl. 82—28 R **9 Claims**



1. A machine tool for machining a blank, such as a solid or hollow round bar, comprising an electric motor which includes a motor housing having an axial bore through which said blank can extend, an annular stator arranged in said motor housing, and an annular rotor arranged in and coaxially to said annular stator, a chucking device for clamping said blank which extends through said axial bore and said annular rotor, and at least one cutting tool for machining the blank, one of said chucking device and said at least one cutting tool being mechanically immovably connected to said motor housing and the other being mechanically and rotatably connected to said annular rotor; and a hollow outer cylinder which is coaxially connected to said annular rotor so as to rotate together therewith and a hollow inner cylinder which is immovably connected to said motor housing and which is arranged in and coaxially to said outer cylinder, said chucking device being connected to said inner cylinder, said at least one cutting tool being mechanically connected to said rotatable outer cylinder so as to rotate together therewith.

4,279,183

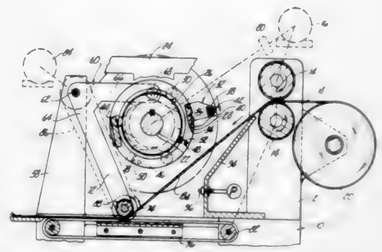
ROTARY HEAT CUTTER FOR PLASTIC WEBS

Arthur E. LaFleur, Manistee, Mich., assignor to Custom Packaging Systems, Manistee, Mich.

Filed Oct. 26, 1979, Ser. No. 88,372

Int. Cl.³ B26F *3/08;* **B26D** *7/14*

U.S. Cl. 83—16 **27 Claims**



21. The method of severing a continuous plastic web transversely into a plurality of successive sheets comprising feeding web at a substantially uniform lineal speed continuously in one direction between vertically and laterally spaced upstream and downstream points, there being web tensioning means at the downstream point so as to maintain the section of the web moving between said points in a straight, downwardly inclined, taut condition, rotating a heating element continuously in one direction about an axis parallel to and extending transversely of said straight section of the web, the heating element being adapted to sever the straight section of the web transversely when engaged therewith and being spaced from its axis of rotation a distance at least slightly greater than the radial spacing between said axis and said straight section of the web, causing the heating element to rotate into engagement with the straight section of the web while the web is moving at said speed so as to deflect it radially outwardly and thereby sever the web along a transverse line so that the portion of the web downstream of the line of severing forms a discrete sheet, thereafter advancing in a downwardly direction the leading end portion of the web upstream of said line of severing to said web tensioning means to again place a section of the web between said two points in said taut condition before the heating element again rotates into engagement with the web.

4,279,184

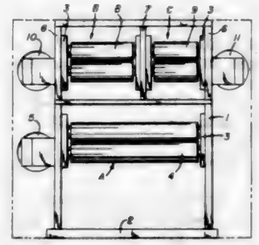
APPARATUS FOR PROCESSING LONGITUDINALLY-MOVING WEBS OF MATERIAL

Cees J. Smolders, Haarlem, Netherlands, assignor to Universal Corrugated Box Machinery Holding AG, Zug, Switzerland

Filed Oct. 10, 1979, Ser. No. 83,725

Int. Cl.³ B26D *1/56*

U.S. Cl. 83—302 **9 Claims**



1. Apparatus for processing a longitudinally-moving web of material of predetermined width as well as a plurality of webs

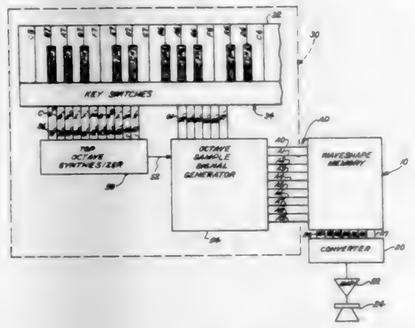
of shorter width produced by longitudinally slitting said original web of predetermined width, the apparatus comprising a first processing means having a processing width corresponding to said predetermined width and through which said original web can pass, a plurality of additional processing means located at a different vertical position with respect to said first processing means and having individual processing widths smaller than said predetermined width, said plurality of processing means spanning a distance substantially equal to said predetermined width, and superimposed frame means for supporting said first processing means at a vertically-spaced position from said plurality of additional processing means.

4,279,185

ELECTRONIC MUSIC SAMPLING TECHNIQUES

Sydney A. Alonso, Strafford, Vt. 05072

Filed Jun. 7, 1977, Ser. No. 804,363
Int. Cl.³ G10H *1/00*
U.S. Cl. 84—1.01 **13 Claims**



1. Apparatus for generating a tone signal suitable for conversion to a corresponding audible musical note having a fundamental frequency and a predetermined waveshape, comprising:

waveshape means for storing a binary digital representation of the waveshape, said waveshape being periodic, an entire period of the waveshape being represented by 2π radians, the amplitude of the waveshape being digitally represented at each of a plurality of 2^K phase angles, each phase angle being at $(2\pi X)/2K$, where X is all integers between 0 and 2^K-1 and where K is an integer;

means for sampling the waveshape only at a rate equal to 2^N times the fundamental frequency of the musical note, where N is an integer; and

means for converting the results of the sampling into a tone signal having the fundamental frequency, whereby distortion of a resulting musical note is reduced.

4,279,186

POLYPHONIC SYNTHESIZER OF PERIODIC SIGNALS USING DIGITAL TECHNIQUES

Christian J. Deforeit, 202 rue des Joncs-Marins, 91620 La Ville du Bois, France

Filed Nov. 8, 1979, Ser. No. 92,468
Claims priority, application France, Nov. 21, 1978, 78 32727; Mar. 23, 1979, 79 07339
Int. Cl.³ G10H *1/00, 3/03*
U.S. Cl. 84—1.01 **15 Claims**

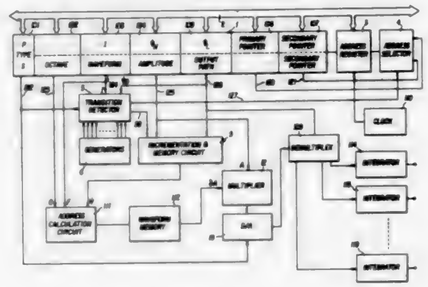
1. A polyphonic synthesizer of periodic signals comprising:

sample production means having inputs for receiving at least a digital phase and a digital amplitude data from a source of digital phase and digital amplitude data and an output for producing a corresponding digital sample value of a predetermined waveform;

means for digital-to-analog conversion of each digital sample value produced by the sample production means;

a given number of generators for producing rectangular waveform signals of different frequencies, each periodic signal produced by said synthesizer being harmonically related to a rectangular waveform produced by one of said generators;

memory means, said memory means including a plurality of addressable groups of memory blocks, each group including a plurality of memory blocks, each group containing at least a digital data representing the instantaneous phase ψ of a periodic signal to be produced, a digital data repre-



senting the amplitude A of said periodic signal, digital addressing data representing the address of another group, and a digital data I for selecting one of the generators; and

controlling means for sequentially reading the memory groups in response to the addressing data of each group, for selecting a generator signal with the respective selecting data I read in each group, and for applying the phase and amplitude data to the sample production means in substantial synchronization with the selected generator signal;

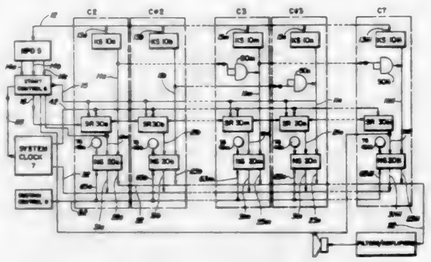
whereby at least one periodic signal is produced, said at least one periodic signal being harmonically related to a rectangular waveform produced by one of said generators.

4,279,187

DIGITAL ARPEGGIO SYSTEM FOR ELECTRONIC MUSICAL INSTRUMENT

Joseph L. Kappes, Cincinnati, Ohio, assignor to Baldwin Piano & Organ Company, Cincinnati, Ohio

Filed Jan. 9, 1980, Ser. No. 110,619
Int. Cl.³ G10F *1/00*
U.S. Cl. 84—1.03 **16 Claims**



1. In an electronic musical instrument, including tone generating means, a plurality of note selecting switches corresponding to notes of a musical scale, and an acoustic output system, an improved system for sounding notes comprising:

a note pattern producing means comprising a plurality of serially connected shift registers, there being a shift register for each of said note selecting switches, which sequentially passes tone signals to the acoustic output system in response to the actuation of at least one of the note selection switches; and

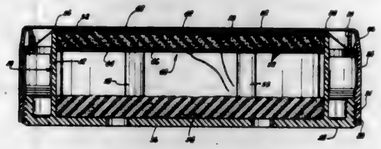
release sustain means for controlling the length of time a tone signal will continue to be passed to the acoustic output system after a note selection switch is deactivated.

4,279,188

ACOUSTIC COUPLING FREE ELECTRIC DRUM

Robert D. Scott, 1324 Glen Alan, West Covina, Calif. 91791

Filed Sep. 21, 1979, Ser. No. 77,597
Int. Cl.³ G10H *3/06*; H01C *10/10*
U.S. Cl. 84—1.14 **33 Claims**



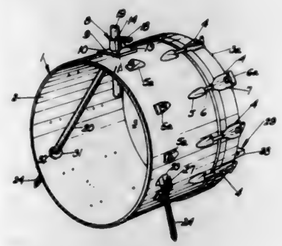
1. In combination a drum having a drum head and a variable resistance electromechanical transducer substantially contiguous with said head and comprising first and second conductive members is surface contact with and spaced by a carbon impregnated resilient, dielectric, synthetic organic polymer matrix defining a drum head hit pressure responsive, variable resistance medium between said members in acoustic coupling free relation.

4,279,189

BASS DRUM SPUR AND STABILIZER ASSEMBLY

Lawrence J. Kelly, Covington, Ky., assignor to Baldwin Piano & Organ Company, Cincinnati, Ohio

Filed Feb. 29, 1980, Ser. No. 125,937
Int. Cl.³ G10D *13/02*
U.S. Cl. 84—421 **7 Claims**



1. A spur and stabilizer assembly for a bass drum having a cylindrical drum shell with its axis horizontally oriented, said assembly comprising a pair of hollow tubular stabilizer elements having upper and lower ends, said upper ends of said stabilizer elements being operatively affixed substantially adjacent each other to the upper portion of said shell, said tubular stabilizer elements extending downwardly and forwardly and diverging laterally with respect to and within said shell, a pair of spur brackets, each of said spur brackets being affixed to the outside surface of said shell and having a portion extending through a perforation in said shell, said lower end of each of said tubular stabilizing elements being open and being operatively connected to the adjacent one of said spur brackets, a pair of elongated, rod-like spurs, each of said spur brackets having a bore therethrough coaxial with the hollow interior of the connected one of said stabilizer elements, each spur being telescopically received in one of said spur bracket bores and the hollow interior of the connected one of said stabilizer elements, and a clamping means in association with each of said spur brackets to lock the respective one of said spurs therein in axially adjusted position.

4,279,190

BREAK AWAY NAIL

Philip H. Hummel, 28 Pawnee Ave., Oakland, N.J. 07436

Filed Jul. 5, 1979, Ser. No. 54,999
Int. Cl.³ F16B *15/00, 15/08*
U.S. Cl. 411—487 **2 Claims**



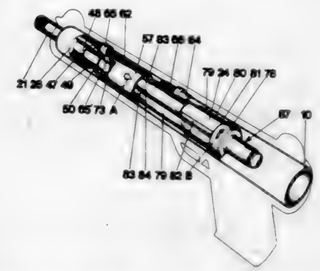
1. A nail comprising a single head and a shank of predetermined length terminating at a first end in said head for use in driving said nail into place and a second end opposite said first end, at least a first reduced portion along said shank constructed so that said nail fractures in response to a lateral force of predetermined strength, wherein said reduced portion comprises a completely open peripheral channel shaped groove having side walls extending outwardly from the longitudinal axis of the nail shank and disposed at right angles to the longitudinal axis of said nail shank.

4,279,191

FIREARMS

Carl B. Johansson, Arlöv, Sweden, assignor to Aimpoint AB, Malmo, Sweden

Filed Oct. 12, 1979, Ser. No. 84,276
Claims priority, application Sweden, Apr. 11, 1979, 7903210
Int. Cl.³ F41D *3/06*
U.S. Cl. 89—185 **10 Claims**



1. A firearm comprising a barrel, a bolt at one end of the barrel, means on the bolt mounting the bolt for axial displacement on the outside of the barrel to and from a firing position and for rotational movement on the barrel, spring means biasing the bolt towards the firing position, a carrier non-rotatably guided for axial displacement on the outside of the barrel, said spring means biasing said carrier to a forward position, means operatively connecting said means mounting the bolt to said carrier for axial displacement of the bolt by the carrier, and at least one locking element on the outside of the barrel for cooperation with said bolt in the firing position thereof, said connecting means guiding the bolt for rotation by axial displacement of the carrier to engage the bolt with the locking element

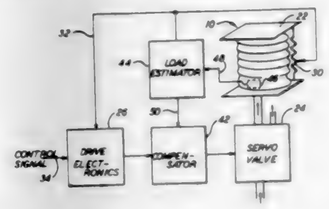
after axial displacement to the firing position and to disengage the bolt from the locking element before axial displacement of the bolt from the firing position.

4,279,192

ELECTRONIC COMPENSATOR FOR A PNEUMATIC SERVO CONTROLLED LOAD BEARING BELLOWS SYSTEM

Jeffrey M. Kleinwaks, Binghamton, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,465
Int. Cl.³ F15B *13/16, 11/10*
U.S. Cl. 91—361 **5 Claims**



1. In a bellows-type actuator system having a load moving surface, a bellows associated with said surface, a servo valve for supplying gas to said bellows in response to a drive signal applied thereto, position sensing means associated with said surface for sensing the relative position of said surface and providing a position signal representative thereof, control means for supplying a control signal representative of a desired surface position, a drive circuit including comparing means for comparing said control signal and said position signal and producing a resultant drive signal proportional to their difference, and said drive circuit also including amplifier means for amplifying said drive signal by a predetermined gain factor for driving said servo valve, an improvement comprising:

(a) monitor means for determining the load on said surface and providing a load signal representative thereof; and

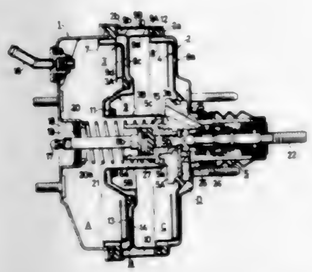
(b) compensation means responsive to said load signal for compensating said system so as to cancel a load-variable system characteristic which cause system instabilities.

4,279,193

TANDEM TYPE POWER SERVO BOOSTER

Satoru Satoh, Matsuyama, Japan, assignor to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed Apr. 4, 1979, Ser. No. 26,967
Claims priority, application Japan, Jul. 18, 1978, 53-87253
Int. Cl.³ F01B *19/00;* **F15B** *9/10*
U.S. Cl. 91—376 R **9 Claims**



1. In a tandem type power servo booster including a housing defined by front and rear shells, a rear power piston secured to a valve body, a cylindrical member extending from the valve body, a front power piston secured to the cylindrical member, and a push rod having a rear end inserted into the cylindrical member and slidingly contacted with the valve body, and a front end projecting outside the housing through a recessed portion formed in the front shell, said recess accommodating a sealing member to seal said front end of said push rod, the improvement comprising:

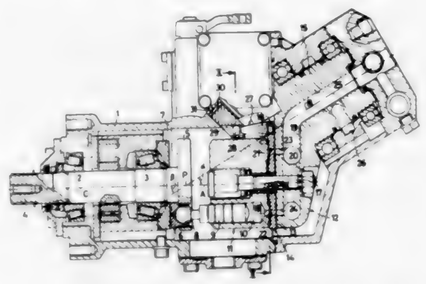
the front power piston and the cylindrical member being formed of sheet metal, and an inner diameter of the cylindrical member being larger than an outer diameter of the recessed portion, to insert the recessed portion into the cylindrical member; and wherein the valve body comprises a main body and a support member threadingly engaged and in alignment therewith, a rear end portion of the cylindrical member engaging a projection provided on said main body to maintain a concentric arrangement between the cylindrical member and the valve body, said cylindrical member being fixedly supported between the main body and the support member.

4,279,194

HYDROSTATIC UNIT WITH AXIAL PISTONS HAVING A VARIABLE STROKE VOLUME

Mario Brighigna, Ferrara, Italy, assignor to Stabilimenti Meccanici VM S.p.A., Italy

Filed May 8, 1979, Ser. No. 37,086
Claims priority, application Italy, Nov. 30, 1978, 30360
Int. Cl.³ F01B *13/02*
U.S. Cl. 91—483 **2 Claims**



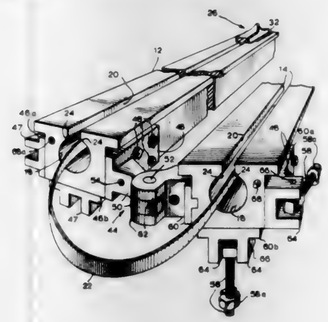
1. A hydrostatic unit with axial pistons, comprising a drive shaft carrying integrally a driving plate for a plurality of circumferentially spaced apart pumping pistons, a cylinder block equipped with a plurality of parallel circumferentially spaced apart cylinders in which such pumping pistons are slidably engaged, and a distributor body carrying said cylinder block in a manner freely rotatable about a medium axis thereof and equipped additionally with a couple of distribution ports for a hydraulic fluid, said ports being capable of communicating alternately with respective intake and outlet ports of said cylinders, said distributor body being rotatable on command about an axis inclined relative to the axis of the drive shaft and carrying said cylinder block so that the axis of rotation of the latter passes through the point of intersection between said axis of the distributor body and of the drive shaft and is inclined in its turn relative to said axis of the distributor, a phase-adjusting plate inserted between the cylinder block and the corresponding surface of the distributor body said plate having formed therethrough ports identical to those of the distributor body and communicating therewith, said phase-adjusting plate being rotatable about the axis of the cylinder block, means being provided responsive to each rotation of the distributor body about its own axis by a simultaneous and opposite rotation of the phase-adjusting plate about the axis of the cylinder block through such an angle as to keep the dead centers of the pistons constantly centered relative to said ports of the phase-adjusting plate and so as to allow for the shift of the dead centers relative to the distribution ports, said means being formed by a pivot rigidly affixed to said phase-adjusting plate and connected for rotation and sliding to the fixed casing of the hydrostatic unit.

4,279,195

COLLAPSIBLE LAUNCHING SYSTEM

Matthew N. Miller, Woodland Hills, Calif., assignor to Fairchild Industries, Inc., Germantown, Md.

Filed Dec. 22, 1978, Ser. No. 972,275
Int. Cl.³ F01B *29/00*
U.S. Cl. 92—88 **7 Claims**



1. A fluid pressure actuated launching system comprising in combination, a plurality of cylinder members, each of said cylinder members having an opening extending longitudinally therewithin and a longitudinal slot communicating with said opening, hinge means situated between said cylinder members and connecting each cylinder member with an adjacent cylinder member such that the longitudinal slot in each cylinder member is positionable thereby to form a substantially continuous longitudinal slot and opening therewithin when said cylinder members are contiguous, tensioned closure means for sealing portions of said longitudinal slot, means connected to said closure means and one of said cylinder members for relieving the tension on said closure means, means for disconnecting said closure means from said means for relieving the tension on said closure means, and a linearly movable piston assembly having a portion thereof in contact with said closure means and linearly movable during ejection and return strokes, an interior portion of said piston assembly being movably disposed within the opening in the cylinder members and having an exterior portion integral with said interior portion and adapted to engage an article to be launched from said launching system .

4,279,196

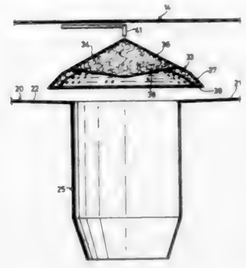
PAINT SPRAY BOOTH WITH SILENCER MEANS

Ivan Bloomer, London, England, assignor to Carrier Drysys Limited, London, England

Filed Jan. 11, 1980, Ser. No. 111,157
Int. Cl.³ B05C *15/00*
U.S. Cl. 98—115 SB **13 Claims**

9. In a paint spray booth of the type comprising a work area having sidewalls and a perforate floor, a sub-floor beneath and spaced from the perforate floor, means for flooding the sub-floor with a paint removing liquid such as water, at least one constricted passage through the sub-floor having at least one downwardly extending surface to define a scrubber in which overspray from the work area is intermixed with and transferred substantially to the liquid, and air moving means to cause a substantial flow of air from the work area to and through the constricted passage, the improvement which comprises:

means forming a sound absorbing chamber externally adjacent and substantially coextensive with said downwardly extending surface, sound absorbent material within said sound absorbing chamber, perforations in and through said surface to permit sound in said constricted passage to



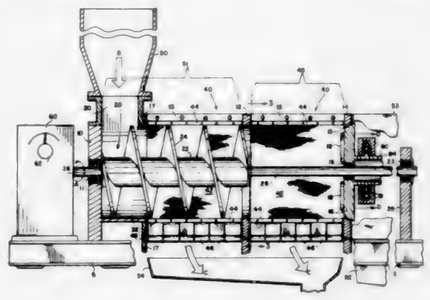
be absorbed by said material, and water impervious means between said surface and said sound absorbing material to prevent said liquid from contacting said sound absorbing material.

4,279,197

SCREW PRESS WITH POSITIVE FEED AND ACCESSIBLE SCREENS

Arthur J. Hunt, and Arthur J. Hunt, Jr., both of 332 N. Halifax Dr., Ormond Beach, Fla. 32704

Filed Oct. 17, 1979, Ser. No. 85,890
Int. Cl.³ B30B *9/12*
U.S. Cl. 100—117 **3 Claims**



1. A positive-feed screw press having easily replaceable and cleanable screens for extracting remaining available juice from predrained grape must, said press having an inlet end and an outlet end, comprising:

a cylindrical cage formed from at least one pair of semi-cylindrical frames, said frames supporting filter screens serving to pass the extracted juice from said must therethrough, said pair of semi-cylindrical frames attached to offset hinges disposed along the lower edges thereof and said frames removably attached to each other along the upper edges thereof whereby said cylindrical cage may be opened for cleaning of said screens or replacement of said screens;

a rotatable feed and compression screw having a cylindrical body and a screw thread disposed helically around the surface of said body, said feed screw disposed concentrically in a portion of said cylindrical cage adjacent said inlet end, said screw thread having an outside diameter essentially equal to the inside diameter of said cage, said cylindrical cage having a portion rearward from said feed and compression screw threads forming a pressing chamber wherein said must is pressed against said filter screens for extraction of juice from said must; and

inlet chamber means disposed at said inlet end of said press, said chamber means having a cylindrical barrel concentric with and communicating with said cage, said barrel having a top opening above said feed screw and a totally enclosed portion between said opening and said cage and in which the longitudinal dimension for said opening does not exceed about one and one half times the pitch of said feed screw, and in which the portion of said barrel directly below said opening encloses said screw thread for a portion of its circumference in the range of 50% to 75%; and

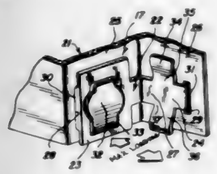
hopper means disposed above and communicating with said opening, said inlet chamber means and said hopper means cooperating to cause said must to feed initially by gravity from a head of must therein into said feed screw until said must is carried into and fills said totally enclosed portion of said cylindrical barrel, and thereafter to be fed by gravity and suction for movement of said must through said cylindrical barrel.

4,279,198

REFUSE COMPACTOR SLIDE BEARING

Milton J. Johnson, Stanford, KY, assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Nov. 26, 1979, Ser. No. 97,737
Int. Cl.³ B30B *15/04*
U.S. Cl. 100—229 A **20 Claims**



1. In a refuse compactor having a ram assembly, moving means for moving the ram assembly alternatively toward and from a compacting position, and guide means extending in the direction of movement of the ram assembly for guiding the ram assembly, said guide means including a first guide facing in a first direction transversely to said direction of movement of the ram assembly and a second guide facing substantially perpendicularly to said first guide in a second direction transversely to said direction of movement, the improvement comprising

a one-piece bearing disposed between said ram assembly and said guide means and having a first base portion fixed to said ram assembly and a first slide portion carried by said first base portion for slidably engaging said first guide, and a second base portion fixed to said ram assembly and a second slide portion carried by said second base portion for slidably engaging said second guide, at least one of said slide portions being resiliently carried by a base portion.

4,279,199

PRINT HEAD IMAGE GENERATOR FOR PRINTER SUBSYSTEM

Abelardo D. Bianco, Miami; William W. Boynton, Bronson, and Charles J. Weber, Boca Raton, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 19, 1979, Ser. No. 86,492
Int. Cl.³ B41J *3/12*
U.S. Cl. 101—93.05 **9 Claims**

8. A data conversion arrangement for a printer,, comprising:

a source of data representative of character information to be printed, said data being arranged in character codes representative of a selected dot matrix format;

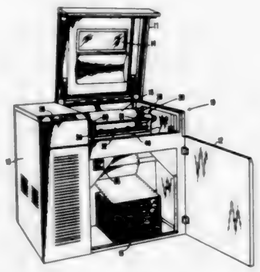
a printer unit, said printer unit incorporating print means to print characters on a document at a print line during printing operations;

print drive means for moving said print means along a print line to print characters on said document during printing operations;

a print head image generator associated with said printer unit, said image generator being operable concurrently with driving movement of said print means along said print line to convert said data to a wire image pattern in said printer unit, said image generator utilizing image slices of said data and a masking technique to develop the wire image pattern;

printer control means for supplying said converted signals to operate said print means furing printing operations;

a microprocessor unit incorporated in said printer control means for controlling operations of said head image generator and for supplying said converted signals to operate said print wires;



storage means comprising at least one text buffer for storing information pertaining to characters provided by said source to be printed by said printer unit and said storage means further comprising means for storing wire images for use by said head image generator to develop wire image patterns; and

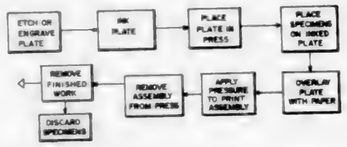
selection means controlled by said microprocessor unit and operable on an interleaved cyclical basis during actual printing of information to enable said source to access said storage means during source access cycles to store character information therein and to concurrently enable said head image generator to access said wire images and said character information in said storage means during head image generator access cycles for conversion of said information.

4,279,200

METHOD FOR PRODUCING NATURE PRINTS

Rosemarie Newcomb, 2227 Seely Dr., Orlando, Fla. 32808

Filed Dec. 26, 1979, Ser. No. 106,758
Int. Cl.³ B41M *1/10*
U.S. Cl. 101—170 **6 Claims**



1. A process for producing a unique work of art comprising the steps of:

(1) preparing a printing plate with a background design;

(2) inking the printing plate;

(3) disposing specimens from nature on the inked surface of the plate;

(4) overlaying the plate and natural specimens with a material to be printed; and

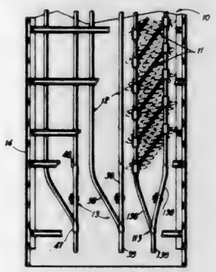
(5) applying pressure to plate and materials to cause inked areas of the plate to offset to the surface of the material except where blocked by the natural specimens thereby producing a negative uninked outline of such specimens and to cause natural coloring within the natural specimens to be expressed therefrom and to leach into the surface of the material within such outline for providing color thereto.

4,279,201

GARMENT RACK SYSTEM

Archie Solomon, P.O. Box 395, Roswell, Ga. 30077

Filed May 29, 1979, Ser. No. 43,427
Int. Cl.³ E01B *25/26*
U.S. Cl. 104—100 **7 Claims**



1. An article carrying system, comprising:

(a) a trolley for suspending a plurality of articles therefrom;

(b) a pair of spaced, horizontal rails, said trolley being moveable on said rails;

(c) means for mounting said rails from an ancillary structure; and

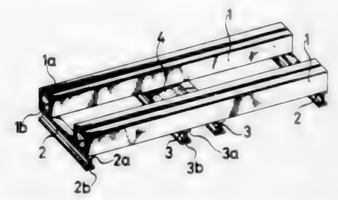
(d) means for automatically supporting said trolley on a diagonal to the longitudinal axes of said rails, wherein said trolley includes a pair of rollers, each roller capable of being in rolling engagement with one of the rails of said pair of rails, the distance between said rollers being greater than the distance between said rails, said trolley further including a horizontal rod with opposed ends, and a hook extending upwardly adjacent each of said ends, said hook having a lower end rotably supported on said rod and having a distal end, with said rollers being rotably mounted on said distal ends, and wherein said supporting means includes said rails having main portions which are in parallel, spaced relationship, said main portions terminating in front ends, a first of said rails further including an articulated member integrally connected to and projecting outwardly from the front end of said first rail and having a forward rail section which extends beyond the termination of the main portion of said second rail, the longitudinal axes of said forward rail section and said main portions of said rails being parallel and further having a section interconnecting said forward rail section and said main portion of said first rail, further including means for linking said articulated member with said main portion of the second of said rails, wherein said linking means includes a front end capable of a first position of releasable, mating engagement with said forward rail section of said member and a rear end capable of a second position of releasable, mating engagement with said main portion of said second rail and means for alternately moving said ends into and out of said first and second portions, said linking member being mounted for pivotal movement about a horizontal axis and wherein said moving means includes a weight selectively positioned on said linking member so that said linking member is counter-balanced about said horizontal axis.

4,279,202

TORSIONALLY FLEXIBLE RAILWAY TRUCK FRAME

Hans Dieling, Felsberg-Rhünda, and Manfred Schindelhütte, Calden, both of Fed. Rep. of Germany, assignors to Wegmann & Co., Fed. Rep. of Germany

Filed Jun. 15, 1979, Ser. No. 48,866
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1978, 2826155
Int. Cl.³ B61F *5/00, 5/24, 5/52*
U.S. Cl. 105—206 R **12 Claims**



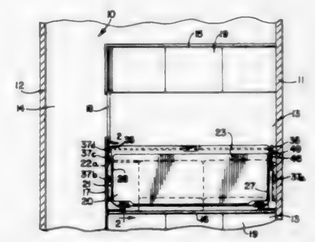
1. A swivel truck frame of high torsional flexibility for rail vehicles comprising a pair of straight longitudinal box beams having longitudinal slotted tops running parallel to one another, said longitudinal beams connected to one another by parallel running crossbeams to define a rectangular frame, said crossbeams being welded to said longitudinal beams, said crossbeams being disposed under said longitudinal beams, the lower chords of said longitudinal beams being welded to the upper chords of said crossbeams, said longitudinal beams being further interconnected by at least one middle crossbeam disposed between said parallel running crossbeams.

4,279,203

PASSENGER CAR COMPARTMENT UPPER SLEEPING BERTH SUPPORT ASSEMBLY

Walter J. Marulic, Gary, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Oct. 15, 1979, Ser. No. 84,488
Int. Cl.³ A17C *17/38;* **B61D** *1/02, 31/00*
U.S. Cl. 105—321 **14 Claims**



1. In a railway passenger car compartment having an outer car side wall, a longitudinally extending divider wall spaced from the side wall, a partition wall extending laterally between the side wall and the divider wall and laterally extending seats positioned adjacent the partition wall, the improvement comprising an upper sleeping berth arrangement having

a berth frame defining the sleeping berth, the berth frame having front and rear side frame members and end frame members connected to the side frame members,

hinge means connecting the rear side frame member to the partition wall and for swinging the berth frame between a relatively vertical storage position adjacent to the partition wall and a relatively horizontal sleeping position outwardly of the partition wall,

guide means including a slidable support link for slidingly supporting the berth frame to the outer car side wall during movement of the berth frame from each position,

latch means disposed on the berth frame for releasably locking the berth frame on the outer car side wall and divider wall, and

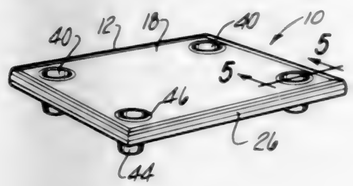
a support ledge extending above the seats for supporting the berth frame in the sleeping position.

4,279,204

LIGHTWEIGHT STACKABLE PALLET

Robert L. Propst, Bellvue, Wash., assignor to Herman Miller, Inc., Zeeland, Mich.

Filed Oct. 1, 1979, Ser. No. 80,303
Int. Cl.³ B65D *19/26*
U.S. Cl. 108—53.3 **1 Claim**



1. A lightweight pallet comprising a substantially horizontally disposed, generally rectangular body member having a core portion, said core being formed to include a plurality of hollow multi-sided columns collectively constituting a honeycomb-like structure, top and bottom walls secured to said core, and side walls located to cooperate with said top and bottom walls to substantially enclose said core, downwardly tapered legs on said body adjacent the corners thereof, said legs being open at their upper ends and being hollow to enable telescoping of the legs on an upper pallet into the legs on a lower pallet such that the body on said upper pallet rests on the body of said lower pallet when the upper pallet legs are telescoped into the lower pallet legs and such that a plurality of said pallets can be stacked in a minimum space, said legs terminating at their upper ends substantially at said top wall, each of said pallet side walls having inwardly inclined upper and lower edge portions so as to provide a wedge-shaped opening between stacked pallets to facilitate insertion of lifting and handling tools between adjacent stacked pallets.

4,279,205

STORAGE

Stephen P. Perkins, Beverly, and Alex F. Wormser, Marblehead, both of Mass., assignors to Wormser Engineering, Inc., Middleton, Mass.

Filed Sep. 24, 1979, Ser. No. 78,651
Int. Cl.³ F23G *5/00, 7/00*; F23D *1/00*
U.S. Cl. 110—245 **10 Claims**

1. A fluidized bed combustor comprising

burning means including

apertured means defining a support for fluidization of contents supported thereby,

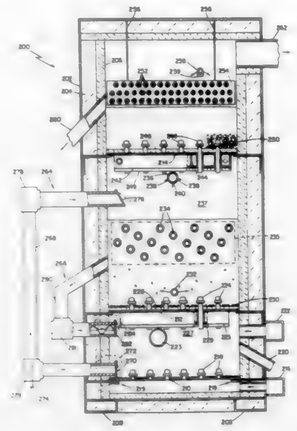
housing means for defining with said support a burning zone,

heat transfer means for carrying fluid therethrough to remove heat produced by burning,

said heat transfer means being spaced above said support to provide thereunder in said housing means above said support a first storage zone of depth to permit fluidized bed combustion of contents over said support without settledbed contact between the surface of said contents and any said heat transfer means,

storage means defining a second storage zone to allow storage of materials removed from said first storage zone,

means for selectively transferring materials from said first storage zone to said second storage zone, and



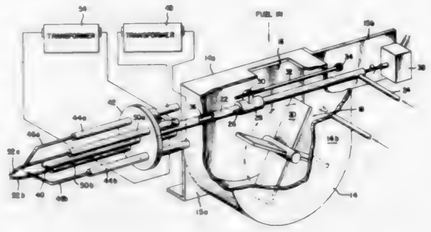
means for selectively transferring material from said second storage zone to said first storage zone.

4,279,206

COAL BURNING SYSTEM

Charles D. Pitts, and David A. Pitts, both of 3600 High Point Rd., Winston-Salem, N.C. 27107

Filed Jul. 10, 1979, Ser. No. 56,411
Int. Cl.³ F23D *1/00*
U.S. Cl. 110—263 **14 Claims**



1. Powdered coal burning system in which solid powdered coal particles of a size up to 6 microns are utilized as the primary fuel in a furnace, said system comprising:

(a) a mixing chamber having a first inlet for receiving said powdered coal particles, a second inlet for receiving air flow with which the powdered coal particles are to be mixed, and an agitator means in said mixing chamber, in addition to said air flow, for effecting and maintaining a substantially homogenous mixture of air and powdered coal particles;

(b) a furnace chamber including a burner nozzle therein, said burner nozzle including igniting means for lighting said coal particles in said mixture as they exit from said nozzle;

(c) a feed means for adjustably withdrawing selected portions of said mixture of air and powdered coal particles from said mixing chamber and delivering said mixture to said nozzle; and

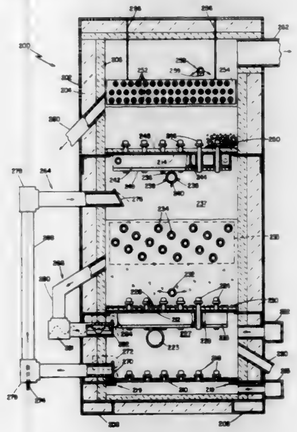
(d) whereby said powdered coal particles are first mixed with the air to form a cloud of coal powdered entrained in air, then said cloud is conveyed to said nozzle and ignited to burn in said furnace.

4,279,207

FLUID BED COMBUSTION

Alex F. Wormser, Marblehead, Mass., assignor to Wormser Engineering, Inc., Middleton, Mass.

Filed Apr. 20, 1979, Ser. No. 31,782
Int. Cl.³ F23B *7/00*
U.S. Cl. 110—345 **12 Claims**



1. The method of combustion which comprises

providing a layer of a first particulate material supported on a first distributor plate,

said first particulate material being incombustible,

fluidizing said first particulate material with a stream of air to provide a first fluidized bed,

said first fluidized bed being contained in a first zone of height proper to prevent loss of said first particulate material,

introducing into said first fluidized bed a minor proportion of a flowable combustible fuel,

burning said flowable combustible fuel in said air to form combustion gas,

providing downstream of said first fluidized bed a second layer of a second particulate material supported on a second distributor plate,

said second particulate material containing a sorbent for a component of said combustion gas,

fluidizing said second particulate material by passing said combustion gas through said second distributor plate to provide a second fluidized bed,

said second fluidized bed being contained in a second zone of height proper to prevent loss of said second particulate material,

transporting said combustion gas against discrete objects too heavy to be moved by said combustion gas flow to slow velocity into said second fluidized bed,

providing a quantity of microchips by interparticle collision in said second fluidized bed at a rate to provide new reactive surface area as fast as reaction depletes formerly reactive surface area,

introducing into said second fluidized bed a nonsorbent ballast, and

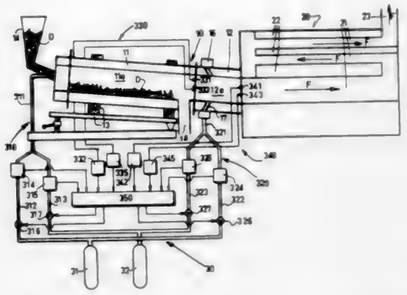
controlling the depth of said second fluidized bed in order to control fluidization and elutriation.

4,279,208

METHOD AND APPARATUS FOR HEAT TREATMENT OF INDUSTRIAL WASTES

Paul Guillaume, Paris; Pierre Karinthi, Jouy-en-Josas, and Jacques Nicolas, Paris, all of France, assignors to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Dec. 3, 1979, Ser. No. 99,888
Claims priority, application France, Dec. 4, 1978, 78 34096
Int. Cl.³ F23G *5/02*
U.S. Cl. 110—346 **29 Claims**



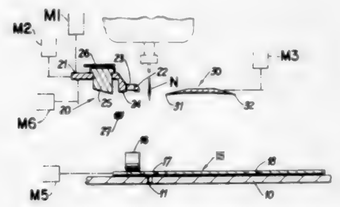
1. A method for the heat treatment of industrial wastes wherein at least some of the constituent materials of said wastes are subjected to combustion and/or to pyrolysis to produce a residue and flue gases, said method comprising the steps of supplying air at a first feed rate; supplying substantially pure oxygen at a second feed rate; mixing said air and oxygen to form an oxygenated combustion-supporting gas; supplying said oxygenated gas to said wastes for the heat treatment of the latter; sensing at least one predetermined characteristic of said flue gases; and regulating at least one of said first and second feed rates in response to said sensed characteristic to maintain said characteristic within predetermined limits.

4,279,209

APPARATUS FOR HOLDING AND UNFOLDING BELT LOOP

George P. Diacont, Jr., Richmond, Va., assignor to AMF Incorporated, White Plains, N.Y.

Filed Sep. 11, 1980, Ser. No. 186,072
Int. Cl.³ D05B *3/12*
U.S. Cl. 112—104 **11 Claims**



1. A method of sewing a drop type belt loop on to a garment comprising the steps of

positioning a garment to receive a belt loop;

providing a folded belt loop with the top fold having a folded under lower loop end and the bottom fold having an exposed upper loop and extending past the folded under lower loop ends;

positioning the belt loop with the exposed upper loop and overlying a predetermined portion of the garment;

clamping the upper loop end with the garment therebeneath

and further clamping the garment at a distance longitudinally spaced from the upper loop end adjacent to the portion of the garment to which the lower loop end is to be tacked;

moving the belt loop and garment laterally in unison when tacking the upper loop end to the garment;

moving the garment and lower loop end relative to one another longitudinally thereby positioning the lower loop end adjacent to where the garment is further clamped; and

again moving the belt loop and garment laterally in unison when tacking the lower loop end to the garment.

7. In combination with a tacker type sewing machine having a bed with a needle hole, apparatus for tacking a drop type belt loop to a garment comprising

a feed plate adapted to receive a garment and having a pair of longitudinally spaced laterally extending slots being movably mounted on said bed for aligning each of said slots with the needle hole in a different tacking position;

clamp means spaced above said bed and having a pair of jaws adapted to receive and hold a folded belt loop with the top fold having a folded under lower loop end and the bottom fold having an exposed upper loop end extending past the lower loop end;

said clamp means being movable toward said bed for positioning said exposed upper loop end on a grment and overlying one of said slots aligned with the needle hole;

a stabilizer plate spaced above said feed plate and having a pair of longitudinally spaced edges and means for moving said stabilizer plate toward said bed until one of said edges clamps the upper loop end and the garment therebeneath adjacent one of said slots against said feed plate and the other of said edges clamps the garment adjacent the other of said slots against said feed plate;

said feed and stabilizer plates and clamp means being movable laterally in unison for moving said belt loop and garment laterally when tacking the upper loop end to the garment;

said feed and stabilizer plates and one of said jaws being movable to move the garment and lower loop end longitudinally in opposite directions relative to one another to align said other of said slots with the needle hole and to position the lower loop end over said other of said slots; and

said feed and stabilizer plates and clamp means being movable laterally in unison for again moving the belt loop and garment laterally when tacking the lower loop end to the garment.

4,279,210

LOOPER THREAD TENSION DEVICE

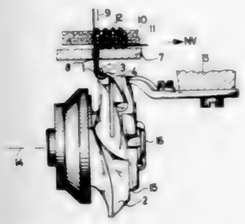
Erich Druffel, Bielefeld, Fed. Rep. of Germany, assignor to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,159

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1978, 2827832

Int. Cl.³ D05B *57/14*

U.S. Cl. 112—181 **3 Claims**



1. In a double-lock stitch sewing machine having a stitch plate provided with a needle hole into which a needle carries a needle-thread from above the stitch plate through a workpiece on the stitch plate to form a needle-thread loop below the stitch plate, a gripper is rotatable about the axis of a bobbin housing to engage said loop with a gripper thread drawn from a bobbin in said housing, and the needle-thread loop is drawn upwardly through said stitch plate, the improvement which comprises a spring rod mounted between said stitch plate and said gripper in the path of the loop and the portion of the gripper thread engaged therewith for briefly retarding the upward movement of said loop, said rod being deflectable by said loop at said portion, said rod being formed at each end with a respective bight, each of said bights being retained in a clamping block against the underside of said stitch plate by a respective screw.

4,279,211

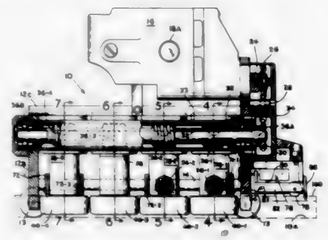
CONTROLLABLY DRIVEN SEAMER

Ewald A. Stellrecht, Malvern, Pa., assignor to Roll Former Corporation, King of Prussia, Pa.

Filed Jul. 23, 1979, Ser. No. 59,553

Int. Cl.³ B21D *39/02*

U.S. Cl. 113—55 **14 Claims**



1. Apparatus for completing the seams of two preformed abutting sheets, said apparatus comprising a body, a plurality of wheels on said body whereby said body can straddlingly roll over the preformed abutting sheets, a plurality of die rollers longitudinally aligned in said body, a plurality of backing rollers longitudinally aligned in said body, each of said backing rollers being operatively opposite a different one of said die rollers to form sets of die rollers and backing rollers whereby a backing roller and a die roller can cooperatively pinch the partially formed seam, pivotable mounting means on said body supporting said die rollers for movement towards and away from said backing rollers between operative closed and inoperative open positions, drive means for driving at least some of said rollers in rotation, and a control means extending from said body for sensing the presence of the partially formed seam to control the operation of said drive means also sensing obstructions in the path of said apparatus to deactivate the drive means, said control means comprising switch means operatively associated with said drive means for controlling the operation thereof, actuator means facing said switch means and including first sensor means for sensing the presence of a seam and second sensor means for sensing the presence of an obstruction, and means connecting said actuator means to said body for cooperation with said switch means to selectively control the operation of said drive means in response to the presence of a seam and an obstruction.

4,279,212

ASSEMBLY FOR TREATING VESSEL HULLS

Hans G. Lundberg, Löddeköpinge, Sweden, assignor to Marinkonsult Hans Lundberg AB, Trelleborg, Sweden

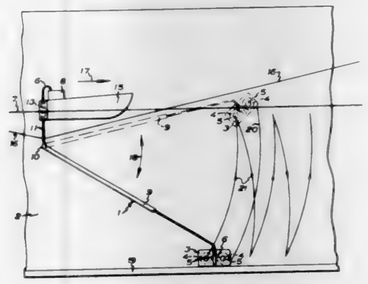
Filed May 29, 1979, Ser. No. 43,564

Claims priority, application Sweden, Jun. 1, 1978, 7806437

Int. Cl.³ B63B *59/00*

U.S. Cl. 114—222 **10 Claims**

1. An assembly for treating underwater surfaces of fixed or floating constructions, for example, ships' hulls, the assembly having a frame which supports at least two motor-driven, rotatable treatment devices which are moveable into abutment against the construction surfaces, wherein the frame is connected to one end of an elongate member which, at its other end, is pivotally connected to a joint which, in the treatment, is substantially stationary with respect to the frame and the construction and is connected to a vessel floating on the surface of the water, which supports the frame and the elongate member and which is moveable along the construction surfaces in a forward direction, wherein said joint is located beneath the water line and is attached to an anchorage which is



resiliently connected to said vessel by spring means, wherein said elongate member extends substantially horizontally forwardly from said joint and is pivotable between a lower position at which the frame is disposed below the joint and an upper position at which the frame is disposed above the joint adjacent the water line, and wherein said at least two treatment devices are inclined somewhat with respect to the abutting surface of the construction being treated, such that said treatment devices produce a force for their own driving reciprocally between said upper and lower positions, said treatment devices treating mutually subsequent portions of the construction surfaces as a result of the driving of the treatment devices and the movement of the vessel.

4,279,213

RESIN MOLDED PRODUCTIONS DESIGNED TO DISPLAY EXTINCTION OF ACTIVITY

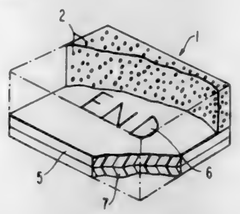
Yoshiaki Urahama, and Tetuo Numoto, both of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Ibaraki, Japan

Filed Mar. 20, 1980, Ser. No. 132,344

Claims priority, application Japan, Mar. 20, 1979, 54/35973[U]

Int. Cl.³ G01N *21/17*

U.S. Cl. 116—200 **6 Claims**



1. In a resin molded controlled-release product which comprises a volatile or elutable active agent dispersed in a substantially transparent and inert resin molded material, the improvement which comprises a colored material located inside or on the back surface of the molded product which is not visible through the product at the initial concentrations of the active agent, but is visible through the resin product at concentrations of the active agent at which the activity of the product is substantially extinct.

4,279,214

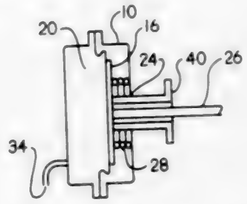
BRAKE WEAR INDICATOR

Joseph W. Thorn, 1165 W. 15th St., Escondido, Calif. 92025

Continuation of Ser. No. 14,136, Feb. 22, 1979, abandoned. This application Feb. 19, 1980, Ser. No. 122,313

Int. Cl.³ F16D *66/02*

U.S. Cl. 116—208 **10 Claims**



1. In a fluid actuated vehicle brake system having a brake actuator housing divided by a diaphragm means into ambient and pressure fluid chambers, and further having resilient means biasing said diaphragm means to a brake-off position, an improved brake wear indicator comprising:

indicator means comprising a sleeve disposed through an aperture in said housing and further comprising an elongated indicator element in engagement with said diaphragm means and extending out of said aperture, said indicator element being displaceable responsive to a displacement of said diaphragm, said sleeve being constrained against movement relative to the margins defining said aperture, said indicator element being constrained against free movement relative to said sleeve whereby displacement of said diaphragm means to a brake-on position effects extension of said indicator element farther out of said housing, and whereby said indicator element is frictionally constrained against unassisted movement inwardly of said sleeve after said diaphragm means returns to its brake-off position, said indicator means having indicia located externally of said housing for determining the amount of said extension of said indicator element responsive to said displacement of said diaphragm, said indicator means having a registration element movable to a zero index position for establishing a zero index position of said index element.

4,279,215

APPARATUS FOR SPRAYING WORKPIECES AND INTERCEPTING OVERSPRAY

Gerhard Schäfer, Neunkirchen, Fed. Rep. of Germany, assignor to Fritz Schäfer GmbH, Neunkirchen-Salchendorf, Fed. Rep. of Germany

Filed May 30, 1979, Ser. No. 43,846

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2823958

Int. Cl.³ B05B *1/28*

U.S. Cl. 118—326 **9 Claims**

1. An apparatus for the surface-coating of a series of workpieces with a hardenable liquid, comprising:

a booth;

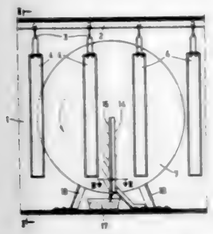
nozzle means in said booth connected to a source of coating liquid and adapted to discharge same in a spray cone centered on a substantially horizontal axis;

conveyor means in said booth for transporting a series of generally vertical workpieces along a predetermined path past said nozzle means across said spray cone;

a disk with a substantially vertical front surface facing said nozzle means at a location in said booth behind the path of

said workpieces, said front surface being large enough to intercept any excess liquid in said spray cone bypassing the workpieces to be coated;

drive means coupled with said disk for unidirectionally rotating same about an axis substantially parallel to the cone axis and at a rate slow enough to allow the inter-



cepted liquid to form a coherent film of coating material on said front surface;

wiper means in contact with said surface at a location offset from said spray cone for continuously stripping off said film during operation of said drive means; and

a receptacle below said wiper means for receiving the coating material removed by said wiper means from said disk.

4,279,216

CATHODE SHIELDED COATING APPARATUS

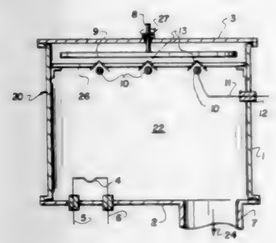
Rainer Buhl, Sargans, and Hans Signer, Oberschaan, both of Switzerland, assignors to Balzers Aktiengesellschaft für Hochvakuumtechnik und Dünne Schichten, Liechtenstein

Filed Jan. 28, 1980, Ser. No. 115,729

Claims priority, application Switzerland, Feb. 1, 1979, 1182/79

Int. Cl.³ C23C *13/03*

U.S. Cl. 118—723 **12 Claims**



1. A vacuum evaporator comprising wall means defining a vacuum chamber, a gas inlet port connected to said chamber for the inlet of gas molecules into said chamber, an evaporant source arranged in said chamber, a supporting structure spaced from said evaporant source in said chamber having means for mounting at least one substrate to be coated, at least one electrode connected as a cathode and adapted for cleaning a substrate to be coated, said cathode being disposed directly in front of and generally spaced about a few mean free lengths of the path of the gas molecules at operating pressure from said substrate surfaces to be coated spaced from said evaporant source, and a screening element provided in said chamber between said electrode and said substrate surface in such a position that any direct optical path between the electrode and the substrate surface is interrupted.

4,279,217

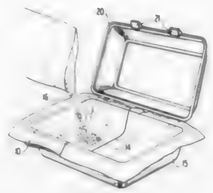
LINER FOR A LITTER BOX

Rebecca K. Behringer, 8524 Etta Dr., Springfield, Va. 22152

Filed May 21, 1979, Ser. No. 41,101

Int. Cl.³ A01K *1/00*

U.S. Cl. 119—1 **12 Claims**



1. An animal commode comprising the combination of (a) a rectangular animal litter box having a bottom and four sides, (b) a flat, disposable, plastic film liner lining the inside of the box, said liner, when flattened out, being shaped like a rectangle, and said liner having a transverse slit opening therein at about its center, the length of the slit opening being no greater than the width of the rectangle, which opening communicates with a collapsible pocket which lies flat beneath the liner, whereby the pocket will fall open when the liner is lifted from the box by its edges, and will receive and hold soiled adsorbent that has been resting on top of the liner, and (c) a layer of particulate, sanitary adsorbent on top of the liner.

4,279,218

CULTIVATION OF MARINE AND AQUATIC SPECIES

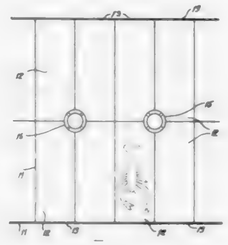
Peter L. Brinkworth, 183 Reynolds Rd., Mt. Pleasant, Australia

Filed Feb. 13, 1979, Ser. No. 11,999

Claims priority, application Australia, Feb. 15, 1978, PD3398

Int. Cl.³ A01K *61/00*

U.S. Cl. 119—2 **13 Claims**



1. A method of cultivating marine and aquatic species wherein the species are housed in habitats in which they remain for the major part of their growth cycle, said habitats being located within a body of water, said habitats being in fluid communication with said body of water through restricted passages, supplying the interior of each habitat with pretreated water sufficient to maintain a compatible environment for the species within the habitat through an inlet in communication with a source independent of the surrounding body of water, the supply of pretreated water being of sufficient volume so that the flow of water is substantially from the compatible environment through the habitat and out to an incompatible zone located external to the habitat through said restricted passage means.

4,279,219

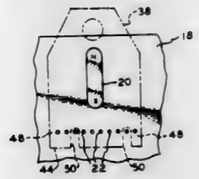
LIGHT RESPONSIVE ANIMAL ACTUATED APPARATUS

Cletus A. Brooks, Onsted, Mich., assignor to Selective Feeder Company, Onsted, Mich.

Filed Oct. 26, 1979, Ser. No. 88,378

Int. Cl.³ A01K *5/02*

U.S. Cl. 119—51 R **14 Claims**



9. A actuator for an animal actuated apparatus adapted to be worn by the animal to be serviced comprising, in combination, an actuator body, information means defined upon said actuator body, and orientation means defined on said actuator body for orienting said actuator body to interrogation means, said information means being located upon said actuator body at a predetermined location relative to said orientation means.

4,279,220

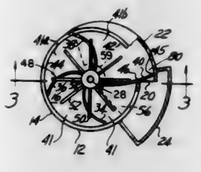
AUTOMATIC FEEDING DEVICE

Walter Kukurba, 110 Peckham St., Port Charlotte, Fla. 33952

Filed Nov. 15, 1979, Ser. No. 94,590

Int. Cl.³ A01K *5/02, 61/02*

U.S. Cl. 119—51.11 **7 Claims**



1. An animal feeding device comprising a feed storage bin in the form of an enclosure having a cylindrical side wall and a flat bottom wall, a rotatable shaft vertically extending from said bottom wall, means for driving said shaft in rotation, at least one elongated rectangular flexible blade mounted on said shaft and extending generally radially from said shaft, said flexible blade being disposed with an edge in sliding engagement with said bottom wall and a tip in engagement with said side wall, said blade having a length greater than the radial distance from said shaft to said cylindrical wall for causing said blade to be normally elastically bowed in the direction of rotation of said shaft, a spiral enclosed channel disposed at a portion of the periphery of said enclosure, said spiral channel having a floor disposed coplanar with said flat bottom wall, a slot for accepting the tip of said blade formed in said cylindrical side wall and placing said spiral channel in communication with the interior of said enclosure whereby at least the tip of said blade extends into said spiral channel as said blade rotates, an outlet aperture at the end of said spiral channel, power drive means for rotating said shaft, and timing means for energizing said power drive means at timed intervals for predetermined time durations.

4,279,221

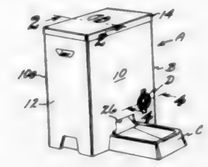
TIMED FOOD DISPENSER FOR ANIMALS

Oscar O. Arvizu, 438 E. 246th Pl., Carson, Calif. 90745

Filed Apr. 21, 1980, Ser. No. 142,106

Int. Cl.³ A01K *5/02*

U.S. Cl. 119—51.11 **2 Claims**



1. An automatic animal feeding apparatus of the type that includes an elongate upwardly extending housing that has first and second side walls, a pair of end walls; a transverse rearwardly and downwardly sloping partition in said housing that cooperates with the upper portion of the latter to define a hopper in which feed may be stored, said partition having an opening therein adjacent said second side wall; a downwardly and forwardly extending chute in said housing disposed below said partition, said chute having an arcuate shaped section in the lower portion thereof, said chute in communication with an opening in the lower portion of said first side wall, said apparatus being characterized by including:

a. a food dispenser that includes first and second oppositely disposed receptacles capable of each holding a predetermined quantity of said food;

b. a shaft to which said food dispenser is secured;

c. first means for so rotatably supporting said shaft within said housing that said dispenser is disposed between said hopper and chute, with each of said receptacles capable of being disposed in a first position where said feed can flow downwardly by gravity through said opening from said hopper into said receptacle by gravity, and said dispenser capable of being subsequently rotated through substantially one hundred and eighty degrees to a second position where said receptacle filled with said food is inverted and said food discharges into said chute to slide downwardly by gravity to the exterior of said housing;

d. an electric motor that drives said shaft;

e. an electrically operated timer that includes a plurality of lugs, each of said lugs capable of being disposed in an actuating position;

f. first and second oppositely disposed members that rotate concurrently with said shaft;

g. first and second single pole, double throw electric switches, each of said switches including first and second spaced contacts and a spring-loaded blade, said blade of said first switch at all times tending to be in engagement with said first contact and moving into engagement with said second contact of said first switch when engaged by the one of said lugs of said timer that is in an actuating position, said blade of said second switch at all times tending to be in engagement with said second contact and moving into engagement with said first contact of said second switch when engaged by one of said oppositely disposed members; and

h. an electric circuit of which said timer, electric motor, and first and second switches form a part, said electric circuit capable of being supplied electric power from a domestic source, said electric circuit including a first electrical conductor that connects said first contact of said first switch and second contact of said second switch, a second electrical conductor that connects said second contact of said first switch and said first contact of said second switch, said dispenser rotating through said one hundred and eighty degrees in first and second stages, said first stage being initiated when one of said members moves said

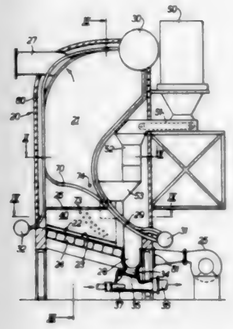
blade of said first switch into engagement with said second contact thereof and said blade of said second switch is held in engagement with said first contact of said second switch, said first stage of rotation of said dispenser terminating when said member in engagement with said blade of said second switch has rotated to the extent said blade of said second switch moves into engagement with said first contact of said second switch, and said second stage of rotation being initiated when said actuating log of said timer moves to the extent that said blade of said first switch moves into engagement with said first contact of said first switch to complete said electric circuit through said first electrical conductor and second contact and blade of said second switch, with said second stage terminating after said dispenser has rotated substantially one hundred and eighty degrees one of said members breaks said electric circuit by moving said blade of said second switch out of engagement with said second contact of said second switch and into engagement with said first contact thereof.

4,279,222

FEED OF MATERIAL TO FLUIDIZED BEDS

Arnold P. Pearce, Chelwood Gate, England, assignor to Flameless Furnaces Limited, London, England

Continuation of Ser. No. 934,921, Aug. 18, 1978, abandoned.
This application Oct. 26, 1979, Ser. No. 88,672
Claims priority, application United Kingdom, Aug. 19, 1977, 34814/77; Nov. 24, 1977, 48928/77
Int. Cl.³ F22B 1/02
U.S. Cl. 122—4 D **16 Claims**



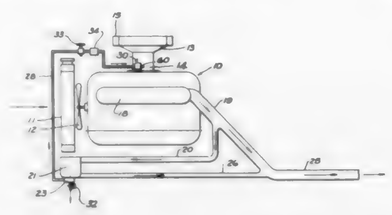
1. A fluidised bed combuster comprising a housing having an air diffuser bed support arranged to support and fluidise a bed of granular material in the housing, and at least one baffle extending in a generally vertical plane and vertically spaced from the bed support to define on one side of the bed a quiet zone of bed material which is not fluidised in operation in communication beneath the baffle with the remainder of the bed which is fluidised in operation, the top of the baffle lying below the upper surface of the bed in operation so that material from the fluidised bed flows over the baffle into the quiet zone, the combuster including feed means arranged to feed material to be burnt into the quiet zone for passage from that zone under the baffle into the fluidised zone in operation.

4,279,223

INTERNAL COMBUSTION ENGINE FUEL-SAVING AND POLLUTION-REDUCING SYSTEM

John J. Csonka, 625 Linwood Ave., Buffalo, N.Y. 14209, and Albert B. Csonka, 109 Larchmont Rd., Buffalo, N.Y. 14214

Continuation of Ser. No. 905,996, May 15, 1978, abandoned.
This application Jan. 4, 1980, Ser. No. 109,496
Int. Cl.³ F02M 25/02
U.S. Cl. 123—25 N **1 Claim**



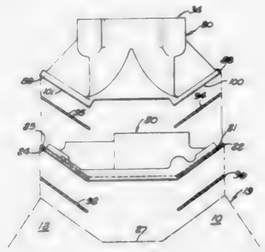
1. A fuel-saving and pollution-reducing system for internal combustion engines having a carburetor for receiving liquid fuel and air and for delivering an air-fuel mixture to said engine, means for controlling the power output of the engine, and a conduit for conducting exhaust gases from the engine; said system increasing the efficiency of internal combustion engines by allowing the use of increased compression ratios by adding partly distilled cooling water into the carburetor, in the form of micro-fine particles and by automatically supplying the water in exactly predetermined amounts best suited to various loads; said system being usable with higher than usual compression ratios by adding water spray into the engine's combustion chamber to lower the temperature of the compressed air-fuel mixture during the compression stroke by the evaporation of the water-spray; the amount of water being independent of both the engine RPM and the intake manifold pressure of the engine; the water metering device being controlled by the accelerator linkage of the carburetor which determines at every engine load the optimum amount of water to be added into the engine; the water control means excluding water addition at idling and at small loads of the engine; said cooling water being constantly produced during the running of the car entirely by condensation of the water-vapor content of the exhaust gases of the engine in an air-cooled condenser.

4,279,224

CONVERTIBLE INTAKE MANIFOLD

Robert C. Szabo, and Peter J. Incaudo, Jr., both of 13505 Shoup Ave., Hawthorne, Calif. 90250

Filed Sep. 20, 1979, Ser. No. 77,452
Int. Cl.³ F02B 75/22
U.S. Cl. 123—52 MV **6 Claims**



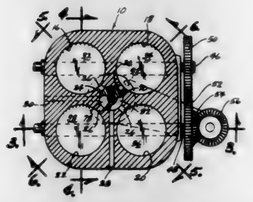
1. An intake manifold assembly for replacing a stock intake manifold on an engine having a V-shaped engine block with dual cylinder banks each having a cylinder bank mating surface with a plurality of ports therein, the engine having an engine valley between the dual cylinder banks, the intake manifold assembly comprising:
- at least one removable center runner member having a carburetor mount, comprising:
  - first manifold runner means having a first runner mating flange remote from the carburetor mount, with communicating runner ports therethrough,
  - second manifold runner means having a second runner mating flange remote from the carburetor mount with communicating runner ports therethrough;
- a manifold base member integrally having:
  - a coolant crossover section at one end,
  - a distributor boss section at a second end,
  - an engine valley cover section between the coolant crossover section and the distributor boss section, and
  - a pair of port flanges on the opposite sides of the engine valley cover section between the coolant crossover section and the distributor boss section, each having a top mating face, the manifold base member further having a continuous bottom mating face for being positioned and held against the cylinder bank mating surfaces for interconnecting the coolant crossover section to the engine block and enclosing the engine valley, the first and second runner mating flanges of the center runner member being positioned and held adjacent one of the top mating faces of the manifold base member, whereby one center runner member can be replaced by second center runner member without removing the manifold base member.

4,279,225

ROTARY VALVE ENGINE

Herbert H. Kersten, 730 Wraywood Dr., Fort Dodge, Iowa 50501

Filed Apr. 12, 1979, Ser. No. 29,326
Int. Cl.³ F01L 7/00
U.S. Cl. 123—80 BB **9 Claims**



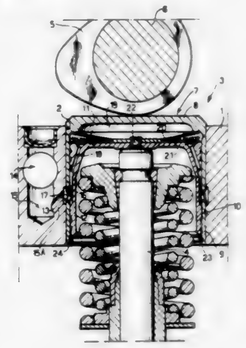
1. A rotary valve engine comprising:
- an engine housing having a plurality of vertical power cylinders therein each of said cylinders having a cylindrical sidewall and upper and lower axial ends;
- an elongated vertical valve cylinder formed in said housing said cylinder having a cylindrical sidewall and upper and lower axial ends;
- a plurality of bores in said housing, each of said bores having a first end in communication with one of said power cylinders through said cylindrical sidewall thereof and a second end in communication with said valve cylinder through said cylindrical sidewall thereof, said second ends being positioned in spaced apart relationship around the cylindrical circumference of said valve cylinder at the said axial height within said valve cylinder;
- an elongated cylindrical valve spool rotatably mounted in said valve cylinder and having a cylindrical side wall, a fuel air port formed in said spool sidewall and being in communication with a source of fuel air mixture, and an exhaust port formed in said spool sidewall and being in communication with the atmosphere;
- said valve spool being rotatable to cause said fuel air port and said exhaust port each to move into communication one at a time with said second ends of said bores;
- a reciprocating piston within each of said cylinders;
- at least two output shafts;
- means connecting each of said output shafts to at least one of said pistons for causing rotation of said output shafts in response to reciprocation of said pistons;
- mechanism connecting at least one of said output shafts to said spool for causing rotation of said spool in response to rotation of said output shafts;
- gear mechanisms interconnecting said output shafts and said valve spool for causing said spool to rotate in response to rotation of said output shafts so that said valve spool completes one revolution while said output shafts each complete two revolutions;
- an exhaust channel extending through said housing and including a first end in communication with said valve cylinder and a second end leading to the exterior of said housing;
- said exhaust port of said valve spool comprising an annular exhaust groove in said spool in communication with said first end of said exhaust channel, said annular exhaust groove having an axially upwardly extending notch therein which is movable in communication one at a time with said second ends of said bores leading to said power cylinders;
- a fuel air channel extending through said housing and having a first end in communication with said valve cylinder and a second end in communication with a source of fuel-air mixture;
- said spool having a central chamber within the interior thereof, an annular fuel-air groove extending therearound and in communication with said first end of said fuel-air channel, and a first chamber opening in said spool providing communication from said fuel air groove to said chamber;
- said fuel-air port of said spool comprising a second opening in said spool providing communication from the exterior of said spool to said chamber.

4,279,226

HYDRAULIC TAPPET FOR AN INTERNAL COMBUSTION ENGINE HAVING AN OVERHEAD CAMSHAFT

Aurelio Lampredi; Aldo Leoni, and Luigi Ioli, all of Turin, Italy, assignors to Fiat Auto S.p.A., Turin, Italy

Filed Aug. 13, 1979, Ser. No. 66,142
Claims priority, application Italy, Nov. 15, 1978, 53889/78[U]
Int. Cl.³ F01L 1/14, 1/24
U.S. Cl. 123—90.55 **1 Claim**



1. An internal combustion engine of the type having: a cylinder head; a lubrication circuit; an overhead camshaft, and a valve having a stem acted upon by a cam of said camshaft,

a hydraulic tappet of the kind which automatically takes up clearance between said valve stem and said cam, including an oil supply conduit connected with said oil lubrication circuit; annular manifold means communicating with said supply conduit, and means defining a plurality of radial ports connecting said manifold means with the interior of said tappet, wherein the improvement comprises a sump which extends below the level of said manifold means and which communicates with said oil supply conduit adjacent said tappet,

said tappet is axially slidable in a cylindrical seating formed in said cylinder head,

said tappet includes a first inverted cup-shaped member which is axially slidable in said seating and defines said radial ports, and a second inverted cup-shaped member which is axially slidable in said first member and rests on said valve stem,

said second member comprises an end wall, and a skirt dependent from said end wall,

said tappet further includes a cup spring interposed between said end walls of said tappet members to urge said tappet members apart, and a flexible disc interposed between said cup spring and said end wall of said second member to act as a valve and to control the flow of oil, and

said spring and said disc are rivetted centrally to said end wall of said second member.

4,279,227

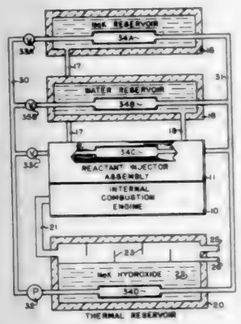
HEAT STORAGE IN BY-PRODUCTS OF AN INTERMITTENT PROCESS

Stephen F. Skala, 3839 S. Wenonah, Berwyn, Ill. 60402

Continuation-in-part of Ser. No. 301,285, Oct. 27, 1972, abandoned, and a continuation-in-part of Ser. No. 457,207, Apr. 2, 1974, Pat. No. 3,911,284, and a continuation-in-part of Ser. No. 464,454, Apr. 26, 1974, abandoned, and a continuation-in-part of Ser. No. 578,527, May 19, 1975, Pat. No. 4,020,798, and a continuation-in-part of Ser. No. 779,788, Mar. 21, 1977, Pat. No. 4,189,916. This application Sep. 27, 1979, Ser. No. 79,322

Int. Cl.³ F02N *17/02*

U.S. Cl. 123—179 H **10 Claims**



1. A system for producing heat and for transferring the heat in a vehicle comprising

a heat engine which forms collectable hot reaction by-products and requires a heat input for starting after a substantial nonoperating period in frigid weather,

means to collect the hot reaction by-products in an insulated vessel to comprise a thermal reservoir wherein heat is stored in the reaction by-products, and

a fluid circuit to circulate a thermal exchange fluid in selectable paths which include heat exchangers in the engine and in the thermal reservoir to provide heat transfer from the thermal reservoir to the engine in frigid weather prior to starting the engine.

4. A method for using hot reaction by-products comprising the steps of:

transporting reactants to a reaction chamber during an operating period of substantial duration to produce a useful product and hot reaction by-products,

collecting at least a portion of the hot by-products in a thermal reservoir comprising the collected by-products within an insulated vessel,

transferring heat from the thermal reservoir to users during a nonoperating period of substantial duration whereby the by-products are cooled, and

removing at least a portion of the cooled by-products from the thermal reservoir for replacement by hot by-products during an operating period.

4,279,228

DEVICE FOR THE CONTROL OF THE TRAVELING SPEED OF A MOTOR VEHICLE

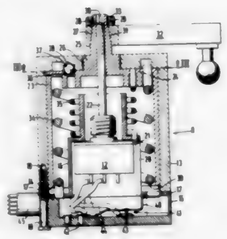
Arnold Mann, Bieber, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,861

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843456

Int. Cl.³ F02D *11/10*

U.S. Cl. 123—352 **12 Claims**



1. In a device for the control of the traveling speed of a motor vehicle with a vehicle driver actuatable gas pedal and with means for the transmission of the movement of the gas pedal to an element which influences the fuel-air mixture, particularly the throttle valve, which means contain a position encoder with an adjustable variable rheostat having two relatively moveable parts and a limit switch, the position encoder being coupled with the gas pedal, the improvement wherein

the position encoder includes a housing forming a substantially hollow cylindrical interior space in which interior space the rheostat is disposed, the latter being operatively fixed to the housing prevented from twisting with one of its two relatively moveable parts,

a bell-shaped body is connected to the other part of the rheostat, said bell-shaped body is rotatably mounted in the hollow cylindrical interior space, and

at least one return spring means for biasing said bell-shaped body into a rest position, said bell-shaped body being operatively connected to the gas pedal such that by means of the latter the bell-shaped body is rotatable from said rest position against the force of said return spring means,

an electric switch secured to said housing,

means cooperating with said bell-shaped body for actuating said electric switch upon rotation of said bell-shaped body by a certain pregiven amount.

4,279,229

ELECTRONIC INJECTION-AMOUNT REGULATING APPARATUS IN AUTO-IGNITED INTERNAL COMBUSTION ENGINES

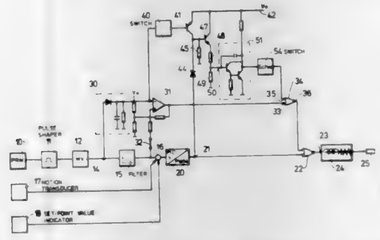
Herbert Arnold, Eberdingen, and Gerd Gerhards, Hemmingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 26, 1978, Ser. No. 928,215

Claims priority, application Fed. Rep. of Germany, Aug. 6, 1977, 2735596

Int. Cl.³ F02D *1/04, 1/06*

U.S. Cl. 123—359 **10 Claims**



1. An apparatus for the electronic regulation of injection amounts in internal combustion engines with auto-ignition comprising means regulating the injection amount of fuel with a pulsed control signal from a regulator having a PID characteristic and where said means producing said control signal indicative of the injection amount is apportioned via a solenoid actuator responsive to a safety switching means, said safety switching means being responsive to the absence of pulse intervals in the control signal for deenergizing the solenoid actuator, a logic gate connected in series with the input of the solenoid actuation and including means for feeding the output signals from the regulator as well as the output signal from said safety switching means to said logic gate.

4,279,230

FUEL CONTROL SYSTEMS FOR INTERNAL COMBUSTION ENGINES

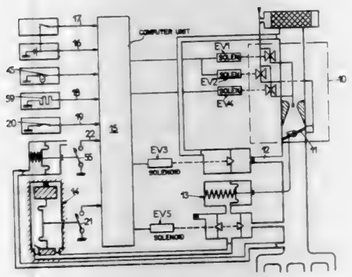
Philippe Bauer, Marly le Roy; Jean Lamy, Croissy-sur Seine, and Bernard Martel, Bagneux, all of France, assignors to Societe Industrielle de Brevets et D'Etudes S.I.B.E., Neuilly-sur-Seine, France

Filed May 2, 1978, Ser. No. 902,243

Claims priority, application France, Dec. 30, 1977, 77 39842; United Kingdom, May 6, 1977, 19149/78

Int. Cl.³ F02G *3/00*; F02M *7/00*

U.S. Cl. 123—440 **22 Claims**



1. A fuel control system for an internal combustion engine having an exhaust conduit, comprising:

a probe in the exhaust conduit adapted to generate an electrical signal indicative of exhaust conditions,

at least one circuit for supplying fuel and air to the engine, having solenoid valve means for metering at least the fuel flow rate in said circuit and opening into an air induction passage provided with an operator controlled throttle member downstream of the opening of said one circuit,

a closed loop electronic control circuit connected to said probe and effective to control said solenoid valve means in dependence of said signal,

and means for opening the loop responsive to predetermined operating conditions of the engine,

said electronic circuit having further means for controlling said solenoid valve means in dependence on at least one engine operating parameter other than said exhaust conditions during open loop operation.

4,279,231

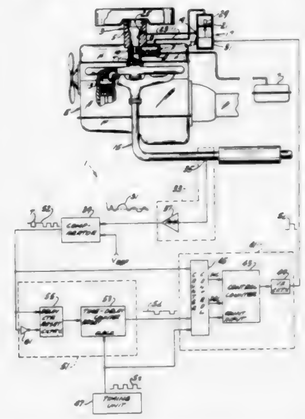
APPARATUS FOR CONTROLLING THE AIR-FUEL RATIO IN AN INTERNAL COMBUSTION ENGINE

Allen W. Lindberg, Kirkwood; Thomas R. Gantzert, Florissant, and Donald L. Hicks, St. Louis, all of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Continuation of Ser. No. 767,914, Feb. 11, 1977, abandoned. This application Nov. 7, 1979, Ser. No. 92,121

Int. Cl.³ F02B *3/00*; F02D *33/00*

U.S. Cl. 123—489 **13 Claims**



1. Apparatus for controlling the air-fuel ratio in an internal combustion engine to substantially maintain the ratio at the stoichiometric point while the engine is operating under various load conditions, the engine having a carburetor with at least one air passageway therein through which air is drawn into the engine, fuel from a source thereof being supplied to the carburetor through at least one fuel system and mixed with the air as it passes through said carburetor, said carburetor having a conduit through which air is introduced into said system, and the engine further having a chamber for combustion of the resulting air-fuel mixture and means for exhausting the products of said combustion, the apparatus comprising:

means for metering the quantity of air introduced into the fuel system through said conduit thereby to control the air-fuel ratio of the mixture;

an oxygen sensor for sensing the presence of oxygen in the products of combustion and for supplying a first electrical signal representative of the oxygen content therein, said oxygen content being a function of the air-fuel ratio of the mixture;

means for comparing the first electrical signal with a predetermined reference level which is a function of said stoichiometric point to produce a second electrical signal

having first and second signal elements, a first signal element being produced when the air-fuel ratio of the mixture is greater than the predetermined level and a second signal element being produced when the ratio is less than the level, the comparing means comprising a voltage comparator having one input to which is applied the first electrical signal, a second input to which is applied a reference voltage whose amplitude is a function of the oxygen content in the products of combustion at the stoichiometric point and an output from which is supplied the first and second signal elements of the second electrical signal, a first signal element being supplied by the comparator when the first electrical signal amplitude is less than the reference voltage amplitude, a second signal element being supplied when the first electrical signal amplitude exceeds the reference voltage amplitude and a transition from one signal element to the other occurring whenever the first electrical signal amplitude changes from greater to less than the reference voltage amplitude and vice versa;

control means responsive to the second electrical signal for supplying to the metering means a control signal by which the quantity of air introduced into the conduit is controlled and for producing a change in the control signal whenever the second electrical signal has a transition from one signal element to the other thereby for the metering means to change the quantity of air introduced into the conduit by an amount necessary to substantially maintain the air-fuel ratio at the predetermined value and the control means including a reversible accumulating control counter and counter control means responsive to the first and second signal elements of the second electrical signal for incrementing and decrementing the contents of the control counter, said contents being incremented when less air is to be introduced into the conduit and the mixture made richer and decremented when more air is to be introduced into the conduit and the mixture made leaner, the counter control means including first, second, and third logic gates, the first and second logic gates each having a common input, the first logic gate having a second input to which is supplied the first and second signal elements of the second electrical signal and the first logic gate having an output which is connected through an inverter to a count direction input of the reversible accumulating counter, and the second logic gate having as a second input a timing signal, elements of the timing signal being used to change the contents of the reversible accumulating counter, and an output of the second logic gate being connected to a first input of the third logic gate, the third logic gate having a second input to which is supplied a count inhibit signal from the reversible accumulating counter, the inhibit signal being generated when the reversible accumulating counter reaches either an upper or lower count limit, and the output of the third logic gate being supplied to a count input of the reversible accumulating counter; and

means for sampling the second electrical signal over a predetermined time interval starting when a signal element of the second electrical signal is produced to determine whether a transition between signal elements occurs within said time interval, the control means being responsive to the sampling means to produce a change in the control signal if no transition occurs within said time interval whereby the quantity of air introduced into the conduit is changed, but to produce no change in the control signal if a transition does occur within the predetermined time interval whereby the quantity of air introduced into the conduit remains unchanged, the sampling means including time-delay means responsive to timing signal elements for counting from zero to a preselected value and for inhibiting the counter control means from incrementing or decrementing the contents of the reversible accumulating counter until the preselected value is reached, the time-delay means including a delay-counter comprised of a pair of flip-flops, the output of one flip-flop being connected to an input of the second flip-flop and the output of the second flip-flop being connected to the common inputs of the first and second logic gates of the counter control means, and the sampling means further including delay-counter reset circuitry responsive to the signal elements of the second electrical signal for resetting the contents of the delay-counter whenever a transition occurs between first and second elements of the second electrical signal.

4,279,232

FUEL SYSTEM FOR INTERNAL COMBUSTION ENGINES

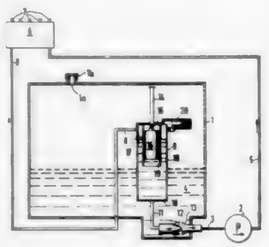
Gregor Schuster, Stuttgart; Johann Schmid, Freiberg; Erwin Schmuck, Waiblingen, and Klaus Rose, Mundelsheim, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,231

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1978, 2804551

Int. Cl.[3] **F02M** *37/20;* **B01D** *53/22*

U.S. Cl. 123—516 **16 Claims**



1. A fuel system for an internal combustion engine comprising:

a fuel tank;

a fuel pump connected to said fuel tank by an induction conduit;

a fuel metering assembly associated with said fuel pump for feeding fuel to said engine;

a return conduit extending from said fuel metering assembly to said fuel tank to discharge excess fuel thereto;

deaeration means included in said return conduit for deaerating said excess fuel, said deaeration means comprising a container positioned in said fuel tank, said container having an upper wall and air discharge means correlated therewith to permit air to flow therethrough; and

fuel discharge means to permit make-up fuel from said fuel tank and deaerated excess fuel from said container to flow into said induction conduit, said fuel discharge means including first inlet means for admitting deaerated excess fuel from said container, second inlet means for admitting make-up fuel from a lower portion of said fuel tank to replace fuel supplied to said engine, and outlet means for discharging a mixture of said deaerated excess fuel and said make-up fuel into said induction conduit.

4,279,233

DEVICE FOR TRAPPING FUEL VAPOR VAPORIZED IN FUEL FEED SYSTEM OF INTERNAL COMBUSTION ENGINE

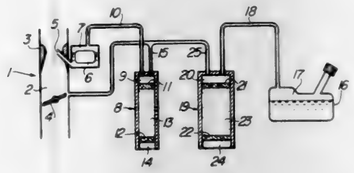
Yuichi Tobita, and Masamitsu Okumura, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,319

Claims priority, application Japan, May 22, 1978, 53-59938

Int. Cl.[3] **F02M** *25/08*

U.S. Cl. 123—519 **5 Claims**



1. In a fuel feed system of an internal combustion engine comprising a carburetor with a float chamber and a fuel tank, an evaporated fuel vapor trapping device of the type for trapping the vapors of the fuels evaporated in the float chamber of the carburetor and in the fuel tank characterized by comprising:

(a) a first canister device which has its one end communicated with the space above the fuel in said float chamber and with the high suction in the carburetor and its the other end opened at the surrounding atmosphere and which is filled with a first absorbent capable of absorbing vapors of hydrocarbons up to and including those with high carbon numbers, and

(b) a second canister device which has its one end communicated with the space above the fuel in said fuel tank and with the high suction in said carburetor and its the other end opened at the surrounding atmosphere and which is filled with a second absorbent capable of absorbing vapors of hydrocarbons having relatively low carbon numbers, the volume of said second canister device being greater than that of said first canister device.

4,279,234

EARLY FUEL EVAPORATION OF CARBURETION SYSTEM

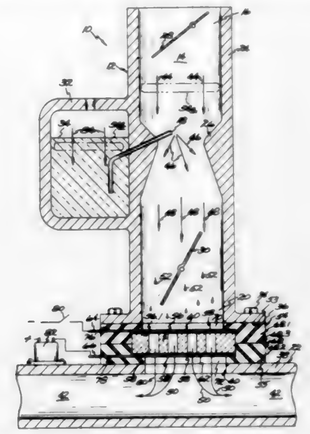
Leo Marcoux, Rehoboth, and Peter G. Berg, Norton, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 2,817, Jan. 12, 1979, abandoned, which is a division of Ser. No. 721,728, Sep. 9, 1976, Pat. No. 4,141,377. This application Jul. 10, 1980, Ser. No. 167,307

Int. Cl.[3] **F02M** *31/00*

U.S. Cl. 123—549 **3 Claims**

1. In combination, carburetor means having an air-fuel passage, an air inlet to said air-fuel passage for admitting varying volumes of air to the air-fuel passage, fuel supply means having a fuel inlet passing varying volumes of fuel through the fuel inlet to said air-fuel passage to be mixed with varying volumes of air in said air-fuel passage, an outlet from said air-fuel passage for delivering a mixture of air and fuel to an engine, and means moveable in the air-fuel passage to selectively vary the volume of the air-fuel mixture delivered to the engine; and a heater means for said fuel which is adapted to display variable heat-output in response to variation in the amount of fuel being furnished to the air-fuel passage through the fuel inlet as the volume of air-fuel mixture being delivered to the engine is varied, said heater means comprising a body of ceramic reistor material of positive temperature coefficient of resistivity adapted to display a sharp anamolous increase in electrical resistivity when heated to a selected temperature, said body having a plurality of heater passages extending through the body between opposite ends of the body and being mounted in said fuel supply means with said heater passages aligned to pass varying volumes of fuel therethrough before being furnished to said air-fuel passage, and means for directing electrical current through the resistor body material for heating the body



to transfer selected varying amounts of heat to the varying amount of fuel directed through the heater passages for facilitating mixture of the air and fuel in the air-fuel passage prior to delivery of the air-fuel mixture to the engine.

4,279,235

APPARATUS FOR FIXING THE COMPOSITION OF THE GAS CONTENT OF INTERNAL COMBUSTION ENGINE CYLINDERS

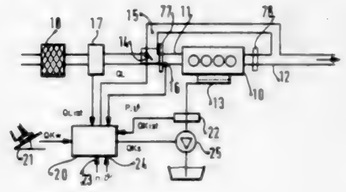
Ulrich Flaig, Markgroningen; Fridolin Piwonda, Gerlingen; Gerhard Stumpp, Suttgart, and Wolf Wessel, Oberriexingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 28, 1979, Ser. No. 70,471

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849554

Int. Cl.[3] **F02M** *25/06*

U.S. Cl. 123—569 **10 Claims**



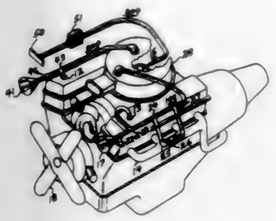
1. An apparatus for fixing the composition of the content and the degree of filling of cylinders in an internal combustion engine with autoignition, comprising a fuel metering device, means for delivering a signal to said fuel metering device dependent at least on the position of the driving pedal, a control element for mixing the aspirated fresh air in said engine with fed-back exhaust gas, measurement value transducer means for the total cylinder filling which is detectable at least indirectly and means for influencing the ratio of fresh air to fuel in accordance with the measurement value from said transducer means by varying the recirculated exhaust gas flow.

4,279,236

AUTOMOTIVE FUEL SAVING SYSTEM

Alfred C. Dallman, 2437 Bending Willow Dr., Kettering, Ohio 45440

Filed Oct. 11, 1979, Ser. No. 83,904
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—573 **8 Claims**



1. In an internal combustion engine having a sealed crankcase with an inlet orifice and an outlet orifice, an exhaust manifold, an air-fuel intake system having an intake air filter communicating with a carburetor having a throttle plate positioned on an intake manifold, the improvement in the utilization of the crankcase vapors comprising:

a. a first air flow circuit having means including an aspirator for withdrawing the said crankcase vapors from the said crankcase, means for separating and heating large, heavy, particulate matter in the said withdrawn vapors providing smaller, lighter particulate matter, means for returning the said smaller, lighter particulate matter to the said first air flow circuit, and successive means for directing the said first air flow containing the said crankcase vapor with smaller, lighter particulate matter into the said engine intake system;

b. a second air flow circuit having means for providing a flow of air divided between the said crankcase inlet orifice and the said intake air filter; and

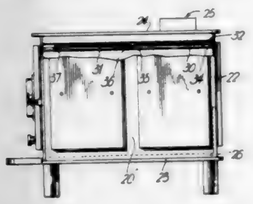
c. means for providing a third air flow circuit metering air into the said air-fuel intake system, whereby compensation is provided for the addition of the crankcase vapors into the said intake system.

4,279,237

COMBINATION STOVE AND FIREPLACE

Robert D. dePencier, P.O. Box 165, Wolfe Island, Ontario, Canada

Filed Dec. 11, 1978, Ser. No. 967,981
Claims priority, application Canada, Dec. 14, 1977, 293084
Int. Cl.³ F23L *11/00, 15/00*; F24C *1/08*
U.S. Cl. 126—77 **6 Claims**



1. A stove having opposing side walls, a rear wall, a bottom wall and a top wall, the walls being interconnected to each other to define a combustion chamber, a flue communicating with said chamber, a front door swingably effecting closure of said combustion chamber, said door embodying therein a primary air pre-heating passage of substantial length relative to the width of the door and having a discharge orifice adjacent the bottom wall of the chamber, said door further embodying therein a secondary air pre-heating passage of substantial length relative to the width of the door and having a discharge orifice into an upper portion of the chamber, said door consisting of an outer shell and an inner plate cooperating with the outer shell to define therebetween walls of said primary and said secondary passages, said outer shell including a front face and a network of webs which define the paths of the primary and secondary air pre-heating passages and support the inner plate, primary and secondary air inlet controls mounted in a front face of the door for controlling admission of air into said primary and secondary air pre-heating passages; longitudinally slidable baffle means disposed in the upper portion of said chamber for providing simple adjustment of the flow path of combustion gas through said chamber into said flue, said baffle means comprising at least two combustion gas baffles each supported by both opposing side walls of the chamber, said baffles being longitudinally slidable of the fire chamber and spaced from the top thereof to enable variation of the path of flow of the combustion gas to the flue, each baffle comprising a plate having a depending transverse lip resting on a rib on each side wall for longitudinal positioning thereof.

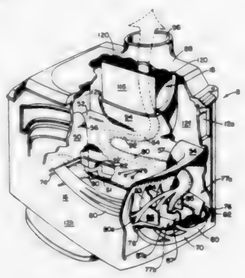
4. A convertible wood stove and fireplace having a generally rectilinear combustion chamber formed by interconnected side walls, a rear wall, a top wall, a bottom wall and a front frame, a flue communicating with said chamber, a front door swingably mounted on one side of the frame so as to effect closure of said chamber for a stove mode of usage and to open said chamber for a fireplace mode of usage, a fire screen swingably mounted on the other side of said frame so as to effect screened closure of said chamber when said door is open for a fireplace mode of usage, said door embodying a primary air pre-heating passage of substantial length relative to the width of the door and having a discharge orifice adjacent the bottom of the chamber, said door further embodying a secondary air pre-heating passage of substantial length relative to the width of the door and having a discharge orifice into the upper portion of the chamber, primary and secondary air inlet controls mounted in the front face of the door for controlling admission of the air into said air pre-heating passages, and at least two combustion gas baffles mounted at the side walls for longitudinally slidable movement in the fire chamber and spaced from the top thereof to enable variation of the path of flow of combustion gas to the flue.

4,279,238

WOOD BURNING HEATING APPARATUS

Duncan C. Syme, Chelsea, Vt., assignor to Vermont Castings, Inc., Randolph, Vt.

Filed Oct. 19, 1979, Ser. No. 86,673
Int. Cl.³ F24C *1/14*
U.S. Cl. 126—77 **20 Claims**



1. A wood burning heating apparatus for operating in either a horizontal combustion mode or an updraft combustion mode comprising

a heat conducting frame member having front, side, and back vertical wall panels, a top panel, and a bottom panel for enclosing a defined volume,

a removable fireback,

a plurality of removable wear plates for defining in combination with said fireback and said wall panels a primary air supply path, and a long circuitous internal flame path,

said primary air supply path having a first enclosed elongated path for supplying air at a first side of the apparatus to a primary combustion chamber,

said long flame path circuitously extending from a second side of said apparatus substantially between said fireback and at least one wear plate, and said frame member, to a top back portion of said apparatus,

said frame member having a flue gas exit aperture for said flame path,

a flue collar, able to engage said frame member at said exit aperture,

a moveable damper pivotable about an axis for providing in a first position an updraft combustion apparatus and in a second position a horizontal combustion apparatus,

means for moving said damper between said first and second positions, and

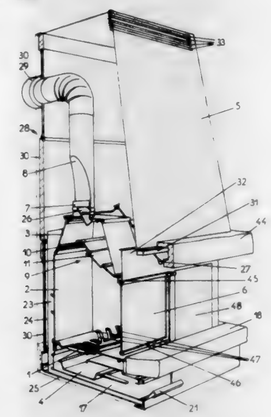
said damper extending less than the full width of said apparatus.

4,279,239

WOOD-FIRED FIREPLACE

Jean Blum, Obernai, France, assignor to Supra Fabrique d'Appareils de Chauffage et de Cuisine, S.A., Obernai, France

Filed Nov. 28, 1979, Ser. No. 98,319
Claims priority, application France, Dec. 6, 1978, 78 34987; Dec. 6, 1978, 78 34988
Int. Cl.³ F24B *1/18*
U.S. Cl. 126—120 **5 Claims**



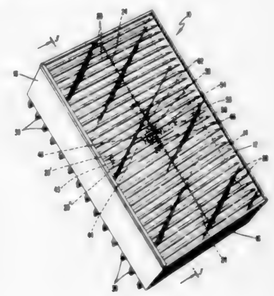
1. A prefabricated, wood-fired fireplace of high heating efficiency, characterised in that it is essentially constituted by a fire-grate (1) of refractory cast iron, advantageously of basket form equipped in its forward part with dogs (47) intended to retain the logs, a hearth plate (2) of refractory cast iron, an upper hearth element (3) likewise of refractory cast iron, equipped with a smoke outlet (7) adaptable to existing flues (8) and provided with a damper (26) operable by means of a lever (27), a deflector (9) disposed beneath the smoke outlet (7) and provided with an anti down-draught device (10) and a sweeping flap (11) disposed beneath the anti down-draught device (10), an ash pan (4) lodged in a compartment (17) of the lower part of the fireplace which at the same time forms a support for a curb (18), the pan (4) being separated from the ground by a heat protection metal sheet (25) and this lower part being provided with at least one convection air inlet (20), a hearth door (6) of refractory glass forming a spark guard, provided in its upper part with a sealing joint (45) and offset from the lower part of the hearth forming therewith a secondary combustion air admission slot (46), insulation (30) on at least one of the walls of the fireplace (28) which are applied against the building wall or walls, the insulated wall being kept spaced from the building wall or walls by the edges of the other fireplace walls, a hood (5) which can be covered in its lower part with a decorative piece (44) such as a beam or any other decorative element, the support cross-piece (31) of which on the upper hearth element (3) is offset forward from the said element forming a convection air inlet space (32) between the upper hearth element (3) and the support cross-piece (31), and likewise serves as support for the decorative piece (44), the fireplace being provided for the one part with a sliding box (34) permitting its adaptation to the height of the room and equipped in its lower part with an insulation element (38), and for the other part with a removable dust extraction filter (39) placed in the upper part of the hood (5) beneath the sliding box (34), the hood further being provided in its upper part with at least one hot air outlet grill (33) which can be pivoted about a pivot (43) of the hood (5), the fireplace.

4,279,240

SELF-REGULATING SOLAR WINDOW DEVICE

Bobby L. Artusy, P.O. Box 1161, Newark, Del. 19711

Filed Dec. 4, 1979, Ser. No. 100,101
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—419 **28 Claims**



1. A window device for controlling the transmission of solar radiation therethrough, comprising:

(a) a first diffuser means forming the exterior of the device for diffusing incoming solar radiation;

(b) a second diffuser means spaced interiorly from said first diffuser means for further diffusing incoming solar radiation;

(c) a plurality of substantially planar vanes situated between said first and second diffuser means, with each of said vanes having reflective surfaces and being pivotable about an axis passing through its center of gravity, said vanes being interconnected to move substantially in unison;

(d) means for automatically controlling the inclination of said vanes about their respective axes in response to the amount of solar radiation transmitted past said vanes, said inclination controlling means comprising first sensor means situated between said first and second diffuser means so as to be shaded by at least one of said vanes in direct proportion to the inclination of said vane for sensing the amount of solar radiation transmitted past said vanes, and first actuator means operatively coupled to the output of said first sensor means and to said vanes for pivoting said vanes in response to the output of said first sensor means;

(e) a plurality of substantially planar insulating panels spaced interiorly from said second diffuser means, with each of said panels being pivotable about an axis passing through its center of gravity and being interconnected to move substantially in unison; and

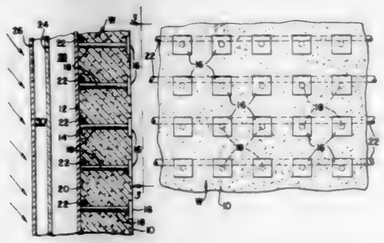
(f) means for automatically controlling the inclination of said panels about their respective axes in response to the amount of solar radiation transmitted past said vanes, said means for controlling the inclination of said panels comprising second sensor means situated between said first and second diffuser means so as to be shaded by at least one of said vanes in direct proportion to the inclination of said vanes for sensing the amount of solar radiation transmitted past said vanes, and second actuator means operatively coupled to the output of said second sensor means and to said panels for pivoting said panels in response to the output of said second sensor means, whereby the amount of solar radiation transmitted through the window is controlled automatically.

4,279,241

SOLAR HEAT ABSORBING AND RADIATING WALL

John W. Himes, P.O. Box 1617, Taos, N. Mex. 87571

Filed Nov. 29, 1979, Ser. No. 98,427
Int. Cl.³ F24J *3/02*; **F28F** *7/00*
U.S. Cl. 126—431 **5 Claims**



1. Building construction having at least one wall of concrete or like material with an inner surface and an outer surface comprising in combination therewith heat energy absorbing means in the form of at least one continuous relatively large metal plate disposed outwardly of said outer surface for absorbing solar heat energy; heat radiating means in the form of an array of relatively smaller metal plates disposed inwardly of said inner surface; and heat transfer means in the form of a plurality of solid metal rods, bars, or like members without openings therein extending through said wall; characterized in that said heat transfer means is in contact with both said heat energy absorbing means and said heat radiating means whereby solar heat energy absorbed by said heat absorbing means may be transferred therefrom by said heat transfer means to said heat radiating means to heat the interior of said building construction, and said wall is in actual or substantial abutment with both said heat energy absorbing means and said heat radiating means.

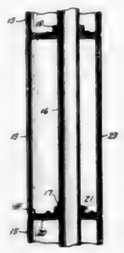
4,279,242

SOLAR COLLECTOR ASSEMBLY

Hans-Ulrich Bogatzki, Ferdinand-Hodler-Str. 24, Zürich, Switzerland

Continuation-in-part of Ser. No. 948,246, Oct. 3, 1978, Pat. No. 4,222,372. This application May 2, 1980, Ser. No. 146,023
Claims priority, application Switzerland, Oct. 14, 1977, 012617/77
Int. Cl.³ F24J *3/02*; **F28F** *1/00*; **B65D** *21/00*
U.S. Cl. 126—443 **4 Claims**

1. A solar energy collector assembly comprising a plurality of individual collector cells mounted in series along a tube which carries a circulating heat transfer medium, each of said cells having a hollow cylindrical housing made from a material which is transparent to solar radiation capable of being absorbed by said heat transfer medium, said housing comprising a shell having a cylindrical wall and end walls respectively having first and second apertures both centered on a focal axis offset from the axis of said cylindrical walls, said end walls each carrying an annular flange extending axially in the same direction and surrounding the aperture of the end wall on which the flange is carried, said second aperture being of a size to admit the flange of the first aperture of another cell housing as well as a gasket fitting between the aperture-surrounding





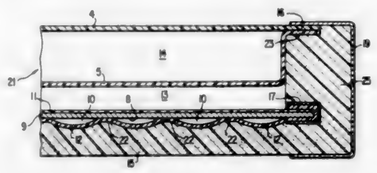
flanges, said assembly including such a gasket between each pair of end-to-end adjacent cell housings, said cylindrical wall of each housing shell supporting a concave reflector of the shape of a cylinder parallel to said tube, disposed around said tube on the side of the cell which is in the direction of the offset of said focal axis with respect to said cylindrical wall axis and is open to the other side of the cell.

4,279,243

SOLAR COLLECTOR PANEL

David A. Deakin, 3163 Norfolk La., Falls Church, Va. 22042

Continuation-in-part of Ser. No. 851,372, Nov. 14, 1977, abandoned. This application Apr. 2, 1979, Ser. No. 26,184
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—450 **9 Claims**



1. A solar heating panel comprising
(a) a base constructed from a thermal insulating material,
(b) a solar radiation absorption plate mounted above said base,
(c) a hermetically sealed envelope formed from transparent polytetrafluoroethylene plastic film providing heat insulation for said solar radiation absorption plate and mounted thereabove,
(1) said envelope being filled with a stable, vapor phase halocarbon insulating gas which is chemically compatible with the plastic material of said envelope,
(2) said vapor phase insulating gas having a low thermal conductivity relative to air,
(d) said absorption plate having fluid conduits disposed immediately beneath said absorption plate,

(e) and means to deliver a heat transfer fluid through said fluid conduits.

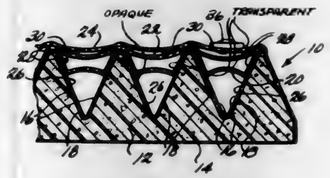
9. A sealed envelope for use in a solar collector panel, said envelope having
(a) top and bottom panels made from a plastic material transparent to visible radiation with said panels being hermetically sealed as to form an insulating envelope means,
(b) and a stable, vapor phase halocarbon insulating gas which is chemically compatible with the plastic material of said envelope sealed within said envelope,
(1) said vapor phase insulating gas having a low thermal conductivity relative to air,
(c) said envelope means adapted to be placed so as to inhibit conduction and convection with respect to a heat absorbing surface in a solar collector panel.

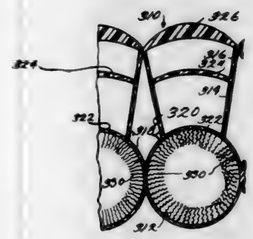
4,279,244

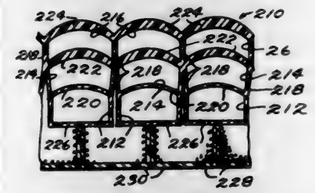
RADIANT ENERGY HEAT EXCHANGER SYSTEM

Roy E. McAlister, 5285 Red Rock North, Phoenix, Ariz. 85018

Continuation of Ser. No. 860,779, Dec. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 696,366, Jun. 15, 1976, abandoned. This application Nov. 30, 1979, Ser. No. 98,814
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—450 **66 Claims**







1. A radiant energy heat exchanger comprising:
a panel structure having sides of substantial area bounded by a thin periphery including opposed peripheral end portions, one of said sides being operable to face in a direction to receive radiant energy with the other side facing in opposed relation to said operable side, said panel structure including
a base defining the other side of said panel structure and having a multiplicity of transversely spaced barrier walls extending longitudinally between the end portions of said panel structure, each of said barrier walls including outer portions disposed outwardly in a direction toward the operable side of said panel structure and extending longitudinally between the end portions thereof, adjacent pairs of barrier walls defining in said base a multiplicity of side-by-side channels extending longitudinally between the end portions of said panel structure,
an inner sheet form wall section sealingly connected with each pair of adjacent barrier walls at positions along the outer portions thereof and extending transversely across the associated pair of adjacent barrier walls and longitudinally between the end portions of said panel structure so as to enclose the associated channel and thereby provide a plurality of inner fluid containing channel spaces extending longitudinally between the end portions of said panel structure,
an outer sheet form wall section sealingly connected with each pair of adjacent barrier walls at positions along the outer portions thereof and extending transversely across the associated pair of adjacent barrier walls outwardly of the associated inner wall section and longitudinally between the end portions of said panel structure, the exterior surfaces of said outer wall sections defining coextensive areas of the operable side of said panel structure,
means including said outer and inner wall sections defining a multiplicity of outer fluid containing spaces extending longitudinally between the end portions of said panel structure in outwardly disposed relation with respect to said multiplicity of inner fluid containing channel spaces.
said sheet form wall sections being constructed to facilitate the passage of radiant energy inwardly therethrough,
said base being constructed to retard the passage of radiant energy therethrough,
means for directing a flow of fluid through said inner fluid containing channel spaces from a position adjacent one end portion of said panel structure to a position adjacent the other end portion of said panel structure so that during the flow of said fluid radiant energy will be received thereby only after such radiant energy passes inwardly through said sheet form wall sections and said outer fluid containing spaces, and
selectively operable means for admitting a cooling fluid into the portions of said outer fluid containing spaces defined by said inner wall sections at a position adjacent one end portion of said panel structure and for allowing said cooling fluid to flow through said portions of said outer fluid containing spaces and outwardly thereof at a position adjacent the other end portion of said panel structure whereby overheating of said panel structure can be prevented in the event that the flow of fluid through said inner fluid containing channel spaces is stopped during a period in which said panel structure is receiving radiant energy of an intensity sufficient to effect such overheating.

4,279,245
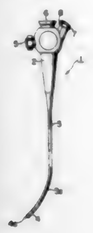
FLEXIBLE TUBE

Takeji Takagi, Machida, and Kiyokazu Hosaka, Fuchu, both of Japan, assignors to Olympus Optical Co., Ltd., Japan

Filed Sep. 10, 1979, Ser. No. 73,712
Claims priority, application Japan, Dec. 19, 1978, 53/158766
Int. Cl.² A61B *1/00*
U.S. Cl. 128—004 **6 Claims**

1. A flexible endoscope tube comprising a tubular body of a crystalline polymer material having a porous microstructure

which include a number of micro-nodes which are coupled together by fibrils, and a synthetic resin material having water



or gas tightness and stretchability which is filled into the pores of the porous microstructure.

4,279,246

DEVICE FOR PREVENTING CLOUDING OF AN OBSERVING WINDOW

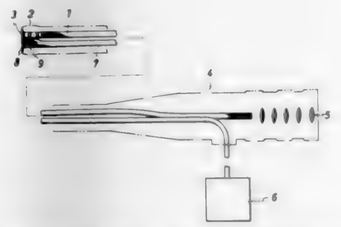
Toshio Chikama, Tokyo, Japan, assignor to Machida Endoscope Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1979, Ser. No. 44,596

Claims priority, application Japan, Jun. 19, 1978, 53-082938[U]

Int. Cl.³ A61B *1/06*

U.S. Cl. 128—6 **8 Claims**



1. In an endoscope having a forward examining end including an observing window, an image transmitting optic bundle positioned to transmit an image at said forward end, an illuminating window, a light-transmitting optic bundle, and a light source optically aligned with said light-transmitting optic bundle, a portion of the light emitted from said source being directed through said illuminating window into the field of view of said observing window by way of said light transmitting optical bundle, converter means for converting light into heat, another portion of the light emitted from said source being directed into said converter means by way of said light transmitting optical bundle, said converter means being attached to said forward examining end in the region of said observing window such that the heat generated acts to warm said observing window and prevent clouding.

4,279,247

ENDOSCOPE HAVING A PLURALITY OF OPTICAL SYSTEMS EACH PROVIDED WITH AN IDENTIFICATION MARK ELEMENT

Kunio Kinoshita, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,333

Claims priority, application Japan, Jul. 27, 1978, 53/103250

Int. Cl.³ A61B *1/06*

U.S. Cl. 128—6 **9 Claims**

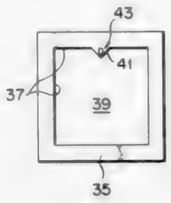
1. An endoscope having observation optical systems comprising:

an elongated sheath having two ends;

a distal end section connected to one of said ends of the sheath;

an operation section having two ends, one end being connected to the other end of the sheath;

two elongated observation optical systems extending through the sheath and each having two ends, one end being optically connected to the exterior of the endoscope at the distal end section, each of said observation optical systems having a field of view, one of said two observation optical systems being a front viewing observation optical system, and said other observation optical system being a lateral viewing optical system;



an ocular section disposed at the other end of the operation section and having an optical axis;

a rotatable observation optical system selecting section disposed between the operation section and the ocular section for selectively aligning the other end of the respective observation optical system with the optical axis of the ocular section; and

identification mark elements each disposed in the field of view of the corresponding observation optical system and having configurations so different from each other as to identify the corresponding observation optical system when viewed through the ocular section.

4,279,248

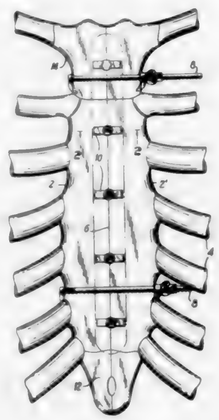
STERNUM CLOSURE DEVICE AND PROCEDURE FOR USING SAME

Shlomo Gabbay, 2433 Tiemann Ave., Bronx, N.Y. 10469

Filed Jul. 20, 1979, Ser. No. 59,364

Int. Cl.³ A61B *17/00*

U.S. Cl. 128—92 EA **11 Claims**



1. Sternum closure device adapted to tightly hold together the split halves of a sternum, comprising a generally longitudinally extending support of a length substantially equal to the length of the sternum to be closed, a plurality of longitudinally spaced, threaded rods extending downwardly from said support, clamping means having sharp-edged upwardly extending arms supported by the lower ends of said rods and adapted to be positioned beneath the sternum, a plurality of reverse clamps having sharp-edged downwardly extending arms, each of said clamps having an enlarged central opening for mounting said clamps with free vertical movement on the respective rods above the sternum, and a threaded nut on each rod between said clamps and said support, whereby downward movement of each nut forces its corresponding clamp toward said clamping means with the sternum in between, and urges the corresponding sharp edges of the clamping means and said clamps into the sternum to hold the sternum halves together.

4,279,249

NEW PROSTHESIS PARTS, THEIR PREPARATION AND THEIR APPLICATION

Michel Vert, Deville-les-Rouen; Francois Chabot, Rouen; Jean Leray, Sevres, and Pascal Christel, Paris, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR) and Institut National de la Sante et de la Recherche Medicale, both of Neuilly-sur-Seine, France

Filed Oct. 17, 1979, Ser. No. 85,511

Claims priority, application France, Oct. 20, 1978, 78 29878

Int. Cl.³ A61F *5/04*

U.S. Cl. 128—92 D **21 Claims**

1. An osteosynthesis part, in the shape of a three-dimensional solid, and made of a bio-compatible, absorbable polymer, comprises composite parts constituted by a matrix of polylactic acid or a copolymer thereof; said copolymer comprising at least 90% of units derived from lactic acid, said matrix containing a reinforcement element in the shape of fibers, threads, films, fabrics, or strands embedded therein and present in an amount of 5 to 50% by weight based on the total weight of the osteosynthesis part, said element being made of polyglycolic acid or a copolymer thereof, and containing optionally a charge capable of stimulating the absorption of the polymer for the benefit of a newly formed tissue.

4,279,250

DRUG NEBULIZING SYSTEM FOR MEDICAL VENTILATORS OF THE VOLUME-LIMITED TYPE

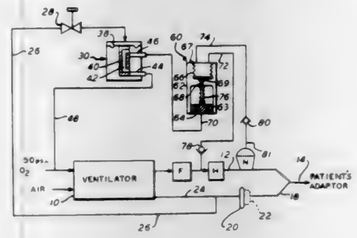
James D. Valenta, Madison, and Kenneth T. Heruth, Sun Prairie, both of Wis., assignors to Airco, Inc., Montvale, N.J.

Division of Ser. No. 850,326, Nov. 10, 1977, Pat. No. 4,186,737.

This application Sep. 14, 1979, Ser. No. 75,453

Int. Cl.³ A61M *16/00*

U.S. Cl. 128—200.14 **3 Claims**



1. A method of operating a medical ventilator of the volume-limited type having a breathing circuit connecting the output of the ventilator to a patient for administering gas to the patient and having means to introduce medication into the breathing gas delivered to the patient without materially affecting the volume and oxygen concentration of the gas from the ventilator which comprises the steps of:

(a) withdrawing a predetermined discrete volume of gas from the main volume of gas being delivered by the ventilator to the patient in the breathing circuit,

(b) pressurizing the withdrawn discrete volume of gas,

(c) nebulizing the medication by the pressurized discrete volume of gas to form a mixture of nebulized medication in the discrete volume of gas, and

(d) returning the discrete volume of gas containing the nebulized medication to the breathing circuit for introduction to the patient with the main volume of gas from the ventilator.

4,279,251

TUBE FOR ENTERAL TREATMENT

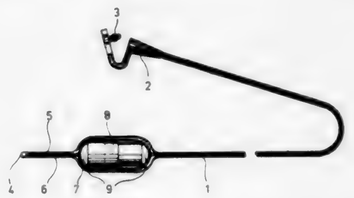
Heinz Rüsch, Waiblingen, Fed. Rep. of Germany, assignor to Willy Rusch GmbH & Co. KG, Kernen i.R., Fed. Rep. of Germany

Filed Jun. 5, 1979, Ser. No. 45,803

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1978, 2824893

Int. Cl.³ A61M *25/00*

U.S. Cl. 128—348 **9 Claims**



1. A device for introducing fluid into or aspiring fluid from the intestines of a person comprising:

elongated means for transmitting the fluid between a location at or near an opening in the head and the intestines, said elongated means including:

(a) an elongated tube adapted to be passed through an opening that passes from the head to the intestines, said tube having a forward introduction end for entering the intestines and a rear end located near the opening in the head when the forward introduction end is inside the intestines, said fluid passing through said tube between the rear end and the forward introduction end,

(b) capsule means for adding weight at or near said forward introduction end to promote movement of said forward introduction end towards the intestines when said tube is inserted into a person,

the improvement comprising:

said capsule means comprising means that is not soluble in the stomach, but is soluble in the intestines, so that the capsule means largely dissolves when, but not before, said capsule means reaches the intestines.

4,279,252

X-RAY SCALING CATHETER

Michael T. Martin, 607 N. Chippewa Apt. #151, Anaheim, Calif. 92801

Filed Aug. 24, 1979, Ser. No. 69,312

Int. Cl.³ A61M *25/00*

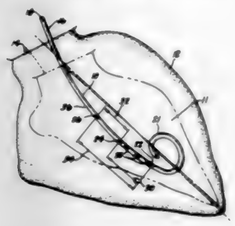
U.S. Cl. 128—349 R **8 Claims**

1. A catheter adapted for determining the magnification factor of an image produced by radiography including:

a tubular portion sized and adapted for insertion through a blood conduit in a living body; and

at least two indicia positioned along said tubular portion a predetermined distance apart, said indicia being constructed from material which is relatively radio-opaque with respect to the material from which said tubular portion is constructed so said at least two indicia can be observed in the image no matter what the relative radial orientation of said tubular portion and said at least two

indicia with respect to the radiation of the radiographic procedure wherein said indicia are rings of radio-opaque

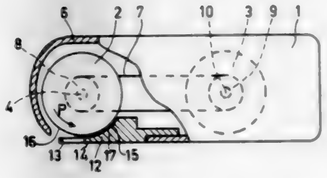


material, when said tubular portion is in a linear orientation, said rings being parallel to each other.

4,279,253
EPILATION APPARATUS

Freddy Haes; Guillaume M. P. G. Hermes, and Cornelis M. Reijnhout, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 19, 1979, Ser. No. 31,572
Claims priority, application Netherlands, May 16, 1978, 7805230
Int. Cl.³ A61B *17/00*
U.S. Cl. 128—355 **5 Claims**



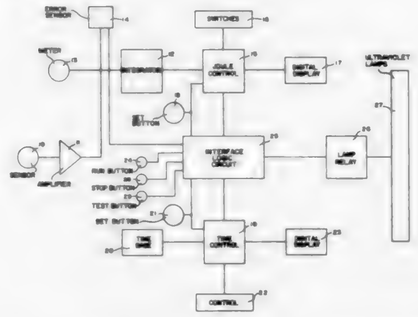
1. An epilation apparatus comprising a single rotatable member having a hair-gripping wall; and a stationary complementary member having a wall confronting and spaced from the hair-gripping wall of the rotatable member to provide a hair gap therebetween, the rotation of the rotatable member relative to the complementary member being in a direction into the leading opening of the hair gap; said complementary member having a surface for sliding contact with the skin, the leading edge of said complementary member surface being knife-shaped and having a plurality of parallel fingers extending forwardly therefrom for catching hair therebetween and directing the same into said hair gap.

4,279,254
ULTRAVIOLET LIGHT CONTROL

Armando Boschetti, Bryan, Ohio, and David J. Snoek, Grand Rapids, Mich., assignors to Paul B. Elder Company, Bryan, Ohio

Filed Oct. 30, 1978, Ser. No. 956,202
Int. Cl.³ A61N *5/06*
U.S. Cl. 128—395 **14 Claims**

1. Apparatus for rendering more safe the exposure of the skin of a subject to ultraviolet light radiation, comprising means for monitoring the ultraviolet light radiation energy per unit area impinging upon the subject, and providing notification when a predetermined amount of energy per unit area has impinged upon the subject, said monitoring means comprising:
photoelectric means providing an analog electrical signal proportional to the intensity of the ultraviolet light which impinges thereon,
solid state integrated circuit signal converting means for converting the analog electrical signal from said photoelectric means to a digital electrical signal having a frequency proportional to the intensity of the analog electrical signal,
solid state integrated circuit counting means receiving said digital signal and counting the pulses of said signal to provide a measure of the total amount of ultraviolet energy received per unit area during a measured period of time, and
means operatively connected to said circuit counting means adapted to be set to the desired amount of radiation applied per unit area of the subject and to provide notification when the set amount of total energy per unit area has been attained,



wherein said apparatus includes one or more ultraviolet lamps and means for electrically energizing said lamps, wherein said photoelectric means is adapted to be mounted on the body of said subject, and which includes a control switch having associated digital display for setting the total amount of ultraviolet light radiation per unit area desired to be applied to the subject, said control switch being operatively connected to said counting means and being so operatively connected that counted pulses of said counting means gradually reduces the reading on the display to indicate the total amount of energy per unit area still remaining to be applied, means for generating an electrical signal when the reading on said display reaches zero, and means actuated by said latter electrical signal adapted to turn off said ultraviolet lamps.

4,279,255
LOCALIZED BODY HEAT APPLICATOR DEVICE

John C. Hoffman, Severna Park, Md., assignor to John F. Taylor, Severna Park, Md., a part interest

Filed Feb. 26, 1980, Ser. No. 124,940
Int. Cl.³ A61F *7/00*; H05B *3/06*
U.S. Cl. 128—402 **12 Claims**

1. A portable therapeutic heating device, comprising
means for applying heat to a localized portion of the body so that the skin temperature of that body reaches about 102°–108° F., said means comprising a flexible heating unit having a plurality of distinct sets of electric resistance heating elements associated therewith;
a battery pack adapted to receive at least one battery;
electrical interconnection means for operatively electrically interconnecting a battery received in said battery pack to said heat applying means electric resistance heating elements sets, said electrical interconnection means being dimensioned so that said heat applying means may be positioned on body parts remote from the center of gravity of the body while the battery pack is mounted approximately at the body center of gravity;
selector switch means operatively associated with said electrical connection means and attached to said battery pack for selecting which of said sets of electric resistance heating elements will be energized by a battery received by said battery pack to thereby vary the amount of heat applied by said heating means to a body part;
means for providing for ready attachment of said battery

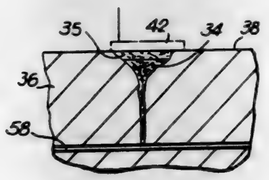


pack to the approximate center of gravity of one's body; and
means for providing for ready attachment of said heat applying means to a body part in therapeutic heat application association therewith so that the skin temperature of the body part can be elevated to about 102°–108° F. by said heating means.

4,279,256
NERVE STIMULATION METHOD

Louis Bucalo, 155 Roberts St., Holbrook, N.Y. 11741

Continuation of Ser. No. 756,970, Jan. 5, 1977, abandoned, which is a division of Ser. No. 513,295, Oct. 9, 1974, Pat. No. 4,005,699. This application Apr. 20, 1979, Ser. No. 31,982
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—419 R **2 Claims**

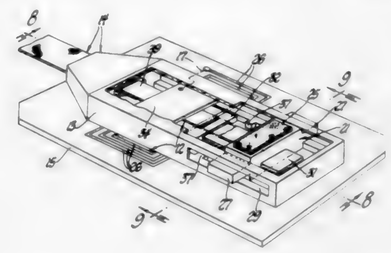


1. In a method for stimulating a nerve, the steps of injecting into body tissue in a suitable carrier a plurality of electrically conductive particles extending from a nerve which is to be stimulated to the region of the outer skin to form a direct electrically conductive path from a point within the skin to a nerve to be stimulated, and thereafter when it is desired to stimulate the nerve situating an electrode at the skin in line with the electrically conductive particles, and transmitting electrical energy through said electrode and said electrically conductive particles to said nerve so as to stimulate the latter.

4,279,257
ELECTROMAGNETIC FIELD RESPONDER FOR RESPIRATION MONITORING

Peter A. Hochstein, 14020 Fifteen Mile Rd., Sterling Heights, Mich. 48077

Continuation-in-part of Ser. No. 783,168, Mar. 31, 1977, abandoned, which is a continuation-in-part of Ser. No. 598,934, Jul. 25, 1975, abandoned. This application Sep. 27, 1979, Ser. No. 79,457
Int. Cl.³ A61B *5/08*
U.S. Cl. 128—722 **7 Claims**

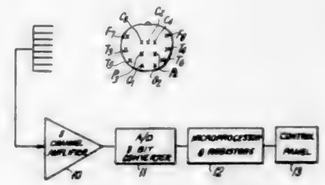


1. An assembly for responding to an electromagnetic field comprising; passive circuit means having a resonant frequency variable in a predetermined frequency range of an electromagnetic field and being responsive to the electromagnetic field when said resonant frequency matches the frequency of the electromagnetic field, force transfer means for transferring forces from an object to said passive circuit means to vary said resonant frequency in said range so that said passive circuit means responds to the frequency of the electromagnetic field, said force transfer means including a body, said passive circuit means including at least one movable element movably supported by said body to vary said resonant frequency, said force transfer means further including force reaction means connected to said body and to said movable element for moving said movable element in a first direction relative to said body in response to the forces from the object, said force reaction means including slip clutch means for allowing lost motion between said force reaction means and said movable element after a predetermined amount of movement of said movable element.

4,279,258
RAPID AUTOMATIC ELECTROENCEPHALOGRAPHIC EVALUATION

E. Roy John, 930 Greacen La., Mamaroneck, N.Y. 10546

Filed Mar. 26, 1980, Ser. No. 134,309
Int. Cl.³ A61B *5/04*
U.S. Cl. 128—731 **11 Claims**



4. A method in electroencephalography for testing subjects to determine organic brain dysfunction by diffuse or local shifts in the EEG spectrum, the method comprising:
removably securing a plurality of electrodes to the head of said subject under test, providing multiple channels of

information with each channel being from a different head region;

amplifying the on-going signals representing brain waves from each of said head regions while the subject sits relaxed with a minimum of external stimuli;

converting the said amplifier signals into digital form;

dividing the digital form brain wave signals into a plurality of frequency bands; computing the power in each of said frequency bands to provide frequency band relative (%) power; automatically comparing said relative power in each frequency band with a set of normative relative power data derived from a normal population and related in age to the subject;

computing the Z-transform of each subject value relative to the means and standard deviations of the normative data; and

displaying the results for each subject of such computation for each of said frequency bands according to the head locations tested.

4,279,259

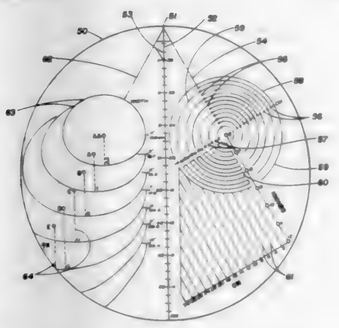
MAMMOMETER

Denis C. Lee, Ann Arbor, and Arthur H. Rathjen, Midland, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 702,657, Jul. 6, 1976, abandoned. This application Jul. 28, 1977, Ser. No. 819,735

Int. Cl.³ A61B *5/10*

U.S. Cl. 128—774 **5 Claims**



1. An article of manufacture useful for making measurements of and relative to mammary glands, said article comprising a planar substrate of a transparent material, said planar substrate containing

(A) means for measuring distances along a line running from the sternal notch to the umbilicus;

(B) means for measuring the distance from the sternal notch and/or the umbilicus to the nipple;

(C) means for measuring the size of mammary glands relative to standard brassiere cup sizes;

(D) means for measuring the perpendicular distance from the nipple to the lowest point of a mammary gland, relative to mammary glands of typical sizes;

(E) means for measuring distances concentrically from the nipple, which means is also useful for measuring and selecting the appropriate size mammary prosthesis; and

(F) means for locating and assisting in placing guideline marks preparatory to surgery on a mammary gland.

4,279,260

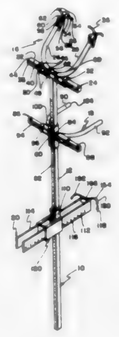
OCCLUSAL INSTRUMENT

Lee K. Stump, 2314 K St., Belleville, Kans. 66935

Filed Sep. 28, 1979, Ser. No. 79,791

Int. Cl.³ A61B *5/10*

U.S. Cl. 128—774 **8 Claims**



1. In an occlusal instrument, an upstanding elongated standard adapted to be positioned in spaced relation at the front of and in the medial plane of a patient's head, said standard carrying orienting means adapted to engage spaced regions of the patient's face, said orienting means comprising uppermost, intermediate and lowermost measuring means mounted on the standard for movement relative to each other in the direction of the longitudinal extent of the standard, a first indicia means for enabling reading of the relative positions of the uppermost, intermediate and lowermost measuring means along the extent of the standard whereby such relative positions can be replicated, each of said measuring means extending rearwardly from the standard and terminating in patient contacting means, at least one of said measuring means being provided with means for varying the rearward extent and the spacing of its contacting means from the standard, a second indicia means for enabling replication of the extent of said one measuring means, and at least one of the other measuring means including a pair of horizontally spaced and rearwardly extending arms with the face contacting means of such measuring means including symmetrical parts disposed at the rearmost extremities of the arms, means carried by and movable with said one of the other measuring means for enabling horizontal and lateral movement of the arms relative to the standard, whereby the horizontal and lateral spacing of the said symmetrical parts can be varied, a third indicia means for enabling replication of the horizontal and lateral positions of the arms relative to the standard, said one measuring means comprising a slide for vertical movement on the standard, with said slide including a resilient element resiliently bearing against the standard in an arrangement such that friction therebetween opposes such vertical movement thereby releasably retaining the slide in a selected vertical position, said one measuring means including a pair of elongated and rearwardly extending parallel rails that are joined at their rearmost extremities by the patient contacting means of such means, said rails being disposed on opposite sides of the standard, with said slide having a pair of openings therethrough on opposite sides of the standard that slidably and guidingly receive the rails therethrough.

4,279,261

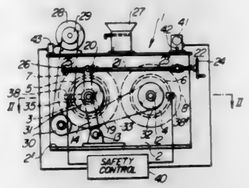
AUTOMATIC SAFETY DEVICE FOR HULLING MACHINE

Toshihiko Satake, Higashihiroshima, Japan, assignor to Satake Engineering Co., Ltd., Tokyo, Japan

Filed Oct. 12, 1979, Ser. No. 84,425

Int. Cl.³ B02B *3/04*

U.S. Cl. 130—5 B **17 Claims**



1. The combination comprising:

a hulling machine comprising a housing, a pair of hulling rolls arranged parallel to each other in said housing and each having a metallic annular member and a resilient annular member fitted over said metallic member, a fixed rotary main shaft supporting one of said pair of hulling rolls and mounted in said housing for rotation about a fixed center axis, a movable rotary ancillary shaft supporting the other hulling roll and rotatably supported by an arm pivotally supported by a support shaft mounted in the housing in spaced apart parallel relation to a fixed center axis of said fixed rotary main shaft so that the movable rotary ancillary shaft can be moved toward and away from the fixed rotary main shaft while being maintained in parallel thereto, means for driving said fixed rotary main shaft and said movable rotary ancillary shaft, and means for forcing the movable rotary ancillary shaft to move toward the fixed rotary main shaft; and

an automatic safety device comprising detecting means for detecting wear of at least one of the resilient annular members fitted over said metallic members of said hulling rolls progressing to such a degree that a predetermined wear limit radius has been reached, and a safety control electric circuit connected to said detecting means.

4,279,262

HAIR TREATING AGENT OF THE PRE-SHAMPOO TYPE

Shoji Horin, Sakatashi; Shizuo Hayashi, Sugitomachi, and Takeo Okumura, Sakurashi, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 511,588, Oct. 3, 1974, abandoned. This application Jul. 26, 1976, Ser. No. 708,357

Int. Cl.³ A45D *19/00*; A61K *7/06*

U.S. Cl. 132—7 **7 Claims**

1. A method of treating human hair which comprises applying to dry human hair an effective amount of the oil-in-water emulsion consisting essentially of

from 35 to 75 percent by weight of water, as the continuous phase,

from 5 to 40 percent by weight of liquid lanolin, as the discontinuous phase, said liquid lanolin being liquid at about 20° C.,

from one to 10 percent by weight of a cosmetic emulsifier selected from the group consisting of anionic organic surfactants, nonionic organic surfactants and mixtures thereof, effective to maintain in a stable condition the oil-in-water emulsion of said liquid lanolin in the water,

so as to coat the hair substantially uniformly with said emulsion whereby said liquid lanolin penetrates into the hair, and

then shampooing and drying the hair.

4,279,263

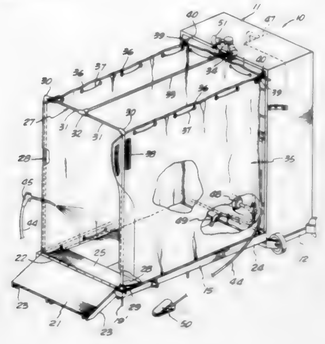
CLEANING APPARATUS

William D. Pulliam, 15710 Rosalita Dr., La Mirada, Calif. 90638

Filed Dec. 5, 1979, Ser. No. 100,369

Int. Cl.³ B08B *3/02*; B60S *3/04*

U.S. Cl. 134—111 **8 Claims**



1. Apparatus for washing shopping carts or the like, comprising in combination:

a housing including top wall, bottom wall, back wall and two side walls forming an upstanding enclosure with an open side;

a door pivotally interconnected to the housing bottom wall for swinging movement from a first position enclosing the housing open side to a second position resting on a substantially horizontal ground plane;

pedestal means on the outwardly directed surface of the door for restingly supporting the outermost end of said door higher with respect to the ground plane than those parts of said door immediately adjacent the housing;

upstanding side walls integrally related to the peripheral edges of said door forming an upwardly facing panlike means when said door rests on the ground plane in which panlike means shopping carts are received during washing;

tank means within said housing containing a supply of a cleaning liquid;

first pump means in said housing interconnected with said tank means for pressurizing the cleaning liquid therefrom;

filter and storage means located in said housing;

frame means removably mounted on said panlike means;

flexible sheetlike means mounted onto said frame means forming side walls and a back wall substantially covering said housing opening;

flexible hose and nozzle means interconnected with said first pump means for providing a pressurized supply of cleaning liquid into the panlike means for cleaning the shopping carts; and

a second pumping means in communication with the panlike means and filter and storage means for moving cleaning liquid from said panlike means to said filter and storage means.

4,279,264

CANOPY SUPPORT FOR BEDS AND METHOD

Kenneth H. Gutner, 3285 Dato, Highland Park, Ill. 60035

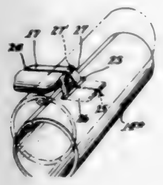
Filed Jan. 28, 1980, Ser. No. 115,947

Int. Cl.³ A47C *29/00*

U.S. Cl. 135—5.1 **5 Claims**

1. A lightweight rugged canopy frame for a bed comprising a pair of side members and a plurality of transverse members all constructed of tubular metal, said side members each including a pair of end connected sections, each pair of sections when

connected forming an arch midway of the length thereof, said transverse members including a pair of end members, said side and end members being equipped with openings adjacent the ends thereof for connection to the bedposts, said transverse members also including a plurality of intermediate members each formed into a tube with a butt seam, said intermediate members being crimped at the ends thereof to provide a gener-



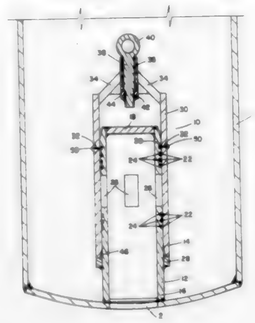
ally L-shaped flange at each end, said side members being equipped with elongated slots in transversely aligned, longitudinally spaced apart positions to receive said flanges, said frame being assembled by inserting the outer leg of said L-shape into an associated slot and thereafter rotating the said side member section to insert the inner leg of said L-shape in said slot whereby said outer legs cooperate to lock said frame in arch providing attitude.

4,279,265
UMBRELLA
An-Teh Tseng, 188, Tungmen St., Hsinchu City, Taiwan
Filed Apr. 7, 1980, Ser. No. 138,155
Claims priority, application Taiwan,
Int. Cl.³ A45B *25/28*
U.S. Cl. 135—48 **6 Claims**



1. An umbrella comprises:
a handle having a generally compressed spring therein;
means mounted on said handle for controlling said spring;
a hollow stick member connected with said handle and having a movable cap provided at the top end thereof, and a supporting device mounted slidably on a water collecting device provided generally within the upper portion thereof;
movable connecting means for connecting said spring with said water collecting device, said water collecting device and said supporting device to protrude out of the top end of said stick member by extension of said spring when said spring is released by said means.

4,279,266
SLEEVE VALVE
Lloyd C. Knox, and Robert B. Nickles, Jr., both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Apr. 23, 1980, Ser. No. 142,926
Int. Cl.³ F16K *13/04*
U.S. Cl. 137—68 R **5 Claims**

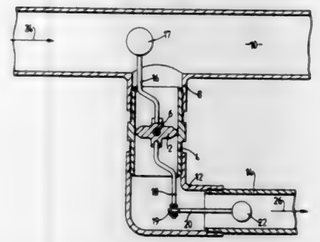


1. In combination, a tank having an opening therein and a sleeve valve means installed within said tank, said sleeve valve means comprising:
central body means installed within said tank surrounding the opening therein, said central body means including:
an elongated cylindrical body member having one end secured to said tank surrounding the opening therein, having the other end thereof sealed by circular plug means, having annular recess means in the outer surface thereof, having a plurality of apertures therein, having first annular seal means located on one side of the plurality of apertures, and having second annular seal means located on the other side of the plurality of apertures;
sleeve means installed over said central body means sealingly engaging the outer surface thereof, said sleeve means including:
elongated cylindrical body means having a plurality of apertures therein, having strut means having one end thereof secured to the elongated cylindrical body means, having central sleeve means secured to the other end of the strut means, and having attachment means secured to the central sleeve means; and
shear type fastening means extending through the apertures in said sleeve means having a portion thereof engaging the annular recess means in said central body member thereby securing said sleeve means to said central body member.

4,279,267
FLUID FLOW PROPORTIONING DEVICE
Dan Bron, 36 Palmach St., Haifa, Israel
Filed Oct. 26, 1979, Ser. No. 88,517
Claims priority, application Israel, Nov. 12, 1978, 55925
Int. Cl.³ G05D *11/03*
U.S. Cl. 137—100 **4 Claims**

1. Proportioning device for connection to a main line carrying a pressurized fluid, for the purpose of introducing into or drawing from said main line a fluid at a rate standing in a substantially constant proportion to the flow rate of said main line, said device comprising a housing, at least one opening of which is connected to said main line and another opening of which is connected to the proportioning branch line, further comprising a valve arranged in said housing and capable of closing the passage of said fluid into and from said proportioning branch line, which valve is mechanically linked to two drag bodies, respectively located on two opposite sides of said valve, the first one of which drag bodies is located in the flow path of the main line, the second one in the flow path leading

to the proportioning branch line, to such effect that the drag force acting on said first drag body tends to open said valve and thus to increase the flow through said proportioning

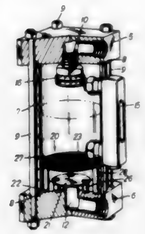


branch, while the drag force acting on said second drag body tends to close said valve and thus to reduce the flow through said proportioning branch.

4,279,268
MULTI-LEVEL PRESSURE REGULATING VALVE
Paul Aubert, Clamart, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France
Filed Sep. 28, 1979, Ser. No. 79,921
Claims priority, application France, Sep. 29, 1978, 78 27977
Int. Cl.³ G05D *16/10*
U.S. Cl. 137—115 **13 Claims**

1. A multilevel pressure regulating valve for a hydraulic control circuit, comprising
a valve body having a first end chamber and a second end chamber, a feed chamber connected by a conduit to said second end chamber, and an intermediate chamber,
a reservoir for hydraulic fluid,
feed means for feeding fluid from said reservoir to said feed chamber,
a central spool slidably mounted in said body,
resilient means in said first end chamber compressed between said body and one end of said spool first urging said spool to a position throttling the feed fluid exiting from said feed chamber and for returning some of said fluid to a said reservoir,
a small piston in said second end chamber of said body acting on the other end of said spool, and
two parallel ducts, each having its own throttling nozzle, connecting said intermediate chamber to said reservoir.

4,279,269
LIQUID FLOW CONTROL MEANS FOR GAS-LIQUID RECEPTACLE
Richard R. Schink, Racine, and Thomas A. Craig, Menomonee Falls, both of Wis., assignors to Milwaukee Cylinder Corporation, Cudahy, Wis.
Filed Nov. 21, 1979, Ser. No. 96,381
Int. Cl.³ F15B *1/04*
U.S. Cl. 137—206 **5 Claims**

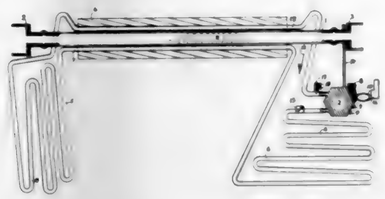


1. In a gas-liquid receptacle which normally contains liquid and pressure gas in contact with one another, said receptacle having a substantially flat bottom wall wherein there is a liquid port through which liquid can flow into and out of the receptacle, a top wall wherein there is a gas port through which pressure gas can flow into and out of the receptacle, and a side wall which extends between said top and bottom walls and is substantially coaxial with said liquid port,
liquid flow control means for preventing foam generation upon high velocity entry of liquid into the receptacle through said liquid port, said liquid flow control means comprising:
A. a baffle plate substantially centered over said liquid port, said baffle plate
(1) being substantially parallel to said bottom wall and spaced thereabove by a height distance substantially smaller than the diameter of said liquid port, and
(2) being at least large enough to extend across the entire area of said liquid port but small enough to be substantially spaced from said side wall all around the same; and
B. a screen in said receptacle
(1) spaced above said baffle plate by a distance at least substantially equal to said height distance but being below the lowest normally expectable level of liquid in the receptacle, and
(2) extending substantially entirely across the receptacle with its edge closely adjacent to said side wall all around the same.

4,279,270
FLEXIBLE ANTIFREEZE HEATCONDUCTOR LIQUID TRANSFER CONNECTOR HOSE
William T. Francis, Jr., 2005A S. Semoran Blvd., Orlando, Fla. 32807, assignor to William T. Francis, Jr., Spruce Pine, N.C.
Filed Apr. 22, 1980, Ser. No. 142,646
Int. Cl.³ F16K *49/00*; F16L *53/00*; F28F *1/10*
U.S. Cl. 137—340 **1 Claim**

1. A flexible primary liquid transfer hose unit at each end equipped with suitable couplings, wherein said transfer hose has affixed along its side two antifreeze hoses, wherein one constitutes a supply line, and the other of said two hoses a return line each hose at each end terminating in an overlap appendix loop hose connection joining aforesaid respective supply and return hose ends at each respective end of the primary liquid transfer hose unit, wherein also at suitable locations built into the thusly existing antifreeze hose closed circuit system are an electric waterpump, a thermostat relay unit which upon a drop of antifreeze temperature below a predetermined degree causes aforesaid waterpump to be switched on in phased sequence, furtherwherein also built into aforementioned antifreeze closed circuit system at suitable locations are

an antifreeze heater unit, a pressure relief valve, a means to refill and top off such antifreeze closed circuit system together with adequate electric wiring system, furtherwherein also aforesaid primary liquid transfer hose unit together with its thereto attached antifreeze hoses is packed in and surrounded with adequate insulation for the purpose of keeping the primary transfer liquid from becoming unmanageable due to the effect of freezing weather, also wherein further aforementioned overlap appendix antifreeze hose loop sections together with added insulating material are usuable for freeze protection of both primary liquid main supply pipe stem and primary liquid receiver pipe stem, whereinfurther the operation of said freeze protection system functions by pumping heated antifreeze liquid through the antifreeze closed circuit in conjunction with the controlled temperature means of the antifreeze pump and heating system.

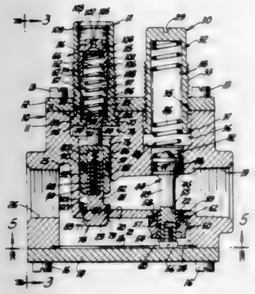


4,279,271

PRESSURE REGULATOR AND FLOW CONTROL VALVE WITH PRE-EXHAUST

James A. Neff, Bloomfield Township, Oakland County, Mich., assignor to Mac Valves, Inc., Wixom, Mich.

Filed Aug. 31, 1979, Ser. No. 71,735
Int. Cl.³ G05D *7/01, 16/10*
U.S. Cl. 137—493.8 **14 Claims**



1. A combination pressure regulating and flow control air valve, for controlling the flow of pressurized air through a flow circuit which includes a pneumatically controlled apparatus, characterized in that the valve includes:

(a) a valve body having an upstream pressurized air supply port for connection to a source of pressurized air, and a downstream working port for connection to a pneumatically controlled apparatus in said flow circuit, and a flow passage interconnecting said ports;

(b) an adjustable pressure regulator and check valve means operatively mounted in said flow passage which includes a movable valve stem member with a regulator and check valve element slidably mounted on the valve stem member and movable on the valve stem member between open and closed positions to provide a regulated downstream pressure at the downstream working port when pressurized air is flowing from the source of pressurized air into the upstream port and through the flow passage in one direction to the downstream port, and said regulator and check valve element closes to a checked position when the downstream pressure reaches a predetermined reduced level; and,

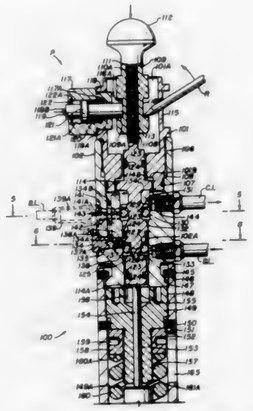
(c) an adjustable flow control valve means operatively mounted in said flow passage, in parallel with said adjustable pressure regulator and check valve means, and having a flow control valve element movable to a closed position when pressurized air is flowing through the flow passage in said one direction to the downstream port and said flow control element being movable to an open position to provide a meter out action to a flow of air exhausting through said flow passage in the other direction to the upstream port and with said regulator and check valve element closed in a checked position.

4,279,272

FLOW LINE MONITOR PILOT VALVE ASSEMBLY

Neil H. Akkerman; Stephen R. Foster, and Kip B. Goans, all of New Orleans, La., assignors to Baker CAC, Inc., Belle Chasse, La.

Continuation of Ser. No. 944,230, Sep. 20, 1978, abandoned, which is a division of Ser. No. 841,940, Oct. 13, 1977, Pat. No. 4,160,463. This application Aug. 13, 1979, Ser. No. 66,152
Int. Cl.³ F15B *13/042*
U.S. Cl. 137—596.18 **2 Claims**



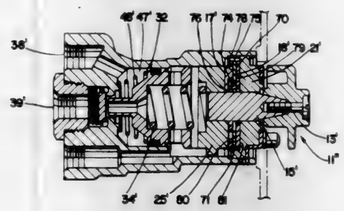
1. In a valve assembly for controlling one of pneumatic and hydraulic fluid therethrough, said valve assembly comprising a housing, spherical means defining a plurality of valve heads, valve seat means in said housing for transmission of said fluid and for selective sealing engagement with said valve heads, and spool means shiftable in one of linear and rotational directions within said housing immediate said valve heads and not constrained against the other of linear and rotational directions, said spool means being operably associatable with said valve seat means and said valve heads to permit selective movement of said valve heads to said seat means and selective engagement of said head and seat means upon only one of linear and rotational shifting of said spool means, the selective engagement of said head and seat means being sealingly insensitive to the other of linear and rotational shifting of said spool means, said spool means defining at least one camway for housing of said valve head means and for rotational travel of said valve head means within and around said spool means, the improvement comprising: a control shaft selectively contacting said spool means for shuttling said spool means to one of first and second positions; and piston head means carried exteriorly around said shaft and responsive to predetermined pressure variation of a monitored fluid for shifting of said shaft to shuttle said spool means.

4,279,273

CLUTCH RETENTION FEATURE OF A HAND CONTROL VALVE

Leon R. Acre, Ovid, Mich., assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Feb. 4, 1980, Ser. No. 118,617
Int. Cl.³ F16K *11/00, 31/00*
U.S. Cl. 137—627.5 **4 Claims**



1. A hand control valve, comprising:

(a) a stationary member having an opening extending therethrough, the member having a flat, annular friction surface surrounding the opening;

(b) a rotary member which extends through the opening in the stationary member and which is rotatable, by hand, the rotary member including a flat, annular friction surface which is in confronting spaced relation from the friction surface of the stationary member;

(c) means biasing said rotary member toward said stationary member;

(d) at least one pair of annular friction plates disposed between the friction surfaces of the stationary and rotary members, the friction plates, when compressed against each other and the stationary and rotary members, providing frictional resistance to rotation of the rotary member, each friction plate having a pair of parallel, flat, annular friction surfaces for engaging adjacent flat friction surfaces of a plate and member;

(e) means for keying one of the pair of friction plates to the stationary member for limited rotational movement relative thereto; and

(f) means for keying the other of the pair of friction plates to the rotary member for limited rotational movement relative thereto;

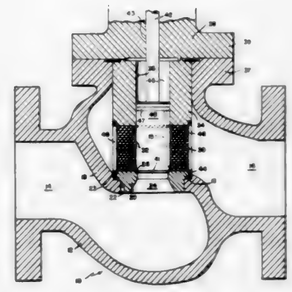
(g) valving means coacting with means on said rotary member and movable toward and away from said stationary member in response to rotation of said rotary member.

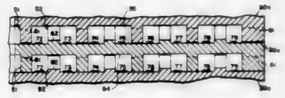
4,279,274

FLUID CONTROL DEVICE WITH DISC-TYPE FLOW RESTRICTOR

Fritz O. Seger, Fairview, Pa., assignor to Copes-Vulcan, Inc., Lake City, Pa.

Division of Ser. No. 837,871, Sep. 29, 1977, Pat. No. 4,221,037, which is a continuation of Ser. No. 641,544, Dec. 17, 1975, abandoned, which is a continuation-in-part of Ser. No. 415,828, Nov. 14, 1973, abandoned. This application Nov. 19, 1979, Ser. No. 95,618
Int. Cl.³ F15D *1/02*
U.S. Cl. 138—42 **8 Claims**





1. In a fluid flow restrictor for incorporation in a valve or the like, and of the type comprising a series of axially aligned and stacked discs forming an annular restrictor and providing a multiple of series-parallel flow paths between the inside and outside of the assembled disc stack to effect pressure drop and energy dissipation, said series flow paths comprising radially disposed slot-like openings formed on said discs and said parallel flow paths comprising annular passage-forming means formed on said discs and providing fluid communication between sets of said series flow paths, the improvement characterized by

(a) said discs being formed with a plurality of radially spaced annular baffle-forming ribs projecting axially from each face thereof,

(b) adjacent ribs of each disc forming annular recesses of substantially greater radial width than the radial thickness of said ribs,

(c) said discs having on each face thereof a plurality of radially-extending slots formed through said annular baffle-forming ribs,

(d) said radially-extending slots being arranged and configured whereby the slots of each rib of a disc are radially aligned with the slots of each adjacent rib of said disc to form a plurality of radially-aligned slots extending from the inner perimeter of said disc to the outer perimeter of said disc,

(e) the ribs on opposed faces of adjacent discs in the stack being offset whereby in the assembled stack the annular ribs of one disc are received in the annular recesses of the other adjacent disc,

(f) the ribs and recesses being of substantially equal height whereby interfitting sets of ribs define annular flow passages,

(g) said radially-disposed slots each including an open side,

(h) each of said open sides being substantially sealed by the confronting face of an annular recess of an adjacent disc in the assembled stack,

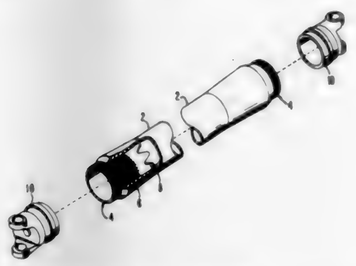
(i) said discs when assembled in said stack being so mutually oriented that the radially-aligned slots of the ribs on one side of a disc are offset from the radially-aligned slots of the interfitting ribs on the confronting side of the adjacent disc to interpose an annular rib of said adjacent disc between each pair of radially-aligned slots of said disc thereby providing said plurality of series-parallel flow paths between the inside and outside of the assembled disc stack.

4,279,275

MECHANICAL JOINDER OF COMPOSITE SHAFT TO METALLIC END MEMBERS

Jay W. Stanwood, Long Beach; William A. Clarke, Irvine, and Johannes MacLeane, Chino, all of Calif., assignors to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed Aug. 6, 1979, Ser. No. 64,300
Int. Cl.³ F16L 47/02
U.S. Cl. 138—109 6 Claims



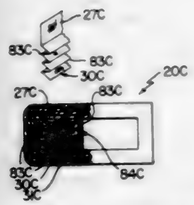
1. A metal/composite joint comprising:
an outer hollow cylindrical tube fabricated of fiber-adhesive composite material;
a cylindrical metallic sleeve having inner and outer ends and fitting within a terminus of said outer tube so that said outer end is approximately aligned with said terminus and said inner end extends part way within said tube, with high shear friction between said sleeve and tube;
said sleeve having a single series of several elongated parallel grooves formed in the outer periphery of said sleeve in the vicinity of its outer end wherein said grooves are closely spaced, so that an end of each groove is substantially continuous with a beginning of an adjacent groove;
wherein fibers from said composite material are compacted into said grooves, each of said grooves having a radius of between approximately one and four times the radius of said fibers;
wherein the grooves are aligned at a 45° angle with respect to the axis of rotation of the sleeve and tube.

4,279,276

LOOP PICKER AND METHOD OF MAKING SAME

G. Brian Hetz, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Sep. 26, 1979, Ser. No. 79,124
Int. Cl.³ D03D 49/36
U.S. Cl. 139—159 4 Claims



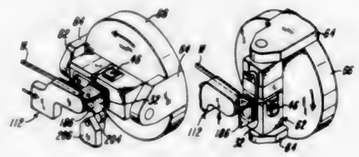
1. In a loop picker having a forward block and a body with a picker stick receiving passage extending therethrough, the improvement in which said block and said body are constructed of a single, continuous strip of laminated fabric having a coating of a polymeric material on at least one surface therof, said polymeric material serving to bond adjoining portions of said strip, said single strip having a pleated forward portion and a trailing portion, wherein said pleated portion defines said block and consists of a plurality of alternatingly disposed folds of substantially equal size, said folds being disposed in the forward and rear segments of said block, and wherein said trailing portion is disposed in wound relation to define said body, said trailing portion having an innermost turn which defines the major portion of the inside surface of said passage.

4,279,277

APPARATUS FOR MANUFACTURING A DYNAMOLELECTRIC FIELD MEMBER

Kenneth E. Peck, Jr., Pittsboro, N.C., and Harold I. Pearsall, Centerville, Ohio, assignors to The Globe Tool & Engineering Company, Dayton, Ohio

Filed Sep. 13, 1979, Ser. No. 75,315
Int. Cl.³ B21F 3/00, 23/00
U.S. Cl. 140—92.2 4 Claims



1. In apparatus for manufacturing dynamoelectric windings having plural coils and continuous transition portions extending uninterruptedly between the coils, said apparatus being of the type comprising a mandrel having a major axis and a plurality of core pieces spaced about said major axis, means for rotating said mandrel about said major axis to selectively present said core pieces to a winding station, means for edge winding strapping about that core piece then presented at said winding station including means for rotating said mandrel about a second axis inclined from said major axis for drawing said strapping from a source of strapping to edge bend said strapping to form a coil about the one of said core pieces present at said winding station, the improvement comprising
a wire feed and guide assembly for guiding strapping from said source of strapping to said mandrel at said winding station,
said assembly having a wire forming head through which said strapping extends to the winding station constructed and operable to supply strapping to said winding station and cooperate with said means for rotating said mandrel about said second axis for edge bending said strapping to form coils on said core pieces, and said assembly including means for moving said wire forming head both vertically and horizontally for cooperating with said means for rotating said mandrel about said second axis to edge bend transition strapping portions after the winding of a coil on one of said core pieces and before the winding of the next coil on another of said core pieces.

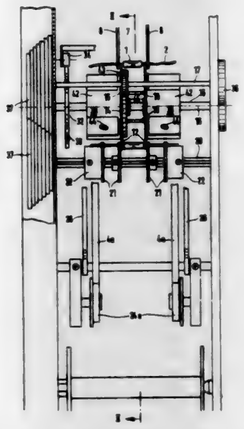
4,279,278

APPARATUS FOR STRINGING ELECTRICAL COMPONENTS HAVING TWO ALIGNED CONNECTING WIRES INTO A BELT

Thomas Weresch, Greschbachstr. 19, D-7500 Karlsruhe 41, Fed. Rep. of Germany

Filed Mar. 8, 1979, Ser. No. 18,502
Claims priority, application Fed. Rep. of Germany, Mar. 25, 1978, 2813100
Int. Cl.³ B21F 1/02; B65B 13/02
U.S. Cl. 140—147 12 Claims

1. Apparatus for stringing electrical components having two aligned connecting wires into a continuous belt in which, for each of said wires of each such component, two adhesive tapes secure the connecting wires of successive components between themselves, said apparatus comprising two transporting toothed wheels which are arranged coaxially with a spacing between them to accommodate said components while receiving said connecting wires in tooth gaps, first and second pairs of rollers each including a guide roller and a pressure roller drivingly connected to a respective one of said transporting toothed wheels, and a component feed arrangement comprising two transfer discs which are arranged coaxially and with spacing between them and are provided with peripheral reception slots for receiving said connecting wires, driving means for driving said transfer discs in synchronised rotational move-



ment with each other at a preselected given rotational speed, change speed gear means connecting said driving means to said transporting toothed wheels for selectively varying the rotational speed of said transporting toothed wheels, and means for supplying said adhesive tapes in pairs, with one tape of each pair over the other tape of that pair, through a gap between one of said guide rollers and the associated pressure roller so that said tapes are pressed against one another with said connecting wires of said components which have been fed-in by said transfer discs disposed therebetween to form said continuous belt.

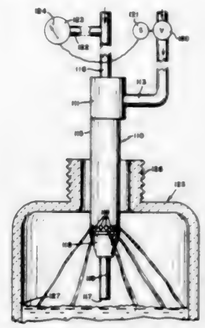
4,279,279

FILLING MACHINE AND METHOD FOR LOW PARTICULATE CHEMICALS

William R. Schevey, Honesdale; Robert G. Weslowski, Boothwyn, both of Pa., and John D. Morentz, Wilmington, Del., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Oct. 5, 1979, Ser. No. 82,246
Int. Cl.³ B65B 3/26
U.S. Cl. 141—5 6 Claims

1. An apparatus for automatically filling bottles with high purity liquid which comprises:
(a) a first plurality of filler head assemblies each defining a liquid feed channel extending vertically downward to a second plurality of circumferentially spaced, outwardly opening apertures and also defining an inert gas feed channel extending vertically downward adjacent the liquid feed channel to a lower end below the outwardly opening apertures;
(b) a vertically moveable platform beneath said first plurality of filler head assemblies;
(c) bottle delivery means for delivering and aligning a first plurality of bottles onto said vertically moveable platform with the opening of each bottle being aligned beneath the apertures and said lower end of a corresponding filler head assembly without contact being made between the bottle and the filler head assembly;
(d) lift means for lifting said vertically moveable platform when said first plurality of bottles are aligned beneath said first plurality of filler heads upwardly until each lower end and associated second plurality of apertures is within a bottle without contact being made between the bottle and the filler head assembly;
(e) liquid feed means for delivering liquid to and through said liquid feed channel and said outwardly opening apertures into each bottle when said vertically moveable platform is raised; and



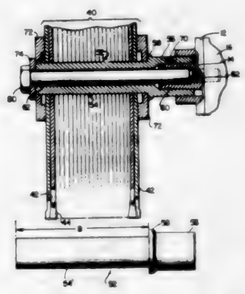
(f) inert gas means for delivering of flow of inert gas at substantially constant pressure through each said inert gas feed channel and for sensing back pressure of said inert gas and for shutting off the flow of liquid to the adjacent liquid feed channel at a location remote from said filler head assemblies when back pressure of inert gas caused by the liquid level in a bottle reaching said lower end is sensed.

4,279,280

INTERCHANGEABLE DADO SHAFT ASSEMBLY FOR CIRCULAR SAWS

Raul R. Pairis, 21256 Garndal St., Walnut, Calif. 91789

Filed Nov. 13, 1979, Ser. No. 93,856
Int. Cl.³ B27C 9/02
U.S. Cl. 144—1 F 7 Claims

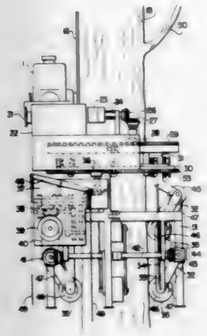


1. A removable dado shaft assembly for mounting dado blade packs on portable saws having rotary shafts, comprising:
a dado shaft with a constant diameter shank having a radially extending abutment flange and a central bore,
attachment means integral with said dado shaft and adjacent to the abutment flange for engaging said saw shaft,
a lock-up bolt extending through said bore to engage a threaded axial opening in the rotary saw shaft, and
clamping means to engage said dado blade pack on the dado shank intermediate the abutment flange and a head end portion of the lock-up bolt.

4,279,281
AUTOMATIC BRANCH CUT-OFF DEVICE

Hiroshi Nakamura, Tokyo, Japan, assignor to Shinko Plant Co. Ltd., Tokyo, Japan

Filed Oct. 15, 1979, Ser. No. 84,920
Claims priority, application Japan, May 25, 1979, 54-64657
Int. Cl.³ A01G 23/02
U.S. Cl. 144—2 Z 3 Claims



1. An automatic branch cut-off device comprising:

a frame adapted to be divided into two halves to surround a tree trunk and including a circular fixed ring gear;

an elevating means connected to said frame for moving said frame upwardly and downwardly on the trunk;

means for powering said elevating means;

revolving cutting means including a rotary ring, means for mounting the rotary ring on said frame which comprises rollers, an engine mounted on said rotary ring, a cutting tool mounted on said rotary ring, means for drivingly connecting said engine to said cutting tool, and a first pinion gear being rotatably mounted on said rotary ring and drivingly connected to said engine, said first pinion meshing with said fixed ring gear to revolve said cutting means about the periphery of the tree trunk;

transfer clutch means engaged with said means for powering said elevating means for reversing the direction of movement of the entire device upwardly or downwardly;

said elevating means comprising:

an upper link having opposite ends and being pivotally attached to said frame on one of said ends of said upper link;

a lower link having opposite ends and being pivotally attached to said frame on one of said ends of said lower link;

a connecting link parallel to said frame pantographically, pivotally interconnecting the other end of said upper link to the other end of said lower link, said connecting link having a length, said lower link being attached to said frame at a distance below where said upper link is attached equal to said length;

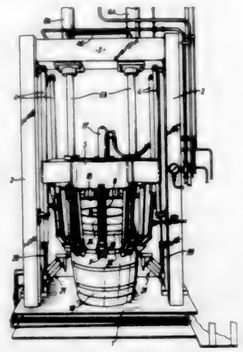
rollers fitted with a flexible material on the surface thereof, said rollers being rotatably mounted at the points where said connecting link interconnects with said upper link and said lower link; and

a spring connected between said connecting link and said frame pushing a top of said connecting link from a side of said frame to a side of the trunk of the tree, thereby automatically exerting a component of a force to press said rollers against the trunk of the tree by positioning the center of gravity of said side of said frame outside said rollers.

4,279,282
BARREL HOOP DRIVERS

Robert N. Whyte, 28 Rubislaw-Den South, Aberdeen, Scotland

Filed Aug. 27, 1979, Ser. No. 69,621
Int. Cl.³ B27H 5/10
U.S. Cl. 147—9 5 Claims



1. A barrel hoop driver comprising a base, an upright frame mounted on said base, a press head slidably movable vertically towards and away from said base on guide rods carried by said frame, a plurality of push arms spaced around the circumference of a circle, and being pivotally mounted at one end on and movable with the press head, pivotally biased towards the centre of said circle, and adapted at their free ends drivingly to engage a hoop on a wooden barrel when the latter is supported on said base, and a pair of hydraulic rams for effecting movement of said press head and having their cylinders mounted on said frame and their pistons connected to said press head, wherein the free ends of the push arms each has a claw including a rigid driving member which presents a flanged face for engagement with a barrel hoop, and at least first and second separate mutually spaced apart guide members spaced inwardly from the edge of the flanged face by a distance about equal to the thickness of a barrel hoop and the mutual spacing of said first and second guide members being in a direction along the flanged face of the driving member, said first and second guide members having faces for guiding contact with a peripheral surface of said barrel, said faces being inclined to contact said peripheral surface substantially tangentially thereto, and the thickness and mutual spacing of the guide members being effective to substantially prevent accumulation of wood shavings on the driving member, the driving member being pivotally connected to its push arm.

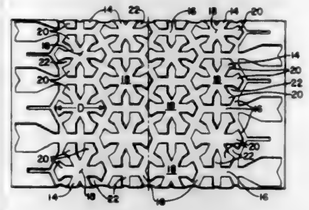
4,279,283
HIGH PERIMETER TREAD ELEMENT

Leon J. Hitzky, Bonneweg, Luxembourg, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 10, 1979, Ser. No. 102,049
Int. Cl.³ B60C 11/00
U.S. Cl. 152—209 R 6 Claims

1. A pneumatic tire having a circumferentially extending ground-engaging tread portion characterized by said tread portion consisting essentially of a plurality of independent projections spaced about the circumference of the tire, each of said independent projections having a solid central portion and a plurality of limbs extending radially outward from said central portion, said limbs being spaced apart such that when in the footprint of the tire said limbs do not come in contact with adjacent limbs, the perimeter of each of said projections being at least five times the mean diameter of the circumscribing circle about said projection, said ground-engaging tread portion having a width at least 60% of the maximum section

diameter of said tire, said tire having an aspect ratio from about 60 to 85, the total perimetrical length of said projections in said

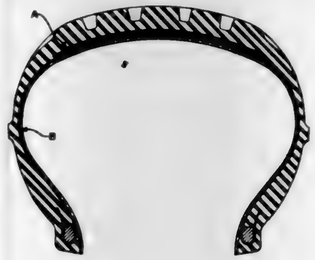


tread portion divided by the total area of the tread surface is at least 3.5 lineal inches per square inch.

4,279,284
PNEUMATIC RUBBER TIRE CONTAINING ENHANCED INNER LINER OR INNER TUBE

Leighton R. Spadone, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Nov. 16, 1979, Ser. No. 95,117
Int. Cl.³ B60C 5/14
U.S. Cl. 152—330 R 11 Claims



1. A pneumatic rubber vehicle tire containing reinforcing steel elements therein, said elements selected from at least one of steel elements and metal-coated steel elements, characterized in that said tire has an adherent inner liner comprised of (A) 100 parts by weight of at least one polymer selected from halobutyl rubber and/or copolymers of isobutylene and cyclopentadiene and (B) about 1 to about 25 parts by weight polybutene polymer per 100 parts by weight (A), said polybutene polymer having a number average molecular weight in the range of about 200 to about 3000.

4,279,285
APPARATUS AND METHOD FOR FORMING A TUBE ARTICLE ON A CORE

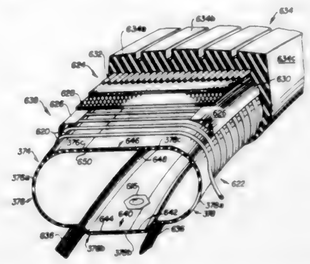
Charles E. Grawey, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 868,018, Jan. 9, 1978, abandoned, which is a continuation of Ser. No. 741,652, Nov. 15, 1976, Pat. No. 4,124,053, which is a division of Ser. No. 588,732, Jun. 20, 1975, Pat. No. 4,044,085, which is a continuation-in-part of Ser. No. 385,956, Aug. 6, 1973, abandoned. This application Dec. 10, 1979, Ser. No. 101,926
Int. Cl.³ B60C 3/00, 5/12
U.S. Cl. 152—330 R 8 Claims

1. A tube tire, comprising:

(a) an elastomeric toroidal tube member having inner and outer peripheries, a first tube portion defining a side portion and inner and outer peripheral portions, and a second tube portion defining a side portion and inner and outer peripheral portions overlapping respectively, the inner and outer peripheral portions of the first tube portion, said inner peripheral overlap and said outer peripheral overlap being formed at the inner and outer peripheries, respectively;

(b) a plurality of inextensible reinforcing loops encircling



said toroidal tube member, said reinforcing loops lying in a plane substantially normal to the mid-circumferential plane of said tube member, said reinforcing loops and said tube member forming a carcass;

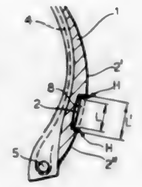
and

(c) an outer casing for said carcass, including elastomeric material vulcanized to said tube member.

4,279,286
PNEUMATIC TIRES HAVING ORNAMENTED SIDEWALLS, AND TO THEIR MANUFACTURE

Claudio Merli, Cormano, and Carlo Francia, Monza, both of Italy, assignors to Euteco S.p.A., Milan, Italy

Division of Ser. No. 843,307, Oct. 18, 1977, Pat. No. 4,224,268. This application Feb. 5, 1980, Ser. No. 118,698
Claims priority, application Italy, Nov. 19, 1976, 29539 A/76
Int. Cl.³ B60C 13/00
U.S. Cl. 152—353 R 2 Claims



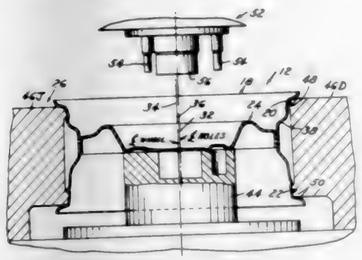
1. A pneumatic tire casing of the type having a pair of side walls formed of black elastomer comprising at least one recess formed in one of said side walls having a bottom surface and upwardly and inwardly tapering side surfaces to define a dovetail shaped cross section and a layer of elastomer having a color different from that of said side walls and a thickness less than the depth of said recess secured to and covering only said bottom surface of said recess.

4,279,287

METHOD OF WHEEL MANUFACTURE FOR CORRECTING ROTATIONAL NON-UNIFORMITY OF A PNEUMATIC TIRE AND WHEEL ASSEMBLY

Anwar Daudi, East Lansing; John H. Golats, Lansing, and Doarde G. Triponi, East Lansing, all of Mich., assignors to Motor Wheel Corporation, Lansing, Mich.

Filed Dec. 17, 1979, Ser. No. 104,319
Int. Cl.³ B21D *53/26*
U.S. Cl. 152—375 **8 Claims**



1. A method of constructing a tire and wheel assembly comprising the steps of:

(a) providing a wheel assembly comprising a rim with bead seats for mounting of a tire and a disc mounted internally of said rim;

(b) forming at least one opening in said disc for mounting said wheel to a vehicle with said opening being centered eccentrically of the average axis of said bead seats in a direction preselected nominally to locate a predetermined point in the first harmonic of radial runout of said wheel at a selected location circumferentially of said wheel; and

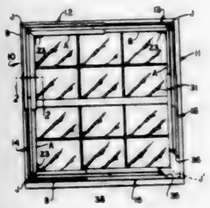
(c) mounting on said wheel a tire which has been marked at a circumferential location on the tire corresponding to a predetermined point in the first harmonic of a radial characteristic of said tire opposite in phase to said predetermined point in said first harmonic of radial runout of said wheel such that said first harmonic of said tire complements said first harmonic of said wheel to provide a smoother running wheel and tire assembly.

4,279,288

ADJUSTABLE FRAME APPARATUS

George G. Lanier, 26 Butler St., Rome, Ga. 30161

Filed May 29, 1979, Ser. No. 43,342
Int. Cl.³ E06B *9/06*
U.S. Cl. 160—374 **3 Claims**



1. Adjustable frame apparatus for attachment in surrounding relation with an existing opening such as a window or the like, comprising:

a first assembly having a pair of elongated frame members mutually interconnected to form an included right angle;

a second assembly separate from said first assembly and having a pair of elongated frame members mutually interconnected to form an included right angle, one of said frame members of said second assembly being selectably and adjustably connectable to one of said frame members of said first assembly;

a third assembly having a pair of elongated frame members mutually separate from said first and second assemblies and interconnected to form an included right angle, one of said frame members of said third assembly being selectably and adjustably connectable to the other said frame member of said first assembly;

said pair of elongated frame members in each of said assemblies being interconnected by means which enable said paired arms to fold from said right angle position to be substantially alongside each other, when the frame members making up the assembly are disconnected from another frame member;

a first separate frame member selectably and adjustably connectable to the other said frame member of said second assembly;

a second separate frame member selectably and adjustably connectable to the other said frame member of said second assembly;

each of said selectable and adjustable interconnections of said frame members comprising a telescopic sliding interconnection between said frame members; and

each of said sliding interconnections being selectably slidable independently of the other sliding interconnections so that said assemblies and frame members selectably and adjustably interconnect to form a rectangular frame which is independently adjustable in length and width;

each of said frame members comprising a channel member having a channel closed on three sides and having a partially open fourth side; and

said partially open side of each channel facing outwardly from the frame formed by said frame members, and defining a flange located near the opening defined by said frame, so as to provide means for securing a web to said frame.

4,279,289

PROCESS FOR PREPARATION OF FIBER-REINFORCED MAGNESIUM ALLOY MATERIALS

Keisuke Ban, Fujimi; Takeo Arai, Higashimatsuyama, and Akimasa Daimaru, Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 3, 1979, Ser. No. 81,444
Claims priority, application Japan, Oct. 5, 1978, 53/122997
Int. Cl.³ B22D *19/14*
U.S. Cl. 164—97 **1 Claim**

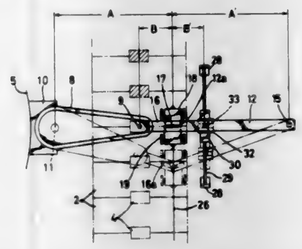
1. A process for the preparation of fiber-reinforced magnesium alloy materials, which comprises placing a shaped article of silica-alumina type fibers having an average diameter of 2 microns or less and a bulk density of 0.5 g/cc or less in a casting mold, pouring as a matrix a melt of magnesium alloy maintained at a temperature lower than 800° C. into the casting mold, filling said magnesium alloy melt into said shaped article by means of a high pressure coagulation casting method while maintaining the configuration of the shaped article to form a composite, whereby a reaction between the surface fibers of said shaped article and the melt causes precipitation of a mixture of magnesium-silicon and magnesium-aluminum compounds.

4,279,290

DEVICE FOR DETECTING GATES IN AN AUTOMATIC POURING MACHINE FOR CASTING

Teigo Mikami; Hiroaki Miyano, and Masahide Kosugi, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jan. 2, 1980, Ser. No. 109,047
Claims priority, application Japan, May 15, 1979, 54/59910
Int. Cl.³ B22D *35/04*
U.S. Cl. 164—154 **7 Claims**



1. In an automatic pouring machine for casting located in the vicinity of a horizontal pouring line provided thereon with a plurality of adjacently placed molds intermittently conveyed in one direction and having a pouring trough provided with a spout for pouring molten metal into the gate of each of said molds and horizontally swingable by a vertical pivot, a device for detecting said gate comprising:

a means provided in each of said molds for indicating the position of said gate;

an arm horizontally swingable by a vertical pivot symmetrically provided opposite said pivot of said trough with respect to said pouring line;

a pair of slits provided in ends of said arm and said trough being aligned upon linear alignment of said arm and said trough;

a connecting pin slidably engaged in said slits to move along a perpendicular bisector on a line connecting said pivots with each other;

a detector provided on said arm for detecting said means indicating the position of said gate, the distance between said detector and said connecting pin being identical with that between said connecting pin and said spout of said trough upon linear alignment of said arm and said trough; and

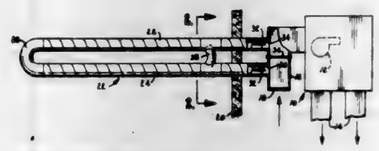
a driving means for moving said connecting pin upon receipt of a signal from said detector.

4,279,291

SUBTERRANEAN HEATING AND COOLING SYSTEM

Roland Lambert, Jackson, Miss., assignor to Ladek Corporation, Ridgecrest, La.

Filed Jun. 25, 1979, Ser. No. 51,405
Int. Cl.³ F24J *3/02*
U.S. Cl. 165—1 **5 Claims**



1. A method of thermally treating air comprising:

forcing the air to flow along an underground path through the soil in heat exchange relationship therewith;

recycling a portion of the air traveling along said path;

increasing the velocity of said recycled air as the latter commences travel along said path; and

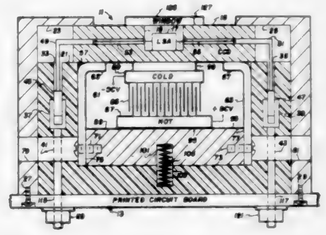
retreiving a portion of the air traveling along said path for use at a remote location.

4,279,292

CHARGE COUPLED DEVICE TEMPERATURE GRADIENT AND MOISTURE REGULATOR

Edmund Swiatosz, Maitland, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 29, 1978, Ser. No. 947,279
Int. Cl.³ F25B *29/00*; F28F *7/00*; H01L *25/04*
U.S. Cl. 165—61 **32 Claims**



1. An apparatus temperature and moisture regulator, comprising in combination:

an apparatus whose temperature and moisture is to be regulated;

means effectively connected to said apparatus for the effective packaging thereof in such manner as to effect the support thereof and thermally isolate it from its ambient environment;

a heat-sink extending through one of the walls of said packaging means;

a thermoelectric cooler having a hot junction and a cold junction, with the hot junction thereof effectively thermally connected to said heat-sink, and with the cold junction thereof effectively thermally connected to a predetermined area of said apparatus whose temperature and moisture is to be regulated; and

means thermally coupling said heat sink to said apparatus at one or more areas more removed from the center of said apparatus than the area effectively thermally connected by said cold junction, for warming the perimeter of said apparatus to reduce condensation otherwise promoted by cooling said predetermined area.

4,279,293

HIGH TEMPERATURE HEAT EXCHANGER HAVING POROUS TUBE SHEET PORTIONS

Valentin Koump, Hempfield Twp., Westmoreland Co., Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 18, 1979, Ser. No. 49,688
Int. Cl.³ F28F *9/04*
U.S. Cl. 165—82 **5 Claims**

1. A shell and tube heat exchanger comprising:

a. a shell;

b. a plurality of tubes supported within said shell;

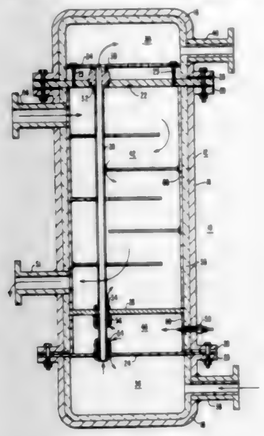
c. tube sheets for defining a first, second and third chamber within said shell and for laterally restraining said tubes, portions of said tube sheets being porous, said third chamber being disposed between said first and second chambers;

d. means for inletting a first fluid medium into said first chamber, said first chamber being in flow communication with the inside of said tubes;

e. means for flowing a second fluid medium through said

second chamber in heat exchange relation with said first fluid; and

f. means for inletting a third fluid medium into said third



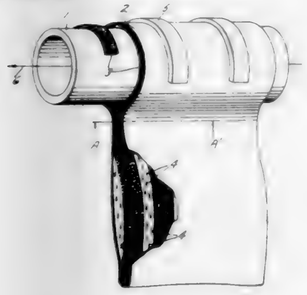
chamber at a pressure higher than that of said first and second chambers such that said third fluid passes from said third chamber into said first and second chambers through said porous portions.

4,279,294

HEAT PIPE BAG SYSTEM

Peter R. Fitzpatrick; Russell G. Meyerand, Jr., both of Glastonbury, and Kenneth E. Shotwell, Stafford Springs, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 22, 1978, Ser. No. 972,599
Int. Cl.³ F28D *15/00*
U.S. Cl. 165—45 **27 Claims**



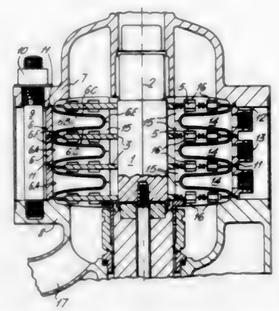
1. A heat pipe bag for below-ground use the interior of which is adapted to be combined in heat transfer communication with the exterior of a first heat transfer fluid conduit and to contain in sealed fashion a second heat transfer fluid comprising a hollow, thin-walled bag having flexibility, puncture resistance, heat transfer fluid inertness, and prolonged below-ground exposure integrity, containing a wick material extending radially outward to the end of the bag from the intended location of the conduit along the anticipated path of principal heat transfer and including a plurality of spacers adjacent the wicks in the heat pipe bag.

4,279,295

SCRAPED-SURFACE HEAT EXCHANGER

Edward D. Duckworth, Wokingham, England, assignor to A. Johnson and Company (London) Limited, London, England

Continuation of Ser. No. 860,432, Dec. 14, 1977, abandoned.
This application Jun. 26, 1980, Ser. No. 163,292
Claims priority, application United Kingdom, Dec. 16, 1976, 52663/76; Feb. 23, 1977, 7716/77
Int. Cl.³ F28F *5/00*
U.S. Cl. 165—94 **26 Claims**



1. A scraped-surface heat exchanger comprising a stator surrounding a rotor, the stator having a plurality of annular projections extending inwardly towards the axis of rotation of the rotor, each projection having a first flank which is the upper flank when the heat exchanger is appropriately positioned, with the axis of rotation of the rotor vertical, and which then slopes downwardly, proceeding towards said axis, the rotor carrying scrapers which scrape the first flanks and the opposite flanks of the projections as the rotor rotates.

4,279,296

SEGMENTED RING HEADER

Henry J. Blaskowski, West Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

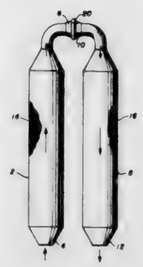
Filed Mar. 8, 1979, Ser. No. 19,021
Int. Cl.³ F28F *7/00, 9/26*
U.S. Cl. 165—134 R **3 Claims**

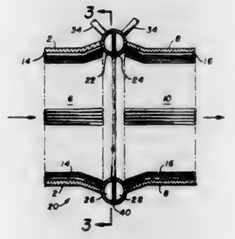
1. In a high pressure gas cooler having a first cylindrical pressure containment vessel having a gas inlet at one end and a gas outlet at the other end and a plurality of heat exchange tubes lining the interior thereof, a second cylindrical pressure containment vessel having a gas inlet at one end and a gas outlet at the other end and a plurality of heat exchange tubes lining the interior thereof, the gas inlet of said second vessel being in communication with the gas outlet of said first vessel, and means for circulating a fluid through the exchange tubes lining said first and second vessels; and apparatus for collecting the fluid discharging from the heat exchange tubes lining said first and second vessels and directing the fluid to said fluid collection drum comprising:

a. a first hemi-toroidal shell having a plurality of openings around its inner circumference shaped to mate with the heat exchange tubes lining said first vessel, said first hemi-toroidal shell disposed concentric to the gas outlet of said first vessel and welded thereto;

b. a second hemi-toroidal shell having a plurality of openings around its inner circumference shaped to mate with the heat exchange tubes lining said first vessel, said second hemi-toroidal shell disposed concentric to the inlet of said second vessel and welded thereto;

c. means for rigidly joining said first hemi-toroidal shell to said second hemi-toroidal shell thereby providing a reservoir for collecting the fluid discharging from the heat exchange tubes; and





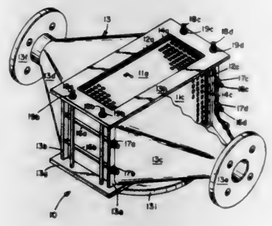
d. means for conveying the fluid from said reservoir to a fluid collection drum.

4,279,297

HOUSING FOR CERAMIC HEAT RECUPERATORS AND ASSEMBLY

Chester J. Dziedzic, Signal Mountain, Tenn.; Joseph J. Cleveland, Dushore, and Ray L. Newman, Towanda, both of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Oct. 16, 1978, Ser. No. 951,438
Int. Cl.³ F28D *7/02*; F28F *3/00*
U.S. Cl. 165—165 **8 Claims**



1. A heat recuperator assembly comprising:

(a) a core of a cross-flow ceramic recuperator, having first and second pairs of opposing faces defining cell openings for the passage of first and second heat transfer fluids, respectively, in directions transverse to one another, the first fluid transferring heat to the second fluid during passage through the cells, whereby each pair of faces has in operation a hot face and a cold face, the hot face of the first pair being the inlet face for the first fluid, and the hot face of the second pair being the outlet face for the second fluid, and

(b) a metallic housing surrounding the core, the housing defining openings communicating with the core cell openings, the housing openings adapted for coupling to external fluid conduits, characterized in that the housing comprises

(1) two pairs of opposing plates having opposing inner faces for contact with the hot and cold faces of the core,

(2) conduit means extending from the outer faces of the plates,

(3) means for coupling the conduit means to external fluids conduits, and

(4) means for holding the inner faces in contact with the core faces, said means comprising two sets of elongated bolts and nuts, the bolts of each set extending between opposing pairs of plates, and said means further comprising means to bias the plates in an inward direction against the ceramic recuperator.

4,279,298

HEAT EXCHANGER WITH CONDENSATE BLOW-OFF SUPPRESSOR

Yong N. Lee, Arlington Heights, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 17, 1980, Ser. No. 131,124
Int. Cl.³ F25D *21/14*; F28F *1/14*
U.S. Cl. 165—181 **3 Claims**



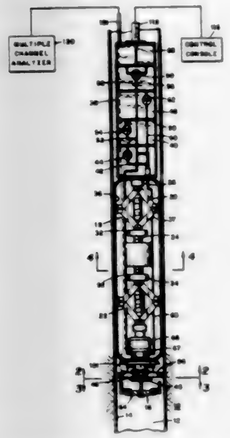
1. A fin and coil type evaporator assembly positionable in a vertically, upwardly flowing air stream comprising: an evaporator coil including a plurality tube sections extending transversely to the direction of air flow; a plurality of plate-like fins closely spaced apart, each fin lying in a plane parallel to the direction of air flow and being in heat exchange contact with said tube sections which pass through said fins; and means defining a plurality of channels, elongated in the direction of air flow and located closely adjacent to said tube sections only on the up-stream side thereof, said channels being adapted to break up and draw off, by capillary action, large droplets of water condensing on said tube sections and adhering to the underside thereof, whereby blow-off of condensate from the tubes is minimized.

4,279,299

APPARATUS FOR INSTALLING CONDITION-SENSING MEANS IN SUBTERRANEAN EARTH FORMATIONS

Lowell Z. Shuck, Morgantown, W. Va., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Dec. 7, 1979, Ser. No. 101,370
Int. Cl.[3] E21B 47/06
U.S. Cl. 166—60 7 Claims



1. An apparatus for emplacing condition-sensing means at a selected location within a wellbore penetrating a subterranean earth formation, housing means adapted to be selectively positioned within the wellbore, means carried by said housing means for securing and maintaining the housing means at the selected location, grinding means carried by said housing and engagable upon the rotation thereof with an encompassing wall surface at said location, means for rotating said grinding means, container means carried by the housing means for storing liquid agents, spraying means coupled to the container means and carried by the housing means at a location adjacent said grinding means for spraying the liquid agents onto said wall surface at said location, condition-sensing means, displaceable means carried by the housing means for supporting the sensing means, and means for actuating the displaceable means to place the sensing means in an abutting relationship with said wall surface.

4,279,300

TREATING FLUID APPLICATOR

Michael J. Wirsch, Odessa, Tex., assignor to Exxon Production Research Company, Houston, Tex.

Filed Jan. 25, 1980, Ser. No. 115,596
Int. Cl.[3] E21B 19/00
U.S. Cl. 166—90 6 Claims

1. Apparatus for applying fluid to equipment being run into a well comprising:

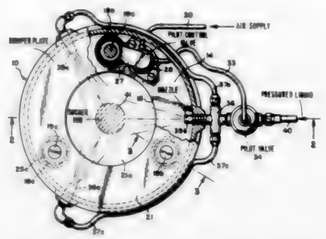
a housing capable of being mounted on a wellhead having an opening therethrough to permit passage of said equipment;

at least one nozzle in said housing capable of directing flow of said fluid toward said equipment;

valve means for controlling flow of said fluid to said nozzle;

a movable actuator for operating said valve means and having a first position at which flow of fluid through said valve means is prevented and a second position at which flow of fluid through said valve means is permitted;

said actuator including spring means for urging said actuator to the first position thereof and a movable plate supported on said housing, the weight of said suspended equipment



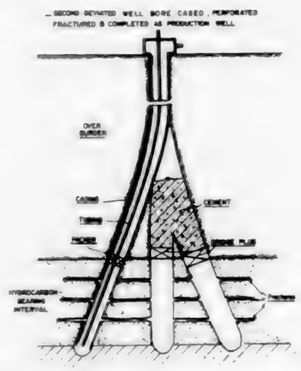
in said well moving said actuator to the second position thereof.

4,279,301

METHOD FOR IMPROVING THE EFFECTIVE PERMEABILITY OF FORMATIONS

Thomas E. Williams, Ventura, Calif., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 13, 1979, Ser. No. 103,305
Int. Cl.[3] E21B 7/04, 43/24, 43/267, 47/00
U.S. Cl. 166—250 11 Claims



1. A method to increase the effective permeability of a subterranean hydrocarbon-bearing formation having at least one productive interval comprising the steps of:

(a) drilling a first well bore traversing said productive interval of said hydrocarbon-bearing formation,

(b) fracturing said first well bore adjacent said productive interval,

(c) setting a bridge plug above said productive interval in said first well bore and thereafter undertaking a cementing operation in said first well bore to a desired depth,

(d) drilling a second well bore having the upper portion thereof in common with said first well bore and deviated from said first well bore from the top of said cementing operation and thereafter fracturing said productive interval adjacent said deviated second well bore,

(e) setting a bridge plug above the productive interval in said second well bore and thereafter undertaking a cementing operation in said second well bore to a desired depth,

(f) repeating steps (d) and (e) to provide additional similarly deviated well bores,

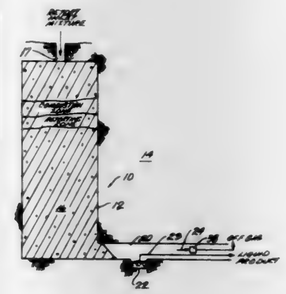
(g) drilling a final similarly deviated well bore and completing said final well bore by setting tubing and packer.

4,279,302

DETERMINING THE LOCUS OF A PROCESSING ZONE IN AN OIL SHALE RETORT BY EFFLUENT OFF GAS HEATING VALUE

Chang Y. Cha, Bakersfield, Calif., assignor to Occidental Oil Shale, Inc., Grand Junction County, Calif.

Continuation of Ser. No. 883,065, Mar. 3, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 86,789
Int. Cl.[3] E21B 43/247, 47/00; E21C 41/10
U.S. Cl. 166—251 14 Claims



1. A method for determining the locus of a processing zone advancing through a fragmented permeable mass of particles containing oil shale in an in situ oil shale retort in a subterranean formation containing oil shale, the retort having an upper, a lower and side boundaries of unfragmented formation and the retort having an effluent off gas passing therefrom, the method comprising the steps of:

determining the kerogen content at selected locations in the subterranean formation intermediate the upper and lower boundaries of the retort before processing the retort; and

monitoring the effluent off gas from the retort for its heating value.

4,279,303

POLYURETHANE BALL SEALERS FOR WELL TREATMENT FLUID DIVERSION

Steven R. Erbstoesser, Houston, Tex., assignor to Exxon Production Research Company, Houston, Tex.

Filed Jul. 3, 1978, Ser. No. 921,413
The portion of the term of this patent subsequent to Jul. 25, 1995, has been disclaimed.
Int. Cl.[3] E21B 33/138, 43/27
U.S. Cl. 166—284 12 Claims



1. A method of treating a subterranean formation surrounding a cased wellbore wherein the casing has an interval provided with a plurality of perforations, said method comprising:

(a) flowing down said casing a liquid having suspended therein a plurality of ball sealers, said ball sealers being sized to seal said perforations and comprising a solid core and a polyurethane elastomer cover; and

(b) continuing the flow of said liquid until at least a portion of said perforations are sealed by said ball sealers.

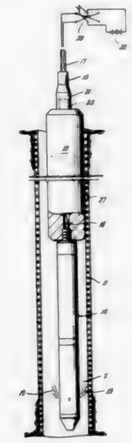
11. A ball sealer for plugging perforations in a casing penetrating subterranean formations which comprises a syntactic foam core and a polyurethane, elastomer coating which covers the core.

4,279,304

WIRE LINE TOOL RELEASE METHOD

James C. Harper, Rte. 7, Box 59, Houma, La. 70360

Filed Jan. 24, 1980, Ser. No. 114,750
Int. Cl.[3] E21B 31/03
U.S. Cl. 166—301 15 Claims



1. Method of operating a wire line tool in an earth bore hole to enable the tool to be freed in case the tool gets stuck in the hole, and to free the tool in the event the tool becomes stuck in the hole, comprising;

associating with the tool a quantity of mud active agent to be released if the tool gets stuck, running said agent into the hole along with the tool, and

upon the tool becoming stuck, releasing the mud active agent;

wherein the mud active agent is initially stored in a gun loaded with fuel and the agent is released by igniting the fuel to produce combustion product pressure to force the agent out of the gun.

4,279,305

PROCESS FOR STIMULATING A WELL WITH A SALINE SURFACTANT SULFATE, ALKANOL AND ACID SYSTEM

Randolph H. Knapp, New Orleans, La.; Jimmie B. Lawson; Joseph Reisberg; David R. Thigpen, and Harold J. Hill, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed May 27, 1980, Ser. No. 153,465
Int. Cl.[3] E21B 43/22, 43/27
U.S. Cl. 166—307 8 Claims

1. A well treating process comprising:

injecting fluid at a selected rate into a subterranean reservoir in fluid communication with the well;

including in the injected fluid separate portions of fluid A, which consists essentially of a highly saline aqueous solution or dispersion that contains from about 10 to 25% by weight of sodium chloride or the sodium chloride equivalent of other dissolved salts, from about 2 to 15% by weight of at least one surface active polyalkoxyalcohol sulfate and from about 0.5 to 5% by weight of at least one 4 to 7 carbon atom alkanol, and fluid B, which consists

essentially of at least one reservoir acidizing solution which is capable of dissolving at least one component of the reservoir rock;

correlating the kinds and amounts of the compounds dissolved or dispersed within fluid A relative to physical and chemical properties of the reservoir and reservoir fluids so that, at the reservoir temperature, the interfacial tension between fluid A and the reservoir oil is low enough for an efficient displacement of that oil and, at the selected rate of fluid injection, the ratios between the effective viscosity of fluid A and mixtures of fluid A and the reservoir oil are high enough to maintain a substantially stable displacement of the reservoir oil within the reservoir for a distance of from about 1 to 10 feet from the well; and,

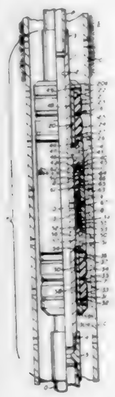
injecting at least one portion of fluid B following an injection of fluid A into the same portion of the reservoir.

4,279,306

WELL WASHING TOOL AND METHOD

Robert D. Weitz, Houma, La., assignor to Top Tool Company, Inc., Houma, La.

Filed Aug. 10, 1979, Ser. No. 65,520
Int. Cl.³ E21B *37/00, 33/124*
U.S. Cl. 166—312 **19 Claims**



1. A well washing tool comprising:

a tubular mandrel having a flow passage therethrough and the upper end of which is open and provided with means for connecting said tool in a pipe string extending to the surface of a well and the lower end of which is normally open but which may be provided with means for blocking flow of fluids from said pipe string through said mandrel flow passage;

first and second packer assemblies carried on said mandrel at opposite ends thereof;

an outer tubular body surrounding said mandrel between said packer assemblies;

an annular chamber between said mandrel and said surrounding tubular body, said annular chamber being in fluid communication with said mandrel flow passage through first port means provided in the walls of said mandrel, said tubular body being provided with second port means permitting fluid communication between said annular chamber and the exterior of said tools; and

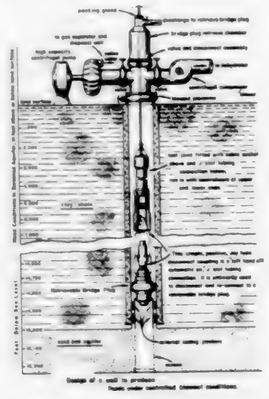
valve means carried within said annular chamber independently of said packer assemblies blocking said second port means and preventing said fluid communication between said annular chamber and said tool exterior but responsive to predetermined pressure communicated to said annular chamber through said first port means to unblock said second port means permitting fluid communication between said mandrel flow passage and said tool exterior through said first port means, said annular chamber and said second port means.

4,279,307

NATURAL GAS PRODUCTION FROM GEOPRESSURED AQUIFERS

Paul H. Jones, Baton Rouge, La., assignor to P. H. Jones Hydrogeology, Inc., Baton Rouge, La.

Filed Mar. 9, 1979, Ser. No. 19,122
Int. Cl.³ E21B *33/072, 33/127, 43/12, 43/30*
U.S. Cl. 166—314 **36 Claims**



1. A method of natural gas production from wells having a well-bore and well-head and which are drilled into geopressured gas-saturated aquifers, comprising the steps of:

(A) permitting an initial flow of geopressured gas-saturated water;

(B) causing a substantial absence of back-pressure at the well-head by drawing off flow by pumping;

(C) continuing the flow of gas-saturated water until water slugs appear at the well-head, to indicate reversal of the gas/water permeability ratio and creation of a gas cap whose edge is the gas/saturated-water interface; and

(D) maintaining the absence of back-pressure by pumping to permit a maximum continuous flow of natural gas.

27. An apparatus for natural gas production from wells having a well-bore and well-head and which are drilled into geopressured gas-saturated aquifers, comprising:

(a) fluid flow control means located within the well-bore to prevent the flow of fluid;

(b) means for equalizing the pressure in the well-bore above and below the fluid flow control means;

(c) means for operating the fluid flow control means to permit fluid flow;

(d) means for permitting an initial flow of geopressured gas-saturated water;

(e) means for causing a substantial absence of back-pressure at the well-head and for continuing the flow of gas-saturated water until wafter slugs appear at the well-head to indicate reversal of the gas/water permeability ratio and creation of a gas cap whose outer edge is the gas/-saturated-water interface; and

(f) means for maintaining the absence of back-pressure to permit a maximum continuous flow of natural gas.

4,279,308

SURFACE CASING STABILIZER AND HANGER AND METHOD OF EMPLOYING THE SAME

Charles E. Gray, deceased, late of Jena, La., and by Emma Dee Gray, executrix, Jena, La. 71342

Filed Apr. 25, 1979, Ser. No. 33,082
Int. Cl.³ E21B *17/00*
U.S. Cl. 166—315 **5 Claims**



1. A well casing hanger and stabilizer for fixedly mounting the upper end of a tubular well casing concentrically within a conductor and in a well bore hole, said hanger and stabilizer comprising:

laterally opposed, oppositely oriented, semi-circular, edge abutting metal hanger cylinder halves forming an annular assembly concentrically surrounding the upper end of said well casing and positioned between said well casing and said bore hole wall,

said halves having upper and lower end walls, vertical edges and radially outer and inner walls,

slots on the upper walls extending inwardly from said vertical edges and between said radially outer and inner walls, said slots cooperating with means for locking said cylinder halves together in edge abutment with the inner periphery of said cylinder halves in frictional grip with the outer periphery of said casing and with the outer periphery of said cylinder halves lodged within the well bore hole at its upper end, and

means for clamping the conductor and hanger together to strengthen the conductor at the location of the hanger.

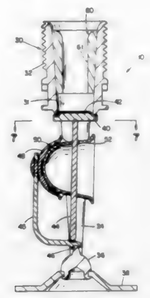
4,279,309

SPRINKLER HEAD WITH NONCIRCULAR THROAT

Michael A. Fischer, North Kingston, and James W. Mears, Warwick, both of R.I., assignors to Grinnell Fire Protection Systems Company, Inc., Providence, R.I.

Filed Jun. 29, 1979, Ser. No. 53,262
Int. Cl.³ A62C *37/12*
U.S. Cl. 169—37 **9 Claims**

1. In a fire-protection sprinkler head of the type including a base, a throat in said base through which fire-retardant fluid can flow, a deflector plate spaced away from said base, and one or more arms extending from said base for supporting said deflector plate, whereby when flow through said throat is established fluid emerges from said throat in a stream which impinges on said plate and is deflected in a spray pattern, said arms being located so that they tend to obstruct the flow of said fluid so as to produce shadow areas in said spray pattern where the spray density is lower than average, the improvement wherein the transverse cross section of said throat is noncircular and elongated principally along a single axis directed away from said arms, said elongation being such that, in any said transverse cross section, the dimension of said throat in the general direction of said single axis is greater than the dimension in any other direction and such that said single axis has the same orientation along the entire axial length of the throat, the shape of said elongated cross section being selected so that said stream emerging from said throat is also elongated



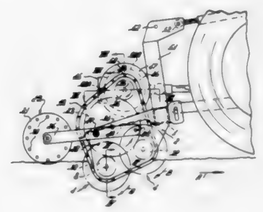
away from said arms, thereby spreading portions of said stream away from said arms so as to reduce the obstructing influence of said arms and thereby increase the density of said spray pattern in said shadow areas.

4,279,310

SOIL WORKING MACHINE

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Filed Sep. 10, 1979, Ser. No. 73,860
Claims priority, application Netherlands, Sep. 28, 1978, 7809814
Int. Cl.³ A01B *33/02, 33/08, 33/10, 33/14*
U.S. Cl. 172—47 **29 Claims**



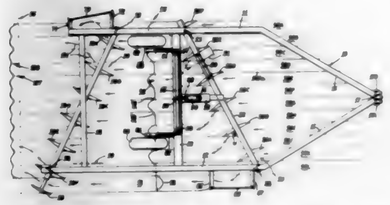
1. A soil working machine comprising a frame and at least two soil working rotors journalled in said frame for rotation about respective, substantially horizontal axes that extend transverse to the normal direction of travel, driving means connected to rotate said rotors, each of said rotors having corresponding soil working means, the axes of rotation of said rotors being normally positioned at different levels and located one in front of the other with respect to the direction of machine travel, the working paths of the soil working means of the forward rotor intersecting the working paths of the rear rotor, each of said two rotors comprising an elongated carrier formed by plates having interengaging longitudinal ribs and soil working members fastened to said ribs.

4,279,311

HIGH SPEED TILLER WITH WIDELY SPACED DISCS

William J. Dietrich, Sr., Congerville, Ill., assignor to DMI, Inc., Goodfield, Ill.

Filed Jul. 23, 1979, Ser. No. 59,682
Int. Cl.³ A01B 21/08
U.S. Cl. 172—509 9 Claims



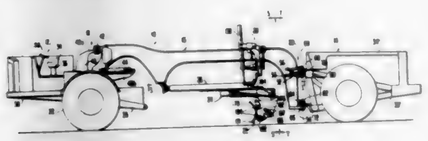
1. Apparatus for tilling soil adapted to operate at ground speeds in excess of about 4½ miles per hour, comrising: a frame; at least a first set of rotatable discs carried by said frame for tilling the soil and adapted to throw the soil in a first lateral direction, the discs of said first set being spaced from each other at least as great as about 75 percent of the diameter of said discs to leave alternate strips of tilled and untilled ground; at least a second set of discs carried by said frame to the rear of said first set and adapted to throw soil in a lateral direction opposite to said first lateral direction; the discs of said second set being spaced from each other at least as great as about 75 percent of the diameter of said discs and located at till said strips of untilled soil left by said first set, the lateral working width of said discs of said second gang being sufficient to work said strips of untilled soil left by said first set, first deflector means adjacent the working surface of an outermost disc of said first set for channeling dirt thrown thereby onto a strip of untilled ground in front of an associated outermost disc of said second set; and second deflector means adjacent the working surface of an outermost disc of said second set for deflecting soil thrown thereby into a furrow formed by a disc on said first set, the axes of said discs of said first and second sets being substantially horizontal and defining a working angle in the range of about 20° to 35°, whereby all of the soil is tilled in a single pass of said apparatus without substantial overlap of said discs of said first and second sets and said apparatus leaves the soil substantially free of ridges and furrows.

4,279,312

DUAL TRACTOR ROAD GRADER WITH DOUBLE ARCHED CENTER FRAME

Donald L. Pyle, Rte. 1, Box 298, Miles City, Mont. 59301

Filed Mar. 29, 1979, Ser. No. 25,155
Int. Cl.³ E02F 3/76
U.S. Cl. 172—789 4 Claims



1. An earth working apparatus comprising:
first single axle tractor means,
second single axle tractor means,
a double arched center frame articulated at one end thereof to said first tractor means and at the other end thereof to said second tractor means,
a draw bar and yoke assembly including a subframe mounted to said center frame, said subframe supporting a rotatable subframe ring for rotation about an axis intersecting the plane of said draw bar and yoke assembly,
a mold board assembly including a mold board and blade carried by said rotatable ring and means for adjusting the angle of attack of said blade, the angle of inclination of the longitudinal axis of said mold board, the vertical lift position of the mold board and blade, and lateral position of the rotatable subframe ring relative to the arched center frame,
the improvement wherein:
said double arched center frame comprising a first arcuate underportion, a second arcuate underportion spaced longitudinally from said first arcuate underportion, said first arcuate underportion including a first depending leg and a second depending leg, said second arcuate underportion including a third depending leg and a fourth depending leg, said second depending leg and said third depending leg defining therebetween a depending center common leg of said double arched center frame,
a ball and socket mount connecting the leading end of said draw bar and the yoke assembly to said depending center common leg of said double arched center frame,
a pair of longitudinally spaced yoke plates affixed to said center frame intermediate of said center common leg and said other end of said arched center frame,
bell cranks pivotably mounted to said spaced yoke plates on respective lateral sides of said center frame and each including a first arm doubly pivotably coupled to one end of a corresponding hydraulic lift cylinder for pivotal movement about intersecting horizontal axes, each lift cylinder disposed on a respective side of said center frame and a second arm at an angle to said first arm and pivotably coupled to a link member common to said bell cranks,
means for pivotably connecting the other end of said lift cylinders to said rotatable subframe ring on opposite sides of said center frame,
means for pivotably connecting one end of a side shift hydraulic cylinder to said subframe at one side of said center frame and at the other end to said link member intermediate of its pivot connections to the second arms of said bell crank members, such that extension and retraction action of said hydraulic lift cylinders causes said subframe, said rotatable ring and said mold board assembly to be vertically raised or lowered, extending or retracting one of said hydraulic lift cylinders with respect to the other, causes said mold board assembly to be tilted in the plane of the longitudinal axis of the mold board and extension or retraction action of said side shift hydraulic cylinder causes said subframe and said mold board assembly to be shifted laterally with respect to the longitudinal center line of said center frame.

4,279,313

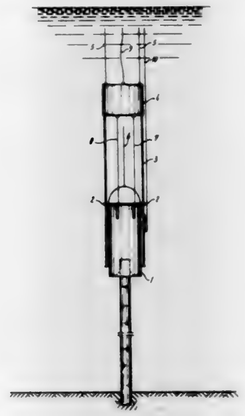
UNDER WATER PILE DRIVER

Joost W. Jansz, deceased, late of The Hague, Netherlands by Henriëtte C. Jansz-de l'Ecluse, heir, assignor to Hollandsche Beton Groep N.V., Rijswijk, Netherlands

Filed Apr. 18, 1979, Ser. No. 31,093
Claims priority, application Netherlands, Apr. 19, 1978, 7804172
Int. Cl.³ E02D 7/10
U.S. Cl. 173—112 3 Claims

1. An apparatus for underwater pile driving, comprising:
(a) a submersible drive unit
(b) means suspending the drive unit from a surface vessel or platform.
(c) auxiliary frame means permanently attached to and depending downwardly from the drive unit,
(d) a pile hammer operatively disposed below the drive unit and guided within the auxilliary frame for vertical movement relative to the drive unit, and
(e) flexible high pressure conduit means connected between the drive unit and the pile hammer for transmitting energy

generated within the drive unit to the pile hammer, whereby shocks and vibrations developed during impacts



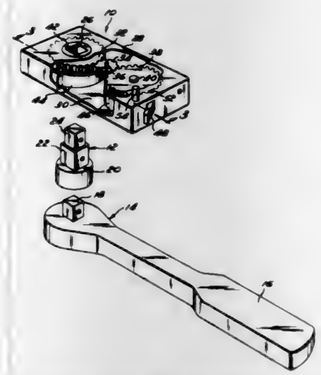
of the pile hammer are substantially isolated from the drive unit.

4,279,314

RATCHET WRENCH ATTACHMENT

Darrel Taub, 6611 Woodley, Apt. 11, Van Nuys, Calif. 91406

Filed May 5, 1980, Ser. No. 146,798
Int. Cl.³ E21B 3/00
U.S. Cl. 173—163 9 Claims



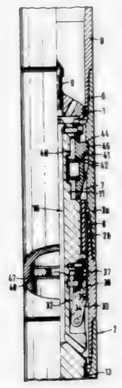
1. An attachment to be used in conjunction with a ratchet wrench comprising:
a housing having an internal compartment, an access opening formed within said housing connecting with said internal compartment;
a primary drive gear rotatably mounted within said internal compartment, said primary drive gear having a socket opening centrally located within said primary drive gear, said socket opening connecting with said access opening;
a secondary drive gear rotatably mounted within said internal compartment, said secondary drive gear being operatively connected through an idler gear to said primary drive gear;
a spring assembly connected to both said primary and said secondary drive gears, said spring assembly being windable by rotating said socket opening, said socket opening to connect with a socket plug, said spring assembly to cause rotation of said socket plug; and
a movable pawl mounted on said housing and located within said internal compartment, said movable pawl being movable between an engaging position and a disengaging position, said engaging position connecting said movable pawl with one of said drive gears and preventing rotation of said socket opening by said spring assembly.

4,279,315

APPARATUS FOR EXTRACTING CORES

Fritz Tibussek, München-Gladbach, Fed. Rep. of Germany, assignor to Wirth Maschinen- und Bohrgerate-Fabrik GmbH, Fed. Rep. of Germany

Filed Jan. 31, 1980, Ser. No. 117,292
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1979, 2903936
Int. Cl.³ E21B 10/02
U.S. Cl. 175—249 17 Claims



1. In an apparatus for extracting cores which comprises an outer tube, an inner tube which contains a core receiving space, and a striking device which comprises a hammer and an anvil for producing a periodic axial movement of the inner tube relative to the outer tube, the improvement comprising that the inner tube, the striking device and an associated supporting body form a unit which may be moved through the outer tube in the axial direction thereof by means of a withdrawl mechanism, said supporting body being provided with a sleeve-shaped extension which surrounds said striking device, and that a part of said unit joined to an element of the striking device for rotational entrainment may be connected to the inner tube.

4,279,316

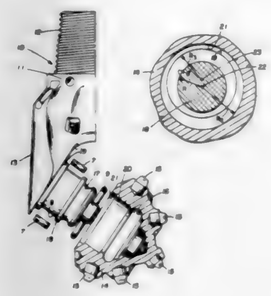
EARTH BORING BIT WITH ECCENTRIC SEAL BOSS

James E. Helmick, Plano, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Oct. 9, 1979, Ser. No. 83,085
Int. Cl.³ F16C 17/02; E21B 9/10
U.S. Cl. 175—371 2 Claims

1. A rolling cutter earth boring bit for drilling by having an axial load and rotary load applied, comprising:
an axially extending bit body;
at least one bearing pin extending from said bit body, said bearing pin having a bearing pin central axis extending generally radially;
a rolling cone cutter rotatably mounted on said bearing pin;
said bearing pin having an annular seal surface immediately adjacent said body eccentric to said pin central axis and in alignment with an annular facing surface in said cone, said annular seal surface having a seal surface central axis displaced from said bearing pin central axis on the side

thereof opposite said axial load on said pin from said cone; and



an annular seal positioned between said seal surface and said rolling cone cutter that is substantially evenly squeezed therebetween when said axial load is applied.

4,279,317

MAGNETIC COUPLING FOR A WEIGHING BALANCE ASSEMBLY

Dick P. McCord, and Mark E. Eberhardt, Jr., both of Troy, Ohio, assignors to Hobart Corporation, Troy, Ohio

Filed Oct. 1, 1979, Ser. No. 80,803
Int. Cl.³ G01G *23/10*
U.S. Cl. 177—185 **5 Claims**



1. In a weighing balance assembly including means for supporting a sample to be weighed, means for weighing the sample, and a generally upright force transmitting sample support shaft connecting the sample support means and weighing means, the improvement comprising:

means secured to said weighing means magnetically coupling said sample support shaft to said weighing means while permitting transverse movement of said sample support shaft relative to said weighing means when said sample support shaft and sample supporting means are bumped or jarred, whereby damaging forces and torques are prevented from reaching said weighing means.

4,279,318

TRACK TENSIONING APPARATUS

Thomas C. Meisel, Jr., Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

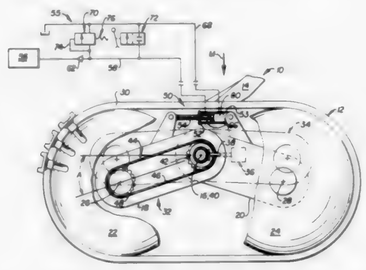
Continuation-in-part of Ser. No. 909,759, May 26, 1978, abandoned. This application Nov. 9, 1979, Ser. No. 92,913
Int. Cl.³ B62D *55/30*
U.S. Cl. 180—9.64 **6 Claims**

1. A work vehicle (**10**), comprising:

a frame (**14**) having an axis (**16**);

a first element (**18**) having a first wheel (**22**) and being connected to said frame (**14**) and pivotally movable relative to said frame (**14**) about said axis (**16**) of said frame (**14**), said first wheel (**22**) having an axis (**26**) and being rotatable about said axis (**26**);

a second element (**20**) having a second wheel (**24**) and being connected to said frame (**14**) and pivotally movable relative to said first element (**18**) and about said axis (**16**) of said frame (**14**), said second wheel (**24**) having an axis (**28**) and being rotatable about said axis (**28**), said second wheel (**24**) and said first wheel (**22**) being movable one relative to the other between a first position (**32**) at which said axes (**26,28**) of said first and second wheels (**22,24**) are spaced a first preselected distance one from the other and a second position (**34**) at which said axes (**26,28**) of said first and second wheel (**22,24**) are spaced a second different preselected distance one from the other;



a track (**30**) positioned about and in contact with said first and second wheels (**22,24**) and having a tension initiated in response to said first and second wheels (**18,20**) being urged against said track (**30**);

power means (**36**) for rotating at least one of said first and second wheels (**18,20**) for driving said track (**30**) with said at least one of said wheels (**18,20**); and

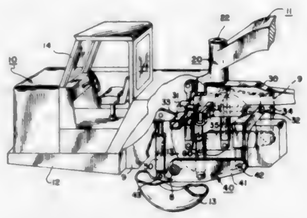
means (**50**) for controllably, pivotally moving said first and second wheels (**22,24**) one relative to the other for controllably maintaining a preselected tension in said track (**30**), said means (**50**) including a hydraulic cylinder (**52**) having first and second ends (**53,54**) and being connected at one of said ends (**53,54**) to said first element (**18**) and at the other of said ends (**53,54**) to said second element (**20**) at locations for pivotally moving said first and second elements (**18,20**) one relative to the other.

4,279,319

HYDRAULIC CONTROL SYSTEM FOR VEHICLE AXLE SUSPENSION

Hardin Joyce, Jr., Springfield, Ill., assignor to Fiat-Allis Construction Machinery, Inc., Deerfield, Ill.

Filed Jul. 25, 1979, Ser. No. 60,829
Int. Cl.³ B60D *7/02*; B60G *11/30, 17/06, 17/08*
U.S. Cl. 180—12 **11 Claims**



1. A control system for a hydraulic suspension system of a double-axle articulated vehicle having a tractor portion and a trailer portion,

said tractor portion including a drive axle operatively connected to a tractor frame with at least one double-acting hydraulic cylinder operatively connected between the drive axle and the frame for damping vertical bounce movement therebetween,

a hitch member for coupling said trailer portion to said tractor portion to permit relative rolling motion therebetween about an axis extending longitudinally through said vehicle with at least one other double-acting hydraulic cylinder operatively connected between the drive axle and the hitch member to dampen the relative rolling movement between the tractor and trailer portions about said axis, said control system comprising:

cushioning control means for controlling the spring and viscous damping characteristics of each of said double-acting hydraulic cylinders, said cushioning control means interposed in fluid communication between a source of pressurized hydraulic fluid and a first chamber of each of said double-acting hydraulic cylinders,

rebound control means for controlling the spring and viscous damping characteristics of each of said double-acting hydraulic cylinders, said rebound control means interposed in fluid communication between said source of pressurized hydraulic fluid and a second chamber of each of said double-acting hydraulic cylinders,

sensing means for detecting the vertical position of the tractor frame relative to the drive axle and generating a control signal responsive to the relative vertical position of the tractor frame and the drive axle, and

levelling means for maintaining the tractor frame within a predetermined vertical distance relative to the drive axle, and operatively connected to said sensing means to receive said control signal for actuation in response thereto,

said levelling means including valve means operable to a plurality of positions and interposed in fluid communication between said source of pressurized hydraulic fluid and the first and second chambers of said double-acting hydraulic cylinders,

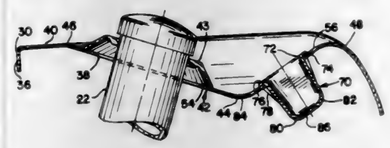
said valve means operable for mutually exclusively directing pressurized hydraulic fluid to said first chamber of said double-acting hydraulic cylinders and discharging pressurized hydraulic fluid from said first chamber of said double-acting hydraulic cylinders thereby modulating the flow of pressurized hydraulic fluid therefrom and thereto.

4,279,320

HAND GRIP/FILLER NECK RECESS FOR A TRACTOR HOOD

Michael C. Brandl, Westmont; David T. Kataoka, Berwyn, and George E. Bowman, Country Club Hills, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Jan. 22, 1980, Ser. No. 114,433
Int. Cl.³ B62D *25/10*
U.S. Cl. 180—69 R **4 Claims**



1. The improvement of a hood for a tractor having a filler neck passing through a neck aperture in the top surface of the hood, said neck aperture being transversely spaced apart from the centerline of the tractor, the improvement including, in combination:

a downwardly projecting trough in said top surface, the bottom of said trough being a major depression substantially parallel to said tractor centerline and connected to said top surface at four break lines by inner, outer, fore and aft sides, said major depression including a pair of run-off apertures, each of said run-off apertures being adjacent one of said fore and aft sides, said inner side including said neck aperture and said outer side including a grip aperture;

means for resiliently and sealably connecting said filler neck and said inner side; and

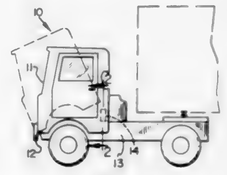
a downwardly projecting hand grip sealably secured to said outer side in said grip aperture, the base of said hand grip being a primary depression with fore and aft ends connected by a surface substantially parallel to said tractor centerline, said primary depression including a pair of drain apertures, each of said drain apertures adjacent one of said fore and aft ends.

4,279,321

LATCHING SYSTEM FOR A TRUCK CAB

Thomas R. Stone, Hayward, Calif., assignor to PACCAR Inc, Bellevue, Wash.

Filed Jan. 9, 1980, Ser. No. 110,680
Int. Cl.³ B62D *27/06*
U.S. Cl. 180—89.14 **13 Claims**



1. A rear mounting and latching system for a cab-over-engine truck cab, for enabling relative movement of the cab and the truck frame when the frame twists due to movement of the truck over uneven surfaces, comprising:

a pair of frame mounts comprising mounting cradles secured to the frame at the rear of the cab, one at each side, each mounting cradle having a first surface steeply inclined downwardly in the outboard direction and an adjacent second surface, extending generally from the lower end of the first surface in the outboard direction, generally sloping downwardly but at less inclination than the first surface;

a pair of cab mounts secured to the cab, shaped complementarily to the mounting cradles and positioned to engage in the cradles from above and to center the cab rear when the cab is in its normal position on the frame, each mount having a first surface positioned to engage the first surface of the cradle and a second surface positioned to engage the second surface of the cradle; and

latching means for urging each mount toward its normal position in the mounting cradle while enabling side-to-side, upward, and rocking motion at each cab mount, relative to the frame;

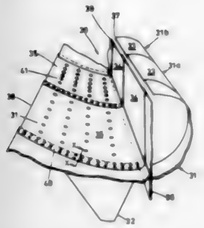
whereby, upon twisting of the frame, the cab rear can undergo side-to-side and rocking motion with respect to the frame, with the second surface of one mount sliding outboard on the corresponding second surface of the adjacent mounting cradle and the other mount traveling above and inboard of its normal position, out of contact with the adjacent cradle.

4,279,322

AIR CUSHION VEHICLE FLEXIBLE SKIRT ASSEMBLIES

Raymond L. Wheeler, East Cowes; John Henry, Cowes, and John E. Dadswell, Newport, all of England, assignors to British Hovercraft Corporation Limited, Yeovil, England

Filed Apr. 23, 1979, Ser. No. 32,217
Claims priority, application United Kingdom, Apr. 28, 1978, 16151/78; Mar. 22, 1979, 10198/79; Apr. 20, 1979, 13801/79
Int. Cl.³ B60V *1/16*
U.S. Cl. 180—128 **18 Claims**



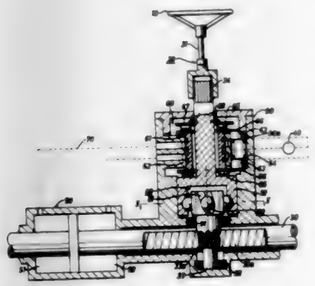
1. A rip stop device comprising a flexible sheath member formed from fabric reinforced elastomeric material, a flexible core member extending throughout the length of said sheath member and chemically bonded thereto, said sheath member including tensile load path discontinuities in portions of the reinforcing fabric of said sheath member which extend in opposed lateral directions with respect to said core member at intervals along the length of said core member in regions of said sheath member remote from said core member so that local tensile loads on said sheath member are passed into and transmitted along said core member.

4,279,323

POWER STEERING DEVICE FOR WHEELED VEHICLES

Masahisa Ando, Aichi; Keigo Kato, and Tomozi Ishikawa, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Aug. 21, 1979, Ser. No. 68,533
Claims priority, application Japan, Sep. 1, 1978, 53-107806
Int. Cl.³ B62D *5/06*
U.S. Cl. 180—148 **5 Claims**



1. In a power steering device for wheeled vehicles comprising a steering shaft assembly including first and second shafts arranged for relative rotation on aligned axes, a driven member for operative connection with the steering road wheels of the vehicle and arranged to be driven by rotational torque of said steering shaft assembly, a hydraulic cylinder for actuating said driven member by fluid under pressure supplied thereto from a source of fluid pressure, a hydraulic circuit connecting said cylinder to said fluid pressure source to supply fluid under pressure to said cylinder, valve means having a valve member arranged to be moved in response to rotation of said steering shaft assembly in an axial direction, said valve means being disposed within said hydraulic circuit to control the supply of fluid under pressure in response to axial movement of said valve member, and a cam mechanism associated with said steering shaft assembly for transmitting rotational torque of said first shaft to said driven member through said second shaft and for conducting axial movement of said valve member in response to rotation of said shaft assembly,

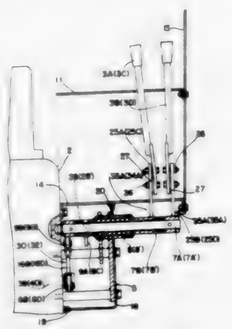
the improvement wherein one of said shafts is provided at its inner end with a cylindrical portion and the other shaft has an inner end coupled within the cylindrical portion of the one shaft, and wherein said cam mechanism comprises at least one cam groove formed on the inner end of the other shaft at a predetermined angle relative to the axis line of said steering shaft assembly, at least one ball radially movable in the cylindrical portion of the one shaft and operatively engaging said cam groove, and a sleeve member in surrounding relationship to the cylindrical portion of the one shaft and being biased to urge said at least one ball towards said at least one cam groove.

4,279,324

OPERATING LEVER ASSEMBLY FOR FARM TRACTORS

Toshiyuki Yotsumoto, Kishiwada; Tuginobu Ujita, Sakai, and Eisaku Shinohara, Izumi, all of Japan, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,452
Claims priority, application Japan, Oct. 14, 1978, 53-126362
Int. Cl.³ B60K *20/02*
U.S. Cl. 180—336 **5 Claims**



1. An operating lever assembly for a farm tractor including a driver's seat and a transmission casing, comprising:

at least two operating rods extended through and outwardly of a side wall of said transmission case,

a bracket means disposed outside of and attached to said side wall of said transmission,

at least one set of double-shaft means composed of inner and outer turning shafts, respectively, and rotatable relative to each other, said double-shaft means being supported for rotation by said bracket means, and said inner turning shaft having an inner end portion fittingly inserted into a bore formed in said side wall of said transmission and thus turnably supported by said side wall,

at least two sets of link means for operatively connecting said operating rods to said inner and outer turning shafts, respectively, and

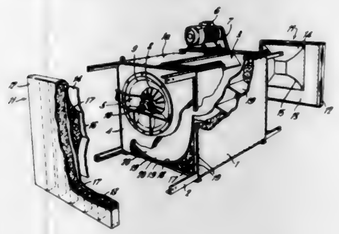
a control lever means having at least two operating levers disposed adjacent to said driver's seat, said operating levers being operatively connected to said inner and outer turning shafts, respectively.

4,279,325

ACOUSTIC TREATMENT FOR FANS

Louis A. Challis, 158 Queen St., Woollahra, New South Wales 2025, Australia

Division of Ser. No. 695,622, Jun. 14, 1976, Pat. No. 4,174,020.
This application Jun. 15, 1979, Ser. No. 48,863
Claims priority, application Australia, Jul. 1, 1975, PC2191; Aug. 13, 1975, PC2790
Int. Cl.³ F01N *1/04*; E04B *1/82*
U.S. Cl. 181—211 **4 Claims**



1. Apparatus for attenuating noise emitted from an inlet port to a centrifugal fan, and comprising a panel member adapted to be mounted in spaced confronting relationship to said inlet port, said panel member including

(a) a rigid backing member,

(b) a perforated, acoustically permeable facing mounted in spaced disposition from said rigid backing member and adapted to face said inlet port,

(c) wall means dividing the space between said rigid backing member and said facing into a plurality of Helmholtz absorption cavities, said facing providing a small area of perforation for each of said cavities for transmitting noise into said cavities, at least a substantial portion of said cavities being dimensioned to have resonant frequencies in the range of about 30 Hz to 250 Hz, and

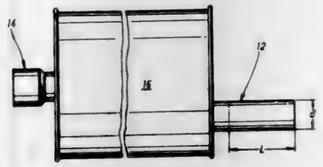
(d) acoustic infill in the absorption cavities between said rigid backing member and said facing, whereby said apparatus has a high degree of attenuation in the range of about 30 Hz to 250 Hz.

4,279,326

EXHAUST MUFFLER

Sam W. Meineke, and Harold Nedell, both of 6330 W. Loop S., Suite 103, Bellaire, Tex. 77401

Continuation of Ser. No. 946,593, Sep. 28, 1978, abandoned, which is a division of Ser. No. 784,158, Apr. 4, 1977, Pat. No. 4,164,267, which is a continuation of Ser. No. 598,709, Jul. 24, 1975, abandoned. This application Mar. 13, 1980, Ser. No. 130,169
Int. Cl.³ F01N *7/08*
U.S. Cl. 181—228 **4 Claims**



1. A universal replacement muffler which is adjustable at the time of installation to connect the exhaust pipe section and the tail pipe section of an existing vehicular exhaust system without the use of adapters or extenders comprising:

an elongate body portion having a housing and end walls at opposite ends of said housing, each of said walls defining an opening;

gas passage means interior said elongate body portion;

a first end pipe fabricated from killed steel and connected to said opening in a first of said end walls,

said first end pipe having a first original diameter,

said first end pipe being of sufficient initial length so that it may be trimmed to a desired final length which will connect the exhaust pipe section and the tail pipe section of an existing vehicular exhaust system, and

said first end pipe being expandable to between about 112% and about 125% of said first original diameter,

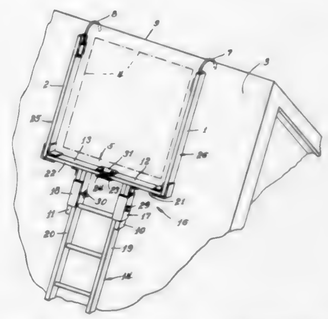
whereby said muffler eliminates the necessity of using adapters or extenders to connect a replacement muffler to the exhaust pipe section or to the tail pipe section of an existing vehicular exhaust system.

4,279,327

VENTILATING LADDER

Richard A. Warren, 1223 Hamilton, Elmhurst, Ill. 60126

Filed Apr. 4, 1980, Ser. No. 115,040
Int. Cl.³ E06C *1/36*
U.S. Cl. 182—206 **4 Claims**



1. A folding ladder attachment device to be attached to the top of a roof ladder to aid in cutting ventilation holes in a roof comprising:

a. a pair of side bars separated by a distance greater than the distance across the area through which the ventilation hole is to be cut;

b. a lower bar member transverse to the pair of side bars and integrally secured to the pair of side bars at the ends of the lower bar member;

c. a pair of transverse bar members spaced apart and attached at one end to a center portion of said lower bar member to allow the top portion of the roof ladder to fit tightly between and parallel to the pair of transverse bar members;

d. a pair of sleeves integrally secured to the top portion of the roof ladder through which the pair of transverse bar members slide;

e. a pair of pins that slide through openings in the sleeve portion, openings in the upper portions of the roof ladder, and openings in the pair of transverse bar members to lock the ladder attachment to the roof ladder;

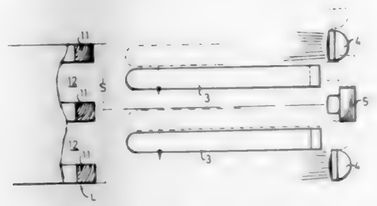
f. and a pair of rigid bar hooks integrally secured to the upper portions of the pair of side bars to secure the ladder attachment device to the ridge of the roof.

4,279,328

DEVICE FOR ORIENTING A LIFTING MEANS, FOR EXAMPLE, IN RELATION TO A LOAD

Sten H. N. Ahlbom, Västra Frölunda, Sweden, assignor to AB Volvo, Goteborg, Sweden

Filed Apr. 17, 1979, Ser. No. 30,828
Claims priority, application Sweden, Apr. 28, 1978, 7804927
Int. Cl.³ B66B *9/20*
U.S. Cl. 187—9 R **12 Claims**



1. In a device for orienting a lift fork on a fork-lift truck in a certain position in relation to a pallet having a hole therethrough, comprising light-emitting means movable with the lift fork and disposed to illuminate the pallet, a photoelectric detector which is movable together with the lift fork, electronic control equipment connected to the photoelectric detector to receive signals from the same, and operating equipment for the lift fork, connected to the control equipment for moving the lift fork dependent on signals from the control equipment, an image consisting of lighter and darker fields being created on the pallet within a scanning area for the photoelectric detector, the control and operating equipment being disposed to move the lift fork with the photoelectric detector in one direction over the scanning area, the detector being arranged during this movement to scan the pallet to register said light and dark fields and send signals to the control and operating equipment for orientation of the lift fork depending on the location of the light and dark fields; the improvement in which the axes of said photoelectric detector and light-emitting means are vertically spaced from each other and are inclined toward each other, as seen from the side, in the direction of emission of light from said light-emitting means, at a sufficiently great angle that the point of convergence of said axes, as seen from the side, does not extend beyond the pallet.

4,279,329

SAFETY DEVICE FOR LIFT EQUIPMENT

Peter Gehron, Bensheim, Fed. Rep. of Germany, assignor to Gebr. Hofmann GmbH, KG Maschinenfabrik, Darmstadt, Fed. Rep. of Germany

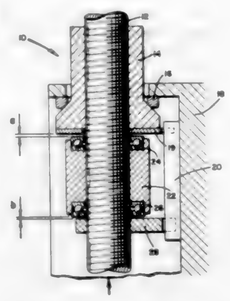
Filed Aug. 27, 1979, Ser. No. 69,766
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 2906172
Int. Cl.³ B66B *11/04*
U.S. Cl. 187—25 **19 Claims**

1. A safety device for spindle-operated lifting equipment, particularly for two-post motor-vehicle lifts having a lifting nut supporting a lift carriage guided on a post, the lifting nut being itself guided on a spindle, said safety device comprising:

a safety nut guided on a spindle and located at a first predetermined small distance beneath a lifting nut, said safety nut supporting the lifting nut upon excessive wear of the latter;

a lock nut guided on the spindle and located a second predetermined small distance beneath said safety nut; and

means for forcing said safety nut and said lock nut to run on the spindle with the lifting nut when the lifting nut is moving on the spindle, said means for forcing being responsive to weight placed on said safety nut when said safety nut supports the lifting nut to prevent upward



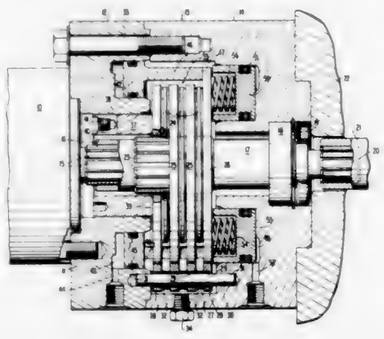
movement on the spindle of the safety nut and supported lifting nut.

4,279,330

DOUBLE-ACTING DISC BRAKE

Donald R. Pottorff, Mercersburg, Pa., and Rene G. Galmiche, Hagerstown, Md., assignors to Walter Kidde & Company, Inc., Clifton, N.J.

Filed Jun. 27, 1977, Ser. No. 810,511
Int. Cl.³ F16D *55/46*
U.S. Cl. 188—71.7 **1 Claim**



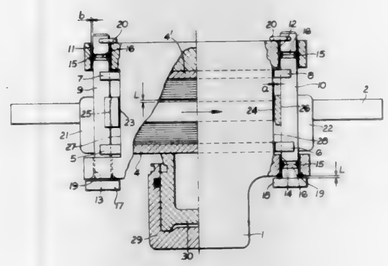
1. A disc brake comprising housing means, said housing means having a brake chamber and pressurized fluid chamber means, a rotor including rotor discs journaled on the housing means with the rotor discs disposed in said disc chamber, stator discs in the disc chamber in alternating relation to the rotor discs and being anchored to the housing means, a disc brake operating means in said pressurized fluid chamber means and responding to fluid pressure therein, and a brake disc adjusting means on said housing means and operable to selectively adjust said discs axially to compensate for wear and proper position and travel of said disc brake operating means, said brake disc adjusting means comrising an externally threaded sleeve having threaded engagement with the housing means and disposed in spaced surrounding relation to a portion of said rotor and having an end face adapted to bear against one endmost stator disc in the brake disc chamber, said threaded sleeve being split, and a tapered threaded plug connected with said split sleeve to expand the same laterally into locked engagement with the housing means.

4,279,331

FLOATING-CALIPER DISC BRAKE

Hans-Henning Lüpertz, Darmstadt, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Continuation of Ser. No. 6,945, Jan. 25, 1979, abandoned. This application Oct. 22, 1979, Ser. No. 87,262
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1978, 2804977
Int. Cl.³ F16D *55/224*
U.S. Cl. 188—73.3 **12 Claims**



1. A floating-caliper disc brake comprising:

a brake carrier having a pair of spaced arms extending above the edge of a brake disc having an axis of rotation;

a brake caliper straddling the edge of said disc having a pair of spaced first supporting surfaces parallel to said axis of rotation, each of said pair of first supporting surfaces being associated with a different one of said pair of spaced arms above the edge of said disc;

a cylindrical cup secured to each of said pair of spaced arms centrally above said disc, each of said cups having a second supporting surface parallel to an associated one of said pair of first supporting surfaces to support said caliper in the direction of rotation of said disc and a concave opening opposite said second supporting surface having a longitudinal dimension parallel to said second supporting surface, said concave openings being opened outwardly away from each other in a common plane disposed perpendicular to and substantially above said disc;

a pair of brake shoes each bearing directly against said caliper, one of said pair of brake shoes being disposed on one side of said disc and the other of said pair of brake shoes being disposed on the other side of said disc;

a brake-actuating device carried by said caliper on said one side of said disc to actuate said pair of brake shoes; and

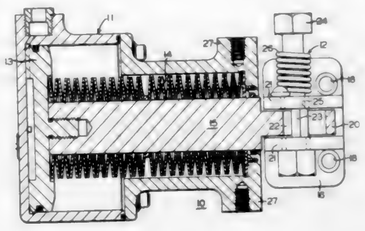
a pair of spaced guide pins secured to said caliper parallel to said axis of rotation, each of said pair of spaced guide pins slidably engaging said concave opening of a different one of said cups to axially and slidably guide said caliper relative to said carrier, to hold said pair of brake shoes against said caliper and to clamp said pair of first supporting surfaces, said second supporting surfaces and said pair of brake shoes relative to each other so that circumferential forces developed during braking at said pair of brake shoes are distributed to both of said pair of spaced arms through said pair of first supporting surfaces, said second supporting surface, said pair of guide pins and said concave openings.

4,279,332

MANUAL RELEASE MECHANISM FOR SPRING-APPLIED PARKING BRAKE

Glenn Morgan, Brentwood, and Robert B. Morris, North Huntingdon, both of Pa., assignors to American Standard Inc., Wilmerding, Pa.

Filed Oct. 1, 1979, Ser. No. 80,593
Int. Cl.³ F16D *65/24*
U.S. Cl. 188—170 **10 Claims**



1. A spring-applied, fluid pressure released parking brake device for a fluid pressure actuated brake mechanism having first and second relatively movable brake members, said parking brake device comprising:

(a) a parking brake cylinder having a control port via which fluid pressure is supplied and released concurrently with the application and release of said fluid pressure actuated brake mechanism;

(b) a parking brake lever connected between said parking brake cylinder and a first one of said brake members;

(c) a piston operatively disposed in said parking brake cylinder and having a push rod projecting therefrom, said push rod having a connection with a second one of said first and second brake members, said piston cooperating with said parking brake cylinder to form therebetween a control chamber communicated with said control port, to which the supply of fluid pressure establishes relative axial movement between said piston and said parking brake cylinder in a first direction to accommodate movement of at least one of said first and second brake members in a brake release direction, said piston further cooperating with said parking brake cylinder to form therebetween a spring chamber on the opposite side of said piston as said control chamber;

(d) spring means normally disposed under tension in said spring chamber to urge relative axial movement between said piston and said parking brake cylinder in a direction opposite said first direction to cause concurrent movement of said at least one of said first and second brake members in a brake application direction in the absence of fluid pressure at said control chamber to establish a spring-applied parking brake force; and

(e) said connection between said push rod and said second brake member comprising manually operable means for effecting axial displacement of said piston relative to said parking brake cylinder in said opposite direction an amount sufficient to cage said spring means and accordingly relieve said spring-applied parking brake force, wherein said manually operable means comprises:

(i) a bracket mounted on said second member and engageable with said piston push rod of said parking brake cylinder to provide said connection of said push rod with said second brake member; and

(ii) cam means carried by said bracket for effecting said engagement of said bracket with said piston push rod in a first position, whereby relative axial movement therebetween is absent to accordingly maintain said spring means under tension, and for effecting said engagement between said bracket and said piston push rod with relative axial movement therebetween when said cam means is manually operated to a second position,

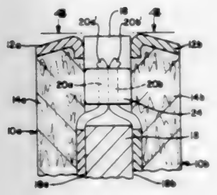
thereby effecting said axial displacement of said piston relative to said parking brake cylinder to cage said spring means.

4,279,333

METHOD AND APPARATUS FOR FASTENING A FRIACTION WEAR PAD TO A DISK CORE MEMBER

Richard L. Crossman, Tallmadge, and Richard L. Kirk, North Canton, both of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jan. 4, 1979, Ser. No. 44,879
Int. Cl.³ F16D *65/12, 69/04*
U.S. Cl. 188—218 XL **10 Claims**



1. A friction component comprising:

a disk core member having arcuate inner and outer peripheral edges and a plurality of open-end slots formed therein at spaced intervals about the inner and outer peripheral edges thereof, said slots extending radially from said inner and outer peripheral edges into said core member;

a plurality of friction pads mounted on the face surfaces of the disk core member, each said pad having a substantially flat base in intimate contact with the respective face surface of the core member and each said base having a plurality of tabs extending therefrom, the ends of said tabs face only in the radial direction of said core member and thereby one of the peripheral edges, said tabs are bent toward the base such that the major portion of the tab length is substantially parallel to the plane of the base, the tabs of the pad on one core face abutting the tabs of a pad on the opposite core face within the slots of the core member, and

means mounted on the tabs in each of said slots to lock the tabs in abutting relationship to thus securely mount the friction pads to the core member, said means being readily accessible from the peripheral edges through said open-ended slots.

5. A method of mounting friction wear pads to a circular disk core member having an outer peripheral edge and an inner peripheral edge comprising the steps of:

providing open-ended slots within the disk core member at spaced intervals about the inner and outer peripheral edges and extending radially from the inner and outer peripheral edges into said core member;

providing a plurality friction wear pads for mounting on said core member, each of said pads being provided with a base and having a plurality of tabs extending therefrom, one series of tabs are formed and spaced for alignment with the slots in the core member about the outer peripheral edge while another series of tabs are formed and spaced for alignment with the slots in the core member about the inner peripheral edge thereof;

mounting said plurality of pads on the disk face surfaces such that the tabs are positioned in the core slots, the tabs of said pads on one face surface abutting the tabs of said pads on the opposite face surface of the core member; and

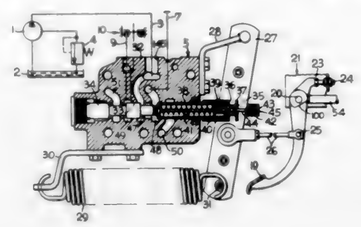
locking the abutted tabs together by radially sliding a clip means into each of said slots and over said abutting tabs to securely fasten the pads to the core member.

4,279,334

MECHANICAL DETENT FOR THREE SPEED POWER SHIFT TRANSMISSION

John R. Plate, and James H. Lucas, both of Milwaukee, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Aug. 6, 1979, Ser. No. 64,098
Int. Cl.³ B60K *41/24;* **F16D** *67/04*
U.S. Cl. 192—3.57 **10 Claims**



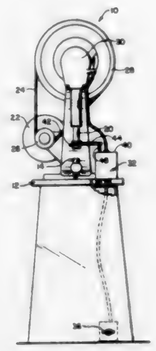
1. A detent mechanism in a hydraulic system comprising, a spool valve including a housing defining a cylindrical opening, a spool having a tubular end defining axially spaced grooves formed therein received in said cylindrical opening, a detent operating mechanism including a detent sleeve mounted on said housing and a detent actuator reciprocally mounted in said sleeve, said detent sleeve defining radial openings receiving detent elements for selective alignment with said grooves in the tubular end of said spool, a return spring means normally biasing said spool to a return position, said detent operating mechanism biasing said detent actuator for camming said detent elements radially outward in said openings of said detent sleeve and selectively in said grooves, said detent operating mechanism selectively releasing said detent elements from said grooves allowing said return spring to return said spool to the return position.

4,279,335

SAFETY DEVICE HAVING MACHINE DRIVE CAM CONTROL

Edwin W. Plumb, c/o Safeguard Manufacturing Company, Pomperaug Ave., Woodbury, Conn. 06798

Filed Mar. 28, 1979, Ser. No. 24,709
Int. Cl.³ F16P *3/04*
U.S. Cl. 192—134 **12 Claims**



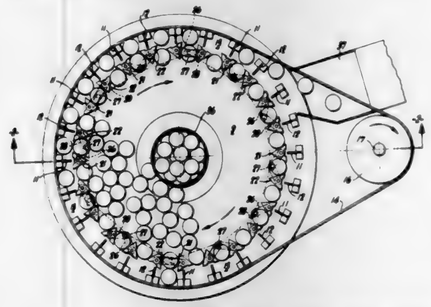
1. A safety device particularly suited to preclude operator access to a work area of power drive operated riveters, presses and the like and comprising a clearance indicator for detecting obstacles in a region surrounding the machine work area, the clearance indicator being movable between a starting position in remote relation to the work area and an operative position in adjacent surrounding relation thereto indicative of an obstacle-free condition about the work area, and a machine operating control for effecting machine operation including a manually controlled drive input, a selectively operable drive output connected to the power drive of the machine, and a rotary cam control rotatable by the drive input from a start position into a ready position during movement of the clearance indicator from its starting to operative positions, the drive output being actuated only when the drive input imparts further angular movement to the rotary cam control with the clearance indicator located in operative position to rotate the cam control from its ready position to an actuating position wherein the rotary cam control actuates the drive output to effect machine operation.

4,279,336

SINGULATOR

Jerald M. Henderson, Davis, and Yuen-Cjen Yong, Los Osos, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Jan. 28, 1980, Ser. No. 116,299
Int. Cl.³ B65G *47/14*
U.S. Cl. 198—443 **8 Claims**



1. A singulator comprising a table circular about a central, vertical axis; means for rotating said table about said axis; at least a pair of radial walls upstanding from said table and defining the sides of a radial pocket substantially at the periphery of said table away from a central table area; a pair of gates each respectively at the radially inner end of one of said pair of walls; means for moving said gates substantially simultaneously between a first position blocking entrance to said pocket from said central table area and a second position allowing entrance to said pocket from said central table area; means for closing the radially outer end of said pocket for a predetermined portion of the rotation of said table and for opening the radially outer end of said pocket for another portion of the rotation of said table; means for supplying objects to be singulated to said central table area; and means for receiving objects from the open radially outer end of said pocket.

4,279,337

POSITIVE DRIVE CONVEYOR SYSTEM

Joseph E. Kachaik, 3704 Highway 377 S., Fort Worth, Tex. 76116

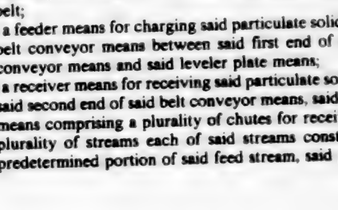
Filed Sep. 10, 1979, Ser. No. 73,905
Int. Cl.³ B65G *37/00*
U.S. Cl. 198—472 **2 Claims**

1. A conveyor system comprising:

a plurality of spaced apart drive rollers, each drive roller having an axis parallel to the axes of the other drive rollers, each roller having two cylindrical portions separated by an annular row of teeth protruding past the cylindrical portions;

a belt mounted below the drive rollers on driven pulleys, the belt having a plurality of teeth on its outer surface for engaging the teeth of the drive rollers to rotate them;

an article carrier for supporting conveyed articles, the article carrier having a recessed channel on its bottom surface extending the length of the article carrier, with substantially flat surfaces on each side of the channel that are adapted to engage the cylindrical portions of the drive rollers, the channel having a row of teeth protruding



downwardly that is adapted to engage the teeth of the drive rollers, the teeth in the channel protruding downwardly no further than the depth of the channel;

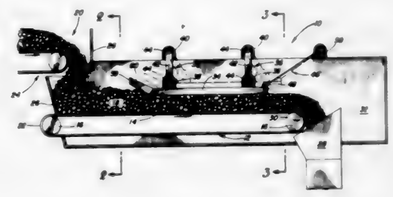
the article carrier comprising a tray having raised sides, the forward and rearward sides being inclined with respect to the bottom surface, with the teeth of the channel extending up the forward and rearward sides a selected distance to enable the conveyor system to change inclinations.

4,279,338

APPARATUS FOR SPLITTING A STREAM OF PARTICULATE SOLIDS

Robert H. Sekora, Greensburg, Pa., assignor to Conoco, Inc., Stamford, Conn.

Filed Nov. 23, 1979, Ser. No. 97,078
Int. Cl.³ B65G *47/19*
U.S. Cl. 198—525 **5 Claims**



1. An apparatus for dividing a feed stream of particulate solids into a plurality of streams of said particulate solids, each of said plurality of streams constituting a predetermined portion of said feed stream, said apparatus comprising;

(a) a flat belt conveyor means adapted to convey particulate solids from a first end of said belt conveyor means toward a second end of said belt conveyor means;

(b) a substantially vertical sidewall positioned on each side of said belt conveyor;

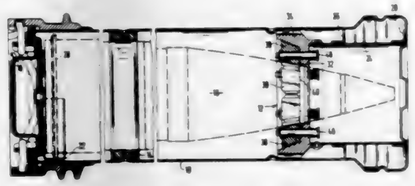
(c) a leveler plate means pivotally positioned above said belt conveyor means to level said particulate solids on said belt conveyor means so that said particulate solids are of a uniform depth across the width of said belt conveyor, said leveler plate being of substantially the same width as said belt;

(d) a feeder means for charging said particulate solids to said belt conveyor means between said first end of said belt conveyor means and said leveler plate means;

(e) a receiver means for receiving said particulate solids from said second end of said belt conveyor means, said receiver means comprising a plurality of chutes for receiving said plurality of streams each of said streams constituting a predetermined portion of said feed stream, said predeter-

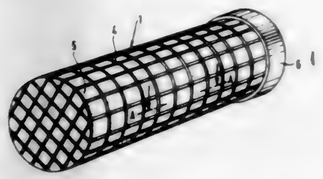
mined portion being a fractional portion of said feed stream determined by the ratio of the width of each chute to the width of said belt conveyor.

4,279,339
SHELL CONTAINER COMPRISING A CENTERING ASSEMBLY
Eugen Gotter, Dusseldorf, Fed. Rep. of Germany, assignor to Hoffman-Werke GmbH, Fed. Rep. of Germany
Filed Sep. 13, 1979, Ser. No. 74,988
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1979, 2910126
Int. Cl.³ F42B *37/00*
U.S. Cl. 206—3 **9 Claims**



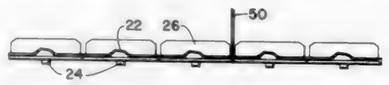
1. A container for supporting a shell having an ogive portion, said container comprising: a substantially tubular housing, a shell centering assembly having conical support surface means which are complementary to the ogive portion of the shell being centered thereby, and a sleeve means mounted in said housing and supporting said shell centering assembly within said housing, said shell centering assembly being radially expansible upon the application of an axial force in one direction and unable to radially expand upon the application of an axial force in the opposite direction, such that upon the insertion of the shell into said housing, the ogive portion of the shell will engage the conical support surface means of said centering assembly, wedging the same between the ogive portion of the shell and said sleeve means, whereas upon the withdrawal of the shell from said housing, said centering assembly is radially expansible to release the shell.

4,279,340
TWO-COMPONENT ADHESIVE CARTRIDGE
Gusztav Lang, Munich, Fed. Rep. of Germany, assignor to Hilti Aktiengesellschaft, Schaan, Liechtenstein
Filed Dec. 27, 1979, Ser. No. 107,551
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1978, 2856735
Int. Cl.³ B65D *25/08*
U.S. Cl. 206—219 **8 Claims**



1. Two-component adhesive cartridge including a resin component and hardener component, a destructible container holding at least said resin component therein, wherein the improvement comprises that said destructible container includes a latticework frame having a plurality of openings therethrough, and a binder placed over said latticework frame covering said frame and closing the openings therethrough so that said latticework frame and binder form an imperforate wall for said container.

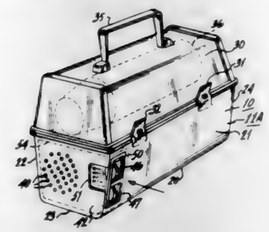
4,279,341
FASTENER STRIP
George C. Pleickhardt, Des Plaines, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Oct. .5, 1979, Ser. No. 81,738
Int. Cl.³ B65D *73/00, 83/00*
U.S. Cl. 206—345 **15 Claims**



1. A strip of at least two sheet metal fasteners each including a generally planar base portion having a fastener receiving opening therethrough, a pair of locating tabs struck from within the margins of said base portion and angularly spaced adjacent said opening, said tabs extending downwardly from one surface of said base portion, at least one manually grippable portion extending upwardly beyond the opposite surface of and fastened to said base portion, said base portion of each fastener having at least one edge being disposed in adjacent spaced relation to at least one complementary edge of the base portion of the next adjacent fastener, adjacent said fasteners being joined by two fracturable integral means that are laterally spaced a predetermined distance so that said strip is maintained as a rigid unit prior to fracture of said means, double faced adhesive foam type tape having a width less than said predetermined spaced relation and positioned between said fracturable means and extending over the entire cumulative length of said at least two fasteners and with one surface of said tape adhering to said one surface of said base portion, said tape being initially imperforate throughout the area covering said one surface and sealing said fastener receiving opening, said tabs extending through said foam tape and providing locating means, a non-adhering backing material covering the other face of said tape and being continuous throughout its length except for penetration by said tabs, whereby a slitting tool can be inserted between said fracturable means with said tape but not said backing material being transversely slit across its entire width at various axially spaced locations with one of said slits being disposed between each adjacent pair of said fasteners whereby an adjacent pair of fasteners can be separated by moving the adjacent bases into angular relation with respect to one another to break said fracturable means and then permit stripping of solely one of said fasteners from said non-adhering backing material to expose the second adhesive surface of said tape which is adapted for application in sealing relationship to a workpiece aperture which is located by said tabs to orient said fastener opening relative to said aperture in the workpiece.

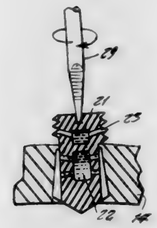
4,279,342
LUNCH BOX EMPLOYING A BUILT-IN RADIO RECEIVER
Robert Van Pelt, 111 S. 3rd Ave., Highland Park, N.J. 08904
Filed Mar. 24, 1980, Ser. No. 132,778
Int. Cl.³ A45C *11/20*
U.S. Cl. 206—542 **10 Claims**

1. A lunch box radio apparatus, comprising:
(a) a rigid box-like assembly having a bottom surface, first and second side surfaces, a front surface and a rear surface to form a box-like assembly having an internal hollow with a top open surface, one of said side surfaces as positioned between said front and rear surfaces having a plurality of sound emitting apertures located thereon, with said front surface having an aperture near said one side surface,
(b) a radio receiver positioned in said hollow and held adjacent said one side surface with a surface of said radio in proximity with said apertures, and at least one control knob positioned adjacent said aperture in said front surface to enable a user of said lunch box to operate said radio via said aperture, and



(c) a cover member pivotally coupled to said rear surface for selectively covering and exposing said top open surface whereby said radio can be operated by said user independent of said cover member.

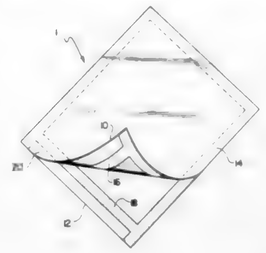
4,279,343
REPAIR KIT FOR TUBELESS TIRES
Teofilo Alfanta, 12961 Brown Ave., San Jose, Calif. 95111
Filed Jan. 25, 1980, Ser. No. 115,761
Int. Cl.³ B60C *21/06;* **B65D** *77/02*
U.S. Cl. 206—582 **3 Claims**



1. A repair kit for tubeless tires comprising, in combination, a case containing an assortment of different diameter plugs, so as to fit different sizes of puncture holes in a tubeless tire, each said plug comprising a screw of resilient material, a quantity of liquid rubber compound inside said screw, openings on said screw for discharge of said compound, and paper covers around said screw closing said openings.

4,279,344
HEAT-SEALABLE AND PEELABLE LAMINATED PACKAGING CONSTRUCTION
Fred W. Holloway, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed Dec. 26, 1979, Ser. No. 106,906
Int. Cl.³ B65D *75/30, 75/32;* **B32B** *27/08;* **B65D** *17/00*
U.S. Cl. 206—631 **9 Claims**

1. A packaging construction, said construction comprising a pair of members fixed to one another, each of said members comprising an outer plastics resin protective layer, a central structural barrier layer and an inner plastics resin sealing layer, said inner plastics resin sealing layers being capable of being heat-sealed to one another and peelable under hand pressure and said inner plastics resin sealing layers being capable of withstanding retorting without damage to said heat seal, said inner plastics resin sealing layers being formed from polypropylene or a polypropylene-polyethylene co-polymer, including up to about 5 percent by weight polyethylene, blended with



between about 15 and 35 percent by weight of an ionomer resin.

4,279,345
HIGH SPEED PARTICLE SORTER USING A FIELD EMISSION ELECTRODE
John C. Allred, 1393-A 40th St., Los Alamos, N. Mex. 87544
Filed Aug. 3, 1979, Ser. No. 63,461
The portion of the term of this patent subsequent to Jun. 27, 1995, has been disclaimed.
Int. Cl.³ B07C *5/342*
U.S. Cl. 209—3.2 **13 Claims**

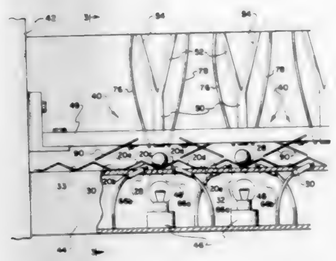
1. An apparatus for analyzing and sorting small particles on the basis of preselected parameters or combinations of preselected parameters comprising:
generating means for segregating one of said particles in at least one liquid droplet;
sensing means downstream of said generating means for sensing the presence or absence of said preselected parameter of said particle;
flow means for passing said particles from said generating means to close proximity of an electrode, said electrode being located downstream of said sensing means;
discrimination means responsive to said sensing means and functionally connected to said electrode for selectively establishing a positive high potential electric field on said electrode when said particle is closely adjacent said electrode if said sensed particle displays said pre-selected parameter; and
collection means located downstream of said electrode for receiving said particles.

4,279,346

ASYNCHRONOUS BLUEBERRY SORTER

William F. McClure, and Roger P. Rohrbach, both of Raleigh, N.C., assignors to Southeastern Blueberry Council, Inc., Goldsboro, N.C.

Filed Dec. 12, 1978, Ser. No. 968,768
Int. Cl.³ B07C 5/342
U.S. Cl. 209—582 12 Claims



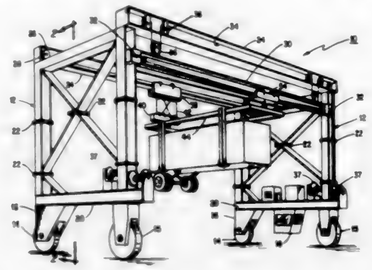
1. A high speed asynchronous fruit sorting apparatus for sorting aligned and randomly spaced articles of fruit according to maturity, comprising: a driven sorting conveyor assembly having a receiving end and a discharge end and comprising a generally open mesh type conveyor having a plurality of generally M-shaped profiles extending transversely across the conveyor so as to define a plurality of laterally spaced and longitudinally extending fruit receiving and selected maturity channels about the conveyor; at least one maturity sorting zone disposed adjacent said conveyor intermediately between said receiving and discharge ends of said conveyor and including a source of illumination disposed below said conveyor for illuminating the passing articles of fruit; said maturity sorting zone including maturity sensing means for effectively determining the maturity of respective articles of fruit conveyed to said maturity sorting zone independently of said conveyor, said maturity sensing means including fiber optic means for capturing light rays diffused by the articles of fruit and means operatively associated with said fiber optic means for generating differential optical density signals based on the transmittance of the respective articles of fruit at two selected wavelengths, whereby the magnitude of the produced differential optical density signal is related to maturity; an air ejection apparatus having at least two air jet nozzles disposed about each sorting zone and including a control circuit for actuating selected individual air jet nozzles; a maturity discriminator circuit operatively connected to the control circuit of said air ejection apparatus and adapted to receive said differential optical density signals and to effectively evaluate the signals to determine the maturity state of respective articles of fruit; and an asynchronous position detector apparatus disposed about each sorting zone for detecting oncoming articles of fruit and including an actuating control circuit responsive to the detection of oncoming articles of fruit for effectively actuating the maturity discriminator circuit so as to evaluate a certain differential optical density signal representative of a selected article of fruit at an appropriate time in order that the same may effectively actuate the control circuit of said air ejection apparatus such that either of said air ejector nozzles may be actuated in order to effectuate the transfer by air of an article of fruit to an appropriate adjacent channel on the M-shaped conveyor designated to receive that particular maturity grade.

4,279,347

ANTI-SWAY LOAD HANDLING APPARATUS

William S. Appleman, Durham, N.C., assignor to RPC Corporation, Roxboro, N.C.

Filed Sep. 12, 1979, Ser. No. 74,788
Int. Cl.³ B66C 13/06
U.S. Cl. 212—147 23 Claims



18. An anti-sway device for a load handling apparatus comprising:

a first trolley movable laterally upon and connected to the load handling apparatus;

a stabilizing beam movable vertically on and connected to the load handling apparatus;

a second trolley movable laterally upon and connected to said stabilizing beam;

a load bearing means for bearing the load;

said load bearing means connected at one end to said second trolley to resist lateral sway and sway along the major axis of said load bearing means; and

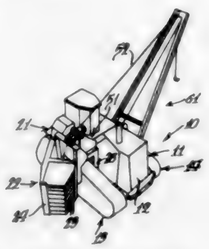
said load bearing means movable vertically from and connected at the other end thereof by reeving to said first trolley to resist lateral sway.

4,279,348

ADJUSTABLE DOUBLE LINK MOUNTING

Robert W. Harper, Metamora, and Robert A. Kleiber, Washington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00080, § 371 Date Feb. 9, 1979, § 102(e) Date Feb. 9, 1979, PCT Pub. No. WO80/01682, PCT Pub. Date Aug. 21, 1980
This PCT application filed Feb. 9, 1979, Ser. No. 23,198
Int. Cl.³ B66C 23/76
U.S. Cl. 212—196 8 Claims



1. An adjustable double link mounting for mounting a first structure (37) removably to a second structure (51) in an accurately spaced relationship, comprising:

a pair of spaced-apart lugs (82,85) on one of said structures, each lug having a bore (100,103) defining an aperture;

a pair of interconnecting spaced-apart links (80,81) having a pivotal connection at one end to the other of said structures, and at the other end to a lug and provided by a pin-receiving opening (105,107) for receiving a pin (104,106) which extends through one of the apertured lugs, one of said links having a fixed length at all times to define means for establishing a preselected accurate spacing of said second structure from said first structure when connected therebetween; and

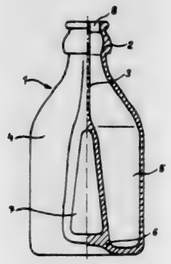
means (110,111,112) providing for adjustment of the length of the other of said links to align the opening thereof with the bore of the lug to which it is to be pinned with said one link free of stress tending to axially disalign the pin received thereby relative to the lug pin-receiving openings through which that pin extends.

4,279,349

BOTTLE WITH SEPARATE COMPARTMENTS

Robert Aigner, Wienerstr. 171, A-2352 Gumpoldskirchen, Austria

Filed Dec. 12, 1979, Ser. No. 102,783
Claims priority, application Austria, Dec. 21, 1978, 9128/78
Int. Cl.³ B65D 1/04
U.S. Cl. 215—6 4 Claims



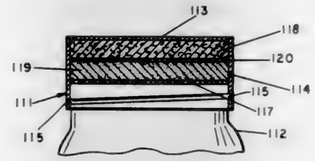
1. A bottle comprising a common bottom, a common neck, two separate compartments extending from the bottom to the neck, the bottom being common to the two separate compartments, and a partition extending from the bottom to the neck between the two separate compartments of the bottle, the partition below the neck and over a portion of the height of the bottle being bifurcated into two partition walls defining therebetween an elongate gap closed by the common bottom.

4,279,350

CLOSURE WITH OXYGEN SCAVENGING SYSTEM

Roderick V. King, Girard, Pa., assignor to Ethyl Corporation, Baton Rouge, La.

Filed Oct. 11, 1979, Ser. No. 83,977
Int. Cl.³ B65D 51/24
U.S. Cl. 215—228 23 Claims



1. In combination a closure and a liner comprising,

a cup-like closure body having a closed end and a rim means on said closure body for removably attaching said closure to a container,

a liner in said cup-like closure body,

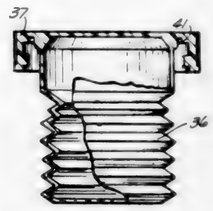
said liner comprising an oxygen permeable barrier layer adapted to rest on the open end of said container and a backing layer adapted to rest against the closed end of said closure and a layer of catalytic material disposed between said barrier and said backing and adapted to convert oxygen permeating said barrier layer to water.

4,279,351

CONTAINER CAP

Michael A. Vertes, 20 Tubbs Spring Ct., Weston, Conn. 06883

Division of Ser. No. 956,504, Nov. 1, 1978, Pat. No. 4,215,786.
This application Jul. 16, 1980, Ser. No. 169,433
Int. Cl.³ B65D 51/26
U.S. Cl. 215—231 6 Claims



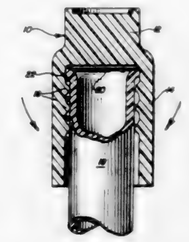
1. A container cap comprising a one-piece construction comprising a bellows and flange means integrally formed with and extending radially outwardly therefrom, and extending across the top of the container, further comprising a hollow cylindrical portion integrally connected at one end to the bellows and at the other end to the flange means, said flange means comprising means to engage the lip of a container so as to form a seal thereat with the bellows disposed within the container adjacent the container wall, whereby the bellows expands and contracts to contact the material within the container to limit movement thereof.

4,279,352

MOLDED INJECTION SITE

Gary A. Ward, Round Lake, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 19,399, Mar. 12, 1979, abandoned. This application Mar. 13, 1980, Ser. No. 129,857
Int. Cl.³ B65D 41/20
U.S. Cl. 215—247 5 Claims



1. A molded injection site, formed of self-sealing, needle-pierceable, resilient material, comprising a central needle-receiving portion and a tubular skirt portion contiguous therewith and extending in a first direction therefrom in its original, unstressed condition, said skirt portion surrounding and gripping the end of a support tube in telescoping relation thereto while extending in first direction, said skirt portion defining, on its inner surface, a plurality of sealing rings adapted to sealingly bear against said support tube, said support tube defining a flared end extending in annular relation outwardly from said tube in generally perpendicular relation thereto, said sealing rings being positioned all on one side of said flared end, said flared end being surrounded by said skirt, whereby, on the attempted removal of the injection site, the uppermost sealing

ring will engage the flared end of said support tube, preventing accidental removal of the injection site from the support tube.

4,279,353

PLASTIC BOTTLE CAP

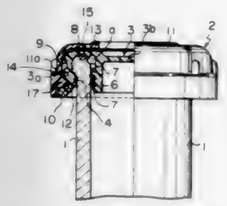
Zensho Honma, 1188, Nippa-cho, Kouhoku-ku, Yokohama-shi, Kanagawa-ken, Japan

Continuation-in-part of Ser. No. 897,806, Apr. 19, 1978, abandoned. This application Jan. 11, 1980, Ser. No. 111,369

Claims priority, application Japan, Apr. 23, 1977, 52/52540[U]; Jun. 27, 1977, 52/84533[U]

Int. Cl.³ B65D *41/52, 51/18*

U.S. Cl. 215—254 **3 Claims**



1. A tamper-indicating plastic bottle cap to be fitted to a bottle neck having a bead comprising:

an inner stopper member made of a flexible plastic material, said inner stopper member having a skirt portion provided with an annular radially inwardly projecting portion at the inside of the skirt portion for engaging over the bead of the bottle neck, and

an outer cap member made of a plastic material more rigid than that of the inner stopper member, said outer cap member being composed of an annular top portion and a skirt portion integrated with the annular top portion;

either the skirt portion of the inner stopper member or the skirt portion of the outer cap member having uniformly spaced first and second annular recesses formed therein, and the other having at least one annular radially projecting portion to be received within said first and second annular recesses;

said inner stopper member having an integrally formed downwardly extending inner cylinder, said inner cylinder being provided on its outer periphery with a plurality of spaced annular ribs; and said inner stopper member further having an annular ring-like projection on the lower surface of its top portion to be brought into sealing contact with the bead of the bottle neck;

said skirt portion of the inner stopper member having notches or slits at least at the lower portion of the outer skirt, and being broader toward the lower terminal edge thereof so that broadened portion forms a stopping shoulder on which the lower end of the skirt portion of the outer cap member is caught therein so as to avoid the risk of the outer cap member being inadvertently brought into a seal position relative to the inner stopper member before stoppering the bottle; and,

said outer cap member having a ring pull positioned within the annular top portion of the outer cap member, said ring pull being integrally formed with a portion of the annular top portion of the outer cap member and said portion of the annular top portion having slits or grooves forming score lines on both sides of said portion for easily breaking the outer cap member.

4,279,354

SERVING TRAY

Rino Conti, Stoughton, Mass., assignor to Dart Industries, Inc., Los Angeles, Calif.

Continuation of Ser. No. 11,243, Feb. 12, 1979, abandoned. This application Aug. 8, 1980, Ser. No. 176,365

Int. Cl.³ B65D *21/02*

U.S. Cl. 220—23.83 **10 Claims**



1. A combined serving tray arrangement adapted for the storage and service of foodstuffs and including a tray having a peripherally extending flange, inwardly inclined generally vertically extending side walls depending from said flange, a separator having bifurcated wall members integral with and extending between two opposed side walls, said separator having a vertical extent approximating the vertical extent of said opposed side walls and angularly disposed in like fashion thereto and a bottom wall arrangement interconnected with said side walls and separator, a container having a marginal brim, container wall means protruding downwardly therefrom, a base integral with said container wall means, said container wall means being of a size, shape and disposition so as to be cooperatively interengageable with said separator, and said container wall means being configured so as to generally be spaced from said bottom wall when said container is straddlingly engaged whereby the upper surface of the bottom wall is generally unobstructed.

4,279,355

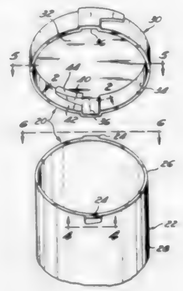
TWIST-LOCK CONTAINER

Edwin L. Schwartz, Los Angeles, and George E. Robson, Hermosa Beach, both of Calif., assignors to Rite Autotronics Corporation, Los Angeles, Calif.

Filed Apr. 11, 1980, Ser. No. 139,575

Int. Cl.³ B65D *41/06, 41/36*

U.S. Cl. 220—300 **8 Claims**



1. An improved twist-lock container, said container comprising, in combination:

an open topped hollow, generally cylindrical, container body bearing a spaced pair of tabs extending outwardly of the outer periphery of said container body adjacent the upper end thereof; and

an open-bottomed, generally cylindrical, flexible, resilient container cap releasably disposed on said upper end of said container body, said cap comprising a closed upper end and a depending annular sidewall connected thereto, said sidewall defining a pair of arcuate grooves in the inner surface thereof, adjacent the upper end thereof, said tabs being slidably disposed in said arcuate grooves, said sidewall also defining on the inner surface thereof, a pair of about vertical grooves connected to said arcuate grooves and depending therefrom, the outer diameter between said vertical grooves being less than that between said tabs, said cap being sufficiently flexible to permit its temporary deformation to elongate said outer diameter between said vertical grooves to exceed that of said tabs, whereby said cap is removable from, and insertable on, said container body.

4,279,356

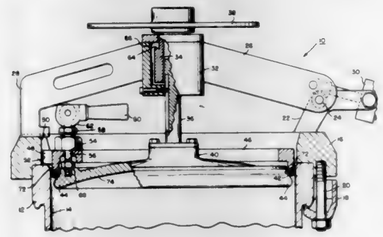
QUICK OPENING MANHOLE COVER ASSEMBLY

Franklyn J. Amorese, and Vincent J. Piarulli, both of Greece, N.Y., assignors to Sybron Corporation, Rochester, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,287

Int. Cl.³ B65D *45/28*

U.S. Cl. 220—314 **15 Claims**



11. A quick opening manhole cover assembly for closing the manhole of a pressure vessel or the like comprising:

(a) a collar on said vessel about the manhole opening thereof, said collar having at least two spaced vertical slots and horizontal grooves in the inner periphery thereof, each slot communicating with one of said horizontal grooves;

(b) a manhole cover having an O.D. smaller than the I.D. of the manhole opening;

(c) a locking ring carried by and supported on said manhole cover, said locking ring being rotatably movable between defined limits with respect to said collar and manhole cover;

(d) at least two spaced ears extending radially from said locking ring, said ears adapted for reception first into said vertical slots and thereafter into a locked position in said horizontal grooves upon rotation of said locking ring with respect to said collar and manhole cover;

(e) first means extending from said collar and connected to said manhole cover for moving said manhole cover and locking ring as a unit axially into and out of the manhole opening and for carrying said ears axially into and out of said vertical slots;

(f) second means carried by said manhole cover and connected to said locking ring for moving said manhole cover axially within the manhole opening with respect to said locking ring when said ears are in said locked position;

(g) an annular seal member about the periphery of said manhole cover; and

(h) an annular lip extending axially from said locking ring and about said manhole cover, said annular lip providing a seal seat for said annular seal member upon axial movement of said manhole cover towards said locking ring.

4,279,357

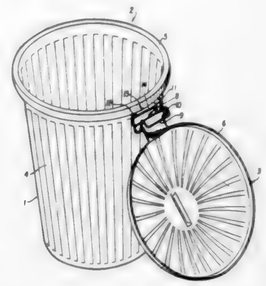
GARBAGE CAN ASSEMBLY WITH LID ANCHORING MEANS

William W. Robinson, 2237 Cambridge Blvd., Columbus, Ohio 43221

Filed Mar. 14, 1980, Ser. No. 130,571

Int. Cl.³ B65D *45/00*

U.S. Cl. 220—318 **8 Claims**



1. An improved garbage can assembly, comprising:

(a) a receptacle having an edge defining a mouth;

(b) a lid having a flange which is complementary to and engageable around said edge for covering said mouth;

(c) at least one handle pivotally mounted on a side wall of said receptacle adjacent to said edge, said handle having both a lid locking means for locking said lid over said mouth, and a closed loop structure for forming a hand grip, and

(d) a tab lock means connected to said lid and receivable into said closed loop of said handle for anchoring said lid to said handle when said lid flange is not engaged to said receptacle edge.

4,279,358

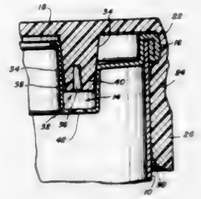
CONTAINER LID

Stanley A. Jacobs, 45 Kohary Dr., New Haven, Conn. 06515

Filed Aug. 6, 1979, Ser. No. 64,062

Int. Cl.³ B65D *45/34, 41/16, 43/10*

U.S. Cl. 220—321 **7 Claims**



1. A lid for a container having a sidewall and a lip protruding radially outwardly from the sidewall and extending about the periphery of the upper end of the container sidewall, the lid being formed from resilient plastic material and comprising:

a top wall;

a relatively thin sidewall web segment extending downwardly from the periphery of the top wall;

a relatively thick skirt integral with and extending downwardly from the lower end of the web, said skirt and web being dimensioned so that the skirt will display a greater resistance to radial expansion than the web;

the inner surface of the web defining a greater diameter than the inner surface of the skirt portion, thereby to define an inwardly-facing shoulder, the shoulder being spaced from

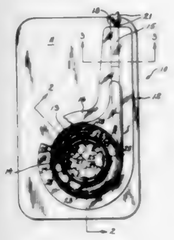
the underside of the lid top wall by an amount substantially equal to the height of the container lip;
whereby the lid may be snap-fitted onto the container;
said web being sufficiently thin, and being dimensioned with respect to the container lip so that snap-fitting of the lid onto the container will require the web to stretch heightwise and to deform to and wrap around the outer periphery of the container lip when the shoulder is engaged with the underside of the container lip, said skirt portion being disposed below the container lip and being constructed and arranged as to retain web portion into firm and snug sealing engagement with the container lip.

4,279,359

TAPE DISPENSER PACKAGE WITH ROLL RESTRAINING COVER

John Arnold, Milwaukee, Wis., assignor to W. H. Brady Co., Milwaukee, Wis.

Filed Nov. 15, 1979, Ser. No. 94,474
Int. Cl.³ B65D *85/672*
U.S. Cl. 221—70 **3 Claims**



1. In a tape package of the type comprising
(a) a base member, (b) a formed cover element having a housing portion, an exit section and a peripheral flange joined to the base member, and (c) a roll of adhesive tape carried in the housing portion with part of the tape unwound from the roll and extending through the exit section of the cover element,
the improvement wherein:
(1) the cover element is a sheet of plastic material thermoformed to include a housing portion having a top wall spaced from a bottom wall, and a vertical wall connecting the top and bottom walls, and
(2) said vertical wall is of dentate-form to have a plurality of teeth separated by radial inwardly-extending ribs, and the teeth engage the inner surface of the roll of tape to apply restraining force thereagainst as the roll rotates upon removal of tape from the package.

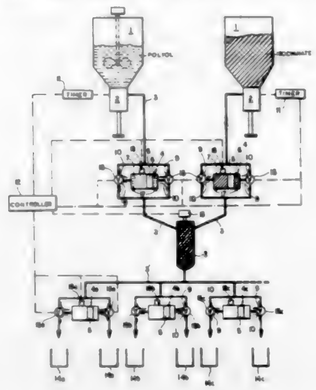
4,279,360

SYSTEM FOR FEEDING TWO SYNTHETIC-RESIN COMPONENTS TO A MOLD

Erhard Hänser, Schöffengrund, Fed. Rep. of Germany, assignor to Wilhelm Hedrich Vakuumanlagen GmbH & Co. K.G., Ehringshausen - Katzenfurt, Fed. Rep. of Germany

Filed Feb. 21, 1979, Ser. No. 13,075
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1978, 2808183
Int. Cl.³ B67D *5/52*
U.S. Cl. 222—1 **11 Claims**

11. A synthetic-resin molding system comprising:
a supply containing a quantity of a fluid synthetic resin;
a conduit having an upstream end and a downstream end;
conveying means between said upstream end and said supply for feeding said resin from said supply to said upstream end at a predetermined and generally constant pumping volume/time rate;
measuring means in said conduit immediately upstream of said downstream end for measuring the downstream actual volume/time rate of flow of fluid in said conduit; and



control means connected to said conveying and measuring means for comparing said pumping rate with said actual rate and for generating an output when each pumping rate is not generally the same as said actual rate.

4,279,361

GEL EXTRUDING METHOD AND APPARATUS

Thomas Y. Chung, 126 E. Canon Perdido, Santa Barbara, Calif. 93101

Filed Jul. 16, 1979, Ser. No. 57,832
Int. Cl.³ B67B *7/00*; G01F *11/00*
U.S. Cl. 222—1 **2 Claims**

1. A method for removing gel from a tube provided with open ends, including the steps of:
(a) confining a substantially incompressible liquid in a syringe chamber having a plunger;
(b) placing one end of said tube in communication with the outlet of said syringe chamber;
(c) placing said syringe in a clamp structure in which an arm of said clamp threadedly mounts a shaft bearing against said plunger; and,
(d) gradually threading said shaft to move said plunger into said chamber and thereby force said liquid in a controlled manner into said one end of said tube to urge said liquid against the gel and thereby extrude the gel from the opposite end of said tube.
2. An apparatus for extruding gel from a tube comprising, in combination:
(a) a syringe chamber and plunger;
(b) an incompressible fluid in said syringe chamber;
(c) a clamping frame having upper and lower arms, the lower arm being forked for receiving and supporting said syringe chamber in a position in which the syringe plunger extends upwardly towards said upper arm, said upper arm having a threaded opening therethrough;
(d) a pivotally mounted lock bar on said fork swingable to a position across the opening of the fork to secure said syringe chamber in the fork;
(e) a threaded shaft threadedly received in said opening;
(f) a turning handle on the upper end of said shaft above said opening; and
(g) a pressure plate coupled to the lower end of said shaft and having an undercut cavity for receiving the upper end of said plunger when said syringe chamber is received in said lower arm so that controlled rotation of said shaft in a given direction moves said pressure plate and plunger downwardly, said cavity preventing lateral shifting of said plunger under load, so that by placing one end of said gel tube in communication with the outlet of said syringe chamber, liquid can be expelled from said chamber by rotating said turning handle in said given direction to force the liquid against the gel and extrude the gel from said tube in a controlled manner.

4,279,362

DISPENSING OF HYGIENIC FLUIDS

Grant W. Pursell, R.D. 1, Box 69C, Pittstown, N.J. 08867

Filed Jan. 26, 1979, Ser. No. 6,688
Int. Cl.³ A61M *7/02*; B65D *35/22*
U.S. Cl. 222—94 **13 Claims**



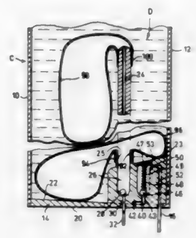
1. A dispenser comprising a container including at least two separate compartments, each containing a storage member
means for applying fluid pressure to the storage members comprising a conduit extending into, through and out of said container, said container having an inlet into each of said compartments, an outlet, and means for controlling the pressure applied to each storage member comprising a valve positioned in said fluid applying conduit between the inlets of said compartments;
whereby fluid pressure is fully applied to the storage member in one of the compartments and is applied to the storage member in another of said compartments according to the extent of the position of said valve which further controls the amount of fluid discharged at the outlet of said conduit.

4,279,363

NON-INVERTING FLUID DISPENSER

Raza Alikhan, 201 Willowridge Ct., Oakville, Ontario, Canada L6L 5J1

Continuation-in-part of Ser. No. 962, Jan. 5, 1979, abandoned. This application Aug. 10, 1979, Ser. No. 65,574
Int. Cl.³ B65D *35/22*
U.S. Cl. 222—94 **9 Claims**



1. A dispenser adapted to be located in the bottom of a container of which at least a portion of a wall thereof is flexible, said container being adapted for dispensing a fluid material contained therein upon deformation of said flexible portion thereof, said dispenser comprising:
a base member secured fluid tight in the bottom of said container;
first passage means in said base member having a first valve means in fluid communication therewith, for establishing an equal pressure within said container with respect to the atmosphere exteriorly thereof, and an interior air vent tube having a length slightly less than the interior height of the container, so as to reach above the maximum level of the fluid therein when said container is filled to its maximum allowable limit; and
second passage means in said base member having a second valve means in fluid communication therewith, for dispensing said material from within said container through said second passage.

4,279,364

COFFEE DISPENSER CONTAINED INSIDE A WALL MOUNTED BRACKET

Sergio J. Perez, 311 W. 97th St., New York, N.Y. 10025

Filed Sep. 18, 1979, Ser. No. 76,579
Int. Cl.³ B67D *5/64*
U.S. Cl. 222—162 **1 Claim**

1. A coffee dispenser contained inside a wall mounted bracket comprising in combination, a bracket stationarily mounted on a wall; an elongated container suspended from its upper end in a box enclosing said container; said box having a rear wall and opposite side walls, and an upwardly pivotable top cover; said side walls extending forwardly farther than a front of said container, in order to fully enclose the same at each side; a lower end of said container being rearwardly pivotable toward said box rear wall; and means whereby coffee is dispensed from said container when said container is rearwardly pivoted; said means comprising a plate normally intercepting a vertical passage between a storage chamber and a downward spout of said container; a track and crosspiece abuts against said box rear wall; said track comprising rails that slide in grooves in the lower end of the container; said plate being connected to said crosspiece by rods; said plate extending horizontally through an intermediate portion of said container; said container being rearwardly slidable respective to said

plate in order to open said passage; and an elastic rubber band connected between said plate and the lower end of said con-



tainer urging said container into a forwardly pivoted position after being rearwardly pivoted.

4,279,365

FISHING FLOAT CONTAINER

Joan K. Hutmacher, P.O. Box 73, 104 E. Fifth St., Mead, Nebr. 68041

Continuation of Ser. No. 71,630, Aug. 31, 1979, abandoned. This application Oct. 27, 1980, Ser. No. 200,707

Int. Cl.³ B60R *7/00*

U.S. Cl. 224—42.42 **7 Claims**



1. A fishing float container, comprising:

a container means for holding one or more fishing floats; and

a securing means for securing said container means to a wall of a boat, wherein said securing means is pivotally secured to said container means and includes: a large radius elbow for hanging over said wall of said boat in an upward hanging position and for extending along the sides of said container means in a downward storage position; and

an overlying means for preventing fishing floats from falling out of said container means when in the downward storage position, connected to the large radius elbow distal its pivotal securement and protruding substantially above said container means when in said downward storage position.

4,279,366

ROLLER SKATE CARRIER

Milton Kessler, 6690 Harrington Ave., Youngstown, Ohio 44512, and Ronald N. Kessler, 1161 Monsell Dr., Youngstown, Ohio 44505

Continuation-in-part of Ser. No. 76,191, Sep. 17, 1979. This application Apr. 18, 1980, Ser. No. 141,346

Int. Cl.³ B65D *71/00*

U.S. Cl. 294—162 **11 Claims**



1. A roller skate carrier, comprising:

(a) a handle having a hole formed therethrough;

(b) a shaft journaled in the hole and having opposed end regions projecting from opposite sides of the handle;

(c) four separately formed, substantially identically configured arm members carried on the shaft end regions and being drivingly connected thereto for rotation concurrently therewith, two of these arm members being located relatively inwardly near the handle, and the remaining two of the arm members being located relatively outwardly at farther distances from the handle;

(d) retaining means near opposite ends of the shaft for retaining the arm members on the shaft;

(e) biasing means interposed between the handle and between the inner arm members for biasing the inner arm members relatively away from the handle toward positions of engagement with the outer arm members, and for biasing the outer arm members toward positions of engagement with the retaining means;

(f) one of the inner arm members on one side of the handle and the outer arm member which is located on the opposite side of the handle having a pair of overlying hook-shaped formations configured to receive and grasp spaced portions of a rear axle of a skate;

(g) the other of the inner and outer arm members having a pair of hook-shaped formations configured to receive and grasp spaced portions of a rear skate axle of another skate; and,

(h) the arm members being slip-fitted onto the shaft end regions to enable the arm members to move independently relative to each other and relative to the shaft in directions axial of the shaft to permit the carrier to be used with skates of a wide variety of sizes.

4,279,367

MUSICAL INSTRUMENT HARNESS

Michael E. Jacobs, 1147 Goettingen St., San Francisco, Calif. 94134

Filed Jun. 26, 1979, Ser. No. 52,169

Int. Cl.³ A45F *5/00*

U.S. Cl. 224—257 **10 Claims**

1. A device for supporting and stabilizing an object in front of a user having a torso and at least one shoulder, the object having first and second spaced points of support comprising:

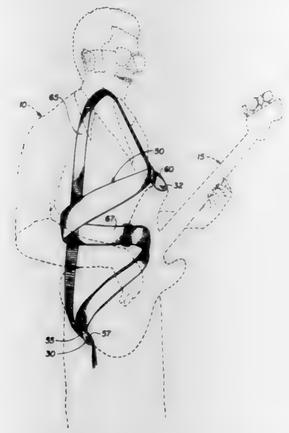
a first strap segment extending between said first and second points of support and sized to pass over said shoulder of said user;

a second strap segment extending between said first and second points of support and sized to wrap completely around said torso of said user;

each of said first and second strap segments having first and second ends;

first means for attaching said first ends of said first and second strap segments to said first point of support; and

second means for attaching said second ends of said first and second strap segments to said second point of support;



said first and second strap segments together comprising a single strap, said first attaching means comprising first and second fittings at opposite ends of said strap, and said second attaching means comprising a third fitting at an intermediate position on said strap to define said strap segments;

said first and second fittings each being adapted to mate with said first point of support, and said third fitting being adapted to mate with said second point of support.

4,279,368

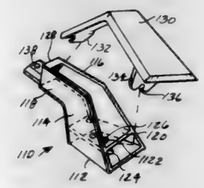
STANCHION ASSEMBLY

Daniel J. Kowalski, Ortonville, Mich., assignor to Four Star Corporation, Troy, Mich.

Continuation of Ser. No. 19,273, Mar. 9, 1979, abandoned. This application Aug. 22, 1980, Ser. No. 180,228

Int. Cl.³ B60R *9/04*

U.S. Cl. 224—326 **4 Claims**



1. A stanchion for an article carrier of the type including a hollow main body section adapted to be secured to a vehicle surface, the improvement comprising:

(a) the main body section including a base contained entirely within said main body section, the base having at least one aperture adapted to receive a fastener for mounting the stanchion to the vehicle surface, and

(b) a cap member removably secured to the main body section to enclose said base and to permit access to said fastener.

4,279,369

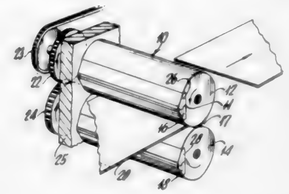
METHOD AND APPARATUS FOR PARTITIONING AND SHAPING A FIBROUS BATT

Anthony Passafiume, Burbank, Ill., assignor to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Filed Jun. 25, 1979, Ser. No. 51,562

Int. Cl.³ B26F *3/02*

U.S. Cl. 225—3 **31 Claims**



1. A method for shaping a web comprising: conveying a web in a direction, gripping the web along a first path with a resilient means engaging a first surface of the web and non-resilient means engaging the second surface of the web, substantially immediately thereafter gripping the web along a second path immediately adjacent said first path with a non-resilient means engaging said first surface of the web and resilient means engaging the second surface of the web, substantially immediately thereafter displacing said first and second path with respect to each other from the plane of the web and on opposite sides of said plane, and releasing the web to provide a shaped web.

4,279,370

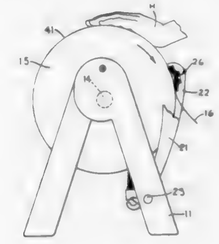
DISPENSER FOR ROLLED SHEET MATERIAL

Donald W. Lash, 2450 E. Collier, Kentwood, Mich. 49506

Filed Aug. 23, 1979, Ser. No. 69,201

Int. Cl.³ B26F *3/02*; **B65H** *35/04*

U.S. Cl. 225—67 **5 Claims**



1. In a device for severing a piece of sheet material from a roll thereof, including a frame means for rotatably supporting said roll, a cutter bar having leading and trailing edges, said leading edge having sheet severing means, means movably mounting said cutter bar on said frame means substantially parallel with the axis of said roll and means resiliently urging said cutter bar toward the periphery of the roll, the improvement comprising:

a smooth surfaced standoff means fixed to the cutter bar and spaced from said severing means, said standoff means protruding from said cutter bar to bear on the periphery of the roll and hold the trailing edge of the cutter bar out of engagement with the periphery of the roll so as to allow the free end portion of the sheet material to be drawn from the roll and thereafter severed by said cutting edge, the

contact area of said standoff means with the roll periphery being small compared to the surface area of the trailing edge of the cutter bar, said standoff means comprising a convexly rounded semispherical head opposing said roll for riding thereon, and means fixedly securing said head to said cutter bar to protrude from said cutter bar toward said roll.

4,279,371

ARRANGEMENT FOR TRANSPORTING STRIP-SHAPED MATERIAL

Erwin Laar, Taufkirchen, and Werner Sperber, Munich, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 60,238

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833432

Int. Cl.³ B65H *17/24*; **G03B** *1/56*

U.S. Cl. 226—91 **7 Claims**



1. An arrangement for transporting strip-shaped material, particularly photographic paper, comprising a conveyor belt; means for holding the strip-shaped material, including a one-piece elongated holding element extending along a triple-turn hairpin course to form four holding sections which are substantially parallel to one another and define with each other three spaces for clampingly engaging the strip-shaped material, said sections having effective lengths at least equal to the width of the strip-shaped material and two of said sections having free ends; and means for attaching said holding element to said conveyor belt, including two discrete brackets each affixed to a different one of said free ends and both separably connected to said conveyor belt.

4,279,372

APPARATUS FOR LIMITING THE SIZE OF TURNS OF A HELICALLY FORMED LONG PRODUCT

Marcel A. P. Giros, Rte. de Saint-Dizier, 55170 Ancerville, France

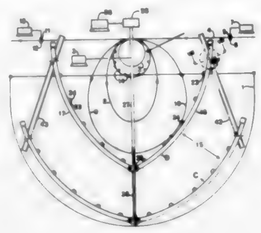
Filed Jul. 20, 1979, Ser. No. 59,476

Claims priority, application France, Sep. 21, 1978, 78 27461

Int. Cl.³ B65H *17/42*; **G11B** *15/56*

U.S. Cl. 226—118 **11 Claims**

1. Apparatus for the mechanical, chemical or electrolytic treatment of a long, flexible and deformable product such as a strip, tube or wire, brought into the form of helical turns, comprising at least one treatment chamber, at least one shaft supporting the product, means for assuring the rotation of the supporting shaft, means for bringing the long product on the shaft and means for extracting said product therefrom, and adjustable means for limiting the size of the turns of the helix, wherein said adjustable means comprise a cage having two side walls of at least four members which are symmetrical in pairs, said cage having a bottom cage girder, and said at least four members pivoted on the bottom cage girder, a plurality of parallel bearers mounted on the members, and means for modifying the distance of the side walls from one another comprising at least one lateral roller, a lateral guide rail on which the roller is able to roll and means for causing the lateral roller to roll on the guide rail.



4,279,373

AIR FRESHENER CARTON

James Montealegre, West St. Paul, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Dec. 28, 1979, Ser. No. 108,005

Int. Cl.³ B65D *13/06, 5/38*; **A61L** *9/04*

U.S. Cl. 229—11 **4 Claims**



1. A carton for dispensing an active material to the atmosphere comprising:

a first, imperforate sleeve forming an outer carton unit, said first sleeve being a sealed closure on one end thereof, and

a second sleeve forming an inner carton unit having a plurality of openings on opposed major panels thereof, said second sleeve being generally of the same cross-sectional shape as said first imperforate sleeve and being nested within said first sleeve and slidable therein between a first position defined by abutment with said sealed closure of said first sleeve and a second position intermediate the end containing said sealed closure of said first sleeve and the opposite end thereof so that certain ones of said openings in the major panels of said second sleeve unit can be selectively exposed to the atmosphere,

a sealed closure on said second inner carton sleeve containing a panel extending laterally and linearly outwardly beyond side edges connecting said major panels of said second sleeve, and

a locking tab on the bottom edge of the outer first sleeve adapted to contact the opposite edges of the panel extending outwardly laterally and linearly beyond the side edges connecting said major panels of said second unit to preclude disassembly of said first and second sleeves.

4,279,374

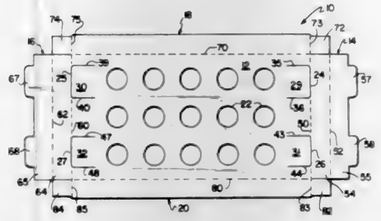
ADHESIVE-FREE TRAY WITH INTERLOCKING TABS AND BLANK THEREFOR

George Webinger, Minneapolis, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Nov. 13, 1979, Ser. No. 93,927

Int. Cl.³ B65D *5/22, 45/22, 85/36*

U.S. Cl. 229—34 R **2 Claims**



1. A unitary blank of paperboard adapted to be erected into a tray comprising:

a generally rectangular main panel having a plurality of apertures located therein;

a pair of opposed side panels respectively hingedly connected to opposed side edges of said main panel, with each said side panel including a pair of end tabs hingedly connected to the opposed ends of said side panel; and

a pair of opposed end panels respectively hingedly connected to the opposed remaining edges of said main panel, with each said end panel including a fold line extending parallel to said hinged connection between said end panel and said main panel, said fold line dividing said end panel into first and second portions of equal width, with said first portion being disposed adjacent said main panel, and with each said end panel further including two standing tabs connected to the opposed free edge of said second portion, and wherein said main panel further includes two pairs of opposed locking tabs respectively disposed adjacent said opposed ends of said main panel, with each said pair of locking tabs being aligned with a pair of standing tabs of one of said end panels, with a portion of each said locking tab being defined by a first cut line, disposed coincident with said hinged connection between said main panel and said end panel, each said first cut line defining the locking edge of the associated locking tab, and with the remainder of each said locking tab being defined by a pair of spaced apart cut lines formed in said main panel and extending from the opposed ends of the associated first cut line and away from said end panel whereby when said tray is erected from said blank, said side panels are rotated into an upstanding position relative to said main panel, while said end tabs thereof are rotated perpendicular to the plane of said side panels and colinear with said hinged connection between said main panel and said end panels, whereupon each said end panel is rotated into an upstanding position about its hinged connection to said main panel such that said second portion may be further rotated inwardly and into coplanar relationship with said first portion, with said end tabs of said side panel being interposed between said first and second portions, said standing tabs being operative to bias said locking tabs downwardly enabling said standing tabs to project downwardly through the plane of said main panel and wherein after said folding is completed, the locking tabs are disposed in coplanar relationship with said main panel such that the locking edges thereof are disposed in frictional engagement with the associated end panel thereby structurally rigidifying said tray and preventing the unfolding of said end panels.

4,279,375

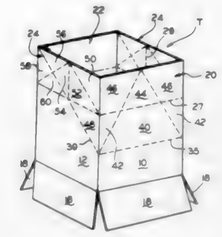
SHIPPING-DISPLAY CONTAINER

Jeffrey M. Gardner, Wheaton, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Feb. 11, 1980, Ser. No. 120,358

Int. Cl.³ B65D *5/02*

U.S. Cl. 229—37 R **2 Claims**



1. A collapsible container, formed of foldable paperboard, which can be folded in one way to provide a closed structure for shipping purposes and which can be alternately folded in another way to provide an open structure for display purposes, comprising:

(a) a pair of opposed front and rear walls and a pair of side walls foldably joined to form a tubular structure open at the ends;

(b) means for closing the lower end of the container;

(c) front, rear, and side closure flaps foldably joined to upper edges of said front, rear, and side walls, respectively, and adapted to be folded into overlapped relation to provide a closure arrangement for the upper end of the container;

(d) said closure flaps foldably joined to each other with said side closure flaps including fold lines which permit the closure flaps to be folded into a bellows type closure arrangement;

(e) said front and side walls and the closure flaps joined thereto including additional fold lines which permit the upper portion to be alternately folded into a chair-shaped shelf arrangement; and

(f) said additional fold lines including:

(i) a fold line extending transversely across said front wall between the sides thereof intermediate and parallel to the upper and lower edges of said front wall; and

(ii) a fold line in each side wall and side closure flap extending diagonally upward and rearward from said transverse fold line to the rear upper corner of said side closure flap.

4,279,376

CARTON WITH UNOBTRUSIVE HANGING PANEL

Harry I. Roccaforte, Western Springs, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Apr. 4, 1980, Ser. No. 137,451

Int. Cl.³ B65D *5/18*

U.S. Cl. 229—38 **6 Claims**

1. A one-piece paperboard carton blank from which may be erected a carton having an unobtrusive integral panel to hang the carton, the said blank comprising, in sequence arranged along a common axis;

a reinforcement panel having a hole therethrough, a rectangular bottom panel connected by a back fold and score line to said reinforcement panel,

a rectangular first side panel connected by a fold line to said bottom panel, a rectangular top panel connected by a fold line to said rectangular first side panel, a rectangular second side panel connected by a fold line to the top panel;

a hanging panel connected to said second side panel by a fold line, said hanging panel having a hole therethrough to

align with the hole in the reinforcement panel and by which the carton may be hung;

and, in addition and not on said axis, opposite pairs of side flaps connected by fold lines to at least two of said panels;



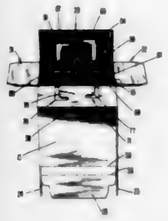
and a pair of side flaps connected at opposite sides of said hanging panel by breakable score lines.

4,279,377

CARTON WITH SELF-LOCKING TOP AND BOTTOM CLOSURE FLAPS AND BLANK THEREFOR

Dick E. Peeples, Capitola, and Mervin Lohrbach, Anaheim, both of Calif., assignors to Champion International Corporation, Stamford, Conn.

Filed Nov. 15, 1979, Ser. No. 94,492
Int. Cl.³ B65D *5/10*
U.S. Cl. 229—39 R **8 Claims**



1. A unitary paperboard blank adapted to form a carton comprising:

a front panel, a first side panel, a rear panel, a second side panel and a glue flap hingedly coupled in series along parallel fold lines; and

four bottom closure flaps hingedly coupled to the bottoms of said panels along fold lines, said four bottom closure flaps comprising

a first flap hingedly coupled to said rear panel and having a first set of two L-shaped slits therein,

a second flap hingedly coupled to said front panel and having a second set of two L-shaped slits therein, and wherein each said L-shaped slit of said first and second flaps includes a first leg extending perpendicular to said fold lines hingedly coupling said first and second flaps to said rear and front panels, and a second leg extending perpendicular to said first leg,

a third flap hingedly coupled to said first side panel, and

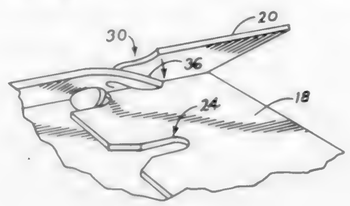
a fourth flap hingedly coupled to said second side panel.

4,279,378

TOP GAP FOLDING BOX HAVING A TOP CLOSURE INTERLOCK

Donald E. Jenkins, Orange, Calif., assignor to Willamette Industries, Inc., Portland, Oreg.

Filed Nov. 19, 1979, Ser. No. 95,403
Int. Cl.³ B65D *5/10*
U.S. Cl. 229—39 R **8 Claims**



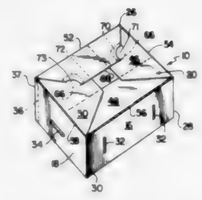
1. A top folding box having a bottom, four side walls and a top closure, being integrally formed of stiff sheet material, the top closure comprising a flap hinged to the top edge of each of the side walls, each flap having a pair of incisions therein, the incisions extending from the outer edge of the flap generally toward the edge hinged to the side wall, each incision configured and dimensioned to be engageable with an associated incision on the adjacent flap.

4,279,379

CARTON WITH SELF-LOCKING END CLOSURE AND BLANK FOR FORMING SAME

Mervin Lohrbach, Garden Grove, and Dick E. Peeples, Capitola, both of Calif., assignors to Champion International Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 94,492, Nov. 15, 1979. This application May 23, 1980, Ser. No. 152,736
Int. Cl.³ B65D *5/10*
U.S. Cl. 229—39 R **2 Claims**



1. A planar, unitary blank for forming a carton with a self-locking end closure comprising:

first, second, third and fourth side panels hingedly coupled in series at adjacent side edges thereof along fold lines; and

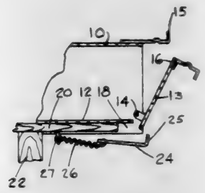
first, second, third and fourth closure flaps hingedly coupled to said first, second, third and fourth side panels, respectively, at adjacent end edges thereof along fold lines, said first flap having a base portion adjacent said first panel and a locking tab remote from said first panel, said base portion being substantially in the form of an isoceles trapezoid tapering in a direction away from said first panel, and with said locking tab being substantially rectangular and tapered at its free end thereof in a direction away from said first panel, said first flap being free of fold lines, and with each of said second and fourth flaps having an L-shaped slit therein, said L-shaped slits being located such that when said carton is erected from said planar blank, with said opposed free edges of said first and fourth side panels being connected such that said side panels form a tubular side wall, and when said second flap is rotated into coplanar relationship with said fourth flap, such that said second and fourth flaps are perpendicular to said side panels and overlie and are coplanar with said third flap, the spacing between said L-shaped slits is substantially similar to the width of said tapered locking tab of said first flap whereby said carton can be readily closed by rotating said first flap into said carton, with said tapered sides of said base portion of said first flap being operative to prevent interference between said first flap and said second and fourth flaps, thereby enabling said tapered sides of said locking tab to be received in said L-shaped slits for locking said erected carton.

4,279,380

MAIL BOX SIGNAL UNIT

Douglas P. Husted, 909 Rose La., Hatfield, Pa. 19440

Filed Jan. 31, 1980, Ser. No. 117,262
Int. Cl.³ B65D *91/00*
U.S. Cl. 232—35 **5 Claims**



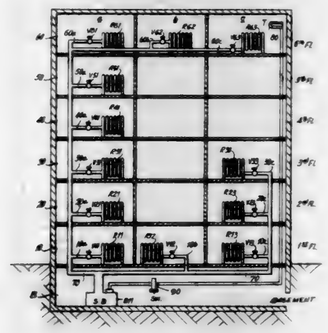
1. A signal unit which will drop down to a clearly visible suspended position below a mailbox from a normally hidden location close to the mailbox when the door of the mailbox is opened and dislodges it, which comprises a plate having an upturned lip at one edge to frictionally bear on the door of the mailbox, a tension spring attached at one of its ends to the plate edge opposite from said lip and attachment means for securing the opposite end of the spring to the mailbox to place the spring in tension and draw the lip against the door.

4,279,381

METHOD FOR UNIFORMLY HEATING A MULTI-LEVEL BUILDING

Yang Yueh, 209-03 White Hall Ter., Queens Village, N.Y. 11427

Filed Sep. 28, 1979, Ser. No. 80,129
Int. Cl.³ F24D *3/00*
U.S. Cl. 237—81 **1 Claim**



1. A method for regulating and controlling the temperature at various locations of a multi-level building that is heated from a thermostatically controlled common heating source and delivers a heating fluid to rooms being heated by means of conduits that extend from the heating source to a plurality of heating units each having an adjustable control valve associated therewith at each of the locations and by utilizing only a single thermostat, said method comprising the steps of:

(a) positioning the thermostat in the room that is at the end of the conduit most remote from the heating source;

(b) setting the thermostat at the desired set point temperature position;

(c) opening the valve associated with the heating unit most remote from the heating source to its maximum extent while retaining the remaining valves in a first position;

(d) adjusting each of the remaining valves to a second position such that the flow of a heating fluid to each heating unit is less in rooms further away from the thermostat whereby the set point temperature, is maintained substantially in all of the rooms; and

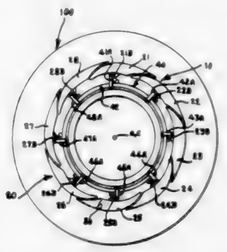
(e) fixing the valves in their second positions.

4,279,382

RADIAL AND AXIAL FLOW VARIABLE EXHAUST NOZZLE FOR A GAS TURBINE ENGINE

Paul Wilson, Jr., Lake Park, Fla., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 115,847
Int. Cl.³ B05B *17/04*
U.S. Cl. 239—11 **1 Claim**



1. A method of providing minimum thrust at idle speed, and maximum thrust with minimum losses at speeds above idle speed, with a gas turbine engine having an exhaust nozzle, wherein said gas turbine engine is operable at idle speed and also at speeds above idle speed, and wherein said gas turbine engine generates exhaust gases whenever it is operated, with said exhaust gases flowing into and out of said exhaust nozzle, and also wherein said gas turbine engine and said exhaust nozzle each has a centrally located longitudinal axis which are coincident, and further wherein said exhaust nozzle comprises a plurality of adjacent, successively overlapping, pivotable, axially extending, aerodynamically configurated, and annularly disposed constituent members, and has an axially aligned rearwardly located exit opening, comprising the steps of:

a. pivoting said exhaust nozzle constituent members to an open position during operation of said gas turbine engine at idle speed, whereby said exhaust gases formed by said operating gas turbine engine flow overboard from said exhaust nozzle, between said opened members, in radial directions;

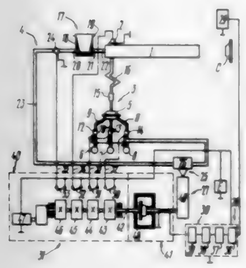
b. and, pivoting said exhaust nozzle constituent members to a closed position during operation of said gas turbine engine at a speed above idle speed, whereby said exhaust gases formed by said operating gas turbine engine flow overboard from said exhaust nozzle in an axial direction through said axially aligned rearwardly located exit opening of said exhaust nozzle.

4,279,383

APPARATUS FOR COATING BY DETONATION WAVES

Anatoly I. Zverev, ulitsa Bratislavskaya, 26, kv. 22; Evgeny A. Astakhov, ulitsa Vyborgskaya, 89a, kv. 46; Valery S. Klimenko, ulitsa Shepeleva, 14, kv. 9; Vasily G. Skadin, prospekt Malinovskogo, 7, kv. 50, all of Kiev, and Mikhail A. Timoshin, Setunsky proezd, 4, kv. 24, Moscow, all of U.S.S.R.

Filed Mar. 12, 1979, Ser. No. 19,754
Int. Cl.³ B05B 7/22
U.S. Cl. 239—61 7 Claims



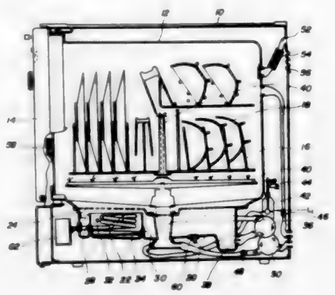
1. Apparatus for coating by detonation waves comprising:
a detonation chamber including a barrel having an open end and a closed end;
a spark plug mounted in said detonation chamber;
a powder feeding system communicating with said detonation chamber, and comprising:
a source of carrier gas;
a gas conduit communicating with said source of carrier gas; and
a batchmeter comprising a hopper having a first inlet for charging powdered coating material, a second inlet connected with said gas conduit, and an outlet connected with said detonation chamber;
a carrier gas feed controller having a control member mounted on said gas conduit, and an actuating mechanism connected with the control member;
a gaseous mixture delivering system comprising a mixer communicating with the detonation chamber;
a control system electrically connected with the mixer, the batchmeter, and the carrier gas feed controller, and comprising a powder detector for detecting powder in the detonation products and mounted at the open end of said barrel;
a transducer for converting a detector signal and electrically connected with said powder detector;
a control unit comprising a driver unit electrically connected with said mixer, said spark plug and said batchmeter, and a threshold element for switching on said actuating mechanism of said carrier gas feed controller, said threshold element having an input connected to said transducer and an output electrically connected with said actuating mechanism of said carrier gas feed controller; and
control circuits of the mixer, of the spark plug and of the batchmeter connecting said driver unit of said control unit with said mixer, said spark plug and said batchmeter respectively.

4,279,384

STEAM GENERATION IN A DISHWASHER

Kunio Yamamoto, Daito, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 5, 1979, Ser. No. 54,919
Claims priority, application Japan, Jul. 5, 1978, 53-93311[U]; Sep. 20, 1978, 53-129714[U]
Int. Cl.³ A01G 27/00
U.S. Cl. 239—67 13 Claims



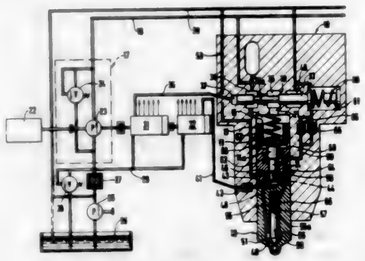
1. A dishwasher comprising
a dishwashing tub;
an immersion heater disposed at a lower section of said dishwashing tub for heating up water and generating steam;
a heater cover for substantially surrounding said immersion heater, said heater cover having a bottom-free end portion and an upper free end portion;
said bottom free end portion and the bottom wall of the dishwashing tub defining a gap therebetween for providing communication between said immersion heater and said dishwashing tub, external of said heater cover;
said upper free end portion of said heater cover providing communication between said immersion heater and the upper section of said dishwashing tub.

4,279,385

HIGH PRESSURE FUEL INJECTION APPARATUS FOR INTERNAL COMBUSTION ENGINES

Max Straubel, and Willi Volt, both of Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 9, 1979, Ser. No. 11,024
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1978, 2805785
Int. Cl.³ F02M 32/02, 47/02
U.S. Cl. 239—90 13 Claims



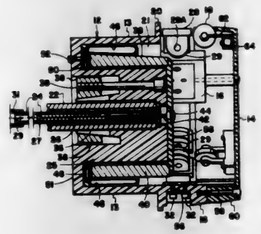
1. In a hydraulically driven piston pump and nozzle assembly for a high pressure fuel injection system of an internal combustion engine, including: a pump piston; a servo piston having two end faces and a diameter larger than the diameter of the pump piston, said servo piston serving to drive the pump piston; a servo pressure chamber partly defined by one end face of the servo piston, said servo pressure chamber being placed under servo pressure in synchronization with the engine operation; an intermediate chamber partly defined by the other end face of the servo piston, said intermediate chamber pressure relieved during at least the greater portion of the pump piston stroke; a spring chamber; a closing spring disposed within the spring chamber; means defining a valve seat; a valve needle biased by the closing spring in the direction of fuel flow and against the valve seat; a closing pressure chamber disposed in the vicinity of the valve needle end remote from the valve seat; and an overflow channel connected to the closing pressure chamber through which fuel at elevated pressure is conducted to the closing chamber, the improvement comprising:
an auxiliary pump chamber; and
an auxiliary pump piston axially movable within said auxiliary pump chamber, driven together with the pump piston and defining an effective work surface, wherein:
(i) the closing pressure chamber communicates through the overflow channel with the auxiliary pump chamber;
(ii) the auxiliary pump chamber is subjected to the effective work surface of the auxiliary pump piston; and
(iii) the auxiliary pump chamber is placed under elevated fuel pressure, at the latest, shortly before the end of the pressure stroke of the pump piston.

4,279,386

COMPACT PNEUMATIC REEL LATCH

Mark A. Lobo, and Richard W. Pembroke, both of Tulsa, Okla., assignors to Telex Computer Products, Inc., Tulsa, Okla.

Filed Apr. 14, 1980, Ser. No. 140,192
Int. Cl.³ B65H 17/02
U.S. Cl. 242—68.3 2 Claims



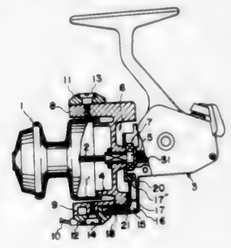
1. A compact pneumatic reel latch for a magnetic tape deck having a drive shaft, said drive shaft having an axial opening therethrough, and means to supply pressurized air through said opening, comprising;
(a) a cylindrical hub, and means to clamp said hub to said drive shaft;
(b) an annular groove cut into the proximal end of said hub, forming an inner cylindrical surface and an outer cylindrical shell;
(c) a cuplike piston adapted to fit loosely inside of said annular groove, and rolling diaphragm means to seal between the outer surface of said piston and the inner surface of said cylindrical shell;
(d) means to apply pressurized air to the inside of said piston through said axial opening, thereby said piston will move axially out of said groove;
(e) elongatable elastic means inside said axial opening, the distal end of said elastic means anchored behind said hub, the proximal end attached to the inside of said piston;
whereby said piston is withdrawn back into said groove by said elastic means when said pressurized air is removed from the inside of said piston;
(f) a plurality of circumferentially spaced sloping flat lands provided on the outer surface of said piston;
(g) a plurality of circumferentially spaced first roller/friction pad means, supported by circumferential spring means; each of said roller/friction pad means running on one of said sloping lands;
whereby when said piston is moved out of said annular groove by said pressurized air, each of said circumferentially spaced roller/friction pad means, running on said sloping lands, will move radially outwardly;
whereby, when a tape reel hub is positioned over said plurality of roller/friction pad means, said roller/friction pad means will press on the inside surface of said reel hub causing it to rotate with said hub.

4,279,387

BAIL LATCHING AND RELEASING MECHANISM FOR SPINNING REEL

Yoshinori Morimoto, Fuchu, Japan, assignor to Ryobi Ltd., Fuchu, Japan

Filed Dec. 6, 1979, Ser. No. 101,039
Claims priority, application Japan, Dec. 18, 1978, 53-174561[U]; Dec. 18, 1978, 53-174562[U]
Int. Cl.³ A01K 89/01
U.S. Cl. 242—84.2 G 9 Claims



1. In an arm-spool type spinning reel including a bail arm pivotally mounted at both ends on support housings each positioned at diametrically opposite sides of a rotor for swinging movement thereacross between cocked and rewind positions, bail support members including a bail arm cam and a bail arm lever, said bail arm cam pivotably mounted on one of said support housings to support one end of said bail arm and said bail arm lever pivotably mounted on other of said support housing to support the other end of said bail arm, the improvement comprising; a bail arm latching and releasing mechanism assembled in either one of said support housings, said bail arm latching and releasing mechanism comprising:
(a) a kick lever pivotably secured to said one of said support housings,
(b) a dead point spring having one end connected to said kick lever and the other end connected to one of said bail support members disposed in said one of said support housings to bias said bail arm toward cocked and rewind positions, said dead point spring having dead point between bail arm cocked and rewind positions, and
(c) an operation cam secured to a stationary portion of a reel body, said operation cam being adapted to pivot said kick lever when said bail arm is at fishing line cocked position to urge said bail arm from its cocked to rewind position.

4,279,388

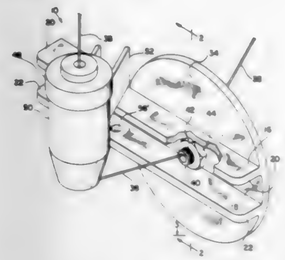
COMBINATION MOUNTING BRACKET, BALL TENSION AND BALLOON CONTROL DEVICE

Edward J. McBride, Jr., P.O. Box 311, Moorestown, N.J. 08057

Continuation of Ser. No. 29,220, Apr. 12, 1979, abandoned. This application Aug. 21, 1980, Ser. No. 180,164

Int. Cl.³ B65H *59/22*

U.S. Cl. 242—152.1 **6 Claims**



1. In a device for feeding yarn to a textile machine, the combination of

mounting bracket means adapted to affix the device to the machine,

said mounting bracket means comprising a mounting bracket having a longitudinal, generally horizontal axis and being adapted for interconnecting the mounting bracket to a stationary portion of the textile machine;

balloon control means supported by the mounting bracket means to control ballooning of the yarn as the yarn is fed to the textile machine,

said balloon control means comprising a hollow cylindrical conduit through which the yarn passes, said conduit being relatively long compared to the diameter of the yarn and having a horizontal axis, the vertical plane drawn through the horizontal conduit axis being at right angles to a horizontal plane drawn through the longitudinal axis of the mounting bracket,

said balloon control means further comprising a circular body, said body being adapted to control ballooning of the yarn as the yarn is fed through the device;

a ball type yarn tension control having a vertical axis and a mounting arm adapted to connect the yarn tension control device to the mounting bracket means, the ball type yarn tension control receiving the yarn from the conduit of the balloon control means at an angle, the vertical axis of the yarn tension control device being so oriented that a vertical plane drawn through the vertical axis will always be at right angles to a horizontal plane drawn through the balloon control means conduit; and

means to adjust the orientation of the vertical axis of the ball type yarn tension control toward and away from the horizontal axis of the balloon control means conduit to vary the angle between the horizontal axis of the balloon control means conduit and the vertical axis of the ball type yarn tension control device.

4,279,389

THREAD KEEPER

James K. Thomas, 21 Backkingdom Rd., Mexico, Me. 04257

Filed May 19, 1980, Ser. No. 151,347

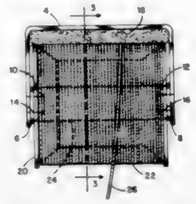
Int. Cl.³ B65H *59/04, 49/26*

U.S. Cl. 242—156.1 **6 Claims**

1. A thread keeper for use with a spool of thread in which said spool has an axial bore therethrough, said keeper comprising a U shaped unitary structure having a cross bar and two flexible arms sized to straddle said spool,

projections on said arms positioned to enter the ends of said axial bore to act as an axle about which said spool may rotate, said cross bar spaced from said spool,

a compressible element attached to the interior side of said cross bar and engaging in compressed condition the thread on said spool,



whereby said compressible element will apply to said threaded spool continuous limited restraint against rotation within said keeper.

4,279,390

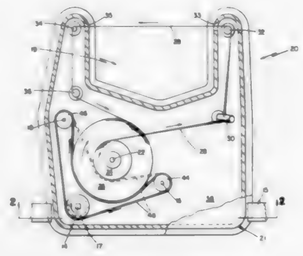
RIBBON CARTRIDGE

Edward S. Wu, Chelmsford, and Roger R. Soulard, Dracut, both of Mass., assignors to Wang Laboratories, Inc., Lowell, Mass.

Filed Oct. 18, 1979, Ser. No. 86,058

Int. Cl.³ G03B *1/04;* **G11B** *15/32*

U.S. Cl. 242—192 **4 Claims**



4. A reel-over-reel ribbon cartridge comprising

a housing having a base

a reel shaft mounted on said base with its axis perpendicular thereto

a ribbon supply reel rotatably mounted on said reel shaft with one side thereof adjacent said base for providing a supply of fresh ribbon wound thereon

a ribbon takeup reel rotatably mounted on said reel shaft on the opposite side of said supply reel for providing a takeup of used ribbon

ribbon guide means for guiding said ribbon from said supply reel to said takeup reel, said ribbon guide means including four shafts mounted on said base, a first shaft receiving said ribbon from said supply reel having its axis tilted away from said supply reel, said remaining shafts being mounted on said base with their axes perpendicular thereto, and

ribbon driving means positioned adjacent to said takeup reel including

a drive shaft rotatably mounted on said base with its axis perpendicular thereto and spaced from said reels and having a drive pulley mounted thereon in the plane of said takeup reel

a pair of idler shafts mounted on said base with their axes perpendicular thereto and on opposite sides of said drive pulley and said takeup reel, said idler shafts having rotatable idler pulleys mounted thereon in the plane of said takeup reel, and

a normally stretched tensioned elastic endless belt trained around said drive and idler pulleys and engaging an arcuate portion of the outer surfaces of the ribbon of said takeup reel for moving said ribbon from said supply reel to said takeup reel in response to rotation of said drive shaft, said belt engaging an increasing arcuate portion of the outer surface of said ribbon and moving said ribbon at a substantially constant rate as its diameter on said takeup reel increases during use of said cartridge.

4,279,391

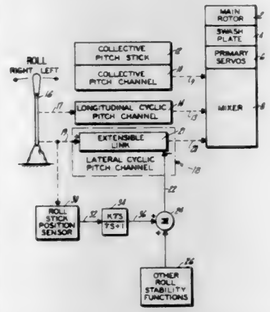
DESENSITIZING HELICOPTER CONTROL RESPONSE TO INADVERTENT PILOT INPUTS

Don L. Adams, Fairfield; Richard D. Murphy, and William C. Fischer, both of Monroe, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jan. 24, 1979, Ser. No. 6,314

Int. Cl.³ B64C *11/44*

U.S. Cl. 244—17.13 **2 Claims**



1. A control system for a helicopter, comprising:

a full authority outer control loop including mechanical connection to a control stick by means of which a pilot induces commands to the control surfaces of the helicopter;

an inner, automatic stability loop for providing limited authority commands to the control surfaces of the helicopter independently of said mechanical connection and said control stick;

means responsive to the position of said control stick for providing a stick position signal; and

means including a washout filter responsive to said stick position signal for providing a short-term signal to said inner stability loop of magnitude and sense to provide a short-term command to the control surfaces of the helicopter which is substantially equal in magnitude and opposite in sense to an outer loop command represented by a change in control stick position indicated by said position signal so that pilot induced commands of a duration on the order of the time constant of said filter are substantially canceled by said inner loop.

4,279,392

ADJUSTABLE TIME-DELAYED APPARATUS FOR OPENING A PARACHUTE

Dennis M. Saxton, Santa Ana, Calif., assignor to FXC Corporation, Santa Ana, Calif.

Filed Aug. 22, 1979, Ser. No. 68,704

Int. Cl.³ B64D *17/58*

U.S. Cl. 244—150 **40 Claims**

1. A parachute opener comprising:

(a) a support;

(b) opening means carried by said support for movement from a cocked position to a release position for opening a parachute upon said movement to said release position;

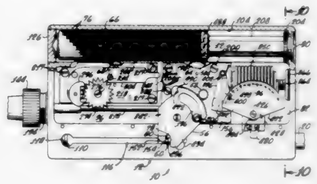
(c) latch means carried by said support for releasably locking said opening means in said cocked position and for unlocking said opening means in response to a parachute opening signal;

(d) means for driving said opening means to said release position; and

(e) adjustable time delay means carried by said support for interposing a time delay of predetermined magnitude between the start of said unlocking and the attainment of said release position by said opening means, said adjustable time delay means comprising:

an adjustable delaying member carried by said support for translational movement along a longitudinal axis of said delaying member,

said delaying member having a variable engageable portion thereon defined by a longitudinally extending series of engagement members, said variable engageable portion having an adjustable effective engagement length;



retarding means carried by said support for engaging said engagement members through said effective engagement length during a portion of said translational movement of said delaying member to retard the rate of said translational movement;

shifting means for shifting said delaying member relative to said retarding means to selectively vary said effective engagement length; and

linking means for coupling said opening means and said delaying members for conjoint movement,

whereby said retarding means restrains motion of said delaying member, linking means and opening means during its engagement with said engagement members and releases its restraint thereof when disengaged from said engagement members.

4,279,393

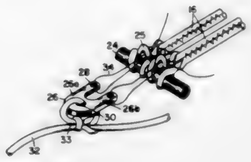
PARACHUTE CANOPY SUSPENSION LINE RELEASE DEVICE AND METHOD

Ray E. Spinks, 9320 Earl St., #41, La Mesa, Calif. 92041

Filed Jul. 27, 1979, Ser. No. 61,224

Int. Cl.³ B64D *17/34*

U.S. Cl. 244—152 **3 Claims**



1. A glidable personnel-type parachute comprising:

a canopy having a peripheral skirt;

a plurality of suspension lines having upper ends connected to spaced points around said peripheral skirt and having looped lower ends;

said suspension lines being divided into a plurality of groups, said suspension lines in each group being connected at their lower looped ends to a respective parachute riser strap link;

preselected groups of said suspension lines being connected to their respective riser strap links by a connection made by making said lower looped ends of two adjacent suspension lines into releasable bights around said parachute riser strap link; and including

a rigid U-shaped tab having the legs of said U inserted into said releasable bights with each leg of said U-shaped tab snubbing one of said releasable heights of said adjacent suspension lines;

means for securing said U-shaped tab; and

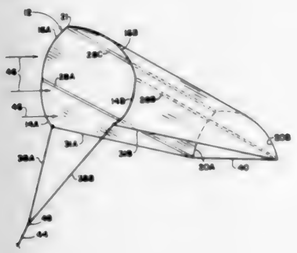
means for selectively releasing said U-shaped tab from said releasable bights to free said preselected groups of said suspension lines for permitting gliding of said parachute.

4,279,394

SWALLOWTAIL KITE

John W. Loy, P.O. Box 1281, Bartlesville, Okla. 74003

Filed May 29, 1979, Ser. No. 43,108
Int. Cl.³ B64C *31/06*
U.S. Cl. 244—153 R **7 Claims**



1. A kite of the sled type, comprising:

(a) a central canopy of light sheet material; generally in a rectangular shape, with two long parallel sides with shorter leading and trailing edges;

(b) the leading edge cut on a broken line forming a shallow first isosceles triangle, with its base at the front ends of the two sides, and the center peak ahead of the central canopy;

(c) the trailing edge cut in a broken line in the shape of second isosceles traingle with the base at the trailing ends of the two sides; and the central peak ahead of the trailing ends of the two sides; the height of the second triangle greater than the height of the first triangle;

(d) a left side panel of triangular shape with its long edge equal in length to, and attached to, the left side of the central canopy; and a similar triangular side panel with its long edge attached to the right side of the central canopy; said side panels made of light sheet material;

(e) at least three slender battens, one attached to each side of the central canopy and a third along the center line of the central canopy;

(f) a cord bridle, the two ends of the cord attached one to each of the tips of said side panels; and

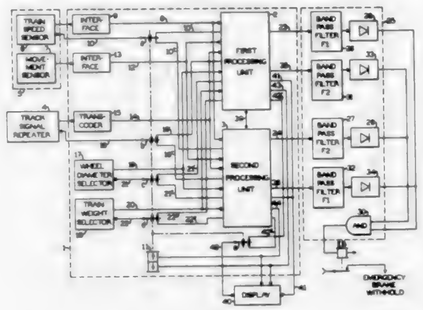
(g) a flexible halter, shorter than the width of said central canopy, tied between the trailing ends of said two outboard battens.

4,279,395

SPEED CONTROL APPARATUS FOR RAILROAD TRAINS

Francesco Boggio; Andrea Bertone, and Enzo Tumolo, all of Turin, Italy, assignors to WABCO Westinghouse Compagnia Italiana Segnali S.p.A., Turin, Italy

Filed Nov. 7, 1979, Ser. No. 92,111
Claims priority, application Italy, Dec. 21, 1978, 69919 A/78
Int. Cl.³ B61L *3/00*
U.S. Cl. 246—182 R **8 Claims**



1. Speed control apparatus for a railroad train, which is provided with brake control means, track signal repeater means for indicating advance traffic conditions along the stretch of track over which the train moves, and means for measuring actual train speed, comprising in combination,

(a) a first and a second processing unit, each coupled for receiving advance traffic condition and actual train speed signals and responsive thereto for individually calculating a maximum train speed which permits stopping said train by train braking controlled by said brake control means within the unoccupied track distance indicated by the received advance traffic condition signal,

(b) each processing unit further responsive for comparing the calculated speed signal with the received actual speed signal and for producing an alternating current output signal, having a preselected frequency different from that of the other processing unit, only when said actual train speed is less than the corresponding calculated maximum speed, each unit otherwise producing a signal having a direct current characteristic,

(c) a first and a second band pass filter and rectifier circuit path coupled to said first and second processing units, respectively, each circuit path tuned for producing an output signal only when the associated processing unit output is of the proper preselected distinctive frequency, and

(d) a two-input AND logic gate with one input coupled to receive the output signal from one filter and rectifier circuit path, the other input coupled to receive the output from the other filter and rectifier circuit path, and an output coupled to said brake control means for withholding or actuating train braking as an AND gate output signal is produced or is absent, respectively.

4,279,396

SHOWER CURTAIN CLIP

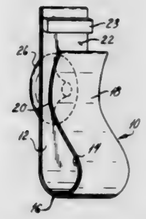
Edward M. Bendock, 35 S. Franklin Ave., Lynbrook, N.Y. 11563

Filed Feb. 15, 1980, Ser. No. 121,703
Int. Cl.³ F16B *47/00*
U.S. Cl. 248—206 R **2 Claims**

1. A shower curtain holder for detachably securing an edge portion of a shower curtain to a surface, comprising:

a curtain holder including means for detachably securing said curtain holder to an edge portion of a shower curtain,

said means comprising a resilient, plastic generally U-shaped clip having first and second arms which cooperate to frictionally engage an edge portion of a shower curtain inserted therebetween, said first arm comprises an elongated, flat, rectilinear strip having an inner side surface and an outer side surface and said second arm comprises an elongated, flat generally S-shaped strip having a lower end portion which merges with said first arm and an upper



end portion which is disposed closely adjacent to at least a portion of said inner side surface of said first arm for cooperation therewith so as to define a generally V-shaped entryway and so as to frictionally engage an edge portion of a shower curtain inserted therebetween; and

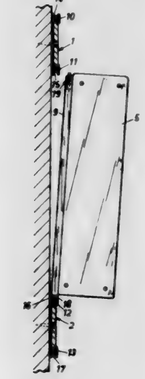
a suction cup secured to said outer side surface of said first arm of said curtain holder for detachably securing said curtain holder and, in turn, the edge portion of a shower curtain secured thereto, to a surface.

4,279,397

ATTACHMENT FOR WALL CABINETS, MIRRORS, SHELVES AND SIMILAR ARTICLES

Frank Larsson, Halmstad, Swedea, assignor to Hafa Fabriks AB, Halmstad, Swedea

Filed Aug. 23, 1979, Ser. No. 68,975
Claims priority, application Swedea, Aug. 28, 1978, 7809081
Int. Cl.³ A47B *96/06, 55/00*
U.S. Cl. 248—221.3 **6 Claims**



1. An improved attachment device to carry wall cabinets, mirrors, shelves and similar elements, the improvement comprising

at least two wall strips arranged to be attached horizontally to a wall in parallel and opposite relationship, attachment means formed on each of said strips and cooperating attachment means formed on opposite upper and lower ends of element intended to be attached to the wall, said means on said strips each being arranged to cooperate with respective of said attachment means on said element,

the attachment means on one of said strips and one end of said element comprising cooperating tongue and groove parts for connecting each one strip and said element together

the attachment means of the other of said wall strips comprising a groove formed in the other wall strip,

the attachment means of the other end of said element including a releasable locking means operable in the locked position to cooperate with the groove of said other wall strip

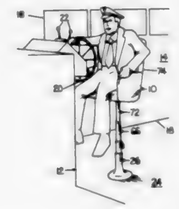
said element arranged to be locked in the desired position along said wall strips by movement of said releasable locking means into its locked position in its associated groove in said other wall strip.

4,279,398

VERSATILE HELMSMAN CHAIR FOR A YACHT

Lester W. Pregnall, 4026 Marine View Dr., Tacoma, Wash. 98442

Filed May 29, 1979, Ser. No. 43,549
Int. Cl.³ F16M *11/00*
U.S. Cl. 248—405 **4 Claims**



1. A versatile helmschair for a yacht, powered upwardly from a rearwardly facing lounge seating height in a lounge of a yacht to an elevated forward viewing height in a pilot house portion of this lounge, and the helmsman, captain, or skipper remains seated in this helmschair and operates his controls of this helmschair, which are located in the arm of this helmschair to raise and to lower this helmschair, while he remains seated, and at any time he may change his facing direction upon swiveling, at any elevation, in either direction of rotation, from the lounge and stern facing direction to the bow facing direction, comprising:

(a) a comfortable upholstered lounge chair serving also as a helmschair;

(b) a swivelable chair attachment assembly secured to the bottom of the lounge chair;

(c) a lounge chair raising and lowering assembly secured to the swivelable chair attachment assembly, comprising in turn:

(1) an extendable hollow cylindrical portion secured to the swivelable seat attachment assembly and having an axial guide means permitting up and down motion, but no rotational motion;

(2) a stationary hollow cylindrical portion slidably fitted to the exterior of the extendable hollow cylindrical portion and having an axial guide means permitting up and down motion, but no rotary motion;

(3) a screw jack mechanism secured between and within the extendable portion and stationary portion to move them relative to one another, and thereby to raise and to lower the upholstered lounge chair serving also as a helmschair; and

(4) an electric motor to power the screw jack mechanism, using the yacht electrical power source and operated as the helmsman, captain, or skipper, while seated, utilizes the controls located in the arm of the lounge chair serving also as a helmschair; and

(d) a deck mounting assembly secured to the lounge chair

raising and lowering assembly, and adapted for securement to the deck of a yacht.

4,279,399

CONCRETE BEAM MOLDING APPARATUS

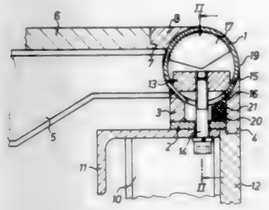
Erwin Schmacker, Schelklingen, and Karl Rampf, Erbach, both of Fed. Rep. of Germany, assignors to Rampf KG Formen GmbH & Co., Allmendingen, Fed. Rep. of Germany

Filed Jan. 22, 1980, Ser. No. 114,439

Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903755

Int. Cl.³ E01C *19/50*

U.S. Cl. 249—2 **5 Claims**



1. A cast concrete form work apparatus for constructing bridge beams with an upper surface disposed for use as an inclined roadway comprising a generally vertically disposed form work partition and having a work surface, a hollow tube rotatably adjoined tangentially to an upper edge of said work surface of the vertically disposed partition, a second form work partition having a work surface securely affixed to the tube on a side thereof distal to the upper edge of the vertically disposed partition and extending in selective various angles to the horizontal for forming a pivotal assembly to each other, a groove member affixed onto a back side of the work surface and adjacent to the upper edge of the vertically disposed partition and having upper surfaces of the groove member being contoured for mating with an extension surface of the tube, the tube being hollow for receiving a clamping bar, a circumferentially disposed slot in the tube surface adjacent the groove member, and securing means passing radially through the circumferential slot between the vertically disposed form work partition and the clamping bar for locking the tube into a fixed position therewith and forming a rounded fillet for a finished concrete structure by means of the pivotal assembly.

4,279,400

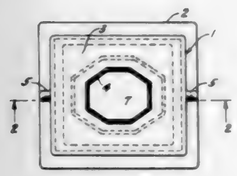
HOT TOP FOR INGOT MOLD

Lawrence A. Greenberg, Allentown, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Jun. 22, 1979, Ser. No. 51,256

Int. Cl.³ B22D *7/10*

U.S. Cl. 249—106 **3 Claims**



1. A hot top in combination with a rectangular ingot mold, said mold capable of producing a rectangular ingot having a thickness of at least 28 inches and a width greater than said thickness but no greater than 36 inches, said hot top having an octagonal refractory lined cavity, the lengths of the four corner sides of said cavity at the bottom of said hot top and measured in a transverse plane being substantially equal to each other, said corner sides being greater in length than any of the other four sides of said hot top measured in said transverse plane, but not greater than 1.2 times the length of the longest of said other four sides.

4,279,401

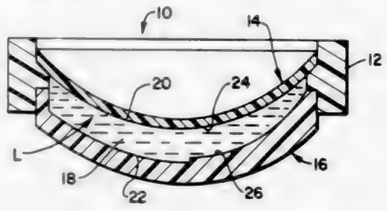
APPARATUS AND METHOD FOR MAKING CAST OPHTHALMIC LENSES

Peter R. Ramirez, Southbridge, and Bradford Canterbury, Sturbridge, both of Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed May 30, 1980, Ser. No. 154,670

Int. Cl.³ B29D *11/00*

U.S. Cl. 249—139 **14 Claims**



1. A molding die for making plastic casting pieces having ledged surfaces of particular curvature and relative juxtaposition according to multifocal lens focal field surfaces desired to be produced on ophthalmic lenses cast in said plastic pieces, said molding die comprising:

a base;

a pair of tightly juxtapositioned die pieces having adjoining curved molding surfaces together forming a molding face of said die, one of said molding surfaces being of shorter radius of curvature than the other, said difference of surface curvatures producing a ledge extending at least partially across said molding face of said die;

means for securing said die pieces to said base; and

means for shimming at least one of said die pieces on said base for adjustment of height of said ledging across said molding face.

13. The method of making a ledged lens casting piece comprising the steps of:

forming first and second master die components each having a finished curved surface and respectively adjoining finished sides, said surface of one of said components being of greater radius of curvature than the other;

juxtapositioning said components by joining said surfaces thereof to form a composite molding face, said difference in curvatures of said surfaces of said components causing a portion of one of said finished sides to form a ledge across at least a portion of said molding surface; and

molding a lens casting piece of plastic material against said molding face into which lenses may be subsequently cast.

4,279,402

EXPLOSION BARRING SHUTOFF DEVICE

Joseph Wey, Lucerne; Hans Sidler, and Hans Stalder, both of Eschenbach, all of Switzerland, assignors to Sistag, Maschinenfabrik Sidler Stalder AG, Switzerland

Filed Mar. 24, 1980, Ser. No. 133,391

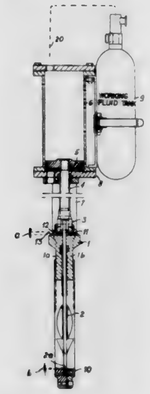
Claims priority, application Switzerland, Apr. 5, 1979, 3173/79

Int. Cl.³ F16K *31/122, 51/00*

U.S. Cl. 251—63 **7 Claims**

1. In a shutoff device comprising a housing having a closable flow passage, a valve seat, a closing member movable in the

housing from an opened position permitting flow through the passage to a closed position engaged on the valve seat and blocking the flow, and means for rapidly moving the closing member into a closed position having a movement connected to the closing member, the improvement comprising stop means defined between the movement member and the housing including a stop face and stop bolster made of a non-elastic deformable material disposed to engage and stop the movement member immediately before the closing member engages on the seat, said bolster being deformable to permit further closing movement after initial engagement with said stop face



to permit further completely closed movement and positioning of the closing member, the deformation of said bolster occurring to absorb the impact of the closing movement to prevent damage of the closing member and the valve seat.

3. In a shutoff device according to claim 1 wherein said means for moving said closing member comprises a fluid operated piston connected to said movement member and including a stop face defined thereon, a bolster member mounted on said housing in the path of movement of said stop face being of a deformable material when engaged by said stop face will be deformed to permit a further closing movement of said closing member.

4,279,403

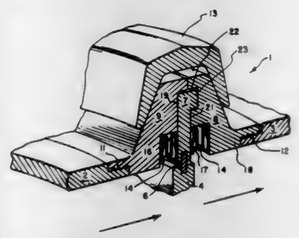
NON-REVERSIBLE VALVE ASSEMBLY

Michael J. Hobson, Fullerton, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 21, 1979, Ser. No. 13,100

Int. Cl.³ F16K *15/03*

U.S. Cl. 251—148 **4 Claims**



1. A non-reversible valve assembly for supporting a flow-control valve member in its correct operative disposition in a conduit formed between a pair of pipes comprising:

a support member secured to said flow control member for carrying it in said operative disposition, said support member being formed with side wall portions extending radially outwardly of said conduit,

a flange formed on and projecting laterally of one of said side wall portions,

a pair of pipe-supported clamping members having radially-extending interior side wall portions flushly engaging opposite surfaces of said support member side walls with the interior wall portion of one of the clamping members being formed with an indented groove for closely receiving the lateral flange of said support member only when said flow control member is in the correct operative orientation, thereby rendering the valve assembly to be non-reversible, and

means for exerting a firm clamping pressure on said clamping members.

4,279,404

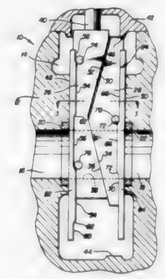
GUIDE ARRANGEMENT FOR EXPANDING GATE VALVES

Alan Levin, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Oct. 17, 1979, Ser. No. 85,837

Int. Cl.³ F16K *25/00*

U.S. Cl. 251—167 **7 Claims**



1. An expanding gate valve comprising:

a valve body presenting a valve chamber therein and a fluid flow passage communicating with said valve chamber;

a pair of spaced apart valve seats mounted in said valve body about the flow passage adjacent the valve chamber;

an expanding gate assembly mounted in said valve chamber for movement between open and closed positions relative to the flow passage, said gate assembly including a gate member and a segment member having cooperating wedge surfaces which interact with one another in wedging fashion to expand the gate assembly to an expanded condition wherein the gate and segment members are pressed against the valve seats in both the open and closed positions of the gate assembly, said wedge surfaces permitting said gate assembly to contract inwardly of the valve seats to a collapsed condition for movement between the open and closed positions;

a pair of spaced apart rails mounted in the valve body on opposite sides of the gate assembly, each rail having a guide surface thereon extending substantially parallel to the direction of movement of the gate assembly between the open and closed positions, each of said guide surfaces presenting a plurality of spaced apart gaps therein;

a pair of pin elements projecting from one of said gate and segment members at locations to travel along one of said guide surfaces during movement of the gate assembly between the open and closed positions, said pin elements registering with the gaps in said one guide surface in both the open and closed positions of the gate assembly;

a third pin element projecting from the other of said gate and

segment members at a location to travel along the other guide surface during movement of the gate assembly between the open and closed positions, said third pin element registering with the gaps in said other guide surface in both the open and closed positions of the gate assembly;

said guide surfaces engaging said pins in a manner to prevent expansion of the gate assembly from the collapsed condition during movement of the gate assembly between the open and closed positions; and

said pins entering said gaps to permit expansion of the gate assembly to the expanded condition in both the open and closed positions.

4,279,405

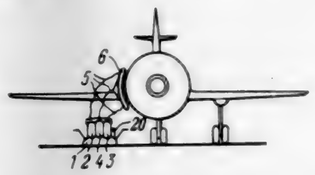
DEVICE FOR MAKING EMERGENCY EXITS IN A CRUSHED TRANSPORT MEANS

Valery M. Buryakov, ulitsa Onezhskaya, 15b, kv. 27; Nikolai N. Kolotilov, ulitsa Zorge, 36, kv. 108; Roman D. Tokhunts, Izmailovsky bulvar, 67, korpus 1, kv. 5; Vladimir S. Yakovlev, ulitsa Marshala Novikova, 6, korpus 2, kv. 56, all of Moscow; Vladislav A. Akulov, 26, kvartal 15, 15, kv. 68, Kuibyshev; Viktor G. Zabotin, ulitsa 22 Siezda, 179, kv. 27, Kuibyshev; Viktor Y. Levin, Volzhsky prospect, 33, kv. 58, Kuibyshev; Viktor P. Lakachev, Volzhsky prospect, 37, kv. 10, Kuibyshev; Alexandr N. Pervyshin, 26, kvartal 15, 6, kv. 82, Kuibyshev; Konstantin A. Zaitsev, prospekt Lenina, 1, kv. 174, Kuibyshev; Vladimir D. Karakov, ulitsa Krasnodonskaya, 13, kv. 28, Kuibyshev, and Mubaraksha D. Khasanov, Volzhsky prospect, 45, kv. 20, Kuibyshev, all of U.S.S.R.

Filed Nov. 26, 1979, Ser. No. 97,429

Int. Cl.³ B23K 7/04

U.S. Cl. 266—55 **6 Claims**



1. A device for making emergency exits in a crushed transport means, comprising, a gas cutter in the form of a combustion chamber having an outlet nozzle adapted and directed toward the wall of said transport to cut an aperture in the wall having the desired peripheral shape of an escape hatch, means for delivering into and igniting a combustible mixture in said combustion chamber and an emergency switch operatively connected with said means for delivering and igniting a combustible mixture to activate said means, said gas cutter being positioned with respect to the wall of a transport means so that a gas jet issued from said combustion chamber when said mixture is ignited through said outlet nozzle simultaneously cuts an escape hatch over the entire periphery thereof.

4,279,406

PLANT FOR GENERATING AN ATMOSPHERE FOR THE HEAT TREATMENT OF METALS

Yves Bourhis, Villejuif; Alain Wermelinger, Fresnes, and Michel Kestolitz, Versailles, all of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des procedes Georges Claude, Paris, France

Filed Feb. 20, 1980, Ser. No. 122,854

Claims priority, application France, Mar. 5, 1979, 79 05599

Int. Cl.³ C21D 11/00

U.S. Cl. 266—81 **12 Claims**

1. In a plant for generating an atmosphere in a heat treating furnace, in combination:

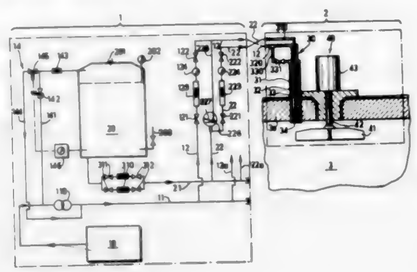
a source of nitrogen under pressure;

a nitrogen circuit connected to the source of nitrogen;

a tank containing alcohol;

an alcohol circuit connected to the tank;

distribution means communicating with the nitrogen and alcohol circuits and with said furnace for simultaneously feeding nitrogen and alcohol thereto, the alcohol being fed to the furnace decomposing at the furnace temperature by cracking of its molecules to yield carbon monoxide and hydrogen;



pressurizing means interconnecting the nitrogen circuit and the alcohol tank for supplying nitrogen thereto at a predetermined rate of flow to thereby maintain the alcohol in the tank under pressure; and

control means cooperating with the pressurizing means for controlling the pressure and rate of flow of the pressurizing nitrogen being supplied to said tank.

4,279,407

METALLURGICAL FURNACE IN PARTICULAR AN ELECTRIC ARC FURNACE

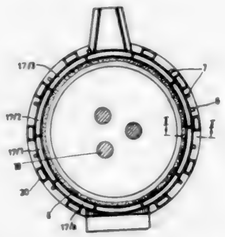
Emil Elsner, Baden-Baden, Fed. Rep. of Germany, assignor to Korf-Stahl AG, Fed. Rep. of Germany

Filed Jun. 3, 1980, Ser. No. 155,925

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1979, 2924860

Int. Cl.³ C21B 7/10; H05B 7/18

U.S. Cl. 266—193 **10 Claims**



1. A metallurgical furnace having a wall lining comprising rows, which are disposed one above the other, of refractory bricks in a lower region thereof and at least one water cooling box in an upper region of the wall, the water cooling box being displaced outwardly with respect to the inside wall surface of the bricks, which is towards the interior of the furnace, and also having an annular flange between the water cooling box and the bricks for receiving and conducting outwardly leakage water from the water cooling box, characterized in that, at least in respect of one row of the bricks which adjoin the annular flange, the outer edge is displaced outwardly with respect to that of the bricks therebelow, and the rows adjoining the annular flange are pressed by the flange on to the rows therebelow.

4,279,408

APPARATUS FOR CHANGING TUYERES ON A BLAST FURNACE

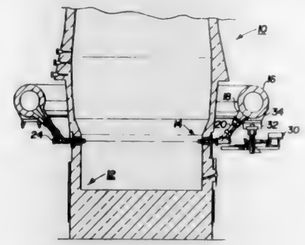
James L. Egan, Sault Ste. Marie, Canada, assignor to The Algoma Steel Corporation, Limited, Ontario, Canada

Filed Feb. 28, 1979, Ser. No. 16,303

Claims priority, application Canada, Dec. 7, 1978, 317548

Int. Cl.³ F27B 1/10

U.S. Cl. 266—271 **9 Claims**



1. Apparatus for changing tuyere and tuyere stock assemblies of a blast furnace, said apparatus comprising:

(a) support rail means extending adjacent to the furnace and fixed a selected distance above the level of the tuyeres of the furnace;

(b) a primary carriage arranged for travel along said rail means, and first motor means for effecting such travel;

(c) a guide frame connected to said primary carriage and depending downwardly therefrom, said guide frame being connected for rotation about a vertical axis relative to such primary carriage; and second motor means for effecting such relative rotation about said vertical axis;

(d) a carriage support frame associated with said guide frame and constrained for travel upwardly and downwardly along the latter along a vertical substantially linear path, and third motor means connected between said carriage support frame and the primary carriage to effect said upward and downward movement of the carriage support frame, said carriage support frame having an elongated generally horizontal section defining a path of travel for a support carriage;

(e) a support carriage disposed on the carriage support frame for travel along said generally horizontal section thereof at a level determined by the vertical position of said carriage support frame relative to said guide frame, and fourth motor means for effecting movement of the support carriage along said generally horizontal section, the support carriage having holding means thereon for engaging and holding a tuyere stock or related assembly,

(f) whereby, by selective actuation of said first, second, third and fourth motor means said support carriage may be brought into close juxtaposition and alignment with a tuyere stock or related assembly and the holding means engaged therewith and the tuyere stock or related assembly either retracted from or inserted into the blast furnace.

4,279,409

PROCESS OF MAKING SIGNATURES FROM PREPRINTED WEBS FOR THE MANUFACTURE OF MAGAZINES OR THE LIKE

Bernard E. Pemberton, 8841 N. Westland Dr., Gaithesburg, Md. 20760

Filed Jun. 18, 1980, Ser. No. 160,730

Int. Cl.³ B41F 13/58; B65H 39/02

U.S. Cl. 270—5 **13 Claims**

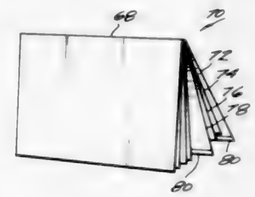
1. In the method of making magazines or the like of the type comprising at least one folded signature of at least sixteen pages, the steps comprising:

providing at least two preprinted webs each having at least four side-by-side equal width contiguous rows of separate areas of printed material on both web surfaces with the material in each row corresponding to separate pages of the magazine, the outer side edge of one of the outer rows being substantially contiguous with one side edge of the web, and the other side edge of the web being provided with a marginal edge portion extending laterally beyond the outer side edge of the other outer row a distance substantially equal to the amount necessary to form a bindery lap;

superposing said outer rows of each web so that the marginal edge portion of each web extends laterally beyond said one side edge of the web;

superposing the two row-superposed webs so that the marginal edge portions of the two webs are superposed and are outermost; and

folding the superposed webs along fold lines intermediate each outer row and the inner row adjacent thereto whereby the folded webs can be laterally severed into signatures each composed of a plurality of folded sheets nested one within the other with one of the sheets being



the outermost sheet and all remaining sheets being nested within the outermost sheet, each signature having at least eight leaves and at least sixteen pages and having a bindery lap along one edge of the innermost and the outermost of the sheets making up each signature and with no bindery laps on the corresponding edge of the intermediate sheets.

13. A signature comprising:

at least four sheets each folded along a fold line and nested one within the other to superpose said fold lines, said sheets having opposite side edges parallel to said fold line with the side edges of said sheets being in alignment along one side, one of said folded sheets being the outermost sheet with all the remaining sheets being nested within said outermost sheet, said outermost sheet and an innermost sheet being wider in the dimension measured normal to said fold lines than the other narrower sheets whereby the innermost and outermost of said sheets form bindery laps along their side edges opposite said aligned side edges.

4,279,410

FOLDER FOR A WEB-FED ROTARY PRINTING PRESS

Hans B. Bolza-Schünemann, Würzburg, Fed. Rep. of Germany, assignor to Koenig & Bauer Aktiengesellschaft, Wurzburg, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 87,847

Claims priority, application Fed. Rep. of Germany, Oct. 24, 1978, 2846191

Int. Cl.³ B41F 13/54; B65H 45/16

U.S. Cl. 270—6 **7 Claims**

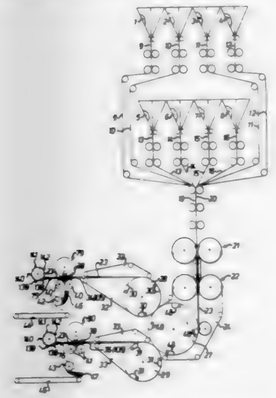
1. An apparatus for producing cross folded sheet stacks, said apparatus comprising:

a plurality of formers having means to bring a plurality of paper ribbons together to form at least one group of paper ribbons;

at least one cross cutting cylinder group to cut said group of paper ribbons into a series of said sheet stacks;

a collecting cylinder equipped with controlled sheet stack

gripping means to receive said sheet stacks from said cross cutting cylinder group;
at least two take-over cylinders equipped with controlled sheet stack conveyor means to receive said sheet stacks from said collecting cylinder;
at least one sheet stack conveying means for receiving said sheet stacks from said take-over cylinders;
at least one cross folding means for cross folding said sheet stacks at right angles to their direction of motion at a folding table; and
at least one sheet stack braking device to stop said sheet stacks during said cross folding, said braking device being disposed after said cross folding means with respect to the direction of movement of the stacks, said sheet stack



braking device having a plurality of resiliently supported stop rods, a leading edge portion of each of said sheet stacks contacting one of said stop rods to move said rod from a rest position; a rotatable brake drum means mounting each said rod on said brake drum for rotation therewith to slow-down and stop the forward movement of the sheet stacks on said folding table; means for resiliently biasing each said rod to allow it to move a distance with a stack of sheets wherein Kinetic energy is transferred from the braked stack of sheets to the rod and biasing means; and means for intermittently rotating said brake drum to position succeeding ones of said stop rods for contact by said leading edge of succeeding sheet stacks whereby each said stack is braked by engagement with one of said resilient stop rods.

4,279,411

METHOD OF LAPPING WEBS

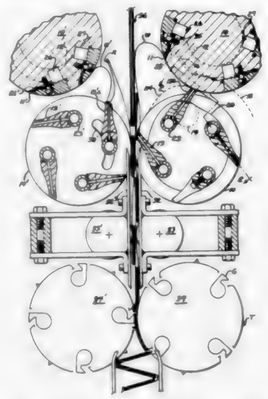
Ernst D. Nystrand, DePere, Wis., assignor to Paper Converting Machine Company, Green Bay, Wis.

Continuation-in-part of Ser. No. 49,287, Jun. 18, 1979, abandoned, which is a continuation of Ser. No. 871,236, Jan. 23, 1978, Pat. No. 4,163,548. This application Aug. 20, 1979, Ser. No. 67,881

Int. Cl.³ B41L *1/32*

U.S. Cl. 270—39 **3 Claims**

1. A method of lapping sheets comprising advancing an elongated web from each of a pair of parent rolls, tranversely weakening each web along equally longitudinally spaced apart lines to provide discrete identical sections having leading and trailing edges and to form a series of moving sections from each web wherein each series travels on opposite sides of a lineal path and each section of a series lies between a preceding section and a following section, folding a portion of each section about a transverse line adjacent each section's leading edge wherein said folded portion overlies a remaining portion of the section, conveying the respective series of thus folded sections on opposite sides of said lineal path while orienting said remaining portion of a preceding section to lie between the said lineal path and the associated transverse fold line of a following section, staggering one series relative to the other so that upon combining the two series the leading and trailing



edge of one series will be offset relative to the leading and trailing edges of the other series, orienting the folded portions of one series relative to the folded portion of the other series so that upon combining only one of the fold lines and trailing edges are exposed, and combining the two series.

4,279,412

APPARATUS FOR ENGAGING AND MOVING INDIVIDUAL FLAT STRUCTURES, ESPECIALLY PAPER SHEETS OR PRINTED PRODUCTS

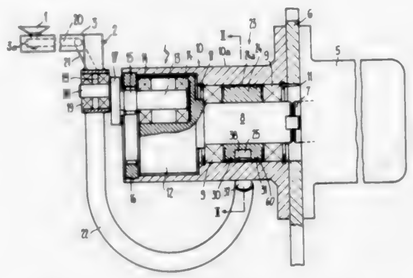
Werner Glatz, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Feb. 2, 1979, Ser. No. 9,138

Claims priority, application Switzerland, Feb. 15, 1978, 1652/78

Int. Cl.³ B65H *3/08*

U.S. Cl. 271—108 **9 Claims**



1. An apparatus for destacking a stack of flexible flat structures, especially paper sheets or printed products, comprising:
a suction head movable into engagement with a flat structure for seizing the same and entraining such flat structure until release thereof;
drive means for moving said suction head into engagement with the flat structure and for moving such suction head through a predetermined path of travel;
said drive means includes a drive shaft coupled with a driving arrangement;
a source of negative pressure;

valve means operatively connected with said source of negative pressure and said suction head;
said valve means being controlled by said drive means;
said valve means operatively connecting the suction head for a certain time with the negative pressure source in order to engage the flat structure by means of the suction head;
said valve means comprising a substantially cylindrical valve body;
said valve body being secured to said drive shaft;
a stationary housing within which there is rotatably mounted said valve body;
said valve body having a recess extending in the direction of and over part of its circumference and being open towards said housing;
said housing having a first housing connection operatively connected with said negative pressure source and a second housing connection operatively connected with said suction head;
said second housing connection, viewed in the direction of rotation of the valve body, being spaced apart from and lying behind said first housing connection;
said housing further having a third housing connection serving for venting;
said third housing connection, viewed in the direction of rotation of the valve body, being arranged in spaced relationship behind said second housing connection;
said recess, during rotation of said valve body, at first connecting the first housing connection with the second housing connection, thereafter interrupting the connection between the first housing connection and the second housing connection and connecting the second housing connection with the third housing connection.

4,279,413

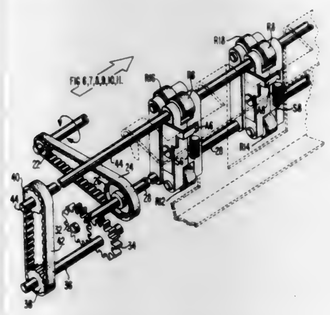
DRIVE MECHANISMS FOR PASSBOOKS

Henry A. Siwik, Plymouth, and Lawrence P. Kobylarz, Howell, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Oct. 17, 1979, Ser. No. 85,521

Int. Cl.³ B65H *5/06*

U.S. Cl. 271—274 **3 Claims**



3. A drive mechanism for use in transporting bank passbooks and similar objects into position for printing and the like, where the objects are nominally flat but may have uneven thicknesses due to ridges and to the presence of unequal amounts of paper, comprising:
roller means, disposed on opposite sides of a path in a manner enabling a first part of the roller means to engage the leading front and back surfaces of a selected object and to urge the selected object forward to enable a second part of the roller means to engage said front and back surfaces of the selected object;
biasing means cooperating with said roller means to enable each part of said roller means to securely engage opposite surfaces of an object where the surfaces may be separated by different thicknesses of material;
drive means for causing said roller means to rotate and, in cooperation with said biasing means, to transport the object along a selected path between the roller means;
each part of said roller means including drive rollers supported on a drive shaft and idle rollers supported on independent idler shafts by arms which are spring biased independently of each other by separate springs into positions to oppose the drive rollers and provide carriers to transport unequal thicknesses of paper;
a first one of said arms having one end supporting a first idle roller and a second end engaging the drive shaft of a first adjacent drive roller in a manner enabling said first arm and associated idle roller to rotate about the second end of the first arm; and
a second one of said arms having one end supporting a second idle roller and a second end engaging the drive shaft of a second adjacent drive roller to enable the second arm and associated idle roller to rotate about the second end of the second arm.

4,279,414

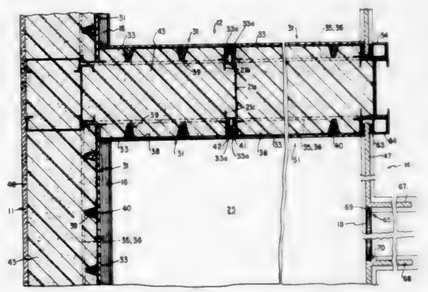
PLAYING COURT

Steven B. Kammerman, 11 Alscot Cir., Langhorne, Pa. 19047; Frank Kawasaki, 114 N. Woodstock St., Philadelphia, Pa. 19103, and Albert G. Molloy, Jr., 114 Deepdale Rd., Wayne, Pa. 19087

Filed Jul. 17, 1978, Ser. No. 925,405

Int. Cl.³ E04D *1/28*; A63B *71/02*

U.S. Cl. 272—3 **5 Claims**



1. A playing court comprising a sports facility having a generally rectangular configuration to accommodate therein at least two persons playing a game wherein a resilient ball is played from one or more of the inner facing surfaces of said court, said court comprising at least front, rear and side walls wherein the improvement resides in constructing at least some of said walls of a plurality of prefabricated panels, each panel including an inner facing polycarbonate sheet each polycarbonate sheet having a backing layer of high density foam, panel reinforcing means attached to said sheet extending throughout said layer of high density foam, a plurality of spaced vertical studs for supporting and mounting said panels and sheets in adjoining relstionship and fastening means for securing said reinforcing means to said studs to permit hanging of said panels on said studs.

4,279,415

EXERCISING DEVICE

Sam Katz, 530-D Grant St., New York, N.Y. 10002

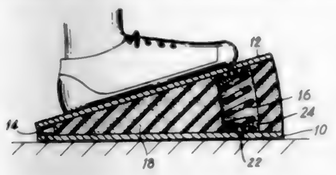
Filed Jun. 29, 1979, Ser. No. 53,707

Int. Cl.³ A63B *23/04*

U.S. Cl. 272—70 **5 Claims**

1. An exercising device comprising at least one base and treadle member positioned so as to form a V-shaped opening, hinge means pivotally connecting said base and treadle mem-

bers at the end remote from said opening, at least one coil spring perpendicularly connected to said treadle member and connected to said base member at a point near said opening so as to conform to the semi-circular contour of the collapsing action of said treadle, and a crushable resilient material substantially filling said opening, said material having an opening



with a wall corresponding to the contour formed by said coil spring, said treadle being movable from a first position in which said coil spring is fully extended and said crushable resilient material is substantially uncompressed, and a second position in which both the coil spring and crushable resilient material are compressed and the treadle is pivoted on said hinge toward said base member.

4,279,416

JUGGLING CLUB

Oliver D. Finnigan, III, 23004-107th Place W., Edmonds, Wash. 98020

Filed Jul. 11, 1979, Ser. No. 56,717
Int. Cl.³ A63B *15/00*
U.S. Cl. 272—124 **2 Claims**



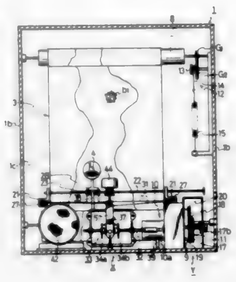
1. A juggling club comprising a onepiece molded plastic body in the configuration of a kingpin; and a hollow knob formed of resilient material mounted at one end of the body, in which said one end of the body has a bulged portion at the end thereof for receiving the knob with the end of the knob extending down over and covering said bulged portion, said body defining a handle portion adjacent to the bulged portion, and said knob having a tapered configuration extending toward the handle portion, and which includes a cupshaped tip member formed of resilient material mounted at the other end of the body and having an internal peripheral lip, and in which said other end of said body has a peripheral groove for receiving the peripheral lip of the tip member and constituting the sole support for said tip member.

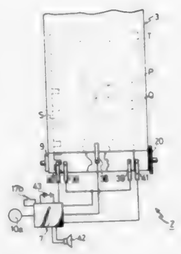
4,279,417

OBSTACLE GAME MACHINE

Gunpei Yokoi, Kyoto, Japan, assignor to Nintendo Co., Ltd., Kyoto, Japan

Filed Jul. 23, 1979, Ser. No. 60,035
Claims priority, application Japan, Sep. 8, 1978, 53-111168
Int. Cl.³ A63F *9/14*
U.S. Cl. 273—1 E **7 Claims**





1. An obstacle game machine including a movable sheet having a running area and an obstacle area, a simulated object to be driven by a player, wherein said obstacle game machine comprises; an obstruction detecting means having
an electrically conductive mask which moves in operative association with said movable sheet and includes an obstacle conductive area and a running non-conductive area for detecting the running of said object along said running area,
a first electrode in contact with said obstacle conductive mask, and
a second electrode which is movable across said conductive mask in operative association with the movement of said object,
said second electrode being in contact with said running non-conductive area of said conductive mask so long as said object stays away from said obstacle area,
an electronic generator including a speaker and an electronic tone generator circuit in an electronic control unit for emitting a sequence of "run" electronic sounds when said first and second electrodes of said obstruction detecting means are in an electrically non-connected state, and for emitting a sequence of "obstacle" electronic sounds when said first and second electrodes of said obstruction detecting means are in an electrically connected state.

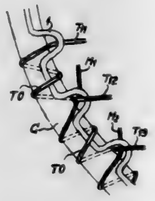
5. An obstacle game machine including a movable sheet having a running area and an obstacle area and a simulated object to be driven by a player, wherein said obstacle game machine comprises;
an obstruction detecting means comprising:
an electrically conductive mask, having an end portion, and which moves in association wih said movable sheet and which includes an obstacle conductive area and a running non-conductive area for detecting the running of said object along said running area,
a first electrode in contact with the obstacle conductive mask and
a second electrode which is movable across said conductive mask in operative association with the movement of said object,
said second electrode being in contact with the running non-conductive area of said conductive area of said conductive mask so long as said object stays away from the obstacle area,
a movable sheet driving means comprising:
a drive roll and a driven roll which are horizontally and rotatably mounted in a casing and around which both ends of said movable sheet are wound,
a power unit including an electric motor,
a one-way transmission mechanism engaging in said power unit which said drive roll only when said electric motor is running in the forward direction, and
a reverse motion actuating means which, as said movable sheet is accumulated by said drive roll, imparts to said driven roll reverse rotating energy to rotate said movable sheet in the reverse direction,
wherein during said forward rotation of said motor, said movable sheet is wound around said drive roll and advanced toward said drive roll and wherein during said reverse rotation of said motor, said reverse motion actuating means operates such that said movable sheet is rapidly moved toward said driven roll.

4,279,418

RACKETS FOR TENNIS AND OTHER GAMES

Francois R. Lacoste, Neuilly-sur-Seine, France, assignor to Patentex S.A., Fribourg, Switzerland

Filed Jun. 13, 1979, Ser. No. 48,051
Claims priority, application France, Jan. 15, 1978, 78 17893
Int. Cl.³ A63B *51/00*
U.S. Cl. 273—73 D **6 Claims**



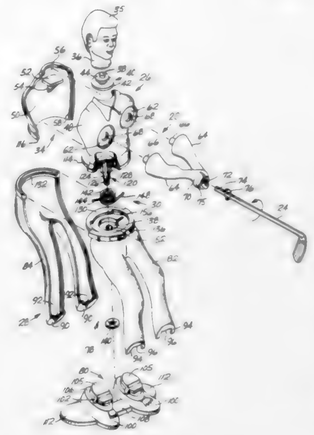
1. A racket for tennis and similar games comprising:
a handle;
a generally oval frame attached to said handle,
an arcuate auxiliary element conforming to and in contact throughout its length with the inner periphery of said frame,
a plurality of strings extending across said frame and forming a striking face,
said auxiliary element being provided with means for engaging at least some of said strings and maintaining said strings in the median plane of said frame,
at least some of said strings being wound about both said frame and said element as the principal means of maintaining said element in contact with said frame.

4,279,419

TABLE TOP GOLFING FIGURE WITH SPRING DRIVING ROTATABLE UPPER TORSO

George A. Barnes, Seattle, and Leslie Perhacs, Jr., Port Ludlow, both of Wash., assignors to Victory Games, Inc., Issaquah, Wash.

Filed Jul. 21, 1980, Ser. No. 170,648
Int. Cl.³ A63F *7/06*
U.S. Cl. 273—87.4 **11 Claims**



1. In a golfing figure shaped to resemble a human golfer holding a golf club with outstretched arms and bent forwardly to address a golf ball, the figure having an upper body member forming the portion of the golfing figure from the waist up and a lower body member forming the portion of the golfing figure from the waist down, an improved joint assembly interconnecting the upper and lower body members for relative rotation about an axis extending generally along the length of the upper body member, said improved joint assembly comprising:
(a) a downwardly open, upper socket formed in the lower portion of the upper body member;
(b) a pin extending downwardly through said upper socket along the axis of rotation of the upper body member;
(c) an upwardly open, lower socket formed in the upper portion of the lower body, said socket having portions defining a pilot hole for rotatably receiving the lower end portion of said pin;
(d) spring means surrounding said pin and housed within said upper and lower sockets;
(e) attaching means for attaching said spring means to the upper and lower body members so that the upper and lower body members are nominally aligned with each other; and
(f) stop means for limiting the angle of relative rotation of the upper and lower body members between a first position wherein the upper body member is rotated rearwardly from angular alignment with the lower body member to thereby energize said spring means, and a second position wherein the upper body member is rotated forwardly from angular alignment with the lower body member to thereby release said spring means.

4,279,420

PORTABLE GOLF PRACTICE PLATFORM

Marvon Bay, 706 James Blvd., Apt. #5, and Norman L. Larson, 706 James Blvd., Apt. #2, both of Worthington, Minn. 56187

Filed Dec. 17, 1979, Ser. No. 104,077
Int. Cl.³ A63B *69/36*
U.S. Cl. 273—187 A **9 Claims**

1. A portable golf stroke practice platform including, a deck

of flat rectangular configuration having marginal areas covered with artificial turf of an upstanding filiment depth simulating natural fairway turf, there being a central stance area devoid of said artifical turf and surrounded by said marginal areas



and defined by lines of demarcation to which the golfer positions his footing while standing upon the marginal area covered with said marginal turf and facing a golf ball to be driven at an opposite marginal area of said artificial turf.

4,279,421

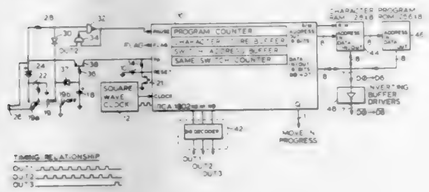
ELECTRONIC GAMEBOARD

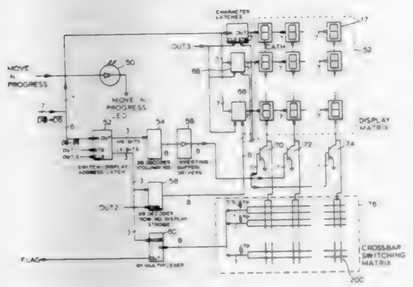
Darrell M. Tepoorten, 909 S. Bonnie Brae, Suite 207, Los Angeles, Calif. 90006, and Steven A. Hechtman, Los Angeles, Calif., assignors to Darrell M. Tepoorten, Los Angeles, Calif.

Filed Jun. 19, 1979, Ser. No. 50,075

Int. Cl.³ A63F 3/02

U.S. Cl. 273—237 **10 Claims**





1. An electronic chessboard comprising:

means for generating electronic representations of all of the playing pieces used in the game of chess;

a plurality of display means, arranged to represent the playing surface of a chessboard, for continuously displaying said electronic representations of all of said playing pieces at each possible piece location on the playing surface;

means for causing said display means to display said electronic representations of said playing pieces in a position to begin a game of chess;

a plurality of switch means, each associated with one of said display means, for initiating transfer of said electronic representations of said playing pieces between said display means;

means for removing and storing said electronic representation present at a first of said display means upon said activation of said switch means associated with said first display means;

means for transferring, upon activation of a second switch means associated with a second of said display means, said stored representation to said second display means;

means for regenerating, at each of said display means, the electronic representation previously present at said display means when said switch means associated with said display means is activated more than once in succession;

means for cyclically generating said electronic representations of all of said playing pieces at any one of said display means when said switch means associated with said display means is activated more than twice in succession; and

means for deactivating said display means and for storing the configuration of said playing surface when said chessboard is deactivated.

4,279,422

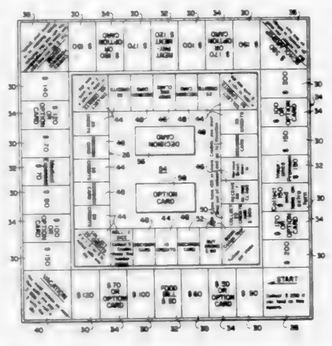
BOARD GAME INVOLVING MULTIPLE VARIABLES AND PERFORMANCE DETERMINATION

Mark Shaw, 1326 Colorado St., Manhattan, Kans. 66502

Filed Mar. 15, 1979, Ser. No. 20,657

Int. Cl.³ A63F 3/00

U.S. Cl. 273—256 **3 Claims**



1. Board game apparatus simulating occurrences of attending college, comprising:

a plurality of playing pieces, each playing piece representing one player during use of said board game apparatus;

a game board having a playing surface and including means defining two separate playing paths on the playing surface, each playing path defined by a plurality of separate intervals serially linked in an unending continuous loop, said intervals defining movement increments of each playing piece along each playing path, one of the playing paths defining a financial path representing financial occurrences occurring when in a working situation, the other of the playing paths defining a college path representing academic and financial occurrences occurring during the simulated event of attending college, said board game further including indicia means designating each interval of each path as a particular type of interval, the majority of the intervals of the financial path being designated by an amount of financial reward or financial detriment to be attributed to a playing piece upon termination of movement on such interval, at least some of the intervals of the college path being designated by an amount of college credit or college detriment to be attributed to a playing piece upon termination of movement on such interval, at least a few of the other intervals of the college path being designated by an amount of financial reward or financial detriment to be attributed to a playing piece upon termination of movement on such interval, at least a few of the remaining intervals of the college path being designated only by a decision indication;

a plurality of decision cards associated with each decision interval of the college path, each decision card having indicia means thereon for indicating a decisional choice, each decisional choice allowing selection between one of either a financial reward or a financial detriment or one of either a college credit or a college detriment;

a pair of dice, each one of said pair of dice having indicia means for indicating numbers to dictate movement of the playing pieces over the intervals of the paths of said game board whereby financial rewards and detriments and college credits and detriments are attributed to each playing piece in accordance with the intervals upon which movement of the playing piece terminates;

a multiple grade guesser comprising a cover member, a wheel member rotationally attached to the cover member, indicia means formed on the wheel member and indicating a plurality of college credits and college detriments arranged in a predetermined pattern, the cover member defining a plurality of window openings therein arranged in a predetermined pattern to align with and expose a predetermined plurality of college credits and college detriments upon rotation of the wheel member to one of a predetermined plurality of positions, and window cover means associated with each window opening for normally closing each window opening and concealing the aligned college credit or college detriment behind each window, each window cover means being selectively movable for opening each window opening and exposing the college credit or college detriment aligned behind the selected window opening; and

at least one of one of said intervals of the college path or one of the decisional choices supplied by the decision cards provides for attributing a college credit or college detriment revealed behind the aligned window opening of the multiple grade guesser upon movement of the selected window cover means, the college credit or college detriment to be attributed to the playing piece terminating movement on such interval.

4,279,423

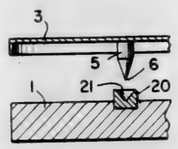
PHONOGRAPH DECOUPLING APPARATUS

Frank Rizzello, 85-50 259th St., Floral Park, N.Y. 11004

Filed Oct. 22, 1979, Ser. No. 86,997

Int. Cl.³ G11B 3/60

U.S. Cl. 369—247 **20 Claims**



1. A record playing apparatus comprising:

a first motor driven, substantially rigid, turntable platter;

a second substantially rigid turntable platter mounted above said motor driven platter with no further platters mounted therebetween, said first and second platters having confronting surface portions, said second platter adapted to receive a record thereon;

a plurality of low compliance small contact area mounting devices, each of said mounting devices comprising a substantially rigid, substantially inelastic protrusion or projection in the form of an elongated pin fixed to and rigidly extending from one of said first and second platters toward the other of said platters and each having a free generally pointed end;

receiving means on said other of said platters for receiving and engaging said pointed free ends of said small contact area mounting devices said receiving means comprising a depression having a generally V-shaped cross-section such that movement of said other platter relative to said free ends of said small contact area mounting devices is prevented during operation of the record playing apparatus;

said small contact area mounting devices being spaced from each other and being unconnected with each other, and being distributed around peripheral portions of said confronting surface portions of said first and second platters for providing a plurality of isolated small contact, substantially rigid, support areas directly between said first and second platters and maintaining said confronting surfaces spaced from each other, the total of the cross sectional areas of said small contact area mounting devices being substantially less than the area of said platters in the plane of said platters, said first and second platters being connected with each other only via said small contact area mounting devices; and

a spindle in the central portion of said second platter for engaging a center of a phonograph record, said spindle not extending to said first platter.

4,279,424

SEALING ARRANGEMENT FOR A JOINT BETWEEN TWO STATOR PARTS OF A TURBOMACHINE

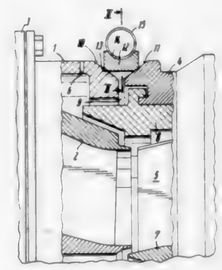
Ferdinand Zerlauth, Andelfingen, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Oct. 15, 1979, Ser. No. 84,892

Claims priority, application Switzerland, Oct. 26, 1978, 11068/78

Int. Cl.³ F16J 15/34

U.S. Cl. 277—83 **8 Claims**



1. In combination,

a pair of stator parts of a turbomachine, said parts being disposed in spaced coaxial relation to each other to define a gap therebetween, each said part having a bevelled peripheral surface at an end facing the other of said parts to define a V-shaped notch;

a split ring disposed about said ends of said stator parts to seal said gap, said ring having a pair of bevelled sealing surfaces and being unrestrainedly put on the bevelled surfaces parts from outside, each said sealing surface slidably contacting said peripheral surface of a respective stator part in sealed relation; and

a tensioning means disposed on said ring to hold said ring on said ends of said stator parts while biasing said ring into a closed condition.

4,279,425

DUAL SEAL GASKET

Roger Beacom, 942 W. Douglas Ct., Venice, Fla. 33595

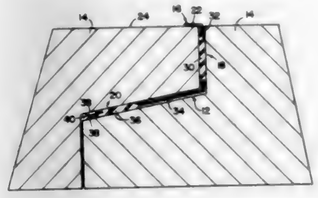
Filed Sep. 8, 1980, Ser. No. 185,310

Int. Cl.³ F16J 15/10

U.S. Cl. 277—207 A **1 Claim**

1. A dual seal gasket specifically configured to seal the joint between two adjacent pipes comprising an annular resilient

member including a first retainer lement disposed to engage the outer surface of at least one of the adjacent pipes, a first sealing element including an upper and lower enlarged truncated compressible member interconnected by a reduced intermediate member, said upper and lower enlarged truncated compressible members each includes a pair of substantially V-shaped channels disposed on opposite sides thereof, and a second sealing element including a substantially cone-shaped compressible body, and a pair of compressible fringe members



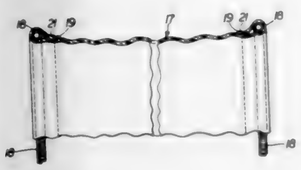
extending outwardly from said substantially cone-shaped body to cooperatively form a channel therebetween, wherein the longitudinal axis of the said second sealing element is substantially parallel to the longitudinal axis of said first retainer element and substantially perpendicular to the longitudinal element of said first sealing element such that as the adjacent pipes are placed in operative relation relative to each other said first retainer element retains said dual seal gasket therebetween as said first and second sealing elements are compressed therebetween to seal the joint between the adjacent pipes.

4,279,426

SEAL FOR SPACE BETWEEN WINDOW OPENINGS OF A VEHICLE CAB AND A CAMPER CARRIED THEREBY

Earl Flack, Jr., P.O. Box 143, Arab, Ala. 35016

Filed Feb. 28, 1980, Ser. No. 125,547
Int. Cl.³ F16J 15/02; B60P 3/32
U.S. Cl. 277—237 R **5 Claims**



1. A sealing device for sealing the space between and surrounding aligned, spaced apart window openings at the rear of a vehicle cab and at the front of a camper carried thereby comprising:

(a) an endless flexible member of sheet material of a length to surround both of said aligned window openings and of a width greater than the space therebetween so that it projects forwardly of the opening at the rear of the vehicle cab and rearwardly of the opening at the front of the camper, and

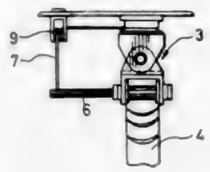
(b) an endless resilient member carried by and extending along each edge of said endless flexible member with each said resilient member being of a length greater than the peripheral distance around the window opening adjacent thereto and being adapted to snap through said window opening adjacent thereto and then retain a position outwardly thereof.

4,279,427

SKI EDGING DEVICE FOR A SKI SUPPORTED VEHICLE OR THE LIKE

Soichi Kawazoe, 452-72, Kajigayacho, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan

Filed Aug. 15, 1979, Ser. No. 66,773
Claims priority, application Japan, Apr. 9, 1979, 54/42849
Int. Cl.³ B62B 13/12
U.S. Cl. 280—16 **7 Claims**



1. A ski edging device for a snowmobile or other ski supported vehicle of the type having a body supported by steerable skis and a movable steering means connected to the skis for turning the skis about each respective ski-steering axes to control the direction of travel of the vehicle, said device comprising:

an articulable joint connected between each ski and the body of the vehicle, said joint rotatable about a respective ski-steering axis with said ski in response to a steering movement from a steering means, said articulable joint having a first portion articulable relative to a second portion to permit rotation of said ski about a camber axis;

a first control arm means coupled to said first portion and rotatable with said first portion about said ski-steering axis;

a second control arm means coupled to said second portion and rotatable with said second portion about said camber axis, said second control arm means including a portion that extends laterally outward from one side of said ski and another portion that extends laterally outward from the other side of said ski;

first flexible band and pulley means connected between said first control arm means and said first-mentioned portion of said second control arm means extending laterally outward from one side of said ski; and

second flexible band and pulley means connected between said first control arm means and said second-mentioned portion of said second control arm means extending laterally outward from the other side of said ski;

whereby rotation of said first control arm means about said ski-steering axis in a first direction in response to a steering movement in a first direction from said steering means causes said first flexible band and pulley means to rotate said ski about said camber axis in a first direction, and rotation of said first control arm means about said ski-steering axis in a second direction in response to a steering movement in a second direction from said steering means causes said second flexible band and pulley means to rotate said ski about said camber axis in a second direction, opposite from said first direction.

4,279,428

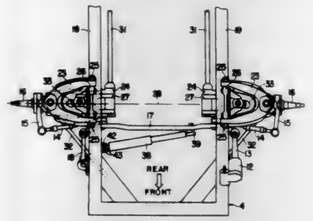
VIBRATION ABSORBING DEVICE FOR MOTOR VEHICLE

Takayoshi Onodera, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Nov. 20, 1979, Ser. No. 95,937
Claims priority, application Japan, Aug. 14, 1979, 54/111240[U]
Int. Cl.³ B62D 7/16
U.S. Cl. 280—95 R **5 Claims**

1. In a motor vehicle having a front body and a rear body disposed independently of each other on a frame structure and a steering assembly including a relay rod disposed between opposed sides of said frame structure and positioned in front of the axle line, the relay rod being connected at the opposed ends thereof to opposed wheels by way of knuckles, said wheels being independently suspended from said frame structure, the improvement comprising:

vibration absorbing means having opposed ends interconnecting said relay rod with one side of said frame structure, one end of said vibration absorbing means proximate said one side being disposed in front of the vertical plane of said relay rod and above the horizontal plane of said relay rod, for absorbing vibration induced by said independently suspended wheels and said independent front and rear bodies in the longitudinal, lateral and vertical directions of the motor vehicle.

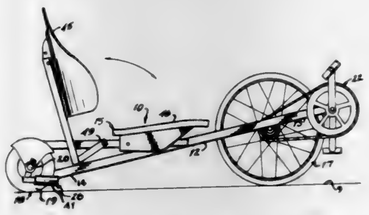


4,279,429

VEHICLE WITH ADJUSTABLE STEERING AXIS ANGLE CONTROL

Grant Hopkins, 29½ Lenore, and Mark Cantrell, 150 Wilbur, Box 60, both of Walla Walla, Wash. 99362

Filed Jan. 15, 1980, Ser. No. 112,338
Int. Cl.³ B62K 5/08, 21/00
U.S. Cl. 280—267 **13 Claims**



10. A steering control mechanism for a vehicle having a frame and a steerable support means comprising:

first gimbal means adapted to mount the support for pivotal movement about a steering axis;

second gimbal means adapted to mount the first gimbal means to the frame for pivotal movement thereon about a steering control axis that is perpendicular to and intersects the steering axis; and

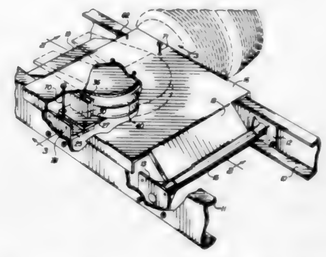
control means connected to the first gimbal means for selectively pivoting the steering control axis and adapted to selectively vary the angular position of the steering axis relative to the frame.

4,279,430

FIFTH-WHEEL SUSPENSION SYSTEM

Forrest L. Tagg, Circle Pines, and Francis E. Tourville, Forest Lake, both of Minn., assignors to Air-Glide Corporation, Lino Lakes, Minn.

Filed Jul. 19, 1979, Ser. No. 59,062
Int. Cl.³ B62D 53/08
U.S. Cl. 280—439 **15 Claims**



11. A fifth wheel mounting system for supporting a fifth wheel on a truck tractor frame comprising at least first and second spaced apart longitudinally extending parallel frame members, said system including in combination:

a fifth wheel support plate mounted at one end for pivotal movement about a transverse axis extending across said first and second frame members;

a suspension means support member mounted between the first and second parallel frame members and located beneath the plane of the upper surface thereof;

resilient suspension means supported on said suspension means support member beneath the other end of said support plate for normally elevating said other end of said support plate a predetermined distance above said truck tractor frame; and

first and second pairs of first and second cooperating wear plates, respectively, for minimizing lateral shift and roll of said support plate, each of said wear plates comprising flat plates the planes of which are perpendicular to said support plate and the plane of said tractor frame and extend longitudinally of said tractor frame, the first wear plates of each of said pairs being spaced apart transversely from one another and attached to and depending from said support plate and located in sliding relationship with the second plates, respectively, of each of said pairs of wear plates mounted in fixed position with respect to said frame.

4,279,431

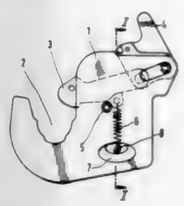
COUPLING HOOK

Wilhelm Schott, Cologne, Fed. Rep. of Germany, assignor to Jean Walterscheid GmbH, Lohmar, Fed. Rep. of Germany

Filed Jul. 13, 1979, Ser. No. 57,430
Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 2832367
Int. Cl.³ B60D 1/04
U.S. Cl. 280—508 **3 Claims**

1. A coupling hook, particularly for use in the lower links of a three-point linkage for connecting an agricultural implement to a tractor, comprising upwardly extending side walls each having an upper end and a lower end and laterally defining a pocket therebetween, at least one of said side walls being shaped to form a hook jaw for receiving a connecting element of an agricultural implement, means located within the pocket for latching the connecting element and securing it in said locking jaw, said means including a latch for latching the connecting element in the locked position and a locking spring for holding said latch in the locked position, wherein the improvement comprises a bottom wall extending across the lower ends of said side walls and forming a closure for the

bottom end of the pocket, one of said side walls having an opening therethrough extending from the pocket to the exterior of the side wall and the opening being located above and adjacent said bottom wall, and said locking spring having an upper end connected to said latch and depending downwardly therefrom within the pocket and having a lower end connected



to said coupling hook within the pocket and the connection of the lower end of said locking spring being located opposite the opening in one of said side walls so that the assembly of the lower end of said locking spring to said coupling hook is simplified and the location of the opening facilitates the cleaning out of the pocket.

4,279,432

SKI BRAKE

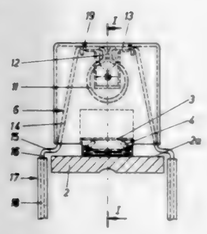
Erwin Krob, and Tibor Szasz, both of Vienna, Austria, assignors to TMC Corporation, Baar, Switzerland

Filed Feb. 6, 1979, Ser. No. 9,824

Claims priority, application Austria, Feb. 7, 1978, 827/78

Int. Cl.³ A63C *7/10*

U.S. Cl. 280—605 **6 Claims**



1. In a ski brake comprising pivotal support means adapted to be secured to an upper surface of a ski, two braking arms and a pedal means swingable about a pivot axis of said pivotal support means against a spring force between a braking position, in which said two braking arms are both arranged adjacent lateral edges on said ski and project below a bottom surface of said ski with said pedal means extending upwardly inclined relative to said upper surface of said ski, and a retracted position, in which said ski brake is pressed down upon by a ski boot acting on said pedal means and urged toward said upper surface of said ski and in which the free ends of said two braking arms are swung in an inwardly direction toward the central longitudinal axis of said ski above said upper surface of the ski, the improvement comprising wherein means are provided on said pedal means for supporting said braking arms for pivotal movement relative to said pedal means to effect the aforesaid inward swinging movement of said braking legs, wherein said pedal means is a flat member, wherein said two braking arms are formed from a one piece wire bar member, wherein said wire bar member includes an integral elastically flexible spreadable means, separate from and spaced from said means on said pedal means, for urging said free ends of said brake arms laterally away from said longitudinal axis of said ski when said ski brake is free of association with said ski boot, said elastically flexible spreading means having a generally U-shaped elastically flexible part arranged symmetrically with respect to said central longitudinal axis of said ski brake, said U-shaped part having two wire leg segments which extend parallel with respect to said central longitudinal axis which in turn are connected to said braking arms, wherein a fingerlike projection is movably mounted on said wire bar member adjacent said two wire legs for movement against the force of a spring between a first location spaced from said two wire leg segments when said braking arms are in said braking position of the ski brake and a second location engaging and separating said two wire leg segments for effecting a movement of said free ends of said braking arms above said upper surface of said ski toward said longitudinal axis of said ski when said ski brake is in said retracted position, said fingerlike projection causing said movement of said free ends of said braking arms against the force of said elastically flexible U-shaped part.

4,279,433

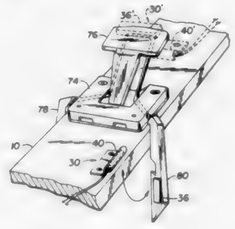
EMERGENCY LOCATOR BEACON FOR SKIS

Danny A. Petaja, P. O. Box 4519, Aspen, Colo. 81611

Filed Apr. 30, 1979, Ser. No. 35,030

Int. Cl.³ A63C *7/10, 11/22*

U.S. Cl. 280—605 **16 Claims**



1. A device for locating ski equipment separated from a skier comprising:

an electrical signaling device for emitting visible light, said signaling device having a light intensity sufficient to be visible through snow to establish location of said signaling device;

circuit means coupled to said signaling device for powering said signaling device, said circuit means being operative to intermittently discharge said signaling device upon triggering;

means for housing said signaling device and said circuit means, said housing means being adapted to be carried by said ski equipment; and

means operative to sense separation of said skier from said ski equipment including said housing means for triggering said circuit means upon said separation.

4,279,434

SKI BRAKE

Tilo Riedel, Eching, Fed. Rep. of Germany, assignor to S. A. Etablissements Francois Salomon & Fils, Annecy, France

Division of Ser. No. 815,364, Jul. 13, 1977, abandoned. This application Sep. 5, 1979, Ser. No. 72,626

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1976, 2632849

The portion of the term of this patent subsequent to Feb. 13, 1996, has been disclaimed.

Int. Cl.³ A63C *7/10*

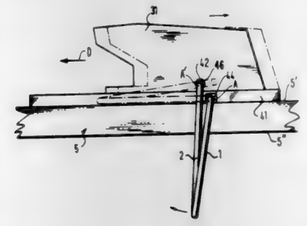
U.S. Cl. 280—605 **10 Claims**

1. A ski brake for use on a ski having a snow-engaging lower surface and a boot-carrying upper surface and normally adapted to travel forwardly in a predetermined travel direction, said ski brake comprising:

a pivot on said ski defining an immovable pivot axis fixed relative to said ski and extending generally parallel to said surfaces and transverse to said direction;

a guide on said ski defining a slidable pivot axis generally parallel to and spaced from said immovable pivot axis and displaceable between an unactuated position relatively far from said immovable pivot axis and an actuated position relatively close to said immovable pivot axis;

a brake element having a guided leg having one end pivoted in said guide at said slidable pivot axis and a pivot leg having one end pivoted in said pivot about said immovable pivot axis, said legs having opposite joined-together ends, said brake element being displaceable between a braking position with said slidable axis in said unactuated position and said legs extending at an acute angle to each other and downwardly below said lower surface and a rest position with said legs extending generally parallel to



said direction, lying above said surfaces, and with said slidable axis in said actuated positions;

actuator means including an actuator slidable in said direction on said ski between an advanced position relatively far from said fixed pivot axis and a depressed position relatively close to said fixed pivot axis and spaced from said advanced position for displacing said braking element from said braking into said rest position on displacement from said advanced into said depressed position, said actuator being pivotally connected to said one end of said guided leg; and

spring means in said legs for urging same into said braking position, for urging said actuator means into said advanced position, and for urging said slidable pivot axis into said unactuated position.

4,279,435

GAS RISER APPARATUS

Sam Alewitz, Painesville, Ohio, assignor to Perfection Corporation, Madison, Ohio

Continuation of Ser. No. 922,366, Jul. 6, 1978, abandoned, which is a continuation of Ser. No. 686,939, May 17, 1976, abandoned, which is a division of Ser. No. 495,200, Aug. 6, 1974, Pat. No. 3,987,820, which is a continuation-in-part of Ser. No. 349,681, Apr. 10, 1973, abandoned. This application Sep. 26, 1979, Ser. No. 79,038

Int. Cl.³ F16L *11/12, 33/00*

U.S. Cl. 285—242 **2 Claims**

1. A metal-to-plastic pipe joint comprising in combination:

a plastic pipe having an end;

a metal pipe having an end;

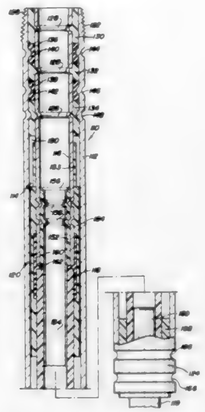
a nonmetallic sleeve disposed within said metal pipe at said end thereof;

a reinforcing metal stiffener sleeve disposed within said nonmetallic sleeve and having a portion thereof extending outwardly therefrom;

said metal stiffener sleeve, said nonmetallic sleeve and said metal pipe being secured together;

said metal pipe being disposed in essentially abutting relationship to said plastic pipe with a seal disposed therebetween and said portion of said stiffener sleeve disposed within said plastic pipe;

a sealing gasket surrounding at least a portion of both of said metal pipe and said plastic pipe;



a nonmetallic outer sleeve tightly surrounding said sealing gasket and the adjacent ends of said metal pipe and said plastic pipe.

4,279,436

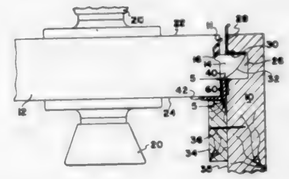
DOOR LOCK GUARD PROTECTOR

Harold Heffel, 7 Iota Pl., Saginaw, Mich. 48603

Filed Nov. 1, 1976, Ser. No. 737,538

Int. Cl.³ E05C *21/00*

U.S. Cl. 292—346 **3 Claims**



1. In combination:

a hinged door;

a door frame having a stop rail, against which said door closes, and a bolt receiving opening therein;

said door having a lock with a retractable bolt engageable in said jamb by extending out of a free end face of said door into said opening;

a door lock guard comprising:

an elongate body, being L-shaped in cross section, including

a mounting flange having an outer surface for attachment to one of said door frame and said door and an inner surface lying in a predetermined plane; and

an abuttment flange integral with, and at right angles to, said mounting flange, for abutting a portion of said stop rail when said door closes; and

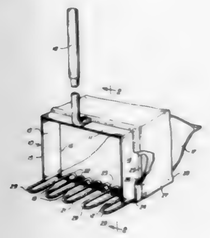
means for mounting said body on one of said door and said frame adjacent said bolt;

said mounting flange including an impermeable portion laterally, adjacent said opening, having a plurality of projections projecting beyond said plane toward said door to impede the passage of a burglary tool between said door guard and said one of said door frame and said door;

said projections comprising a plurality of longitudinally and laterally spaced teeth projecting therefrom;

said inner surface including a plurality of recesses immediately adjacent said teeth;
said teeth projecting unequal distances from said inner surface.

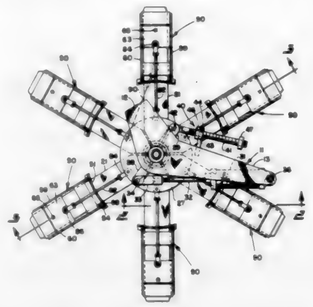
4,279,437
REFUSE COLLECTING TOOL
Herman Goldberg, 1857 Beechwood, St. Paul, Minn. 55116
Filed Aug. 11, 1977, Ser. No. 823,604
Int. Cl.³ A47F *13/06*
U.S. Cl. 294—1 BB **8 Claims**



1. A tool for collecting refuse, consisting essentially of an orifice structure formed of frame means approximating an inverted U-shape in appearance and a collector span extending between the terminal ends of the two legs of said U-shape, and an elongated handle member extending outwardly from the perimeter of said orifice structure opposite said collector span thereof, said orifice structure having an exit side opposite the anterior entrance side thereof, an abutment means at said exit side for retaining the throat of a refuse receiving bag thereabout with said throat clinging anterior to and proximate to said exit side thereof as refuse is collected with said tool, and being further characterized in that said collector span thereof consists of a single length of wire looped back and forth to form a multiplicity of substantially parallel spaced stretches thereof arranged in series between said terminal ends of said two legs and lying in a plane transverse to said legs, whereby said parallel stretches form an upper planar refuse gathering surface facing inside said orifice structure, each said parallel stretch of wire having a leading end and a trailing end, said trailing ends forming the exit edge of said refuse gathering surface of said orifice structure, the loops connecting pairs of adjacent parallel stretches of said wire at said leading ends thereof serving as blunt projections not likely to pierce refuse, the loops connecting pairs of adjacent parallel stretches of said wire at said trailing ends thereof being outwardly disposed offset interconnections with respect to said refuse gathering surface, whereby said offset interconnections do not present an obstruction to sliding movement of refuse through said orifice structure on said refuse gathering surface and off said exit edge thereof, said offset interconnections serving as the aforesaid abutment means and being the means against which the lower span of the throat of a refuse receiving bag abuts and is held in position underneath the exit edge of said refuse gathering surface.

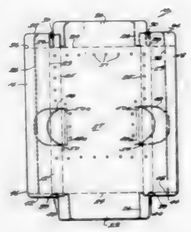
4,279,438
TIRE LOADER
Anand P. Singh, Youngstown, Ohio, assignor to NRM Corporation, Akron, Ohio
Continuation of Ser. No. 872,421, Jan. 26, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,586
Int. Cl.³ B29H *5/02*; B66C *1/54*
U.S. Cl. 294—88 **17 Claims**

7. A tire loader comprising a movable frame, a horizontal plate mounted for rotation on a vertical axis, loader shoes mounted on said frame for radial movement to and from a common center, and respective link means interconnecting said plate and each shoe, each link means extending at a common angle with respect to a radius whereby rotation of said plate in one direction will reduce said angle thus moving said shoes



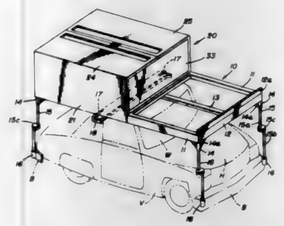
radially inwardly, said link means including adjustable length connecting rods hingedly connected to said plate and the respective shoes, said connecting rods being independently and substantially continuously adjustable in length through a selected range.

4,279,439
MOLDED LINER FOR PICKUP TRUCKS
Thomas B. Cantieri, P.O. Box 626, Farmville, Va. 23901
Filed Sep. 14, 1979, Ser. No. 75,592
Int. Cl.³ B62D *33/00*
U.S. Cl. 296—39 R **8 Claims**



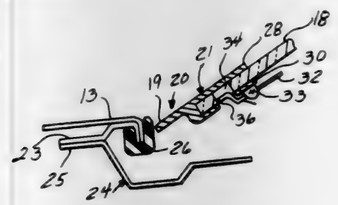
1. A liner for protecting the exterior bed of a vehicle, comprising:
a mat of flexible material, generally conforming to said exterior bed; and
suction means affixed to the underside of said mat, for removably securing said mat to said bed spaced apart from said bed;
said mat having drainage holes extending through said mat; whereby drainage of moisture is effected, the space between said mat and said bed providing for ventilation to dry said moisture; and
means for adapting said liner to a plurality of bed configurations.

4,279,440
MOTOR VEHICLE CAMPER
Russell J. Golding, Sr., 1823 Manchester Rd., Akron, Ohio 44314
Filed Nov. 17, 1978, Ser. No. 961,678
Int. Cl.³ B60P *3/34*
U.S. Cl. 296—164 **14 Claims**



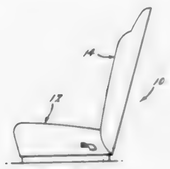
1. A demountable motor vehicle camper, comprising;
(A) a generally rectangular frame substantially corresponding in planar configuration to the planar configuration of the motor vehicle said frame having a first and a second part;
(B) support means for releasably securing said frame to said motor vehicle above the top plane thereof;
(C) said first first compartment assembly secured to a part of said frame;
(D) a second compartment assembly carried by said frame and slidable thereon into and out of said first compartment along the longitudinal axis of said vehicle
(1) whereby said second compartment assembly is supported on the said second part of said frame when extended from said first compartment assembly; and
(E) said support means being capable of supporting said frame and said first and second compartment assemblies in freestanding condition when released from said motor vehicle.

4,279,441
AIR DEFLECTOR AND PIVOTABLE ROOF VENT PANEL APPARATUS FOR VEHICLE ROOFS
Heinz C. Prechter, and Milton C. Kaltz, both of Ypsilanti, Mich., assignors to American Sunroof Corporation, Southgate, Mich.
Filed Jun. 27, 1979, Ser. No. 52,627
Int. Cl.³ B60J *7/10*
U.S. Cl. 296—218 **9 Claims**



1. A roof structure for a vehicle having an opening in the roof comprising:
an air deflector disposed in said roof opening, said air deflector being pivotable about an axis extending transverse to the longitudinal axis of said vehicle between a down position in which said air deflector is in substantial registry with the adjoining roof structure of said vehicle and an upward, forward-inclining position; and
a roof vent panel removably received in said air deflector such that said air deflector and said roof vent panel pivot together as a unit about said transverse axis between a closed, sealing position and an open, forward-inclining, venting position, said roof vent panel being removable from said air deflector, with said air deflector remaining in said forward-inclining position when said roof vent panel is removed therefrom to direct air currents flowing across said roof of said vehicle away from said opening therein.

4,279,442
RECLINING SEAT LATCH
Robert L. Bell, Oxford, Mich., assignor to Fisher Corporation, Troy, Mich.
Filed Jan. 14, 1980, Ser. No. 111,600
Int. Cl.³ A47C *1/025*
U.S. Cl. 297—367 **3 Claims**



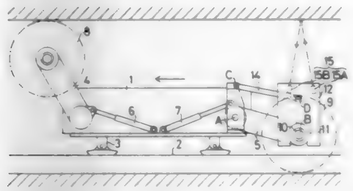
1. A latch mechanism for controlling rotation of a vehicle seat back to a reclining position relative to a vehicle seat, said mechanism comprising
a pivot pin joining said seat and seat back for relative rotation,
a quadrant secured to said pivot pin for rotation relative to both said seat and seat back,
stop means on said quadrant for defining the position of said seat back relative to said quadrant,
an arm extending between said seat and said quadrant for controlling the position of said quadrant, said arm being pivotally connected to said quadrant at a point radially spaced from said pivot pin and having spaced teeth on opposite sides thereof,
a manual operator pivoted on a first pin on said seat and having a slot therein spaced from the first pin for the control of a second pin,
a pair of spaced pawls on said first and second pins having teeth complementary to the teeth on said arm, said pawls being movable relative to said arm to effect engagement and release thereof, whereby said arm is latchable against movement when said pawls are engaged therewith and movable when released to position said quadrant and seat back at a desired rotational position relative to said seat,
a first pawl control plate mounted on said first pin for rotation and reciprocation relative thereto, and
a second pawl control plate having a plurality of fingers engaged with said arm in slidable relationship for controlling the position of said arm, movement of said second pin effecting movement of said second pawl control plate and said arm away from said first pin.

4,279,443
MINING APPARATUS
Ken Takahashi, Tokyo, and Tsunetoshi Ito, Yokohama, both of Japan, assignors to Taiheiyo Engineering, Tokyo, Japan
Filed Oct. 11, 1979, Ser. No. 83,871
Claims priority, application Japan, Jul. 13, 1979, 54-88090
Int. Cl.³ E21C *35/08*
U.S. Cl. 299—1 **11 Claims**

1. A mining apparatus comprising
(A) an apparatus body,
(B) a drum rotating shaft,
(C) a board connected to said rotating shaft,

(D) a linking bar pivotably connecting said apparatus body with said board, and

(E) a position detection device mounted on said board com-



prising at least one pair of projectors with the intersection of paths from said projectors at a distance away from said position detection device determining the position of said apparatus in a mine.

4,279,444

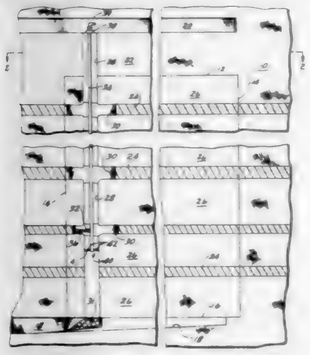
JETTING OUT WEAK AREAS FOR FORMING AN IN SITU OIL SHALE RETORT

James Kilburn, Idaho Falls, Id., assignor to Occidental Oil Shale, Inc., Grand Junction, Colo.

Filed Jan. 7, 1980, Ser. No. 109,838

Int. Cl.³ E21B *43/247, 43/263*

U.S. Cl. 299—2 **18 Claims**



1. A method for recovering liquid and gaseous products from an in situ oil shale retort in a subterranean formation containing oil shale and having at least one zone of formation within an in situ oil shale retort site that is weaker than a remaining zone of unfragmented formation within the retort site, the method comprising the steps of:

excavating a lower level drift at a lower region of the retort site;

drilling, through the retort site, a generally vertical bore hole that opens into the lower level drift;

directing fluid under pressure against the weaker zone of formation within the retort site from at least one jet nozzle placed in said bore hole adjacent said weaker zone for eroding into particle form formation from said weaker zone and removing such formation particles for forming a void in the weaker zone adjacent a remaining zone of unfragmented formation;

passing formation particles eroded from said weaker zone through the bore hole and into the lower level drift;

placing explosive in the remaining zone of unfragmented formation within the retort site;

detonating such explosive for explosively expanding such remaining zone of unfragmented formation toward the void for forming a fragmented permeable mass of formation particles containing oil shale in an in situ oil shale retort;

establishing a combustion zone in the fragmented mass;

introducing an oxygen-supplying gas to the fragmented mass for sustaining the combustion zone in the fragmented mass and for advancing the combustion zone through the fragmented mass; and

withdrawing liquid and gaseous products from the fragmented mass on the advancing side of the combustion zone.

4,279,445

LONGWALL MINING INSTALLATION HAVING STABLE-HOLE PLOUGH

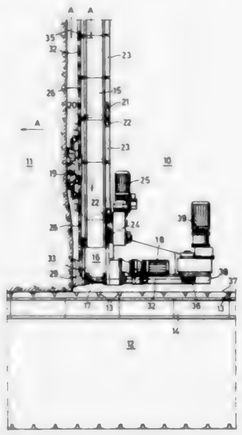
Alois Hauschopp, Werne, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,831

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850175

Int. Cl.³ E21C *27/34*

U.S. Cl. 299—34 **22 Claims**



1. A longwall mineral mining installation comprising a longwall conveyor, a guide attached to the face-side of the conveyor, a main plough movable to and fro along the guide, and an auxiliary plough movable to and fro along a portion of the guide adjacent to one end of the conveyor, the auxiliary plough being driven by means of an endless drive chain which passes round two end sprockets, wherein one end sprocket is positioned within the guide at the face-side of the conveyor part way therealong, the other end sprocket is positioned at said one end of the conveyor on the goaf-side thereof, and the drive chain passes round a direction-changing unit positioned at said one end of the conveyor.

4,279,446

SEGMENTED WHEEL CLAMP

Richard W. Bushmeyer, Burlington, and Thomas M. Schwabe, Hales Corners, both of Wis., assignors to J. I. Case Company, Racine, Wis.

Filed Jan. 25, 1980, Ser. No. 115,462

Int. Cl.³ B60B *23/00*

U.S. Cl. 301—20 **3 Claims**

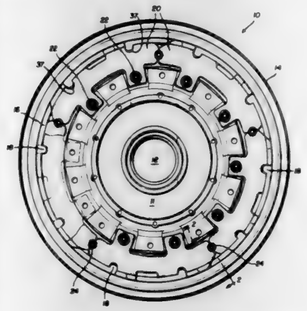
1. In a wheel assembly including an axle hub sub-assembly and a concentrically mounted wheel rim, said wheel rim including at least one radially, inwardly projecting ring-like rim locator, the improvement comprising:

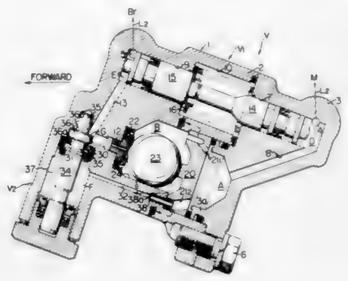
a plurality of rim clamping devices being mounted side-by-side between said axle hub sub-assembly and said wheel rim thereby forming a substantially continuous annular mounting ring assembly;

each of said clamping devices including an arcuately shaped, generally planar, main body portion, said main body portion including an outer arcuate edge portion, an inner arcuate edge portion, and transverse end portions, a plurality of offset, pressure applying surfaces being integrally formed with said main body portion along said outer arcuate edge portion of said main body portion, spaced-apart depending leg portions being formed on said inner arcuate edge portion, each pressure applying surface extending in a direction which is transverse to the longitudinal axis of said generally planar arcuately shaped main body portion, and a plurality of said pressure applying surfaces extending in a first transverse direction and the remaining pressure applying surfaces extending in a second transverse direction, opposite to said first transverse direction;

each of said depending leg portions extending radially and means for mounting the depending leg portions of said clamping devices to said axle hub sub-assembly, and said pressure-applying surfaces of said clamping devices gripping said rim locator to thereby provide load transfer between said axle hub sub-assembly and said concentric wheel rim; and

the transverse end portions of each clamping device including semi-circular recesses, the opposed semi-circular recesses on the end portions of a pair of side-by-side clamping devices forming a mounting opening, adjusting means being secured within said mounting opening for forcing the ends of the respective clamping devices and the pressure applying surfaces outwardly thereby providing a uniform clamping force against said rim.





4,279,447

BRAKE OIL PRESSURE CONTROLLING VALVE DEVICE FOR VEHICLE USE

Mitsutoyo Mizusawa, Ueda, Japan, assignor to Nissin Kogyo Kabushiki Kaisha, Ueda, Japan

Filed Sep. 20, 1979, Ser. No. 77,491

Claims priority, application Japan, Nov. 9, 1978, 53-138197

Int. Cl.³ B60T *8/14*

U.S. Cl. 303—6 C **2 Claims**

1. A brake oil pressure controlling valve device for vehicle use, comprising a valve casing formed therein with an input port communicating with the brake master cylinder and an output port communicating with the rear wheel brakes, a partition plate fitted in said valve casing to define in the interior thereof a damping chamber communicating with said input port and a valve chamber communicating with said output port by way of a valve port, said partition plate being formed therein with a first communication hole to place the damping and valve chambers in fluid communication with each other, a weighted valve element arranged in said valve casing and movable to close said valve port in response to the vehicle deceleration exceeding a predetermined value, a pair of smaller-diameter and larger-diameter cylinder bores formed in a side wall portion of said valve casing in substantially axially aligned relation to each other, a pair of smaller-diameter and larger-diameter pistons endwise held against each other and slidably fitted respectively in said smaller-diameter and larger-diameter cylinder bores to define in said smaller-diameter cylinder bore a main input oil pressure chamber communicating with said input port and in said larger-diameter cylinder bore a main output oil pressure chamber communicating with said output port, spring means arranged on said larger-diameter piston to bias the latter axially in the direction of said main output oil pressure chamber under a definite spring bias, an auxiliary input oil pressure chamber formed in said valve casing and communicating with said damping chamber by way of a second communication hole formed in said partition plate and a duct passage formed in the adjacent wall of said valve casing, an auxiliary output oil pressure chamber formed in said valve casing in fluid communication with said main output oil pressure chamber, an auxiliary control valve arranged between said auxiliary input and output oil pressure chambers and operable under the oil pressure in said auxiliary output oil pressure chamber exceeding a predetermined level to close fluid communication between said auxiliary input and output oil pressure chambers or to reduce the level of oil pressure being transmitted from said auxiliary input oil pressure chamber to said auxiliary output oil pressure chamber, and a tubular positioning pin fitted in said second communication hole and said duct passage at the juncture therebetween to hold said partition plate against rotation while placing said second communication hole and said duct passage in fluid communication with each other.

4,279,448

BRAKE POWER CONTROL UNIT FOR TWO-CIRCUIT BRAKE SYSTEMS INCORPORATING A LOCKING PISTON OPERATED HYDRAULICALLY

Volker Berisch, Hattersheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,580

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915293

Int. Cl.³ B60T *8/02*

U.S. Cl. 303—6 C **7 Claims**

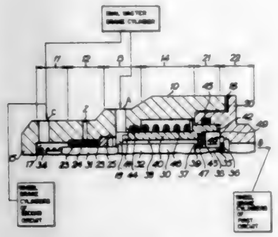
1. A brake power control unit for two-circuit brake systems comprising:

a housing having a longitudinal axis;

a control piston disposed within said housing disposed coaxial of said axis to control brake pressure in a first brake circuit, the brake pressure in said first brake circuit being changed in a relationship determined by said control piston after a given change-over pressure determined by active surfaces of said control piston and the force of a

first spring operating on said control piston has been exceeded; and

a locking piston disposed in said housing coaxial of said axis having a major portion thereof within a major portion of



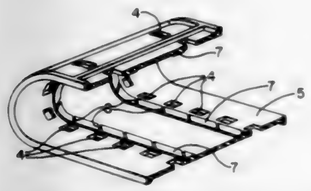
said control piston, said locking piston being acted upon by brake pressure in a second brake circuit to neutralize pressure changes in said first brake circuit in case of failure of said second brake circuit.

4,279,449

SLIDE SURFACE COMPOUND FOR TRACK-DRIVEN VEHICLE

Billy P. Martin, and Vernon V. Vanis, both of Lincoln, Nebr., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jul. 20, 1978, Ser. No. 926,183
Int. Cl.[3] C08J 3/20; C08K 3/30, 5/54
U.S. Cl. 305—35 EB 9 Claims



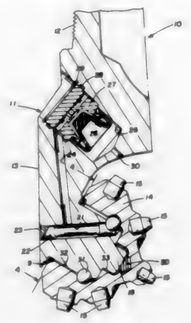
1. A flexible endless belt track for a track-driven vehicle, said belt track having an outer ground-contacting surface to provide traction and an opposite inner surface which is adapted for moving contact with rigid elements of the vehicle drive means and the belt track supporting means, said inner surface including at least one surface portion of elastomeric material comprised of at least one vulcanized rubbery composition, said rubbery composition consisting of (A) from about 10 to about 35 parts of at least one polybutadiene polymer having a total 1,4 content of from about 80% to 100%, a cis 1,4 content of at least 10% and a combined cis 1,4 plus 1,2 content of at least 30% and (B) from about 65 to about 95 parts of two different rubbery polymers, said parts being by weight per 100 parts of (A) plus (B), and 10 to 35 parts of molybdenum disulfide and 3 to 7 parts of a mercaptosilicone or a mercaptosilane, said surface portion being adapted to come into direct moving contact with said rigid elements.

4,279,450

ROTARY ROCK BIT FLUID CENTER SEAL

Jerald D. Morris, Desoto, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Oct. 4, 1979, Ser. No. 81,739
Int. Cl.[3] F16C 33/72; E21B 9/08
U.S. Cl. 308—8.2 1 Claim



1. A rotary rock bit for forming a borehole wherein materials are encountered in the borehole, comprising:

a rock bit body;

a rock bit arm depending from said body;

a bearing pin projecting from said arm;

a rolling cone cutter mounted concentrically on said bearing pin, said rolling cone cutter having a cavity projecting from a cone mouth, said cavity and cone mouth positioned over said bearing pin;

bearing means in said cavity between said bearing pin and said rolling cone cutter;

said cone mouth defining an annular groove open toward said pin;

an annular flexible seal member positioned in said groove providing sealing engagement between the walls of said groove and said pin for preventing entry of materials from the borehole into said concave cavity;

said seal member having a sealed annular hollow core completely filled with a non-compressible fluid; whereby during drilling said concentric relationship between said pin and said core is altered thereby radially compressing the flexible seal member in one area and forcing the enclosed fluid to an opposite area to expand the seal to fill the expanded radial space between the pin and cone a like amount to maintain an annular sealing engagement between the pin and core cavity.

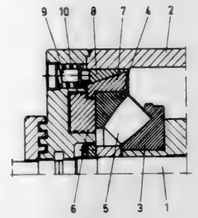
4,279,451

DEVICE FOR OBTAINING AXIAL MOBILITY AND AVOIDING RADIAL PLAY OF A BEARING RING IN RELATION TO A BEARING SEAT

Helge Heidt, Partille, Sweden, assignor to Aktiebolaget SKF, Goteborg, Sweden

Filed Nov. 29, 1979, Ser. No. 98,682
Claims priority, application Sweden, Dec. 19, 1978, 7813014
Int. Cl.[3] F16C 27/04
U.S. Cl. 308—26 3 Claims

1. A device for obtaining axial mobility and avoiding radial play of a bearing ring in relation to a bearing seat, characterized by that it comprises an elastically deformable annular member (8) with a cylindrical surface facing a corresponding cylindrical surface in connection to the bearing seat or the bearing ring, and a tapered surface contacting a corresponding tapered surface in connection to the bearing or the bearing seat, and members (9, 10) for urging said annular member axially on the last mentioned surface, thereby deforming said annular member until play is eliminated and a light contact pressure is established in relation to the bearing seat or the bearing, the cone angle and the coefficient of friction of said



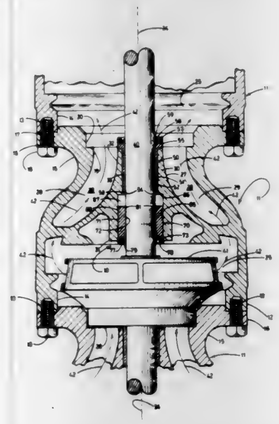
tapered surfaces being such that self-locking is avoided in the tapered contact.

4,279,452

BEARING ASSEMBLY

Larry C. Naffziger, Fresno, Calif., assignor to Bank of America N.T. & S.A., Fresno, Calif.

Filed May 24, 1979, Ser. No. 42,143
Int. Cl.[3] F16C 33/10, 33/74
U.S. Cl. 308—36.1 2 Claims



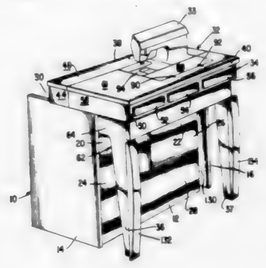
1. A bearing assembly for water pumps and the like having a submersible pump housing with a central bore through which a drive shaft is adapted to be extended for rotation about an axis of rotation and a counterbore disposed in axial alignment with the central bore concentric to the axis of rotation, the bearing assembly comprising a first bearing sleeve having an external diameter adapted to be fitted in fixed position in said central bore and a cylindrical internal passage having a diameter adapted to receive the drive shaft in fitted rotational relation and the internal passage having an end portion with a substantially conical surface convergent in the direction of said internal passage; a second bearing sleeve having an external diameter adapted to be fitted in fixed position in said counterbore spaced from the end portion of the first bearing sleeve to define a reservoir for lubricant therebetween, a cylindrical internal passage having substantially the same diameter as said internal passage of the first bearing sleeve for receipt of the drive shaft in rotational relation and having a substantially conical surface convergent in the direction of said internal passage of the second bearing sleeve; and resilient rings individually borne by each sleeve remote from the lubricant reservoir, facing outwardly of the bearing assembly and flexible under fluid pressure to form a barrier against the penetration of fluid and particulate matter into said sleeves while permitting lubricant to pass therethrough outwardly of the bearing assembly to urge particulate matter from the bearing assembly.

4,279,453

COMBINED CHEST OF DRAWERS AND SEWING MACHINE TABLE

Robert V. Haas, Edison, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Mar. 24, 1980, Ser. No. 132,938
Int. Cl.[3] A47B 77/10, 29/00
U.S. Cl. 312—282 8 Claims



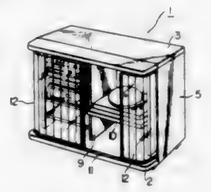
1. In combination, a chest of drawers, a sewing machine supporting work table including a pair of front legs, and parallel links which connect the table to the chest of drawers and on which the table is movable between alternate positions of engagement with table supporting portions of the chest of drawers in an arc carrying the legs over an underlying surface, the table in one of the alternate positions being disposed with the top thereof extending over and providing a top for the chest of drawers, the table in the other of the alternate positions being disposed with the top projecting frontally therefrom a substantial distance and the legs separated from the chest with room under the table in front of the chest of drawers between the legs of the table for the legs of a sewing machine operator.

4,279,454

CABINET WITH FOLDABLE SLIDING DOORS

Kazuhiro Koiso, Katano; Masaaki Sanda, Hirakata; Mamoru Hayashi, Katano, and Hiroaki Uesugi, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 5, 1979, Ser. No. 72,582
Claims priority, application Japan, Sep. 8, 1978, 53/124298[U]; Sep. 8, 1978, 53/124299[U]
Int. Cl.[3] E06B 9/14
U.S. Cl. 312—297 8 Claims



1. In a cabinet including:

a cabinet body having an open front portion, side portions and a rear portion;

a rail located within said cabinet body;

at least one glass door arranged to cover the open front portion of said cabinet body, said glass door comprising a

plurality of glass strips aligned in juxtaposition with each other, each of said glass strips having opposing end portions and opposing side edge portions, the side edge portions of adjacent strips adjoining each other;

a flexible belt secured to the end portions of said glass strips, said flexible belt flexibly connecting adjacent glass strips to each other;

a fastening element attached to an end portion of at least one glass strip, said fastening element guiding said glass strips along said rail, the improvement wherein said fastening element comprises

a pair of side walls having a groove therebetween for receiving an end portion of one of said glass strips together with said flexible belt, one of said side walls having at least one engagement recess in the top surface thereof, and

a metal piece having a main section provided with engagement pawls on the surface thereof and at least one engagement section for tightly engaging the engagement recess in said one side wall, the main section of said metal piece being positioned between said one side wall and said flexible belt, said engagement pawls engaging said flexible belt and thereby holding the end portion of said glass strip within said groove.

4,279,455

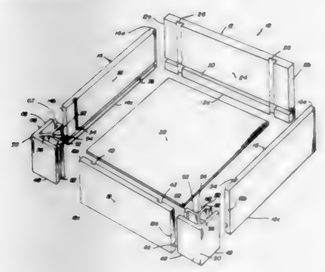
DRAWER ASSEMBLY

Philip J. Santo, 3750 Monroe Ave., Pittsford, N.Y. 14534

Filed Jan. 24, 1980, Ser. No. 115,063

Int. Cl.³ A47B *88/02, 47/00*

U.S. Cl. 312—330 R **8 Claims**



1. A furniture drawer of knock-down construction comprising:

a front panel having an outer face and an inner face, spaced apart grooves of female dove-tail configuration defined in said inner face adjacent and parallel to the vertical marginal edges of said front panel, and a groove defined in said inner face adjacent and parallel to the lower marginal edge of said front panel;

a pair of side panels having an outer face and an inner face, one vertical marginal edge of each respective side panel having male dove-tail configuration adapted to be received in a respective said spaced apart groove of said front panel, a groove defined in said inner face of each respective side panel adjacent and parallel to the opposite vertical marginal edge thereof, and a groove defined in said inner face of each respective side panel adjacent and parallel to the lower marginal edge thereof;

a rear panel having an outer face and an inner face, a groove defined in said inner face adjacent and parallel to the lower marginal edge of said rear panel, and a pair of grooves defined in said inner face adjacent and parallel to the vertical marginal edges thereof;

a bottom panel adapted to be received within respective grooves adjacent and parallel to the lower marginal edges of said front, side, and rear panels; and

means for securing said side panels to said rear panel upon assembly, said securing means including a pair of first members connected along a marginal edge and extending from one another at substantially a right angle, a pair of second members connected along a marginal edge and extending from one another at substantially a right angle, means for interconnecting said first members to said second members to form panel receiving channels therebetween, and tabs on said second members extending toward said respective first members, said tabs being respectively adapted to be received in said grooves adjacent and parallel to said vertical marginal edges of said side panel and rear panel.

4,279,456

ELECTRIC LINES OF THE ARMOR-PLATED TYPE, DESIGNED ESPECIALLY FOR ELECTRIC SYSTEM FOR INTERIORS

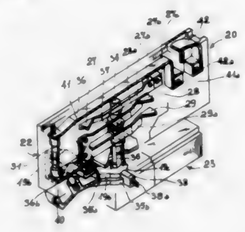
Guido Zucchini, Brescia, Italy, assignor to F. Lli Zucchini, Italy

Filed Sep. 28, 1979, Ser. No. 80,117

Claims priority, application Italy, Oct. 13, 1978, 5258 A/78; Oct. 13, 1978, 7085 B/78; Oct. 13, 1978, 7086 B/78

Int. Cl.³ H01R *9/00*

U.S. Cl. 339—32 R **3 Claims**



1. In a bipolar shunting device for multipolar electric lines of the armor-plated type, designed especially for electric systems for interior lighting, the device being of the type having a box-shaped contact unit, which may be fitted slidingly in substantially channel-shaped sections, which support internally, in an electrically insulated way, two opposite sets of longitudinal electric wires constituting the multipolar electric lines, and including a box-shaped connection unit designed to remain on the outside of the sections, and a clamping component, substantially of butterfly shape, for locking the device to the multipolar electric lines, the improvement comprising, on a same side of said box-shaped contact unit, an elastic metal blade (**27***a*) integral, at one end with a clamp (**27***c*) and carrying, at its other end, a contact (**27**) defined by a terminal fold of said elastic metal blade (**27***a*) and a U-shaped elastic metal foil (**36**) formed by two branches (**28***a*, **29***b*) carrying, at their ends, contacts (**28**, **29**) defined respectively by respective terminal folds of said branches, said U-shaped elastic metal foil (**36**) being electrically connected to a respective clamp (**41***a*) through a fuse (**31**) placed in correspondence with an inspection window (**30**) in said box-shaped contact unit, the device further including a first lever control (**35***a*) for the displacement of said contacts (**27**, **28**, **29**) from a position wherein they are inside said box-shaped contact unit to a position wherein they protrude sideways from said box-shaped contact unit and a separate lever control (**19***b*) for shifting said clamping component (**19**).

4,279,457

COVER PLATE FOR ELECTRICAL CONNECTOR

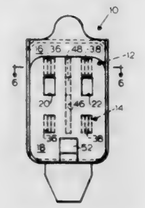
John G. Niekence, Montgomery, Ill., assignor to Belden Corporation, Geneva, Ill.

Filed Sep. 28, 1979, Ser. No. 79,716

Int. Cl.³ H01R *13/44*

U.S. Cl. 339—36 **7 Claims**

1. In an electrical connector of the type having first and second spaced-apart plug-in receptacles, each receptacle including a pair of contact sockets for selectively receiving the prongs of a plug-type connector, the improvement comprising a cover plate attached to the electrical connector in longitudinally slidable relation above the spaced-apart receptacles, the cover plate having a length sufficient to cover or shield both receptacles, the cover plate forming a single pair of apertures



arranged in longitudinal alignment with the contact sockets of each receptacle, said apertures being located along the length of the cover plate to permit the cover plate to be slidably moved respectively to a first position shielding both receptacles, a second position simultaneously exposing one receptacle and shielding the other receptacle and a third position with both of the spaced-apart receptacles being exposed.

4,279,458

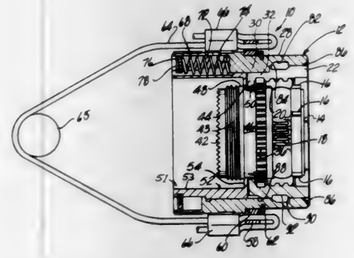
RELEASING ELECTRICAL CONNECTOR

Carl L. Knapp, Oneonta, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 23, 1979, Ser. No. 59,935

Int. Cl.³ H01R *13/62*

U.S. Cl. 339—45 M **9 Claims**



1. A releasing electrical connector comprising:

a first electrical contact carrying connector body;

a second electrical contact carrying connector body movable into mating engagement with said first connector body by relative axial movement therebetween;

one of said first or second connector bodies being formed with a recess;

an operating sleeve received over said mated first and second connector bodies;

means for retaining said first and second connector bodies in axially mated relationship when said operating sleeve is in a first axial position relative thereto;

means for releasing said first and second connector bodies from mated relationship by axial disconnecting movement of said operating sleeve to a second axial position relative to said first axial position;

means for biasing said operating sleeve into said first axial position, said means comprising a segmented retainer housing having at least two retainer housing segments positioned together within said operating sleeve and about one of said first or second connector bodies, each of said retainer housing segments including an annular body section having a transverse portion turned radially inwardly, said transverse portions being positioned together and forming an inwardly turned flange with said retainer housing segments, said flange extending into said recess on said one of said first or second connector bodies; and

a spring, the spring acting on said retainer housing and said operating sleeve and resisting the axial movement of said operating sleeve from said first to said second axial position, whereby a separating force applied to said operating sleeve and said other of said first or second connector bodies sufficient to overcome said spring bias action produces release of said connector bodies.

4,279,459

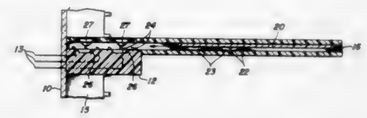
PRINTED WIRING BOARD AND CONNECTOR APPARATUS

Charles J. Sherman, Westminster, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 20, 1979, Ser. No. 105,558

Int. Cl.³ H01R *9/09, 13/029*

U.S. Cl. 339—75 MP **8 Claims**



1. Electrical interconnection apparatus comprising a printed wiring board (**20**) having a plurality of contact areas (**22**) thereon and a corresponding plurality of contact springs (**24**) for completing electrical circuits with said contact areas (**22**) characterized in that said plurality of contact areas (**22**) is arranged in a row substantially perpendicular to a leading edge of said board (**20**), and in a connector block (**12**) for mounting said springs (**24**) to extend from one face of said block in a row corresponding to said row of contact areas (**22**), guide means (**16**, **17**) at two sides of said block (**12**) for admitting said board (**20**) and, thereby, said contact areas (**22**) into opposition with said springs (**24**) and means operating between said board (**20**) and said connector block (**12**) for ensuring simultaneous engagement of said contact areas (**22**) and corresponding springs (**24**) comprising cam means (**23**) for maintaining said contact areas (**22**) apart from said springs (**24**) and a corresponding recess (**26**) adapted and positioned to admit said cam means (**23**) only when said contact areas (**22**) and said springs (**24**) are in opposition.

4,279,460

ELECTRICAL CRIMP CONNECTOR FOR MAKING A CONNECTION BETWEEN AN INSULATED WIRE AND CONNECTING ELEMENT

Horst Forberg, Berlin, Fed. Rep. of Germany, assignor to Krone GmbH, Berlin, Fed. Rep. of Germany

Filed Mar. 26, 1979, Ser. No. 23,755

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1978, 2814069

Int. Cl.³ H01R *11/20*

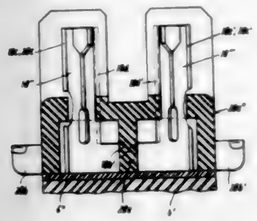
U.S. Cl. 339—97 P **10 Claims**

1. An electrical crimp connector for an insulated wire comprising:

an insulator formed of a plurality of interconnected insulating clamping elements and having a top portion and a smooth bottom surface, each of said clamping elements having a slot extending from said top portion towards the bottom surface;

a plurality of pairs of connecting elements, each pair of connecting elements being pluggable into a chamber in one of said clamping elements from said bottom surface of said insulator and being individually retainable therein, each pair of connecting elements being interconnected by a transverse web, each of said connecting elements includ-

ing a flat portion formed of a resilient, electrically conductive material and disposed at an angle of 45° with respect to said clamping element slot, and a slot disposed at the transverse center of said flat portion in communication with said clamping element slot, said connecting element slot having a widened opening facing said top portion of said clamping element and a lower portion having a width



narrower than said opening and narrower than the width of the metal core of an insulated wire, said lower portion having sharp edges adapted to cut insulation on an insulated wire and to contact the metal core of an insulated wire; and

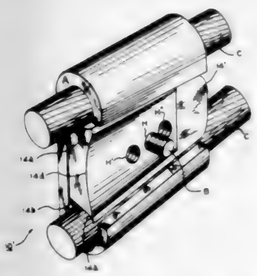
wire rod guides associated with each of said clamping elements.

4,279,461

WEDGE CONNECTOR

Michael R. Bunce, Arnold, and David F. Winter, Kirkwood, both of Mo., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 10, 1979, Ser. No. 83,373
Int. Cl.³ H01R 4/44, 4/50
U.S. Cl. 339—246 **4 Claims**



1. A wedge connector for joining a pair of conductors in electrically conductive relationship therewith comprising, in combination:

a longitudinally extending spring member having a substantially C-shaped cross section which tapers from a first cross section at one end thereof to a smaller cross section at the other end thereof; and,

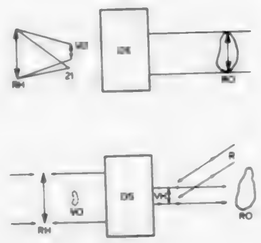
a longitudinally extending wedge member which is insertable into said spring member and the length of which is proportional to the length of said spring member, and having a generally trapezoidal cross section which tapers along the length of said wedge member to correspond to the taper of said spring member, and in which the distance between the longitudinal edges at points along one side of said wedge member is greater than the corresponding distance between the longitudinal edges along the other side of said wedge member, and wherein the sides of said wedge member which confront the arcuate inside portions of the C-shaped spring member respectively further include arcuately curved surface portions extending from points adjacent the longitudinal edges along said one side of said wedge member to intermediate points between the longitudinal edges of the confronting surface sides of said wedge member, whereby the respective arcuately curved portions of said C-shaped spring member and said wedge member form segments of an imaginary substantially circular line generally conforming to the circumference of said conductors, and wherein said confronting surface sides of said wedge member include tapered portions which are tapered toward the longitudinal axis of said wedge member in the direction away from said intermediate point and toward the longitudinal edges along said other side of said wedge member and, wherein said wedge member includes a substantially flat portion joining and extending a predetermined distance between said tapered and arcuately curved portions.

4,279,462

METHOD OF HOLOGRAPHIC PROCESSING OF WAVES

Okan K. Ersoy, Li, Norway, assignor to Sentralinstitutt for Industriell Forskning, Oslo, Norway

Filed Mar. 9, 1979, Ser. No. 19,187
Claims priority, application Norway, Mar. 9, 1978, 780832
Int. Cl.³ G03H 1/02
U.S. Cl. 350—3.6 **17 Claims**



1. A method for holographic processing of waves wherein an object wave is transformed by means of an optical system, characterized in the generation of an unrecorded hologram, herein denoted virtual hologram, which satisfies optical requirements and which corresponds to the modulation of a reference wave, herein denoted virtual reference wave, with the object wave for a particular object, herein denoted real object, said virtual hologram being in the form of the image of a recorded hologram, herein denoted real hologram, which satisfies technological requirements, and which corresponds to the modulation of the transformed virtual reference wave, herein denoted real reference wave, with the transformed object wave, corresponding to the transformed particular object, herein denoted virtual object, and in the transformation of the real hologram by means of the optical system and a reconstruction wave, whereby the virtual hologram is generated and the real object is reconstructed therefrom.

4,279,463

COMBINATION SUN-MOON FILTER

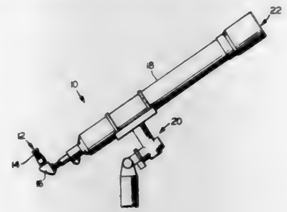
Robert T. Little, 160 Columbia Heights, Brooklyn, N.Y. 11201

Filed Sep. 7, 1979, Ser. No. 73,549
Int. Cl.³ G02B 23/00, 5/22
U.S. Cl. 350—17 **16 Claims**

1. In a telescope having a front opening, a viewing opening, and an objective for focusing light rays traveling from said front opening to said viewing opening, the improvement comprising:

a. a first optical filter removably mounted on said telescope substantially at said front opening, said first filter passing only a portion of the light rays that strike it; and

b. a second optical filter removably mounted on said telescope so that light rays traveling from said objective to said viewing opening pass therethrough, said filter passing only a portion of the light rays that strike it, said first and second filters together reducing the light intensity to a first predetermined percentage suited to reducing the



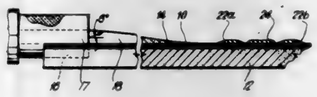
intensity of the sun's rays to a comfortable level, said second filter reducing the light intensity to a second predetermined percentage suited to reducing the intensity of the moon's rays to a comfortable level when said first filter is removed from said telescope, conversion from sun viewing to moon viewing thereby being possible by removal of said first optical filter.

4,279,464

INTEGRATED OPTICAL WAVELENGTH DEMULTIPLEXER

Ettore Colombini, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Dec. 18, 1979, Ser. No. 104,728
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.19 **7 Claims**



1. An integrated optical wavelength demultiplexer comprising a substrate, a thin film waveguide deposited on the substrate, input means for introducing multichromatic light from an optical fiber into the waveguide, collimating means within the waveguide for collimating the light at a wavelength dispersive element in the form of a thin-film prism, and focussing means within the waveguide for focussing specific wavelength components of the light separated by the dispersive element onto specific ones of an array of photodetectors formed underneath the waveguide.

4,279,465

DEVICE FOR TRANSMITTING AND RECEIVING OPTICAL DATA ON THE SAME OPTICAL TRANSMISSION LINE

Mario M. Vojvodich, Morris Plains, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed Nov. 30, 1979, Ser. No. 99,236
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 **4 Claims**

1. A waveguide for the simultaneous transmission and reception of optical data along the waveguide comprising:

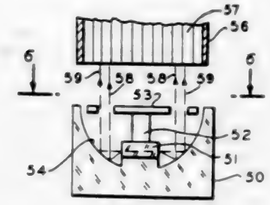
an elongate fiber optic cable assembly having opposite end portions with respective axes of symmetry,

said cable assembly including a first elongate radially inner cable portion with an end face and including a second elongate radially outer annular cable portion with an annular end face, said outer cable portion being arranged to surround said inner cable portion,

an emitter-photodetector assembly connected to each said cable assembly end portion coaxially therewith, and

modulating means connected to each said emitter-photodetector assembly for simultaneously transmitting signals in opposite directions respectively through said inner and outer cable portions, wherein

each said emitter-photodetector assembly comprises:



a pedestal connected to said cable assembly end portion coaxially therewith and having an inner ellipsoidal reflector surface with a focal point,

an emitter connected to said pedestal coaxially therewith and mounted at the focal point of said pedestal surface for transmitting a circular band of light to one of said cable portion end faces,

a photodetector connected to said emitter

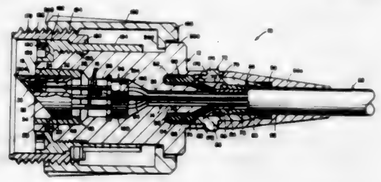
coaxially therewith and having a photodetector surface for receiving a pattern of light from the other of said cable portion end faces.

4,279,466

HERMAPHRODITIC FIBER OPTIC CONNECTOR

John A. Makuch, Danbury, and Kevin J. Monaghan, Middlebury, both of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Feb. 21, 1978, Ser. No. 879,186
Int. Cl.² G02B 5/14
U.S. Cl. 350—96.21 **50 Claims**



29. A hermaphroditic fiber optic connector for use in an assembly including a second identical hermaphroditic fiber optic connector for aligning mating ends of optical fibers in a pair of fiber optic cables comprising:

a rigid terminating member having a longitudinal bore dimensioned for receiving one of said fiber optic cables, said bore communicating with a longitudinal counterbore in a mating end of said rigid terminating member, said counterbore having a common axis with said bore and having a diameter larger than the diameter of said bore;

a cylindrical adapter disposed in said counterbore, said adapter having a hermaphroditic face exposed at said mating end of said rigid terminating member, said adapter being interchangeable with other adapters having different hermaphroditic faces;

a plurality of longitudinal optical fiber receiving bores in

said adapter, said optical fiber receiving bores being circumferentially spaced and having axes extending parallel to said common axis of said cable receiving bore and said counterbore and to one another, said optical fiber receiving bores receiving said optical fibers of said one fiber optic cable; and

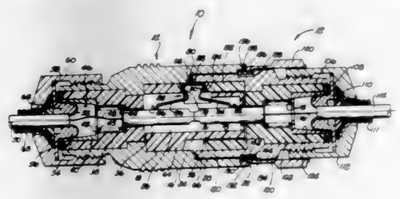
means associated with said optical fiber receiving bores for securing said optical fibers of said one fiber optic cable in preselected positions relative to said mating end of said rigid terminating member.

4,279,467

FIBER OPTIC CONNECTOR

Leslie M. Borsuk, Los Alamitos, Calif.; Catherine R. Ciardiello, Matthews, N.C., and Henry S. Heath, Jr., Fullerton, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 5, 1979, Ser. No. 90,887
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 **12 Claims**



1. A fiber optic connector comprising:

first and second mating connector members each adapted to carry an optical fiber ferrule;

said first connector member having a passage therethrough adapted to receive the ferrules in its opposite ends;

said passage including a pair of longitudinally extending flat sides disposed at an angle relative to each other defining a generally V-shaped channel;

spring means in said passage adapted to be urged toward said channel for biasing the ferrules into said channel to align the optical fibers in the ferrules;

actuating means movable relative to said spring means for urging said spring means toward said channel; and

said spring means being adapted to exert forward biasing forces on both the ferrules upon actuation thereof by said actuating means.

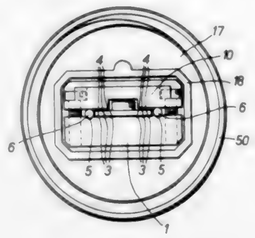
4,279,468

OPTICAL FIBER CONNECTORS

Wilfred H. Turley, and John A. Robinson, both of Northampton, England, assignors to Plessey Handel und Investments AG, Zug, Switzerland

Continuation of Ser. No. 901,801, May 1, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,085
Claims priority, application United Kingdom, May 2, 1977, 18239/77
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 **9 Claims**

1. An optical-fibre coupling connector, comprising two co-operating connector members, each member including a holder body having a surface provided with parallel channels each for accommodating an end portion of a fibre that is to be coaxially coupled with a similar fibre end accommodated in a corresponding channel of the other connector member, the connector further including locating-pin elements extending parallel to said channels and being fast in one connector member for guiding co-operation with a locating passage provided in the other connector member, the connector being characterised by the fact that the fibre-end accommodation channels are relatively narrow V-grooves provided in a flat surface of an alignment member of each connector member and having walls that converge towards the bottom of each groove, that said flat surface of each connector member is additionally provided with relatively wide pin-accommodation V-grooves having similarly convergent walls but greater width than said fibre-end accommodation V-grooves, for respectively accommodating the two end portions of each locating-pin element in the two connector members, and that each connector member further includes clamping means for urging said fibre ends



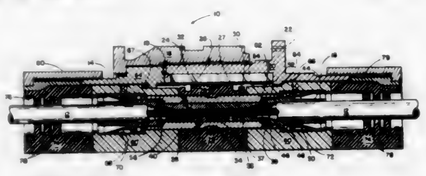
towards the bottom of said fibre-end accommodation V-grooves of said connector member and thus securing and, owing to the convergence of the walls of the V grooves, accurately locating said fibre ends, and for similar co-operation with said locating-pin elements to secure one end of each said locating-pin element in one connector member and guidingly clamp the other end of each locating-pin element in the other connector member by urging each of said ends towards the bottom of the corresponding pin accommodation V-groove.

4,279,469

SEPARABLE FIBER OPTIC CABLE CONNECTOR

Donald B. Forman, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 581,310, May 27, 1975, abandoned. This application Oct. 3, 1977, Ser. No. 838,696
Int. Cl.³ G02B 5/16
U.S. Cl. 350—96.22 **14 Claims**



1. A separable fiber optic connector comprising:

male and female halves each having a central bore extending therethrough;

a resilient collar member concentrically secured within said bore portions said collar having at least one longitudinal opening extending therethrough;

a rigid sleeve member slidably mounted into said collar opening;

each end of said sleeve member adapted to receive the terminal end of a pair of respective fiber optic cables to be optically aligned together;

said resilient collar member enabling the rigid sleeve member to be longitudinally displaced from the respective collar opening from either side thereof;

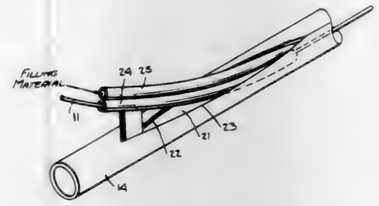
and means for maintaining said members in longitudinal relation within the connector.

4,279,470

OPTICAL CABLE ELEMENTS

Antonio Portinari, Sesto San Giovanni, and Sergio Longoni, Milan, both of Italy, assignors to Industrie Pirelli Societa per Azioni, Milan, Italy

Division of Ser. No. 898,081, Apr. 20, 1978, Pat. No. 4,212,097. This application Dec. 21, 1979, Ser. No. 106,034
Claims priority, application Italy, May 4, 1977, 23147 A/77
Int. Cl.³ G02B 5/16
U.S. Cl. 350—96.23 **8 Claims**



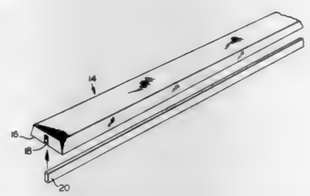
1. A unitary optical cable element comprising a self-sustaining tube of elastic material enclosing one or more fibers, said tube having an inner wall of a diameter larger than the diameter of a circle circumscribing the fiber or fibers and having a longitudinally extending cut therein which extends from the outer surface of the tube to the inner surface of the tube and which provides a pair of tube wall edge faces at opposite sides of the cut, the resilient nature of said tube being such that it inherently assumes a tubular cross-section and presses said edge faces against each other.

4,279,471

RETROREFLECTOR FOR ROAD SURFACES

William P. Rowland, Southington, Conn., assignor to Reflexite Corporation, New Britain, Conn.

Filed Dec. 31, 1979, Ser. No. 108,662
Int. Cl.³ G02B 5/124
U.S. Cl. 350—103 **1 Claim**



1. A retroreflective assembly for mounting on roadways and the like comprising:

A. an elongated housing of substantially transparent material having a base surface, a top surface, and side surfaces extending along the length thereof, said base surface defining a base plane upon which said housing may be supported, said housing having a channel extending perpendicularly upward from said base surface and terminating at a point spaced from said top surface by a predetermined distance, at least one of said side surfaces of said housing having a longitudinally extending planar light-reception surface portion lying in a plane that intersects an imaginary line extension of said channel at a point spaced above said top surface and at a predetermined acute angle; and

B. an elongated strip of retroflective sheet material snugly seated in said channel with a retroflective face disposed towards said planar surface portion of said housing, said retroreflective sheet material having retroreflective formations of cube-corner configuration spaced from said retroreflective face;

said predetermined spacing of said channel from said top surface being at least 0.020 inch;

the distance between said base surface and said top surface being less than 0.30 inch;

said predetermined acute angle being at least 8°, the refractive index of the housing material cooperating with said acute angle to cause light rays impinging on said planar surface portion to be refracted downwardly onto said retroreflective face of said strip and reflected therefrom outwardly through said planar portions in a direction substantially parallel to that of incidence thereon, the apparent position of said strip from a viewpoint of less than 8° above said plane of said base thereby being higher than the actual position of said strip; and

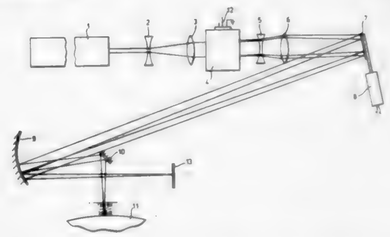
said housing providing an opaque upper surface, said retroreflective strip thereby being projected from sunlight impinging on said housing from above.

4,279,472

LASER SCANNING APPARATUS WITH BEAM POSITION CORRECTION

Graham S. B. Street, Impstone House, Pamber Rd., Silchester, Reading, RG7 2NU, England

Filed Nov. 30, 1978, Ser. No. 965,223
Claims priority, application United Kingdom, Dec. 5, 1977, 50603/77
Int. Cl.³ G01J 1/20
U.S. Cl. 250—201 **11 Claims**

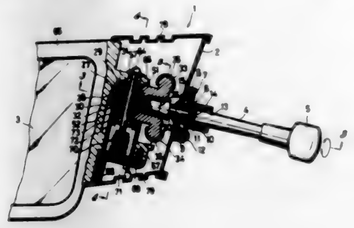


1. A scanning apparatus for generating a desired scan trace, comprising: a light source, a receiving surface, means for causing real or apparent movement of said light source relative to said receiving surface whereby a light beam from said light source is moved to scan a trace over said receiving surface in a scan direction, error detection means for continuously measuring one of said real or apparent position of said light source, and said position of said receiving surface, in a direction transverse to said scan direction and for comparing said position at each instant with the position required to provide the desired scan trace, an acousto-optic cell positioned in the light path between said light source and said receiving surface and arranged to cause said light beam from said light source to be deflected in said transverse direction, and means continuously responsive to said error detection means for influencing said deflection of said light beam in said acousto-optic cell to continuously generate a compensating deflection in said transverse direction so that the light impinges upon said receiving surface at each instant at the required point to generate the desired scan trace on the receiving surface.

4,279,473
REMOTE CONTROL MECHANISM

Toru Yamana, Fujioka, Japan, assignor to Murakami Kaimeido Co., Ltd., Japan

Filed Mar. 31, 1980, Ser. No. 135,288
Claims priority, application Japan, Apr. 9, 1979, 54-42680
Int. Cl.³ G02B 7/18
U.S. Cl. 350—307 20 Claims



20. A remote control mirror assembly comprising:
(a) a base plate;
(b) a control lever supported on said base for pivotal movement, said control lever having a knob at its one end disposed at one side of said base plate;
(c) a pair of first arms fixedly mounted on said control lever at the other end of said control lever disposed at the other side of said base plate;
(d) a supporting stud fixed to said base plate and spaced from said control lever, said supporting stud being disposed at said other side of said base plate and extending away from said knob on the control lever;
(e) a pair of second arms pivotally supported on said supporting stud;
(f) a pair of spaced links pivotally connecting said first and second arms at their respective ends, whereby said second arms are pivotable on said supporting stud in response to the pivotal movement of said control lever; and
(g) a mirror unit mounted on said second arms.

4,279,474
SPECTACLE LENS HAVING CONTINUOUSLY VARIABLE CONTROLLED DENSITY AND FAST RESPONSE TIME

Barry M. Belgorod, 450 E. 63 St., New York, N.Y. 10021

Filed Mar. 25, 1980, Ser. No. 133,929
Int. Cl.³ G02F 1/133
U.S. Cl. 350—331 R 8 Claims

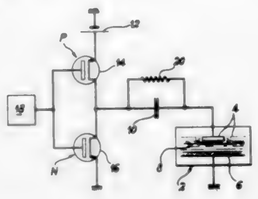


1. A spectacle lens having continously variable density, comprising a liquid crystal means within said lens for controlling light transmission through said lens as a function of an applied voltage, means for applying voltage pulses across said liquid crystal means, said pulses having a magnitude greater than a threshold value of said liquid crystal means and a frequency at least as large as the critical flicker fusion frequency of an eye, and means for controlling the duty cycle of said pulses to maintain the light passing through the lens at a predetermined luminous level.

4,279,475
METHOD OF CONTROL OF AN ELECTROLYTIC DISPLAY CELL AND A CIRCUIT FOR THE APPLICATION OF SAID METHOD

Gilles Delapierre, Seyssinet, and Robert Meyer, Saint Ismier, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jun. 13, 1979, Ser. No. 48,180
Claims priority, application France, Jun. 19, 1978, 78 18222
Int. Cl.³ G02F 1/29
U.S. Cl. 350—363 3 Claims



1. A display device comprising an electrolytic display cell provided therein with a plurality of transparent electrodes, a counter-electrode and an electrolytic solution containing a metal halide electrolyte, and a control circuit, said control circuit comprising first means for delivering any one of three currents:
(1) a writing current having a first direction to facilitate the deposition of a metallic film on the electrodes of the display cell;
(2) an erasure current having a second direction opposite to said first direction to facilitate disolving said metallic film; and
(3) a zero current to facilitate storage of the display;
and wherein said control circuit further comprises second means for delivering a leakage current at least when said zero current is delivered by said first means, said leakage current having a direction corresponding to said erasure current in said second direction.

4,279,476
OBJECTIVE LENS SYSTEM FOR MICROSCOPES

Ken-ichi Nakahashi, Hachiouji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 7, 1979, Ser. No. 101,187
Claims priority, application Japan, Dec. 11, 1978, 53/153295
Int. Cl.³ G02B 9/34, 21/02
U.S. Cl. 350—414 10 Claims



1. An objective lens system for microscopes comprising a first negative meniscus lens component having a concave surface on the object side, a second positive lens component, a third positive cemented doublet lens component and a fourth positive cemented doublet lens component, and said lens system satisfying the conditions enumerated below:

$$0.5f \leqq d_1 \leqq 0.7f \quad (1)$$

$$1.5/f \leqq 1.4\left|\frac{n_1-1}{r_2}\right| \leqq \left|\frac{n_1-1}{r_1}\right| \leqq 3.0/f \quad (2)$$

$$1.9 \leqq n_1 \leqq 1.7 \quad (3)$$

$$55 \leqq \nu_1 \leqq 35 \quad (4)$$

$$1.8 \leqq n_2 \leqq 1.7 \quad (5)$$

$$96 \leqq \nu_4 \leqq 80 \quad (6)$$

$$5.0f \leqq d_7 \leqq 4.0f \quad (7)$$

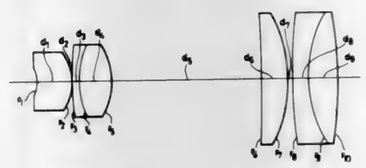
$$190 \leqq 1.6(\nu_5+\nu_6) \leqq \nu_1+\nu_2+\nu_3+\nu_4 \quad (8)$$

wherein the reference symbols r_1 and r_2 represent radii of curvature on the respective surfaces of the first lens component, the reference symbol d_1 designates thickness of the first lens component, the reference symbol d_7 denotes the airspace reserved between the third and fourth lens components, the reference symbols n_1 and n_2 designate refractive indices of the first and second lens components respectively, the reference symbols ν_1 through ν_6 denote Abbe's numbers of the respective lens elements and the reference symbol f represents focal length of the objective lens system as a whole.

4,279,477
OBJECTIVE LENS SYSTEM FOR MICROSCOPES

Tsutomu Tojo, Nagano, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 7, 1979, Ser. No. 101,188
Claims priority, application Japan, Dec. 11, 1978, 53/153296
Int. Cl.³ G02B 9/34, 21/02
U.S. Cl. 350—414 14 Claims



1. An objective lens system for microscopes comprising a front lens group consisting of a first positive meniscus lens component and a second positive cemented doublet component, and a rear lens group consisting of a third lens component having positive refractive power and a fourth lens component having positive refractive power, and said lens system satisfying the following conditions:

$$0.5 < r_1/r_2 < 0.8 \quad (1)$$

$$0.3 < r_5/R < 1.1 \quad (2)$$

$$0.12f < d_1/n_1 < 0.19f \quad (3)$$

$$30 < |(\nu_2-\nu_3)+(\nu_p-\nu_n)| < 120 \quad (4)$$

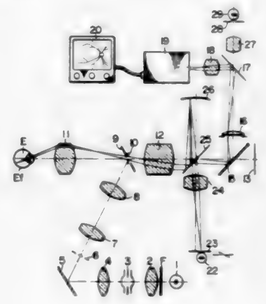
$$0.35 < f_1/f_2 < 0.65 \quad (5)$$

wherein the reference symbols r_1 and r_2 represents radii of curvature on both the surfaces of the first lens component, the reference symbol r_5 designates radius of curvature on the image side surface of the second lens component, the reference symbol R denotes radius of curvature on the image side surface of the third lens component, the reference symbol d_1 represents thickness of the first lens component, the reference symbol n_1 designates refractive index of the first lens component, the reference symbols ν_2 and ν_3 denote Abbe's numbers of both the elements respectively of the second lens component, the reference symbol ν_p and ν_n represent Abbe's numbers of the positive and negative lens elements respectively of the cemented doublet component arranged in the rear lens group, and the (3) reference symbols f_1 and f_2 designate focal lengths of the front and rear lens groups respectively.

4,279,478
EYE EXAMINING INSTRUMENT

Isao Matsumura, Yokosuka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1978, Ser. No. 948,885
Claims priority, application Japan, Oct. 5, 1977, 52-119697; Oct. 6, 1977, 52-120414
Int. Cl.³ A61B 3/10; G03B 29/00
U.S. Cl. 351—13 30 Claims

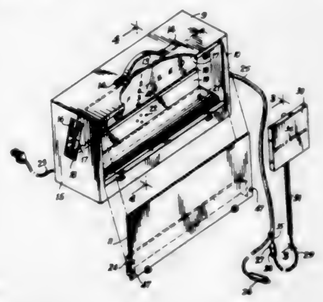


1. An eye examining instrument comprising:
a photographic system for photographing an eye fundus, including objective optical means adapted to be opposed to a human eye, photosensitive means and observation means;
an illuminating system for illuminating the eye fundus;
a first projection system for projecting a test mark onto a desired position on the eye fundus and for moving the same along a desired path on the eye fundus;
a fixation object for fixing the line of vision of the eye; and
a second projection system for projecting an indicative mark onto said photosensitive means during photography, said second projection system being coupled to said first projection system.

4,279,479
VISION SCREENING KIT

Melvin Schrier, 111 Eagle St., Tenafly, N.J. 07670

Filed May 29, 1980, Ser. No. 154,322
Int. Cl.³ A61B 3/02, 3/00
U.S. Cl. 351—37 7 Claims



1. A portable vision screening kit comprising a carrying case having a removable front panel, said carrying case housing

removable eye screening chart means slidably mounted on a pair of tracks for screening for distance visual acuity, means for illuminating said removable eye testing chart shielded from direct view, means for screening for distance phoria having means of illumination capable of providing a small light source, removable hand held means for screening for near phoria and near point vision having means of illumination capable of providing a small light source and means for screening for binocularity having means of illumination capable of providing a small light source and switch means to control the illumination for said means for screening for distance visual acuity, said means for screening for distance and near phoria and said means for screening for binocularity, and means for providing electrical energy to said switch means and means of illumination.

4,279,480

OPHTHALMIC LENS HAVING AN ASPHERIC SURFACE

Bruno Bettiol, Quincy-Voisins; Christian Harsigny, Yerres, and William Lesne, Gagny, all of France, assignors to Essilor International Cie Generale d'Optique, Creteil, France

Filed Oct. 22, 1979, Ser. No. 86,800
Claims priority, application France, Oct. 24, 1978, 78 30152
Int. Cl.³ G02B *3/04*; G02C *7/02*
U.S. Cl. 351—159 **5 Claims**



1. An ophthalmic lens having a front face which is a surface of revolution, and wherein with the optical axis of the lens being taken as the abscissa and an axis orthogonal to the optical axis being taken as the ordinate, the curve representing the half-meridian of the front face of the lens corresponds to the formula:

$$x = ay^2 + by^3 + cy^4 + dy^5$$

wherein the coefficient a is a number other than zero and negative, the coefficient b is a number other than zero and positive, and coefficients c and d are numbers including zero.

4,279,481

INFORMATION DISPLAY ARRANGEMENT FOR CAMERA

Takao Ishibashi, Higashiyamato, and Kenjiro Osonoi, Tokorozawa, both of Japan, assignors to Osawa Precision Industries, Ltd., Tokyo, Japan

Filed May 17, 1979, Ser. No. 39,994
Claims priority, application Japan, May 22, 1978, 53-67845
Int. Cl.³ G03B *17/20*
U.S. Cl. 352—171 **11 Claims**

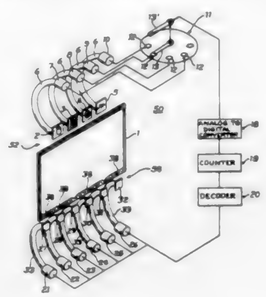
1. An information display arrangement for a viewfinder of a camera or the like comprising:

a plurality of camera function indicators arranged along a first predetermined portion of the perimeter of the viewfinder and associated with a respective plurality of functions;

a plurality of quantity indicators arranged along a second predetermined portion of the perimeter of the viewfinder;

manually operable switch selection means for selectively actuating a respective one of said function indicators in each of a plurality of switch positions;

quantity measurement means for generating an analog voltage for each of a plurality of functions corresponding to said function indicators, said analog voltage representing a predetermined quantity representation associated with each of said functions, said manually operable switch means including means for selectively connecting to a quantity signal output the respective one of said analog voltage quantity representations corresponding to the



function represented by the function indicator that is actuated by said manually operable switch means; and

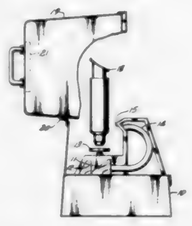
means responsive to said quantity signal output controlling said plurality of quantity indicators in a predetermined manner to represent said predetermined quantity representation corresponding to said actuated function.

4,279,482

ILLUMINATION OF REPLICAS OF BIOLOGICAL SURFACE TISSUE

Don R. Tyson, North Hollywood, Calif., assignor to Redken Laboratories, Inc., Canoga Park, Calif.

Continuation-in-part of Ser. No. 837,766, Sep. 29, 1977, abandoned. This application Feb. 2, 1979, Ser. No. 8,884
Int. Cl.³ G03B *21/06*
U.S. Cl. 353—65 **5 Claims**



1. A method for illuminating a replica of biological surface tissue lying on a platform by means of light from a coherent light source, the method comprising the steps of:

forming a replica of the biological surface tissue with negative topography in a piece of opaque molding material;

placing the replica on the platform;

directing coherent light onto the platform such that the light impinges upon the replica at an acute elevation angle to the surface of the replica;

viewing the replica; and

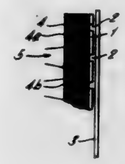
adjusting the azimuth angle from which the light impinges upon the replica while viewing the replica, until the replica appears with positive topography.

4,279,483

ELECTRO-OPTICAL CHARACTER GENERATOR FOR PHOTOCOMPOSING APPARATUS

Charles J. England, Smallfield, and Brian A. Bakewell, South Croydon, both of England, assignors to The Monotype Corporation Limited, Salfords Redhill, England

Filed Mar. 18, 1980, Ser. No. 131,377
Claims priority, application United Kingdom, Mar. 21, 1979, 09955/79
Int. Cl.³ B41G *13/00*; G03B *15/00, 27/00*
U.S. Cl. 354—5 **3 Claims**



1. In photocomposing apparatus in which a recording medium which is sensitive to radiation is movable relative to a head including means defining an array of light sources which are selectably operable to provide illumination of elementary areas of the medium and thereby to build up images of characters by a conglomeration of such areas, the improvement wherein said head comprises:

(a) a faceplate having opposite broad faces and disposed for traversal relative to said medium and in close proximity thereto, said faceplate being constituted by a multiplicity of parallel optical fibres disposed substantially normal to said broad faces;

(b) a mask having an ordered array of apertures, of which each aperture encompasses the adjacent ends of a multiplicity of the said fibres, said mask being disposed closely adjacent one of said broad faces of said faceplate; and

(c) means for selectively illuminating regions of the rear of said faceplate, said regions corresponding to said apertures.

4,279,484

APPARATUS FOR MEASURING A RANGE TO A SUBJECT

Tadashi Kimura, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 2, 1979, Ser. No. 81,090
Claims priority, application Japan, Oct. 5, 1978, 53/122868
Int. Cl.³ G03B *13/20, 1/36*
U.S. Cl. 354—25 **5 Claims**



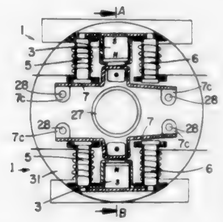
1. An apparatus for measuring a range to a subject comprising an optical system which includes a rotatable scanning mirror and defines a first optical path for forming a first stationary image of the subject and a second optical path for forming a second image of the subject, said second image being shifted with respect to the first stationary image by rotating said scanning mirror arranged in the second optical path; a photoelectric converting device for receiving said first and second images of the subject to produce a signal representing an in-focused condition when said first and second images coincide with each other; a pin hole member arranged in said first and second optical paths in front of said photoelectric converting device; and means for supporting said pin hole member and photoelectric converting device movable relative to each other in a direction parallel to an optical axis of the photoelectric converting device so as to change a size of a range measuring area with respect to a field of view.

4,279,485

ELECTROMAGNETIC DRIVE SYSTEM FOR PHOTOGRAPHIC SHUTTERS

Martin Grünbacher, Braunfels, Fed. Rep. of Germany, assignor to Ernst Krull & Co., GmbH, Wetzlar-Nauborn, Fed. Rep. of Germany

Filed Jan. 3, 1980, Ser. No. 109,345
Claims priority, application Fed. Rep. of Germany, Jan. 4, 1979, 2900197
Int. Cl.³ G03B *7/083*; H01F *7/14*
U.S. Cl. 354—51 **6 Claims**



1. An electromagnetic drive system for actuating the blades in the shutter of a photographic device to cover and uncover the shutter aperture, comprising

a—an aperture plate having a shutter aperture,

b—a first magnetically conductive base plate mounted on the aperture plate on one side of the shutter aperture,

c—a second magnetically conductive base plate mounted on the aperture plate on the side of the aperture opposite from the first base plate,

d—a first permanent magnet mounted on the the first base plate,

e—a first solenoid mounted on the first base plate on one side of the first permanent magnet,

f—a second solenoid mounted on the first base plate on the opposite side of the first permanent magnet, the coils of the first and the second solenoid being wound in an opposite sense so that the magnetic poles of the first and the second solenoid are opposite to one another,

e—a double armed lever pivotably supported adjacent one pole of the first permanent magnet so that a magnetic flux exists between the first double armed lever and the first permanent magnet, the lever being pivotable between a first end position and a second end position in either of which one lever arm rests against the core of one solenoid,

h—a first set of shutter blades for jointly covering and uncovering the shutter aperture, the first set comprising first and second shutter blades, the first blades being in driving engagement with the one lever arm, the second blades being in driving engagement with the other lever arm,

i—a second permanent magnet mounted on the second base plate,

j—a third solenoid mounted on the second base plate on one side of the second permanent magnet,

k—a fourth solenoid mounted on the second base plate on the opposite side of the second permanent magnet, the coils of the third and fourth solenoid being connected and being wound in an opposite sense so that the magnetic poles of the third and fourth solenoid are opposite to one another,

l—a second double armed lever pivotably supported adjacent one pole of the second permanent magnet so that a

magnetic flux exists between the second double armed lever and the second permanent magnet, the lever being pivotable between a first end position and a second end position in either of which one lever arm rests against the core of one solenoid,

m—an electric circuit connected to the coils of the first, second, third, and fourth solenoid for conducting a first pulse to the first and second solenoid at the beginning of the exposure and for conducting a second pulse to the third and fourth solenoid at the end of the exposure, whereby the shutter aperture is uncovered by the first shutter blades and covered by the second shutter blades, and

n—switch means for reversing the order of connection of the first and second solenoid and the third and fourth solenoid to the electric circuit after each exposure.

4,279,486

FILM TAKEUP DEVICE FOR AN ENDOSCOPE HAVING A CAMERA HOUSED IN A DISTAL END PORTION OF AN ENDOSCOPE SHEATH

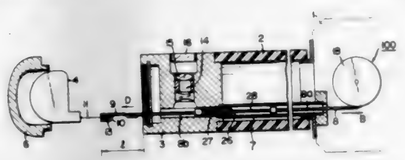
Mototugu Ogawa, Chofu, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 882,064, Feb. 28, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 88,752

Claims priority, application Japan, Mar. 4, 1977, 52-26191[U]

Int. Cl.³ G03B *29/00*; A61B *1/06*

U.S. Cl. 354—62 **5 Claims**



1. In an endoscope including an operation section, an elongated sheath having two ends, one end being connected to the operation section, a distal end portion connected to the other end of the sheath and provided with a camera and a rolled elongated piece of film therein having two ends, a guide tube extending lengthwise through the sheath and having an inner diameter, and a film takeup device, said film takeup device comprising a takeup mechanism provided at the operation section and an operating wire section extending lengthwise through the guide tube, said operating wire section having two end portions, one end portion being connected to the takeup mechanism and the other end portion being connected to one of the ends of the film for feeding the film frame by frame, each time the takeup mechanism is operated, said operating wire section including a series of elongated closed wire loops each constituted by a wire with an outer diameter, linked one after another and disposed in the guide tube for shortening the length of the operating wire section as the operating wire section is moved towards the distal end portion so as to move the adjacent loops towards overlapping relationship and for lengthening the operating wire section when the end portion of the operating wire section connected to the film is pulled out of the distal end portion so as to move the adjacent loops away from overlapping relationship, each of said closed wire loops having such an elongated configuration extending along the guide tube that each of said loops has a length longer than its width, an outer crosswise width along the entire length of each of said loops smaller than the inner diameter of the guide tube and an inner crosswise width along the entire length of each of said loops larger than the outer diameter of the wire of the closed wire loop linked to said each of the closed wire loops.

4,279,487

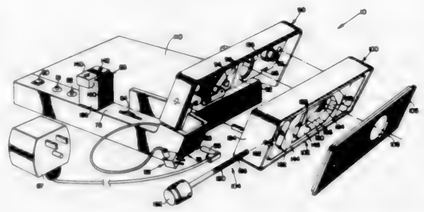
ADAPTER FOR COUPLING A CAMERA TO AN OPTICAL INSTRUMENT

Philip G. Baker, Peabody; John K. Fitch, Boston, and Henry T. Vance, Jr., Manchester, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 7, 1980, Ser. No. 128,140

Int. Cl.³ G03B *7/091, 17/52*

U.S. Cl. 354—79 **17 Claims**



1. An adapter for coupling a camera to an optical instrument in position to photograph an image provided by the instrument, the camera being of the type which upon actuation proceeds through an automatic cyle of operation including a film exposure phase that is automatically controlled within a predetermined range of exposure values by a light sensing circuit, formed in part by a camera mounted photocell, providing an exposure termination signal when a predetermined quantity of scene light has impinged upon the photocell following exposure initiation, said adapter comprising:

an adapter body for receiving and supporting such a camera thereon and including means for coupling said adapter body to the instrument so that the camera's objective lens is in position to receive image forming light transmitted along an optical path from the instrument;

means for blocking transmission of ambient and said image forming light to the camera photocell;

a light source operative upon energization for transmitting a sufficient quantity of light to the camera photocell for the light sensing circuit to provide the exposure termination signal;

means for measuring the intensity level of the image forming light and for providing a trigger signal at the end of an interval that is proportional to the measured intensity level;

means for storing the measured light intensity data; and

control means responsive to said trigger signal when provided within a predetermined range of timed intervals that corresponds to said predetermined range of exposure values for actuating said camera and responsive to said storing means for thereafter energizing said light source at a time following exposure initiation that is proportional to the measured intensity level, said control means also including means for inhibiting camera actuation when said trigger signal is provided at times not within said predetermined range of timed intervals.

4,279,488

CAMERA WITH FLASH THROUGH VIEWFINDER

Stephen P. Hines, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 12, 1980, Ser. No. 158,749

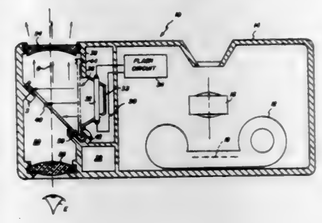
Int. Cl.³ G03B *15/03, 13/02*

U.S. Cl. 354—145 **14 Claims**

1. In a photographic camera including a housing, a view finder through which objects to be photographed are viewable along an optical path by the camera user, the viewfinder optical path being separate from the optical path of the taking lens of the camera, and a flash unit including a selectively energizable flashlamp for illuminating such objects, the improvement comprising:

(a) means for mounting the flashlamp in the interior of the camera housing; and

(b) means for selectively directing light from the flashlamp, when energized, through the viewfinder and along said viewfinder optical path toward such objects to be photographed, said light-directing means comprising a light-



reflective element and means for mounting said reflective element to said housing for movement between a first position displaced from the optical path of the viewfinder, and a second position intersecting said path, whereby light from the flashlamp is reflected by said element into object space when said element is in said second position.

4,279,489

INTERCHANGEABLE EYE PIECE-HOUSING

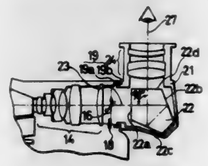
Tetsuji Shono; Kazuo Goto, both of Kawagoe, and Michiro Ohishi, Tokyo, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1979, Ser. No. 34,037

Claims priority, application Japan, Apr. 28, 1978, 53-52069

Int. Cl.³ G03B *13/08, 19/12*

U.S. Cl. 354—155 **9 Claims**



1. In a single lens reflex camera having a first focus surface, prism means, a Keplerian telescope type eye level finder optical system having a second focus surface and means for displaying data in a view finder, said display means provided on said second focus surface of said optical system and an interchangeable eye piece housing, the improvement comprising, a mount device having a camera side mount and an eye piece side mount provided between said second focus surface and an eye piece of said optical system, and an eye level eye piece housing and a waist level eye piece housing each having an eye piece side mount interchangeably mounted on said camera side mount.

4,279,490

ELECTRIC DRIVING DEVICE

Yukio Mashimo, Kawasaki; Tomonori Iwashita, Fuchu, and Hidehiko Fukahori, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 82,461

Claims priority, application Japan, Oct. 11, 1978, 53-125472

Int. Cl.³ G03B *1/00*

U.S. Cl. 354—173 **2 Claims**

1. An electric driving device for performing winding and rewinding operations in a camera, which comprises:

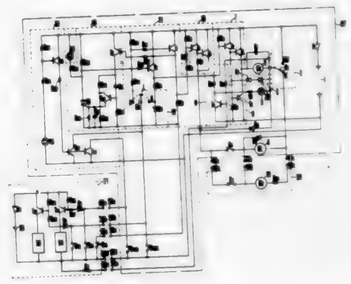
a first semi-conductor switching element which becomes conductive at the time of a winding operation:

a second semi-conductor switching element which becomes conductive at the time of a rewinding operation;

said first and second switching elements being connected to form a series circuit to be connected between both poles of a power source;

a changeover switch having two fixed terminals to be connected to respective poles of the power source;

a motor with one end connected to a central point of the series circuit with another end connected to a movable terminal of the changeover switch;



first and a second motor driving circuits formed by the changeover switch and the first and second switching elements;

said first driving circuit effecting normal rotation of the motor to perform the winding operation;

said second driving circuit braking the motor at the time of stoppage of the winding operation, and effecting reverse rotation of the motor to perform the rewinding operation; and

said first driving circuit being arranged for braking the motor at the time of stoppage of the rewinding operation.

4,279,491

APPARATUS FOR EXPOSING AND DEVELOPING FILM UNITS OR THE LIKE

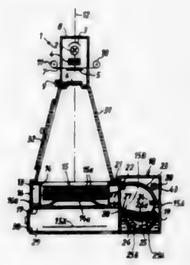
Otto Stemme, Munich; Berthold Fergg; Viktor Osegowitsch, both of Taufkirchen, and Wolfgang Viehrig, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Nov. 23, 1979, Ser. No. 96,742

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851892

Int. Cl.³ G03B *27/32, 27/52*

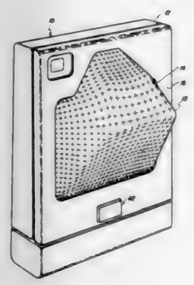
U.S. Cl. 355—27 **12 Claims**



1. In an apparatus for exposing and developing photosensitive material including discrete units which must be subjected to a diffusion treatment upon completion of a developing treatment, such as film units having a plurality of overlapping

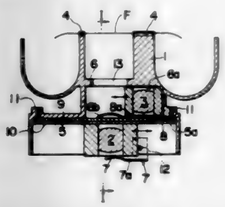
sheets, the combination of an exposing unit; means for supporting photosensitive material in a predetermined position with respect to said exposing unit; a developing unit adjacent to said supporting means; and a diffusion chamber below said supporting means, said developing unit having means for transporting exposed photosensitive material from said supporting means into said chamber and said transporting means including means for reversing the direction of movement of photosensitive material during transport of such material from said supporting means into said chamber.

4,279,492
PLANAR BELLOWS
Stephen P. Hines, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 23, 1980, Ser. No. 161,707
Int. Cl.³ G03B *17/04*
U.S. Cl. 354—187 **3 Claims**



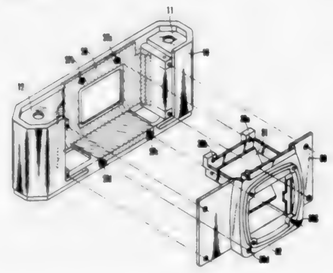
1. In a camera of the type having a housing with an opening, means for supporting camera optics for movement between a position substantially within said housing and a position protruding substantially through said opening in said housing, and a bellows covering said opening and defining a light-tight closure for said camera, an improved bellows comprising:
a flat sheet of resilient, opaque material extending over said opening and fastened around its periphery to said housing, said sheet being extendable within its elastic limit to define a tent-like configuration when said supporting structure is in said protruding position and contractible by its own restoring forces to a substantially flat plane when said optics supporting structure is collapsed.

4,279,493
CAMERA STRUCTURE
Haruo Kobayashi, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Aug. 10, 1979, Ser. No. 129,977
Claims priority, application Japan, Dec. 13, 1977, 52-168075[U]
Int. Cl.³ G03B *3/00*
U.S. Cl. 354—197 **9 Claims**



1. In a camera which has incorporated therein two kinds of photographic lenses which are selectively settable to an operative position and a retired position thereof, the camera structure characterized by comprising a camera body integrally molded to be formed with a film position-determining plane, a first lens position-determining plane with which the rear end of the first photographic lens unit is in contact, and a second lens position-determining plane with which the rear end of the second photographic lens unit is in contact, said first and second lens position-determining planes being formed parallel with each other and at different levels with respect to the photographic optical axis of the camera, and both facing forward.

4,279,494
CAMERA BODY
Ryoichi Yoshikawa, Yokohama; Kazuhiko Okajima, Fukushima; Shunichi Nakahara, Tokyo, and Sumio Nakayama, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 26, 1979, Ser. No. 97,834
Claims priority, application Japan, Nov. 25, 1978, 53-145536
Int. Cl.³ G03B *17/02*
U.S. Cl. 354—288 **6 Claims**



1. A camera body comprising:
a plastic body formed in a molding operation including a central body portion, and a film loading chamber and a film windup chamber each located at an opposite end of said central body portion;
a metal plate located in said central body portion and fixed thereat in the molding operation for reinforcing said central body portion, said metal plate having at least one portion for interengaging said plate with said molded plastic body, said metal plate being of a thickness substantially equal to that of said central body portion, said metal plate being exposed on an exterior surface of said camera body so that an exposed seam is formed between said metal plate and said molded plastic body; and
at least one projection formed along said connecting portion for interengagement with said molded plastic body, said projection being arranged to contact a forming mold surface in response to pressure applied to said projection when said camera body is molded to prevent seepage of the molten plastic between said metal plate and the forming mold surface thereby preventing formation of plastic flash.

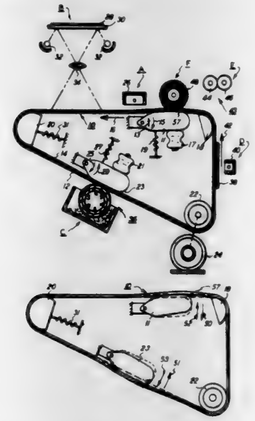
4,279,495
PHOTOSENSITIVE MATERIAL PROCESSING APPARATUS
Osamu Fukushima, and Atsushi Shiraishi, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Filed Mar. 21, 1980, Ser. No. 132,610
Claims priority, application Japan, Apr. 2, 1979, 54-39499
Int. Cl.³ G03D *3/13*
U.S. Cl. 354—321 **8 Claims**

1. An apparatus for processing a material in the form of a sheet or a web: comprising pairs of rollers arranged at short intervals for conveying said material through successive order processing sections, the rotational speeds and diameters of said rollers having values resulting in web conveyance speeds of said pairs of rollers which are greater for roller pairs in the downstream processing sections than in the upstream processing sections, said roller pairs also being arranged to provide a distance between the rollers of a given pair, even in the absence of a web or sheet, which distance is sufficiently small to result



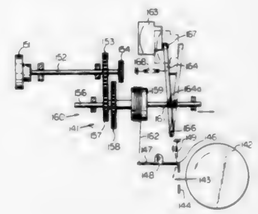
in a frictional force on said web or sheet when passing through said roller pairs, while at the same time permitting slippage of the web or sheet relative to the conveyance speed of any pair of rollers, the increasing conveyance speed providing tension on said web or sheet and the distance between rollers of a given pair providing sufficient slippage to insure that the said tension does not exceed the strength of the web and to permit correction of meandering by a correcting force which overcomes the frictional force between the web and the rollers.

4,279,496
BELT SUPPORT SYSTEM
Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed May 21, 1979, Ser. No. 41,049
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—3 BE **9 Claims**



1. An apparatus for removably supporting a belt, including:
means mounted fixedly for supporting the belt and maintaining at least a portion thereof generally planar in an inoperative position;
means, mounted movably, for deflecting the planar portion of the belt to an operative position; and
means, coupled to said movable mounting means, for moving said movable mounting means to deflect the belt to the operative position and to return the belt to the inoperative position facilitating removal of the belt from said fixed mounting means and said movable mounting means and the replacement thereof with an unused belt, said moving means includes pneumatic means in communication with said movable mounting means, said pneumatic means includes a bellows coupled to said movable mounting means, and means for supplying a pressurized fluid to said bellows expanding said bellows to move said movable mounting means and the belt to the operative position, said fixed mounting means includes a post defining an interior chamber in communication with said supplying means and having a plurality of apertures in the periphery thereof through which pressurized fluid flows to form a fluid film between said post and the portion of the belt passing thereover.

4,279,497
ELECTROSTATIC COPYING MACHINE
Toyokazu Satomi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Continuation of Ser. No. 795,610, May 10, 1977, abandoned. This application Dec. 27, 1979, Ser. No. 108,187
Claims priority, application Japan, May 18, 1976, 51/56999; Jun. 2, 1976, 51/64319; Jun. 19, 1976, 51/72601
Int. Cl.³ G03G *15/28, 15/32*; G03B *27/34*
U.S. Cl. 355—8 **33 Claims**



1. An electrostatic copying machine comprising:
a rotary photoconductive member;
a fixed aperture plate disposed adjacent to the photoconductive member;
a movable aperture plate disposed adjacent to the fixed aperture plate and being formed with a curved edge, the fixed and movable aperture plates defining an aperture therebetween;
a variable magnification optical means for focussing an image of a portion of an original document through the aperture onto the photoconductive member;
the optical means being constructed so that an image of a leading edge of the document in a direction of scanning is focussed through the aperture at an initiation of scanning at all magnifications;
the optical means being connected to the movable aperture plate in such a manner as to axially position the movable aperture plate so that a center of the curved edge aligns with a center of the image at all magnifications.

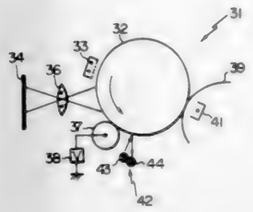
4,279,498
ELECTROSTATOGRAPHIC COPYING APPARATUS WITH AUTOMATIC TONER DENSITY CONTROL
Tadahiro Eda; Susumu Tatsumi; Chikara Imai, and Yasushi Koichi, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Dec. 14, 1979, Ser. No. 103,825
Claims priority, application Japan, Dec. 28, 1978, 53-161704; Jun. 27, 1979, 54-81091
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 D **19 Claims**

1. An electrostatographic apparatus including a photoconductive member, imaging means for forming an electrostatic image on the member and developing means for developing the electrostatic image to form a toner image, characterized by comprising:
first sensor means for sensing a density of the toner image;

second sensor means for sensing a variable operating parameter of at least one of the imaging means and the developing means;

control means for controlling the developing means to increase a toner density when said density is below a reference value; and

computing means for compensating the control means as a predetermined function of the sensed operating parameter.



4,279,499

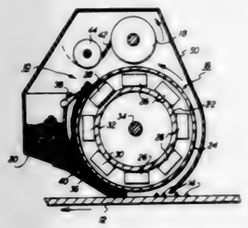
ELECTROPHOTOGRAPHIC CLEANING APPARATUS

Ivan Rezanka, Pittsford, and Nero R. Lindblad, Palmyra, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 4, 1979, Ser. No. 72,263

Int. Cl.³ G03G *21/00, 15/00*

U.S. Cl. 355—15 **3 Claims**



1. A magnetic brush apparatus for cleaning the photoreceptor in an electrostatographic copying machine comprising a magnetic brush roll positioned at an elevated location from the area of the photoreceptor to be cleaned by the brush, a plurality of magnet means located inside said magnetic brush roll, a reservoir for carrier particles, pickoff means for removing a part of the carrier particles from said magnetic brush roll into said reservoir during rotation of said magnetic brush roll, and exit means at the lower end of said reservoir, whereby said reservoir, said pickoff means, said exit means and said magnet means cooperate during the operation of the apparatus to circulate the carrier particles between the magnetic brush roll and the reservoir so that a portion of the magnetic brush on the roll is continuously removed and reformed, said magnetic brush roll comprises an inner stationary support and an outer roll mounted for rotation, said magnet means being fixedly mounted on said inner support and said outer roll being concentric to said inner support so that magnetic brush formed of carrier particles is supported on the exterior cylindrical surface of the outer roll, said magnet means includes a first magnet means positioned near said pickoff means to assist in the partial removal of the magnetic brush during the operation of the apparatus, a second magnet means positioned near said exit means to assist in the reformation of the magnetic brush during the operation of the apparatus, and a third magnet means positioned between said first and second magnet means, said second and third magnet means include magnetic field shunting means to prevent the magnetic fields from said second and third magnet means for interfering with the flow of the carrier particles in said reservoir.

4,279,500

ELECTROPHOTOGRAPHIC APPARATUS AND AN ABRADING MEANS

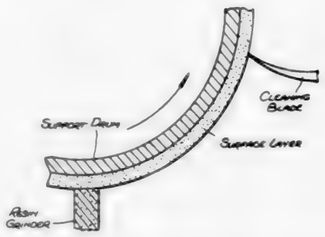
Hideyo Kondo, Toride, and Keiichi Murai, Abiko, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1979, Ser. No. 34,208

Claims priority, application Japan, Apr. 27, 1978, 53-50626; Oct. 14, 1978, 53-126699

Int. Cl.³ G03G *21/00*

U.S. Cl. 355—15 **14 Claims**



1. In an electrophotographic apparatus which comprises an image holding member for electrostatic images and/or toner images having a surface layer subject to residual toner build-up and/or corona ion-induced electrical deterioration byproducts which reduce image quality and inhibit toner removal after image transfer, the improvement comprising:

(a) a solid particulate lubricating agent contained in the surface layer, said lubricating agent being capable of increasing the lubricating property of the surface of said layer and;

(b) means to abrade the surface layer to expose a new surface of said layer and to maintain an effective exposure of said lubricating agent, wherein said lubricating agent is consumed to increase the lubricating property of the surface and aid in reducing by-products and toner build-up.

4,279,501

CLEANING DEVICE FOR PHOTOELECTROSTATIC COPYING APPARATUS

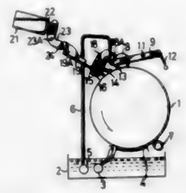
Kenji Kojima; Sakae Ota, both of Tokyo; Akio Katsumata, Chigasaki; Toshiaki Kameyama; Toshio Watanabe, both of Yokohama, and Tadao Koike, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Japan

Continuation of Ser. No. 861,401, Dec. 16, 1977, abandoned. This application May 7, 1979, Ser. No. 36,736

Claims priority, application Japan, Dec. 29, 1976, 51-160155

Int. Cl.³ G03G *21/00*

U.S. Cl. 355—15 **4 Claims**



1. An improved cleaning device for photoelectrostatic copying apparatus of the type having a rotatable drum having a photosensitive curved peripheral surface, means for delivering liquid developer to the surface for developing an image which

may be thereon to make a copy on a copy sheet, and a cleaning blade and a cleaning roller adapted to be brought into pressing engagement with the drum immediately after a visible image has been printed thereon on a copy sheet comprising, in combination, a support, a roller support lever pivotally mounted on said support, the cleaning roller being rotatably mounted on said support lever and engageable with said drum, spring means acting on said support lever to bias said support lever and the cleaning roller in a direction away from the drum, a support shaft rotatably mounted on said support alongside said roller support lever, a pressure lever on said support shaft having a portion acting on said support lever to urge it in a direction against the bias of said spring means to cause said support lever to be moved into engagement with the drum, the cleaning blade being connected to said shaft and engageable on the drum with the cleaning roller in an operative cleaning position in contact with the drum responsive to the operation of the photoelectrostatic apparatus after the visible image has been transferred therefrom to make a copy, actuating means having a driven member selectively acting on said shaft for maintaining contact of the cleaning blade and cleaning roller on the drum for cleaning responsive to the operation of the apparatus after the visible image has been transferred therefrom to make a copy and permitting said support shaft to rotate in a direction to lift the cleaning blade out of contact with the drum by the bias of said spring means and to position the cleaning blade out of contact with the drum and to position the cleaning roller in one of a position out of contact with the drum and a position in which its contact pressure with the drum is reduced when the apparatus is not operating.

4,279,502

METHOD OF AND APPARATUS FOR DETERMINING THE COPYING LIGHT AMOUNTS FOR COPYING FROM COLOR ORIGINALS

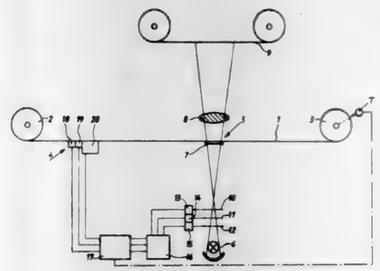
Siegfried Thurm, Voiswinkel; Konrad Bange, Cologne, and Günter Findeis, Sauerlach, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,331

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1978, 2840287; Mar. 20, 1979, 2912130

Int. Cl.³ G03B *27/73*

U.S. Cl. 355—38 **34 Claims**



32. An apparatus for determining the individually controllable amounts of light in various colors to which photographic copying material is to be exposed at a copying station in a color copying operation from a length of photographic original material including a series of discrete image-carrying sections, especially from a film strip including a series of color negatives, comprising means arranged upstream of the copying station by a distance at least matching the length of the original material and operative for measuring the density of the original material in three basic colors at a plurality of regions of the original material and for generating signals corresponding to the measured density values; and means for evaluating said signals for use in influencing the light amount control in the copying station, said evaluating means being operative to form functional correlations of differences between the signals corresponding to different ones of the basic colors and average densities based on the measurement of a number of the regions and to determine the amounts of light in the basic colors to which the original material is to be exposed when making a copy from a particular section of the respective length of the original material.

4,279,503

MICROFICHE SYSTEM

Vincent L. Cocco, Wakefield; Philip R. Norris, North Reading, and Richard R. Wareham, Marblehead, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Sep. 4, 1979, Ser. No. 71,939

Int. Cl.³ G03B *13/28*

U.S. Cl. 355—45 **13 Claims**



1. A microfiche system operable alternatively in image recording and viewing modes of operation, said system comprising in combination:

a console having a combination document mounting and image display area, a camera/projector mount and reflective means for transmitting an image between said mounting and display area and said mount;

a camera adapted to be releasably mounted in said mount, thereby rendering said system operational in said image recording mode, for exposing a pattern of images of a plurality of documents supported successively on said mounting and display area so as to provide a corresponding plurality of image transparency frames on each such film unit; and

a projector adapted to be releasably mounted in said mount in place of said camera for converting said system from said image recording to said viewing mode of operation, said projector having means for supporting a film unit provided with said image transparency frames, an energizable light source, and means for projecting an enlarged light image of each of said image transparency frames to said mounting and display area via said reflective means.

4,279,504

COPIER AND MULTIFUNCTION PAPER CASSETTE

Leon C. Brown; Uscoe J. Fitts, both of Boulder, and David R. Polakowski, Longmont, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,000

Int. Cl.³ G03B *27/58*

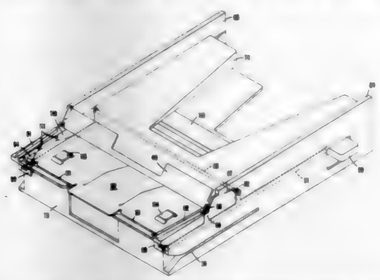
U.S. Cl. 355—72 **30 Claims**

1. A cassette for use with a sheet feed mechanism of a copier or the like to provide sheet supply storage, bypass sheet feeding and output copy tray functions, comprising:

a frame having upper and lower spaced walls forming a chamber for storing a stack of supply sheets and including an opening at one end of said upper wall for permitting serial extraction of sheets from said chamber by the feed mechanism; and

means forming a tray on said upper wall external to said chamber, including gate means positioned at the edge of said tray nearest said frame opening, said gate means being

movable between a first closed position for retaining sheets in said tray, as said output tray function, and a second open position for allowing a sheet to be moved



from said tray into interleaving relation between sheets in said chamber and the feed mechanism, as said bypass sheet feeding function.

4,279,505

METHOD FOR PRINT EXPOSURE CONTROL

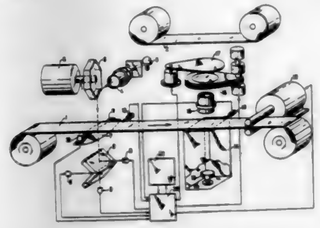
Karl Ursprung, Niederhasli, and Franz Zimmermann, Meggen, both of Switzerland, assignors to Gretag Aktiengesellschaft, Regensdorf, Switzerland

Filed Oct. 17, 1979, Ser. No. 85,736

Claims priority, application Switzerland, Oct. 20, 1978, 10875/78

Int. Cl.³ G03B *27/73*

U.S. Cl. 355—77 **22 Claims**



1. A method of modulating the exposure of photographic copies where the original to be copied is scanned point by point photoelectrically, wherein there is determined the neutral density of each point of the image, and a basic density correction term is derived from the individual density values in order to modulate the overall density of the copy to be prepared, comprising the steps of electronically comparing the density values of image points of the original to be copied with a threshold value in order to determine whether the original to be copied contains areas which extend to at least one of its margins and which contain image points with a density above the threshold value, reducing the density values of at least a portion of the image points associated with such areas, and substituting the reduced density values for the original ones for at least a portion of the processing steps leading to the basic density correction term.

4,279,506

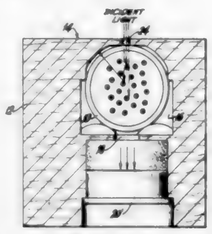
PHOTOMETRIC APPARATUS AND METHODS FOR COUNTING THE PARTICULATE COMPONENTS OF BLOOD

Robert Q. Maines, Tappan, N.Y., assignor to R. J. Harvey Instruments Corp., Hillsdale, N.J.

Continuation of Ser. No. 848,272, Nov. 3, 1977, abandoned. This application Sep. 17, 1979, Ser. No. 76,222

Int. Cl.³ G01N *21/64, 33/48*

U.S. Cl. 356—39 **7 Claims**



1. Photometric apparatus for determining particulate concentration in whole blood suspended in a liquid solution, said particulate having a visible radiation response to interactive radiation, the apparatus comprising, a transparent envelope for containment of a liquid solution having suspended therein particulate components of blood, a body having an internal cavity of sufficient size so as to surround and support said envelope, said body containing a relatively restrictive passage communication between the internal cavity of said body and the exterior surface of said body, said body having the characteristic of absorbing radiation at the wavelength of the visible radiation, and means positioned to intercept the visible radiation via said restrictive passage for detecting at least a portion of the radiation spectrum at the wavelength of the visible radiation, and for indicating particulate concentration in response thereto, said body being comprised of Nylon IV dyed to render said body absorbent of radiation across the entire visible and ultra-violet spectrum.

4,279,507

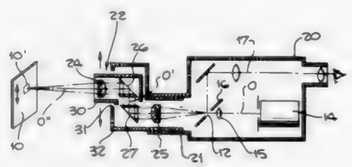
SPATIAL SCANNING MEANS FOR A PHOTOMETER

Thomas H. Bulpitt, Northridge, Calif., assignor to Kollmorgen Corporation, Hartford, Conn.

Filed Aug. 27, 1979, Ser. No. 69,779

Int. Cl.³ G01J *1/04*; G02B *27/17*

U.S. Cl. 356—225 **10 Claims**



7. In combination with a radiant energy measuring meter having a measuring aperture, the provision of:

an optical scanning system comprising

laterally and longitudinally spaced first and second lens means;

a pair of prisms between said first and second lens means for folding the optical axes of both lens means along a coincident laterally extending optical axis portion between said prisms;

one of said lens means being a collimating lens whereby collimated light is transmitted along said optical axis portion between said prisms,

and means for mounting said one of said lens means and its associated prism for movement relative to the lateral optical axis portion.

4,279,508

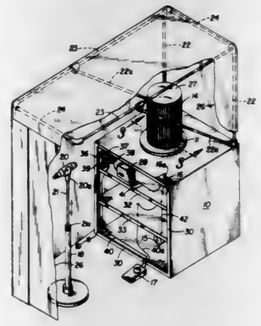
METHOD AND APPARATUS FOR TESTING AIR FILTERS AND THE LIKE

Herbert L. Everroad, 9398 Fallen Rock Rd., Conifer, Colo. 80033

Filed Jun. 29, 1979, Ser. No. 53,272

Int. Cl.³ G01N *21/88*

U.S. Cl. 356—237 **13 Claims**



7. An apparatus for testing air filters and the like to locate holes therein which comprises:

rotatable means for supporting a cylindrical air filter to be tested in an upright position and for rotation about its central axis,

a light source,

means for supporting said light source for movement along the central axis of said rotatable means, and

motor-actuated means for moving said supporting means along said axis to locate said light source in selected positions.

4,279,509

ZERO VOLUME FLOW CELL

George M. Daffern, Sunnyvale, Calif., assignor to Syva Company, Palo Alto, Calif.

Filed Dec. 5, 1979, Ser. No. 100,587

Int. Cl.³ G01N *21/05, 21/13*

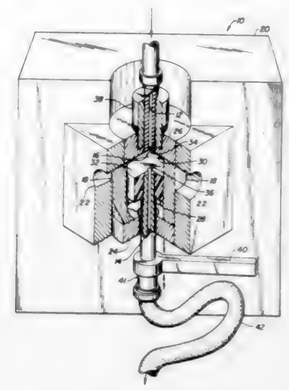
U.S. Cl. 356—246 **10 Claims**

1. A flow cell apparatus having a fluid flow path through an enclosed optical viewing region having optical viewing windows, said flow cell comprising:

first fluid access means to said viewing region;

second fluid access means to said viewing region; and

means having a conduit therethrough and movable within said viewing region for collapsing said viewing region to substantially zero volume while maintaining said fluid flow path between said first fluid access means and said second fluid access means such that said collapsing means



can clear said viewing region of fluid and said flow path can be flushed by a minimal volume of a cleaning fluid.

4,279,510

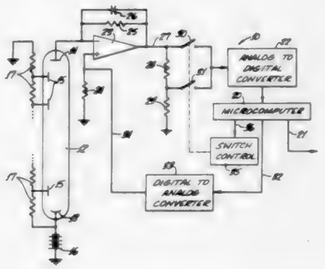
SPECTROPHOTOMETER WITH IMPROVED PHOTOMULTIPLIER TUBE DARK SIGNAL COMPENSATION

James R. Brown, Garden Grove, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Oct. 19, 1979, Ser. No. 86,389

Int. Cl.³ G01J *3/00*

U.S. Cl. 356—319 **8 Claims**



1. In a spectrophotometer including a source of light, a detector responsive to said light for producing an analog signal proportional to the intensity thereof, an analog-to-digital converter, a signal path from said photomultiplier tube to said converter, said converter producing a digital signal as a function of said analog signal, and calculator means responsive to said digital signal for generating a signal for compensating for the dark current of said photomultiplier tube, the improvement comprising:

means for increasing the gain of said signal path by a factor of n during calculation of the value of said compensating signal.

4,279,511

PHOTOMETRIC ABSORPTION DETECTOR

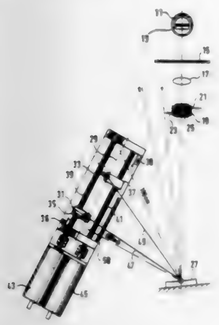
Alfred Maute, Holzgerlingen; Konrad Teitz, Pfinztal-Berghausen; Klaus Baier, Karlsruhe, and Hans Heid, Bammental-Heidelberg, all of Fed. Rep. of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 840,437, Oct. 7, 1977, abandoned. This application Mar. 30, 1979, Ser. No. 25,688

Claims priority, application Fed. Rep. of Germany, Nov. 6, 1976, 2651086

Int. Cl.³ G01J 3/42

U.S. Cl. 356—328 3 Claims



1. A photometric absorption detector comprising:
- a light source including a first diaphragm for emitting a light beam from the diaphragm;
- a test cell disposed in the light beam and having a bore for receiving a sample of material;
- a lens disposed in the light beam between said light source and said test cell for forming a scaled-down image of said first diaphragm in the bore of said test cell, said image being spaced apart from the interior walls of said bore;
- means for spectroscopically dispersing the light emerging from the test cell;
- a second diaphragm disposed in the light beam between said light source and said lens for forming an image of said second diaphragm on said dispersing means;
- photodetector means in the field of the dispersed light for detecting the absorption of certain wave length ranges of the light due to the sample material, said photodetector means including at least two individual detectors independently displaceable with respect to one another; and
- means for selectively displacing each of said individual detectors within said field of dispersed light so that different wave length ranges can be detected, said displacing means including an independent drive mechanism for each detector.

4,279,512

METHOD OF MEASUREMENT

David F. Tunstall, Redcar, England, assignor to Tioxide Group Limited, Billingham, England

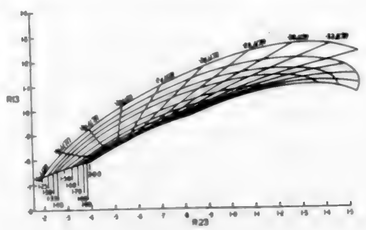
Filed Feb. 25, 1980, Ser. No. 124,331

Claims priority, application United Kingdom, Mar. 21, 1979, 09917/79

Int. Cl.³ G01N 15/02

U.S. Cl. 356—335 17 Claims

1. A method of measuring the mean particle size and/or standard deviation of particles which comprises forming a suspension of said particles in a continuous medium wherein the ratio of refractive index of the particles to that of the medium is at least 1.50, illuminating a portion of the suspension with beams of radiation of wavelengths R_1, R_2 and R_3 and measuring the amounts of non-scattered radiation passing through the suspension, illuminating a portion of the continuous medium free of said particles with beams of radiation having respectively wavelengths of R_1, R_2 and R_3 and measuring the amounts of non-scattered radiation passing through the



portion of continuous medium for each wavelength, from the measurements so made obtaining the attenuation ratios R_{13} and R_{23} according to the formulae:

$$R_{13} = \frac{\text{Attenuation by particles at wavelength } R_1}{\text{Attenuation by particles at wavelength } R_3}$$

$$R_{23} = \frac{\text{Attenuation by particles at wavelength } R_2}{\text{Attenuation by particles at wavelength } R_3}$$

comparing the so measured attenuation ratios R_{13} and R_{23} with a set of previously calculated values of R_{13} and R_{23} for the particular continuous medium and for a selection of chosen mean particle sizes and/or standard deviations and thereby obtaining the mean particle size and/or standard deviation corresponding to the measured value of R_{13} and R_{23}.

4,279,513

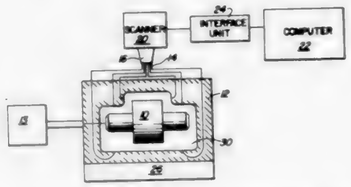
OPTICAL INSPECTION SYSTEM FOR LARGE PARTS AND FOR MULTIPLE MEASUREMENTS

Billy J. Tucker, Skillman, N.J., assignor to Sangamo Weston, Inc., Atlanta, Ga.

Filed Apr. 2, 1979, Ser. No. 25,827

Int. Cl.³ G01B 11/02, 11/00

U.S. Cl. 356—387 14 Claims



1. An optoelectronic system for simultaneously measuring dimensions in at least two planes of a three dimensional workpiece comprising:
- a mount for receiving and orienting said workpiece;
- a plurality of fiber optic bundles each having an object end positioned proximate to selected areas of said workpiece, said object ends of said bundles being held in a fixed position relative to each other in said mount, wherein each fiber optic bundle forms a separate image of a selected edge of said workpiece;
- a scanner having a light sensitive photocathode optically coupled to receive the plurality of separate images formed by said fiber optic bundles, said bundles forming a collective image of said separate workpiece edge images in a fixed position on the photocathode of said scanner, said scanner being arranged to scan only those areas of said photocathode upon which said collective image is formed and to generate electrical signals corresponding to detected positions of said images of said workpiece edges; and
- a processor receiving said electrical signals for determining selected measurements of said workpiece from said detected positions of the images of said workpiece edges.

4,279,514

APPARATUS FOR THE ANALYSIS OF TEST TAPE

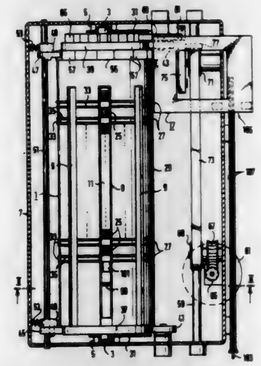
Reinhard Blümel; Jürgen Deaker; Ernst Markart; Werner Trapp; Michael Tutzer, and Reinhard Woznik, all of Munich, Fed. Rep. of Germany, assignors to Labora Mannheim GmbH für Labortechnik, Mannheim, Fed. Rep. of Germany

Filed Jan. 16, 1979, Ser. No. 3,857

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1978, 2803849

Int. Cl.³ G01N 21/55, 21/00

U.S. Cl. 356—445 36 Claims



1. Apparatus for analyzing test tapes having test areas arranged adjacent each other therealong, particularly suited for urinalysis comprising: tape carrier means including at least one drum mounted for rotation about an axis; receptacle means defined on said drum for receiving and holding therein test tapes to be analyzed, said receptacle means comprising a plurality of longitudinal receptacles angularly spaced apart in the direction of rotation of said drum; measuring means for sensing said test areas of said test tape and for deriving therefrom analytical data, said measuring means including light source means and means for sensing light reflecting characteristics of said test areas; drive means for moving said measuring means longitudinally along said drum generally parallel to said axis to effect scanning of test tapes contained in said receptacles by said measuring means; guide means for effecting guided movement of said measuring means relative to said tape carrier means along said receptacles; and indexing means for effecting stepped rotation of said drum to individually bring test tapes contained in said receptacles into registry with said measuring means to enable scanning of said tapes by said measuring means; and indexing means including means in driven engagement with said drive means arranged to periodically effect said stepped rotation of said drum in accordance with a predetermined scanning cycle of said test tapes by said measuring means.

4,279,515

EXTRUDER WITH EXCHANGEABLE HOUSING INSERT

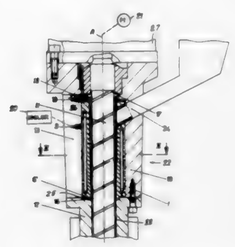
Alfred Effenberger, Leinfelden-Echterdingen, and Hermann Staehle, Stuttgart, both of Fed. Rep. of Germany, assignors to Staehle Maschinenbau GmbH, Leinfelden-Echterdingen, Fed. Rep. of Germany

Filed Jun. 11, 1979, Ser. No. 47,777

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1978, 2825825

Int. Cl.³ B29B 1/06

U.S. Cl. 366—76 10 Claims



1. An extruder comprising:
- a housing extending along an axis and having integral upstream and downstream housing portions, said housing formed at said downstream housing portion with a radially closed downstream bore portion centered on said axis and at said upstream housing portion upstream from said downstream portions with a recess opening only in one radial direction from said axis and communicating with said downstream bore portion;
- an insert snugly receivable in said recess, said insert being formed with a throughgoing passage forming an upstream bore portion and with a radially extending inlet opening into said passage;
- means for releasably and tightly securing said insert in said upstream housing portion in said recess against angular and axial movement therein with said bore portions coaxial; and
- a worm extending axially through both of said bore portions.

4,279,516

CONTAINER FOR PASTEURIZING SLUDGE

Erich Zeltner, Gockhausen, Switzerland, assignor to Von Roll AG, Gerlafingen, Switzerland

Filed Jun. 20, 1979, Ser. No. 50,493

Claims priority, application Switzerland, Jun. 26, 1978, 6950/78

Int. Cl.³ B01F 7/24
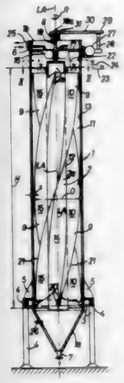
U.S. Cl. 366—171 8 Claims

1. An apparatus for pasteurizing sludge, comprising:
- a substantially cylindrical pasteurization container adapted for conducting a longitudinal flow of sludge through a passage thereof from an upper longitudinal end to a lower longitudinal end, said container having a longitudinal dimension from said upper end to said lower end which is greater than the transverse dimension of the diameter thereof and having a longitudinal axis disposed at a transverse center thereof and extending longitudinally from said upper end to said lower end;
- an upper inlet disposed at said upper end of said pasteurization container and adapted to conduct sludge into said pasteurization container;
- a lower outlet disposed at said lower end of said pasteurization container and adapted to discharge treated sludge from said pasteurization container;
- means for supplying sludge to said upper inlet at a predetermined pasteurization temperature;
- a central guide member rotatably disposed within said pas-

teurization container substantially along said axis thereof, said guide member having the shape of a geometric solid of revolution and having an axis of rotation coincident with said container axis;

motor means for rotating said guide member in a predetermined direction about said guide member axis; and

a plurality of helical blades wound around said guide member and secured thereto, said blades extending from said



upper end to said lower end to divide said passage into a plurality of individual helical channels coextensive in length with said blades, said blades forming deflectors for said sludge, said blades having a radial dimension substantially equal to the transverse distance from said guide member to an inner wall of said passage; the pitch direction of said helical blades from said inlet to said outlet being the same as said direction of rotation.

4,279,517

MIXING APPARATUS FOR CHEMICALLY REACTING FLUID COMPONENTS, PARTICULARLY POLYURETHANE-FORMING COMPONENTS

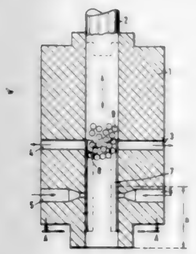
Josef Wallner, Holzkirchen, and Lothar Metzinger, Osnabrück, both of Fed. Rep. of Germany, assignors to Elastogran Maschinenbau GmbH & Co., Munich, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 67,449

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838798

Int. Cl.³ B01F *5/04*; B29D *27/02*

U.S. Cl. 366—177 **8 Claims**



1. A mixing apparatus for chemically reacting fluid components, preferably polyurethane-forming components, the apparatus having a housing including a mixing chamber with inlet ports for the individual components and an outlet port for a mixture of components and return conduits, a control plunger arranged within said mixing chamber, the cross-section of said control plunger conforming to the cross-section of said mixing chamber, said control plunger adapted to be reciprocated from a position in which said plunger clears said inlet ports into a position in the vicinity of said outlet port in which position said plunger blocks communication between said inlet ports and said mixing chamber, said control plunger having spaced return grooves extending along the outer periphery thereof for connecting said inlet ports to the return conduits in synchronism with the blocking of said inlet ports toward said mixing chamber, the control plunger having a wall surface portion disposed intermediate said return grooves said wall surface portion being provided with separate recesses with closed bottoms, said recesses being spaced from each other and each of said recesses having a width in a direction peripherally of the plunger, the widths of adjacent recesses lapping each other to receive leakage of the fluid components which upon reaction may bear against and slide along the inner periphery of the mixing chamber.

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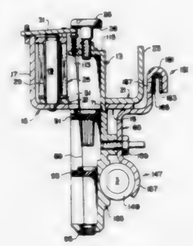
DOT MATRIX PRINT HEAD

James E. Blomquist, and Robert H. Wilczewski, both of 203 E. Main, Riverton, Wyo. 82501

Filed May 14, 1979, Ser. No. 38,724

Int. Cl.³ B41J *3/12*

U.S. Cl. 400—124 **2 Claims**



1. In a dot matrix printer mechanism having a print head extending along a first axis, an elongated head shaft extending along a second axis spaced from a platen, and a main guide bearing movably mounted about said head shaft, the improvement comprising:

means for removably clamping said print head to said main guide bearing in a fixed position relative thereto with said first and second axes substantially perpendicular, said clamp means including a first clamp portion fixed to said print head, a second clamp portion, and means for mounting said second clamp portion adjacent said first clamp portion for movement toward and away therefrom whereby said print head can be easily and quickly attached to said main guide bearing in a fixed position relative thereto by positioning said first and second clamp portions on opposing sides of said main guide bearing and moving said first and second clamp portions toward each other to tightly grip said main guide bearing therebetween and prevent relative motion between said print head and said main guide bearing and said print head can be easily and quickly removed from engagement with said main guide bearing by moving said first and second clamp portions away from each other.

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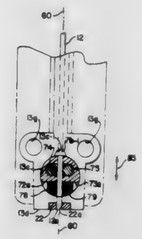
DOT MATRIX PRINTING DEVICE EMPLOYING NOVEL IMAGE TRANSFER TECHNIQUE FOR PRINTING ON SINGLE PLY OR MULTIPLE PLY PRINT RECEIVING MEDIA

John Shiurila, Londonderry, N.H., assignor to Centronics Data Computer Corp., Hudson, N.H.

Filed Jun. 1, 1979, Ser. No. 44,758

Int. Cl.³ B41J *3/12, 27/20*

U.S. Cl. 400—124 **30 Claims**



1. Printing means for forming a pattern upon a print-receiving medium comprising:

a reciprocally-mounted elongated printing member and driving means normally maintaining said printing member in a first position with the printing tip of said printing member displaced from said print-receiving medium and for urging said printing member in a first direction to cause said printing tip to engage said print-receiving medium when said driving means is activated;

guiding means guiding the forward end of said elongated printing member to freely enable the reciprocating action of said printing member, said guiding means having a bore, said bore having a contour substantially conforming to the cross-sectional configuration of the printing member which is guided by said bore;

ink supply means removably mounted below said printing member;

slender elongated wick means comprising at least one wicking member extending between said ink supply means and said elongated printing member for supplying ink from said ink supply means upwardly by capillary action through said wick means and upon a longitudinal surface of said elongated printing member which slidably engages said wick means as the elongated printing member undergoes said reciprocating action, whereby ink is transferred to a portion of the longitudinal surface of the printing member which enters into said bore when said driving means is actuated; and

slender elongated absorber means formed of a porous, highly absorbent material positioned between said wick means and said guiding means and displaced from said ink supply means; said absorber means being slidably engaged by said elongated printing member as the elongated printing member experiences said reciprocating action, said absorber means being arranged to absorb ink derived from said wicking means and transferred thereto by said elongated printing member to regulate the flow of ink along said elongated printing member delivered by said wick means toward the printing tip thereof and to provide intermediate storage for ink which enables printing to occur even after said ink supply means is exhausted.

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PRINT MECHANISM FOR WIRE PRINTER

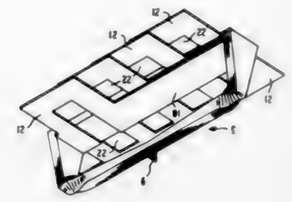
John S. Heath, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 12, 1979, Ser. No. 47,852

Claims priority, application United Kingdom, Jun. 19, 1978, 27243/78

Int. Cl.³ B41J *3/12*

U.S. Cl. 400—124 **17 Claims**



1. A print mechanism for a wire printer comprising:

a plurality of print elements;

a plurality of individually energizable actuator assemblies each of which includes a primary winding, an associated closed-loop secondary winding having at least a portion thereof movable between a first and a second position, and a transformer core for magnetically coupling the primary winding to its associated secondary winding;

means for generating a static magnetic field across each of the aforesaid movable portions of the secondary windings;

means for fixedly connecting each of said plurality of print elements to a respective one movable portion of each secondary winding; and

means for energizing a primary winding to induce a current in an associated secondary winding so that such induced current reacts with said static magnetic field to produce a force on the movable portion thereof in a predetermined direction from the first to the second aforesaid position, and thereby effect a corresponding movement of the print element from a retracted non-print position to an extended print position;

said secondary winding being of the form of a self-supporting single-turn closed loop of an elongated substantially rectangular shape of thin sheet material, the sheet material forming two long limbs and two short side limbs of the rectangle lying in planes at right angles to the plane of the loop, the first one of said long limbs being twisted at its ends with respect to the short limbs so that the first long limb is flexible and may be deflected in the plane of the loop, the static magnetic field being applied across the portion in a direction such that induced secondary winding current creates a force to deflect the portion from a stable rest position to an unstable deflected position;

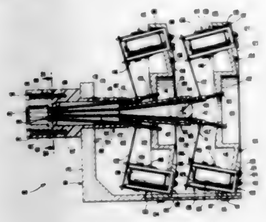
a plurality of said loops, each of the same general shape but of slightly differing dimensions, being stacked together, electrically insulated from each other, with the deflectable limbs of each of said loops closely parallel to each other, so that the print elements mounted on said deflectable limbs are aligned in a print row across the width of the stack, said other long limb of each loop being supported one upon the other and having a crank portion defining an aperture between the crank and the remainder of the stack of loops for receiving a transformer core, the cranks being disposed between adjacent loops so as to provide sufficient space to accommodate the associated transformer cores.

4,279,521

WIRE MATRIX PRINT HEAD

Drew A. Kigattinger, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 2, 1979, Ser. No. 90,942
Int. Cl.³ B41J 3//12
U.S. Cl. 400—124 4 Claims



1. A wire matrix print head comprising:
a first group of wires;
a second group of wires;
first guide means having said first group of wires and said second group of wires extending therethrough and supported thereby for guiding each of said wires of said first and second groups;
a first group of a plurality of magnetic means, each of said magnetic means of said first group causing activation of one of said wires of said first group to cause printing by said activated wire;
first mounting means to mount said magnetic means of said first group on the circumference of a circle and substantially equally angularly spaced from each other;
a second group of a plurality of magnetic means disposed further from the printing ends of said wires of said first and second groups than said magnetic means of said first group, each of said magnetic means of said second group causing activation of one of said wires of said second group to cause printing by said activated wire;
second mounting means to mount said magnetic means of said second group on the circumference of a circle and substantially equally angularly spaced from each other;
each of said magnetic means of said second group has its longitudinal axis out of alignment with the longitudinal axis of each of said magnetic means of said first group;
second guide means to guide only each of said wires of said second group between the activating end of each of said wires of said second group and said first guide means;
each of said wires of said first group having its end adjacent said magnetic means of said first group disposed on the circumference of a circle;
each of said wires of said second group having its end adjacent said magnetic means of said second group disposed on the circumference of a circle;
each of said magnetic means of said first group and said second group including:
a coil;
and a pivotally mounted arm having one end extending inwardly towards the center of the circle on which said magnetic means are disposed;
said one end of each of said arms of said magnetic means of said first group being disposed on the circumference of a circle so as to cause movement of one of said wires of said first group when said arm is moved by energization of said coil;
said one end of each of said arms of said magnetic means of said second group being disposed on the circumference of a circle to cause movement of one of said wires of said second group when said arm is moved by energization of said coil;
separate resilient means acting on each of said wires of said first and second groups to urge each of said wires to a non-print position in which each of said wires contacts said corresponding arm without being connected thereto so that each of said wires can be moved by activation of said corresponding arm by said corresponding coil, each of said separate resilient means returning said corresponding arm to its inactive position when said corresponding coil is deenergized to return said corresponding wire to its non-print position;
said first guide means including:
an elongated housing having a first set of passages and a second set of passages extending therethrough;
each passage of said first set of passages supporting one of said wires of said first group;
each passage of said second set of passages supporting one of said wires of said second group;
and said first set of passages terminating in a circle at their ends remote from the printing ends of said wires;
said second guide means including:
an elongated housing having a set of passages extending therethrough supporting each of said wires of said second group;
and said set of passages terminating in a circle at their ends remote from the printing ends of said wires;
said housing of said first guide means having an opening at its end remote from the printing ends of said wires and of smaller diameter than the diameter of the circle in which said first set of passages terminates;
said housing of said second guide means having a portion extending into said housing of said first guide means through said opening in said housing of said first guide means for support by said housing of said first guide means;
said set of passages of said housing of said second guide means being continuous with said second set of passages of said housing of said first guide means and supporting said wires of said second group from adjacent said magnetic means of said second group to said second set of passages of said housing of said first guide means;
said first and second sets of passages of said housing of said first guide means and said set of passages of said housing of said second guide means cooperating to change the relation of said wires of said first and second groups from a circular configuration at their activating ends to a matrix of rows and columns at their printing ends with each of said wires being spaced from all of the other of said wires throughout its length;
said housing of said first guide means supporting each of said separate resilient means acting on each of said wires of said first group to maintain each of said wires of said first group in contact with said corresponding arm when said wire is in its non-print position;
and said housing of said second guide means supporting each of said separate resilient means acting on each of said wires of said second group to maintain each of said wires of said second group in contact with said corresponding arm when said wire is in its non-print position.

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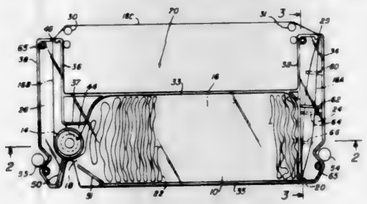
HIGH SPEED PRINTER CARTRIDGE

Edward H. Yonkers, Newton, Mass., assignor to Data Packaging Corporation, Cambridge, Mass.

Filed Dec. 7, 1978, Ser. No. 967,385
Int. Cl.³ B41J 33/10
U.S. Cl. 400—196.1 11 Claims

1. A ribbon cartridge for use with a high speed printer comprising:
cartridge defining parts including at least a cover and base together cooperatively defining a substantially enclosed ribbon storage compartment,
said ribbon storage compartment also being defined by upright walls extending between the cover and base and at least in part defining a compartment inlet and a compartment outlet,

an endless ribbon loop, the majority of which is disposed in the compartment,
means, including at least in part the cover and base, defining an ingress channel leading to the inlet of the compartment at the inlet end of the compartment and extending transverse to the length of the compartment and defining an ingress leg with a free end spaced from the compartment,
means, including at least in part the cover and base, defining an egress channel leading from the outlet of the compartment at the outlet end of the compartment extending transverse to the length of the compartment and defining an egress leg with a free end spaced from the compartment,
said ingress and egress legs at their free end forming a support for the ribbon with the ribbon free from support therebetween,
the length of the support free section of ribbon being comparable to the length of the storage compartment to maximize said free section length,
means in said egress channel for providing a 180° rotation of



said ribbon as said ribbon traverses through the egress channel,
said means for providing rotation comprising a pair of centrally disposed ribs each extending in opposite directions, one rib from the base and the other rib from the cover, said ribs being each of a height on the order of one-half the channel height and spaced along the egress channel with a small gap therebetween,
said means for rotation further comprising end ribs, one end rib at each end of the egress channel and having opposite sloped walls,
and means for receiving drive means of the printer for driving the endless ribbon loop including a pinch roller means disposed directly at and in part defining the compartment inlet,
said upright walls including a U-shaped wall extending between the cover and base and having the pinch roller means supported adjacent thereto, said cover and base being notched to receive said drive means, said notch and U-shaped wall being disposed on opposite sides of said pinch roller means.

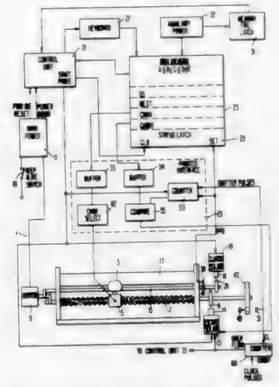
4,279,523

POWER RECOVERY APPARATUS FOR AN ELECTRIC TYPEWRITER

Terry W. Ringle, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 14, 1979, Ser. No. 75,391
Int. Cl.³ B41J 19/00
U.S. Cl. 400—279 8 Claims

1. Power recovery apparatus for returning the printing element of a printer to a defined position on a print line when power is returned to the printer following a loss of power to the printer during a printing operation, comprising:
displacement means for moving said printing element along said print line;
memory means for storing character identity codes representative of selected characters and address amounts representative of positions of the characters on a print line;
means for defining a print cycle for each character, the cycle having a sequence of print operations for printing the character, said sequence of operations including an initiation operation for starting the print cycle, a completion operation for printing the character and an intermediate operation defining a point in time after which the character will be satisfactorily printed even if power to the printer is lost; and
control means for operating said memory means to store particular character codes and address amounts represen-



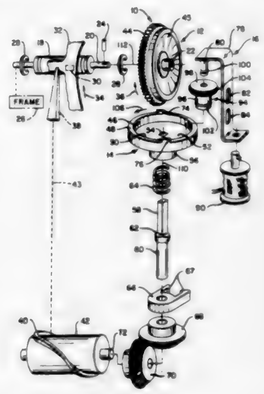
tative of said print operations, said control means responsive to a loss and a subsequent return of printer power for accessing at least the particular character codes and address amounts stored in said memory means at the time of the power loss and operating said displacement means to return said printing element to the print line position of the character following the last character that was printed before said power loss occurred.

4,279,524

APPARATUS FOR ADVANCING A RECORD MEDIUM

William I. Chambers, Wichita, Kans., assignor to NCR Corporation, Dayton, Ohio

Filed Sep. 17, 1979, Ser. No. 76,055
Int. Cl.³ B41J 19/96
U.S. Cl. 400—564.1 12 Claims



1. An apparatus comprising:
a rotatable member having means thereon for connection to an output member and also having a periphery thereon;
said rotatable member also having teeth on said periphery and also having a driving surface thereon;

a rotatable driving unit having a periphery and also having means for rotating said driving unit;

said rotatable driving unit having at least one driving member extending over a portion of the periphery of said driving unit to momentarily engage said teeth during each rotation of said rotatable driving unit and thereby incrementally rotate said rotatable member as said driving unit is rotated by said rotating means; and

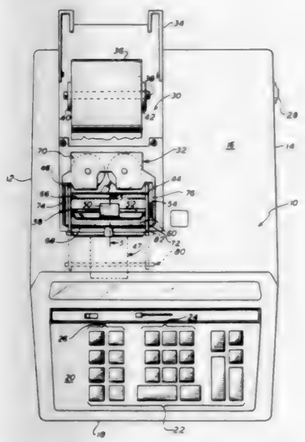
a coupling means moveable between first and second positions whereby said coupling means is operatively disconnected from said driving unit and said rotatable member when in said first position and whereby said coupling means when in said second position is effective to disconnect said driving member from said teeth and to operatively connect said driving unit with said driving surface to continuously rotate said rotatable member as said driving unit is rotated.

4,279,525

CALCULATOR PRINTER HAVING AN ACOUSTIC NOISE SUPPRESSOR

John N. Johnston, North Plainfield, N.J., assignor to Litton Business Systems, Inc., Morris Plains, N.J.

Filed Dec. 3, 1979, Ser. No. 99,520
Int. Cl.³ B41J *11/08, 11/13*
U.S. Cl. 400—656 **5 Claims**



1. In a printer mechanism adapted to receive a quantity of printer paper adapted to have indicia printed thereon;

printing means in said printing mechanism selectively operable for printing indicia on the printer paper by impact against the printer paper;

a platen for supporting the printer paper against the impact of said printing means, said platen having a front surface facing said printing means and a rear surface behind said front surface;

the improvement comprising: means comprised substantially of lead for attenuating acoustical noise fastened to said platen with a thermoplastic compound and extending continously along the length of the rear surface of said platen, whereby acoustical noise generated by the impact of said printing means against the printer paper supported by said platen is attenuated.

4,279,526

RECTANGULAR CONTAINER/APPLICATOR PACKAGE FOR DIMENSIONALLY STABLE SOLID PAINTS AND RELATED MATERIALS

Robert G. McMullan, Oakville, Canada, assignor to SCM (Canada) Limited, Don Mills, Canada

Filed Feb. 8, 1979, Ser. No. 10,382
Int. Cl.³ B43K *19/14*
U.S. Cl. 401—97 **5 Claims**



1. A rectangular box-like container applicator-package for storing and applying a solid, generally rectangular, dimensionally stable block of a gel that is deformable on contact with a surface on which said gelled material may be deposited by wiping an exposed edge of the gel block over the surface while pressing it against the surface, which package can serve when opened as an applicator-holder for the gel block, said container package comprising sheet material and having a series of lines of weakness circumscribing the perimeter of the container and spaced from each other, said lines of weakness being parallel to one end of the container and to each other, and arranged perpendicular to the longitudinal axis of the container, said lines of weakness defining a series of strips there between respectively, each strip being individually removable from the container, whereby one end strip of the box-like container may be removed to open said package and to expose one end of the gel block for use, while the other end of the container may be grasped to permit use of that end of the container as an applicator handle for the gel block, said container having disposed therein, at the end thereof to be grasped, a false bottom structure, said false bottom structure including a base portion that conforms to the shape of the container wall and is engaged against it at the end of the package that is to be grasped and that reinforces the container against pressure that may be exerted while grasping the container to apply the gel, said false bottom structure also being provided with means that project from said base portion into and that are embedded in the gel block to secure the gel block against movement relative to said false bottom structure, wherein said means comprise a plurality of ribs with enlarged upper spur portions that project into the interior of the package and into the gel block from said base portion of the false bottom structure.

4,279,527

LIQUID DISPENSER AND APPLICATOR

Walter Moe, 13039 Sky Valley Rd., Los Angeles, Calif. 90049, and Charles M. Diker, 944 Fifth Ave., New York, N.Y. 10021

Continuation-in-part of Ser. No. 901,293, May 1, 1978, abandoned. This application Nov. 6, 1979, Ser. No. 92,058
Int. Cl.³ A46B *11/04*
U.S. Cl. 401—277 **1 Claim**

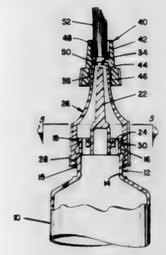
1. In a liquid dispenser and applicator for use with highly viscous fluids, the combination comprising:

a squeeze-type container formed with a single opening;

a neck member permanently affixed to the container at said single opening to the interior of the container, said neck member having a generally needle-shaped portion extending axially outwardly relative to said single opening, said neck member also including a plurality of arcuate segmented apertures to permit the rapid filling and dispensing of the fluid from the container;

a generally hollow cap member threadably coupled at one end thereof to said neck member, the other end of said cap member having an opening aligned for passage therethrough of said needle-shaped portion and for closure thereagainst in a manner such that said needle-shaped portion projects beyond the exterior of said cap member with said cap member fully threaded on said neck member, said cap member having a reduced diameter tip adjacent to the opening thereof;

brush means detachably coupled to said reduced diameter tip of said cap member, said brush means having an aperture in general alignment with the opening in said reduced



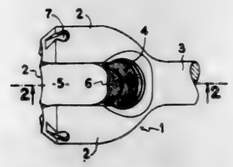
diameter tip for receiving the projecting end of said needle-shaped portion with said cap member fully threaded on said neck member and for enabling the fluid to flow to the interior of said brush means with said cap member partially unthreaded for applying the fluid to a surface, said brush means including an adapter member having first and second generally cup-shaped openings with a common bottom, said first cup-shaped opening having a rib portion for engaging a rib portion on said reduced diameter tip of said cap member, and said second cup-shaped opening having the brush bristles secured therein.

4,279,528

TULIP MEMBER FOR A TRIPOD JOINT AND PROCESS FOR PRODUCING THE SAME

Jacques Mangiavacchi, Chatou; Alain Chauvelot, Boisemont, and Claude Dolain, Les Mureaux, all of France, assignors to Glaenzer Spicer, Poissy, France

Filed Aug. 29, 1979, Ser. No. 70,731
Claims priority, application France, Sep. 18, 1978, 78 26713
Int. Cl.³ F16D *3/00*
U.S. Cl. 403—57 **6 Claims**



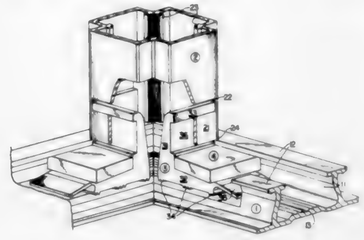
1. In a metal tulip member for a tripod type joint, the tulip member comprising a shaft, branches which are connected to the shaft in connection regions and define raceways; the improvement wherein the tulip member is completely carburized except in said connection regions, which regions are substantially devoid of any carburizing.

4,279,529

PROFILE SYSTEM

Harald Lande, Avaldsnes, and Leif Johannessen, Konsmo, both of Norway, assignors to Norsk Hydro a.s., Oslo, Norway

Filed Nov. 21, 1979, Ser. No. 96,558
Claims priority, application Norway, Nov. 29, 1978, 784009
Int. Cl.³ F16B *9/00*
U.S. Cl. 403—246 **12 Claims**



1. A structural assembly comprising:

an elongated support member having an end and a wall extending from said end, said wall having therein, and a location spaced from said end, a transverse opening;

an elongated beam to be connected to said support member at said end thereof, said beam having first and second surface portions;

joining means for connecting said beam to said end of said support member such that said beam extends outwardly at an angle with respect to said wall of said support member;

said joining means comprising an angle-shaped member having first and second outwardly extending wings, said first wing having at least one transverse projection extending through said transverse opening in said wall of said support member, said second wing having first and second surfaces, said second wing extending along said beam with said first surface of said second wing confronting said first surface portion of said beam; and

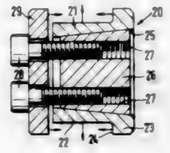
wedge means, wedged in a location between said second surface of said second wing and said second surface portion of said beam, for urging said angle-shaped member such that said first surface of said second wing is urged toward said first surface portion of said beam and such that said transverse projection of said first wing is urged into said transverse opening in said wall of said support member.

4,279,530

FLANGED CONNECTION FOR SHAFTS OR TUBES

Ralph Mullenberg, Im Wiesengrunde 6, 4048 Grevenbroich 12, Fed. Rep. of Germany

Filed Jul. 23, 1980, Ser. No. 171,486
Claims priority, application Fed. Rep. of Germany, Jul. 24, 1979, 7921137[U]
Int. Cl.³ F16D *1/00*
U.S. Cl. 403—337 **3 Claims**



1. A connection for coupling elongated members together at

adjoining ends of the members, each member having a longitudinal axis, the connection comprising:

a pair of flanges, one flange extending radially from the adjoining end of one elongated member, the other flange extending radially from the adjoining end of the other elongated member, said flanges abutting each other in face-to-face engaging relationship;

a plurality of circumferentially spaced bores extending through said flanges in directions parallel to the longitudinal axes of the elongated members, at least some of said bores of said one flange being aligned with at least some of said bores of said other flange to provide sets of aligned bores, said bores being defined by inwardly facing surfaces;

a plurality of fasteners, said fasteners having substantially solid cross-sections, each fastener extending through a set of aligned bores, each fastener including means for effecting radial expansion thereof, said fasteners being expandable by said expansion means into clamped conditions in which they abut against the inwardly facing surfac e of said bores, each said fastener including interfitting conical members, said expansion means including said interfitting conical members, each said fastener including:

a barrel having an external surface approximately corresponding in diameter to said inwardly facing surfaces of said bores; said barrel also having a collar at one end which extends radially outwardly of said external surface, said barrel further including an internal conical passage therethrough which converges inwardly in a direction away from said collar;

a conical plug disposed in said conical passage, said conical plug having an opening therein, said barrel and conical plug constituting said interfitting conical members;

a disk having a diameter exceeding those of said bores in said flanges, said disk engaging said barrel at a side of said barrel opposite said collar, said disk having a hole therein;

a lock screw extending between said disk and said conical plug, said lock screw cooperating both with said hole in said disk and said opening in said conical plug to threadably couple said disk and said conical plug together;

whereby advancement of said lock screw causes said conical plug to move axially in said conical passage of said barrel to, in turn, effect radial expansion of said barrel.

4,279,531
END ASSEMBLY FOR WIRE STRAND
Kenneth G. McKenzie, Hamilton, Canada, assignor to Greening Donald Co. Ltd., Hamilton, Canada
Filed Dec. 18, 1979, Ser. No. 104,945
Claims priority, application Canada, Dec. 22, 1978, 318499
Int. Cl.³ F16G *11/05*
U.S. Cl. 403—267 **7 Claims**

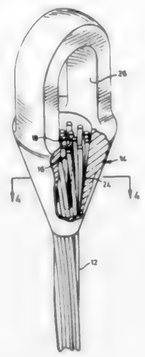
1. An assembly comprising:

a cable having a centre wire and a plurality of wires wound helically about the centre wire in layers, the cable having an end portion;

a serving wrapped about the cable and defining the limit of the end portion;

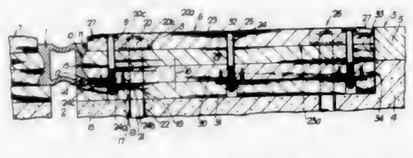
a socket having a conical opening containing a part of the end portion, the opening diverging outwardly away from the serving;

a conical insert positioned in the end portion and having a conical central opening said opening diverging outwardly away from the serving and containing only the centre wire and a filler metal; and



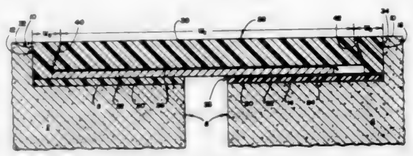
a filler material set in the interstices between the wires and the insert inside the socket.

4,279,532
ROADWAY NOSING UNIT
Henry Miller, deceased, late of London, England, and Desmond Byrne, legal representative, Huntingdon, England, assignors to Acme Flooring Limited, Huntingdon, England
Filed Jun. 29, 1979, Ser. No. 53,516
Int. Cl.³ E01C *11/02*
U.S. Cl. 404—68 **14 Claims**



1. A nosing unit for supporting a flexible seal member in an expansion gap of a roadway, which nosing unit comprises a laminated wood base to be fixed in a rebate formed in the edge of a roadway section adjacent to the expansion gap, and a topping part detachably secured to the base and serving in use of the nosing unit to present part of a road surface adjacent the expansion gap.

4,279,533
ROADWAY EXPANSION JOINT
Charles M. Peterson, Franklin, and Frank M. Lymburner, Romeo, both of Mich., assignors to Harry S. Peterson Co., Inc., Pontiac, Mich.
Filed Feb. 20, 1980, Ser. No. 122,920
Int. Cl.³ E01C *11/06, 11/12*
U.S. Cl. 404—68 **13 Claims**

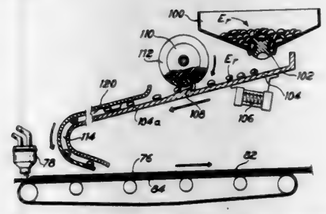


1. In a roadway having concrete sections with upper surfaces aligned to form the roadway surface and spaced from each other to provide an expansion slot, each concrete section having at the end thereof adjacent said slot a recess which extends longitudinally of the slot and which has a bottom surface generally parallel to the roadway surface and a side surface extending from said bottom surface to the roadway surface;

a metal plate bridging said slot, said metal plate being secured to the bottom surface of one of said recesses and being movable relative to the bottom surface of the other of said recesses; and

a unitary elastomeric slab above said metal plate and bridging said slot, said elastomeric slab having an upper surface aligned with the upper surface of said concrete sections and having edge surfaces bonded to the side surfaces of said recesses, said elastomeric slab having a premolded center portion of relatively high elasticity and having edge portions which are molded in situ and which are of relatively low elasticity.

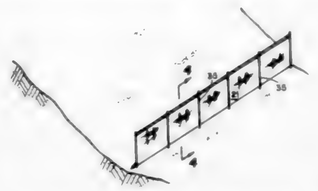
4,279,534
METHOD AND APPARATUS FOR APPLYING HORIZONTAL ROAD MARKING MATERIAL OF HIGH OPTICAL EFFICIENCY
Ludwig Eigenmann, Vacallo, Switzerland, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Jul. 2, 1979, Ser. No. 54,236
Claims priority, application Italy, Jul. 5, 1978, 25381 A/78
Int. Cl.³ E01C *23/16*
U.S. Cl. 404—72 **8 Claims**



1. A method of producing on a road surface area a retro-reflective traffic regulating sign including a plurality of asymmetrical retro-reflective elements having a dome-shaped upper portion adapted for light impingement and retro-reflection and a substantially flat lower portion; the method comprising the steps of applying a road marking receptive layer to a road; advancing a plurality of randomly positioned asymmetrical retro-reflective elements along an element supporting surface; orienting said elements during the advancing movement thereof on said surface so that some of said elements are turned over whereby all the elements abut against said surface by the same one of said portions after said orienting step; and applying said properly oriented elements to said receptive layer, said orienting step being performed simultaneously with said step of applying the road marking receptive layer to thereby form a retro-reflective sign-forming composition on the road.

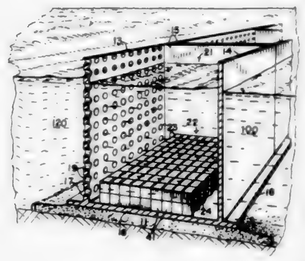
4,279,535
MATERIAL AND SYSTEM FOR MINIMIZING EROSION
Joseph Gagliardi, Westport, Conn., and Charles A. Lee, Knoxville, Tenn., assignors to Mercantile Development, Inc., Westport, Conn.
Filed Oct. 1, 1979, Ser. No. 80,302
Int. Cl.³ E02B *3/04*
U.S. Cl. 405—15 **9 Claims**

1. A material for use as a silt fence, one marginal edge of which is adapted to be buried into the ground and the other marginal on which is adapted to be supported by uprights or the like, above the ground comprising an elongated first strip of material having a relatively uniform porosity which strip of material is fabricated from filaments of less than about 5 denier, an elongated second strip of material fabricated from yarns in a grid pattern, such yarns being in the aggregate of about 3,000 to 7,000 denier per linear inch in each direction and having from 2 to about 8 yarns per inch in each direction, said first and second strips being fabricated from material which does not



readily deteriorate, and said first and second strips being attached together to provide a composite strip, the composite strip having a Frazier air permeability of 100 to 1,000 cubic feet per square foot at a pressure of ½ inch or water.

4,279,536
FLOW-GUIDING MONOLITHIC BLOCKS FOR MARINE STRUCTURES
Gerard E. Jarlan, Rue due Refuge, 78000 Versailles, France
Filed Mar. 7, 1979, Ser. No. 17,561
Claims priority, application Canada, Dec. 15, 1978, 318057
Int. Cl.³ E02B *3/06, 3/12*
U.S. Cl. 405—31 **22 Claims**



1. A monolithic block for dissipating energy of water motion when exposed as an ordered array of a plurality of blocks exposed to the sea, comprising a six-sided body of between one tonne and 20 tonnes weight having one face to be disposed for impingement by sea water and an opposite face spaced from said one face, said one face having recessed therein at least one aperture defined by the intersection with said one face of at least one passage extending through the block and opening into said opposite face, a first pair of faces parallel with each other and intersecting said one face, a second pair of faces parallel with each other and perpendicular to said first pair of faces and intersecting said one face, the said opposite face having recessed therealong a groove, said groove intersecting said at least one passage and intersecting one pair of said pairs of faces, at least portions of the faces of said pairs being disposed in bounding planes defining the body sides.

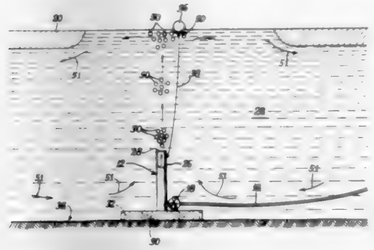
4,279,537
APPARATUS FOR AERATING AND MAINTAINING AN ICE FREE SURFACE AREA ON A BODY OF WATER
William H. Tweedy, P.O. Box 68, Glasford, Ill. 61533
Filed May 21, 1980, Ser. No. 151,922
Int. Cl.³ E02B *15/02*
U.S. Cl. 405—61 **7 Claims**

1. Apparatus for aerating and maintaining a surface area ice free in a body of water such as a pond or lake comprising:

an air diffusion unit comprising an imperforate vertical pipe with a closed bottom end and an open upper end anchored below the surface of said body of water;

an air line extending from a source of air under pressure to the interior of the pipe at the closed bottom end thereof;

the pipe having a large transverse cross-section relative to the cross-section of the air line enabling continual, discrete, large-volume air discharges through repetition of a cycle in which air collects in the bottom of the pipe until



it is displaced by a rapid inrush of water into the top end expelling air in a sudden large volume release followed by a period of no discharge while air collects in the pipe for the next discharge; and

check valve means in a portion of said air line in water which is sufficiently deep to remain permanently unfrozen at the bottom of said body of water, said check valve means thereby maintaining said air line ice free by preventing the back flow of water from said air diffusion unit to below-freezing locations near or above the surface level.

4,279,538

ANTI-POLLUTION AND ANTIFIRE FLOATING BARRIER

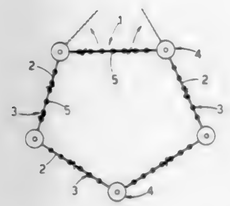
Edoardo Bossa, deceased, late of Rome, Italy (by Maria Piera Ferzero, Loriana Bossa, Ivo Bossa, legal representatives, heirs), assignor to Covalca Plastici S.p.A., Pomezia, Italy

Filed Dec. 13, 1979, Ser. No. 103,058

Claims priority, application Italy, Dec. 19, 1978, 52352 A/78

Int. Cl.³ E02B *15/04*

U.S. Cl. 405—66 **6 Claims**



1. An anti-pollution and antifire barrier to be used on water surfaces or the like, characterized in that it comprises, in combination:

barrier sections (1) consisting of laminar, flexible, vertical wall portions (2) connected by interposed substantially cylindrical vertical floating bodies (3) provided with lower counterweight means (3a);

main barrier elements (4) each connected to at least one barrier section (1) and each constituted of a hollow container with perforated bottom and comprising floating bodies, each container (4) housing a hollow revolving drum (22) slidable up and down along a vertical axis and connected with means adapted to rotate this drum (22) about said vertical axis in both directions, each main barrier element (4) being constituted of a peripheral annular vertical floating caisson (7) having at least one side entrance orifice of a height greater than that of the barrier sections (1) and of a width greater than the maximum thickness of each barrier section (1), in the inner space defined inside the drum (22) being mounted a cylindrical wall (14) housing at the upper part of its inner cavity a floating caisson (15) containing an adjustable amount of a ballast means, while the lower part of this cavity constitutes a seat for receiving an anchoring body (18) in the inoperative position thereof and which is supported by a cable (17) connected to a winch (19) mounted on a platform (13) fixedly connected to the upper part of the main barrier element (4), on this platform being also mounted the devices provided for driving the revolving drum (22).

4,279,539

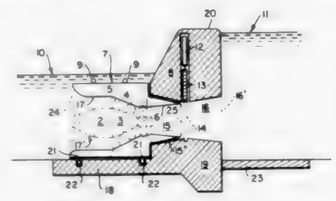
DAM WITH TRANSFORMABLE HYDROENERGETIC ARRANGEMENT

Francisco J. Gutierrez Atencio, Garcia 3101, Diamante Prov. Entre Rios, Argentina

Filed Aug. 17, 1979, Ser. No. 67,318

Int. Cl.³ E02B *9/08*

U.S. Cl. 405—76 **12 Claims**



1. In a fluid storing dam having a main structural body having opposite faces and including means for directing a fluidic flow therethrough, said directing means including a dam body conduit having a dually frustum shaped spatially geometrical configuration flaring substantially from inside said main dam body to both said dam opposite faces to define a pair of adjacent dam conduit branches; the improvement comprising, one or more hydromotive assemblies, each said hydromotive assembly having a conduit, a hydromotive power unit disposed with said assembly conduit for alternately acting upon or being actuated by fluidic flows through said assembly conduit, said assembly conduit having a first open end for admitting fluidic flows and a second open end for discharging fluidic flows, said hydromotive assembly selectively alternatively mounted against each said face of said main dam body with said second open end of said assembly conduit joined within one said dam conduit branch in alignment with the entire said fluidic flow directing means of said dam to form a continuous fluidic flow path through both of the combined hydromotive assembly and fluid storing dam.

4,279,540

COLLAPSABLE DAM

Kyozo Suga, Tokyo; Jinya Iizuka, and Yoshiomi Tsuji, both of Osaka, all of Japan, assignors to Kazuto Nakazawa, General Director Public Works Research Institute Ministry of Construction, Tokyo and Sumitomo Electric Industries, Ltd., Osaka, both of, Japan

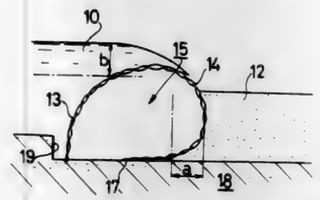
Filed Feb. 9, 1979, Ser. No. 10,773

Int. Cl.³ E02B *7/04*

U.S. Cl. 405—115 **7 Claims**

1. In a deformable dam having an impermeable flexible membrane wall which is water-tightly secured to the bottom and side walls of a river, the improvement comprising: said impermeable flexible membrane wall including at least one hollow bag forming a part of said wall, and means for selective

charging and discharging the hollow bag with a fluid to thereby vary the effective height and length of said dam and



prevent the accumulation of alluvial material under said flexible membrane by having the alluvial material removed by the flow of water over the dam.

4,279,541

STOP END PIECE PARTICULARLY FOR GUTTERS

Peter E. Bruhn, Odder, and Finn U. H. Jensen, Skanderborg, both of Denmark, assignors to Lindab Platisol AB, Bastad, Sweden

Filed May 31, 1979, Ser. No. 44,187

Claims priority, application Sweden, Jun. 5, 1978, 7806560

Int. Cl.³ E04D *13/00*

U.S. Cl. 405—119 **3 Claims**



1. A unitary stop end piece adapted to fit over the end of and permanently close a gutter, said gutter being elongated and having a hollow, generally arcuate cross section, the wall of said gutter extending away from the arcuate edge at the end being closed by said stop end piece being smooth, said wall being thin compared with the radius of curvature of said arcuate cross section, said stop end piece comprising:

a plate;

an edge extending from the periphery of said plate and bent at substantially a right angle with respect to the plane of said plate;

a central portion displaced from the plane of said plate in the direction of said bent edge;

a transitional surface connecting said central portion to said plate along at least a portion of the periphery of said plate and spaced from said bent edge, said transitional surface and said bent edge together defining a channel;

a plurality of teeth extending from said bent edge obliquely into said channel in a direction toward said transitional surface and toward said plate, said teeth terminating a distance from said transitional surface which is less than the thickness of the gutter wall, the end of the gutter to be closed being adapted to be inserted toward said plate into said channel between said transitional surface and said teeth, whereby said teeth bias the smooth gutter wall toward said transitional surface and bite into the surface of the smooth gutter wall thereby forming a permanent liquid-tight joint at the open end of the gutter.

4,279,542

SUBSEA WELL FLOW LINES TIE-IN USING CONDUCTORS

Harry R. Lewis, Jr., Aberdeen, Scotland, assignor to Standard Oil Company (Indiana), Chicago, Ill.

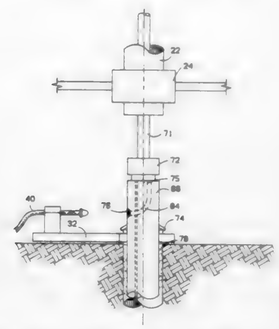
Filed Dec. 17, 1979, Ser. No. 103,886

Int. Cl.³ E21B *43/01*; F16L *1/04*

U.S. Cl. 405—169 **4 Claims**

1. A method of connecting a subsea flowline to facilities on an offshore platform supported above a body of water by piles extending into the sea bottom, said platform having a plurality of conductors through which wells may be drilled from the platform and extend from the sea floor to above the surface of said water which comprises:

cutting said conductor in two near the sea bottom so as to have an upper portion and a conductor stub,



raising said upper portion of said conductor to form a gap between the upper portion and the conductor stub,

pulling said flowline to the vicinity of said conductor stub,

running a production riser through said upper portion of said conductor, and

connecting said flowline to the lower end of said production riser.

4,279,543

DEVICE FOR CONVEYING A MEDIUM FROM MEANS PROVIDED IN A FIXED POSITION ON A BOTTOM BELOW THE WATER SURFACE TO A BUOY BODY

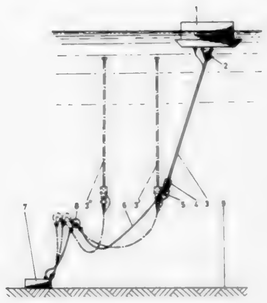
George F. M. Remery, Eze-sur-Mer, France, assignor to Single Buoy Moorings, Inc., Fribourg, Switzerland

Filed Jun. 18, 1979, Ser. No. 49,655

Claims priority, application Netherlands, Jun. 20, 1978, 7806649

Int. Cl.³ E02B *17/00*

U.S. Cl. 405—195 **4 Claims**



1. In a device for conveying a medium from a means provided in a fixed position on a bottom below the water surface to an anchored buoy body floating on the water, comprising a conduit connected to said means and extending to the buoy body, of which conduit at least the part connected to said means consists of a flexible tube; the improvement comprising a pipe or rod is fastened to the buoy body by means of a universal joint, said pipe or rod in the operative condition of the device hanging downwardly from the buoy in the water, while at the lower end of the pipe or rod a tube connected to said

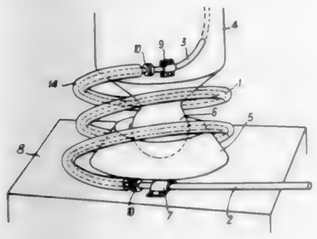
means is coupled with the pipe or is directed through or along the rod.

4,279,544

HELICAL APPARATUS FOR COUPLING SUBMERGED PIPES

Andre G. Brun, Paris, and Henri T. Dutilleul, Boulogne-Billancourt, both of France, assignors to Compagnie Francaise des Petroles, Paris, France

Continuation of Ser. No. 868,243, Jan. 10, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,858
Claims priority, application France, Jan. 11, 1977, 77 00628
Int. Cl.³ E02B *17/00*; F16L *1/04*
U.S. Cl. 405—202 18 Claims



1. Connecting means for connecting the ends of at least a pair of pipes, said pipes being immersed in water, one of the pipes having a pipe end being mounted on a movable column structure mounted on a fixed structure for oscillatory movement relative to said fixed structure, the other of said pipe ends connected to an underwater oil well, said connecting means comprising, in respect to said pair of pipes, a tube formed into a helix having a plurality of helical turns, said turns having a greater diameter than said movable column and a length greater than the maximum distance between said pipe ends, said tube surrounding the lower end of said movable column structure, said tube being connected to said pipe ends by detachable connectors to receive the output of said oil well, said tube having a wall thickness sufficient to resist the pressure of oil emerging from said well and a diameter sufficient to convey the oil well output, and buoyancy correcting means surrounding said tube and intermediate the ends thereof to provide said tube with substantially zero buoyancy.

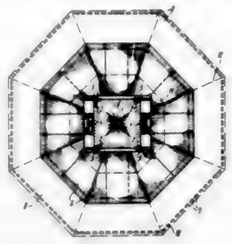
4,279,545

DEVICE FOR SEALING THE LOWER PART OF A COLUMN STANDING ON OR IN THE BOTTOM BELOW A BODY OF WATER WITH RESPECT TO THE SURROUNDING SURFACE OF THE BOTTOM

Karel J. C. de Werk, Ouderkerk a.d. Ijssel, Netherlands, assignor to RSV-Gusto Engineering B.V., Rotterdam, Netherlands

Filed Jul. 3, 1979, Ser. No. 54,625
Claims priority, application Netherlands, Jul. 6, 1978, 7807340
Int. Cl.³ E02D *31/10*
U.S. Cl. 405—211 5 Claims

1. A device for sealing the lower part of a column standing on or in the bottom below a body of water with respect to the surrounding surface of the bottom characterized by a plate-shaped body surrounding the column, said plate-shaped body at least on the circumference thereof having a flexible border strip running along the entire circumference, said plateshaped body being a rigid plate mounted on a rigid sleeve surrounding the column and extending downward with respect to the plate, the walls of said sleeve being parallel to the walls of said column, both said body and said strip being of impermeable material.



4,279,546

GROUT SEAL PREMATURE INFLATION PROTECTIVE SYSTEM

Don B. Landers, Arlington, Tex., assignor to Oil States Rubber Company, Arlington, Tex.

Filed May 29, 1979, Ser. No. 42,795
Int. Cl.³ E02D *5/14*
U.S. Cl. 405—225 8 Claims



1. In a grout seal premature inflation protection system: a piling and piling sleeve structure forming an annulus; an inflatable seal mounted in place within the bottom of said piling sleeve structure to form a seal at the bottom of said annulus upon inflation after the piling has been driven; seal inflation line means extended from fluid pressure application means to said inflatable seal; and anti-premature inflation structure means positioned low in said seal inflation line means and structured such as to prevent gravity induced hydrostatic pressure in said seal inflation line means from causing premature inflation of said inflatable seal before driving of said piling.

4,279,547

BENTONITE-GELLED OIL WATERPROOFING COMPOSITION

Arthur G. Clem, Des Plaines, Ill., assignor to American Colloid Company, Skokie, Ill.

Continuation of Ser. No. 942,935, Sep. 18, 1978, Pat. No. 4,209,568. This application Nov. 1, 1979, Ser. No. 90,295
Int. Cl.³ E02D *19/12*
U.S. Cl. 405—258 14 Claims

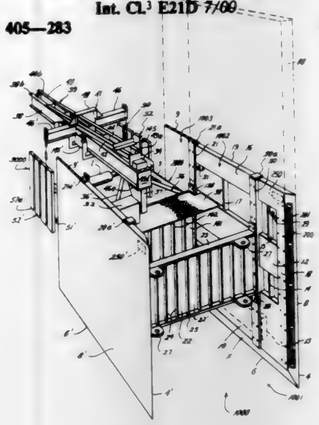
1. A bentonite composition useful for preventing a flow of water through a structure said composition having substantially all of the bentonite contained therein in non-hydrated form comprising bentonite, in an amount of at least 20% by weight of the total composition, dispersed throughout a non-aqueous gel formed from a non-aqueous liquid and a suitable gelling agent for said liquid said gelling agent included in said composition in an amount sufficient to form a cohesive mass capable of adhering to said structure while maintaining a desired, cohesive form.

4,279,548

HYDRAULIC PROPULSION UNIT

Raymond W. Ramey, P.O. Box 220, Bellaire, Tex. 77401

Filed Feb. 22, 1979, Ser. No. 14,111
Int. Cl.³ E21D *7/00*
U.S. Cl. 405—283 15 Claims



1. A trenching device for use in preparing for the excavation of ditches, for use in conjunction with a hoe or similar excavation mechanism used for the excavation of such ditches, comprising:

an excavation box;

propulsion means for advancing said excavation box, said propulsion means being vertically and horizontally hingedly connected to said excavation box; and

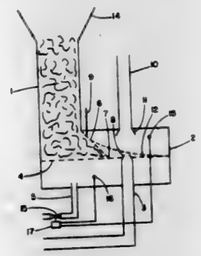
anchoring means for bracing said propulsion means against the walls of the already excavated portion of the ditch, said anchoring means being vertically and horizontally hingedly connected in said excavation box posteriorily of said excavation box.

4,279,549

METHOD AND APPARATUS OF SELF-REGULATION FOR A PNEUMATIC CONVEYOR

Jean-Pascal Hanrot, Aix-en-Provence, and Jacky Volpeliere, Mimet, both of France, assignors to Aluminum Pechiney, Lyons, France

Continuation-in-part of Ser. No. 904,395, May 10, 1978, abandoned. This application Sep. 24, 1979, Ser. No. 78,477
Claims priority, application France, May 18, 1977, 77 16070
Int. Cl.³ B65G *57/66*
U.S. Cl. 406—14 2 Claims



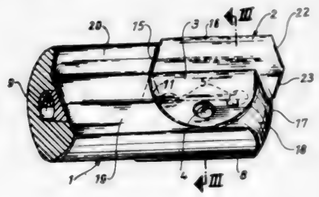
1. A self-regulating pneumatic conveyor for pulverulent material comprising a vertically disposed feed column, means for feeding the feed column with pulverulent material for gravitation flow downwardly therethrough, a vertically disposed pneumatic conveying tube alongside the feed column, a forwarding chamber between the feed column and the pneumatic conveyor tube having a porous bottom fluidization wall and a wall separating the feed column and the forwarding chamber which terminates in spaced relation above the porous fluidization wall whereby the material at the foot of the feed column forms a talus which extends into the forwarding chamber in the direction toward the pneumatic conveying tube, a feed tube for introducing a gas under pressure into the forwarding chamber, a tube for supplying fluidization gas below the porous fluidization wall, means for measuring the pressure Pf below the porous fluidization wall, means for measuring the pressure Pc above the porous fluidization wall, and means for varying the circulation of gas from the supplying tube in response to pressure Pf as compared to pressure Pc for reducing the circulation of gas at pressure Pf through the porous wall when the pressure Pc above the wall exceeds the pressure Pf with corresponding decrease in flow of pulverulent material, and increasing the circulation of gas at pressure Pf through the porous wall when the pressure Pc above the wall falls below the pressure Pf.

4,279,550

DEEP HOLE BORING TOOL WITH REPLACEABLE BLADE

Dieter Kress, Aalen, and Friedrich Häberle, Lauchheim, both of Fed. Rep. of Germany, assignors to MAPAL Fabrik für Präzisionswerkzeuge Dr. Kress KG, Aalen, Fed. Rep. of Germany

Filed Jan. 16, 1976, Ser. No. 649,904
Claims priority, application Fed. Rep. of Germany, Jan. 21, 1975, 2502183
Int. Cl.³ B23B *41/02*, *51/06*
U.S. Cl. 408—59 6 Claims



1. A boring tool comprising:

(a) an elongated carrier having a longitudinal axis,

(1) an axial end portion of said carrier having a convexly arcuate face about said axis,

(2) said carrier being formed with an axial bore terminating in an orifice in said face,

(3) said end portion having first and second axially extending surface portions bounding a groove in said face, said groove being open in a radially outward direction and in both axial directions,

(4) said surface portions being formed with respective recesses;

(b) a plate shaped cutting blade releasably received in the recess of said first surface portion and having two major surfaces separated by the thickness of said blade and connected by the edge of said blade,

(1) a primary cutting portion of said edge axially projecting from said end portion,

(2) a secondary cutting portion of said edge radially projecting from said end portion, and

(3) one of said major surfaces being exposed in said groove and substantially flush with said first surface portion;

(c) clamping means for securing said blade in the receiving recess,

(1) said clamping means including a clamping jaw re-

ceived in said recess of said second surface portion and abuttingly engaging said blade,

(2) said clamping jaw having a major exposed surface substantially flush with said second surface portion.

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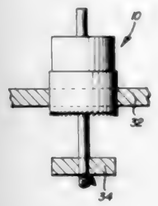
HOLE SAW PILOT PIN WITH PLUG RETRIEVAL MECHANISM

Jerry L. Wilterding, 2907 Meadow La., Barnwell, S.C. 29812

Filed Jul. 26, 1979, Ser. No. 62,154

Int. Cl.³ B23B *47/00, 51/00*

U.S. Cl. 408—67 **5 Claims**



1. A plug retrieval mechanism for use in retaining a cut plug on an elongated rotatable member extending outwardly from a rotatable cutting means for cutting said plug, said mechanism comprising:

a longitudinally extending slot formed in a free end of said member;

a mounting pin affixed to said member and extending across and contained substantially with said slot;

an elongated catch rotatably mounted on said mounting pin at a position offset from a center portion of said catch, said catch being capable of rotation between a first position in substantial alignment with said member with all surfaces of said catch being contained within a plane defined by an outer diameter of said member, and a second position where said catch extends radially of said member.

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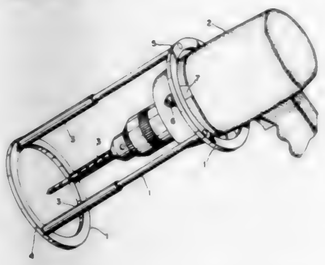
PORTABLE ELECTRIC DRILL GUIDE

Ira J. Epstein, 4423 Flintstone Rd., Alexandria, Va. 22306

Continuation-in-part of Ser. No. 915,018, Jun. 13, 1978. This application Nov. 5, 1979, Ser. No. 91,192

Int. Cl.³ B23B *45/14*

U.S. Cl. 408—112 **1 Claim**



1. A portable electric drill to which is attached a guide comprising a plurality of telescopically collapsible legs firmly attached to a lower ring adapted in use to be placed against an object to be drilled, said legs also being firmly attached to an upper ring adapted to be firmly attached to the drill head of a portable electric drill there being a plurality of tabs mounted on the upper ring of the guide each tab containing a hole adapted to correspond to the screws which hold the drill body together at least one of the plurality of tabs mounted on the upper ring being slideable in a slit in the upper ring.

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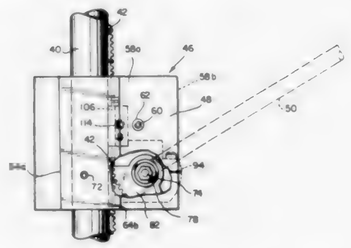
MACHINE TOOL COLUMN MOUNT

John P. Cleary, Valley Cottage, N.Y., assignor to Ralph A. Heineman, New York, N.Y.

Filed Mar. 9, 1979, Ser. No. 19,169

Int. Cl.³ B23B *39/00*

U.S. Cl. 408—135 **4 Claims**



1. In a machine tool of the type including a vertical column for supporting a tool bit head assembly at a particular position relative to a workpiece, said column having an elongated rack gear fixed thereto in longitudinal alignment therewith, the improvement comprising a support member mounted for sliding movement along said column for reciprocally supporting said head assembly on said column, actuable gear means mounted to said support member wherein said support member is adjustably movable relative to said workpiece when said gear means is in a first state, and said support member is freely locatable on said column at a desired starting position relative to said workpiece when said gear means is in a second state, said gear means including a pinion gear having teeth extending therefrom over at least a partially circular arc, said pinion gear being pivotally mounted to said support member by an axial shaft extending through said support member for rotational movement relative thereto, said pinion gear and said rack gear being constructed and arranged so that said pinion gear engages said rack gear when said pinion gear is rotated within a given range of rotational positions corresponding to said first state, and said pinion gear disengages said rack gear when said pinion gear is rotated within another given range of rotational positions corresponding to said second state, and means for urging said pinion gear toward said first state, said urging means including a block member surrounding said shaft and adapted to be rotated therewith relative to said support member when said pinion gear is rotated within said other range of rotational positions, said block member having a recess therein extending arcuately about said shaft, spring extending within said recess so that one end thereof confronts a corresponding end of said recess, and a stud fixedly extending from said support member to engage the other end of said spring so that said spring is deformed when said shaft rotates said pinion gear within said other range.

4,279,554

TOOL FOR DEBURRING, CHAMFERING, TRIMMING, AND REMOVING EDGES OF WORKPIECES

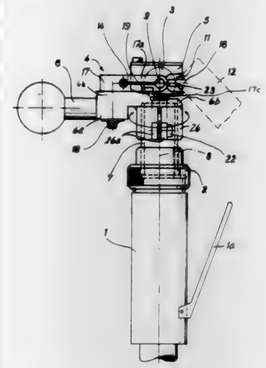
Heinz Seidenfaden, Varel, Fed. Rep. of Germany, assignor to Vereinigte Flugtechnische Werke-Fokker GmbH, Bremen, Fed. Rep. of Germany

Filed Dec. 10, 1979, Ser. No. 102,037

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853323

Int. Cl.³ B23C *1/20;* **B23B** *3/22;* **B24B** *7/00;* **B23D** *67/00*

U.S. Cl. 409—180 **6 Claims**



1. A machine tool for chamfering, deburring, trimming of edges, or the like, of a work piece, comprising:

a motor-driven spherical cutter, rotating about a first axis, traversing a center of the cutter;

a guide member, having a slot and receiving the cutter, the guide member determining the relative position of the work piece; and

means for mounting the guide member for pivoting about a second axis transversely to the said first axis and at least approximately intersecting the first axis in said center.

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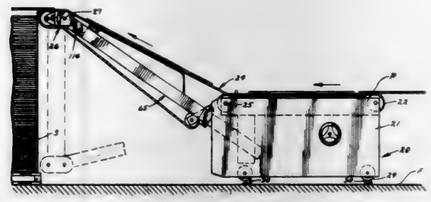
MACHINE FOR STACKING PANELS

Edmund W. F. Rydell, 14926 Minnetonka Industrial Rd., Minnetonka, Minn. 55343

Filed Dec. 29, 1978, Ser. No. 974,330

Int. Cl.³ B65G *57/112*

U.S. Cl. 414—83 **4 Claims**



1. In a machine for stacking rectangular panels of building material or the like,

(a) an input conveyor for receiving panels at its rear end and conveying them forwardly therealong,

(b) an elongated elevator conveyor pivoted to the forward end of the input conveyor for receiving and further conveying panels from said end of the input conveyor,

(c) an elongated discharge conveyor pivoted to the extended end of the elevator conveyor for further conveying panels beyond the end of the elevator conveyor and onto a stack, wherein said discharge conveyor has a drop off shoe assembly at its forward end to catch the rear edge portion of a panel as it leaves the conveyor, and stop means on said conveyor actuated by the panel for lowering the shoe assembly to slowly deposit the panel upon a stack thereof,

(d) the elevator conveyor pivot and the discharge conveyor pivot lying on parallel axes,

(e) a first power means for driving all three conveyors to convey panels successively and forwardly therealong until they are discharged from the discharge conveyor, and

(f) a second power means for elevating the elevator conveyor about its pivotal connection with the input conveyor.

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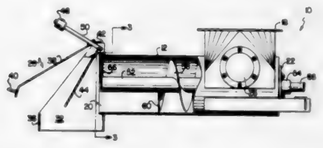
AUGER AIRLOCK ASSEMBLY HAVING PRODUCT CUTTING KNIFE

Richard L. Ronning, Overland Park, Kans., assignor to Ronning Engineering Company, Inc., Overland Park, Kans.

Filed Jan. 11, 1980, Ser. No. 111,233

Int. Cl.³ B65G *53/48*

U.S. Cl. 414—218 **5 Claims**



1. An auger airlock, comprising:

an elongated material-conveying tube having an inlet, and an outlet spaced from the inlet;

an elongated, axially rotatable shaft within said tube, oriented generally along the longitudinal axis of the tube, and extending to a point adjacent said outlet;

a helical auger blade disposed about and secured to said shaft within said tube and presenting an end edge proximal to said outlet which extends generally radially from said shaft toward said tube in a first direction; and

shiftable means adjacent said outlet for preventing blockage of said tube by said material including an elongated blade secured to the end of said shaft adjacent said outlet, the longitudinal axis of said blockage-preventing blade extending generally radially outwardly from said shaft in a second direction different from said first direction,

said shaft, auger blade end edge, blockage-preventing blade and tube being cooperatively configured and arranged such that, when said end edge is in the lower portion of said tube for imparting maximum translation forces to said material, said lower portion of the tube is free of substantial material flow restrictions between said auger end edge and said outlet.

4,279,557

APPARATUS FOR LOADING BALES ON TO TRANSPORT VEHICLES

Eberhard Stodt, Düsseldorf, and Erwin Kaldenbach, Ratingen, both of Fed. Rep. of Germany, assignors to Lindemann Maschinenfabrik GmbH, Düsseldorf, Fed. Rep. of Germany

Division of Ser. No. 952,841, Oct. 19, 1978. This application Jan. 8, 1980, Ser. No. 110,464

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1977, 2753720

Int. Cl.³ B65G *67/14*

U.S. Cl. 414—400 **3 Claims**

1. Apparatus for loading on to a transport vehicle bales of waste material which have been ejected from the discharge opening of horizontally acting baling press, said apparatus being arranged to be disposed adjacent said discharge opening

of said press and comprising, located in succession, a horizontal rectilinear discharge table adjacent said opening and aligned with the discharge opening so that the bales of waste material move along said discharge table in the discharge direction out of the baling press, said discharge table having a first end adjacent the discharge opening from the baling press and a second end remote from the discharge opening, said discharge table haing a vertical central plane extending longitudinally from the first end to the second end thereof with the central plane being equidistantly spaced from the sides of said discharge table, a transverse table adjacent the second end of said discharge table, drive means for displacing said transverse table horizontally and perpendicularly to the vertical central plane of said discharge table with said transverse table being located approximately in the same horizontal plane as said discharge table, hauling tongs, means mounting said hauling



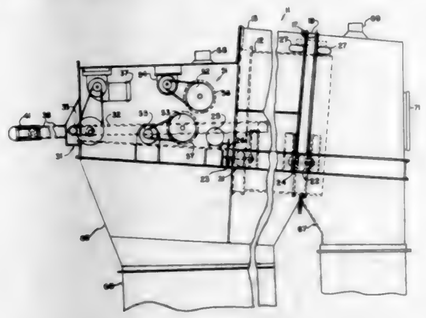
tongs for movement in the horizontal direction along said vertical central plane and with said tongs being disposed symmetrically on opposite sides of said plane, and said means arranged to move said tongs for selectively engaging a single bale for movement from said discharge table to said transverse table to form in cooperation with said drive means for said transverse table a pair of the bales in side-by-side relation on said transverse table with the contacting sides of the pair of the bales being located in the vertical central plane and also to move said tongs over said transverse table for displacing the pair of the bales thereon from the opposite side of said transverse table from the second end of said discharge table onto the transport vehicle in an extension of the direction between the first and second ends of said discharge table and for displacing any previously displaced pairs of the bales located on the transport vehicle in a continuation of the direction between the first and second ends.

4,279,558

BAG OPENING APPARATUS

Gilbert V. Lavole, 311 Elm St., Raynham, Mass. 02767

Filed Dec. 11, 1978, Ser. No. 967,915
Int. Cl.³ B65B *69/00*; B65G *65/00*
U.S. Cl. 414—412 **14 Claims**



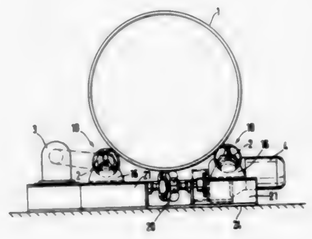
1. A bag opening apparatus comprising:
a frame means;
a perforate drum mounted on said frame means for rotation along a substantially horizontal axis, one end of said drum defining a bag receiving opening and an opposite end thereof defining a bag discharge opening;
drum drive means for producing rotation of said drum;
a material receiving hopper mounted on said frame below said drum;
conveyor means for conveying particulate material filled bags into said drum through said bag receiving opening;
blade means mounted on said frame means and disposed so as to penetrate bags while said bags are being conveyed by said conveyor means, said blade means comprising a pair of rotary blades lying in substantially the same plane and having cutting edge portions lying in a common plane transverse to said same plane; and substantially parallel to said conveyor means and
enclosure means substantially enclosing said drum.

4,279,559

SUPPORT INSTALLATION FOR LARGE CYLINDRICAL LOAD UNITS, PARTICULARLY LARGE TUBES

Karl Stumpf, Goethestrasse 1, 4000 Dusseldorf, Fed. Rep. of Germany

Filed Feb. 16, 1979, Ser. No. 12,939
Claims priority, application Fed. Rep. of Germany, Feb. 18, 1978, 2806959; Jan. 11, 1979, 2900820
Int. Cl.³ B65G *39/14*
U.S. Cl. 414—431 **6 Claims**



1. A support installation for use with large, cylindrical loads to provide rotational and longitudinal movement for the load comprising:
(a) a plurality of non-driven all-round rolls arranged on two principal rotational axes at intervals, along the length of the load, said rotational axes being at approximately the same height and parallel to the axis of the load and being located at a distance from each other which is less than the diameter of the load;
(b) a driven all-round roll having a principal rotational axis displaced longitudinally along the length of the load relative to said non-driven rolls;
(c) the driven roll principal axis being substantially normal to the principal axes of the non-driven rolls;
(d) said rolls engaging the circumference of the load; and
(e) means for yieldingly supporting at least some of said all-round rolls.

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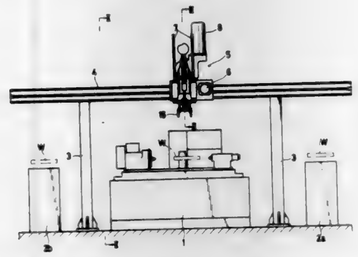
WORKPIECE TRANSFER APPARATUS FOR MACHINE TOOL

Teruyuki Ito, Nagoya, and Yasuo Suzuki, Kariya, both of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Jan. 16, 1980, Ser. No. 112,711
Claims priority, application Japan, Jan. 30, 1979, 54-8742
Int. Cl.³ B23B *13/12*
U.S. Cl. 414—589 **8 Claims**

1. A workpiece transfer apparatus for transferring a workpiece for a machine tool comprising:
a cross-rail horizontally arranged above said machine tool;
a carrier body supported on said cross-rail to be movable along said cross-rail;
a stationary shaft secured to said carrier body;
a stationary gear fixedly mounted on said stationary shaft;

a first crank arm rotatably mounted on said stationary shaft;
means for rotating said first crank arm;
a planet gear rotatably carried on said first crank arm and engaging with said stationary gear;
a driven gear rotatably carried on said first crank arm and engaging with said planet gear;
a second crank arm fixedly connected to said driven gear;
a crank pin fixedly secured to said second crank arm;
a connecting member pivotably connected at one end thereof to said crank pin;



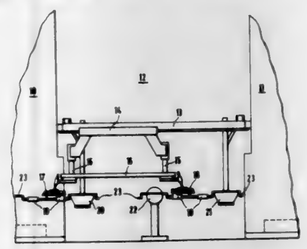
lift means vertically movably supported by said carrier body and operatively connected to the other end of said connecting member;
grip means pivotably supported by said lift means for gripping or releasing said workpiece;
a cam member secured to said crank pin;
operating means operatively connected to said grip means; and
a cam follower mounted on said operating means and engaged with said cam member for opening and closing said grip means in accordance with the shape of said cam member.

4,279,561

WORKPIECE CONVEYOR DEVICE FOR AN AUTOMATED PRESS LINE

Franz Schneider, Göppingen; Burkhard Schumann, Ottenbach; Karl Maier, Kuchen, and Herbert Hökn, Göppingen, all of Fed. Rep. of Germany, assignors to L. Schuler GmbH, Goppingen, Fed. Rep. of Germany

Filed Oct. 23, 1978, Ser. No. 953,783
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1977, 2747237
Int. Cl.³ B66F *11/00*; B30B *15/00*
U.S. Cl. 414—591 **7 Claims**



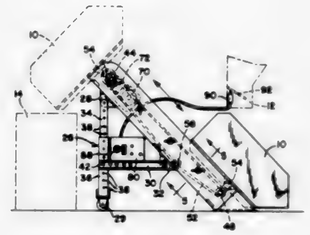
1. An adjustable workpiece conveyor device suitable for automation of a plurality of different press lines by providing a movable conveyor carriage in an intermediate space between two presses, said movable carriage being coupled to a cross member having adjustable supports at the ends of the cross member, said supports having paired opposed controllable gripping elements for gripping the workpieces which point in opposite directions, and wherein between the presses there are located at least two lay-off stages for the workpieces that are to be conveyed from one press to the other press, and a positioning stage, of which stages at least two can be spanned by the cross member, comprising:
a first setting drive for moving the conveyor carriage horizontally on an adjustable supporting frame having a track that bridges the whole intermediate space;
a second setting drive coupled between the cross member and the conveyor carriage for a raising and lowering of the cross member; and
a third setting drive coupled to the positioning stage to operate said positioning stage;
wherein the first, second and third setting drives are controlled by a continuous-path numerical control unit, wherein the supporting frame is movable from the region of the intermediate space in a direction which is at a right angle to the direction of conveying the workpieces, and wherein the positioning stage can be moved out from the intermediate space at an angle to the direction of converging of the workpieces to allow for access to the presses from the input or feed sides through the intermediate space for changing press tools,
and
wherein the workpiece conveyor device is adaptable to a plurality of different press lines by the removability of the support frame from one intermediate space to another, by the adjustability of the length of the support frame to fit a desired intermediate space, by the selection of the cross member to span at least two stages in the desired intermediate space, and by selection of a program for the continuous-path numerical control unit for the particular press line to which the workpiece conveyor device is being connected.

4,279,562

BUCKET CONVEYOR

Edward J. Cormier, and Wayne Copley, both of P.O. Box 44164, Columbus, Ohio 43204

Continuation-in-part of Ser. No. 818,614, Jul. 25, 1979, abandoned. This application Oct. 25, 1979, Ser. No. 88,218
Int. Cl.³ B65G *35/00, 43/00*
U.S. Cl. 414—598 **3 Claims**



1. An intermittently operable, portable bucket conveyor, comprising:
a frame member having:
a pair of spaced upwardly inclined
guide rails;
means securing said guide rails
together in spaced parallel relation;
a pair of vertically extending
horizontally spaced legs pivotally secured at upper end portions of each thereof to respective upper edge portions of said inclined guide rails and having means for adjusting the height of said legs; and
horizontally extending braces pivotally connected at one end portion of each to said inclined guide rails remote from said pivotal connection of said legs and having an

opposite end portion of each secured to a respective one of said legs, said braces being adjustable lengthwise to accommodate height adjustment of said legs for inclining said inclined guide rails at a desired angle;

a bucket capable of containing at least one article therein and movably supported on said guide rails for movement between a lower most position wherein at least one article can be deposited therein and an uppermost position wherein said at least one article will be dumped therefrom;

bucket moving means supported by said frame member and extending along said inclined guide rails for moving said bucket between said upper and lower positions, said moving means including:

at least one endless chain extending from a bottom end portion to a top end portion of said guide rails;

sprockets disposed at each said end portion of said guide rails and drivingly supporting said at least one endless chain for movement in an elongated path with annular end portions defined by movement of said chains around said sprockets, at least one of said sprockets being adjutably positionable towards and away from the other said sprocket; and

means securing said bucket to said at least one endless chain for movement therewith, said securing means being operable for movement around a portion of said annular end portion of said path of movement at least at said top end portion of said guide rails so as to cause said bucket to dump said at least one article therefrom;

drive means engaging said one sprocket for causing rotation thereof;

clutch means intermediate said one sprocket and said drive means for disengaging said drive means upon application of a predetermined force to said bucket;

means for activating said drive means so as to cause said bucket to move from said lower position to said upper position; and

means for causing said drive means to reverse when said bucket is in said upper position so as to move said bucket from said upper position to said lower position after it has dumped said at least one article.

4,279,563

UNMANNED MATERIAL HANDLING SYSTEM FOR SERVICING A MULTI-LEVEL STRUCTURE

William R. Miller, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.

Filed Jul. 5, 1979, Ser. No. 55,055
Int. Cl.³ B66F *11/00*
U.S. Cl. 414—611 **7 Claims**

1. A material handling system for servicing a plurality of vertically spaced levels of a structure, said system comprising:

an unmanned vehicle adapted to transport cargo between said vertically spaced levels;

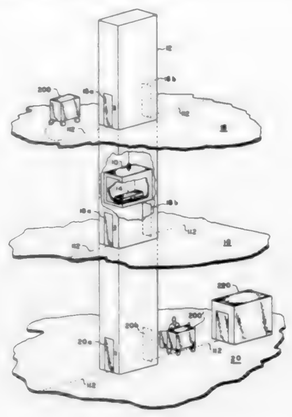
electro-mechanical drive means for propelling said vehicle along a surface of a selected one of said levels;

means disposed within said vehicle for storing energy and for imparting said stored energy to said electro-mechanical drive means;

means for vertically moving said vehicle to each of said spaced levels; and

means coupling said vehicle and said vertical moving means while said vehicle is supported by said vertical moving means for transmitting energy from an external source to said energy storage means, said energy transmission means being deployed within and movable with said vertical moving means, and being operable while said vertical moving means is moving vertically;

said vertical moving means being free of interior obstructions to safe occupancy and movement by passenger personnel and thereby being adaptable, without modification,



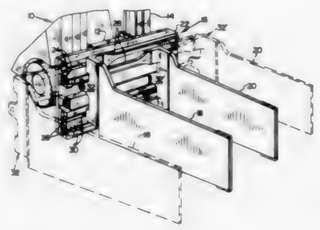
for transporting said passenger personnel between said vertically spaced levels.

4,279,564

PARALLEL ARM CLAMP HAVING IMPROVED ATTACHING ASSEMBLY FOR NARROW CLAMP ARMS

Harry F. Weinert, Portland, Oreg., assignor to Cascade Corporation, Portland, Oreg.

Filed Jan. 14, 1980, Ser. No. 111,778
Int. Cl.³ B65G *65/04*; B66F *9/18*
U.S. Cl. 414—621 **9 Claims**



1. A load-handling structure adapted to be mounted on an elevatable load carriage at the front of a lift truck for operating transversely openable and closable clamp arms, said load-handling structure comprising:

(a) a slide guide frame, adapted to be mounted vertically on the load carriage, having at least a pair of elongate, parallel, vertically-spaced transverse slide guides thereon;

(b) a pair of elongate vertically-spaced slide members longitudinally movable alternatively toward or away from one another in a mutually-overlapping longitudinal relationship, each slide member having an elongate rear portion longitudinally movably mounted within a respective one of said guides, and a longitudinally-extending elongate front portion having a longitudinal axis substantially parallel to a plane extending vertically and longitudinally with respect to said slide members, each of said elongate front portions being external of the respective guide so as to protrude forwardly therefrom and being fixedly connected to said rear portion so as to move longitudinally in unison therewith, each of said elongate front portions having an end surface located adjacent one longitudinal extremity thereof and also protruding forwardly from the respective guide, said respective end surfaces being located at opposite ends of said pair of slide members and having respective vertical dimensions greater than the respective vertical dimensions of said front portions along a major part of their length;

(c) said respective end surfaces and said elongate front portions of both of said pair of slide members all being substantially aligned with one another parallel to said plane; and

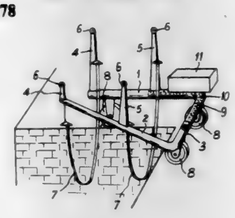
(d) a pair of clamp arm attaching members, each having a pair of legs formed monolithically and homogeneously into a single member with said legs oriented at substantially a 90° angle with respect to each other, and each having a first leg thereof connected in end-to-end abutment with a respective one of said end surfaces of said elongate front portions so that said respective first legs are also substantially aligned with each other parallel to said plane, the second leg thereof protruding forwardly from the first leg thereof.

4,279,565

HOISTING APPARATUS FOR PLEASURE BOATS

Robert E. Verdy, 26, Avenue du General-Leclerc, 64000 Pau, France

Filed Sep. 11, 1978, Ser. No. 941,081
Claims priority, application France, Sep. 15, 1977, 77 27864
Int. Cl.³ B60P *3/10*
U.S. Cl. 414—678 **12 Claims**



1. Apparatus for hoisting a boat comprising first and second booms, a cross member connected to and spacing said first and second booms from one another at a first end thereof to provide an open-ended structure adapted to receive said boat via the open end thereof, boat support means for supporting said boat mounted by said first and second booms, at least three wheels for supporting said open-ended structure, said wheels being mounted with respect to only said first boom and the cross member, said wheels being disposed at the apexes of an imaginary triangle where the perpendicular from the center of gravity of the boat itself, when supported by said boat support means, passes outside said imaginary triangle, and a counterweight located in the part of the structure supported by the wheels so that the perpendicular from the center of gravity of the combined hoisting apparatus and boat passes through said imaginary triangle.

4,279,566

BACKHOE FRAME WEDGE MOUNT

Thomas M. Sagaser, Gwinner, and Joseph M. Mather, Lisbon, both of N. Dak., assignors to Clark Equipment Company, Buchanan, Mich.

Filed Sep. 10, 1979, Ser. No. 74,229
Int. Cl.³ E02F *3/72*
U.S. Cl. 414—686 **10 Claims**

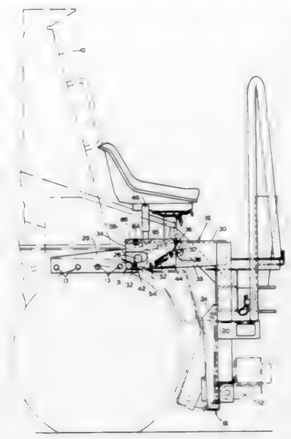
1. A device for connecting accessory apparatus to a traction vehicle including:

a first element including a first element end extending from said traction vehicle towards said apparatus and a channel element having opposed walls and wherein each of said opposed walls has a slot;

a second element including a second element end extending from said apparatus towards said traction vehicle;

said element ends having a selectively engaged position for connecting said apparatus to said traction vehicle;

a sleeve member slidably disposed over and operatively



connected to one of said elements for movement thereon, said sleeve member having a surface adapted for selective locking contact with at least one of said element ends for retaining said element ends in said engaged position; and

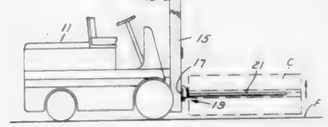
a transverse pin carried by said sleeve member and positioned for travel in said slots.

4,279,567

ATTACHMENT FOR LIFT TRUCK

Larry J. Thompson, Pembroke Pines, Fla., assignor to Equipment Company of America, Hialeah, Fla.

Filed Nov. 26, 1979, Ser. No. 97,464
Int. Cl.³ B66C *1/00*
U.S. Cl. 414—785 **16 Claims**



1. A lift attachment for a support having a lift frame and an upright lift bar with top and bottom edges vertically adjustable thereon;

said lift attachment comprising a hollow housing having a pair of upright spaced side walls for bearing against the lift bar;

a transverse top flange connecting the upper ends of said side walls and a transverse mount block located between the lower ends thereof;

there being a forwardly extending bore in said mount block;

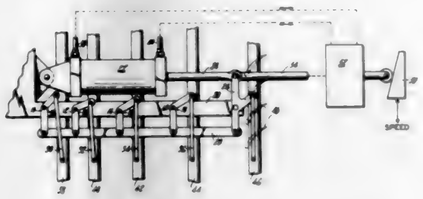
a lift rod at one end projected into and secured within said block bore and extending forwardly of the housing for supporting coiled goods;

an elongated down-turned upper catch bar extending rearwardly of the top flange and adapted to be supportably mounted and suspended over the top edge of the lift bar;

a pair of opposed upright catch plates bearing against the housing side walls, secured thereto and depending there-

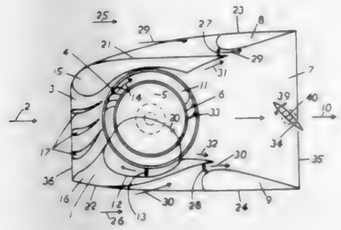
from; and p1 each of said catch plates having an up-turned lower catch extending rearwardly and adapted to retainingly engage the bottom edge of the lift bar.

4,279,568
VANE ANGLE CONTROL
Alan D. Munroe, Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.
Filed Oct. 16, 1978, Ser. No. 951,894
Int. Cl.³ F01D *17/20*; F02C *7/057*
U.S. Cl. 415—17 **2 Claims**



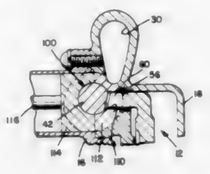
1. Means for controlling the rate of change of a variable stator vane of a compressor section of a gas turbine engine where the linkage is not capable of meeting the schedule for said vane angle changes necessary to maximize the aerodynamics of the system, said means including an actuator, a linkage system interconnecting said actuator and said variable vanes, control means responsive to at least one engine operating parameter for controlling said actuator, and additional means responsive soley to compressor speed for further controlling said actuator, said additional means including a cam having a given profile for producing a signal which has a preascertained nonlinear speed relationship of a given stroke of said actuator for a given speed of said compressor and said additional means readjusting said control means in response to said signal to achieve a change in the rate of change schedule of said stator vanes to meet said schedule.

4,279,569
CROSS-FLOW TURBINE MACHINE
Gary J. Harloff, 579 Carnival Dr., Pittsburgh, Pa. 15239
Filed Oct. 16, 1979, Ser. No. 85,267
Int. Cl.³ F01D *1/14*
U.S. Cl. 415—52 **4 Claims**



1. A cross-flow turbine machine for extracting kinetic energy from a fluid to provide for shaft power output; the machine is comprised of:
a. a cylindrical vaned rotor with axis of rotation perpendicular to the incoming flow;
b. inlet housing for controlling the fluid velocity vector into the inlet rotor vanes;
c. inlet guide vanes which curve in the direction of rotor rotation for controlling the flow velocity vector into the inlet rotor vanes;
d. flow controlling means consisting of housing shapes around the rotor outer periphery, vortex forming means, exit housing, and diffusing nozzles all of which extend the width of said rotor;
e. vanes of said rotor of the circular arc or aerodynamic design;
f. adjustable vane in the exit plane to control the flow rate and hence the rotational speed of the rotor and power output.

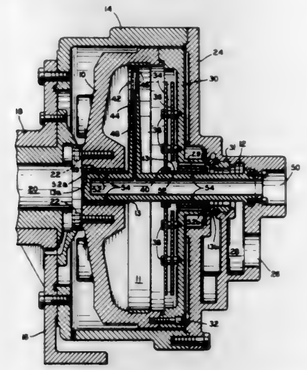
4,279,570
ENERGY TRANSFER MACHINE
Hans Egli, Santa Monica; Joe L. Byrne, and James H. Nancarrow, both of Torrance, all of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.
Division of Ser. No. 892,368, Mar. 31, 1978, Pat. No. 4,197,051.
This application Jul. 25, 1979, Ser. No. 61,093
Int. Cl.³ F04B *5/00*
U.S. Cl. 415—53 T **11 Claims**



1. An energy transfer machine comprising: a housing having a fluid inlet and a fluid outlet generally adjacent to each other, and forming a generally toroidal volume between said inlet and outlet; a stator ring suspended within the toroidal volume and combining with said housing to define a generally circumferential flow passage having an annular cross section; a block seal having portions thereof interposed between said fluid inlet and outlet in said flow passage, to cause fluid flowing through said housing to flow substantially circumferentially about said housing through said flow passage, said block seal including a movable portion and a portion fixed with respect to said stator ring wherein said movable and fixed portions may be abutted to respectively block generally symmetrical halves of said annular cross section; a rotatable rotor including a cascade of blades operably disposed for energy transfer coaction with fluid in the flow passage and configured to cause the fluid to flow upon rotor rotation in a generally spiralling path about said stator ring; and means for controllably moving said movable portion of said block seal between a first position in abuttment with said nonmovable portion to block direct fluid flow between the fluid outlet and inlet to maintain a pressure gradient along the circumference of the flow passage, and a second position in non-abutting relationship with respect to said nonmovable portion to open the block seal to fluid flow to substantially remove the pressure gradient for unloading the machine, and thereby prevent the fluid from flowing in a generally spiralling path about said stator ring.

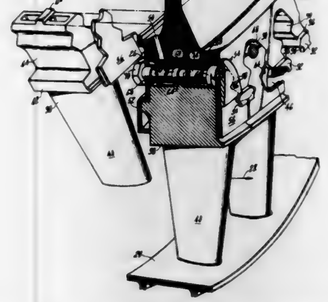
4,279,571
PITOT PUMP WITH FLUID LUBRICATED BEARINGS
John W. Erickson, Huntington Beach, Calif., assignor to Kobe, Inc., Commerce, Calif.
Filed Oct. 1, 1979, Ser. No. 80,377
Int. Cl.³ F04D *1/14*
U.S. Cl. 415—89 **7 Claims**

1. In a centrifugal pump having a hollow casing defining a concentric fluid chamber, means for rotating said casing about the axis of said chamber, a stationary hollow discharge tube projecting within said casing in coaxial relationship to said axis of rotation, conduit means for supplying fluid to be pumped to said fluid chamber, whereby the fluid is rotated by said casing, a radially projecting, hollow arm secured to said hollow discharge tube within said chamber, an opening in the end of said hollow arm disposed in facing relation to the rotating fluid, thereby inducing a high velocity fluid flow into said hollow arm and into the bore of said hollow discharge tube, the improvement comprising:
at least one bearing surface secured to the central portion of said casing, said surface being formed of material having a hardness greater than sand;



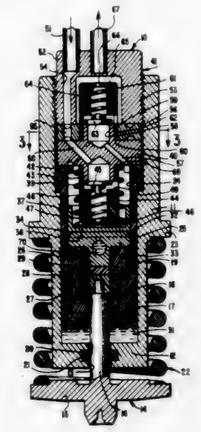
a second bearing surface on said stationary hollow discharge tube cooperating with said one bearing surface in bearing relationship, said second bearing surface having a hardness greater than sand; and
means for directing a portion of the fluid flow from said bore of said hollow discharge tube to said bearing surfaces, whereby such fluid lubricates said bearing surfaces.

4,279,572
SIDEPLATES FOR ROTOR DISK AND ROTOR BLADES
Peter R. Auriemma, Palm Beach Gardens, Fla., assignor to United Technologies Corporation, Hartford, Conn.
Filed Jul. 9, 1979, Ser. No. 55,562
Int. Cl.³ F01D *5/18*, *5/30*
U.S. Cl. 416—220 R **11 Claims**



1. For a gas turbine engine having an axially extending flow path with an upstream end and a downstream end, a rotor assembly including:
a disk having an upstream face, a downstream face, and a plurality of circumferentially spaced slots extending therebetween;
a rotor blade at each slot, each blade having a platform section and a root section, wherein the root section engages the outer portion of the slot in the disk leaving a cavity at the base of said root section between the blade and the disk;
a rotor sideplate at each slot wherein each sideplate comprises
a first piece which engages the slot in the disk and extends outwardly into proximity with the platform section of the blade engaging the same slot;
a second piece having
a shank extending across the disk through the cavity inwardly of the root section of the blade;
a plate at one end of the shank which extends across one end of the cavity and across the interface between the disk and the first piece;
a means for urging the plate against the downstream face of the disk;
wherein the first piece is trapped in the slot by the plate of the second piece and the plate of the second piece closes the cavity between the blade and the disk;
a means at each slot engaging the slot in the disk for restraining the rotor sideplate against rotational forces.

4,279,573
HIGH PRESSURE PUMP
Frank J. Rychlik, deceased, late of Chicago, Ill., and by Alan F. Rychlik, executor, 4 Hilltop Crt., Hawthorn Woods, Ill. 60141
Filed Jul. 27, 1979, Ser. No. 61,521
Int. Cl.³ F04B *43/02*; F01B *19/02*
U.S. Cl. 417—53 **22 Claims**



1. A fluid pump comprising:
a housing;
a plunger body in said housing and defining a pump chamber, a plunger bore opening into said pump chamber, and a radially extending planar shoulder therebetween;
a reciprocating plunger extending movably into the housing and having inner force-transmitting means slidably received in said plunger bore;
a diaphragm element formed of a yieldable material having an outer stem portion supportively slidably received in said bore inwardly of said force-transmitting means and engaged by said force-transmitting means, a transversely enlarged midportion extending inwardly from said stem portion and supportively slidably received in an outer portion of said pump chamber, and an inner portion extending inwardly from said midportion and having a pe-

ripheral portion sealingly bonded to said plunger body to define a diaphragm extending across said pump chamber;

means for urging said diaphragm outwardly to seat said midportion on said shouder; and

valve controlled passage means communicating with said pump chamber inwardly of said diaphragm for conducting fluid into said pump chamber as an incident of outward movement of said diaphragm and pumping the fluid outwardly from said pump chamber as an incident of inward movement of said diaphragm by said reciprocating plunger.

18. The method of forming a pump diaphragm in a pump body having a wall portion defining a valve chamber, comprising the steps of:

providing a release agent on a first portion of the wall portion while leaving an encircling second portion free of the release agent; and

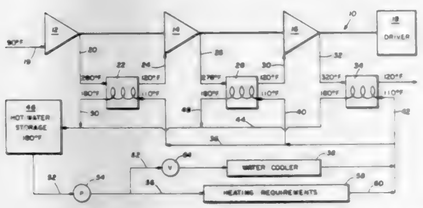
providing a body of flexible material in said pump chamber with portions thereof contacting said first and second wall portions, said flexible material comprising a material self-bonding to said first wall portion to effectively define a flexible diaphragm extending across the pump chamber sealingly peripherally bonded to the pump body, the portion of the body abutting said release agent being free to move in said pump chamber.

4,279,574

ENERGY RECOVERY SYSTEM

Fred K. Kunderman, Olean, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 23, 1979, Ser. No. 32,089
Int. Cl.³ F04B *23/00*
U.S. Cl. 417—243 **3 Claims**



1. A system for recovering wasted energy from a multi-stage gas compressor or the like and including means for driving the compressor, said system comprising:

heat exchanger means having a water inlet and outlet operably connected with each compression stage of the compressor;

water conduit means operably connected to said heat exchanger means providing a parallel flow arrangement for the inlet and outlet of said heat exchanger means;

energy consumption means connected with said conduit means;

water pump means connected with said water conduit means for circulating water through said heat exchanger means and through said energy consumption means; and

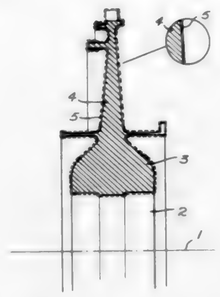
control means operably connected with said conduit means for selectively bypassing said energy consumption means and comprising valve means located in said conduit means for controlling the quantity of water flowing through said energy consumption means and water cooling means for decreasing the temperature of water flowing in said conduit means to said heat exchanger means.

4,279,575

TURBINE ROTOR

Peter Avery, Derby, England, assignor to Rolls-Royce Limited, London, England

Filed Oct. 24, 1978, Ser. No. 954,083
Claims priority, application United Kingdom, Nov. 19, 1977, 48270/77
Int. Cl.³ F01D *5/08*
U.S. Cl. 416—244 A **4 Claims**



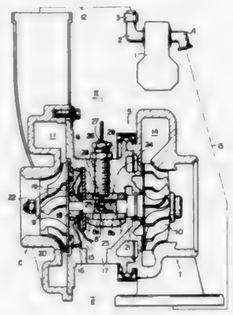
1. For a gas turbine engine, a machined-to-size superalloy turbine rotor disc having machined fatigue-prone surfaces intended to be subject to mechanical and heat stress cycles in said engine, said rotor disc having a coating on said machined fatigue-prone surfaces, said coating comprising a substantially air-impervious protective layer of a nonmetallic base material which substantially retains its integrity and adherence to said machined fatigue-prone surfaces of said superalloy turbine rotor disc without being integral therewith for a large number of said mechanical and heat stress cycles, whereby the fatigue life of said rotor disc is increased.

4,279,576

ROTATING SPEED DETECTING DEVICE OF A TURBOCHARGER

Hiroshi Okano, and Yoshihisa Gunji, both of Susono, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Jun. 28, 1979, Ser. No. 52,858
Claims priority, application Japan, Apr. 9, 1979, 54-42001
Int. Cl.³ F02B *37/00*; G01P *3/481*
U.S. Cl. 417—407 **6 Claims**



1. A turbocharger comprising:

a housing;

a shaft rotatably mounted on said housing and extending through said housing, said shaft having at its opposed ends a compressor wheel and a turbine wheel and having a circumferential outer wall which is located between said compressor wheel and said turbine wheel and forms at least one recessed portion thereon, said shaft comprises a first shaft portion connected to said compressor wheel and having a cylindrical hole at an inner end thereof, and a second shaft portion connected to said turbine wheel and having a reduced diameter portion fitted into said cylindrical hole, said recessed portion forming an air vent which is in communication with said cylindrical hole; and

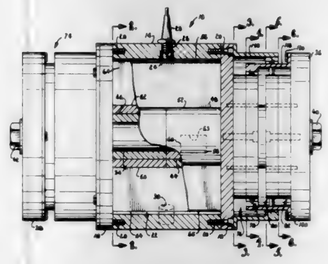
detecting means mounted on said housing and having a detecting portion which is arranged to face said recessed portion in the vicinity of the circumferential outer wall of said shaft.

4,279,577

ALTERNATING PISTON ROTARY ENGINE WITH LATCHING CONTROL MECHANISM AND LOST MOTION CONNECTION

John M. Appleton, 1032 Langland Ave., Muskegon, Mich. 49442

Filed Aug. 6, 1979, Ser. No. 64,178
Int. Cl.³ F01C *1/00*; F02B *53/00*
U.S. Cl. 418—35 **6 Claims**



1. A rotary engine comprising:

a stationary housing presenting an interior chamber therein;

a shaft supported for rotation on said housing in extension through said chamber;

first and second coupling pieces sleeved on said shaft in said chamber, each coupling piece being rotatable relative to said shaft;

first and second hubs each having a pair of radial pistons thereon, said first and second hubs being sleeved on the respective first and second coupling pieces for rotation relative thereto with the pistons of said first and second hubs being alternately situated within said chamber to form four separate combustion chambers;

means for temporarily maintaining each hub against backward movement to permit one piston thereof to form a stationary abutment on one side of a firing chamber defined at a predetermined location within said interior chamber;

means for holding each hub against forward movement to maintain a drive piston thereof on the opposite side of said firing chamber as said one piston of the other hub approaches said drive piston to compress a fuel charge in said firing chamber, said holding means releasing the hub at a preselected rotative position of the shaft;

means for effecting combustion of the fuel charge in said firing chamber to effect a power stroke when said shaft reaches said preselected rotative position, said power stroke driving said drive piston away from the stationary abutment to rotate the hub of the drive piston;

means for translating rotation of said drive piston hub into rotation of said shaft during said power stroke; and

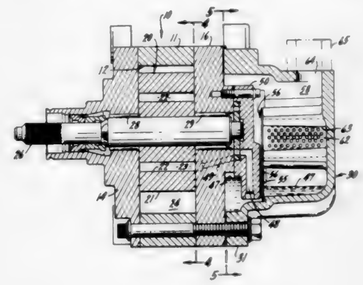
a lost motion connection between said first coupling piece and said first hub and between said second coupling piece and said second hub to provide rotary movement of each coupling piece in unison with the associated hub for a major portion of each revolution and independently of the associated hub for the remainder of each revolution, each lost motion connection being arranged to permit the piston forming said stationary abutment during one power stroke to move relative to the associated coupling piece across said firing chamber to the opposite side thereof to act as the drive piston for the next power stroke.

4,279,578

COMPACT OIL SEPARATOR FOR ROTARY COMPRESSOR

Tong S. Kim, Arlington Heights, and John S. Lee, Decatur, both of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed May 21, 1979, Ser. No. 41,215
Int. Cl.³ F04C *29/02*
U.S. Cl. 418—97 **6 Claims**



1. A compact oil separator for separating oil entrained in the discharge gas produced by a rotary compressor, the separated oil forming an oil pool, comprising:

means for providing a first closed chamber of relatively small volume and having an inlet and an outlet which is generally planar and perpendicular to the surface of the oil pool;

a relatively small, generally planar gas permeable, oil separating element interposed in, and parallel to, the outlet of said first chamber;

means for providing a second closed chamber of relatively large volume, much greater than the volume of said first closed chamber, and with an oil reservoir for the oil pool at the bottom thereof, the planar outlet of said first chamber communicating with said second chamber, a predetermined portion of the second chamber's internal surface being generally planar and parallel to the plane of, and directly opposite from, the first chamber's outlet;

means for delivering the oil-laden discharge gas from the compressor into said first chamber at a relatively high velocity and against and through said oil separating element to said second chamber whereupon the discharge gas flows turbulently within said second chamber and bounces off of the chamber's internal surface, wherein at least some of the discharge gas flowing out of said first chamber flows horizontally in one direction, parallel to the surface of the oil pool, and impinges on said predetermined surface portion of said second chamber and then bounces back and flows in the opposite direction thereby following a hairpin-flow path, the entrained oil in the discharge gas separating out by gravity settling and by impinging on said oil separating element and on the second chamber's internal surface and draining into the oil pool in said reservoir;

a planar shield, within said second chamber and perpendicular to the surface of the oil pool and extending from above and into the oil pool and almost to the bottom of the reservoir thereby dividing a small clearance gap, for protecting and quieting a portion of the oil pool from the turbulent flow of the discharge gas to minimize the re-

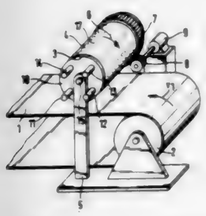
entrainment of oil into the discharge gas and to minimize the re-entrainment of discharge gas into the oil pool,
the top of said planar shield being a substantial distance from the top of said second chamber to maximize the space in the second chamber through which the discharge gas flows while at the same time providing the desired isolation of the quiet portion of the oil pool from the turbulence of the gas flow,
the small clearance gap permitting oil flow to the protected portion of the oil pool while providing an oil seal along the shield's lower edge to prevent the discharge gas from flowing directly through the protected oil and re-entraining therein as gas bubbles;
a gas discharge outlet through which the separated, substantially oil-free discharge gas may exit from said second chamber;
and means for supplying the separated, substantially gas-free oil from the protected quiet portion of the oil pool to the rotary compressor.

4,279,579

EXTRUSION APPARATUS

Reinhard Froeschke, Remshalden, Fed. Rep. of Germany, assignor to Sandvik Conveyor GmbH, Fellbach, Fed. Rep. of Germany

Filed Nov. 27, 1979, Ser. No. 97,750
Claims priority, application Fed. Rep. of Germany, Dec. 8, 1978, 2853054; Oct. 16, 1979, 2941802
Int. Cl.³ B29F *3/01*
U.S. Cl. 425—6 **10 Claims**



1. Apparatus for the extrusion of a flowable mass onto a moving conveyor comprising:
a first cylindrical container disposed above the conveyor for rotation about a longitudinal axis,
said first container including a plurality of first passages through the container periphery,
a second cylindrical container including means for longitudinally admitting into said second container the mass to be extruded and having a wall portion containing a plurality of second passages directed toward the conveyor and radially alignable with said first passages, said wall portion disposed at least closely adjacent said first container,
said first container being mounted for continuous 360° rotation about the longitudinal axis thereof relative to said second container such that relative rotation between said containers produces sequential misalignment and alignment of the first and second passages to enable the flowable mass to travel radially outwardly through the aligned passages and onto the conveyor, and
a spatula for removing excess mass from the perimeter of said first container, said spatula being directed toward said first container generally in the direction of rotation thereof, said spatula being tightly pressed against the perimeter of said first container in the region of said first passages to scrape excess mass into said first passages.

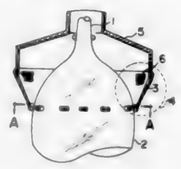
4. Apparatus for extruding drops of a flowable mass onto a conveyor, said apparatus comprising:
a first cylindrical container comprising a plurality of first passages,
a second cylindrical container disposed within said first container and including a plurality of second passages,
means for admitting flowable material into said second container,
means for producing relative rotation between said containers to periodically align said first and second passages to deposit drops of the flowable material through the passages and onto the conveyor,
said first and second containers being mounted to separate radially from one another during said relative rotation so as to form a negatively pressurized gap therebetween at a location opposite the location where the passages are periodically aligned, to suck-in excessive mass into said passages of said first container.

4,279,580

APPARATUS FOR MAKING BIAXIALLY STRETCHED TUBULAR FILMS

Kohtaro Hayashi, Yamanashi; Ko Morihara, Chibashi, and Kohji Nakamura, Chibaken, all of Japan, assignors to Chisso Corporation, Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,227
Claims priority, application Japan, Feb. 25, 1978, 53-159455
Int. Cl.³ B29D *23/04*; B29F *3/08*
U.S. Cl. 425—72 R **1 Claim**



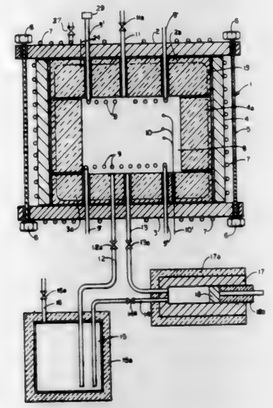
1. An apparatus for producing a biaxially stretched tubular plastic film that includes
means to extrude the raw plastic film into the form of a tube,
means to increase the diameter of the extruded tube form its extruded diameter to an enlarged maximum diameter by the introduction of inflation air into the interior of said tube, and
a film take up means,
means for passing heated air over the exterior surface of said extruded tube,
the improvement consisting of a flexible flow guide arrangement for guiding said heated air uniformly over the exterior of said extruded tube over that area of the tube where the diameter is changing from its extruded diameter to its enlarged maximum diameter, said flexible flow guide arrangement comprising in combination:
(a) a circular hood extending annularly around said tube,
(b) a plurality of spaced apart roller supports fixed around the circumference of said hood and extending in the same direction as the direction of film movement, a roller attached to the tip end of each support, each roller being positioned to contact the bubble adjacent to the point where the extruded tube is first inflated to its maximum diameter, said roller supports having sufficient elasticity to permit said rollers to swing in a radial direction relative to the central axis of the extruded tube but being resistant to distortion in a circumferential direction, and
(c) a flexible and expandable cylindrical sheet of flexible material extending between said hood and locations on said roller supports that are close to said rollers,
whereby the distance between the exterior surface of the extruded sheet adjacent its point of maximum diameter and the interior of said flexible and expandable cylindrical sheet is maintained at an approximately constant and uniform value so as to thereby provide a uniform flow of heated air over the exterior surface of the extruded tube over that area of the tube where the diameter is changing from its extruded diameter to its enlarged maximum diameter.

4,279,581

HOT ISOSTATIC PRESS

Wolfgang Betz, Munich, Fed. Rep. of Germany, assignor to MTU Motoren-Und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Jul. 18, 1980, Ser. No. 170,208
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929695
Int. Cl.³ B29C *3/00*; B30B *5/02, 11/00*; B22F *3/00*
U.S. Cl. 425—78 **10 Claims**



1. A hot isostatic press comprising:
(a) a working vessel defining a working chamber within it,
(b) means for supplying a molten metal working medium to the working chamber,
(c) heating means within the vessel and cooling means at the exterior of the vessel, and
(d) control means interconnecting the heating and cooling means and producing a continuous isothermal region completely surrounding the working chamber, the isothermal region being at the solidification temperature of the metal working medium,
whereby any potential leaks of molten metal working medium from the vessel are sealed by solidification of molten metal reaching the isothermal region.

4,279,582

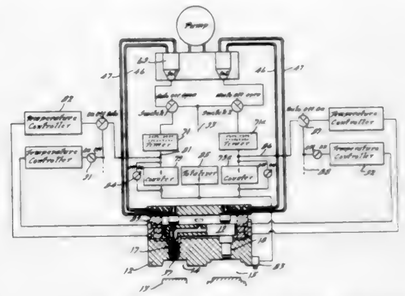
METHOD AND APPARATUS FOR INDIVIDUAL CONTROL OF INJECTION MOLD SHUT-OFF BUSHINGS

Jesus M. Ossua-Diaz, Rochester, Mich., assignor to Incoe Corporation, Troy, Mich.

Filed Apr. 2, 1979, Ser. No. 26,607
Int. Cl.³ B29F *1/03, 1/05*
U.S. Cl. 425—159 **8 Claims**

4. In a mold die assembly adapted for use with a plastic injection molding machine and of a type having cavity means therein and a plurality of gates communicating with said cavity means, means for delivering melt material simultaneously to said gates for injection into said cavity means, gate pins for selectively opening and closing said gates, and fluid motors having piston means forming gate pin actuators, the improvement comprising connecting means fastening rearward end portions of said gate pins to respective gate pin actuators, and means ahead of said connecting means providing radial clearances between the said piston means and adjacent portions of said gate pins, said clearances forming heat insulating gaps and also accommodating relative lateral shifting between said gate pins and said piston means.

5. In a mold die assembly adapted for use with a plastic injection molding machine and of a type having cavity means therein and a plurality of gates communicating with said cavity means, means for delivering melt material simultaneously to said gates for injection into said cavity means, gate pins for selectively opening and closing said gates, and fluid motors having piston means forming gate pin actuators, the improvement comprising means forming access openings in said fluid



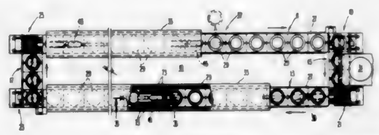
motors rearwardly of and in-line with said gate pins, and connecting means detachably fastening rearward end portions of said gate pins to respective gate pin actuators operable to permit adjustment of said gate pins longitudinally relative to said actuators and to permit removal of said gate pins rearwardly through the access openings of said fluid motors.

4,279,583

APPARATUS FOR THE AUTOMATED MANUFACTURE OF HEAVY CONCRETE OBJECTS

A. Eugene Martin, Sr., R.D. 1, P.O. Box 443, Narvon, Pa. 17555

Filed Mar. 17, 1980, Ser. No. 131,060
Int. Cl.³ B28B *5/04*; B29C *5/10*
U.S. Cl. 425—253 **14 Claims**



1. An apparatus for the automated manufacture of poured concrete objects comprising:
means for pouring concrete molded objects,
means for curing said poured concrete objects, said curing means including a straight tunnel containing superheated steam,
a stripping station for stripping said cured concrete objects, and
means for conveying said objects, said conveying means passing by said pouring means and said stripping means and through said curing means,
wherein said conveying means is a roller conveyor system, said roller conveyor system traversing a rectangular path containing four right angle turns, wherein two opposing sides of said roller conveyor system rectangular path are relatively long and extend relatively close to one another,
further comprising a plurality of rectangular pallets, each said pallet bearing a mold for said poured concrete objects, said pallets being transferable around said roller conveyor system,
wherein said roller conveyor system includes two parallel extending relatively long roller conveyors and two parallel extending relatively short roller conveyors, said two pairs of roller conveyors forming legs of said rectangular path,
the apparatus further comprising four right angle roller turn

boxes, said right angle roller turn boxes forming the corners of said rectangular path,

wherein said pallets are disposed on said conveyor means and are adapted to be transferred around said two pairs of roller conveyors and said four right angle roller turn boxes forming said rectangular path with a constant orientation,

wherein said relatively long roller conveyor pairs are each gravity conveyors, and wherein the relatively short of said four right angle turn boxes includes a first active drive member capable of moving one of said pallets in a first direction, and a second active drive member capable of moving one of said pallets in a second direction 90° from said first direction, said first active drive member being positioned interlaced with said second active drive member and movable to positions above and below said second active drive member,

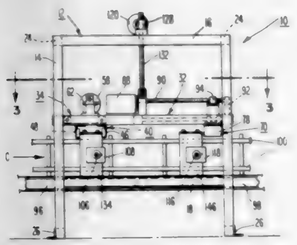
the apparatus also comprising a plurality of hydraulically operated means beneath the level of said gravity conveyors for pulling pallets along said pair of gravity roller conveyors.

4,279,584

AUTOMATIC FLASH REMOVING APPARATUS AND METHOD

Stanley F. Hawrylo, Reading, Pa., assignor to General Battery Corporation, Reading, Pa.

Filed Sep. 21, 1979, Ser. No. 77,669
Int. Cl.³ B29C *27/02, 17/12*
U.S. Cl. 425—307 **12 Claims**



2. An apparatus for automatically removing flash from a plastic weld bead formed by heat sealing a cover to a container of a lead-acid battery cell, said apparatus comprising:

a. flash removing means including at least one heated surface;

b. means for positioning said battery cell in an operating position adjacent said heated surface; and

c. means for moving said heated surface along said weld bead so that said heated surface slidingly engages said weld bead, whereby flash from said weld bead is smoothed out and pushed back against the weld bead, and thereby removed.

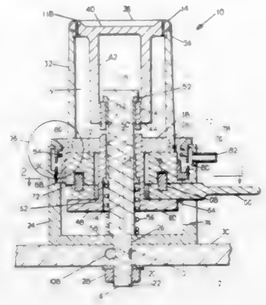
4,279,585

CUP FORMING MANDREL

Carl Arndt, Wauconda, and Martin Mueller, Wonderlake, both of Ill., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Nov. 9, 1979, Ser. No. 92,893
Int. Cl.³ B29C *17/02*; B29G *7/00*
U.S. Cl. 425—403 **10 Claims**

1. A mandrel for forming a container including an elongated, centrally positioned column with attachment means at one end for coupling to a base plate, a slide member positioned in telescoping arrangement on the exterior of said column that is adapted for movement relative to and parallel with the longitudinal axis of said column, sleeve means attached to said slide member, said sleeve means defining the interior contour of a container, a plurality of radially movable segments adjacent one end of said sleeve means and coupled to said slide member for increasing the diametrical extent of the rim of a container, biasing means coupled to said segments for moving them in a



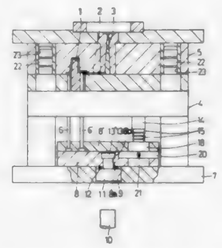
radial direction, and abutment means immobilized with respect to said column and said base plate for reacting the rim edge of a container that is positioned on the exterior of said sleeve means.

4,279,586

AUTOMATIC MOLD GOODS DROPPING DEVICE IN AN INJECTION MOLDING MACHINE

Yukio Yamashita, No. 3276-2, Hirooka, Fukuroi-shi, Shizuoka-ken, Japan

Filed Jul. 31, 1980, Ser. No. 174,111
Claims priority, application Japan, Aug. 9, 1979, 54/101426
Int. Cl.³ B29F *1/14*
U.S. Cl. 425—438 **2 Claims**



1. An automatic mold goods dropping device characterized in that a vibration-generating pin is provided for imparting vibrations to goods push-out pins when the mold is opened, said vibrations being transferred to said mold goods so as to push out said goods instantaneously to thus automatically throw down said goods.

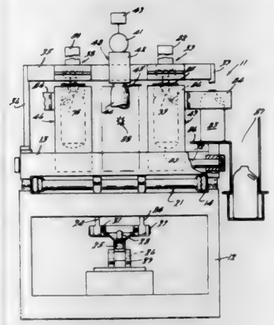
4,279,587

BLOW MOLDING MACHINE

Merritt W. Martin, Jr., Saline, Mich., assignor to Roman Machine Co., Detroit, Mich.

Division of Ser. No. 890,625, Mar. 20, 1978, Pat. No. 4,248,582.
This application Oct. 1, 1979, Ser. No. 80,460
Int. Cl.³ B29C *17/07*
U.S. Cl. 425—531 **4 Claims**

1. A blow molding machine comprising a base, an extruder mounted above said base at an extruding station and having means for continuously extruding a tubular parison, extruding parison severing means at said station, a table mounted on said base below said extruder for limited vertical movement between upper and lower positions, a pair of mold sections mounted on said table for transverse movement, means for moving said mold sections between clamped and unclamped positions, a blow pin mounted on said table and transversely spaced from said extruder at a blow molding station, means for moving said mold sections to said extruding station and moving the mold sections while at said extruding station to their clamped positions so as to engage a parison, means for moving said table from its upper to its lower position, means for severing said parison with said severing means and means for moving said mold sections toward said blow molding station, simultaneously with said table movement, means for thereafter



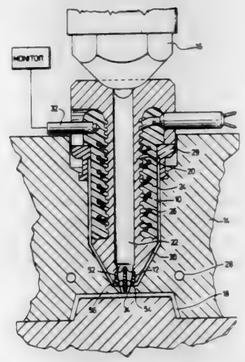
raising said table, means for causing said blow pin to expand said parison in said mold sections, means for moving said mold sections to their unclamped positions, means for returning said mold sections to said extruding station, said means for raising and lowering said table comprising two pairs of links at the opposite ends of said table, each pair of links having one end pivotally connected to said frame and the other end connected to said table, whereby said table will have slight forward and rearward movement during its raising and lowering motions, a pair of torsion bars secured between intermediate portions of each pair of links, two crank arms secured to said torsion bars, and reciprocating motor means connected to the outer ends of said crank arms.

4,279,588

HOT TIP SEAL

Jobst U. Gellert, 7A Prince St., Glen Williams, Ontario, Canada

Filed Jul. 28, 1980, Ser. No. 173,081
Claims priority, application Canada, Jul. 15, 1980, 356232
Int. Cl.³ B29F *1/03*
U.S. Cl. 425—568 **5 Claims**



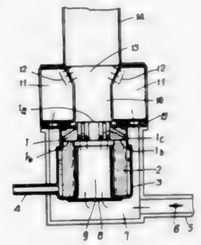
1. In an injection molding system having a nozzle seal seated between a nozzle and a cavity plate wherein melt flows from a central melt passage in the nozzle through the nozzle seal and a gate in the cavity plate into a cavity, the improvement wherein the seal has a generally cylindrical outer portion, an elongated central pin portion, and a plurality of ribs extending therebetween defining a number of apertures through which the melt flows around the central pin portion and into the cavity, the central pin portion having a first tip which extends downstream into the gate.

4,279,589

COMBUSTION DEVICE FOR LIQUID FUELS

Yoshimi Ohmukai, Hirakata; Takeshi Tomisawa, Katano, and Yoshitaka Kawasaki, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 12, 1978, Ser. No. 914,856
Claims priority, application Japan, Jun. 15, 1977, 52-071301; Oct. 11, 1977, 52-122188
Int. Cl.³ F23D *13/12*
U.S. Cl. 431—328 **11 Claims**



1. A combustion device for liquid fuel comprising:

a porous body having a fuel receiving portion for containing the fuel in the form of a liquid phase and a fuel vaporizing portion continuous with the fuel receiving portion;

means for supplying the fuel to the fuel receiving portion of the porous body;

wall means for providing a main air chamber, a primary combustion space adjacent the fuel vaporizing portion of the porous body, said vaporizing portion being exposed to said primary combustion space, and for providing a secondary combustion space arranged downstream and distinctly separate from the primary combustion space;

air supply means for supplying primary air to the primary combustion space and secondary air to the secondary combustion space, said air supply means and said wall means serving to prevent contact between the secondary air and said porous body, and including separate passage means from said main air chamber to the primary and secondary combustion spaces for determining the ratio of the primary air to the secondary air supplied to said primary and secondary combustion spaces, respectively; and

air flow regulating means for adjusting calorific value by regulating at least the primary air of the air supply.

4,279,590

LAMP WITH PROTECTIVE COATING AND METHOD OF APPLYING SAME

Judith A. Dow, Boston, and Timothy Fohl, Carlisle, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 23, 1976, Ser. No. 699,139
Int. Cl.³ F21K *5/00*
U.S. Cl. 431—360 **9 Claims**

1. A lamp having a light-transmitting envelope and an optically clear protective coating on the exterior surface of said envelope, said coating comprising a solvent-free photopolymer in combination with reinforcing fibers dispersed throughout

said photopolymer coating, the lengths of said fibers being between about the length of the maximum dimension of said lamp envelope and 1/16 inch, and said photopolymer comprising a UV curable synthetic polymer containing an organic



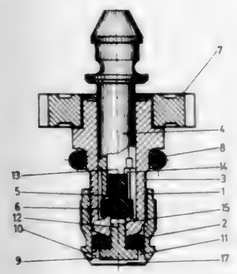
photoinitiator or photosensitizer and which has been rapidly cured by irradiation with a source of ultraviolet light for a period between about 0.1 second and 10 seconds, whereby a smooth coating surface is provided with minimized protrusion of fibers.

4,279,591

ADJUSTMENT GASIFICATION DEVICE FOR GAS LIGHTERS

Ricardo Aguirre, Sales y Ferrer, 7, Barcelona, Spain

Filed Dec. 7, 1978, Ser. No. 967,484
Claims priority, application Spain, Dec. 13, 1977, 232.677
Int. Cl.³ F23Q 2/16
U.S. Cl. 431—344 **5 Claims**



1. Adjustable gasification device for a gas lighter, comprising:

a tubular cylindrical body for being contained in the body of a lighter; a burner located inside the tubular body;

an adjustment part inside the tubular body which is adjustable with respect to the tubular body and which is so placed and functions for controlling fluid flow to the burner;

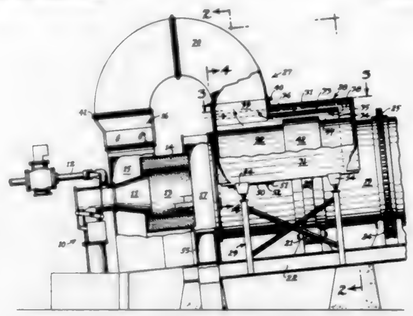
the tubular body having a lower end; a bottom integral with the tubular body for closing the lower end of the tubular body; the bottom having passages through it from outside the tubular body through which fluid enters the tubular body and communicates to the adjustment part and thereafter communicates to the burner.

4,279,592

HEAT EXCHANGER FOR PRE-HEATING INTAKE AIR FOR ROTARY DRYER

Herman L. Grant, Chattanooga, Tenn., assignor to Herman Grant Co., Inc., Chattanooga, Tenn.

Filed Jan. 2, 1980, Ser. No. 109,156
Int. Cl.³ F27B 7/36; F24H 1/00
U.S. Cl. 432—105 **8 Claims**



1. In a dryer apparatus for drying aggregate, including a rotary cylindrical dryer chamber adapted to rotate about its longitudinal cylindrical axis inclined at an angle to the horizontal, and having a lower end communicating with a combustion chamber having an air intake, a heat exchanger comprising:

(a) a pre-heating chamber having a longitudinal dimension and longitudinally spaced first and second end portions, said pre-heating chamber being transversely arcuate to fit over, and generally conform to, the cylindrical shape of the upper portion of said dryer chamber,

(b) means mounting said pre-heating chamber above and in heat transfer relationship with a portion of said cylindrical dryer chamber,

(c) a longitudinal, transversely arcuate, partition wall within said pre-heating chamber dividing said heating chamber into a radially outer air passage and a radially inner air passage,

(d) said outer and inner passages being in fluid communication adjacent said second end portion of said heating chamber,

(e) an air inlet in said first end portion of said pre-heating chamber communicating with one of said outer or inner air passages,

(f) an air outlet adjacent said first end portion of said pre-heating chamber in fluid communication with the other of said outer or inner air passages.

(g) duct means in fluid communication between said air outlet and the air intake to said combustion chamber, whereby ambient air enters said air inlet and moves through said air passages to become heated, and is then discharged from said air outlet through said duct means to said air intake.

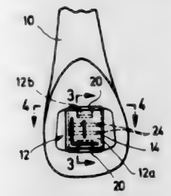
4,279,593

WIRE SUPPORTING MEANS FOR ORTHODONTIC PURPOSES

Friedrich-Wilhelm Röhlcke, Uferstrasse 23, D-7531 Kämpfelbach-Bilfingen, Fed. Rep. of Germany

Filed Jan. 23, 1980, Ser. No. 114,716
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903768
Int. Cl.³ A61C 7/00
U.S. Cl. 433—8 **9 Claims**

1. An orthodontic wire support identification member for attachment to an orthodontic wire support, comprising a body, an attachment base on which said body is provided, and at least one channel in said body for accommodating a wire, characterized by said wire support identification member being releaseably attached to said body for removal after mounting of the orthodontic wire support on a tooth whereby said wire support identification member facilitates identification of different types of wire supporting wire supports, said identification member covering said channel when in position on said body.

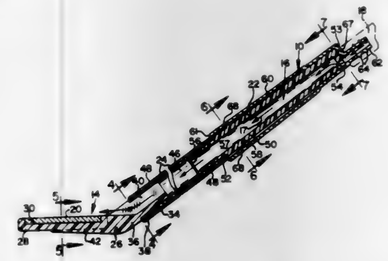


4,279,594

DENTAL HAND MIRROR

Martin A. Rigutto, Roseburg, Oreg., assignor to Reflek Products, Incorporated, Roseburg, Oreg.

Filed Oct. 18, 1979, Ser. No. 85,879
Int. Cl.³ A61C 1/00
U.S. Cl. 433—31 **13 Claims**



1. A dental hand mirror unit comprising:

a generally hollow mirror assembly including a mirror end portion, coupling end portion and a handle portion interconnecting said mirror end portion and coupling end portion;

said mirror end portion including a mirror;

said mirror assembly defining a continuous uninterruptable airflow path from an inlet opening through said coupling end portion, through the interior of said mirror assembly and to an outlet at the mirror such that air entering said coupling end portion is distributed substantially over the mirror;

a cap section pivotally coupled to said coupling end portion for pivoting about the axis of said mirror assembly;

valve means responsive to the pivoting of said cap section about such axis for controlling the flow of air entering said coupling end portion and thereby the volume of air distributed over the mirror.

4,279,595

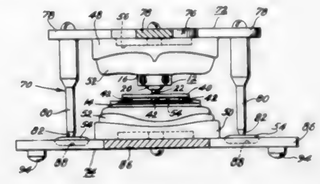
ARTICULATOR

John B. Della Croce, 450 Washington St., Freeland, Pa. 18224

Filed Aug. 10, 1979, Ser. No. 65,482
Int. Cl.³ A61C 11/00
U.S. Cl. 433—55 **5 Claims**

1. An articulator for constructing dentures, or the like, for use with a gothic arch tracing apparatus on which is formed a first set of three gothic arch traces from a patient's mouth, comprising:

first and second members having means for holding said members in spaced relationship, said means for holding being rigidly connected to one of said members and placeable against the other of said members, means for mounting a pair of dental casts between said members, one of said members accommodating an upper cast, the other member accommodating a lower cast, said tracing apparatus being removably mountable directly in said casts while in operable relationship; and,



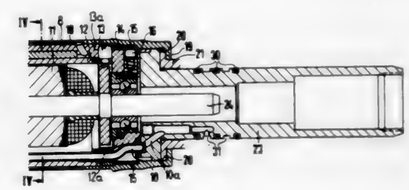
means for forming a second set of three gothic arch traces, substantially identical to the first set on one of the first and second members, for controlling relative movement of said members within a three dimensional envelope of motion, in accordance with movement of said tracing apparatus whereby relative movement of said first and second members is controlled after removal of said tracing apparatus.

4,279,596

DENTAL HANDPIECE

Walter Weber, Lorsch, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 10, 1979, Ser. No. 101,576
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855719
Int. Cl.³ A61C 1/02
U.S. Cl. 433—126 **11 Claims**



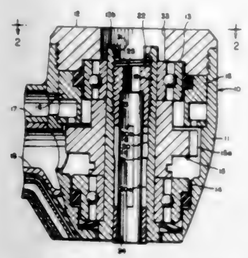
1. In a dental handpiece having a drive motor part with a motor having a drive shaft being mounted for rotation in a housing, a grip section with a head part having a socket for receiving and mounting a tool for rotation, said grip section being coupled on the housing and having a drive shaft section coupled to the drive shaft to transmit rotary motion from the motor to the socket, the improvements comprising a first sleeve surrounding said housing, means for holding the first sleeve on the housing, said means allowing removal of the sleeve but preventing unintentional axial slippage from the housing of the drive motor part and enabling rotation of the first sleeve on said housing around an axis extending parallel to the drive shaft of the drive motor part, said first sleeve having an end adjacent the grip section, said end having means for mounting the first sleeve for rotation relative to a second sleeve, said second sleeve being part of the grip section and having means forming an operational releasable connection between the head part and the second sleeve of the grip section, so that the parts can be separated without requiring assistance of tool.

4,279,597

CHUCK ASSEMBLY FOR DENTAL HANDPIECES

Phillip R. Grimm, Arlington Heights, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

Continuation-in-part of Ser. No. 885,290, Mar. 10, 1978, abandoned. This application Sep. 12, 1979, Ser. No. 74,720
Int. Cl.³ A61C 1/14
U.S. Cl. 433—129 9 Claims



1. A positive-bur-gripping chuck assembly for a high-speed dental handpiece generally operable at rotational speeds in excess of 100,000 rpm, comprising a rotor having a bore therethrough and having upper, lower, and intermediate sections; said intermediate section providing an internal shoulder within said bore; a tubular chuck received within said bore and having an upper end portion, a deformable intermediate portion, and a cylindrical lower end portion; said upper section of said rotor and said upper end portion of said chuck threadedly engaging each other; means provided by said chuck for engaging a wrench for rotating and thereby axially displacing said chuck within said rotor bore; said chuck having a generally cylindrical bore therethrough for receiving the shank of a dental bur; said deformable intermediate portion of said chuck being provided with an external shoulder engagable with said internal shoulder of said rotor to cam said deformable intermediate portion inwardly into tight clamping engagement with the shank of a dental bur when said shoulders of said chuck and rotor are urged axially into engagement with each other; said lower portion of said chuck defining a pilot zone for snugly but slidably engaging the shank of a bur at a substantial axial distance from said shoulders; and means provided by said rotor for surrounding and bracing said pilot zone of said chuck to prevent forces directed against said bur from being propagated beyond said pilot zone into the zone of clamping engagement with a dental bur.

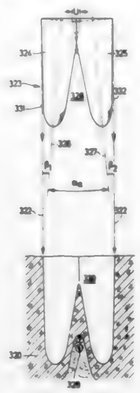
4,279,598

DENTAL HALF-IMPLANTS

Hans M. F. Scheicher, Roadell Neuwittelsbach 4, D 8000 Munich, 19, Fed. Rep. of Germany

Division of Ser. No. 811,224, Jun. 29, 1977, Pat. No. 4,197,645. This application Aug. 27, 1979, Ser. No. 69,646
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1976, 2630400; Jul. 6, 1976, 2630408; Sep. 4, 1976, 2639887
Int. Cl.³ A61C 8/00
U.S. Cl. 433—173 12 Claims

1. An enossal dental half-implant suitable for use in at least two simultaneously drilled, identical, uniformly shaped, overlapping bores in a jaw bone, said implant having a downwardly tapering endostructure having an upper end and a lower end constructed as a dental root substitute comprising a unitary one-piece structure having at least two identical, uniformly shaped cone-like root portions which overlap at least at the upper end of said endostructure and which are separate from each other at the lower end of said endostructure, said upper end of said endostructure having a uniformly lobed cross-sectional configuration lying in a plane having the greatest cross-sectional area of the endostructure while the entire cone-like root portions are disposed completely within a projection of



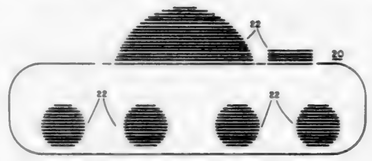
said greatest cross-sectional area in a direction perpendicular to said plane of said upper end.

4,279,599

THERMAL TARGET AND WEAPON FIRE SIMULATOR FOR THERMAL SIGHTS

Albert H. Marshall, Orlando, and George Derderian, Maitland, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 30, 1979, Ser. No. 71,142
Int. Cl.³ F41G 3/26; F41J 1/00
U.S. Cl. 434—21 17 Claims



1. A target which simulates the thermal signature of a preselected object, comprising:

a planar member having a plurality of surface portions on a first surface of said member, selected to be distinguishable by their thermal emissivity,

the first surface portion of said member having a substantially smooth surface and the second surface portion of said member having a relatively coarse texture rendered within the surface of said member, that correspond in relative size, placement and emissivity to the less thermally emissive and more thermally emissive areas, respectively, on the surface of said preselected object.

4,279,600

ROD WRENCHING TABLE

Robert M. Levy, and P. Jeffrey Matire, both of Guymon, Okla., assignors to Sam's Well Service, Inc., Guymon, Okla.

Filed Oct. 10, 1979, Ser. No. 83,292
Int. Cl.³ G09B 9/00
U.S. Cl. 434—219 8 Claims

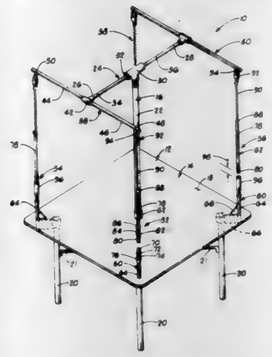
4. A training apparatus for training persons to assemble threaded rods to be installed in a well, said training apparatus comprising:

a frame having a lower frame portion and an upper frame portion;

a first threaded rod means connected to said lower frame portion and having an upper end extending upwardly therefrom;

a second threaded rod means having a downwardly extending lower end; and

support means for supporting said second threaded rod means from said upper frame portion so that said lower end of said second threaded rod means may be engaged with and threadedly connected to said upper end of said



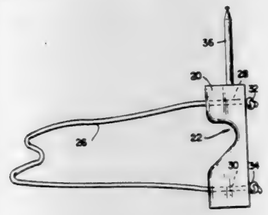
first threaded rod means, said support means including resiliently extendable means including a coil spring, connected between said upper frame portion and an upper end of said second threaded rod means, for holding said lower end of said second threaded rod means suspended above said upper end of said first threaded rod means and for allowing said second threaded rod means to be engaged with said first threaded rod means by an application of a downward force upon said second threaded rod means.

4,279,601

ARCHERY TRAINER AND EXERCISE DEVICE

Gabriel Cobelli, 84 Townline Rd., Nanuet, N.Y. 10954

Filed Jan. 21, 1980, Ser. No. 113,529
Int. Cl.³ A63B 21/02
U.S. Cl. 434—247 1 Claim



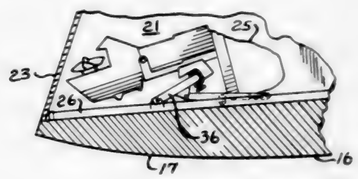
1. An archery trainer and exercise device comprising a gripping handle having an upper and lower surface with a gripping curve having an upper and lower end formed therein between the upper and lower surface for holding the archery trainer and exercise device during use, said gripping handle having a first upper hole formed therethrough located between the upper surface and the upper end of said gripping curve and extending horizontally from the front to the rear of said gripping handle and a second lower hole formed therethrough located between the lower surface and the lower end of said gripping curve and extending horizontally from the front to the rear of said gripping handle, a continuous elastic cord having a first end passing through the upper hole in said gripping handle and secured forward of said gripping handle and a second end passing through said lower hole in said gripping handle and secured forward of said gripping handle to prevent the elastic cord from being pulled through the holes when in use, and a sighting rod mounted on the upper surface of the gripping handle and extending vertically upward therefrom to permit a student archer to grip the gripping handle at the gripping curve between the horizontally extending first and second holes in the gripping handle while orienting the gripping handle with the upper hole vertically above the lower hole and pull the elastic cord rearward in a generally horizontal direction toward the user while sighting over the vertically upwardly extending sighting rod toward a real or imaginery target, whereby the student archer can simulate the use of a bow to learn proper bow hand position and sighting to the target while simultaneously strengthening the muscles required for accurate shooting.

4,279,602

APPARATUS FOR MOUNTING AN OUTBOARD MOTOR

Hobart L. Alter, Capistrano Beach, Calif., assignor to Coast Catamaran Corporation, Oceanside, Calif.

Filed Aug. 7, 1979, Ser. No. 64,402
Int. Cl.³ B63H 21/26
U.S. Cl. 440—63 1 Claim



1. A motor mounting apparatus for mounting an outboard motor on a boat, the apparatus comprising:

(a) a pair of guide tracks adapted to be mounted on a boat;

(b) a carriage slidably mounted in the guide tracks and movable between a storage position and a use position;

(c) a motor mounting plate pivotally mounted on the carriage and being pivotable between a storage position and a use position; and

(d) over center link means for preventing movement of the motor mounting plate from the use position to the storage position, the over center link means including a first link pivotally connected to the motor mounting plate and a second link pivotally connected to the carriage, the first and second links being pivotally connected to each other.

4,279,603

FLEXIBLE PADDLE WHEEL STRUCTURE

Colin H. Harcourt, and D. Roy Barker, both of Calgary, Canada, assignors to Hoverlift Systems Ltd., Calgary, Canada

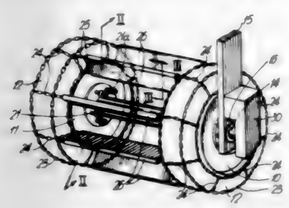
Filed Oct. 19, 1979, Ser. No. 86,307
Int. Cl.³ B63H 1/04
U.S. Cl. 440—90 14 Claims

1. A flexible paddle wheel structure, comprising:

two axially spaced wheel-like members, each having a flexible rim;

a plurality of pairs of radially spaced flexible transverse members extending between the rims and connected thereto, the pairs spaced around the axis of the wheel-like members;

a separate and distinct flexible paddle member extending between the transverse members of each pair, to form a

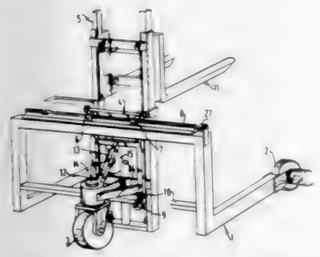


plurality of flexible radially extending paddles between the wheel-like members.

4,279,604
FORK TRUCK

Hessel Kool, Vrouwenparochie, and Hendrik de Vries, No. 28, Hemmemaweg, St. Annaparochie, both of Netherlands, assignors to Kool B.V., Vrouwenparochie and de Vries, Hendrik, St. Annaparochie, both of, Netherlands

Filed Jun. 14, 1979, Ser. No. 48,524
Claims priority, application Netherlands, Jun. 23, 1978, 7806778
Int. Cl.³ B66F 9/06
U.S. Cl. 414—667 5 Claims



1. In a fork lift truck of the type having a frame provided with a pair of laterally spaced ground engaging wheels at the forward end thereof defining respective forwardly disposed supporting points;

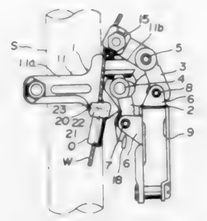
mast assembly means movably mounted on said frame in spaced relation behind said wheels for lateral shifting relative to said frame, said mast assembly means including an upright mast, a load carrier vertically movable on said mast and projecting forwardly therefrom and means for vertically moving said load carrier, and means for laterally shifting said mast assembly means on said frame, the improvement which comprises:

ground engaging wheel means disposed behind said mast assembly means for supporting said frame and mast assembly means, through said mast assembly means, at a third support point which defines the apex of an imaginary triangle of which the base is defined between said forwardly disposed supporting points and within the plan view area of which imaginary triangle the center of gravity of the fork lift truck and a load supported by said load carrier must remain in order to prevent tipping of the truck, said ground engaging wheel means including force transferring means carried by said mast assembly means and constituting said third support point whereby said apex is laterally shiftable with the mast assembly means.

4,279,605
FRONT DERAILLEUR FOR A BICYCLE

Tetsufumi Egami, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Aug. 28, 1979, Ser. No. 70,650
Claims priority, application Japan, Sep. 13, 1978, 53-126654[U]; Oct. 26, 1978, 53-147828[U]
Int. Cl.³ F16H 7/22, 11/08
U.S. Cl. 474—82 7 Claims



1. A front derailleur comprising:

a base member;

a pair of linkage members pivotally supported to said base member;

a movable member pivotally supported to said linkage members and having a chain guide;

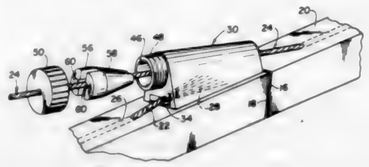
a holder for a control wire provided at one of said linkage members; and,

a support for an outer sheath guiding said control wire provided at said base member, said support being mounted to a mounting nose extending from said base member and having a socket for receiving therein one end of said outer sheath, said mounting nose having an insertion bore for said control wire, said socket having at the bottom thereof an insertion bore for said control wire, and a guide slot directly connected to and in continuation of said insertion bores and extending radially thereof, said guide slot having a width substantially equal to the diameter of said insertion bores extending away from said linkage members and in the same direction of swinging movement of the linkage members and being larger in length than the maximum wire deflection created when a control wire having no outer sheath is used to operate said derailleur.

4,279,606
EMERGENCY REPLACEMENT PULLEY BELT FOR AUTOMOBILES OR THE LIKE

Norman H. Berg, 3295 Parkway Dr., Baldwin, N.Y. 11510

Filed Dec. 26, 1979, Ser. No. 107,032
Int. Cl.³ F16G 3/16, 7/04, 7/06
U.S. Cl. 474—257 3 Claims

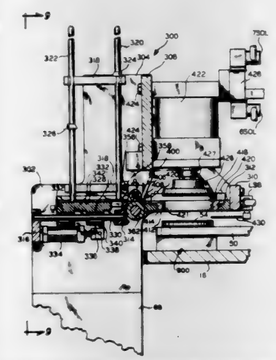


1. An emergency replacement pulley belt for autos or the like comprising a selected length of a pulley belt body of elastomeric construction material having opposite ends in initial unattached relation, a cable embodied lengthwise of said pulley belt body having a size in relation thereto resulting in a selected end-connecting length of said cable extending from one said end of said pulley belt body, a cable-gripping member bounding an open-ended compartment connected adjacent said other end of said pulley belt body, said end-connecting cable length having an operative position projected through said open-ended compartment of said cable-gripping member so as to form said pulley belt body into a closed loop incident to the placement thereof in entrained relation about a pair of spaced apart pulleys, and wedge means having an operative position in said compartment in gripping engagement with said end-connecting cable length and oriented so as to be wedged more firmly thereagainst responsive to pulling force exerted on said cable, whereby the contemplated emergency use of said pulley belt contributes to completing the connection of the two ends thereof and thus to the emergency installation of said pulley belt without the use of any tools.

4,279,607
DISC FEEDING APPARATUS FOR USE WITH A PACKAGING MACHINE OR THE LIKE

Raymond C. Taylor, Kansas City, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,231
Int. Cl.³ B31B 1/44, 1/06
U.S. Cl. 493—167 12 Claims



1. Apparatus for sequentially feeding generally circular discs from a stack of said discs to a predetermined position separate from said stack, comprising:

a disc feed support frame;

means on said disc feed support frame for holding a stack of said generally circular discs;

carriage means carried by said disc feed support frame and reciprocable along a line generally normal to said stack of said generally circular discs between a first position proximate to said means for holding a stack of said generally circular discs and a second position nearer to said position separate from said stack for sequentially moving each successive generally circular disc nearest said carriage means from said stack toward said position separate from said stack;

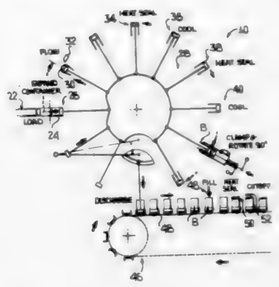
nip roller means journaled on said disc feed support frame intermediate said carriage means and said position separate from said stack for engaging each successive generally circular disc from said carriage means when said carriage means is in the second position thereof; and

roller drive means drivingly engaging said nip roller means for rotating said nip roller means at a speed sufficient to convey each generally circular disc engaged by said nip roller means to said position separate from said stack.

4,279,608
BAG BOTTOM FORMING MACHINE AND TRANSFER APPARATUS

Jack R. Evers, Torrance, Calif., assignor to Developak Corporation, Redondo Beach, Calif.

Filed Sep. 17, 1979, Ser. No. 76,447
Int. Cl.³ B31B 1/32
U.S. Cl. 493—247 20 Claims

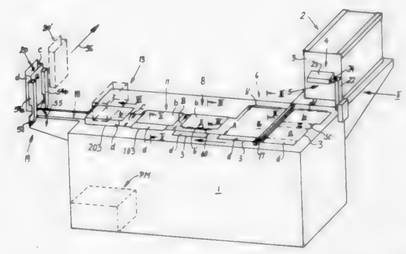


1. An apparatus for shaping a sealed tube bottom into a flat bag bottom and delivering the shaped bag to take-away means, said apparatus comprising a turret, means mounting said turret for indexing movement about a fixed generally horizontal axis, said turret having a plurality of stations, each of said stations including a mandrel assembly, each mandrel assembly including an inner mandrel, and an outer mandrel, a plunger for each outer mandrel and extending into the interior of said turret through said inner mandrel, and cam means cooperating with an inner end of said plunger for positioning said outer mandrel relative to said inner mandrel, and orienting means for engaging the bag while on said mandrel assembly and rotating the bag about the axis of said mandrel assembly.

4,279,609
METHOD AND APPARATUS FOR MAKING COLLAPSIBLE CONTAINERS

Nils von Wichert, Glinde, and Dieter Schwenke, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Filed Jan. 11, 1980, Ser. No. 111,263
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1979, 2901571
Int. Cl.³ B31B 1/26, 1/80
U.S. Cl. 493—276 11 Claims



1. In a method of converting foldable blanks of the type having a plurality of neighboring panels including two outermost panels into tubular containers, the steps of transporting the blanks seriatim along a predetermined path through a plurality of successive stations which include a row of deforming stations and an additional station and are defined by progressively narrower portions of a substantially flat one-piece

pattern; converting consecutive blanks into flat tubular preforms including folding selected panels of consecutive blanks about the adjacent portions of the pattern and connecting the outermost panels of consecutive blanks for articulate movement relative to each other at said deforming stations; and expanding the flat preforms at said additional station.

4,279,610

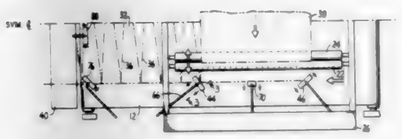
CROSS-LAPPED WEB FORMING SYSTEM

Imants Reba, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Oct. 22, 1979, Ser. No. 86,858

Int. Cl.³ B65H *29/46, 45/20*

U.S. Cl. 493—411 **5 Claims**



1. In apparatus for forming a layered, cross-lapped web from web material having a predetermined width, said apparatus including conveyor means having a web support surface and moveable in a predetermined direction and cross-lapping means disposed above said conveyor means and reciprocally moveable transverse to said predetermined direction across said conveyor means for folding said web material along fold lines extending across the width thereof in said predetermined direction and positioning a folded, layered cross-lapped web formed from said web material on said conveyor means web support surface, the improvement comprising at least a pair of Coanda nozzles positioned over said conveyor means web support surface, said pair of nozzles being disposed along at least one of the fold lines extending in said predetermined direction and spaced from one another a distance substantially equal to said web material width, each of said nozzles including an elongated foil element defining a generally smoothly curved fluid flow attachment surface and means defining a restricted opening for directing fluid under pressure to said fluid flow attachment surface whereby said fluid will attach to said surface and flow along said surface, each of said pair of nozzles having the elongated foil element thereof angularly oriented with respect to one another and with respect to said predetermined direction to create divergent fluid flows, said cross-lapping means delivering said web material to said nozzles with said fold line extending between said nozzles in said predetermined direction and said divergent fluid flows laterally spreading said web material to its full width along said fold line.

4,279,611

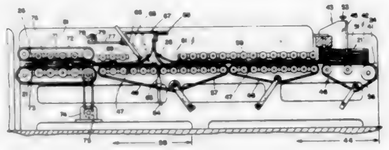
APPARATUS AND METHOD FOR FOLDING BLANKS WITH AN UNUSUALLY ELONGATED WALL

Raymond A. Labombarde, D. W. Hwy. South Box 787, Nashua, N.H. 03061, and Robert A. Tremblay, 167 Derry Rd., Hudson, N.H. 03051

Filed Jan. 7, 1980, Ser. No. 109,980

Int. Cl.³ B31B *1/36, 1/96*

U.S. Cl. 493—418 **11 Claims**



9. The method of folding flat box blanks of the type having front and side walls of relatively short length, but having a combined bottom wall and rear wall projecting from the center of the bottom of the front wall to create a blank of relatively long length, occupying substantial space on the paper line of a folding machine and, therefore, slowing production, said method comprising the steps of;

feeding said blanks onto the paper line of said machine in shingled formation with the rear walls of each blank overlying a portion of the rear wall of the preceding blank;

advancing said shingled blanks along said paper line and while so advancing, backfolding each successive individual rear wall in a backfolding zone, the backfolding of a preceding rear wall causing the backfolding of the overlying rear walls of succeeding shingled blanks in domino fashion; and

then speeding up the advance of said backfolded, shingled blanks individually in a speed up zone along said path to create a space between successive blanks.

4,279,612

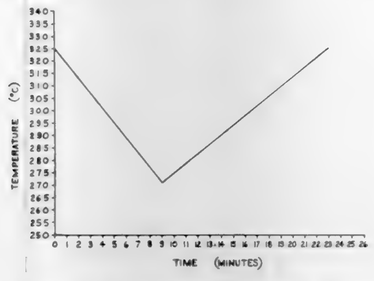
PRODUCTION OF STABILIZED ACRYLIC FIBERS

Richard D. Winters, Elizabethton, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

Filed Apr. 23, 1980, Ser. No. 143,083

Int. Cl.³ D06C *7/04;* **D01F** *9/22*

U.S. Cl. 8—115.5 **3 Claims**



1. A process for rapidly thermally stabilizing a bundle of acrylic fibers in an oxidizing atmosphere, under a tension at least sufficient to prevent significant fiber shrinkage, comprising the steps of:

(a) directly exposing the bundle of fibers to a heat treatment temperature in the range of about 2° C. to about 8° C. below a predetermined temperature at which fusion of a segment of said bundle of fibers is observed to occur;

(b) immediately decreasing the heat treatment temperature of the bundle of fibers at a predetermined rate wherein said temperature is constantly maintained at about the maximum which said bundle of fibers can tolerate without fusing as the fiber density is simultaneously and progressively increased until a critical density is attained at which said bundle of fibers will tolerate an increase in temperature without fusing; and then

(c) immediately increasing the heat treatment temperature of the bundle of fibers at a predetermined rate wherein said temperature is constantly maintained at about the maximum which said bundle of fibers can tolerate without fusing as the fiber density is simultaneously and progressively increased to the level at which said bundle of fibers is capable of sustaining carbonization at a temperature of at least about 800° C. in a non-oxidizing atmosphere.

4,279,613

METHOD AND COMPOSITION FOR HAIR COLORING

Eugen Konrad, Darmstadt, Fed. Rep. of Germany, and Herbert Mager, Fribourg, Switzerland, assignors to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany

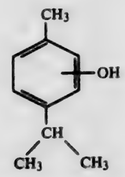
Filed Sep. 10, 1979, Ser. No. 74,406

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840830

Int. Cl.³ A61K *7/13*

U.S. Cl. 8—407 **12 Claims**

1. A composition for oxidative coloring of hair, comprising an oxidizable developer-coupler combination comprising a 1-methyl-4-isopropyl-hydroxybenzene of the formula



as coupler substance and a developer therefor.

8. A composition as defined in claim 1, wherein at least one directly-applicable coloring agent selected from the group consisting of Diamond Fuchsin, Leather Ruby HF, 2-nitro-1,4-diaminobenzene, Acid Brown 4, Disperse Red 15, 1,4,5,8-tetraaminoanthraquinone and 1,4-diamino-anthraquinone is added.

4,279,614

PROCESS FOR DYEING POLYESTER-CONTAINING MATERIALS

Hans Schulze, Cologne; Klaus Walz, Leverkusen; Karlhans Jakobs, Bergisch-Gladbach, and Günther Boehmke, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

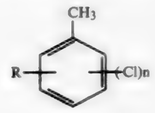
Filed Nov. 14, 1979, Ser. No. 93,951

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1978, 2852027

Int. Cl.³ D06P *3/872, 3/84, 3/82, 1/90*

U.S. Cl. 8—533 **4 Claims**

1. In the dyeing of a polyester and wool-containing fibre material wherein the fibre material is dyed in an aqueous dyebath containing a dyestuff for the polyester and a carrier for the polyester dyestuff, the improvement comprises employing as said carrier a chlorinated alkylbenzene of the formula



in which

n=1–3 and

R=H or alkyl with 1–4 carbon atoms.

4,279,615

PROCESS AND AGENT FOR THE COLORING OF TEXTILES OF POLYESTER FIBERS

Sienling Ong, Hofheim am Taunus, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 27, 1980, Ser. No. 134,445

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1979, 2912497

Int. Cl.³ D06P *3/52*

U.S. Cl. 8—582 **17 Claims**

1. A process for the coloration of polyester fiber materials which comprises contacting said materials with an aqueous composition containing an organic pigment and/or a vat dyestuff and a compound of the formula (I)

$$C_nH_{2n+2-m}[O(CH_2—CH(CH_3)O)_{x/m}]_m \quad (I),$$

wherein

n is an integer of 2 to 6,

m is an integer of 1 to 6,

x is a number of 20 to 60,

with the proviso that m is at most n, and fixing the dye by heating.

4,279,616

METHOD FOR MEASURING BLOOD COAGULATION AND DEVICE THEREFOR

Yukio Saito; Koichi Sekiya; Masaaki Takahashi, and Seigo Akiyama, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Filed Aug. 29, 1979, Ser. No. 70,797

Claims priority, application Japan, Aug. 30, 1978, 53-106566

Int. Cl.³ G01N *33/16;* **G06F** *15/42*

U.S. Cl. 23—230 B **7 Claims**

1. A method of measuring blood coagulation factor, comprising:

feeding a voltage ET proportional to coagulation time T of

a sample plasma to a dividend input terminal of an analog divider;

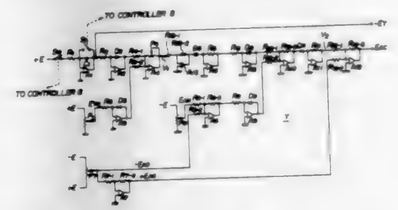
feeding a voltage ETn corresponding to normal plasma coagulation time to a divisor input terminal of said analog divider;

feeding the output of said analog divider to an analog log converter;

feeding the output of said log converter to a bipolar analog coefficient circuit in which the coefficient is B;

feeding the output of said coefficient circuit to an input of an analog antilog circuit;

adding a voltage EAn corresponding to activity or concentration of normal plasma to one input terminal of an analog adder;



adding a voltage EAo corresponding to residual activity or residual concentration of coagulation factor defect plasma or diluted solution to another input terminal of said analog adder;

feeding the outputs of said antilog circuit and adder to an input of an analog multiplier; and

feeding the output of said adder to a minuend input terminal of an analog subtractor, while feeding said voltage EAo corresponding to said residual activity or residual concentration to a subtrahend input terminal of said analog subtractor;

the output EA of said subtractor being a value proportional to the activity or concentration corresponding to the sample plasma coagulation time T.

4,279,617

IUMMUNOASSAY INVOLVING AGGLUTINATION

Pierre L. Masson, Brussels; Cesar L. Cambiaso, Krainem, both of Belgium; Floris De Steenwinkel, Leidschendam, Netherlands, and Adrian E. Leek, Bucks, United Kingdom, assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Feb. 26, 1980, Ser. No. 124,849

Claims priority, application United Kingdom, Feb. 26, 1979, 06686/79

Int. Cl.³ G01N *33/54, 33/56, 33/58*

U.S. Cl. 23—230 B **15 Claims**

1. A method of testing a liquid for an Ab or Ag therein, which comprises:

(a) mixing the liquid with a first microscopic or sub-microscopic particulate reagent which binds with the Ab or Ag under assay to form a complex therewith;

(b) adding to the mixture from step (a) a second different microscopic or sub-microscopic particulate reagent which binds with the complex formed in step (a) to form an agglutinate, but does not bind with free first particulate reagent; and

(c) selectively assaying the unagglutinated first or second particulate reagent and thereby determining the presence and/or amount of the Ab or Ag under assay.

4,279,618

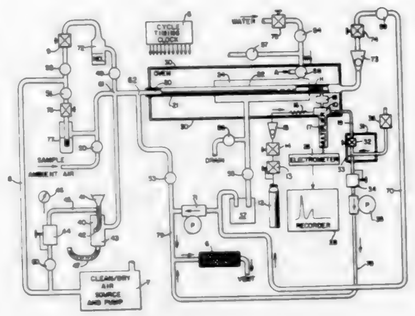
METHOD AND APPARATUS FOR ANALYSIS OF TOTAL ATMOSPHERIC SULFURIC ACID CONTENT

James D. Barden, Chester, Md., assignor to Versar, Inc., Springfield, Va.

Filed Jun. 3, 1980, Ser. No. 155,986

Int. Cl.³ G01N *25/68, 21/72*

U.S. Cl. 23—232 R **12 Claims**



1. The method of collecting atmospheric sulfuric acid contained in an ambient air stream containing interfering sulfur dioxide and ammonia species, and analyzing sulfuric acid content after eliminating the interfering species, comprising the steps of:

(a) mixing the air stream with a clean air stream entraining dilute hydrochloric acid;

(b) heating the mixed air streams to a temperature above the vaporization point of sulfuric acid;

(c) passing the air streams over a surface cooled to a temperature below the dew point of sulfuric acid to condense the sulfuric acid;

(d) subsequently heating said surface to a temperature above the vaporization point of sulfuric acid while flushing it with a clean carrier gas substantially saturated with water vapor to entrain the sulfuric acid; and

(e) analyzing the carrier gas and entrained sulfuric acid while integrating the total quantity of sulfur contained therein.

4,279,619

FUEL FOR INTERNAL COMBUSTION ENGINES

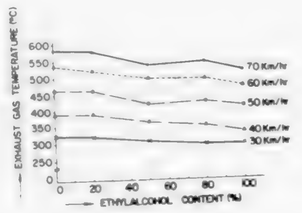
Kunihiko Tsuzuki; Norio Ogasawara, and Shigeo Ema, all of Hamamatsu, Japan, assignors to Suzuki Jidosha Kogyo Kabushiki Kaisha, Shizuoka, Japan

Continuation-in-part of Ser. No. 877,447, Feb. 13, 1978, abandoned. This application Sep. 5, 1979, Ser. No. 72,759

Claims priority, application Japan, Jul. 7, 1977, 52-81216

Int. Cl.³ C10L *1/02, 1/04*

U.S. Cl. 44—56 **12 Claims**



1. Fuel for an internal combustion engine consisting essentially of a mixture of gasoline and an alcohol selected from the group consisting of ethyl alcohol, methyl alcohol and mixtures of ethyl alcohol and methyl alcohol, the alcohol constituting 75 to 85 volume % of the mixture and the gasoline consisting essentially of 3 to 11 carbon atom alkanic, aromatic, and cycloalkanic hydrocarbons, the aromatic hydrocarbons constituting 35 to 45 weight % of the gasoline.

4,279,620

NOVEL PROCESS FOR TREATING GASAHOL

William M. Sweeney, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed Apr. 7, 1980, Ser. No. 138,028

Int. Cl.³ C10L *1/12*

U.S. Cl. 44—56 **11 Claims**

1. The method of treating a charge containing at least one fuel selected from the group consisting of water-containing gasoline and water-containing gasohol which comprises

contacting said charge water-containing fuel with a substantially saturated aqueous solution of calcium chloride in the presence of solid calcium chloride thereby forming a multi-phase system including (i) a first phase containing substantially dry fuel and (ii) a second phase containing substantially saturated aqueous solution of calcium chloride; and

recovering said first phase containing substantially dry fuel.

4,279,621

POLYAMINES MIXTURE FOR STABILIZING CERTAIN HYDROCARBONS AGAINST OXIDATION

Robert E. Reusser, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 14, 1978, Ser. No. 942,216

Int. Cl.³ C10L *1/22*; C07C *87/20*

U.S. Cl. 44—72 **14 Claims**

1. A stabilized hydrocarbon containing composition stabilized against oxidation, the said composition have incorporated therewith a stabilizing amount of an oxidation inhibiting polyamine mixture consisting essentially of the heavy by-product residue obtained upon distillation of a polyamine obtained from the hydrogenation of branched-chain aliphatic dinitriles containing from about 7 to 30 carbon atoms per molecule, said dinitriles being obtained by the reaction of an olefin and a dinitrile, said mixture being the sole oxidation inhibiting agent in said composition.

8. A method for stabilizing a hydrocarbon containing composition by incorporating therewith a stabilizing amount of an oxidation inhibiting polyamine mixture consisting essentially of the heavy byproduct residue obtained upon distillation of a polyamine obtained from the hydrogenation of branched-chain aliphatic dinitriles containing from about 7 to 30 carbon atoms per molecule, said dinitriles being obtained by the reaction of an olefin and a dinitrile, said mixture being the sole oxidation inhibiting agent in said composition.

4,279,622

GAS-GAS QUENCH COOLING AND SOLIDS SEPARATION PROCESS

Henry B. Jones, and Randlow Smith, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 57,228, Jul. 13, 1979. This application Dec. 12, 1979, Ser. No. 102,715

Int. Cl.³ C10J *3/46*

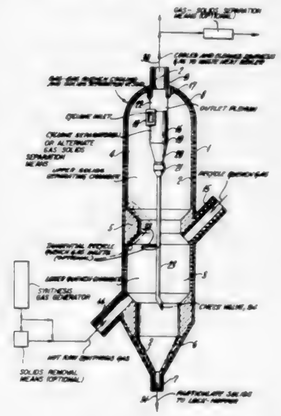
U.S. Cl. 48—197 R **15 Claims**

1. A process for quench cooling a hot gas stream comprising H_2, CO, CO_2, H_2O, and containing entrained solid matter and slag as produced by the partial oxidation of solid carbonaceous fuel and for separating therefrom at least a portion of said solid matter and slag comprising:

(1) passing said hot gas stream through a first gas inlet means into a lower chamber of a closed vertical cylindrical thermally insulated pressure vessel comprising said lower chamber which is coaxial with the central vertical axis of said pressure vessel and in communication with a coaxial upper chamber, said lower and upper chambers being connected by a coaxial choke-ring passage;

(2) simultaneously passing an oppositely directed stream of cooled and cleaned recycle quench gas through a second gas inlet means which is coaxial with said first gas inlet means and into said lower chamber producing a turbulent mixture of gases when said streams impinge, wherein molten slag entrained in said hot gas stream cools below the initial deformation temperature, settles out by gravity, and falls to the bottom of said lower chamber;

(3) passing the mixture of gases from the lower chamber upwardly through said choke-ring into said upper chamber in counter-flow with slag droplets;



(4) separating solid matter from said gas mixture in said upper chamber and removing said solid matter from said vessel by way of an outlet in the bottom of said lower chamber;

(5) removing cooled and cleaned gas from said upper chamber and discharging said gas through an outlet at the top of said vertical vessel; and

(6) introducing a portion of said cooled and cleaned gas stream from (5) with further cooling and with or without further cleaning downstream into the lower chamber in (2) as at least a portion of said recycle gas.

4,279,623

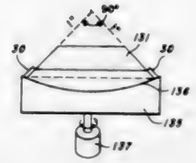
METHOD OF CONTOURING THE RECORDING SURFACE OF A MAGNETIC HEAD TRANSDUCER

John Bealle, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 4, 1979, Ser. No. 45,351

Int. Cl.³ B24B *1/00, 13/00*

U.S. Cl. 51—283 R **8 Claims**



1. A method of shaping respective recording/playback surfaces of a plurality of magnetic head transducers to form contoured surfaces having a predetermined curvature, said method comprising the steps of:

(a) providing holder means and attaching a first head transducer to a first relatively flat surface of said holder means so that a major surface of said first head transducer is parallel to the first relatively flat surface;
(b) attaching a second head transducer to a second relatively flat surface of said holder means so that a major surface of said second head transducer is parallel to the second relatively flat surface, said second relatively flat surface lying in a plane which is substantially orthogonal to a plane in which the first relatively flat surface lies;
(c) providing positioning means having a concave surface with a radius of curvature equivalent to the predetermined curvature for receiving said holder means with said first and second head transducers attached thereto;
(d) disposing the recording/playback surfaces of said first and second head transducers in abutting relationship with said concave surface and at a predetermined distance apart which is substantially equal to the hypotenuse of an isoceles right triangle, the legs of which are each of a length equivalent to the radius of curvature of the concave surface, so that respective axes which are orthogonal to said recording/playback surfaces are also orthogonal to said concave surface;
(e) providing shaping means having a concave surface with a radius of curvature equivalent to the predetermined curvature and placing said recording/playback surfaces in contact with said concave surface of said shaping means; and
(f) providing relative motion between said concave surface of said shaping means and said recording/playback surfaces so that said recording/playback surfaces are contoured to the predetermined curvature.

4,279,624

DOWNFLOW SEPARATOR METHOD AND APPARATUS

Joseph G. Wilson, 15 Weston Hill Rd., Riverside, Conn. 06878

Continuation of Ser. No. 947,173, Sep. 28, 1978, abandoned. This application Nov. 8, 1979, Ser. No. 92,343
Int. Cl.³ B01D *45/12*
U.S. Cl. 55—1 **35 Claims**



1. A centrifugal separator for separating particulate matter from downflowing gases, said separator comprising:
a vertical outer tube having an inner and outer surface,
a vertical inner tube having an inner and outer surface,
said inner tube being of a diameter of less than that of said outer tube, said inner tube being positioned within said outer tube and extending in the longitudinal direction within said outer tube with said outer surface of said inner tube and said inner surface of said outer tube defining an annular channel therebetween,
said inner tube having a plurality of longitudinally extending slots therein in the lower portion of said inner tube for providing communication between said annular channel and the space within said inner tube, said slots being dimensioned and positioned so that gas swirling in circumferential direction around said inner tube in said annular channel and then turning inwardly and entering through said slots into said inner tube experiences a sudden change from a circumferential direction of flow to a radially inward direction of flow,
first closure means for sealing the top of said inner tube, and second closure means positioned proximate to the bottom of said annular channel for sealing the bottom of said annular channel, said inner tube being closed at the top and open at the bottom and said annular channel being open at the top and closed towards the bottom,
means positioned and arranged with respect to said annular channel for swirling a stream of gas containing particulate matter flowing down in said annular channel above said slots,
said first and second closure means defining a path of flow of said stream of swirling gas in said annular channel, said gas swirling down through said annular channel above said slots, and then suddenly flowing inwardly through said slots into said inner tube, and down through the open bottom of said inner tube,
said particulate matter in said swirling gas in said annular channel being separated from said gas by the force of centrifugal force thrusting said particulate matter outwardly against said inner wall of said outer tube (i) when said gas begins swirling in said annular channel and (ii) as said gas swirls down through said annular channel above said slots, and (iii) a further separation of particulate matter occurring as a result of said sudden change in direction of flow of said swirling gas upon entering said slots, said separated particulate matter remaining in said annular channel for subsequent removal along with bleed gas from the lower portion of said channel, and said swirling gas stream exiting from said separator by flowing downwardly and out through the bottom of said inner tube.

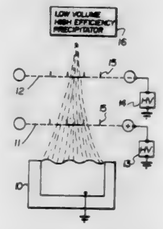
23. A method of separating particulate matter from gases, said method using a vertical outer tube and a vertical inner tube having a plurality of axially extending slots therein, said inner tube being positioned concentrically within said outer tube such that a vertical annular channel is defined between the outer surface of said inner tube and the inner surface of said outer tube, said method including the steps of:
introducing a stream of gas containing particulate matter into said annular channel,
causing said stream of gas to swirl in a circumferential direction around said inner tube as the stream flows downwardly in said annular channel such that larger particles of particulate matter are thrust against the inner surface of said outer tube by centrifugal force of said swirling gas,
allowing the swirling gas to flow downwardly in said annular channel for causing additional particles to be flung against the inner surface of the outer tube such that said additional particles are separated from the stream of gas,
thereafter directing the flow of said swirling gas inwardly through said slots in said inner tube passing into the interior of said inner tube such that said swirling gas experiences a sudden change in direction of flow in entering said slots so that further particles are separated and temporarily remain in said annular channel while said swirling gas enters the interior of said inner tube,
discharging said stream of gas downwardly from the interior of said inner tube and
removing the separated particulates together with bleed gas from the lower end of said annular channel.

4,279,625

ELECTROSTATIC SYSTEM FOR CONCENTRATING, PROPELLING AND COLLECTING AIRBORNE PARTICULATES FOR INDUSTRIAL FURNACES

Ion I. Inculet; George S. P. Castle, and John L. Sullivan, all of London, Canada, assignors to Canadian Patents & Development Ltd., Ottawa, Canada

Filed Sep. 26, 1979, Ser. No. 79,077
Int. Cl.³ B03C *3/12*; F23J *15/00*; C21B *7/22*
U.S. Cl. 55—131 **2 Claims**



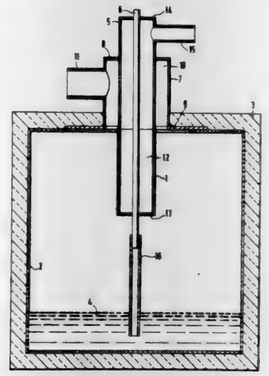
1. An electrostatic system in combination with an industrial furnace for concentrating and propelling airborne particulates from the said furnace to a collection area comprising:
(a) a first corona injection and repelling open grid electrode positioned directly above the furnace in the path of the particulates rising from the furnace,
(b) means for applying a high positive or negative voltage in the range of 7 to 200 kV to the first electrode,
(c) a second corona injection and repelling open grid electrode positioned directly above the first electrode,
(d) means for applying a high voltage opposite in polarity to the voltage applied to the first electrode and in the range 7 to 200 kV to the second electrode, and
(e) means for grounding said furnace.

4,279,626

APPARATUS FOR SEPARATING THE GAS WHICH EVAPORATES DURING THE TRANSFER OF LOW-BOILING LIQUIFIED GASES

Jürgen Buchmüller; Peter Nobis, both of Krefeld, and Wolfgang Volker, Duesseldorf, all of Fed. Rep. of Germany, assignors to Messer Griesheim GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed May 28, 1980, Ser. No. 154,064
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923078
Int. Cl.³ B01D *19/00*
U.S. Cl. 55—204 **6 Claims**



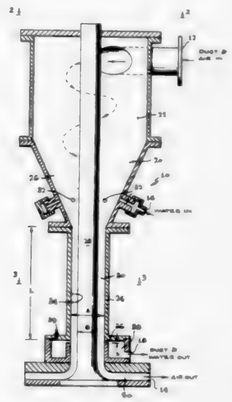
1. In an apparatus for separating the gas which evaporates during the transfer of low-boiling liquified gases, including a porous hollow body with a supply line for the gas-liquid mixture to be separated which is arranged inside an insulated vessel which receives the gas and liquid phase emerging from the porous hollow body and which is provided with discharge lines for the gas and liquid phase, the improvement being said porous hollow body having a cylindrical shape, said porous hollow body concentrically surrounding the discharge line for the liquid phase, said porous hollow body being installed in the cover of said insulated vessel by means of a pipe and a non-porous cylindrical extension, and annular space being formed between said pipe and said cylindrical extension, and the discharge line for the gas phase communicating with said annular space.

4,279,627

FINE PARTICLE SEPARATION APPARATUS

Donald G. Paul, and Lester P. Berriman, both of Irvine, Calif., assignors to Dresser Industries, Inc., Dallas, Tex.

Continuation of Ser. No. 931,604, Aug. 7, 1978, abandoned. This application Sep. 13, 1979, Ser. No. 75,343
Int. Cl.³ B01D *45/16, 45/10, 47/10*
U.S. Cl. 55—238 **7 Claims**



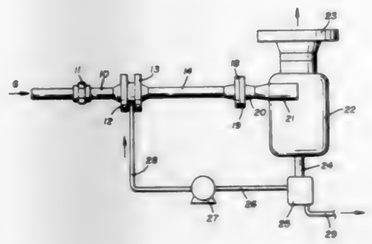
1. A particle separation apparatus, comprising:
(a) a vertically oriented substantially cylindrically-shaped chamber enclosing an axially extending concentric member to define an annular fluid flow path through said chamber, said concentric member having means for breaking up boundary layer flow therealong;
(b) an inlet adjacent the upper end of the chamber through which a stream of particle-laden gas is introduced into the flow path;
(c) means for establishing a helical flow of the gas stream through the annular flow path;
(d) means for introducing downwardly flowing liquid into the chamber downstream from the gas inlet in the form of a film of said liquid substantially coating the inner wall of the chamber in a portion of the annular flow path through which the gas is circulating for entrainment of dust particles centrifugally forced into contact with the layer of liquid on the inner wall;
(e) first and second outlets in fluid communication with the interior of said chamber downstream from said portion of the annular flow path therein for first removing the particle-liquid mixture and subsequently removing relatively dust-free gas from said apparatus, and wherein the first outlet includes a slot located around the conduit wall, and means for applying a lower pressure to the slot for withdrawing particle-laden liquid therethrough from the chamber.

4,279,628

APPARATUS FOR DRYING A NATURAL GAS STREAM

Robert L. Wymer, Poland, Ohio, and Perry Prater, Shreveport, La., assignors to Energy Synergistics, Inc., Daingerfield, Tex.

Filed Dec. 31, 1979, Ser. No. 108,504
Int. Cl.³ B01D 53/18
U.S. Cl. 55—238 5 Claims



1. In an apparatus for drying a natural gas stream comprising interconnecting tubular members defining a generally horizontally extending continuous fluid flow path and a centrifugal separator tangentially connected at one end thereof, the improvement comprising an adapter conduit fluidly connected to one tubular member and having a first inner diameter at one end thereof, a nozzle chamber connected to said adapter at said first inner diameter, said nozzle chamber being adjacent the other end of said interconnected tubular members and means for introducing gas to be dried into said adapter conduit via said other end of said tubular members, a nozzle block removably positioned in said nozzle chamber and having a jet forming opening centrally thereof, said jet forming opening being connected directly to said adapter conduit and having a uniform inner diameter which is substantially smaller than said adapter conduit first inner diameter to define an orifice-like opening into which fluid from said adapter passes, said jet forming opening having an annular passageway separated therefrom, a diverging conduit fluidly connected to said orifice-like opening to receive fluid therefrom, and a plurality of individual nozzles positioned circumferentially in said nozzle block diverging conduit downstream of said orifice-like opening and communicating with said annular passageway, said nozzles being oriented to inject fluid into fluid flowing out of said orifice-like opening directed downstream toward an extension of an axial center line of said orifice-like opening, said nozzle block disposed in said nozzle chamber, an adjacent downstream portion of said interconnecting tubular members defining a mixing chamber which is fluidly connected to said diverging conduit and has an internal diameter essentially equal to the largest portion of said diverging conduit so that the area of said mixing chamber is substantially greater than the area of said orifice-like opening and means for supplying triethylene glycol under pressure greater than said gas stream to said annular passageway in said nozzle block for injection by said individual nozzles into the gas stream leaving said orifice-like opening.

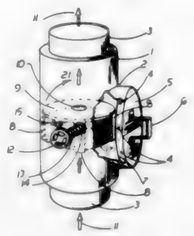
4,279,629

FIRE PREVENTION FILTER FOR CHIMNEYS AND THE LIKE

Donald S. Simms, 43 Lincoln St., Greenfield, Mass. 01301

Filed Feb. 14, 1980, Ser. No. 121,364
Int. Cl.³ B01D 39/12, 46/42
U.S. Cl. 55—307 14 Claims

1. An assembly for eliminating the buildup of creosote in chimneys comprising a hollow enclosure means having means at its top and bottom so as to be adapted to be connected between a stove pipe and a chimney, a door means located in said hollow enclosure, a damper plate adjacent said door means having a plurality of legs extending downwardly therefrom, a filter having a plurality of openings therein and being supported by said legs, an opening in the middle area of said damper plate, lift pads mounted on said damper plate to space said filter from said damper plate, said openings in said filter



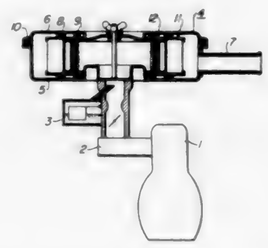
being aligned with the opening in said damper plate, and means for rotating said damper plate within said hollow enclosure means.

4,279,630

AIR CLEANING MEANS FOR INTERNAL COMBUSTION ENGINE

Yasuhiko Nakamura, Toyohashi, and Yoshio Yamakawa, Toyota, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 6, 1979, Ser. No. 17,958
Claims priority, application Japan, Mar. 7, 1978, 53/28993[U]
Int. Cl.³ B01D 50/00; F02M 33/02
U.S. Cl. 55—316 4 Claims



1. Air cleaning means for use with an internal combustion engine comprising:

a sucked air cleaning filter element; and

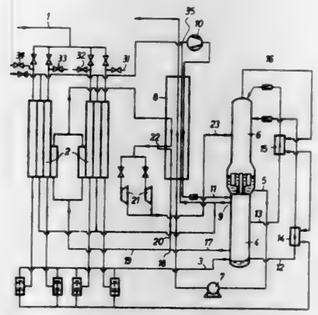
a fuel vapor adsorbing filter element mounted independently of and separately from said sucked air cleaning filter element, said fuel vapor adsorbing filter element including a filter material layer containing fibers of active carbon for adsorbing fuel vapors thereon, a metallic reinforcing member, a plurality of reinforcing layers of nonwoven fabric each located on one of opposite sides of said filter material layer, said filter material layer and said plurality of reinforcing layers of nonwoven fabric being formed with a plurality of apertures extending therethrough so that said filter material layer will have a percentage of voids in the range between 10 and 40%, and an additional layer of nonwoven fabric mounted between said metallic reinforcing member and one of said plurality of reinforcing layers located inwardly of said filter material layer.

4,279,631

PROCESS AND APPARATUS FOR THE PRODUCTION OF OXYGEN BY TWO-STAGE LOW-TEMPERATURE RECTIFICATION OF AIR

Werner Skolaude, Grünwald, Fed. Rep. of Germany, assignor to Linde Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 712,263, Aug. 6, 1976, abandoned. This application Oct. 20, 1976, Ser. No. 734,090
Claims priority, application Fed. Rep. of Germany, Aug. 6, 1975, 2535132
Int. Cl.² F25J 3/02
U.S. Cl. 62—29 9 Claims



1. In a process for the production of oxygen by two-stage low-temperature rectification of air wherein the air is cooled in a primary heat exchanger, and the product oxygen is withdrawn from the low-pressure stage in the liquid phase, pumped to a higher pressure and warmed by heat exchange in a secondary heat exchanger separate from the primary heat exchanger with a high-pressure gaseous stream fed to the high-pressure stage, said high-pressure gaseous stream, during the heat exchange in the secondary heat exchanger, having a substantially higher pressure than the high-pressure stage, the improvement which comprises withdrawing a second gaseous stream as the compensating stream from the high-pressure stage, warming said compensating stream at least partially in the primary heat exchanger countercurrently to the entering air, recooling the warmed compensating stream by heat exchange with the product oxygen in said secondary heat exchanger separate from the primary heat exchanger, said warmed compensating gas during the heat exchange having substantially the same pressure as the high-pressure stage, both said high-pressure gaseous stream to the high-pressure stage and said warmed compensating stream being employed in separate conduits and cocurrently to vaporize the liquid oxygen product countercurrently in said secondary heat exchanger, and turbine-expanding resultant warmed compensating stream.

4,279,632

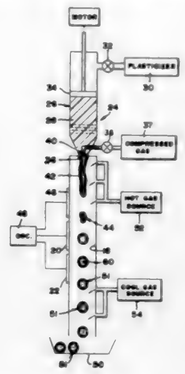
METHOD AND APPARATUS FOR PRODUCING CONCENTRIC HOLLOW SPHERES

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Taylor G. Wang, Glendale, and Daniel D. Elleman, San Marino, both of Calif.

Filed May 8, 1979, Ser. No. 37,072
Int. Cl.³ C03B 19/10
U.S. Cl. 65—21.4 8 Claims

5. A method for forming a hollow shell with concentric inner and outer surfaces, comprising:

applying acoustic vibrations through a gaseous medium to a detached hollow body which lies in the gaseous medium free of contact with a solid, and which is at a temperature



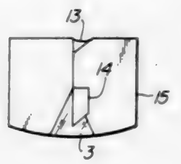
at which the material of the walls of the body can flow to provide said concentric inner and outer spherical surfaces.

4,279,633

METHOD OF PRODUCING MAGNETIC HEAD

Kazuo Nakamura, Toyonaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Mar. 18, 1980, Ser. No. 131,457
Int. Cl.³ G11B 5/42
U.S. Cl. 65—41 1 Claim



1. A method of producing a magnetic head comprising the steps of: preparing a gapped bar constituted by a pair of rectangular parallelopiped magnetic core blocks having coil-winding grooves and jointed to each other though a medium of a non-magnetic spacer of a predetermined thickness, said gapped bar having a plurality of non-magnetic glass mold parts disposed to limit at least a front portion of said gaps to a predetermined track width; forming a head core from said gapped bar by cutting said gapped bar at said glass mold parts at a predetermined angle to the longitudinal axis of the gapped bar and then finishing the cut surface; and subjecting the head core thus formed to an annealing which is effected at a temperature higher than the deformation point of the glass constituting said mold glass part.

4,279,634

DAM CONSTRUCTION FOR CONTROLLING TIN CURRENTS IN A FLOAT GLASS CHAMBER

Gabriel M. Sisoler, Sterling Heights; Vincent L. Spade, Chelsea; James P. Sowman, Farmington Hills; Larry J. Casterwiler, Taylor, all of Mich., and Bernard Puma, Nashville, Tenn., assignors to Ford Motor Company, Dearborn, Mich.

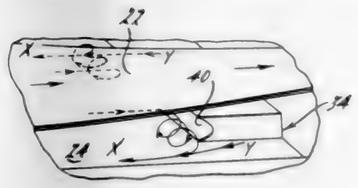
Filed Dec. 3, 1979, Ser. No. 99,766
Int. Cl.³ C03B 18/18
U.S. Cl. 65—182.3 3 Claims

1. In a float glass chamber in which molten tin is confined in a refractory structure to define a molten tin bath having a depth dimension as well as dimensions extending along the

length and the width of said float glass chamber, said molten tin bath providing an upper surface over which molten glass may be processed to form a glass ribbon, said molten glass being received on said molten tin bath in a hot entry end of said float glass chamber and thereafter being moved lengthwise along said molten tin bath towards a cold exit end of said float glass chamber to solidify and form a ribbon of glass;

the improvement comprising:

a dam member mounted below the surface of said molten tin bath at a position along the length of said float glass chamber to separate hot tin in said hot entry end of said float glass chamber from cold tin in said cold exit end of said float glass chamber, said dam member having an upstream face facing said hot entry end of said float glass chamber and a downstream face facing said cold exit end of said



float glass chamber, said dam member having formed on its upstream face a concave surface so constructed and arranged that molten tin currents engaged by said concave surface of said upstream face of said dam member will be redirected into an outwardly directed flow toward the sides of said float glass chamber, said dam member terminating at locations spaced from said side walls of said float glass chamber so that molten tin from said cold exit end of said float glass chamber may move therepast toward said hot entry end of said float glass chamber, said outwardly directed flows of molten tin from said upstream face of said dam member substantially mixing with said returning cold tin at an area along the sides of said float glass chamber at a location away from said ribbon of glass forming on said molten tin bath.

4,279,635

PROCESS FOR TREATING PHOSPHATIC CLAY SUSPENSIONS

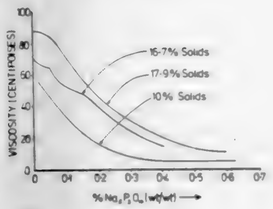
David Krofchak, 160 Torbay Rd., Markham, Ontario, Canada (L3R 1G6)

Filed Jun. 27, 1979, Ser. No. 52,376

Claims priority, application United Kingdom, Jul. 18, 1978, 30236/78

Int. Cl.³ C05B *21/00*

U.S. Cl. 71—4 Z **13 Claims**



1. A process for treating thickened phosphatic clay suspensions produced in the processing of phosphate ore by water beneficiation, said suspensions having a solids content of from about 5% to about 30%, said process comprising mixing a sufficient amount of deflocculating agent with the suspension to cause deflocculation of the suspension to an extent sufficient to reduce the viscosity of the sludge to a value enabling the deflocculated suspension to be readily pumped from one location to another, said deflocculating agent comprising an alkali metal phosphate pumping said deflocculated suspension of reduced viscosity from said one location to another, and subsequently mixing with the deflocculated suspension an additive compound comprising an alkaline earth metal oxide or hydroxide in an amount sufficient to cause the formation of large silicate molecules with resultant gelling and setting of the sludge into an inert solid material.

11. A process according to claim 1 wherein, after mixing with the additive compound and before gelling and setting, the suspension is spread on a relatively infertile area to improve its fertility.

4,279,636

DICHLOROACETYLIMINO HERBICIDE ANTAGONISTS AS PLANT PROTECTION AGENTS

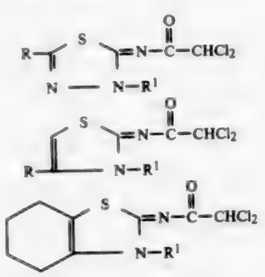
Otto L. Hoffmann, Shawnee, and Joel L. Kirkpatrick, Overland Park, both of Kans., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 946,975, Sep. 29, 1978, Pat. No. 4,237,302. This application Apr. 4, 1980, Ser. No. 137,670

Int. Cl.³ A01N *43/82*

U.S. Cl. 71—90 **5 Claims**

1. The method of protecting crop plants from herbicides which comprises applying to the crop seeds or to the soil in which the seeds are planted an effective amount, sufficient to improve the resistance of the crop plants to a pre-emergent herbicide of a compound having a structural formula selected from the following formulas,



in which R is hydrogen or C_1 to C_4 alkyl, alkenyl or alkynyl, branched or straight chain and R^1 is C_1 to C_3 alkyl, alkenyl or alkynyl, branched or straight chain, with the total number of carbon atoms in R and R^1 being less than six when both R and R^1 substituents are present.

4,279,637

HERBICIDAL N-SUBSTITUTED 4-IMIDAZOLIN-2-ONES

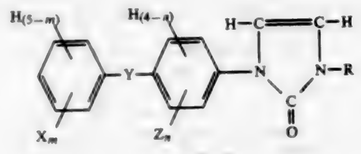
Frank Wu, Libertyville, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 52,525, Jun. 2, 1979, abandoned. This application May 29, 1980, Ser. No. 154,185

Int. Cl.³ A01N *43/50*; C07D *233/70*

U.S. Cl. 71—92 **10 Claims**

1. A compound of the formula



wherein X and Z are each independently selected from the group consisting of halogen, trihalo loweralkyl, nitro, cyano, loweralkyl, loweralkoxy and loweralkylthio; m and n are each independently integers of from 0 to 4; Y is selected from the group consisting of oxygen, sulfur, methylene, sulfonyl and sulfinyl; and R is selected from the group consisting of hydrogen and alkyl.

9. A herbicidal composition comprising an inert carrier and as an essential active ingredient, in a quantity toxic to weeds, a compound of claim 1.

10. A method of controlling weeds which comprises contacting said weeds with a herbicidally effective quantity of the composition of claim 9.

4,279,638

3,5-DISUBSTITUTED 1,2,4-OXADIAZOLE HERBICIDAL ANTIDOTES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

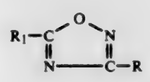
Filed Aug. 13, 1979, Ser. No. 66,134

Int. Cl.³ A01N *43/82, 37/16*

U.S. Cl. 71—92 **23 Claims**

1. A composition consisting essentially of

(a) an antidotally effective amount of a compound of the formula

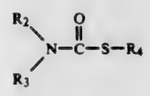


in which

R is selected from the group consisting of 1–4 carbon alkyl and 1–4 carbon haloalkyl;

R_1 is selected from the group consisting of 1–4 carbon haloalkyl and halo-substituted phenyl; and

(b) an herbicidally effective amount of a thiocarbamate of the formula



in which

R_2 is selected from the group consisting of 1–6 carbon alkyl;

R_3 is selected from the group consisting of 1–6 carbon alkyl, and cyclohexyl and

R_4 is selected from the group consisting of 1–6 carbon alkyl.

4,279,639

N-(2-SUBSTITUTED-4-PYRIDYL)UREAS AND THIOUREAS AS WELL AS PLANT GROWTH REGULATORS CONTAINING SAME, AND METHOD FOR USING COMPOUNDS AS PLANT GROWTH REGULATORS

Toshihiko Okamoto, 1-7-19, Shinoharakita, Kohokuku, Yokohamashi, Kanagawa; Yo Isogai, 1-1-2-609, Kamiyoga, Setagayaku, Tokyo; Koichi Shudo, 2000-10-2-116 Kosugayacho, Totsukaku, Yokohamashi, Kanagawa, all of Japan, and Soshiro Takahashi, Urawashi, Japan, assignors to Toshihiko Okamoto, Yokohama; Yo Isogai, Tokyo; Koichi Shudo, Yokohama and Susumu Sato, Tokyo, all of, Japan

Filed Aug. 1, 1979, Ser. No. 62,850

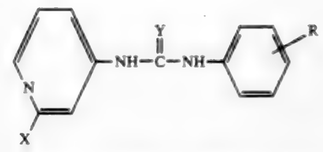
Claims priority, application Japan, Nov. 2, 1978, 53-135236

The portion of the term of this patent subsequent to Mar. 18, 1997, has been disclaimed.

Int. Cl.³ A01N *43/40*; C07D *213/75*

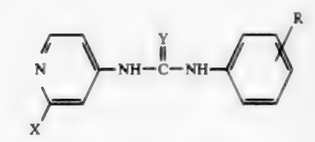
U.S. Cl. 71—94 **9 Claims**

1. A compound of the formula;



wherein X represents a member selected from the group consisting of fluorine, bromine, hydroxy, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, amino, lower alkylcarbonylamino, benzoylamino, lower alkoxycarbonylamino, cyano and trifluoromethyl; Y represents a member selected from the group consisting of oxygen and sulfur; and R represents a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, hydroxy, halogen and trifluoromethyl.

9. A method of controlling plant growth which comprises contacting a plant or a part thereof with a compound of the formula:



wherein X represents a member selected from the group consisting of fluorine, bromine, hydroxy, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, amino, lower alkylcarbonylamino, benzoylamino, lower alkoxycarbonylamino, cyano and trifluoromethyl; Y represents a member selected from the group consisting of oxygen and sulfur; and R represents a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, hydroxy, halogen and trifluoromethyl, in an amount effective for regulation of the growth of said plant.

4,279,640

PROCESS FOR UPGRADING IRON-CONTAINING MATERIALS

Michael Robinson, Wooton, England, assignor to Laporte Industries Limited, London, England

Filed Jan. 31, 1980, Ser. No. 117,068

Claims priority, application United Kingdom, Feb. 21, 1979, 6157/79; Oct. 23, 1979, 36646/79

Int. Cl.³ C22B *1/10*

U.S. Cl. 75—1 R **25 Claims**

1. A process for upgrading a material containing oxide of iron in combination with oxide of chromium by reacting at least a portion of the iron content thereof with chlorine and removing the resulting iron chloride as vapour leaving a higher proportion of chromium oxide, which comprises:

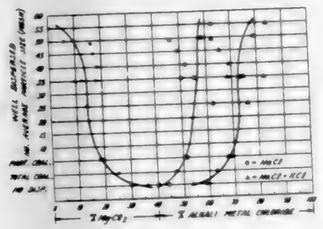
(a) forming a fluidised bed having an expanded bed depth of at least 1 meter said bed comprising the said material in finely divided form and finely divided carbon, the carbon being present in the bed in at least sufficient quantity to react with any oxygen added to or evolved in the bed and in at least 15% of the total weight of the carbon and of the said material;

(b) maintaining a reaction temperature of from 900° C. to 1,100° C. in the bed;

(c) admitting to the bed a chlorine-containing gas giving a concentration of chlorine of from 20% to 60% by volume of the gases added to the bed whereby the chlorine reacts with iron present in the said material to produce ferrous chloride and less than 1 mole of ferric chloride for each 3 moles of the ferrous chloride;

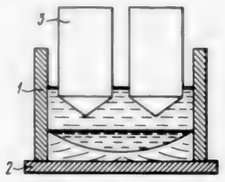
(d) maintaining the partial pressure of ferrous chloride in the gaseous effluent from the bed at a sufficiently low level to prevent liquefaction of the ferrous chloride;
(e) removing the gaseous ferrous chloride-containing effluent from the bed; and
(f) recovering the residual upgraded chromium oxide containing bed material.

4,279,641
SALT-COATED MAGNESIUM GRANULES
Edward J. Skach, Jr., Freeport, Tex., and George B. Cobel, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Continuation-in-part of Ser. No. 936,977, Aug. 25, 1978, Pat. No. 4,186,000. This application Nov. 14, 1979, Ser. No. 94,131
Int. Cl.³ C22C *1/04*
U.S. Cl. 75—0.5 B **24 Claims**



1. A process for producing rotund Mg or Mg alloy granules substantially of about 8 mesh to about 100 mesh particle size in a friable salt matrix, said process comprising
a. providing a salt matrix comprising a mixture of salts selected from the group consisting of salts of alkali metals and alkaline earth metals, wherein the salt mixture is adjusting to have, by weight
at least about 46% alkali metal chloride, from 0 to about 25% $CaCl_2$, from 0 to about 25% $BaCl_2$, less than about 2% metal fluorides, less than about 22% $MgCl_2$, up to about 25% of other salts, additives, or impurities which are substantially inert with respect to Mg or Mg alloy and to the dispersion of Mg or Mg alloy in said salt mixture,
b. melting said salt mixture, along with sufficient Mg or Mg alloy to provide up to about 42% by weight of molten metal in the total melt, stirring the melt at a temperature in the range of about 670° C. to about 820° C. to achieve dispersion of the molten metal in the molten salt mixture, said stirring being performed for a period of time in the range of about 0.5 minutes to about 30 minutes using a stirrer having a tip speed in the range of about 450 to about 1220 meters/minute, and
c. cooling to obtain rotund Mg or Mg alloy granules of about 8 mesh to about 100 mesh size dispersed in the friable salt matrix.

4,279,642
METHOD FOR ELECTROSLAG REMELTING OF METALS
Boris I. Medovar, ulitsa Anri Barbjusa, 22-26, kv. 109; Vitaly M. Bagiai, bulvar Lesi Ukrainki, 2, kv. 51; Vasily I. Us, ulitsa Saxaganskogo, 58, kv. 12; Alexei G. Bogachenko, ulitsa Sapernoe pole, 26a, kv. 30; Grigory A. Timashov, bulvar Davydova, 7, kv. 143; Boris B. Fedorovsky, ulitsa Mechnikova, 7a, kv. 26; Oleg P. Bondarenko, ulitsa Kreschatik, 15, kv. 34; Jury P. Shtanko, ulitsa Dobrokhotova, 26, kv. 53; Viktor L. Artamonov, ulitsa Shumskogo, 8a, kv. 90; Leonid V. Pavlov, prospekt Komarova, 28, kv. 6, all of Kiev; Konstantin S. Eltsov, ulitsa Tbilisskaya, 17, kv. 7, Zaporozhie; Nikolai V. Stetsenko, ulitsa Patrioticheskaya, 34, kv. 32, Zaporozhie; Gary P. Kaganovsky, ulitsa Bocharova, 8, kv. 48, Zaporozhie; Albert N. Korotkov, prospekt Lenina, 228, kv. 2, Zaporozhie, and Sergei S. Popov, bulvar Komsomolsky, 66, kv. 63, Zhdanov, Donetskoi oblasti, all of U.S.S.R.
Filed Apr. 1, 1980, Ser. No. 136,249
Int. Cl.³ C22B *4/00*
U.S. Cl. 75—10 C **8 Claims**



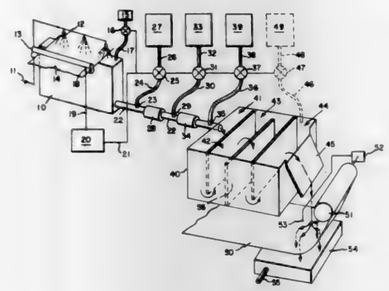
1. A method for electroslag remelting of metals, which comprises melting down at least one consumable electrode in a liquid electrically conductive slag and blowing a gas into said slag in at least one jet directed toward the consumable electrode portion immersed in the slag with sufficient force to penetrate the slag and to create a flow of said slag around the slag-immersed portion of said consumable electrode and thereby accelerate the melting-down thereof.

4,279,643
MAGNESIUM BEARING COMPOSITIONS FOR AND METHOD OF STEEL DESULFURIZATION
Joseph R. Jackman, New Castle, Pa., assignor to Reactive Metals & Alloys Corporation, West Pittsburgh, Pa.
Filed Apr. 8, 1980, Ser. No. 138,861
Int. Cl.² C21C *7/02*
U.S. Cl. 75—58 **14 Claims**

1. An injectable pre-blended desulfurization composition for desulfurizing molten steel which excludes sodium carbonate as an added ingredient and provides a marked reduction in fuming with improved sulfur removal, particularly in low-carbon steels consisting essentially of a mixture of particulate lime, particulate fluorspar and at least one member from the group consisting of particulate metallic magnesium and magnesium alloys proportioned to provide effective desulfurization.

4,279,644
RECOVERY OF SILVER FROM PHOTOGRAPHIC PROCESSOR EFFLUENTS
Lawrence B. Friar, Yorklyn, and Kenneth M. Smith, Newark, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jun. 6, 1980, Ser. No. 157,456
Int. Cl.³ C22B *11/04*
U.S. Cl. 75—118 P **6 Claims**

1. In a process wherein silver is recovered from photographic wash-off film processor effluent containing silver halide and gelatin by chemically reducing ionic silver to metallic silver by reaction with an alkaline solution of sodium borohydride and subsequent filtration, the improvement comprising continuously adding an antifoaming agent to the wash-off effluent, acidifying the effluent to a pH of about 3 by addition of a prediluted aqueous acid solution, followed by mixing the acid with the effluent in a first static mixer, adding a prediluted alkaline solution of sodium borohydride in an amount sufficient



to precipitate silver from the effluent, followed by mixing in a second static mixer, adding a flocculant to the effluent stream, passing the resulting stream to a holding/reaction vessel in order to complete flocculation, and continuously discharging the contents of said vessel to a filter, whereby the silver and gelatin are retained on the filter.

4,279,645
HEAT RESISTANT ALLOY AND METHOD OF MANUFACTURE
Roger K. Brown, 16300 N. Park Dr., Apt. 1011, Southfield, Mich. 48075
Continuation-in-part of Ser. No. 897,629, Apr. 19, 1978, abandoned. This application Feb. 14, 1979, Ser. No. 12,082
Int. Cl.³ C22C *19/05*
U.S. Cl. 75—122 **2 Claims**

1. An alloy consisting essentially of from about 35% to 65% nickel, 15% to 25% chromium, 5% to 20% cobalt, 2% to 5% molybdenum, 1.5% to 4% titanium, 1% to 12% iron, 0.5% to 2% aluminum, 0.3% to 2% silicon, 0.7% to 2% carbon, and 1% to 4% boron.

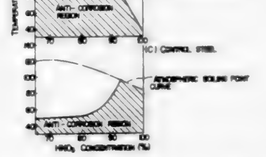
4,279,646
FREE CUTTING STEEL CONTAINING SULFIDE INCLUSION PARTICLES WITH CONTROLLED ASPECT, SIZE AND DISTRIBUTION
Tetsuo Kato; Shozo Abeyama, both of Aichi; Atsuyoshi Kimura, Handa, and Sadayuki Nakamura, Chita, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan
Filed Dec. 19, 1979, Ser. No. 105,222
Claims priority, application Japan, Dec. 25, 1978, 53-158714
Int. Cl.³ C22C *39/14, 39/26*
U.S. Cl. 75—123 AA **9 Claims**

1. A free cutting steel for machine structural use having excellent machinability comprising:
C up to 0.6%,
Si up to 2.0%,
Mn up to 2.0%,
S 0.04 to 0.4%,
Te 0.002 to 0.50%, and
O 0.0010 to 0.0300%,
the balance being substantially Fe;
and containing MnS-based inclusion in the form of particles of 5 to 100μ long, 1 to 10μ wide, wherein the aspect ratio defined by length/width is not larger than 10, and at a density of 20 to 200 particles per 1 mm^2 of matrix cross section.

4,279,647
CONSTRUCTION STEEL EXHIBITING HIGH FATIGUE STRENGTH
Henrik Giflo, III Ujitok u., 3532 Miskolc, Hungary
Filed Jun. 18, 1979, Ser. No. 49,867
Int. Cl.³ C22C *38/06*
U.S. Cl. 75—124 **3 Claims**

1. Construction steel exhibiting a high fatigue strength and, up to a well defined carbon content, a good weldability, and which is resistant to corrosion by air, consisting essentially of, besides iron, 0.04 to 1.6% (by weight) of C, 0.3 to 3% (by weight) of Mn or Ni or their mixture, at a maximum 1.8% (by weight) of Si, 0.6 to 4% (by weight) of Cu, at a maximum 3% (by weight) of Mo or Co or their mixture, 0.02 to 0.4% (by weight) of Nb or V or their mixture, 0.001 to 0.006% (by weight) of B, 0.01 to 0.4% (by weight) of Zr or Be or their mixture, 0.01 to 0.2% (by weight) of Al, 0.005 to 0.2% (by weight) of N, 0.0001 to 0.005% (by weight) of Ca, and at a maximum 0.25% (by weight) of Ce or Pb or their mixture, and up to 0.1% of sulfur.

4,279,648
HIGH SILICON CHROMIUM NICKEL STEEL FOR STRONG NITRIC ACID
Naoya Ito; Kiichi Saito; Takeshi Yoshida; Masahiro Aoki, all of Joetsu; Masao Okubo, and Masayoshi Miki, both of Niihama, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka and Nippon Stainless Steel Co., Ltd., Tokyo, both of, Japan
Filed Dec. 17, 1979, Ser. No. 103,922
Claims priority, application Japan, Dec. 28, 1978, 53-163014
Int. Cl.³ F16J *3/04*; C22C *38/02, 38/48, 38/50*
U.S. Cl. 75—128 C **5 Claims**



1. A high-silicon-nickel-chromium steel resistant to concentrated nitric acid with a good workability and a good weldability, consisting essentially of
carbon in an amount of not more than 0.02% ($C \leqq 0.02\%$),
silicon in an amount of from more than 5% to not more than 7% ($5\% < Si \leqq 7\%$),
manganese in an amount of not more than 10% ($Mn \leqq 10\%$),
chromium in an amount of from not less than 8% to not more than 14.5% ($8\% \leqq Cr \leqq 14.5\%$),
nickel in an amount of from not less than 16% to not higher than 18% ($16\% \leqq Ni \leqq 18\%$),
and the balance being iron and inevitable impurities,
percentages being by weight.

4,279,649

ELECTRICAL CONTACT MATERIAL

Koichi Fujiwara; Coro Yamauchi; Kishio Arita, and Shigeyuki Tsurumi, all of Mito, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,104

Claims priority, application Japan, Jun. 16, 1978, 53/72171; Mar. 28, 1979, 54/35526; Mar. 28, 1979, 54/35527; Apr. 10, 1979, 54/42444; Apr. 10, 1979, 54/42445

Int. Cl.³ C22C 5/00

U.S. Cl. 75—173 A **5 Claims**



1. An electrical contact material comprising a silver eutectic alloy comprising Ag as the main component and an additive comprising:

(a) at least one element selected from the group consisting of Si and Ge in an amount of 1 to 17 at.%; and

(b) at least one element selected from the group consisting of Au, Pt, Pd, Rh, Ru, Os and Ir in an amount of 1 to 10 at.%.

said elements being in the form of fine crystals uniformly dispersed in said Ag and internally oxidized and said at.% based on the weight of the material.

4,279,650

TITANIUM BEARING ADDITION ALLOYS

Joseph R. Jackman, New Castle, and Wayne E. Hanna, Ellwood City, both of Pa., assignors to Reactive Metals & Alloys Corporation, West Pittsburg, Pa.

Filed Mar. 17, 1980, Ser. No. 130,605

Int. Cl.³ C22C 14/00

U.S. Cl. 75—175.5 **2 Claims**

1. A new and improved titanium bearing master alloy consisting essentially by weight of about 54% to 60% titanium, about 15% to 22% aluminum, about 17% to 22% iron, 5% max. silicon, 1% max. vanadium, 0.25% max. tin, 0.75% max. nitrogen and 0.50% max. carbon.

4,279,651

SINTERED HARD METAL AND THE METHOD FOR PRODUCING THE SAME

Naoji Fujimori; Masaaki Tobioka; Tsuyoshi Asai; Takaharu Yamamoto, and Masaya Miyake, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Dec. 28, 1978, Ser. No. 974,512

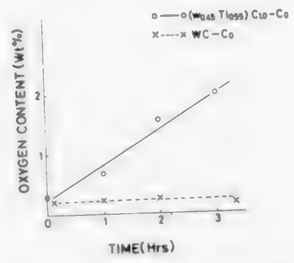
Claims priority, application Japan, Dec. 29, 1977, 52-159299

Int. Cl.³ C22C 29/00

U.S. Cl. 75—233 **9 Claims**

1. A sintered hard metal having a B-1 type crystal structure composed of a hard phase and a WC phase as well as a bonding phase chiefly composed of ferrous metals, characterized in that said hard phase consists essentially of at least two different kinds of metals selected from Group IVb, Vb and VIb metals of the Periodic Table in combination with carbon, nitrogen and oxygen which hard phase is represented by the molecular formula $(M_A, M'_B, M''_C)(C_uN_vO_w)_z$ wherein M represents Group IVa metals, M' represents Group Va metals and M'' represents Group VIa metals, A, B, C and u, v, w represent the atomic ratio of the elements in the formula, and z represents the ratio of the total number of the metallic atoms to that of C,N,O atoms, with the relationship such that $A+B+C=1$, $u+v+w=1$, $A \geqq O$, $B \geqq O$, $A+B>O$, $C>O$, $u>O$, $z \geqq 0.6$, and $0.005<v+w \leqq 0.5$ and $0.005<W<0.5$.

5. A method for producing a sintered hard metal having a B-1 type crystal structure composed of a hard phase and a WC phase as well as a bonding phase chiefly composed of ferrous metals, and wherein said hard phase consists essentially of at least two different kinds of metals selected from Group IVa, Va and VIa metals of the Periodic Table in combination with carbon, nitrogen and oxygen, which hard phase is represented by the molecular formula $(M_A, M'_B, M''_C)(C_uN_vO_w)_z$ wherein M represents Group IVa metals, M' represents Group Va metals and M'' represents Group VIa metals A, B, C and u, v, w represent the atomic ratio of the elements in the formula, and z represents the ratio of the total number of the metallic atoms



to that of C,N,O atoms, with the relationship such that $A+B+C=1$, $u+v+w=1$, $A \geqq O$, $B \geqq O$, $A+B>O$, $C>O$, $u>O$, $z \geqq 0.6$, and $0.005<v+w \leqq 0.5$ and $0.005 W<0.5$, which sintered hard metal of the above formula is produced by mixing two or more different kinds of Group IVa, Va, or VIa metal compounds selected from oxides, carbides and nitrogen containing compounds of said metals with WC and iron Group metals which make up a bonding phase, the whole of said mixture being pressed into a predetermined shape and sintered, said sintering being performed in a CO partial pressure atmosphere above 5 Torr during all or part of the time during which the sintering temperature is in excess of 600° C. and in a vacuum atmosphere below 10^{-1} Torr during all or part of the time at which a liquid phase appears.

4,279,652

SELF-EXTINGUISHING POLYMERS

Aldemaro Claperoni, Bollate-Milan, and Antonino Cucinella, Como, both of Italy, assignors to Saiaviscosa Societa Nazionale Industria Applicazioni Viscosa, S.p.A., Milan, Italy

Filed Sep. 15, 1977, Ser. No. 833,554

Claims priority, application Italy, Sep. 15, 1976, 27198 A/76; Jul. 20, 1977, 25902 A/77

Int. Cl.³ C08K 5/16, 5/34

U.S. Cl. 106—18.21 **6 Claims**

1. A self-extinguishing polymeric composition which comprises a polymer selected from the group consisting of polyamides, copolyamides, polyesters, copolyesters, regenerated cellulose, cotton and mixtures thereof and a self-extinguishing additive product (A) prepared by reacting, in the presence of water, and at a temperature from 100° to 300° C., melamine and at lease one acidic compound, said acidic compound being an anhydride selected from the group consisting of acetic, propionic, butyric, phthalic anhydrides, and mixtures thereof; an acid selected from the group consisting of formic, acetic, propionic, butyric acids, and mixtures thereof; or mixtures thereof, said additive product (A) having a nitrogen content of 3 to 60% by weight and a melting point of at least 300° C.

4,279,653

INK COMPOSITION FOR INK JET RECORDING

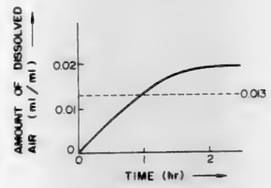
Hiroshi Makishima; Tsunehiko Toyoda; Noriaki Okamura, all of Yokohama; Hirofumi Yano, Kamakura; Akira Mizoguchi, Yamato, and Yasutaka Hiromori, Kawasaki, all of Japan, assignors to Dai Nippon Toryo Co., Ltd. and Matsushita Electric Industrial Co., Ltd., both of, Japan

Continuation-in-part of Ser. No. 747,792, Dec. 6, 1976, abandoned. This application Apr. 7, 1980, Ser. No. 139,166

Claims priority, application Japan, Dec. 5, 1975, 50-145583

Int. Cl.³ C09D 11/00

U.S. Cl. 106—22 **2 Claims**



1. An ink composition for ink jet recording which consists of 5 to 40% by weight of a water-soluble wetting agent, 0.1 to 10% by weight of a water-soluble dye, 0.5 to 10% by weight of at least one oxygen absorber selected from the group consisting of sodium sulfite, potassium sulfite, ammonium sulfite, sodium hydrogensulfite, potassium hydrogensulfite, and ammonium hydrogensulfite, and at least one member selected from the group consisting of antiseptics and fungicides with the balance being water, said at least one antiseptic or fungicide being water soluble and not causing the formation of a precipitate being included in an amount ranging from 300 to 5000 ppm in the total ink composition and the ink composition having a viscosity lower than 5 cps, a surface tension of 40 to 50 dyne/cm and an amount of dissolved air lower than 0.013 ml/ml at a temperature approximating room temperature.

4,279,654

PROCESS FOR PRODUCTION OF CRYSTALLIZED GLASS AND PROCESS FOR PRODUCING COMPOSITE ARTICLE USING SAID CRYSTALLIZED GLASS

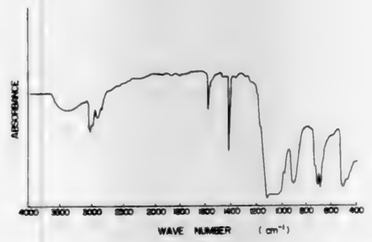
Seishi Yajima; Kiyohito Okamura; Toetsu Shishido, and Yoshio Hasegawa, all of Oharai, Japan, assignors to The Foundation: The Research Institute for Special Inorganic Materials, Ibaraki, Japan

Filed May 5, 1980, Ser. No. 146,724

Claims priority, application Japan, May 14, 1979, 54-58004; May 21, 1979, 54-61515

Int. Cl.³ C03C 3/22

U.S. Cl. 106—39.6 **9 Claims**



1. A process for producing crystallized glass having superior mechanical properties and thermal properties, which comprises

(1) coating glass in the form of a powder or molded article with an organometallic polymer, said polymer being soluble in an organic solvent and having a skeleton comprising (a) titanoxane linkages —Ti—O— or zirconoxane linkages —Zr—O— or both and (b) siloxane linkages —Si—O— in which most of the silicon atoms have as a side chain at least one organic group selected from alkyl and phenyl groups, and optionally (c) boroxane linkages —B—O— or aluminoxane linkages —Al—O— or both; and

(2) firing the resulting polymer-coated glass in an oxidizing atmosphere to crystallize at least a part of the glass.

8. A process for producing a ceramics-crystallized glass composite article having superior mechanical properties, thermal properties and mechanical workability, which comprises

(1) mixing at least one ceramic material selected from powders, flakes and fibers of ceramics, a glass powder and an organometallic polymer in the optional presence of an organic solvent, said polymer being soluble in an organic solvent and having a skeleton comprising (a) titanoxane linkages —Ti—O— or zirconoxane linkage —Zr—O— or both and (b) siloxane linkages —Si—O— in which most of the silicon atoms have as a side chain at least one organic group selected from alkyl and phenyl groups, and optionally (c) boroxane linkages —B—O— or aluminoxane linkage —Al—O— or both; and

(2) either (i) molding the resulting mixture and then firing the molded article in an oxidizing atmosphere or (ii) molding and firing the resulting mixture simultaneously in an oxidizing atmosphere, thereby to bond said ceramic material by the glass at least partly crystallized.

4,279,655

PARTIALLY STABILIZED ZIRCONIA CERAMICS

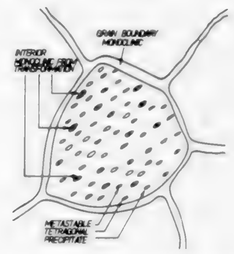
Ronald C. Garvie, 63 Morey Rd., Beaumaris, Victoria; Richard H. J. Hannink, 143 Huntingdale Rd., Oakleigh, Victoria, and Neil A. McKinnon, 22 Stephens St., North Balwyn, Victoria, all of Australia

Filed Jan. 4, 1980, Ser. No. 109,711

Claims priority, application Australia, Jan. 4, 1979, PD7274; Apr. 12, 1979, PD8379

Int. Cl.³ C04B 35/48; C01G 25/02, 27/02

U.S. Cl. 106—57 **14 Claims**



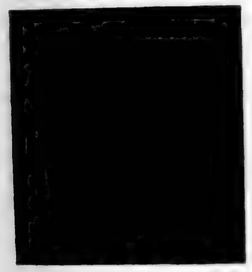
1. A ceramic material consisting essentially of magnesia partially stabilised zirconia having a magnesia content in the range from about 2.8 to about 4.0 wt percent, characterised in that zirconia powder from which the material has been made contains no more than about 0.03 wt percent silica and the material has a micro-structure comprising grains of cubic stabilised zirconia, each grain containing (a) discrete precipitates of tetragonal zirconia, each precipitate having an elliptical shape with the mean length in the long dimension being about 1500 Angstrom units, and (b) discrete precipitates of microcrystalline monoclinic zirconia, produced by controlled thermal transformation of a proportion of the precipitates of tetragonal zirconia.

4,279,656

LIGHT-TRANSMITTING SILICON NITRIDE

Charles D. Greskovich, Schenectady; Svante Prochazka, Ballston Lake, and John A. Palm, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 23, 1980, Ser. No. 114,632
Int. Cl.³ C04B 35/58
U.S. Cl. 106—73.5 3 Claims



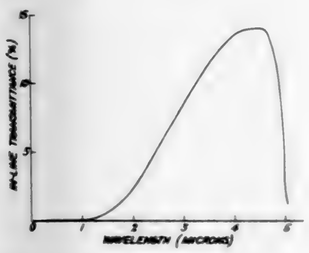
1. A light transmitting polycrystalline silicon nitride body having a density of at least 99.5% of the theoretical density of silicon nitride and consisting essentially of silicon nitride, beryllium and oxygen, said silicon nitride ranging from the β-form to a mixture of the α- and β-forms wherein the β-form is present in excess of 50% by weight of the total amount of said silicon nitride, said beryllium being present in an amount ranging from about 0.3% by weight to about 2.0% by weight of said body, said oxygen being present in an amount ranging from about 2.5% up to about 5% by weight of said body, said polycrystalline body ranging from a single phase body to one consisting of a primary phase and up to about 3% by volume of said body of secondary phase, said body having a thickness ranging from about 0.15 millimeter up to but less than about 0.4 millimeter, a minimum in-line transmission of about 5% of radiant energy at wavelengths ranging from about 0.9 micron to about 2.5 microns, and a minimum in-line transmission of about 10% at wavelengths ranging from about 2.5 microns to about 4.5 microns.

4,279,657

LIGHT-TRANSMITTING SILICON NITRIDE

Charles D. Greskovich, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 30, 1980, Ser. No. 116,834
Int. Cl.³ C04B 35/58
U.S. Cl. 106—73.5 4 Claims



1. A light-transmitting polycrystalline silicon nitride body having a density of at least 99.5% of the theoretical density of silicon nitride and consisting essentially of silicon nitride, magnesium and oxygen, said silicon nitride ranging from the β-form to a mixture of the α- and β-forms wherein the β-form is present in excess of 50% by weight of the total amount of said silicon nitride, said magnesium being present in an amount ranging from about 0.4% by weight to less than about 2.0% by weight of said body, said oxygen being present in an amount ranging from about 2.5% up to about 5% by weight of said body, said polycrystalline body consisting of a primary phase and up to about 5% by volume of said body of a secondary phase, said body having a thickness ranging from about 0.15 millimeter up to but less than about 0.4 millimeter, and a minimum in-line transmission of about 1% of radiant energy at wavelengths ranging from about 1.6 microns to about 5.0 microns.

4,279,658

CHEMICAL-MECHANICAL STARCH CONVERSION

Richard D. Harvey; Thomas L. Gallaher; Raymond L. Mullikin, and Thomas L. Small, all of Muscatine, Iowa, assignors to Grain Processing Corporation, Muscatine, Iowa

Filed Aug. 16, 1978, Ser. No. 934,077
Int. Cl.³ C08L 3/00
U.S. Cl. 106—213 4 Claims

1. A process for gelatinizing and dispersing starch which comprises bringing together an aqueous slurry of starch and a starch solvent and without the application of external heat imparting thereto a shearing force at a temperature below 100° C., the shearing force being sufficient to provide in less than 5 minutes a gelatinized, dispersed, essentially homogeneous starch paste having a viscosity ranging from about 1.0 to about 2.0 times the shear stable viscosity of the paste, and then removing from the action of the shearing force said starch paste.

4,279,659

LAMINATING COMPOSITION AND USES

George E. Unsuth, Tulsa, Okla., assignor to Petrolite Corporation, St. Louis, Mo.

Continuation of Ser. No. 516,100, Oct. 18, 1976, abandoned, which is a continuation of Ser. No. 195,849, Nov. 4, 1971, abandoned. This application Jul. 11, 1979, Ser. No. 56,676
Int. Cl.³ C08L 23/12, 71/08, 93/04
U.S. Cl. 106—230 13 Claims

1. A composition consisting essentially of

(1) about 30–40% by weight of atactic polypropylene having a solid density of 20° C. from 0.75 to 0.89,

(2) about 10–25% by weight of a resin selected from the group consisting of petroleum polymer resins produced by treating hydrocarbon mixtures containing diolefins, olefins, aromatics, paraffins and naphthenes with an aluminum halide catalyst at temperatures from −30° to +75° C., terpene polymer resins, rosin resins, rosin ester resins, coumarone-indene, alpha methyl styrene/vinyl toluene, styrene-indene-isoprene terpolymers, terpene phenolics, hydroabietyl alcohol and esters of hydroabietyl alcohol, and

(3) microcrystalline wax as the balance by weight.

4,279,660

PROCESS FOR THE RECOVERY AND REUTILIZATION OF THE USED MATERIALS IN EXISTING ASPHALT PAVEMENTS

Izumi Kamo, Tamaresidence No. 305, 1-2-7, Kitadenen, Fuusa City, Tokyo, and Tetsushi Okahara, 4-26-14, Minamitanaka, Nerima-ku, Tokyo, both of Japan

Filed Mar. 26, 1980, Ser. No. 134,256
Claims priority, application Japan, Sep. 6, 1979, 54-114427
Int. Cl.³ C08L 95/00
U.S. Cl. 106—281 R 9 Claims

1. A process for the recovery and reutilization of materials in existing asphalt pavements, comprising comminuting existing asphalt pavement, subjecting the comminuted pieces to the action of a solvent in a dissolving zone to separate asphalt from other component materials, recovering solvent and asphalt dissolved therein from said zone separately from said other materials, drying and classifying said other material according to size, separating asphalt from the solvent, and transferring separated asphalt and the size-classified other materials to storage zones for subsequent reuse in the preparation of asphalt pavement.

4,279,661

MINERAL FILLER, METHOD OF PREPARATION AND USE THEREOF

Dieter Strauch, Kasalweg 24, CH-4800 Zofingen, and Peter Beiger, Juraweg 4, CH-4812 Mühlethal, Switzerland

Filed Feb. 5, 1979, Ser. No. 9,570
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1978, 2808425
Int. Cl.³ C09C 1/02; C01F 5/140, 11/18
U.S. Cl. 106—288 B 10 Claims

1. Mineral filler selected from the group consisting of natural calcium carbonate, precipitated calcium carbonate, dolomite, kaolin, talcum, barium sulfate, quartz, and mixtures thereof, characterized by being prepared by grinding or by classification or by both according to particle size, having a maximum cross-section of 2–3μ with a corresponding spherical diameter, containing at most 15 percent by weight of particles which are smaller than 0.2μ with a corresponding spherical diameter, and having 80–95 percent by weight of particles which are smaller than 1μ with a corresponding spherical diameter.

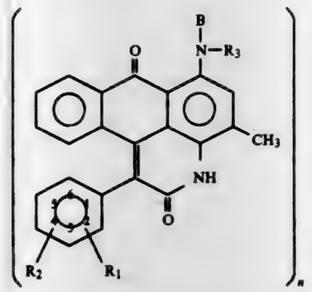
4,279,662

POLYMERIC RED COLORS

Leonard A. Bunes, San Carlos, Calif., assignor to Dynapol, Palo Alto, Calif.

Continuation-in-part of Ser. No. 35,163, May 2, 1979, which is a division of Ser. No. 751,857, Dec. 17, 1976, Pat. No. 4,182,885. This application May 17, 1979, Ser. No. 39,977
Int. Cl.³ C04B 31/38; C07D 221/18
U.S. Cl. 106—289 5 Claims

1. An acid-insoluble pigment comprising a particulate inorganic oxidic substrate having deposited on the surface thereof a polymeric colorant in an amount of from 1 to 75%, basis weight of total pigment, said colorant having the formula



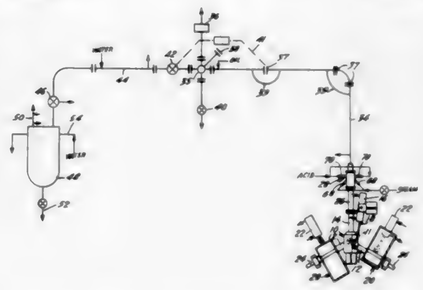
wherein R_1 and R_2 are independently selected from the group of hydrogen, halos of atomic number 9 through 53 inclusive, lower alkyls and lower alkoxies of from 1 to 3 carbon atoms, nitro, and sulfonate; R_3 is hydrogen or a lower alkyl of 1 to 3 carbon atoms, B is an organic polymeric backbone selected from the members of the group consisting of carbon-oxygen ether backbones and essentially linear alkyl carbon-carbon backbones containing pendant primary and lower alkyl secondary amines of 1 to 3 carbon atoms, said carbon-carbon backbones in acetylated form, said carbon-carbon backbones additionally containing additional covalently attached pendant groups selected from the group consisting of a sulfonate, a phosphonate and a carboxyl, and said carbon-carbon backbones additionally containing additional covalently attached groups in acetylated form; said backbone attached to N by a covalent bond and characterized as having essentially no cross-links; and n is a number from 10 to 4000.

4,279,663

REACTOR SYSTEM AND PUMP APPARATUS THEREIN

Reginald L. Burroughs, Trenton; William J. Thompson, Lambertville, and Derek Wooldridge, Princeton, all of N.J., assignors to American Can Company, Greenwich, Conn.

Division of Ser. No. 2,886, Jan. 12, 1979, abandoned. This application Apr. 2, 1980, Ser. No. 136,470
Int. Cl.³ C13K 1/02
U.S. Cl. 127—1 3 Claims



1. A reactor system for continuously effecting the hydrolysis of cellulosic materials as relatively concentrated aqueous mixtures, comprising: a tubular reactor having an infeed end and a product discharge end with a reaction zone therebetween; high solids pump means for substantially continuously feeding a relatively concentrated aqueous mixture of a cellulosic material into said reactor connected to said infeed end thereof; said high solids pump means including a pair of hoppers each having a feed ram individual thereto, a charging barrel surrounding each feed ram and communicating with said reactor, each feed hopper including a moveable wall terminating in a curved element defining a cut-out in said charging barrel thereby creating a window in the barrel, said curved element being movable from a first position in which said window is open to a second position in which said window is closed; means for continuously injecting steam into said reactor at a location between said infeed end and said reaction zone; a valve in said reactor adjacent said discharge end adapted to alternatingly close and open said reactor, so as to prevent and to permit discharge of the reaction mass therefrom; control means for operating said valve in response to pressure within said reaction zone, for substantially continuously effecting the discharge of the portion of the reaction mass therefrom; and means for collecting the hydrolyzate so discharged, and for recovering the reaction products contained therein.

4,279,664

AZEOTROPE-LIKE COMPOSITIONS OF TRICHLOROTRIFLUOROETHANE, ACETONE AND N-HEXANE

Francis J. Figiel, Boonton, and Aaron Colbert, Livingston, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Apr. 9, 1980, Ser. No. 138,486
Int. Cl.³ B08B 7/00
U.S. Cl. 134—38 6 Claims

1. Azeotrope-like compositions comprising 1,1,2-trichloro-1,2,2-trifluoroethane, acetone and n-hexane.

3. The method of cleaning a solid surface which comprises treating said surface with an azeotrope-like composition as defined in claim 1.

4,279,665

AZEOTROPE-LIKE COMPOSITIONS OF TRICHLOROTRIFLUOROETHANE, ACETONE AND CYCLOPENTANE

Aaron Colbert, Livingston, and Francis J. Figiel, Boonton, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Apr. 9, 1980, Ser. No. 138,487
Int. Cl.³ B08B 7/00
U.S. Cl. 134—38 **6 Claims**

1. Azeotrope-like compositions comprising 1,1,2-trichloro-1,2,2,-trifluoroethane, acetone and cyclopentane.

3. The method of cleaning a solid surface which comprises treating said surface with an azeotrope-like composition as defined in claim 1.

4,279,666

OXIDIZED ALUMINUM OVERCOAT FOR SOLID ELECTROLYTE SENSOR

Adolph L. Micheli, Mt. Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 28, 1979, Ser. No. 97,906
Int. Cl.³ C23C 11/00; B05D 5/12
U.S. Cl. 148—6.3 **3 Claims**

2. In a method of making a porous refractory overcoat on a noble metal electrode of a solid electrolyte exhaust gas oxygen sensor, the improvement which comprises:

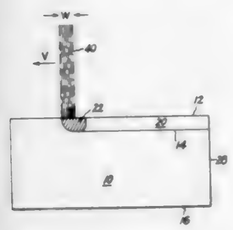
coating a slurry of aluminum flakes having a maximum dimension of about 10 micrometers, an organic binder and a vehicle onto the noble metal electrode, drying the coating and then heating the coating in an oxidizing atmosphere to at least form a rigid exoskeleton of aluminum oxide on each flake, that is interlocked with aluminum oxide exoskeletons on adjacent flakes wherein a strongly bonded and durable porous refractory overcoat about 0.1-0.3 millimeter thick is inexpensively formed on the noble metal electrode.

4,279,667

ZIRCONIUM ALLOYS HAVING AN INTEGRAL β-QUENCHED CORROSION-RESISTANT SURFACE REGION

Thomas R. Anthony, Schenectady, N.Y., and Harvey E. Cline, Stanford, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 22, 1978, Ser. No. 972,388
Int. Cl.³ C22C 16/00; C22F 1/18
U.S. Cl. 148—32 **8 Claims**



1. An article of manufacutre comprising

a body of zirconium alloy having a composite microstructure including:

a core having a first microstructure selected to maximize the physical structure and mechanical properties of said article, and

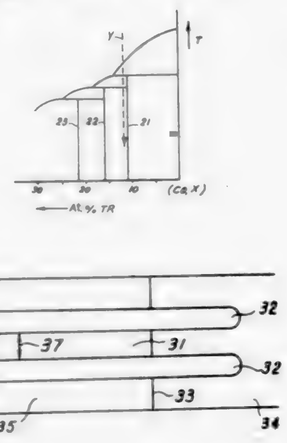
an integral outer surface region encompassing said core to a depth in the range of from about 1.25×10^{-2} cm to 1 cm having a second microstructure of β-quenched zirconium alloy to impart enhanced corrosion resistance to said article in a high temperature and high pressure steam environment.

4,279,668

DIRECTIONALLY SOLIDIFIED DUCTILE MAGNETIC ALLOY

Wilfried Kurz, Lausanne, Switzerland, and Remi Glardon, Berkeley, Calif., assignors to Les Fabriques d'Assortiments Reunies-Div. R, LeLocle, Switzerland

Continuation-in-part of Ser. No. 849,956, Nov. 9, 1977, Pat. No. 4,208,225, which is a continuation-in-part of Ser. No. 683,617, May 5, 1976, abandoned. This application Apr. 12, 1979, Ser. No. 29,477
Claims priority, application Switzerland, May 5, 1975, 005725/75
The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.
Int. Cl.³ C04B 35/00; H01F 1/04
U.S. Cl. 148—101 **1 Claim**



1. A magnetic alloy for a ductile permanent magnet made by directional solidification comprising a ductile phase consisting essentially of cobalt and chromium or of cobalt, chromium and iron in a brittle, magnetic matrix whose composition lies between $TR(Co,X)_5$ and $TR_2(Co,X)_{17}$, where TR is at least one element selected from the group which consists of samarium, gadolinium, praseodynium, cerium, neodymium, holmium, lanthanum, and yttrium; X is at least one metal selected from the group which consists of copper, iron, chromium, nickel, aluminum, molybdenum, and manganese; TR is present in an amount of 10 to 15 at % of the alloy, X is present in an amount of 10 to 40 at % of the alloy, cobalt is present in an amount of 50 to 80 at % of the alloy; and chromium is present in an amount of 0.5 to 5 at % of the alloy.

4,279,669

METHOD FOR EPITAXIAL DEPOSITION

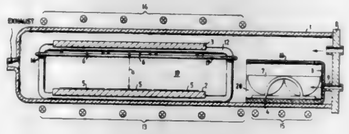
Peter D. Braun, Obersulm-Eschenau, and Wolodymyr Kosak, Biberach, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 27, 1979, Ser. No. 52,394
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 2829830
Int. Cl.³ H01L 21/20
U.S. Cl. 148—175 **5 Claims**

1. A method of epitaxial deposition on semiconductor substrate discs by conversion of gaseous semiconductor compounds, said conversion taking place in a transfer space between a material source region and the semiconductor substrate discs, comprising in combination:

arranging a plurality of coplanar semiconductor substrate discs in a common open region of reaction tube having a gas inlet and a gas outlet at its respective ends with said substrate discs being arranged adjacent one another in a plane extending substantially parallel to the longitudinal axis of the reaction tube;

providing a source of semiconductor material opposite each of said substrate discs in said common open region of the reaction tube with said source material being disposed in a plane which is parallel to and vertically displaced from said plane of said semiconductor substrate discs and with the spacing between said planes being small as compared to the length of the reaction tube;



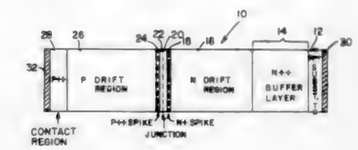
separately controlling and maintaining the temperature in said planes at different desired temperatures;

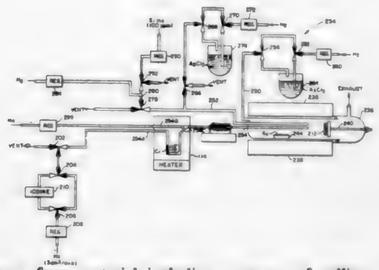
providing an additional source of semiconductor material in an initial chamber disposed in said reaction tube adjacent its gas inlet;

maintaining said additional source of semiconductor material at a desired temperature; and

flowing a reaction gas through said initial chamber and then through said common portion of the reaction tube to provide a respective partial pressure equilibrium system of the gaseous medium produced around said substrate discs and said source material, whereby said two equilibrium systems come into interaction across said transfer space between said planes while eroding semiconductor material from the source and depositing semiconductor material on the substrate discs.

(c) depositing the doped gallium arsenide semiconductor layer on a gallium arsenide substrate by vapor phase epitaxy from material including a source of gallium and arsenic and the doping vapor.





4,279,670

SEMICONDUCTOR DEVICE MANUFACTURING METHODS UTILIZING A PREDETERMINED FLOW OF REACTIVE SUBSTANCE OVER A DOPANT MATERIAL

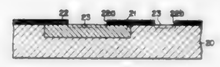
S. Robert Steele, Sudbury, Mass., assignor to Raytheon Company, Lexington, Mass.

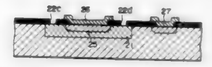
Filed Aug. 6, 1979, Ser. No. 64,339
Int. Cl.³ H01L 21/205, 29/207
U.S. Cl. 148—175 **13 Claims**

1. A method for producing a doped gallium arsenide semiconductor layer comprising the steps of:

(a) directing a predetermined flow of a reactive substance selected from a group consisting of: iodine, a compound of iodine, bromine, or a component of bromine, over a material having a dopant;

(b) chemically reacting the reactive substance with such material producing a corresponding flow of a doping vapor having the dopant, such doping vapor having a vapor pressure at a predetermined temperature at least an order of magnitude greater than the vapor pressure of the material at said predetermined temperature; and





1. A method for manufacturing a semiconductor device comprising the steps of preparing a silicon substrate having a p-type region with an exposed surface on one side thereof, forming an n-type region by depositing phosphorus on said exposed surface of the p-type region, forming a polycrystalline silicon layer on said n-type region, and heating said n-type region to diffuse phosphorus within said n-type region into said p-type region and into said polycrystalline silicon layer to form a diffused region in said p-type region.

4,279,672

FRAGMENTABLE PROPELLANT CONTAINING POLYVINYL NITRATE BINDER

Louis J. J. Leseves, and Didier J. Trenoules, both of Chateaulin, France, assignors to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Nov. 29, 1978, Ser. No. 964,482
Claims priority, application France, Dec. 15, 1977, 77 37901
Int. Cl.³ C06B 45/10
U.S. Cl. 149—19.8 7 Claims

1. A fragmentable unit charge of propellant powder, which consists of 85 to 97% by weight of grains of propellant powder containing nitrocellulose, which are agglomerated together by means of 15 to 3%, by weight of a thermoplastic, solid energy-producing binder having the following composition:

(a) 30 to 60% by weight, relative to the binder, of polyvinyl nitrate,

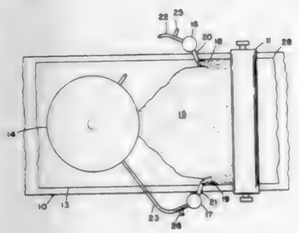
(b) 70 to 40% by weight, relative to the binder, of nitrocellulose having a low nitrogen content of less than 12.8%, or polyvinyl acetate or a mixture of the two.

4,279,673

HARD-EDGE WALLBOARD

George H. White, and Donald J. Petersen, both of North Tonawanda, N.Y., assignors to National Gypsum Company, Dallas, Tex.

Filed Feb. 11, 1980, Ser. No. 120,566
Int. Cl.³ B32B 13/00; B05D 5/00; B32B 3/26
U.S. Cl. 156—39 5 Claims



1. In a method of manufacturing gypsum wallboard which comprises depositing a central stream of foamed plastic gypsum on a table and depositing separate streams of relatively unfoamed plastic gypsum along opposite sides of the central stream, leveling the combined streams to form a single flat slab, and drying to produce a unitary monolithic core having edge portions of greater density than the main central portion of the monolithic core, the improvement wherein said separate streams of relatively unfoamed plastic gypsum are formed by diverting a portion of foamed plastic gypsum to at least one agitator and admixing a defoaming agent with said diverted portion prior to agitating said diverted portion, whereby said agitator thoroughly disposes said defoaming agent throughout said diverted portion, causing an increase in density thereof.

4,279,674

PROCESS FOR PREPARING WORKS OF ART

Marie-Claire Wadden, 10505 Weymouth Ave., Beltsville, Md. 20705

Filed Dec. 27, 1979, Ser. No. 107,565
Int. Cl.³ B05D 5/06, 1/38
U.S. Cl. 156—62 12 Claims

1. A method of preparing a work of art comprising steps of:

providing a plurality of colored wax markers;

warming a planar element to a temperature at which said colored wax markers melt into a fluent mass upon contact with said planar surface, said predetermined temperature being below a temperature at which melted wax from such wax markers will break up;

contacting said warmed planar element with one of said colored wax markers and forming a first viscous mass of colored wax on said heated planar element;

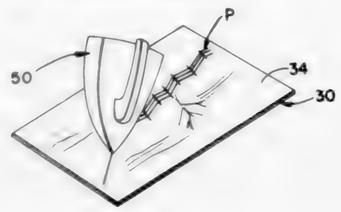
holding a planar flexible backing member by an edge of such backing member;

drawing one surface of such backing member through said first mass of colored wax in one sweeping motion to form a smooth, even background coating of colored wax on said one surface;

allowing the colored wax to dry on the backing member;

providing a hand held tool which has a tip, at least one edge and a planar surface;

heating the tip, edge and planar surface of said hand held tool to said predetermined temperature;



drawing the heated tip through the dried colored wax on the backing member to melt portions of said dried wax and define a design in said background;

forming additional viscous masses of colored wax on said edge and on said planar surface of said heated hand held tool, said additional masses having colors different from said first mass and from each other;

touching the dried colored wax on the background with the additional masses on the heated tool edge and planar surface and transferring the additional masses of colored wax to that dried colored wax on the backing member;

allowing the additional colored wax to dry; and

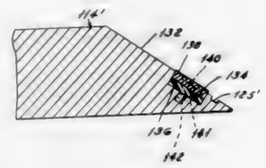
buffing the dried colored waxes by gently rubbing a polishing cloth over the dried colored waxes.

4,279,675

METHOD AND APPARATUS FOR PACKAGING

Eric A. Braun, Northville, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Continuation of Ser. No. 780,137, Mar. 22, 1977, abandoned, which is a continuation of Ser. No. 559,869, Mar. 19, 1975, abandoned, which is a division of Ser. No. 443,594, Feb. 19, 1974, Pat. No. 3,910,014. This application Jan. 10, 1980, Ser. No. 110,870
Int. Cl.³ B29C 27/08; B31B 1/28
U.S. Cl. 156—73.1 10 Claims



3. Apparatus for welding together layers of an end closure of a container comprising: an anvil having a support surface for engaging one outer surface of the layers; and vibrating means engageable with the opposite outer surface of the layers when said one outer surface is engaged with said support surface, said vibrating means being operable to vibrate at a frequency sufficient to generate heat for welding the layers together; a portion of said support surface including means for accommodating variations in the thickness of the layers to minimize variations in pressure applied to the layers over the areas of the surface engaged by the support means and vibrating means; said last named means comprising: an elongated groove formed in said support surface; a strip of elastomeric material received in said groove having a thickness less than the depth of said groove; and a plate member received in said groove and resiliently supported on said strip of elastomeric material, the outer surface of said plate member projecting above the support surface in the unstressed condition of said strip of elastomeric material; and further including at least one screw securing said plate member to said anvil, said screw having a head and a shank, said shank having a nonthreaded portion extending from the head and a threaded portion extending from the nonthreaded portion, said shank extending through said plate member and the strip of elastomeric material with the threaded portion threadedly engaged with the base of said groove.

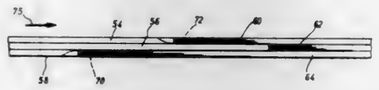
10. A method of closing and sealing an end closure of a thermoplastic coated paperboard container having a four-sided tubular body of a rectangular cross-section wherein the end closure includes front, rear and side panels and a sealing flap each extending from the edge of a respective one of the sides of the container body in co-planar relationship therewith in the open position of the end closure, each of said panels and sealing flap having a sealing portion that overlaps in the closed position of the end closure; said method comprising the steps of: folding the end closure to its closed position with the sealing portions of the panels and sealing flap overlapping, positioning the sealing portions of said panels and sealing flap between the surface of an anvil having grooves and recesses thereon for accommodating variations in the thickness of the sealing portions including the sealing portion of the sealing flap and the surface of a vibration welding horn; pressing the sealing portions against the anvil surface to force the sealing portions of the end closure into the grooves and recesses and energizing the horn with the sealing portions clamped between the surface of the horn and anvil at a substantially uniform pressure over substantially the entire length of the sealing portions including the sealing portion of the sealing flap for a predetermined period of time to activate the thermoplastic coating of the sealing surface to flow; deenergizing the horn; holding the sealing portions of the closed end closure in compression with the sealing portions against the surface of the anvil until the activated thermoplastic cools and sets to weld the sealing portions together; and removing the sealed end closure from said anvil surface.

4,279,676

PROCESS OF MAKING A BELTING JOINT

Donald Morrison, Harper, and William T. Muma, Jr., Anthony, both of Kans., assignors to Morrison Company, Inc., Anthony, Kans.

Filed Sep. 6, 1979, Ser. No. 72,840
Int. Cl.³ B65H 69/06
U.S. Cl. 156—159 1 Claim



1. A method of splicing the ends of three-ply belting material to form an endless belt, comprising the steps of:

(a) forming a tongue at the upstream end of the belting material by removing a first predetermined length of the outer ply on the first side of the material and a second predetermined length of the outer ply on the second side of the belting material, the second predetermined length being greater than the first predetermined length;

(b) forming a groove in the downstream end of the belting material by removing a portion of the center ply of the downstream end which is equal in length to the second predetermined length and by removing a portion of material, which is equal in length to the first predetermined length, from the outer ply of the downstream end which is to mate with the first side of the upstream end;

(c) inserting the tongue at the upstream end of the belting material into the groove in the downstream end of the material to mate said upstream and downstream ends; and

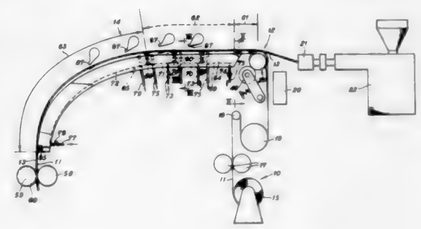
(d) forming a secured joint between the upstream and downstream ends of the belting material.

4,279,677

METHOD OF MEANS FOR JOINING PLASTIC FASTENER STRIP TO FILM

Katsuhito Takahashi, Shizuoka, Japan, assignor to Seissan Nippon-Sha K. K., Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 94,763
Int. Cl.³ B29D 7/08; B32B 7/04, 31/16
U.S. Cl. 156—160 25 Claims



1. A method of joining a plastic fastener strip continuously to a film, comprising:

running a film of substantial width continuously longitudinally through a joining station;

offsetting a selected longitudinal joining area of the film relative to and from the plane of the remainder of the film as the film runs through said joining station, and thereby maintaining said selected longitudinal joining area of the film in a stable tensioned condition;

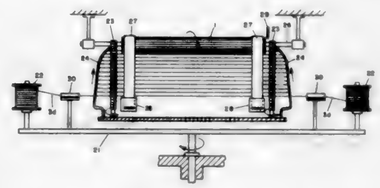
and joining and securing to said tensioned joining area in said joining station, a fastener strip running in the same direction and at the same speed as said film.

4,279,678

HOLLOW FIBER APPARATUS FOR THE FRACTIONATION OF FLUID ESPECIALLY USEFUL AS AN ARTIFICIAL KIDNEY

Charles Amicel, Carrieres Sur Seine; Bernard Biot, Craponne; Yves Batrille, Ferrolles-Attilly, and Christian Ollivier, Vienne, all of France, assignors to Sodip SA, Meyzieu, France

Division of Ser. No. 834,997, Sep. 20, 1977, Pat. No. 4,203,844. This application Jan. 4, 1979, Ser. No. 44,915
Claims priority, application France, Oct. 5, 1976, 76 30673
Int. Cl.³ B65H 81/00
U.S. Cl. 156—169 8 Claims



1. A process for the production of hollow fiber apparatuses for the factionation of fluid, the apparatuses each comprising a

mandrel in the form of a truncated cone having cylindrical ends, in which,

an envelope of hollow fibers is produced by the winding of at least one hollow fiber around at least one displaceable extension ramp and at least two supports which are in motion, the supports in motion sliding the envelope on the ramp and moving the envelope forward in relation to the supports,

the envelope of hollow fibers, while being moved forward by the supports in motion, is wound at least partially around at least one truncated cone with cylindrical ends mandrel which is rotating around its longitudinal axis, the envelope slackening from its winding tension and taking up the profile of the mandrel during its sliding on the ramp,

the envelope is then sectioned towards at least one end of the mandrel, while holding the envelope by means which are being wound around the mandrel towards its ends,

moving said displaceable extension ramp to reduce the extension of the fibers in the envelope, such that the fibers of the envelope progressively decrease in length with the fibers adjacent the truncated cone having a greater length than those furthest from the truncated cone.

4,279,679

METHOD OF MANUFACTURING INSULATING CORRUGATED STRUCTURAL MEMBERS

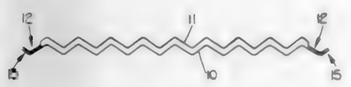
Elvin N. Sheppard, Barton-under-Needwood, England, assignor to Pierdeed Limited, Staffordshire, England

Filed Jun. 11, 1979, Ser. No. 47,316

Claims priority, application United Kingdom, Jun. 21, 1978, 27505/78

Int. Cl.³ B32B *3/02, 3/28*

U.S. Cl. 156—196 **10 Claims**



1. A method of manufacturing an insulating structural member from two sheets which have previously been provided with substantially identical longitudinally extending corrugations from one lateral edge to the other lateral edge over their full width, at least one of said sheets being of a thermoplastic material, said method comprising deforming said one sheet only, so that the lateral outer edge portions thereof are displaced from the plane of the remainder of said one sheet, and securing said lateral outer edge portions to the other sheet so that the corrugations on said sheets are maintained in substantially parallel spaced relationship from edge to edge.

4,279,680

METHODS FOR FORMING THINWALL STRUCTURES

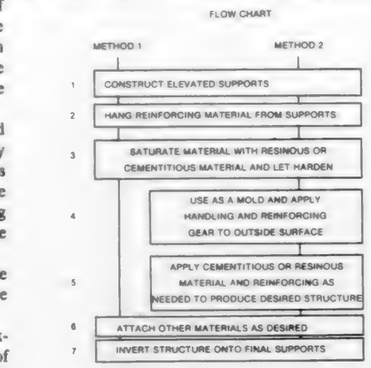
Louis L. Watson, Jr., 1708 Ferndale Clr., West Sacramento, Calif. 95691

Filed Jul. 28, 1978, Ser. No. 928,998

Int. Cl.³ B29D *9/00;* **B28B** *1/16;* **E04B** *1/32, 7/10*

U.S. Cl. 156—212 **2 Claims**

1. The method of forming a thinwall structure which comprises constructing elevated supports, hanging closely spaced reinforcing means between said supports in essentially a catenary surface, stabilizing the reinforcing means by saturating and enveloping them with resinous or cementitious material which is allowed to harden and finally inverting the structure onto mirror image supports causing its elements to be in compression with negligible bending or tensile stresses.



4,279,681

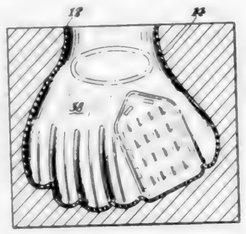
MOLDED BASEBALL GLOVE AND THE METHOD OF MAKING

Frank Klimesky, 3581 S. Ocean Blvd., South Palm Beach, Fla. 33460

Continuation-in-part of Ser. No. 879,124, Feb. 21, 1978, abandoned. This application Dec. 19, 1979, Ser. No. 105,139

Int. Cl.³ B29C *19/00;* **B32B** *7/14;* **B29C** *13/00;* **A41D** *13/08*

U.S. Cl. 156—245 **4 Claims**



1. The method of making a unitary plastic baseball glove having the appearance of a conventional leather baseball glove comprising:

(a) forming in a cavity mold a plastic unitary hollow shell, said molded shell having a outer convex front surface being distorted in shape when molded compared to said front surface of said conventional baseball glove, said front and rear surfaces including predetermined protuberances and indentations forming half-finger receiving areas, half-thumb receiving areas and a web surfaces extending between the thumb and index half-finger areas;

(b) removing the shell from the mold cavity;

(c) forcing the distorted convex front surface of the shell inwardly concavely for contiguous positioning of the half-finger delineations the half-thumb delineations, and the web areas between the front and rear surfaces, said front surface having the appearance of the front surface of a conventional baseball glove in the collapsed, concave position when contiguous with the rear surface of said shell; and

(d) connecting the half-finger delineating areas, half-thumb delineating areas, and the webs together to form a final molded conventionally appearing baseball glove.

4,279,682

APPARATUS FOR SECURING TAPE TO LEADS OF SEMICONDUCTOR LEAD FRAME

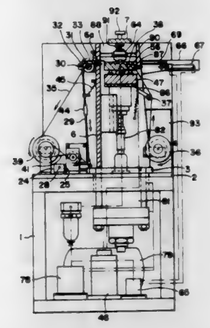
Teruaki Hamagami, Koganei; Kazuo Maetani, Higashiyamato, and Fumio Sato, Hamuramachi, all of Japan, assignors to Sumitomo Metal Mining Company Limited, Tokyo, Japan

Filed Nov. 2, 1979, Ser. No. 90,697

Claims priority, application Japan, Nov. 2, 1978, 53/135555

Int. Cl.³ B32B *31/00*

U.S. Cl. 156—367 **22 Claims**



1. An apparatus for the pasting of at least one tape portion from at least one elongated tape onto at least one lead frame unit, comprising, a machine frame, means on said frame for intermittently feeding a predetermined length of insulated tape to a punching and pasting station, means for punching said tape at said station to produce said tape portion and for pressing said tape portion against said lead frame unit, meand for horizontally moving said lead frame unit from a feed table to said punching and pressing means at said station, means on said feed table for positioning a plate comprised of a plurality of interconnected lead frame units, said positioning means being defined by an upper surface of said feed table having a depression therein for the reception of the plate, plate access holes extending through said table and overlapping with portions of said depression to thereby provide access for the manual removal of the plate from said table, said moving means including plate engaging means and means for reciprocating said plate engaging means for setting the plate at said station and for returning the plate to said table after being pasted, and means for timing the operation of said feeding means, said punching and pressing means and said moving means, said punching and pressing means including a stationary upper die member having a surface on which said lead frame unit is supported, means in said die member for supporting said tape a spaced distance from said surface, and a punch member movable toward and away from said surface for punching said tape.

4,279,683

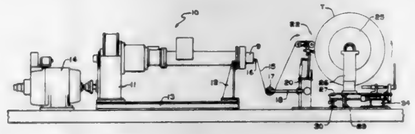
TIRE BUILDING MACHINE

Clifford A. Landsness, Akron, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Oct. 25, 1979, Ser. No. 88,314

Int. Cl.³ B29H *17/20*

U.S. Cl. 156—397 **3 Claims**



1. A machine for winding a flat ribbon onto a tire carcass comprising a support frame, a tire building drum for supporting a tire carcass pivotally mounted on said support frame, extruder means for supplying said flat ribbon to said tire building drum, a ribbon guide means located between said extruder and said tire building drum for applying said ribbon to said tire carcass on said drum, means for moving said tire building drum through a predetermined angular oscillation path for applying a plurality of windings of said ribbon on a selected area of said tire carcass from side to side and over the crown of said tire carcass as said ribbon guide means feeds said ribbon from said extruder to said drum, said ribbon guide means includes a pair of spaced guide rollers, one of said rollers applying said ribbon to said tire carcass in said drum, said means for moving said tire building drum through said predetermined angular path cooperative with said one roller applying said ribbon to deposit said flat ribbon in overlapping relationship, a stitching roller mounted on a moveable support, power operated means connected to said moveable support for moving said stitching roller into and out of engagement with said ribbon being applied directly to said drum from said one roller wherein said one roller is rotated thereby, belt means interconnecting said pair of spaced guide rollers to rotate said rollers at the same angular velocity, and said one guide roller is smaller in diameter than the other one of said pair of guide rollers whereby said one guide roller has a greater peripheral speed than said other one of said guide rollers to effect frictional contact over the width of said flat ribbon with the ribbon it overlaps and with the adjacent ribbon or tire carcass eliminating air pockets therebetween as the entire overlap of said flat ribbon is wound onto said tire carcass.

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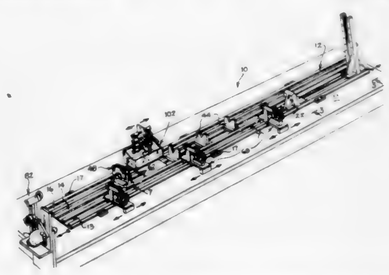
SYSTEM FOR APPLYING AND WRAPPING LINE GUIDES TO A FISHING ROD BLANK

Eugene B. Mason, 9675 E. Live Oak Rd., Stockton, Calif. 95215

Filed Oct. 12, 1979, Ser. No. 84,501

Int. Cl.³ B21F *17/00*

U.S. Cl. 156—425 **14 Claims**



11. In a rod wrapping system further including rod supporting means including an elongate bed member, elongate guide means carried by said bed member, assemblies for supporting and holding a rod to be wrapped, said assemblies being movable variously along said guide means, each of said assemblies including a plurality of three independently operable rollers arranged to include two bottom rollers disposed in predetermined spaced relation for receiving a fishing rod blank or the like mutually thereon and a top roller pivotable into and out of engagement with a rod carried by said bottom rollers to define the center of rotation between the three rollers when holding the rod, means supporting the center of rotation of each of said assemblies at progressively different heights from said bed member to align the center of rotation of said assemblies to lie substantially on a common axis, said assemblies being movable along said channel until the center of rotation of each given assembly lies on the axis of said rod when parallel to said bed member, a vertically adjustable rod supporting and holding assembly disposed in alignment with said guide means, the last

named assembly comprising a stationary, upwardly oriented mounting plate, an adjustable carriage, means for readily releasably coupling said carriage to said plate to permit movement of said carriage along said plate between lowered and raised positions upon release of the last named means and to secure said carriage to said plate when not released, said last named assembly including a plurality of three independently operable rollers arranged to include two bottom rollers disposed in spaced relation and a top roller pivotable into and out of engagement with a fishing rod carried between same to define the center of rotation between the three rollers when so holding the rod, said means for readily releasably coupling said carriage to said plate serving to permit the center of rotation of the last named assembly to be moved upwardly or downwardly into alignment with the axis of the center of rotation of the other supporting and holding assemblies.

4,279,685

APPARATUS FOR USE IN FILM SPLICING

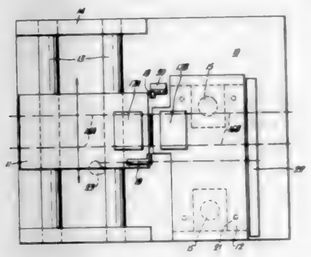
Roger C. Barnett, St. Albans; Robert G. Sharpless, Brentwood, and Colin F. Mossman, Hillingdon, all of England, assignors to The Rank Organisation Limited, London, England

Filed Mar. 7, 1980, Ser. No. 128,257

Claims priority, application United Kingdom, Mar. 7, 1979, 07989/79

Int. Cl.³ G03D *15/04*

U.S. Cl. 156—509 **10 Claims**



1. Apparatus for use in film splicing, comprising a carriage having an upper surface and means for locating thereon a film strip which has a free end to be spliced to the free end of a second film strip, means for linearly moving the carriage laterally back and forth transverse to the length of the film strip supported on said carriage surface, a table support and means thereon by which the second film strip can be located parallel to the first film strip on said carriage, means whereby said support is fixed against lateral movement, a first scraper carried by the movable carriage and a laterally fixed second scraper, the arrangement being such that, in use, transverse movement of the carriage causes the first scraper to scrape the end of the second film strip and the second scraper to scrape the end of the first film strip, while after scraping the carriage can be laterally repositioned within its range of back and forth movement with the scraped film ends in alignment for splicing.

4,279,686

APPARATUS FOR APPLYING WEB SECTIONS TO A FLAT-LYING WORKPIECE

Fritz Achelpohl, Lengerich, and Werner Decker, Ladbergen, both of Fed. Rep. of Germany, assignors to Windmöller & Hölscher, Lengerich, Fed. Rep. of Germany

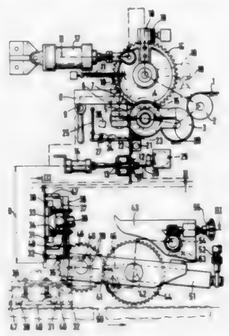
Filed Jan. 1, 1979, Ser. No. 44,757

Claims priority, application Fed. Rep. of Germany, Jan. 5, 1978, 2834596

Int. Cl.³ B35B *35/00*

U.S. Cl. 156—517 **14 Claims**

1. Apparatus for applying a section severed from a web pulled off a supply reel, e.g., of an internal closure or of a base cover-sheet, onto a flat-lying workpiece, such as a pulled-open or already closed base, comprising a pair of intermittently driven rollers for feeding and advancing a web in sections, clamping jaws arranged on both sides of the web, said jaws being movable toward and away from one another for clamping the web fed by the intermittently driven rollers and being divided into two pairs, the pairs being mounted with a space therebetween, a knife guided in the space between the pairs of jaws for severing web sections guided between said clamped by the jaws, and suction means including at least one sucker for



gripping severed web sections, swing lever means for supporting said suction means in such manner that a gripped section is transferred onto the flat-lying workpiece, said at least one sucker being movable by said swing lever means between a first position downstream of the clamping jaws for receiving a part of a web that projects beyond the clamping jaws, and a second position rotated 90° from the first position, said at least one sucker being pressed against a workpiece in said second position.

4,279,687

LABELING STATION WITH GLUEING MEANS FOR BOTTLES OR THE LIKE

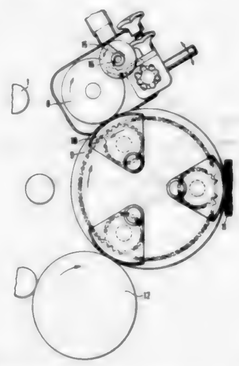
Rainer Buchholz; Rudolf Zodrow, both of Dusseldorf, and Heinz J. Rosenberg, Neuss, all of Fed. Rep. of Germany, assignors to Jagenberg-Werke AG, Dusseldorf, Fed. Rep. of Germany

Filed Sep. 4, 1979, Ser. No. 72,378

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838158

Int. Cl.³ B65C *9/10, 9/16*

U.S. Cl. 156—568 **14 Claims**



1. In a labeling station for bottles or the like having at least one glue segment which is rotatably mounted on a revolving carrier and having a pickup surface, a label magazine, a rotating glue roll which coats the pickup surface with glue such that labels can be picked up thereby from the label magazine, a rotating gripper cylinder which picks up labels from the segments and then affixes the label by its glue-coated side to a bottle moving past it and applicator means for applying a layer of glue to the surface of the glue roll including a doctor blade for determining the thickness of the layer by its spacing from the glue-roll surface, the improvement wherein the applicator means further comprises means defining a glue nozzle for producing a glue jet, a glue scraper and means mounting the glue nozzle means and the glue scraper for swinging movement about an axis parallel to that of the glue roll from a first position where the glue jet is directed at the surface of the glue roll and the scraper is spaced apart from the glue roll surface to a second position where the glue jet is directed away from the glue roll surface and the scraper is ahead of the doctor blade in the direction of rotation of the glue roll and is closer to the surface of glue roll than the doctor blade to remove any glue thereon.

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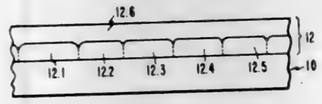
METHOD OF IMPROVING SILICON CRYSTAL PERFECTION IN SILICON ON SAPPHIRE DEVICES

Marvin S. Abrahams, Cranbury, and Joseph Blanc, Princeton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 17, 1980, Ser. No. 131,046

Int. Cl.³ C30B *25/02, 29/06*

U.S. Cl. 156—613 **8 Claims**



1. A method of improving crystalline silicon perfection comprising the steps of:

(a) providing an insulating substrate;

(b) initially depositing a discontinuous layer of crystalline silicon on the substrate at a given growth temperature, the layer characterized by the formation of discrete growth islands of crystalline silicon;

(c) terminating the deposition of the crystalline silicon;

(d) maintaining the substrate and growth islands at the given growth temperature for a given period of time to cure any crystallographic misorientations and defects that may have been formed in the silicon islands; and

(e) depositing silicon on the now cured islands and on the substrate.

4,279,689

PROCESS FOR PRODUCING SUPER HARD-HIGHLY PURE SILICON NITRIDES

Toshio Hirai, and Koichi Niihara, both of Sendai, Japan, assignors to The Research Institute for Iron, Steel and Other Metals of the Tohoku University, Japan

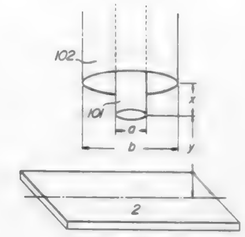
Division of Ser. No. 756,282, Jan. 3, 1977, Pat. No. 4,118,539. This application Jul. 21, 1978, Ser. No. 926,612

Claims priority, application Japan, Nov. 8, 1977, 52/756282

Int. Cl.³ C30B *25/10*

U.S. Cl. 156—614 **4 Claims**

1. A process for producing super hard-highly pure silicon nitrides, characterized in that a gas of nitrogen depositing source and a gas of silicon depositing source are blown on a substrate heated at a temperature of 500°-1,900° C. by means of a blowpipe composed of a pipe assembly in which the gas stream of the nitrogen depositing source is surrounded with the gas stream of the silicon depositing source, and chemical vapor-deposition reaction of both the gases is caused on or near



the substrate, whereby silicon nitride is deposited and formed on the substrate.

4,279,690

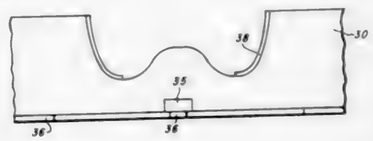
HIGH-RADIANCE EMITTERS WITH INTEGRAL MICROLENS

Eugene G. Dierschke, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 626,406, Oct. 28, 1975, abandoned. This application Sep. 19, 1977, Ser. No. 834,211

Int. Cl.³ H01L *21/306*

U.S. Cl. 156—649 **4 Claims**



1. A process for making a radiation emitting semiconductor device comprising the steps of depositing an oxide on one side of an emitting device structure having an emitting junction, selectively removing an annular region of the oxide, selectively etching the exposed annular portion of the device structure to form a mesa type structure, selectively removing the oxide over the mesa structure and then selectively etching further to round the top of the mesa structure.

4,279,691

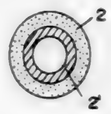
METHOD OF MAKING BORON CANTILEVER

Masaki Aoki, Hirakata; Shigeru Yoshida, Kadoma; Hiroshi Yamazoe, Katano, and Masahiro Nagasawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Japan

Filed Dec. 12, 1979, Ser. No. 102,846

Int. Cl.³ C23F *1/00*

U.S. Cl. 156—656 **24 Claims**



1. A method of making a boron cantilever in pipe form, comprising: preparing a metal substrate; depositing a boron layer on said metal substrate by chemical vapor deposition; and immersing the thus boron-coated metal substrate in a selective etchant for etching said metal substrate, thus leaving said boron layer as said pipe, said etchant being a solvent having

dissolved therein at least one of bromine, iodine, iodine trichloride, iodine monochloride and iodine monobromide.

4,279,692

ROTARY VANE TYPE EVAPORATOR

Koichi Chino, Hitachi; Hideo Yusa, Katsuta; Akira Oda, Hitachi; Hideichi Miura, Ibaraki; Susumu Horiuchi, Hitachi, and Yoshiyuki Takamura, Kudamatsu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 54,945

Claims priority, application Japan, Jul. 5, 1978, 53-80997

Int. Cl.³ B01D *1/22*

U.S. Cl. 159—6 W **2 Claims**



1. A rotary vane type evaporator comprising:

a vessel having a substantially cylindrical inner peripheral surface defining a substantially cylindrical space about a main axis and having inlet means at one axial end for passing a solution into said vessel at the one end to form a solution region and move axially therethrough to be treated by evaporation so that its viscosity changes in the axial direction to form a slurry region in the axially intermediate portion of said vessel and a powder region at the other axial end, and further having outlet means for removing the powder at the other end;

means for heating at least a portion of said inner peripheral surface of said vessel;

a rotor including a rotor shaft mounted in said vessel for rotation about said axis and a plurality of radially extending vanes mounted on said rotor shaft for rotation therewith adapted to force and spread said substance over said vessel inner peripheral surface;

said vanes being disposed in a plurality of stages arranged in the axial direction of said vessel, each region including at least one vane, each vane being pivotally mounted on said rotor shaft about a pivot axis parallel to and radially spaced from the axis of said rotor shaft, a shoe connected to the radially outer end of said vanes and each said shoe having a cylindrical surface slidingly engaging said vessel inner peripheral surface over an area extending along an arc in the circumferential direction of said vessel;

the respective shoes in axial direction of the feed decreasing in dimension of the cylindrical surface with the smallest dimension in an intermediate shoe; and

said rotor including means to counteract the effect of axially changing viscosity and to urge said shoes against said vessel inner peripheral surface during rotation of said rotary shaft with radial forces in said solution and powder regions that are substantially smaller than the radial forces within said slurry region so the shoes of the vanes of all the stages are worn at a substantially equal rate with use of an axially varying viscosity fluid.

4,279,693

PROCESS FOR PURIFYING POLLUTED FLUIDS

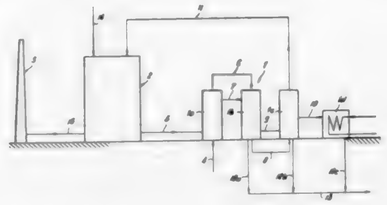
Hans Kühnlein, Füllinsdorf, and Walter J. Jarosch, Bubendorf, both of Switzerland, assignors to Hch. Bertrams Aktiengesellschaft, Basel, Switzerland

Continuation of Ser. No. 469,640, May 14, 1974, abandoned. This application Sep. 24, 1976, Ser. No. 726,233

Claims priority, application Switzerland, May 14, 1973, 6788/73; Jan. 18, 1974, 685/74

Int. Cl.³ B01D *1/02*

U.S. Cl. 159—47 WL **4 Claims**



1. A continuous process for purifying an impure effluent comprising a volatile component and a non-volatile component, said process including the steps of:

(1) heating the effluent to evaporation to produce an impure vapor containing the volatile component and a residue comprising a concentrate of the non-volatile component;

(2) introducing the residue into a combustion chamber, where it is at least partially burned;

(3) using the heat of combustion obtained in the combustion chamber to indirectly supply heat for use in evaporation step (1);

(4) adding air to the impure vapor containing the volatile component to produce an impure vapor/air mixture;

(5) indirectly heating the impure vapor/air mixture;

(6) introducing the heated impure vapor/air mixture into a reaction chamber where complete oxidation and combustion of the remaining impurities takes place to produce a purified vapor containing non-condensable gases; and

(7) using the purified vapor containing the non-condensable gases to indirectly heat the impure vapor/air mixture in step (5).

4,279,694

METHOD FOR TREATING REFINED MECHANICAL PULP AND THERMO MECHANICAL PULP WITH OZONE

Bjorn H. Fritzvold, Hosle, and Nicolai Soteland, Oslo, both of Norway, assignors to Myrens Verksted A/S, Norway

Continuation of Ser. No. 942,774, Sep. 15, 1978, abandoned. This application Dec. 7, 1979, Ser. No. 101,146

Claims priority, application Norway, Oct. 17, 1977, 773560

Int. Cl.³ D21B *1/14*; **D21C** *9/10*

U.S. Cl. 162—28 **5 Claims**

1. In a method for continuously treating refined mechanical pulp and thermo-mechanical pulp in which the pulp is subjected to a first stage refining process, treated with ozone and subsequently treated in a second stage refining process, wherein the improvement comprises:

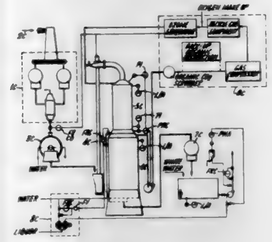
(a) refining the pulp in said first stage refining process, by means of a single grinding step to a freeness value of at least 200 csf, and a dry substance consistency of 20–60%,

(b) cooling the refined pulp to a temperature below approximately 70° C.,

(c) treating the cooled pulp with ozone,

(d) treating the ozonized pulp in a high-consistency maturation reactor in which a material selected from the group consisting of alkali and bleaching chemicals is added for not more than 30 minutes to produce a high-consistency pulp having a solids content of between 10–40% and a pH in the range of 7–10,

(e) passing the matured, high consistency pulp directly and continuously to a second stage refiner,



(f) grinding the pulp in said second stage refiner by means of a single grinding step to a desired freeness value.

4,279,695

PROCESS FOR THE MANUFACTURE OF COMPOSITE MATERIALS

Peter H. Winterbottom, Oldham, England, assignor to Turner & Newall Limited, Manchester, England

Filed Nov. 26, 1979, Ser. No. 97,448

Claims priority, application United Kingdom, Dec. 9, 1978, 47848/78; Aug. 13, 1979, 28169/79

Int. Cl.³ D21H *5/12*

U.S. Cl. 162—146 **5 Claims**

1. A process for the manufacture of an asbestos-free composite material comprising a matrix of set inorganic binder and fibrous reinforcement, comprising dewatering an aqueous slurry containing:

(a) water-settable inorganic binder in an amount forming at least half of the solids content of the slurry,

(b) web-forming fibres selected from cellulose fibres, polyethylene fibres and polypropylene fibres,

(c) reinforcing carbon fibres of tensile modulus not greater than 125 GPa, in an amount forming from about 0.1 to about 2.5% by weight of the solids content of the slurry, and

(d) ball clay in an amount which forms from about 5 to 30% by weight of the solids content of the slurry and is such as to reduce shrinkage of the composite material during setting of the inorganic binder.

4,279,696

PROCESS FOR FORMING FRICTION MATERIALS

Jay L. Piersol, Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Jun. 20, 1980, Ser. No. 161,413

Int. Cl.³ D21H *5/18*

U.S. Cl. 162—146 **9 Claims**

1. A process for forming a friction material, comprising the steps of:

(a) forming an aqueous slurry at 7–15 weight percent solids and a Canadian freeness of about 500 to about 600, said slurry comprising:

(1) about 5 to about 15 weight percent of an aqueous suspension of refined cellulose fibers, said suspension having 1–5 weight percent solids and a Canadian freeness in the range of from about 300 to about 500;

(2) from about 25 to about 70 weight percent fine metal fibers;

(3) from about 12 to about 15 weight percent powdered resin;

(4) from about 5 to about 15 weight percent rubber latex; and

(5) from about 5 to about 25 weight percent inorganic fillers;

(b) forming a thickened sheet from said slurry; and

(c) curing said sheet to thereby form a friction material containing metal fibers substantially evenly dispersed therethrough.

4,279,697

METHOD OF AND APPARATUS FOR SHUTTING DOWN A GAS-COOLED NUCLEAR REACTOR

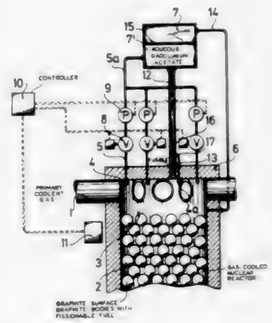
Theodor Overhoff, Niederzier; Rudolf Schulten, Aachen-Richterich; Jasbir Singh, Jülich; Gerd Sylvester, Leverkusen, and Josef Witte, Cologne, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschrankter Haftung, Jülich and Bayer AG, Leverkusen, both of, Fed. Rep. of Germany

Filed Nov. 30, 1978, Ser. No. 964,937

Claims priority, application Fed. Rep. of Germany, Dec. 3, 1977, 2753928

Int. Cl.³ G21C *7/06*

U.S. Cl. 176—22 **27 Claims**



1. A process for reducing the reactivity of a nuclear reactor of the type in which a primary coolant gas is passed into direct contact in a reactor core with the graphite surfaces of nuclear-fuel elements constituted by graphite bodies containing fissionable fuel, said process comprising introducing from a location outside of said core into the primary coolant gas for entrainment by the primary coolant gas into contact with the surfaces of said fuel elements, a gadolinium^{157}-containing substance which is at least partly deposited on said surface for adsorption of neutron flux whereby the gadolinium^{157} undergoes at least in part a nuclear transmission to gadolinium^{158}.

4,279,698

NUCLEAR REACTOR OPERATION CONTROL PROCESS

Toshiaki Doi, Shimane; Shigeru Suematsu, Hitachi; Chikamasa Nishida, Hitachi, and Hiroshi Hiranuma, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 762,248, Jan. 25, 1977, abandoned. This application Apr. 18, 1979, Ser. No. 31,159

Int. Cl.³ G21C *7/06*

U.S. Cl. 176—22 **34 Claims**

1. A process of controlling operation of a nuclear reactor including a plurality of fuel elements in a reactor core each having a cladding and a plurality of fuel pellets encased in the cladding, control rods for effecting coarse control of reactor power, and means for effecting fine control of reactor power, comprising:

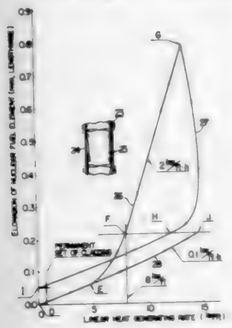
a first step of withdrawing the control rods from said reactor core to cause the reactor power to rise to a first level;

a second step of interrupting the withdrawing of the control rods and operating the fine control means while the withdrawing of the control rods is interrupted to cause the reactor power to rise from the first level to a second level

higher than the first level so as to produce and accumulate neutron absorptive fission products in the fuel elements;

a third step of operating the fine control means to cause the reactor power to fall to a third level lower than said first level by virtue of the presence of said fission products produced and accumulated in the fuel elements during the second step;

a fourth step of restarting the withdrawing of the control rods which was interrupted to cause the reactor power to rise to a fourth level higher than said third level while the



fission products produced and accumulated in the fuel elements during the second step are still present therein;

a fifth step of again interrupting the withdrawing of the control rods when the reactor power has reached the fourth level and permitting the reactor power to rise due to the reduction of the fission products produced and accumulated in the fuel elements during the second step; and

a sixth step of operating the second control means while the withdrawing of the control rods is interrupted to cause the reactor power to rise further.

4,279,699

COMBINED GRIPPER FOR A NUCLEAR REACTOR

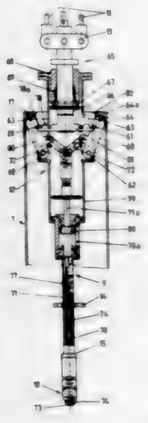
Rolf Kuba, Würzburg, Fed. Rep. of Germany, assignor to GG. Noell GmbH, Fed. Rep. of Germany

Filed Dec. 18, 1978, Ser. No. 970,208

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1977, 2756370

Int. Cl.³ G21C *19/20*

U.S. Cl. 176—30 **6 Claims**



1. A device for selectively lifting a fuel element and an assembly of operating rods of a nuclear reactor, for example, control rods, which are positioned in such an element, the assembly being of the type having means interconnecting the ends of the rods to form a bundle, comprising a vertically elongated guide tube, a telescoping unit reciprocatably displaceable in said guide tube for telescopic movement relative thereto, said telescopic unit including a tubular casing slidably mounted to said guide tube, a gripper head comprising a mounting member, connecting means for resiliently interconnecting said mounting member to one end of said casing for relative overtravel therebetween, said gripper head being movable within limits in any direction during the overtravel, and pawl means for releasably engaging the fuel element.

4,279,700

TRITIUM REMOVAL AND RETENTION DEVICE

Raymond F. Boyle, Pittsburgh, and Docile D. Durigon, North Huntingdon, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 741,924, Nov. 15, 1976, abandoned, which is a continuation of Ser. No. 621,975, Oct. 14, 1975, abandoned. This application Oct. 11, 1978, Ser. No. 950,359

Int. Cl.³ G21C *3/02*

U.S. Cl. 176—68 **9 Claims**



1. A fuel rod for use in a nuclear reactor comprising a plurality of pellets composed of nuclear material, a tubular cladding enclosing said pellets, means hermetically sealing said rod, said clading having a clearance space with respect to the pellets, a plenum area within said rod, a tritium removal and storage device disposed within said plenum and separate from said cladding, said removal and storage device comprising an inner core of zirconium alloy and an adherent outer layer of a nickel alloy bonded to the exposed surfaces of said core, said outer layer being above five percent by weight of said removal and storage device.

4,279,701

SHIELD WALL FOR SURROUNDING REACTOR CONTAINMENT VESSEL FOR NUCLEAR REACTOR AND METHOD FOR CONSTRUCTING THE SAME

Sakae Ebata; Masahide Watari; Sunao Hayakumo, and Osamu Oyamada, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 31, 1978, Ser. No. 911,076

Claims priority, application Japan, Jun. 1, 1977, 52-64437

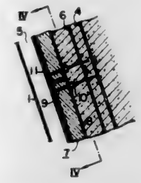
Int. Cl.³ G21C *9/00*

U.S. Cl. 176—87 **9 Claims**

1. In a reinforced concrete shield wall for surrounding a nuclear reactor container enclosing therein a nuclear reactor vessel with a nuclear reactor core, said reinforced concrete shield wall being spaced apart from said reactor container, an improvement comprising:

a supporting structure constructed between said reactor container and the interior surface of said reinforced concrete shield wall and spaced apart from said reactor container,

a plurality of heat insulation blocks interposed between said supporting structure and the interior surface of said reinforced concrete wall to form an insulation layer, the plurality of heat insulation blocks being supported by said



supporting structure and an exterior surface of the insulation layer formed by said plurality of heat insulation blocks contacting the interior surface of said reinforced concrete shield wall, and

retaining means for securely retaining said heat insulation blocks between said supporting structure and said reinforced concrete shield wall.

4,279,702

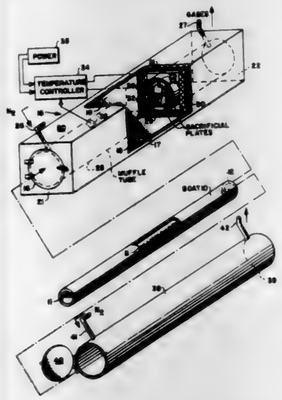
APPARATUS FOR MAKING HOLLOW CARBON MICROSPHERES

Robert G. Shaver, Alexandria, and William R. Leake, Reston, both of Va., assignors to Versar, Inc., Springfield, Va.

Division of Ser. No. 10,867, Feb. 9, 1979, Pat. No. 4,229,425. This application Jan. 10, 1980, Ser. No. 110,874

Int. Cl.³ C10B *1/06*

U.S. Cl. 202—137 **4 Claims**



1. Apparatus for making hollow carbon microspheres from batches of hollow microballoons made of heat carbonizable material, the apparatus comprising:

(a) an oven having a ceramic muffle tube therein, the oven surrounding and enclosing the muffle tube and having heating means between the oven and the tube for maintaining the tube at a temperature above the carbonizing temperature of said material, and the oven having a door providing access to the muffle tube;

(b) means for flushing the muffle tube with an inert gas;

(c) a graphite boat shaped to fit within the muffle tube and confine a batch of microballoons, the graphite boat being shaped to fully enclose said microballoons and thereby to provide a thermal barrier between the microballoons and the heated muffle tube, and the boat having small openings operative to permit flushing thereof with said inert gas and to permit the escape of volatile products of decomposition;

(d) an unheated chamber outside the oven shaped to receive and enclose the boat during cooling; and

(e) means for maintaining an inert gas atmosphere in said second chamber.

4,279,703

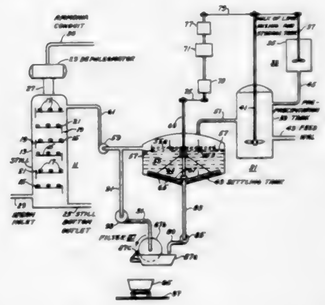
APPARATUS FOR THE DISTILLATION OF WEAK AMMONIA LIQUOR

Daniel Kwasnoski, Hellertown; Charles J. Sterner; Russel J. Horst, both of Bethlehem, and Kenneth R. Burcaw, Easton, all of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Continuation of Ser. No. 934,148, Aug. 16, 1978, abandoned, which is a division of Ser. No. 695,624, Jun. 14, 1976, Pat. No. 4,108,734. This application Dec. 3, 1979, Ser. No. 99,700

Int. Cl.³ B01D *3/20, 3/22*

U.S. Cl. 202—158 **3 Claims**



1. An improved apparatus arrangement for removing free and fixed ammonia from undistilled weak ammonia liquor derived from a coal coking operation while reducing calcium solids accumulation in still apparatus constituting a portion of the improved apparatus arrangement and wherein the undistilled weak ammonia liquor contains both substantial free ammonia as ammonium carbonate, ammonium sulfide and ammonium cyanide and fixed ammonia as ammonium chloride, ammonium thicyanate and ammonium sulfate, comprising in series:

(a) mixing apparatus for mixing undistilled weak ammonia liquor with lime,

(b) clarification apparatus means arranged to receive mixed lime-liquor slurry from the mixing apparatus means of (a) and adapted to separate solids from the liquor,

(c) a single leg ammonia still apparatus means arranged to receive clarified liquor from the clarification means of (b) and adapted to remove ammonia from said clarified liquor by steam distillation, the still apparatus being comprised of a column shell in which are mounted a plurality of liquid supporting trays with a plurality of spaced gas passage orifice means in said trays, the relative surface area of said individual liquid supporting trays with respect to the total orifice area in said trays providing a molar liquid to gas ratio for said trays and the still apparatus of 5 to 10.

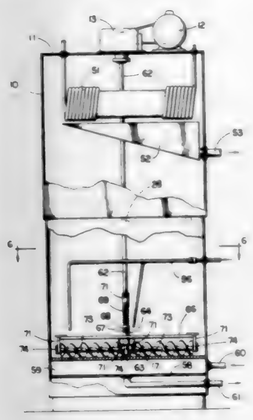
Said apparatus arrangement having all distillation apparatus adapted to treat the weak ammonia liquor derived from the coal coking operation positioned in line subsequent to the mixing and clarification apparatus means.

4,279,704

DRY CLEANING STILL APPARATUS

Kenneth E. Noble, Sr., and Kenneth E. Noble, Jr., both of 390 N., U.S. Hwy. 31 S., Whiteland, Ind. 46184

Filed Aug. 8, 1980, Ser. No. 176,264
Int. Cl.³ B01D *3/02*
U.S. Cl. 202—175 **3 Claims**



1. A dry cleaning solvent recovery still including an upright cylindrical body having means for introducing liquid solvent containing finely divided solids into the still body to a predetermined depth, means for heating the liquid above its boiling point, a condensing coil disposed adjacent the upper end of the still body for condensing the solvent vapor and draining it to the exterior of the still body, the still being characterized by a drive shaft extending into the interior of the still and supporting for free rotation two coaxial auger members spanning the diameter of said still body adjacent the base thereof, and power means exterior of the still body for rotating said drive shaft to move the auger members over the base of the still body to agitate and divide the solid residue of the liquid distillation said auger members being supported by an arm mounted at its midpoint to said drive shaft and diametrically spanning the base of said still body, spaced depending flanges on said arm supporting an auger shaft for free rotation on each of the two radial portions of the arm, and means for flowing steam and hot water through the still after distillation has halted for flushing the finely divided solids from the still.

4,279,705

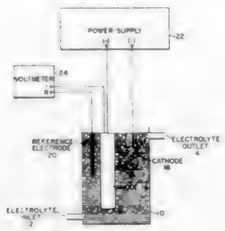
PROCESS FOR OXIDIZING A METAL OF VARIABLE VALENCE BY CONSTANT CURRENT ELECTROLYSIS

Olen L. Riggs, Jr., Bethany, Okla., assignor to Kerr-McGee Corporation, Oklahoma City, Okla.

Filed Feb. 19, 1980, Ser. No. 122,585
Int. Cl.³ C25C *1/22*; C25B *1/00*
U.S. Cl. 204—1.5 **9 Claims**

1. A process for changing the valence of a metal of variable valence state in a solution to a higher valence state which comprises:

providing an electrolytic cell containing an electrolyte comprising the solution containing the metal of variable valence and having an anode and a cathode positioned therein, said anode having a surface coating containing manganese dioxide, said anode and cathode having an anode surface area to cathode surface area ratio of at least about 100:1 exposed to said electrolyte in said cell, said cell having no separate anode and cathode compartments within said cell;



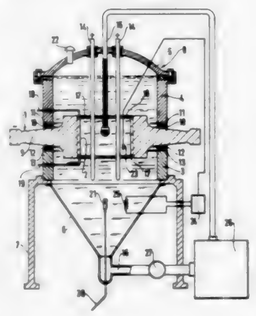
electrolyzing said electrolyte within said electrolytic cell by constant current means to change the valence of the metal of variable valence state to a higher valence state.

4,279,706

METHOD AND ASSEMBLY FOR DEPOSITING A METAL ON A CYLINDRICAL BORE WHICH PASSES THROUGH A CENTRAL PORTION OF A LARGE PART

Jacques Blanc, Lyons; Andre Coulon, Bessoncourt, and Gilbert Pellus, Evecquemont, all of France, assignors to Alsthom-Atlantique, Paris and TSM Traitements de Surface et Mecanique, Vigny, both of, France

Filed May 27, 1980, Ser. No. 153,290
Claims priority, application France, Mar. 27, 1980, 80 06834
Int. Cl.³ C25D *7/04, 17/02, 21/10*
U.S. Cl. 204—26 **9 Claims**



1. A method of depositing a metal on a cylindrical bore which passes through the central portion of a large part, said method comprising the step of:

placing and centering said large part between an upper tank and a lower tank having a common vertical axis of symmetry so that the axis of symmetry of the bore coincides with the axis of the tanks with the two tanks and the part defining a chamber inside which the large part bore is disposed and outside which the peripheral portion of the part extends,

filling said chamber with electrolyte,

causing the electrolyte to flow rapidly between a supply tube which discharges in said chamber and a removal tube situated at the bottom of the lower tank,

regenerating the electrolyte outside the tank when it has been discharged and before it is injected again through the supply tube,

entraining the electrolyte inside the chamber circularly at the level of the bore of the part, and

shaking it in all directions in the lower tank, and

effecting a simultaneously direct current flow between firstly a ring of anodes which are disposed adjacent the bore and symmetrically round the axis of the tanks and secondly the large part which serves as a cathode.

4,279,707

ELECTROPLATING OF NICKEL-IRON ALLOYS FOR UNIFORMITY OF NICKEL/IRON RATIO USING A LOW DENSITY PLATING CURRENT

Nathaniel C. Anderson, Pine Island, Minn., and Charles R. Grover, Jr., San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 970,709, Dec. 18, 1978, abandoned.
This application Feb. 19, 1980, Ser. No. 122,628
Int. Cl.³ C25D *3/56*
U.S. Cl. 204—43 T **9 Claims**

1. A nickel-iron electroplating method for plating NiFe alloy onto a substrate with a relatively high degree of uniformity of magnetic nickel-iron alloy composition over a range of plating current densities comprising,

an aqueous plating bath solution at a temperature in the range from about 20° C. to about 35° C., placing a substrate with a complex topographical shape in said plating bath solution,

employing a constant current plating density from about 2 milliamperes per centimeter squared to about 12 milliamperes per centimeter squared,

said plating bath solution having ferrous ion concentration in the range from about 0.15 to about 0.3 grams per liter and a nickel ion concentration in the range from about 10 to about 14 grams per liter,

with a pH of the bath of about 3,

maintaining continuous agitation of a paddle moving over the surface of the cathode at a distance of about 2–3 millimeters at a rate of about 1 cycle per second, and

thereby providing differences of less than about 2% by weight in the nickel/iron composition ratio of the NiFe magnetic alloy produced across said complex topographical shape.

4,279,708

COMBINED BRIGHTENER IN SULFAMATE SILVER ELECTROPLATING BATHS

Todor V. Nover; Sava D. Ovcharov; Nikola S. Yordanov; Jivka P. Acheva; Yordan I. Yordanov, and Maria L. Mandova, all of Sofia, Bulgaria, assignors to Institute po Zashtita na Metalite ot Korroziya, Sofia, Bulgaria

Filed Feb. 29, 1980, Ser. No. 125,785
Claims priority, application Bulgaria, Jul. 6, 1979, 44224
Int. Cl.³ C25D *3/46*
U.S. Cl. 204—46 R **5 Claims**

1. In an ammonia-sulfamate silver electroplating bath, a brightening composition consisting essentially of a pyridine-monocarboxylic acid or amide in a concentration of 0.5 to 10.0 g/l, in combination with at least one dye selected from the group consisting of an azo dye, an acid anthraquinone dye, and an arylamino dye wherein the dye is present in a concentration of 0.01 to 2.0 g/l.

4,279,709

PREPARATION OF POROUS ELECTRODES

John M. McIntyre, and Donald L. Caldwell, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 8, 1979, Ser. No. 37,206
Int. Cl.³ C25B *1/34, 11/02, 11/04, 11/10*
U.S. Cl. 204—98 **13 Claims**

1. An improvement in the process for preparing electrodes having a porous coating including the steps of

(a) coating an electroconductive electrode substrate with an admixture of:

(1) an electroconductive metal; and

(2) a pore former; and

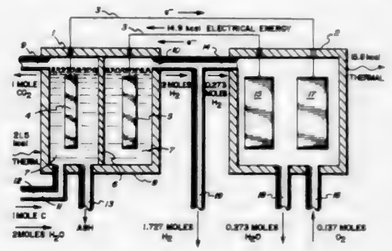
(b) removing the pore former from the electrode coating, wherein the improvement consists of removing the pore former while the electrode is in use in an electrolytic cell.

4,279,710

METHOD OF GASIFYING CARBONACEOUS MATERIALS

Robert W. Coughlin, Bethlehem, Pa., assignor to University Patents, Inc., Norwalk, Conn.

Continuation of Ser. No. 840,567, Oct. 11, 1977, abandoned.
This application Nov. 5, 1979, Ser. No. 91,660
Int. Cl.³ C25B *1/02, 5/00, 1/00*
U.S. Cl. 204—101 **10 Claims**



1. A method of electrochemically oxidizing a carbonaceous material at an anode of an electrolysis cell and simultaneously producing a useful fuel or chemical at the cathode of said cell, the overall energy change accomplished by said electrolysis cell being supplied in part by the oxidation of said carbonaceous material at said anode and in part by electrical energy produced by a fuel cell fueled by at least a portion of said useful fuel or chemical produced at said cathode by said electrolysis cell, said fuel cell and said electrolysis cell being electrically interconnected by virtue of having shared or common electrodes.

4,279,711

AQUEOUS ELECTROWINNING OF METALS

Paul H. Vining, 1220 Lee Dr., Coraopolis, Pa. 15108; Jack A. Scott, 456 Riverside Dr., and Paul F. Duby, 560 Riverside Dr., both of New York, N.Y. 10027

Filed Jan. 21, 1980, Ser. No. 113,761
Int. Cl.³ C25C *1/00, 1/08, 1/12, 1/16*
U.S. Cl. 204—105 R **15 Claims**

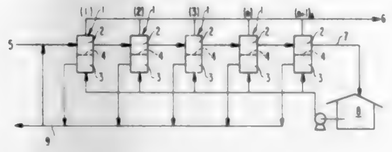
1. A method for aqueous electrowinning of a metal, said method including the steps of immersing an anode and a cathode in an electrolyte solution; said solution comprising water, ions of said metal, and a fuel which is soluble or which can be dispersed in the electrolyte and which will be oxidized at the anode; said anode having a catalytically active surface for the promoting of the reaction of said fuel; passing a direct electric current through said solution thereby to deposit said metal on said cathode, and periodically reversing or interrupting said electric current for a period of time less than 10% of the time the electric current is passed in the direction to deposit said metal on said cathode, the time between each of said periodically reversing or interrupting said current being from 30 seconds to 10 minutes so as to cause the reaction at the anode to be substantially limited to the electro-oxidation of said fuel.

4,279,712

METHOD FOR ELECTROLYZING HYDROCHLORIC ACID

Hitoshi Satoh, Kashiwa, and Shohei Kosaka, Yokohama, both of Japan, assignors to Chlorine Engineers Corporation, Ltd., Tokyo, Japan

Filed Feb. 4, 1980, Ser. No. 117,930
Claims priority, application Japan, Feb. 2, 1979, 54-10313
Int. Cl.³ C25B 1/26, 1/02
U.S. Cl. 204—128 3 Claims



1. A method for electrolyzing hydrochloric acid in an electrolysis apparatus, comprising at least two electrolysis cells, each electrolysis cell having at least one anode, at least one cathode and at least one cation exchange membrane therebetween to define an anode compartment and a cathode compartment therein, and said method comprising the steps of

(a) feeding hydrochloric acid aqueous solution as a starting material into the anode compartment of a first electrolysis cell and electrolyzing said hydrochloric acid aqueous solution therein,

(b) feeding hydrochloric acid aqueous solution discharged from said anode compartment of said first electrolysis cell into the anode compartment of a second electrolysis cell and electrolyzing said hydrochloric acid aqueous solution therein,

(c) feeding hydrochloric acid aqueous solution discharged from the anode compartment of the last electrolysis cell of said electrolysis apparatus into the cathode compartment of each of said electrolysis cells in said electrolysis apparatus,

(d) and further, for any additional electrolysis cells present in addition to said first and said second electrolysis cells, subsequent to step (b) and prior to step (c), sequentially feeding hydrochloric acid aqueous solution discharged from the anode compartment of a preceding electrolysis cell into the anode compartment of a subsequent electrolysis cell and electrolyzing said hydrochloric acid aqueous solution therein, and

(e) collecting chlorine gas generated in the anode compartments and hydrogen gas generated in the cathode compartments.

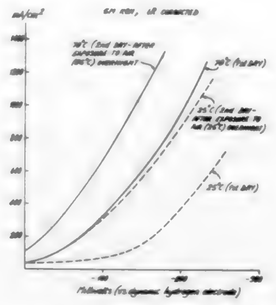
4,279,713

METHOD OF CATALYSING THE EVOLUTION OF GASEOUS HYDROGEN

Alfred C. C. Tseung, and Maurice C. M. Man, both of London, England, assignors to National Research Development Corporation, London, England

Filed Jun. 22, 1979, Ser. No. 116,676
Int. Cl.³ C25B 11/06, 1/04
U.S. Cl. 204—129 3 Claims

1. A method of catlysing the evolution of gaseous hydrogen formed by alkaline water electrolysis in an aqueous alkali electrolysis cell, said method comprising using as the catalyst a cathode coated with particles whose surfaces to a depth of at least 20 Angstroms are sulphur compounds of two metals



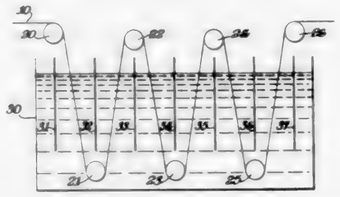
selected from the group consisting of cobalt, nickel, iron and manganese.

4,279,714

AC ETCHING OF ALUMINUM CAPACITOR

Mulk A. Arora, and John J. Randall, Jr., both of Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Sep. 15, 1980, Ser. No. 187,241
Int. Cl.³ C25F 3/04, 3/14
U.S. Cl. 204—129.9 4 Claims



1. A process for the electrolytic etching of aluminum electrolytic capacitor foil comprising passing the foil between electrodes supplied with alternating current in a bath containing 0.7 to 2 moles/liter hydrochloric acid, 0.2 to 0.5 moles/liter hydrated aluminum trichloride, and 0.02 to 0.4 moles/liter phosphate ion at a temperature of 35° to 55° C.

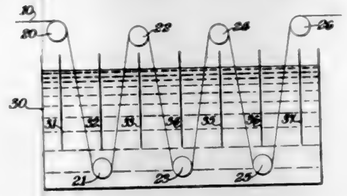
4,279,715

ETCHING OF ALUMINUM CAPACITOR FOIL

Mulk A. Arora; John J. Randall, Jr., and Walter J. Bernard, all of Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed Sep. 15, 1980, Ser. No. 187,271
Int. Cl.³ C25F 3/04, 3/14
U.S. Cl. 204—129.9 7 Claims

1. A process for etching aluminum electrolytic capacitor foil comprising electrolytically etching said foil using alternating current in a bath containing 1.0 to 1.8 M hydrochloric acid,



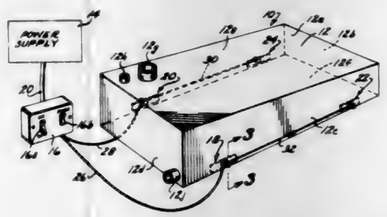
0.25 to 0.5 M hydrated aluminum trichloride, 0.2 to 1.0 M phosphoric acid, and 1.0 to 2.0 M chromium trioxide.

4,279,716

ODOR CONTROL SYSTEM

Ronald A. Horst, and Ross R. Hedrick, both of Newport Beach, Calif., assignors to Odor Control Systems, Inc., Newport Beach, Calif.

Filed Feb. 26, 1980, Ser. No. 124,783
Int. Cl.³ C25B 9/00
U.S. Cl. 204—149 3 Claims



1. An odor control system for a tank for holding solid and liquid excrement comprising in combination,

a tank formed with a bottom wall and at least two opposite sidewalls,

at least one pair of electrodes each of which is generally rectangular in shape and individually positioned in a separate one of said sidewalls with a longer dimension thereof parallel to and in close proximity to said bottom wall, said electrodes being mounted in substantially parallel relation in opposed alignment,

a source of direct current electrical power for connection to said electrodes,

timing means operatively interposed between said source and said electrodes to automatically connect the source to said electrodes and to automatically disconnect the same following a predetermined interval of time,

and manual override means for said timing means whereby said electrodes can be connected to said source irrespective of said automatic operation.

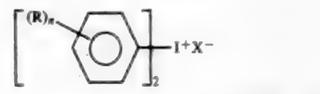
4,279,717

ULTRAVIOLET CURABLE EPOXY SILICONE COATING COMPOSITIONS

Richard P. Eckberg, Round Lake, and Ronald W. LaRochelle, Clifton Park, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Aug. 3, 1979, Ser. No. 63,648
Int. Cl.³ C08F 2/46; C08G 77/08
U.S. Cl. 204—159.13 8 Claims

1. An ultraviolet-curable silicone coating composition comprising: (a) a one-crosslinked epoxy functional dialkyl epoxy chainstopped polydialkyl-alkyl epoxy siloxane copolymer silicone intermediate fluid having a viscosity of approximately 10 to 10,000 centipoise at 25° C.; and (b) an amount of bis-(aryl) iodonium salt having the following formula,



wherein X is selected from the group consisting of SbF_6, AsF_6, PF_6, and BF_4, and wherein R is a $C_{(4-20)}$ organo radical selected from the group consisting of alkyl and haloalkyl radicals and mixtures thereof and n is a whole number equal to 1 to 5 inclusive, which is effective for catalyzing an ultraviolet light initiated cure reaction of said polydiorganosiloxane silicone intermediate fluid.

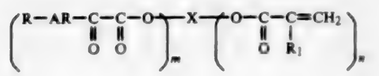
4,279,718

ARYL-GLYOXYLOYLOXYALKYLACRYLATES AND THEIR USE IN PHOTOPOLYMERIZABLE BINDERS

Karl-Ernst Schuster, Kerken; Hans Rudolph, Krefeld; Wolfram Mayer, Krefeld, and Hans J. Rosenkranz, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 46,941, Jun. 8, 1979. This application Oct. 1, 1979, Ser. No. 80,191
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2825955
Int. Cl.³ C08F 2/48, 2/50
U.S. Cl. 204—159.15 3 Claims

1. A method of initiating photopolymerization of olefinically unsaturated photopolymerizable monomeric or oligomeric compounds or mixtures thereof comprising using as the initiator a compound of the formula

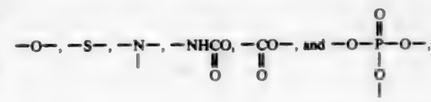


wherein

Ar is phenyl or naphthyl,

R is hydrogen, alkyl with 1–4 carbon atoms, alkoxy with 1–4 carbon atoms, halogen, dialkylamino with 1–4 carbon atoms in each alkyl group, carboxyl, or alkoxycarbonyl with 1–4 carbon atoms in the alkoxy group,

X is alkylene having 3 to 6 carbon atoms or alkylene having 6 to 72 carbon atoms interrupted by at least one member selected from the group consisting of



and the precursor of X being a polyol having 3–6 hydroxyls and having a hydroxyl number from 100 to 1850,

R_1 is hydrogen or methyl,

n is a number with a value from about 2 to about 5, and

n+m is a number with a value from about 3 to about 6.

4,279,719

PHOTOPOLYMERIZATION METHOD WITH SYMMETRIC AZO ALKANES

Otto Hitzler, Erzhausen, and Winfried Wunderlich, Rosadorf, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,769

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831159

Int. Cl.³ C08F *2/50*; C07C *107/02*

U.S. Cl. 204—159.23 **6 Claims**

1. A method for photopolymerizing an ethylenically unsaturated free radically-polymerizable compound which comprises irradiating said compound, in admixture with a symmetric azoalkane comprising tertiary alkyl groups each having a molecular weight from 71 to 97 bound to the azo group, with light having a wavelength from 200 nanometers to 500 nanometers at such a light intensity that the polymerization occurs at temperature below 100° C.

4,279,720

PHOTOCURABLE COMPOSITION

Godwin Berner, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

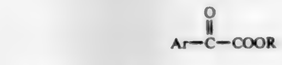
Filed Jul. 2, 1979, Ser. No. 54,129

Claims priority, application Switzerland, Jul. 13, 1978, 7621/78

Int. Cl.³ C08F *4/00*, *2/50*

U.S. Cl. 204—159.23 **8 Claims**

1. A photocurable composition consisting essentially of (a) one or more ethylenically unsaturated, photocurable compounds, (b) at least one photo-initiator of the formula I



(I)

in which Ar is phenyl and R is methyl or ethyl, and (c) at least one light stabiliser from the category of the polyalkylpiperidine derivatives.

4,279,721

MERCAPTOPHENYL KETONES AS INITIATORS FOR THE PHOTOPOLYMERIZATION OF ETHYLENICALLY UNSATURATED COMPOUNDS

Rudolf Kirchmayr, Aesch, and Louis Felder, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 16, 1979, Ser. No. 39,464

Claims priority, application Switzerland, May 23, 1978, 5596/78

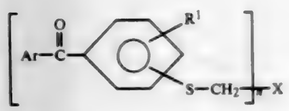
Int. Cl.³ C08F *2/46*

U.S. Cl. 204—159.24 **5 Claims**

1. A photopolymerizable composition comprising

(a) at least one ethylenically unsaturated compound; and

(b) a mixture in a 4:1 to 1:4 ratio by weight of a compound of formula I



I

in which n is 1, Ar is phenyl, 2-furyl, 2-thienyl, 2-pyridyl or phenyl which is substituted by C_1–C_4 alkyl, C_1–C_4 alkoxy, —COO— (C_1–C_4 alkyl), —SCH_2X or benzoyl, R^1 is hydrogen and X is one of the groups —CH_2OH, —$CH(CH_3)$—OH, —CH(OH)—CH_2OH, —CH_2—NR^3R^4 or —CH_2—O—CO—R^5, in which R^3 and R^4 are C_1–C_4 alkyl or hydroxyethyl, or together are 1,5-pentylene, and R^5 is C_1–C_4 alkyl, phenyl, vinyl or propenyl, with an organic amine; and wherein the amount of component (b) is from 0.5 to 20% by weight of total composition.

4,279,722

USE OF MICROWAVES IN PETROLEUM REFINERY OPERATIONS

Chalmer G. Kirkbride, 13 Elk Forest, R.D. #2, Elkton, Md. 21921

Continuation of Ser. No. 954,303, Oct. 24, 1978, abandoned, and a continuation-in-part of Ser. No. 831,170, Sep. 7, 1977, abandoned. This application Mar. 17, 1980, Ser. No. 131,167

Int. Cl.³ C10G *45/72*, *47/36*, *35/04*; C07C *4/00*

U.S. Cl. 204—162 R **11 Claims**

1. A method of operating a catalytic petroleum refinery process comprising performing a catalytic operation for conversion of liquid hydrocarbons derived from petroleum by exposing said liquid hydrocarbons mixed with catalyst to sufficient microwave energy in the frequency range of about 2.5×10^9 to 10^{12} hertz in the absence of coal particles to enhance conversion of said liquid hydrocarbons.

4,279,723

POLYMERIZATION OF INORGANIC ELEMENT-CONTAINING MONOMERS USING PLASMA

Yoshihito Osada, Mito, Japan; Alexis T. Bell, Oakland, and Mitchel M. Shen, Piedmont, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 934,855, Aug. 18, 1978, Pat. No. 4,212,719, and Ser. No. 882,124, Feb. 28, 1978, abandoned. This application May 31, 1979, Ser. No. 44,048

Int. Cl.³ C08F *2/52*; C01B *25/10*; C08G *79/02*

U.S. Cl. 204—164 **4 Claims**

1. A method for the polymerization of a phosphazene monomer comprising establishing and maintaining a contained zone of ionized gas plasma at an energy of less than 100 eV by applying an electric field, said gas plasma being in contact with the surface of a non-vapor volume of said phosphazene monomer to cause it to polymerize.

4,279,724

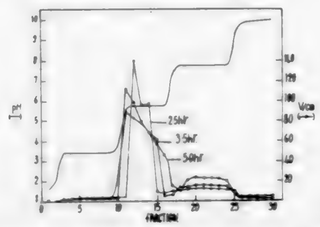
PREPARATIVE ELECTROFOCUSING IN FLAT BED GRANULATED POLYSACCHARIDE GELS

Milton T. W. Hearn, P.O. Box 913, Dunedin, New Zealand, and Ross L. Prestidge, University Station, Birmingham, Ala. 35294

Filed Jul. 18, 1979, Ser. No. 58,686

Int. Cl.³ G01N *27/26*

U.S. Cl. 204—180 G **19 Claims**



1. A preparative electrofocusing system for preparative resolution of a sample, said system comprising a flatbed granular polysaccharide gel having a high sample-loading capacity suspended in a buffer mixture, a catholyte at one side of said flatbed gel and an anolyte at the other side thereof, and a source of direct current between said catholyte and said anolyte, said buffer mixture comprising a combination of at least four amphoteric members selected from the group consisting of: Glu, LA, PA, Pyr, MES, ADA, Bistris, MOPS, ACES, Imid, HEPES, TES, EPPS, TEA, TAPS, Glygly, Tricine, Bicine, Asn, Tris, AEPD, AMP, NH_3, His, Gly, Tau, B-Ala, EA, Lys, TA, GACA and GABA.

4,279,725

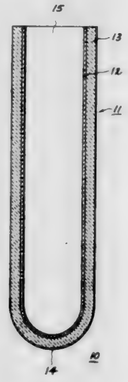
ELECTROFORMING COMPOSITE BETA, MAINLY BETA"-ALUMINA ARTICLES

Robert W. Powers, Schenectady, and John C. Bielawski, Ballston Lake, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 77,016, Sep. 19, 1979, which is a division of Ser. No. 32,114, Apr. 23, 1979, abandoned. This application Sep. 5, 1980, Ser. No. 184,361

Int. Cl.³ C25D *1/20*, *1/14*

U.S. Cl. 204—181 F **3 Claims**



1. A method of producing a composite beta, mainly beta"-alumina article which comprises providing a first suspension of beta-alumina particles and soda alumina particles with a soda content from 14 to 30 weight percent, providing lithia in at least one of the types of particles, the majority of the particles having a diameter in the range of 1 to 2 microns in an organic liquid having a dielectric constant at 25° C. from 12 to 24, electrophoretically codepositing the particles from the first suspension as a dense deposit containing from 0.1 to 1.0 weight percent lithia onto a charged mandrel in a DC field of from 100 to 10,000 volts per centimeter thereby forming between 1 to 15 percent of the total thickness of the composite deposit, providing a second suspension of mainly beta"-alumina particles and soda alumina particles with a soda content from 14 to 30 weight percent, providing lithia in at least one of the types of particles, the majority of the particles having a diameter in the range of 1 to 2 microns in an organic liquid having a dielectric constant at 25° C. from 12 to 24, removing the mandrel from the first suspension, inserting the mandrel in the second suspension, electrophoretically codepositing the particles from the second suspension as a dense deposit containing from 0.1 to 1.0 weight percent lithia onto the charged mandrel in a DC field of from 100 to 10,000 volts per centimeter thereby forming the remainder of the composite deposit, drying the composite deposit on the mandrel, removing the composite deposit from the mandrel, and sintering the composite deposit in an oxidizing atmosphere at a temperature between 1500° and 1775° C. resulting in a dense, fine-grain sintered composite beta, mainly beta"-alumina article.

4,279,726

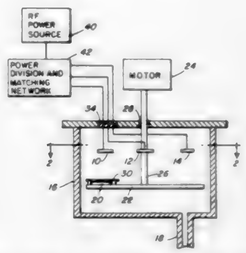
PROCESS FOR MAKING ELECTROLUMINESCENT FILMS AND DEVICES

Donald H. Baird, Newton, and Martin S. McDonough, Andover, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Jun. 23, 1980, Ser. No. 162,454

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 P **5 Claims**



1. A method for making a low voltage dc electroluminescent film comprising the steps of:

placing a plurality of discrete sputtering targets, including a zinc sulfide target, a manganese target, and a copper target, and a substrate in vacuum-tight vessel containing a gas at a pressure suitable for sputtering, said targets being placed in a circular arrangement;

applying to said targets voltages which cause sputtering of said target materials;

rotating said substrate sequentially into proximity to each of said sputtering targets such that said substrate is sequentially exposed to said targets, said target materials are sequentially sputtered onto said substrate and an electroluminescent film, including material from each of said targets, is formed on said substrate; and

controlling the rate of sputtering of said copper target so as to provide a copper concentration in said electroluminescent film in the range between one weight percent and two weight percent,

whereby said electroluminescent film is operable at low dc voltages.

4,279,727

DEVICE FOR MEASURING THE EMISSION OF GASEOUS INORGANIC FLUORINE OR CHLORINE COMPOUNDS

Egmont Scheubeck; Gertrud Blazevic, and Marianne Boehner, all of Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,217

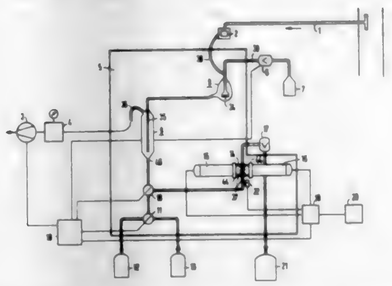
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1978, 2856490

Int. Cl.³ G01N *27/26*

U.S. Cl. 204—195 R **4 Claims**

1. A device for continuously measuring the emission of gaseous inorganic fluorine or chlorine compounds, comprising means for continuously drawing exhaust gas to be analyzed into the device, receiving means within said device for continuously receiving said exhaust gas and for receiving a liquid for absorbing the inorganic fluorine or chlorine compounds in said gas, separating means for continuously separating the liquid containing absorbed inorganic fluorine or chlorine compounds from gas, means for continuously, directly measuring quantities of said fluorine or clorine compounds in said liquid by potentiometric methods and valve means for directing the flow of said liquid and liquid or liquids used for calibration of said device, said receiving, separating, measuring and valve means

being affixed in relative positions on a base or plate such that said receiving means is positioned vertically above said measuring means and said separating means is positioned intermediate said receiving and measuring means.

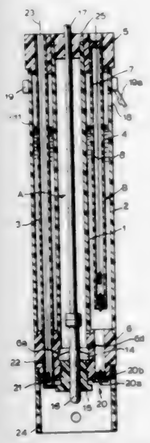


4,279,728

APPARATUS FOR DETERMINING ION CONCENTRATION

Yoshio Horii, Miyanohigashi, Japan, assignor to Horiba, Ltd., Kyoto, Japan

Filed Apr. 29, 1980, Ser. No. 144,932
Claims priority, application Japan, May 16, 1979, 54-66737[U]
Int. Cl.³ G01N 27/30, 27/36
U.S. Cl. 204—195 R **6 Claims**



1. An apparatus for determining the concentration of ions in a solution, comprising:
an inner cylinder;
an outer cylinder concentrically positioned around said inner cylinder and defining with said inner cylinder a chamber for holding an internal solution of a comparison electrode;
an upper block and a lower block to which the upper and lower ends of said outer cylinder are sealingly connected, said blocks having holes therethrough and the ends of said inner cylinder being sealingly attached to said blocks in said holes;
a comparison electrode tube depending from said upper block into said chamber and having a liquid junction in the lower end of said tube, said tube being open to said chamber adjacent the upper end thereof;
an internal electrode of the comparison electrode positioned within said comparison electrode tube and having a lead extending out of the upper end of said tube through said upper block;
a measuring electrode removably sealingly mounted in said hole in said lower block and extending downwardly from said lower block; and
a further liquid junction mounted in said lower block and extending from said chamber through said lower block.

4,279,729

ANODE AND METHOD OF CONSTRUCTION

James B. Bushman, Medina; James R. Dimond, Burton, and John Hennessy, Fairview Park, all of Ohio, assignors to Harco Corporation, Medina, Ohio

Continuation of Ser. No. 11,188, Feb. 12, 1979. This application Apr. 14, 1980, Ser. No. 140,013
Int. Cl.³ C23F 13/00; C25B 11/00; H01R 43/00
U.S. Cl. 204—196 **52 Claims**

1. A method of making a cathodic protection anode comprising the steps of extruding the anodic material into a continuous elongate body having an extruded hole extending entirely through the elongate axis thereof from one end of the anodic material to the other, and securing an electrical connector in the extruded hole on such elongate axis with an electrical lead connected to such connector, and then filling the hole with sealant.

4,279,730

EQUIPMENT FOR CONTINUOUS PLATING

Francis X. Noz, Douglaslaan 5, Roosmalen, Netherlands

Filed Dec. 17, 1979, Ser. No. 104,293
Claims priority, application Netherlands, Dec. 15, 1978, 7812196
Int. Cl.³ C25D 17/00, 17/06, 21/10
U.S. Cl. 204—206 **17 Claims**



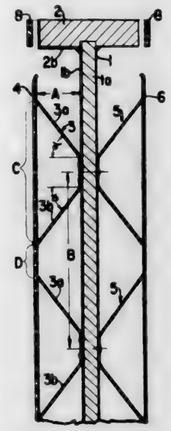
1. In a device for selective electrodeposition of metals or flat stock or on laddered or bandoliered component strips having at least one station adapted to contain electrolyte through which the component strips can be transported lengthwise, the improvement comprising a longitudinal guide means for component strips which guide means is provided with a slot-shaped chamber, the lower end of said chamber extending down into said station to a level below the normal operating level in said station of the electrolyte contained therein during operation of said device, said guide means having apertures for introducing pressurized gas or air into said slot-shaped chamber, and tubes with holes, said tubes being located in such a position that during operation electrolyte recirculated through a transport pump can be jetted onto such a portion of the metal or component strip as extends below said slot-shaped chamber of said guide means into the electrolyte.

4,279,731

NOVEL ELECTROLYZER

Alberto Pellegri, Laino, Italy, assignor to Oronzio deNora Impianti Elettrochimici S.p.A., Milan, Italy

Filed Mar. 10, 1980, Ser. No. 128,972
Int. Cl.³ C25B 9/00, 11/04, 11/10
U.S. Cl. 204—254 **12 Claims**



1. A bipolar diaphragm or membrane electrolyzer comprising a housing containing an end anode element, an end cathode element and a plurality of bipolar elements with their major dimensions lying in a substantially vertical plane and comprised of a bipolar wall separating the anode compartment and the cathode compartment and vertical foraminous electrodes parallel positioned a certain distance from the bipolar wall, diaphragms or membranes separating the anodes and cathodes, a series of baffles distributed along the entire depth of the electrode compartment and extending from the bipolar wall to the foraminous electrode to form a series of vertical flow channels extending over a large portion of the height of the wall, the said baffles being alternately inclined one way and the other way with respect to the vertical plane normal to the bipolar wall plane and spaced from one another whereby the ratio of the electrode surface intercepted by the edges of two baffles laterally defining a vertical flow channel to the flow section thereof is different from the ratio of the electrode surface intercepted by the edge of one of said two baffles and the edge of the adjacent baffle in the series and the flow section of the adjacent channel in the series to the said vertical flow channel.

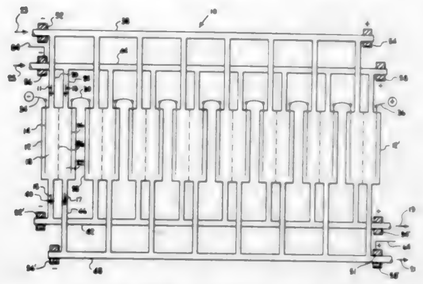
4,279,732

ANNULAR ELECTRODES FOR SHUNT CURRENT ELIMINATION

Richard J. Bellows, and Patrick G. Grimes, both of Westfield, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Feb. 19, 1980, Ser. No. 122,193
Int. Cl.³ H01M 8/00; C25C 7/00
U.S. Cl. 204—269 **40 Claims**

1. An electrochemical device, comprising:
at least one common manifold;
a plurality of cells fluidically communicating through said one common manifold;
a common electrolyte for said cells which is disposed in said one common manifold and which provides an electrical electrolytic conductive bypass path around said cells which is capable of resulting in undesirable shunt currents; and
at least one annular protective electrode supported by said one common manifold having means for applying a protective current about the manifold which has a substantially uniform current density profile through said electrolyte along said manifold to provide effective reduction of said shunt currents with a minimized power consumption.

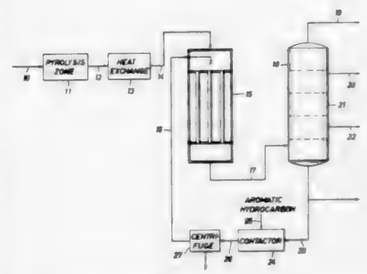


4,279,733

COKING PREVENTION

John E. Gwyn, Katy, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Dec. 21, 1979, Ser. No. 106,060
Int. Cl.³ C10G 9/16
U.S. Cl. 208—48 R **2 Claims**



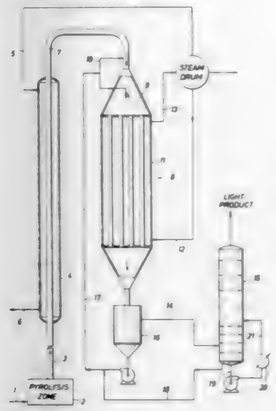
1. A process comprising
(a) quenching the effluent from a hydrocarbon pyrolysis reactor by contacting the effluent in a quench zone with a quench liquid, and producing a quenched effluent and quench liquid having a temperature not less than 370° C.;
(b) passing the quenched effluent and at least the bulk of the quench liquid as a feed to a fractional distillation zone, and fractionally distilling the feed;
(c) continuously removing a bleed stream containing a bottoms fraction of the fractional distillation zone;
(d) contacting said fractionator bottoms bleed stream with a light aromatic hydrocarbon liquid to produce a mixture of light aromatic hydrocarbon and fractionator bottoms, and insoluble materials;
(e) removing the insoluble materials from the mixture of light aromatic hydrocarbon liquid, fractionator bottoms and insoluble materials, to produce a quench liquid mixture containing fractionator bottoms and light aromatic hydrocarbons;
(f) passing the quench liquid mixture to the quench zone of step (a), and employing the quench liquid mixture as the quench liquid of step (a).

4,279,734

QUENCH PROCESS

John E. Gwyn, Katy, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Dec. 21, 1979, Ser. No. 106,291
Int. Cl.[3] C10G *9/16, 9/20*
U.S. Cl. 208—48 Q 7 Claims



1. A method for recovering heat energy from the effluent of a hydrocarbon pyrolysis reactor comprising

passing the effluent through a first indirect heat exchange pre-quench zone to lower the temperature of the effluent and produce a pre-cooled effluent having a temperature not less than about 540° C., and high pressure steam;

passing the pre-cooled effluent at a temperature of not less than about 540° C. to a quench zone comprising a moderator section communicating with a liquid quench section, and contacting the pre-cooled effluent first in the moderator section with a suitable quench liquid to cool te pre-cooled effluent and produce an effluent-quench liquid mixture having a temperature not less than about 400° C., and then passing the effluent quench liquid mixture to an indirect heat exchange section of the quench zone, the heat exchange section providing heat transfer to water to form high pressure steam, and producing a quenched effluent and quench liquid mixture having a temperature of at least 370° C.;

passing quenched effluent and quench liquid mixture as a feed to a fractional distillation zone, and fractionally distilling the feed;

continuously removing a bleed steam from the lower portion of the fractional distillation zone, passing the bleed stream to a heat exchnge zone and recovering heat from the bleed stream, and producing a cooler bleed stream, and returning at leat a portion of the cooler bleed stream to the fractional distillation zone.

4,279,735

PASSIVATION OF METALS CONTAMINATING A USED CRACKING CATALYST WITH CERTAIN ANTIMONY CARBONATES AND THEIR THIO ANALOGUES

Brent J. Bertus; Dwight L. McKay, and H. Wayne Mark, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 926,696, Jul. 25, 1978, Pat. No. 4,238,862. This application Apr. 25, 1980, Ser. No. 143,674
Int. Cl.[3] C10G *9/32, 9/16*
U.S. Cl. 208—113 8 Claims

1. A method for passivating a used hydrocarbon cracking catalyst which comprises adding to said used catalyst at least one antimony carbonate wherein the carbonate is at least one having the formula $(RXCXX)_3Sb$, wherein each X is independently selected from oxygen and sulfur, and R contains not more than 18 carbon atoms.

4,279,736

METHOD OF HYDROREFINING ASPHALTENIC HYDROCARBON FEEDSTOCKS

William K. T. Gleim, 1250 NW. 120th St., Seattle, Wash. 98177

Filed Oct. 23, 1979, Ser. No. 87,506
Int. Cl.[3] C10G *45/16*
U.S. Cl. 208—215 15 Claims

1. A method of hydrorefining an asphaltenic charge stock in a hydrogen atmosphere which comprises effecting said reaction in the presence of a mixture of titanium sulfides wherein the molecular ratio of titanium to sulfide is from about 1:2 to about 1:3 and in the presence of from about 10 to about 25 mol. percent hydrogen sulfide based on said hydrogen.

4,279,737

HYDRODESULFURIZATION OVER CATALYSTS COMPRISING CHALCOGENIDES OF GROUP VIII PREPARED BY LOW TEMPERATURE PRECIPITATION FROM NONAQUEOUS SOLUTION

Russell R. Chianelli, North Branch, and Theresa Pecoraro, Middletown, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 14,589, Feb. 23, 1978, abandoned, which is a continuation of Ser. No. 797,011, May 16, 1977, abandoned. This application Feb. 26, 1980, Ser. No. 124,956
Int. Cl.[3] C10G *45/10, 45/52*
U.S. Cl. 208—217 20 Claims

1. In a process for the hydrodesulfurization of hydrocarbon feed streams containing organic sulfur and nitrogen comprising contacting said feed stream with a catalyst in the presence of hydrogen or a hydrogen donor solvent for a time at a temperature and pressure sufficient to cause the hydrodesulfurization of the feed stream, the improvement comprising using as the catalyst a composition of the formula MX_y wherein M is ruthenium, rhodium, iridium and osmium, X is a chalcogen selected from the group consisting of sulfur, selenium, tellurium and mixtures thereof and y is a number ranging from about 0.1 to about 3 which composition is prepared by reacting in the absence of aqueous solutions a ruthenium, rhodium, iridium or osmium salt with a source of sulfide, selenide or telluride ion selected from the group consisting of Li_2X, K_2X, Na_2X, LiHX, KHX, NaHX, $(NH_4)_2X$, $(NH_4)HX$, $(RNH_3)_2X$, $(RR^1NH_2)_2X$, $(R\,R^1R^{11}NH)_2X$ wherein R, R^1 and R^{11} are the same or different and are selected from the group consisting of C_1 to C_{20} alkyl and C_6–C_{20} aryl groups and X is the chalcogen selected from the group consisting of sulfur, selenium and tellurium, at a temperature of from −78° to 400° C.

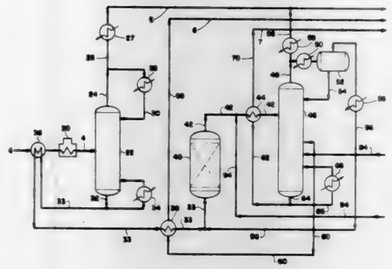
4,279,738

METHOD AND APPARATUS FOR THE RECOVERY OF REFINED PETROLEUM PRODUCTS FROM PIPELINE MIXTURES

Robert F. Click, 8035 S. 79th E. Ave., Tulsa, Okla. 74133

Filed Feb. 29, 1980, Ser. No. 126,034
Int. Cl.[3] C10G *29/04, 25/00, 7/00*
U.S. Cl. 208—253 8 Claims

1. A method of recovering refined petroleum products from an interface pipeline mixture containing a low boiling gasoline having tetraethyl and tetramethyl lead components, a medium boiling aviation fuel, and a high boiling residual petroleum product comprising the steps of first preheating a fluid stream containing said interface mixture, introducing said fluid stream into a first fractionation tower operating at a first temperature below the degrading point of the lead components and below the initial boiling point of said aviation fuel, separating the majority of said gasoline and a major quantity of said lead components from said fluid stream in said first tower, recovering said majority of gasoline along with said major quantity of said lead components as a first overhead stream from said first tower leading into a main gasoline recovery stream, recovering as a first bottoms stream from said first tower a minor fraction of said gasoline along with a minor quantity of said lead components in addition to said aviation fuel and said residual petroleum product, introducing said first bottoms stream into a bottom-fed reactor vessel having a catalyst bed, said catalyst bed containing a catalyst of the type capable of chemically adsorbing said lead components on its surface while said first bottoms stream is in a liquid state and at a temperature not exceeding the initial boiling point of said lead



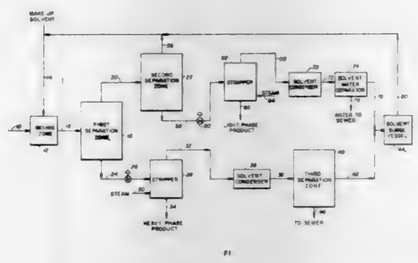
components, withdrawing a second overhead stream from the top of said reactor vessel and heating the same to a second temperature near said initial boiling of said aviation fuel, introducing the heated second overhead stream into a second fractionation tower wherein said minor fraction of gasoline and a small fraction of said aviation fuel are carried off as overhead products from said main gasoline recovery stream, recovering said residual petroleum product as a second bottoms stream from said second tower, and then recovering the remaining fraction of said aviation fuel as an intermediate side stream from said second tower.

4,279,739

PROCESS FOR SEPARATING BITUMINOUS MATERIALS

Jack W. Roach, Oklahoma City, Okla., assignor to Kerr-McGee Refining Corporation, Oklahoma City, Okla.

Filed Jan. 30, 1980, Ser. No. 164,606
Int. Cl.[3] C10C *3/00;* C10G *21/78;* B01D *3/38*
U.S. Cl. 208—309 23 Claims



6. A process comprising:

separating an admixture comprising a bituminous material and a solvent in a first separation zone into a fluid-like first light phase comprising solvent and at least a portion of said bituminous material of said admixture and a fluid-like first heavy phase comprising the remainder of said bituminous material and some solvent by maintaining the admixture at an elevated temperature and pressure;

introducing said first light phase into a second separation zone maintained at a temperature level above the temperature in said first separation zone and at an elevated pressure to effect a separation of said first light phase into a second light phase comprising solvent and a second heavy phase comprising at least a portion of said fluid-like bituminous material of said first light phase and some solvent;

reducing the pressure of said fluid-like second heavy phase to vaporize at least a portion of the solvent present therein and form a mixture comprising fluid-like bituminous material in association with said vaporized solvent together with undesired fine particles of bituminous material dispersed therein;

introducing said mixture into a steam stripper;

introducing steam into said steam stripper to contact said mixture to vaporize at least a portion of any nonvaporized solvent remaining therein and to form at least one stream comprising fluid-like bituminous material and one other stream comprising steam and vaporized solvent together with said undesired fine particles of bituminous material;

introducing said stream comprising steam, vaporized solvent and said fine particles of bituminous material into a condenser to form a liquid mixture comprising water, solvent, solidified fine particles of bituminous material and an emulsion of water and bituminous material;

introducing said liquid mixture comprising said water, solvent, solids and emulsion into a third separation zone to separate said liquid mixture into at least three fractions comprising a solvent fraction, an emulsion fraction and a water fraction which includes the solidified fine particles of bituminous material; and

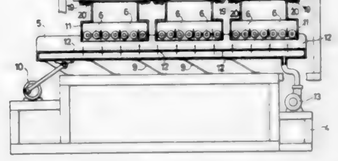
recovering said solvent fraction from said third separation zone, said solvent being substantially free of fine particles of bituminous material.

4,279,740

LIGHT-MATERIAL SEGREGATING METHOD AND APPARATUS

Keiichi Isogaya, Shizuoka, Japan, assignor to Marusho Industrial Co., Ltd., Tokyo, Japan

Filed Feb. 19, 1980, Ser. No. 122,797
Claims priority, application Japan, Feb. 19, 1979, 54/20867[U]
Int. Cl.[3] B03C *7/04;* B07B *9/02*
U.S. Cl. 209—12 12 Claims



1. A method for separating light and heavy materials from one another comprising the steps of:

transporting materials to be separated on a conveyor past a set of parallel rollers;

applying a high voltage to said rollers;

rotating said rollers; and

sucking air through gaps between said rollers during rotation of said rollers, wherein said step of sucking air through gaps between said rollers comprises sucking air through covers disposed around upper portions of predetermined groups of rollers.

5. Apparatus for separating light and heavy materials comprising:

a conveyor for transporting materials to be separated;

a plurality of rollers disposed adjacent a portion of an upper surface of said conveyor, a predetermined gap being left between adjacent ones of said rollers;

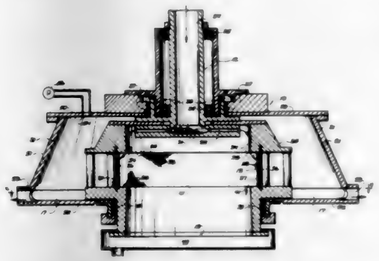
a cover disposed around said rollers and having an open portion on the side of said conveyor;
means for applying a high voltage to said rollers;
means for rotating said rollers; and
a suction pump coupled to, and operable to suck air through, said cover, said rollers being disposed in groups and wherein said cover comprises a plurality of cover sections, one of said cover sections covering a corresponding group of rollers.

4,279,741

METHOD AND APPARATUS FOR CENTRIFUGALLY SEPARATING A HEAVY FRACTION FROM A LIGHT WEIGHT FRACTION WITHIN A PULP MATERIAL

Thomas P. Campbell, Spokane, Wash., assignor to Intercontinental Development Corporation, Spokane, Wash.

Filed May 7, 1979, Ser. No. 36,517
Int. Cl.³ B03B 5/12
U.S. Cl. 209—44 20 Claims



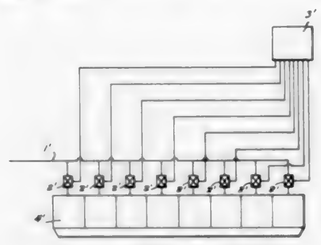
1. A centrifugal jig for separating a heavy fraction from a lightweight fraction of a pulp material, comprising:
a casing;
a hollow rotor mounted to the casing about a rotor axis;
a cylindrical jig screen mounted coaxially to the rotor for rotation therewith about the rotor axis for receiving pulp material to form a cylindrical jig bed;
means for rotating the rotor and cylindrical jig screen about the rotor axis at sufficient velocity to cause centrifugal loading on the cylindrical jig screen at least equal to ten times the force of gravity;
feed means for directing pulp material onto the cylindrical jig screen;
means for simultaneously directing positive fluid pulsations radially inward through the total circumference of the jig screen to form a uniform layered cylindrical pulsating fluidic bed of the pulp material on the cylindrical jig screen as it is rotated about the rotor axis;
discharge means adjacent the cylindrical jig screen adapted to receive a lightweight fraction of the pulp material; and
receiver means in communication with the exterior of the jig screen for receiving fluid and the heavy fraction of the pulp material from the jig screen during rotation of the rotor means.

4,279,742

METHOD OF AND APPARATUS FOR THE FLOTATION OF MINERAL RAW MATERIALS

Rumen V. Ivanov; Dobrin V. Nikolov, both of Sofia, Bulgaria; Ulrich Bilzing, Freiberg, German Democratic Rep.; Heinz Weber, Freiberg, German Democratic Rep., and Manfred Schmidt, Freiberg, German Democratic Rep., assignors to Institute po Physikochimia, Sofia, Bulgaria

Continuation-in-part of Ser. No. 862,450, Dec. 20, 1977, abandoned. This application Nov. 20, 1978, Ser. No. 962,045
Claims priority, application Bulgaria, Dec. 20, 1976, 36788; German Democratic Rep., Dec. 20, 1976, 196473
Int. Cl.³ B03D 1/02
U.S. Cl. 209—166 10 Claims



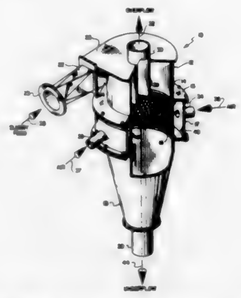
1. In a method of froth flotation of mineral raw materials, wherein the mineral raw materials are pretreated with at least one flotation agent and are subjected to treatment in an ore flotation machine with a rotor-stator apparatus provided with one or more cells which are always subjected to atmospheric pressure at the pulp level surface, the improvement which comprises alternately reducing and increasing the flow rate of the gas supplied for the flotation process in a plurality of the same repetitive cycles, the quantity of the gas supplied to the cells under the lower flow rate being from 1 to 90% of that supplied to the cells under the higher flow rate, and when the cells of the ore flotation machine are supplied with gas at the higher rate the cells contain a three-phase system composed of solid, liquid, and gas, and when the cells of the ore flotation machine are supplied with gas at the lower rate the cells contain a two-phase system composed of solid and liquid.

4,279,743

AIR-SPARGED HYDROCYCLONE AND METHOD

Jan D. Miller, Salt Lake City, Utah, assignor to University of Utah, Salt Lake City, Utah

Filed Nov. 15, 1979, Ser. No. 94,521
Int. Cl.³ B04C 5/10
U.S. Cl. 209—211 11 Claims



1. A gas-sparged hydrocyclone apparatus comprising:
a substantially hollow cyclone body;

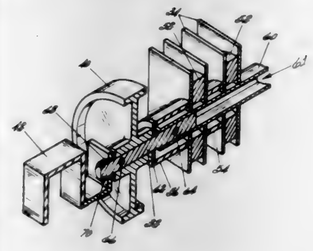
entry means for introducing a particulate mixture into the cyclone body, the particulate mixture being carried in a liquid phase;
overflow means for removing overflow product from the cyclone body;
underflow means for removing underflow product from the cyclone body;
a gas plenum surrounding at least a portion of the hollow cyclone body; and
a porous wall means separating the gas plenum from the hollow cyclone body, the porous wall in combination with a pressurized gas in the gas plenum thereby comprising sparging means for introducing gas into the cyclone body to assist in separating the particulate mixture.
10. A cyclone separator comprising:
a hollow shell having a downwardly tapered lower section;
feed means for introducing liquid-based slurry material tangentially into the hollow shell; and
gas sparging means for introducing gas into the hollow shell from an external surface of the hollow shell, said gas sparging means comprising a porous wall as part of the hollow shell and a gas plenum surrounding the porous wall.

4,279,744

APPARATUS AND METHOD FOR REMOVING MAGNETIC ARTICLES FROM A FLOW OF LOOSELY PACKED MATERIAL

Lucien M. Antonwitsch, Summerland, Calif., assignor to Jerry Oldenkamp, Santa Barbara, Calif.

Filed Aug. 21, 1980, Ser. No. 180,047
Int. Cl.³ B03C 1/26
U.S. Cl. 209—214 21 Claims



1. Apparatus for removing magnetic articles from a flow of looseiy packed material containing a mixture of magnetic articles and non-magnetic articles comprising:
an elongated support shaft adapted to be rotated about its longitudinal axis;
first and second metal plates coaxially aligned in spaced parallel relationship with each other and coaxially aligned with and mounted on said elongated support shaft so as to be rotatable therewith, each of said metal plates extending substantially vertically outwardly therefrom and each having a periphery which is adapted to engage and be rotated by at least one of a said material flow being directed thereacross said elongated support shaft; and
a magnetic member coaxially aligned with and mounted on said elongated support shaft and located in the space between the first and second metal plates and in axial alignment with and contiguous said first and second metal plates, said magnetic member extending substantially vertically outwardly from said elongated support shaft and having a periphery spaced a predetermined distance from the periphery of each of said first and second metal plates, said magnetic member being formed of a magnetic material having a magnetic flux density of sufficient magnitude to magnetize each metal plate to produce a preshaped magnetic field emanating therefrom to attract and remove magnetic articles responsive to the magnetic field from a material flow being directed across said metal plates and to hold such removed magnetic articles against said metal plates as the metal plates move relative to the material flow being directed thereacross.
20. A method of removing magnetically attracted, reusable tableware and the like from a flow of loosely packed material containing a mixture of magnetic articles and non-magnetic articles including food and paper waste comprising the steps of
directing the flow of loosely packed material in a free fall along a predetermined path enabling the magnetic articles and non-magnetic articles to separate from each other;
establishing a preshaped magnetic field within the free fall predetermined path by a plurality of rotatable aligned spaced metal plates having a plurality of rotatable magnetic members each of which are located between and magnetically coupled to a pair of adjacent metal plates such that tableware and other magnetic articles are attracted and removed by the preshaped magnetic field from the free falling flow of material and directed into holding engagement with the periphery of the metal plates and wherein a portion of the free falling flow of loosely packed material engage the periphery of the metal plates and the inertia from the free falling material causes the metal plates and the magnetically coupled magnetic members to rotate as an integral assembly;
collecting the non-magnetic articles from the flow of material which are directed along the predetermined path and past the preshaped magnetic field; and
removing from the periphery of the metal plates the tableware and other magnetic articles held thereby.

4,279,745

MAGNET ATTACHMENT FOR VACUUM CLEANERS

Gerald A. Haase, 1005 Country Club Rd., Lake Oswego, Oreg. 97034

Filed Jul. 25, 1980, Ser. No. 172,126
Int. Cl.³ B03C 1/30
U.S. Cl. 209—215 4 Claims



1. A vacuum cleaner magnet attachment, including: (a) a longitudinally flexible, elongated housing, (b) said housing incorporating a plurality of magnetreceiving pockets spaced apart along the length of the housing, and (c) a permanent magnet contained removably in each pocket, and (d) securing means for attaching the housing to the lower front wall of a vacuum cleaner so that the pockets extend outward from the vacuum cleaner.

4,279,746

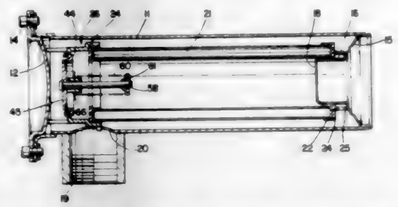
HYDRAULIC FLUID FILTER AND BYPASS VALVE

Donald C. Leutz, Sylvania, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Jan. 21, 1980, Ser. No. 114,029
Int. Cl.³ B01D 27/10
U.S. Cl. 210—130 10 Claims

1. In combination in a tubular filter housing having a removable end wall at one end through which a tubular filter element may be moved for replacement purposes and means at the other end of said housing adapted for receipt and axially biased support of the remote end of said filter element concentrically within said filter housing, a filter element mounting device for support of the proximate end of said filter element, comprising an integral cup-shaped holder having a cylindrical wall and a transverse end wall, an enlarged diameter seat formed in said cylindrical wall for removably receiving and supporting said

filter element at the periphery thereof, first spacer means on said holder extending radially outwardly from said cylindrical wall and sized for a sliding fit in engagement with said filter housing, said first spacer means being sized to form a substantially unobstructed annular passage about said holder and to position said holder substantially radially equidistantly within said filter housing, second spacer means on said holder extending axially outwardly therefrom into engagement with said



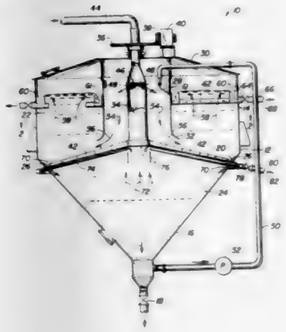
removable end wall of said filter housing, said second spacer means being sized to position said holder at a predetermined axial location within said housing, said first and second spacer means cooperating with said filter housing and said removable end wall, respectively, to retain said filter element concentrically within said filter housing and an aperture in said transverse end wall for receipt of a valve element within said holder.

4,279,747

RAPID CONTINUOUS CLARIFIER

Henry Chen, Pingtung, Taiwan, assignor to Fabcon Incorporated, San Francisco, Calif.

Filed Jan. 17, 1980, Ser. No. 112,778
Int. Cl.³ B01D *21/14*
U.S. Cl. 210—197 **4 Claims**



1. Apparatus for clarifying the liquid portion of a slurry such as preflocculated sugar juice, said apparatus comprising:

a tank including an upwardly opening conical lower section and a cylindrical upper section;

a downwardly opening conical tray located within the tank and dividing the tank into upper and lower portions at approximately the juncture of the conical section and the cylindrical section, the outer periphery of the tray being spaced from the interior of the tank to provide an annular passageway therebetween;

a vertical pipe centrally located within the upper portion of the tank and having an open bottom above the tray;

a rotated pipe located within the vertical pipe, said rotated pipe including a deflector cone within the pipe and a plurality of apertures in the side wall of the rotated pipe immediately above the deflector cone;

a plurality of mud scrapers attached to the rotated pipe and disposed immediately above the conical tray;

means for supplying a slurry to the upper end of the rotated pipe so that the slurry flows out of the rotated pipe through the apertures and into the vertical pipe;

means for supplying mud inside the vertical pipe so that the mud and slurry are mixed within the vertical pipe and flow out through the open bottom of the vertical pipe to the upper portion of the tank circumscribing the vertical pipe, at least some of the liquid portion of the slurry rising through the mud and collecting in the upper portion of the tank around the vertical pipe above the level of the mud, some of the slurry flowing downwardly through the passageway between the tray and the tank into the lower portion of the tank where substantially the remaining liquid portion rises through the mud and collects immediately beneath the center of the tray;

means for withdrawing the collected liquid from the upper and lower portions of the tank; and

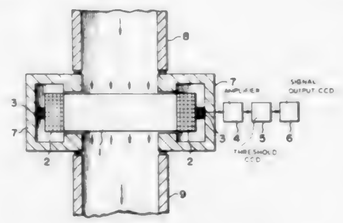
a mud outlet at the bottom of the tank.

4,279,748

HIGH-FIELD GRADIENT MAGNETIC SEPARATOR

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohamashi, Japan

Filed Mar. 1, 1979, Ser. No. 16,422
Claims priority, application Japan, Mar. 8, 1978, 53-26940; Apr. 4, 1978, 53-39965
Int. Cl.³ B01D *35/06*
U.S. Cl. 210—222 **10 Claims**



1. In a magnetic separator including a filter mass for traversal by a stream of fluid containing magnetically susceptible components to be separated for exerting a magnetic field of high field gradient thereon to collect said components therein, the improvement wherein said mass is constituted by a porous body comprising a continuous substrate composed of a non-magnetic substance, said body having interconnected pores therein open to outer surfaces of the body, at least a portion of the walls of said pores defining said substrate and being coated with a substantially continuous layer of a magnetic substance.

4,279,749

COLLAR FOR CAKE DISCHARGE CHUTE OF ROTATABLE DISC FILTER

Richard D. Moore, New Boston, N.H., assignor to Plastic Techniques, Inc., New Boston, N.H.

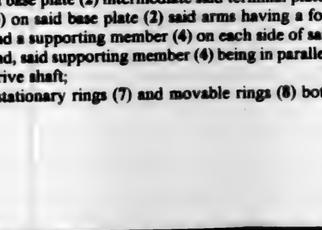
Filed Dec. 6, 1979, Ser. No. 100,737
Int. Cl.³ B01D *33/36*
U.S. Cl. 210—330 **9 Claims**

8. A collar for the cake discharge chute of a rotatable disc filter including at least a pair of vertical rotatable filter discs, said chute disposed between said pair of filter discs and having a plurality of walls, the open upper ends of which define a cake inlet and the open lower ends of which define a cake outlet, said walls having internal surfaces interconnecting said cake inlet and outlet and defining a passage through said cake discharge chute through which said cake passes, said walls proximate said filter discs having upwardly and outwardly extending portions which make a first angle ϕ with respect to a horizontal reference plane, said cake having a tendency to adhere to said internal surfaces of said walls of said cake discharge chute, said collar comprising:

a unitary member for pressing engagement about and with the open upper ends of the walls of said discharge chute, said member having:

a plurality of outer walls parallel to the corresponding walls of said discharge chute;

a plurality of inwardly and downwardly sloping inner walls each joined at its upper end to the upper end of a corresponding outer wall, said inner and outer walls defining a cake-receiving aperture substantially corresponding to



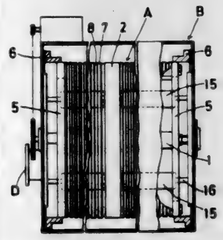
and aligning with the cake inlet defined by the open upper ends of the walls of said chute, said inner walls making a second angle ϕ_2 with respect to said said horizontal reference plane, said second angle ϕ_2 being greater than first angle ϕ to provide the inner walls with a steeper angle with respect to said horizontal reference plane than said upwardly and outwardly extending portions of said chute walls proximate said filter discs to enhance the passage of said cake through said cake discharge chute and to reduce said tendency of said cake to adhere to said internal surfaces of said walls of said cake discharge chute.

4,279,750

CONTINUOUS TREATMENT APPARATUS FOR TREATING WASTE MATERIAL

Mitutaka Hori, 3128-5 Ko-izumicho, Yamatokohriyama-shi, Nara-ken, Japan

Filed Feb. 25, 1980, Ser. No. 124,591
Claims priority, application Japan, Feb. 28, 1979, 54-23665
Int. Cl.³ B01D *33/00*
U.S. Cl. 210—357 **1 Claim**



1. A tank apparatus for continuously treating sewage or waste liquid by means of a drum within the tank, comprising in combination:

(a) a central drive shaft (1) disposed between annular terminal plates (5) defining a filtering zone therebetween in said tank;

(b) a base plate (2) intermediate said terminal plates (5), arms (3) on said base plate (2) said arms having a forward end and a supporting member (4) on each side of said forward end, said supporting member (4) being in parallel with said drive shaft;

(c) stationary rings (7) and movable rings (8) both defining the outer peripheral wall of said drum, both supported by said supporting member (4) both said rings having an inner edge, a projection (11) with an aperture on the inner edge of each stationary ring (7), a spacer means (12) interposed between said projections (11), a first shaft member (10) transversely mounted between the base plate (2) and each terminal plate extending through said aperture, said movable rings (8) being interposed between said stationary rings (7) with a minute clearance therebetween; and,

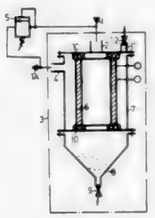
(d) a plurality of cams (13) on the inner edge of said movable rings (8), with a second shaft member (14) connecting said cams (13), also rotor means (15) extending across said drum cooperating with said cams (13) to produce a cam motion, since as the drum is rotated, one of the cams (13) runs into the rotor (15) causing the corresponding movable ring (8) to slide so as to eject sludge.

4,279,751

HYDRAULIC SYSTEM

Semyon I. Fishgal, 610-60 Mountview Ave., Toronto, M6P 2L4, Canada

Filed Mar. 16, 1979, Ser. No. 21,025
Int. Cl.³ B01D *33/00, 35/20*
U.S. Cl. 210—388 **1 Claim**



1. A flow-line filtration system for a liquid containing suspended solids comprising a housing having a liquid inlet port and a liquid outlet port, a porous piezoelectric ceramic filtering element having working surfaces thereon and located in the housing in the flow path of the liquid, partitioning the housing into an input part and an output part, a metallic coating on said working surfaces, and a generator of electric oscillations connected to said metallic coating whereby foreign matter in the liquid is removed by the filter and vibration of the filter effected by the generator of electric oscillation prevents clogging of the filter.

4,279,752

POLYVINYL ALCOHOL SEMI-PERMEABLE MEMBRANE AND METHOD FOR PRODUCING SAME

Akinori Sueoka; Takehiko Okamoto; Akio Ohmori; Syuji Kawai, and Minoru Ueda, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed May 21, 1979, Ser. No. 41,077
Claims priority, application Japan, May 25, 1978, 53-63156
Int. Cl.³ B01D *31/00, 13/00*
U.S. Cl. 210—500.2 **22 Claims**

1. A polyvinyl alcohol (PVA) microporous membrane having a porosity of at least 60% and prepared by a process which comprises preparing a PVA composition containing therein fine silica particles with an average particle size of from 50 Angstrom units to 10 microns in an amount of from 50 to 500 parts by weight per 100 parts of PVA, optionally adjusting the particle size of said silica by aggregating at least a portion of the silica in the composition, coagulating said composition in a coagulation bath to form a PVA membrane, and substantially extracting said silica particles from said membrane, thereby forming a PVA membrane with a microporous layer of controlled uniform pore size, which comprises a plurality of mi-

cropores with an average diameter (r) of 0.01 to 50 microns and exists in (1) either the whole thickness of the membrane or (2) in from 80 to 20% of the whole thickness of the membrane



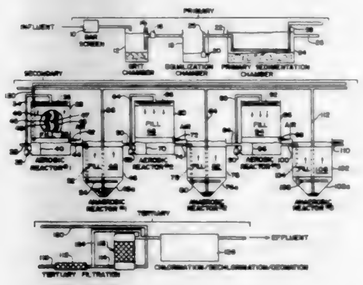
with a supporting layer which comprises a plurality of vacuoles with an average longitudinal length (l) of more than 10 microns being the remainder of the whole thickness of the membrane, wherein the ratio of l/r is at least 5.

4,279,753

WASTEWATER TREATMENT SYSTEM INCLUDING MULTIPLE STAGES OF AI TERNATE AEROBIC-ANEROBIC BIOREACTORS IN SERIES

Niel E. Nielson, Mountain View; Ronald L. Kreiling, Danville; Robert C. Hill, Santa Clara, and Ralph A. Nice, Burlingame, all of Calif., assignors to Arco Environmental Company, Los Angeles, Calif.

Filed Mar. 19, 1979, Ser. No. 21,556
Int. Cl.³ C02F *3/30*
U.S. Cl. 210—605 **9 Claims**



1. In a method for the treatment of industrial or municipal wastewater of a type including organic carbon and nitrogen-containing nutrients, the steps of

(a) forming a plurality of aerobic zones, each zone including multiple channels defined by spaced-apart exposed support surfaces upon which aerobic microorganisms grow in fixed films,

(b) forming a plurality of anaerobic zones, each zone including multiple channels defined by spaced-apart exposed support surfaces upon which anaerobic microorganisms grow in fixed films, said aerobic zones and anaerobic zones being arranged in a series of alternate aerobic and anaerobic zone pairs including at least a first aerobic-anaerobic zone pair and a last aerobic-anaerobic zone pair,

(c) passing said wastewater into the upper portion of said first aerobic zone and causing it to flow downwardly through said channels under the influence of gravity in at least partially film form exposed to air along said aerobic microorganisms fixed films on their support surfaces for intimate contact between said aerobic microorganisms and said wastewater in the presence of oxygen to thereby cause incremental consumption of the organic carbon nutrients and incremental conversion of organic nitrogen nutrients to ammonia and nitrification of the thus-formed ammonia to nitrate,

(d) passing the treated wastewater as a stream from said first aerobic zone to said first anaerobic zone in which said anaerobic microorganism film is submerged in an anaerobic environment and causing said wastewater stream to flow through said channels past said anaerobic microorganism fixed films for intimate contact to cause further incremental consumption of said organic carbon nutrients and incremental denitrification of nitrate to nitrogen gas,

(e) passing the effluent from the first anaerobic zone to the upper portion of the last aerobic zone and causing it to flow downwardly through said channels under the influence of gravity in at least partially film form exposed to air along said aerobic microorganisms fixed film on their support surfaces for intimate contact between said aerobic microorganisms and said wastewater in the presence of oxygen to thereby cause further incremental consumption of the organic carbon nutrients and incremental conversion of organic nitrogen nutrients to ammonia and nitrification of the thus-formed ammonia to nitrate,

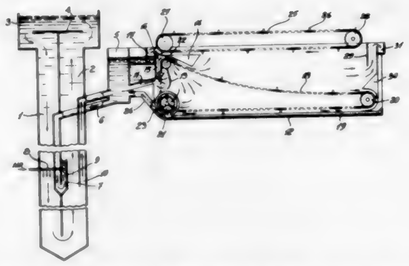
(f) passing the effluent from the last aerobic zone to the last anaerobic zone in which said anaerobic microorganism film is submerged in an anaerobic environment and causing said wastewater stream to flow through said channels past said anaerobic microorganism fixed films for intimate contact to cause further incremental carbon consumption of the organic carbon nutrients and incremental denitrification of nitrate to nitrogen gas, sufficient organic carbon being present in the effluent directed to the last anaerobic zone to cause significant denitrification to occur therein.

4,279,754

MEANS FOR SEPARATION OF GAS AND SOLIDS FROM WASTE MIXED LIQUOR

David C. I. Pollock, Richmond Hill, Canada, assignor to C-I-L Inc., Montreal, Canada

Filed Jun. 13, 1980, Ser. No. 159,347
Claims priority, application Canada, Oct. 26, 1979, 338539
Int. Cl.³ C02F *3/22*
U.S. Cl. 210—608 **2 Claims**



2. In a long vertical shaft activated sludge bioreactor treatment method wherein an aerobic biological reaction is caused to take place during the continuous circulation of fluid waste in an apparatus comprising a long vertical downcomer chamber, and adjacent long vertical riser chamber and a surface basin, the said downcomer and riser chambers operatively communicating directly with each other at their lower ends and through the said surface basin at their upper ends to form a circulatory loop, the said downcomer chamber and riser chamber having means for the injection therein at depth of an oxygen-containing gas, a waste influent conduit operatively opening into said riser chamber at a location above the location of the means for injecting oxygen-containing gas into said riser chamber, a waste effluent conduit operatively discharging from said riser chamber at a location below the location of means for injecting oxygen-containing gas into said riser chamber, and adjacent to

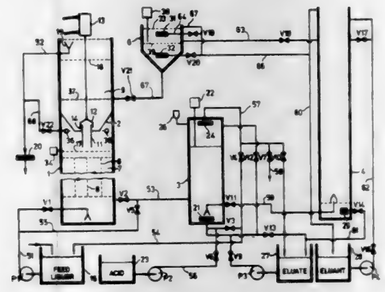
said surface basin a flotation/sedimentation vessel, an improvement is provided whereby fluctuations in flow of waste through the bioreactor and associated flotation/sedimentation vessel are substantially eliminated, the said improvement comprising receiving both influent and recirculated waste sludge in a holding reservoir adjacent to said flotation/sedimentation vessel, said holding reservoir having a base outlet therein adapted to discharge said waste sludge into said riser chamber, removing flotating sludge and liquid effluent from said sludge flotation/separation vessel and discharging said effluent and sludge into said holding reservoir, the rate of discharge of said effluent and sludge into said holding reservoir being dependent on the back pressure exerted by the head of liquid in said holding reservoir.

4,279,755

CONTINUOUS COUNTERCURRENT ION EXCHANGE PROCESS

Alexander Himsley, 250 Merton St., Toronto, Ontario, Canada (M4S 1B1)

Filed Feb. 26, 1980, Ser. No. 124,861
Int. Cl.³ B01D *15/04*
U.S. Cl. 210—661 **10 Claims**



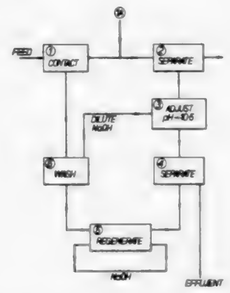
1. A process for absorbing ions of interest onto ion exchange resin particles from a feed liquor containing ions which when absorbed on said resin particles cause the density of the particles to increase, comprising the steps of continously flowing the feed liquor upwardly through a main bed of ion exchange resin particles contained in a main chamber of an absorption column and thereby maintaining the bed in a fluidized state, the resin being one on which the ions of interest are preferentially absorbed onto the resin particles causing the density of the loaded resin particles to increase and migrate toward the lower region of said column, continuously collecting loaded particles from the lower region of the column, normally passing an outflow of the feed liquor from the upper region of the main chamber upwardly into the lower region of a polishing chamber containing a secondary polishing bed consisting of a batch of predetermined size of fluidized ion exchange resin particles whereby residual ions of interest in said outflow from the main bed are substantially completely absorbed onto the resin particles in the polishing bed, thereby producing a barren liquor flowing out of the upper region of the polishing chamber, the batch of resin particles contained in the main chamber corresponding in volume to between about four to about twenty of the batches of particles contained in the polishing chamber, periodically diverting the outflow of the feed liquor from the upper region of the main chamber to an auxiliary outlet, transferring the batch of resin particles from the polishing chamber to the main chamber while maintaining the flow of feed liquor upwardly through the main chamber to maintain the particles fluidized therein, replenishing the polishing chamber by introducing into it a fresh batch of particles, and thereafter recommencing the outflow of the feed liquor from the upper region of the main bed upwardly into the lower region of the polishing chamber.

4,279,756

WATER CLARIFICATION

Donald E. Weiss, Blackburn; Luis O. Kolarik, Forest Hill; Anthony J. Priestley, Elsternwick, and Nevil J. Anderson, Sandringham, all of Australia, assignors to Commonwealth Scientific and Industrial Research Organization, Campbell, Australia

Continuation-in-part of Ser. No. 792,767, May 2, 1977, abandoned. This application Sep. 19, 1978, Ser. No. 944,125
Claims priority, application Australia, May 3, 1976, PC5798; Mar. 25, 1977, PC9576; Sep. 22, 1977, PD1779
Int. Cl.³ B01D *15/08*
U.S. Cl. 210—667 **29 Claims**



1. A process for the clarification of water which comprises the steps of:

(a) contacting water at pH 3–5 with a coagulant/adsorbent consisting of a finely divided particulate mineral or clay material, the individual particles of which have a particle size of 10 microns or less and have a thin hydroxylated surface layer which has a positive zeta potential at the adsorption pH;

(b) separating the water from the coagulant/adsorbent to obtain the clarified water;

(c) treating a suspension of the spent coagulant/adsorbent to raise the pH to about 10.5;

(d) separating the coagulant/adsorbent from the resulting effluent solution;

(e) where necessary regenerating the coagulant/adsorbent by treatment with an alkaline solution;

(f) separating the coagulant/adsorbent from the alkaline solution;

(g) washing the regenerated coagulant/adsorbent with water;

(h) separating the coagulant/adsorbent from the water; and

(i) recycling the regenerated and washed coagulant/adsorbent to step (a).

4,279,757

PROCESS FOR SEPARATING HYDROPHOBIC ORGANIC LIQUIDS FROM WATER

Gerard DeBeuckelaer, Weisenheim; Wolfgang Jarre, Ludwigshafen; Rolf Wurmb, Heidelberg, and Matthias Marx, Bad Durkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 31, 1979, Ser. No. 108,424
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1979, 2901335
Int. Cl.³ C02F *1/28*
U.S. Cl. 210—671 **5 Claims**

1. A process for separating hydrophobic organic liquids from water comprising loosely filling a vessel with polyurethane foam so that the foam will represent from 50–95 percent

of the total volume when the vessel is filled, and passing a mixture of water and organic hydrophobic liquids through the vessel, said foam being a hydrophobic, polyurethane foam which

(a) contains in bonded form, a compound (1) whose percent by weight, relative to the total weight of the polyisocyanate and polyol being reacted, is from 2 to 50 percent; (2) which has a hydrophobic effect; (3) which contains at least one group having a Zerewitinoff active hydrogen atom; and (4) which has a solubility parameter of 7.5 to 10.5 $(cal/cm^3)^{\frac{1}{2}}$;

(b) is reversibly deformable; and

(c) is compressed less than 25 percent by its own weight and the weight of the mixture containing water and hydrophobic organic liquids when the foam is loaded with said mixture.

4,279,758

PROCESS FOR INHIBITING THE FORMATION OF MINERAL DEPOSITS FROM A WATER USING N-N-DIALKYLUREIDOMETHANE DIPHOSPHONIC ACIDS

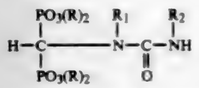
Friedrich Krüger, Edingen, and Walter Michel, Ilvesheim, both of Fed. Rep. of Germany, assignors to Joh. A. Benckiser GmbH, Ludwigshafen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 58,806, Jul. 19, 1979, Pat. No. 4,255,572. This application Oct. 1, 1980, Ser. No. 192,648

Int. Cl.³ B01D *21/01*

U.S. Cl. 210—700 **9 Claims**

1. A process for inhibiting the formation of mineral deposits from a water comprising treating the water with an effective amount of a compound selected from the group consisting of N,N'-dialkylureidomethane diphosphonic acids and their alkaline salts having the formula:



wherein R_1 and R_2 represent an alkyl group having one to three carbon atoms or a ring-forming alkylene group having two or three carbon atoms and R is hydrogen or an alkali metal.

4,279,759

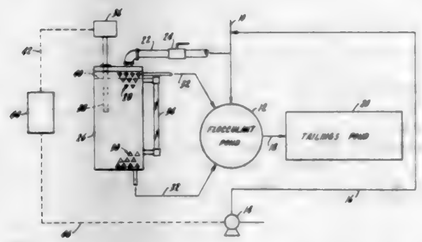
SETTLING COLUMN FOR USE WITH SOLIDS MONITOR

Dennis G. Pardikes, Sauk Village, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Continuation of Ser. No. 15,582, Feb. 27, 1979, abandoned. This application Apr. 14, 1980, Ser. No. 139,863

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—709 **5 Claims**



1. A method of controlling the addition rate of a water treatment chemical which induces settling to a normally-flowing process stream containing suspended solids requiring such treatment which comprises the steps of:

(a) diverting a portion of the flowing process stream prior to the process stream entering a receiving chamber to provide a side stream sample, said sample containing both solids to be settled and the treatment chemical;

(b) transporting the side stream sample to the top of a settling column while providing a quiescent area therein, said column being equipped with an overflow weir and underflow weir dimensioned to match the side stream flow entering the settling column from the process stream and also having a suspended matter monitor located below the normal liquid level and within said quiescent area in said settling column;

(c) obtaining a readout signal from the suspended matter monitor, which signal indicates a measure of the suspended matter contained within said settling column;

(d) transmitting said signal to said chemical feed system which feeds a water treatment chemical in response to said readout signal.

4. A system for controlling the addition rate of water treatment chemicals which induce settling to a normally-flowing process stream containing suspended solids requiring such treatment, comprising:

means for metering a supply of treatment chemical into said process stream, means for introducing said process stream into a receiving chamber, means for diverting a side stream from said process stream prior to the process stream entering the receiving chamber

a settling column which provides a quiescent area therein said settling column including an inlet at the top thereof for introducing said side stream containing solids to be settled and treatment chemicals,

said settling column including an overflow weir for passing the supernatant liquid and an underflow weir for passing the heavier effluent, wherein the overflow and underflow weirs are dimensioned such that flow rates into and out of the settling column are equal,

a sensor between the weirs and within the quiescent area of the settling column for measuring settling rate, and

a controller for said metering means, the controller being responsive to said sensor for increasing or decreasing the treatment chemical feed rate.

4,279,760

PROCESS AND APPARATUS FOR CONTINUOUS CAKE FILTERATION UNDER PRESSURE

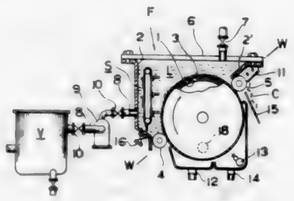
Samuroh Yamamoto, 6-2-13-506, Akasaka, Minato-ku, Tokyo, Japan

Continuation of Ser. No. 970,907, Dec. 19, 1978, abandoned. This application May 30, 1980, Ser. No. 155,035

Claims priority, application Japan, Dec. 27, 1977, 52/156712

Int. Cl.³ B01D *33/14*

U.S. Cl. 210—784 **25 Claims**



1. A process for continuous pressure filtration comprising rotating at least one perforated filter cylinder in a vessel so that at least a portion of the filter cylinder defines in part a filtering chamber and another part of the filtering chamber is defined by said vessel, said filter cylinder having a filtering surface covered with a filter medium, sealing said filtering chamber in at least two locations by at least two sealing and squeezing rolls between said filter cylinder and the walls of said vessel, disposing each of said sealing and squeezing rolls at a position at least partially below the upper level of said filtering chamber, supplying raw slurry under pressure to said filtering chamber, effecting pressure filtration through said filter medium on said filter cylinder, continuously removing filter cake from the filter cylinder by utilizing at least one of said sealing and squeezing rolls, discharge said filter cake externally of said filtering chamber, and removing the filtered liquid from the inside of said filter cylinder.

4,279,761

MIXTURE OF DI- OR TRITHIOPHOSPHORIC ACID DIESTERS, PROCESSES FOR PRODUCING IT AND ITS USE

Klaus P. Michaelis, Lindenfels, and Hermann O. Wirth, Bensheim, both of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

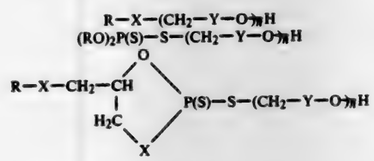
Division of Ser. No. 871,865, Jan. 24, 1978. This application Dec. 20, 1979, Ser. No. 105,797

Int. Cl.³ C10M *1/38*; C07F *9/02*

U.S. Cl. 252—46.4 **10 Claims**

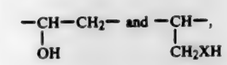
1. The product obtained by the reaction of

(a) a compound of the general formula I, II or III or mixtures thereof



wherein

y represents the groups



n represents a value of 0.5 to 10, both X's independently of one another represents an oxygen atom or sulphur atom, and

R represents linear or branched alkyl of 1 to 30 carbon atoms; said alkyl interrupted by oxygen or sulphur; cycloalkyl of 5 to 12 carbon atoms; cycloalkylalkyl of 5 to 12 carbon atoms in the cycloalkyl ring; phenyl; benzyl; or said cycloalkyl, said cycloalkylalkyl, said phenyl or said benzyl substituted by 1 or 2 alkyl groups having 1 to 12 carbon atoms, with

(b) phosphorus pentasulfide; in a molar ratio of ¼ mol of phosphorus pentasulfide per mole of OH or SH groups of compounds I, II or III, at 0° to 150° C.;

said product having free acidic PSH groups formed by the reaction of phosphorus pentasulfide with compounds I, II or III.

4,279,762

CUTTING OILS CONTAINING 3-ISOTHIAZOLONES AS BIOCIDES

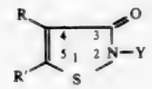
Sheldon N. Lewis, Willow Grove; George A. Miller, Glenside, and Andrew B. Law, Levittown, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 910,730, May 30, 1978, which is a division of Ser. No. 368,168, Jun. 8, 1973, Pat. No. 4,105,431, which is a continuation-in-part of Ser. No. 836,660, Jun. 25, 1969, Pat. No. 3,761,488, which is a continuation-in-part of Ser. No. 672,437, Oct. 3, 1967, Pat. No. 3,523,121, which is a continuation-in-part of Ser. No. 621,780, Mar. 19, 1967, abandoned. This application Dec. 10, 1979, Ser. No. 101,594

Int. Cl.³ C10M *1/38*

U.S. Cl. 252—47.5 **6 Claims**

1. A cutting oil composition comprising a major proportion of a cutting oil and a biocidal amount of a compound of the formula



wherein

Y is an unsubstituted or substituted alkyl, alkenyl, or alkynyl group of 1 to 18 carbon atoms, an unsubstituted or substituted cycloalkyl group having a 3 to 6 carbon atom ring and up to 12 carbon atoms, an unsubstituted or substituted aralkyl group of up to 10 carbon atoms, or an unsubstituted or substituted aryl group of up to 10 carbon atoms,

R is hydrogen, halogen, or a $(C_1–C_4)$ alkyl group, and

R' is hydrogen, halogen, or a $(C_1–C_4)$ alkyl group, or a salt of a compound of the above formula with a strong acid.

4,279,763

PROCESS OF PREPARING FERRITE POWDERS

Jean-Marie Boeuf, Grenoble; Pierre Gerest, Allevard, and Henri Lemaire, LaTronche, all of France, assignors to Aimants Ugimag S.A., Saint-Pierre-d'Allevard, France

Continuation-in-part of Ser. No. 138,532, Apr. 9, 1980, which is a continuation of Ser. No. 876,355, Feb. 9, 1978, abandoned. This application Jun. 5, 1980, Ser. No. 156,655

The portion of the term of this patent subsequent to Sep. 5, 1997, has been disclaimed.

Int. Cl.³ C04B *35/26*

U.S. Cl. 252—62.58 **7 Claims**

1. In a process for preparing ferrite powders of Ba, Sr or Pb that are to be incorporated in an elastomeric, thermoplastic, or thermosettable binder for the purpose of obtaining flexible or rigid permanent magnets with high magnetic properties, the process comprising the steps of preparing a mixture of particles of iron oxide and at least one carbonate of Ba, Sr or Pb, calcining the mixture to produce Ba, Sr or Pb ferrite powder, the powder being then adapted for incorporation in said binder and for orientation in the binder, the improvement in said process comprising the steps of adding to said mixture at least one alkaline or alkaline-earth halide in a total amount of 0.5% to 15% of the total weight of said mixture, and at least one oxygenated boron compound in a total amount of 0.2 to 7% of the weight of said mixture, thereafter calcining the mixture between 850° and 1100° for at least 15 minutes, crumbling the calcined mixture, and acid washing, water rinsing and drying the mixture, the powder obtained comprising single domain, approximately one micron size particles suitable for direct incorporation and orientation in said binder, the magnets obtained upon incorporation and orientation of said powder in said binder being characterized by higher Br, Hc and BHmax properties than magnets obtained utilizing powder prepared by the above process but having only one of said halide and oxygenated boron compound additives.

4,279,764

ENCAPSULATED BLEACHES AND METHODS OF PREPARING THEM

Gaylen R. Brubaker, Lawrenceville, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Jan. 30, 1980, Ser. No. 164,616
Int. Cl.³ C11D 7/56
U.S. Cl. 252—99 13 Claims

1. A storage stable, halogen bleach system having improved fabric dye compatibility comprising encapsulated particles of a halogen bleaching agent having a least one reactive N-halo atom which releases hypohalite ion under aqueous bleaching conditions, the said particles having thereon a coating of a soluble, hydrated, silicate bound inorganic salt in admixture with an N—H compound, which N—H compound reacts relatively rapidly with the hypohalite ion to produce the corresponding N-halo compound under conditions of elevated hypohalite levels surrounding the encapsulated bleach particles undergoing initial dissolution in aqueous media during preparation of the bleach solution, but which N—H compound reacts relatively slowly with the hypohalite to form said corresponding N-halo compound under the conditions of low hypohalite levels in the final bleach solution after mixing and dissolution of the bleaching agent, the ratio of N-halo compound to N—H compound in said particles being from about 1:1 to about 50:1.

4,279,765

SOAP COMPOSITION CONTAINING AN AMINO-SUBSTITUTED POLYSILOXANE

Michael P. L. Hill, St. Lythans, Nr. Wenvoe, Wales, and Anthony N. Tizard, Weybridge, England, assignors to Dow Corning Limited, Barry, Wales

Filed Sep. 8, 1980, Ser. No. 184,853
Claims priority, application United Kingdom, Sep. 15, 1979, 32069/79
Int. Cl.³ C11D 9/36
U.S. Cl. 252—117 3 Claims

1. A soap composition which contains from 0.01 to 6% by weight, based on the total weight of the composition, of a polydiorganosiloxane having a molecular weight of at least 2000 and having in the molecule at least one silicon-bonded organic substituent which is a monovalent group composed of carbon, hydrogen, nitrogen and, optionally, oxygen, said monovalent group having therein at least one amino group and being linked to the silicon atom through a silicon to carbon bond, at least 50 percent of the total number of substituents in said polydiorganosiloxane being methyl groups, any remaining substituents being selected from monovalent hydrocarbon groups having at least two carbon atoms, alkoxy groups, alkoxyalkoxy groups or hydroxy groups.

4,279,766

DETERGENT COMPOSITIONS COMPRISED OF NON-ABRASIVE SILICEOUS SCOURING AGENTS

Daniel Joubert, Trevoux, and Georges Vrisakis, Collonges-Au-Mont-D'Or, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Dec. 14, 1979, Ser. No. 103,597
Claims priority, application France, Dec. 20, 1978, 78 35742
Int. Cl.³ C11D 3/14, 3/12
U.S. Cl. 252—174.25 6 Claims

1. A detergent composition including, as a scouring agent, insoluble non-abrasive silica particles having a B.E.T. surface area between 80 and 150 m^2/g, a C.T.A.B. surface area below 45 m^2/g, a porosity on the mercury porosimeter below 20 cm^3/g, an average particle diameter of from 15 to 20μ, an oversize between 10 and 20% on the 45μ sieve and an oversize between 20 and 35% on the 25μ sieve.

4,279,767

USE OF IMPROVED HYDROQUINONE OXYGEN SCAVENGER IN AQUEOUS MEDIUMS

John A. Muccitelli, Feasterville, Pa., assignor to Betz Laboratories, Inc., Trevose, Pa.

Filed Jul. 14, 1980, Ser. No. 168,983
Int. Cl.³ C02F 1/20, 1/58; C09K 15/08, 15/20
U.S. Cl. 252—178 14 Claims

1. A method for reducing the amount of oxygen in oxygen-containing feedwater to a boiler which method comprises adding to said feedwater an effective amount for the purpose of a hydrazine-free treatment comprising a stable solution of hydroquinone and mu-amine.

11. A method for reducing the amount of oxygen in an oxygen-containing aqueous medium, which method comprises adding to the aqueous medium an effective amount for the purpose of a hydrazine-free treatment comprising a stable solution of hydroquinone and mu-amine, said treatment being added in an amount of from about 0.01 to about 10,000 parts per million parts of aqueous medium, wherein the ratio of hydroquinone to mu-amine is about 1:1.3 or less, and wherein said aqueous medium is that of a water heating system.

4,279,768

SERVICE DESCALER FOR AQUEOUS SYSTEMS

Bruce D. Busch, Shakopee, Minn., assignor to Fremont Industries, Inc., Shakopee, Minn.

Filed Feb. 4, 1980, Ser. No. 117,952
Int. Cl.³ C02F 5/10
U.S. Cl. 252—180 3 Claims

1. An in-service descaler for heat transfer surfaces consisting essentially of a composition having the following formulation:

Component	Percent by Weight
A chelating agent selected from the group consisting of tetrasodium ethylene diamine tetra acetic acid and tetrasodium nitrotriacetate monohydrate and mixtures thereof based upon a 40% aqueous solution	5.0 to 40.0
Polyacrylamide having a molecular weight of about 8000	0.1 to 5.0
Polyacrylamide having a molecular weight of about 1000	0.1 to 5.0
Benzotriazole	0 to 2.0
Sodium gluconate	1.0 to 10
Sodium sulfite	0.0 to 10
Water	balance

wherein said formulation is present in an aqueous solution in a range from between about 1 part to 1000 to 5000 parts of system water.

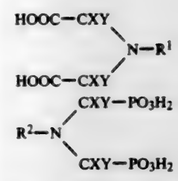
4,279,769

BLEACHING COMPOSITION

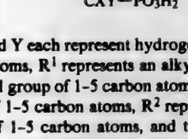
Kouichi Yagi, Tokyo, and Yunosuke Nakagawa, Soka, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Mar. 14, 1979, Ser. No. 20,275
Claims priority, application Japan, Mar. 20, 1978, 53-31922; Dec. 22, 1978, 53-159624
Int. Cl.³ C01B 15/10; C11D 3/395, 7/56
U.S. Cl. 252—186 12 Claims

1. A bleaching composition consisting essentially of (A) one or both of sodium percarbonate and a tetrasodium ethane-1,1,2,2-tetracarboxylate/hydrogen peroxide adduct, and (B) at least one compound of the formulae (I), (II) and (III):

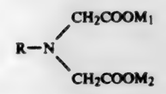


(I)



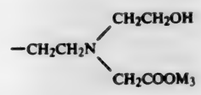
(II)

wherein X and Y each represent hydrogen or an alkyl group of 1–5 carbon atoms, R^1 represents an alkyl group of 1–5 carbon atoms, an acyl group of 1–5 carbon atoms or a phosphonoalkylene group of 1–5 carbon atoms, R^2 represents a carboxyalkylene group of 1–5 carbon atoms, and their alkali metal salts, alkaline earth metal salts, ammonium salts and alkylolamine salts having an alkyl group of 2 or 3 carbon atoms, and



(III)

wherein R represents $HOCH_2CH_2$— or



and M_1, M_2 and M_3 represents an alkali metal or an alkaline earth metal.

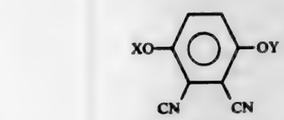
4,279,770

LIQUID CRYSTAL 2,3-DICYANO-HYDROQUINONE DERIVATIVES

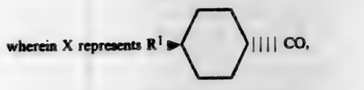
Takashi Inukai; Hiromichi Inoue; Kenji Furukawa; Hideo Sato, and Shigeru Segimori, all of Yokohamashi, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Sep. 12, 1979, Ser. No. 74,655
Claims priority, application Japan, Sep. 20, 1978, 53-115591; Nov. 15, 1978, 53-140710; Nov. 25, 1978, 53-145508; Jan. 31, 1979, 54-9917; Mar. 24, 1979, 54-34545; Aug. 27, 1979, 54-108978
Int. Cl.³ C07C 121/75; C09K 3/34; G02F 1/13
U.S. Cl. 252—299.62 10 Claims

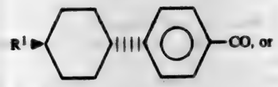
1. Compounds expressed by the general formula (I)



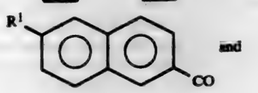
(I)



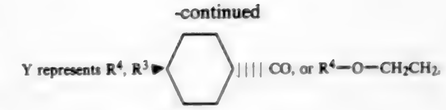
wherein X represents R^1— CO,



and



-continued



R^1 and R^3 each represent an alkyl group or an alkyloxy group of 1–10 carbon atoms; and

R^4 represents an alkyl group of 1–10 carbon atoms.

7. Liquid crystal compositions comprising at least one compound of the general formula (I) of claim 1, and having a negative dielectric anisotropy.

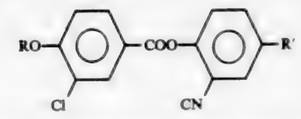
4,279,771

(2'-CYANO-4'-N-ALKYL)PHENYL-3-CHLORO-4-N-ALKOXY BENZOATES AND LIQUID CRYSTAL COMPOSITIONS THEREOF

Yoshio Shionozaki; Sakao Kanbe, and Katsumori Takei, all of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

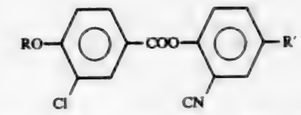
Filed Jan. 23, 1980, Ser. No. 114,775
Claims priority, application Japan, Jan. 26, 1979, 54-8590; Apr. 4, 1979, 54-40659; Oct. 26, 1979, 54-138546
Int. Cl.³ C07C 121/75; C09K 3/34; G02F 1/13
U.S. Cl. 252—299.63 21 Claims

1. An ester compound represented by the general formula



wherein R and R' are selected from the group consisting of straight-chain alkyl groups having from one to eight carbon atoms for defining a (2'-cyano-4'-n-alkyl) phenyl-3-chloro-4-n-alkoxy benzoate.

9. A liquid crystal composition comprising liquid crystal material admixed with at least one (2'-cyano-4'-alkyl) phenyl-3-chloro-4-alkyloxybenzoate represented by the general formula:



wherein R and R' are selected from the group consisting of straight-chain alkyl groups having from one to eight carbon atoms.

4,279,772

CRYSTAL FOR SCINTILLATOR

Kazumasa Takagi, Kokubunji; Toksumi Fukazawa, Tachikawa, and Tetsu Oi, Tokyo, all of Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Filed Jan. 15, 1980, Ser. No. 112,276
Claims priority, application Japan, Jan. 17, 1979, 54/2968
Int. Cl.³ C09K 11/46
U.S. Cl. 252—301.4 F 4 Claims

1. A crystal for a scintillator which comprises a single crystal of $Bi_4Ge_3O_{12}$ containing at least one component selected from the group consisting of $Bi_4Si_3O_{12}$ in an amount of not greater than 0.5% by weight and Gd in an amount of not greater than 50 ppm said amount being sufficient to effect, upon excitation by gamma ray radiation, a greater light output than that effected by a single crystal of $Bi_4Ge_3O_{12}$ free of said component

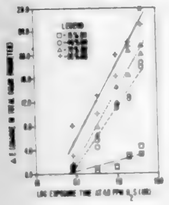
grown under the same conditions as the single crystal of $Bi_4Ge_3O_{12}$ containing said component.

4,279,773

COMPOSITION USEFUL FOR DETECTING H_2S

John P. Franey, Bridgewater, and Thomas E. Graedel, Mendham, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 15, 1979, Ser. No. 66,573
Int. Cl.³ G01N 31/22
U.S. Cl. 252—408 5 Claims



1. A detection apparatus suitable for quantitatively detecting H_2S comprising a polymer having incorporated a lead containing additive characterized in that said lead containing additive reacts with H_2S, and is present in a quantity of at least 10 weight percent of said polymer wherein said quantity is a quantity which would be sufficient to avoid more than 1×10^{-5} moles of HCl evolution in five hours for each gram of a PVC sample utilizing said additive in said quantity, and wherein the permeation constant at 25 degrees C. of said polymer is at least

5×10^{-9} cm^3 H_2S-cm thickness/(cm^2 area-sec-cm Hg).

4,279,774

METHOD OF REMOVING LIPID INHIBITORS FROM LIMULUS AMEBOCYTE LYSATE

Gene K. Lindsey, Middletown, and Andrew J. O'Beirne, Walkersville, both of Md., assignors to Dynasciences Corporation, Los Angeles, Calif.

Filed Nov. 13, 1979, Ser. No. 93,403
Int. Cl.³ G01N 31/00, 21/04, 33/48
U.S. Cl. 252—408 15 Claims

1. An improved method of removing lipid inhibitors from Limulus amebocyte lysate to increase the sensitivity and quality of the lysate, said method comprising:

(a) intimately contacting Limulus amebocyte lysate with a selected binary liquid solvent system containing first and second selected organic solvents of differing polarities, said first solvent being of low polarity registering not in excess of about 0.5 on the elutotrophic series scale, said second solvent being of high polarity registering at least about 0.8 on said elutotrophic series scale, said second solvent being present in said solvent system in a concentration of about 2-25% by volume of said system, said solvents being present in an amount and contacting said lysate for a time sufficient to draw water into said solvent system from said lysate and extract and denature lipid inhibitors in said lysate; and,

(b) separating said Limulus amebocyte lysate and said solvent system from each other and recovering said lysate in purified form having improved sensitivity.

4,279,775

BLOOD GAS CONTROL

Allan L. Louderback, 9661 Longden Ave., Temple City, Calif. 91780, and Paul R. Szatkowski, 24 Winthrop Rd., Bethel, Conn. 06801

Filed Dec. 31, 1979, Ser. No. 108,480
Int. Cl.³ G01N 33/48
U.S. Cl. 252—408 11 Claims

1. A completely synthetic liquid control standard for use in the quality assurance of blood gas instrumentation systems comprising an aqueous solution of a dye buffered to a pH of from about 7.1 to about 7.7 and containing sufficient bicarbonate ion to provide a pCO_2 of from about 20 to about 80, ethylene glycol to provide a viscosity of from about 3 to about 9 centipoises and promote clearing of proteinaceous material from said instrumentation systems and gaseous oxygen to provide a pO_2 of from about 50 to about 400 retained in a sealed receptacle.

4,279,776

CATALYST SYSTEM

Akinobu Shiga; Yoshiharu Fukui, both of Nilhama; Katsumi Hanji, Ibaraki; Toshio Sasaki, Nilhama; Masahisa Okawa, Nilhama; Hideaki Matsuura, Nilhama, and Yasuharu Yamada, Takatsuki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 11,676, Feb. 12, 1979, Pat. No. 4,235,984.
This application Apr. 14, 1980, Ser. No. 139,989
Claims priority, application Japan, Feb. 23, 1978, 53-20490; Mar. 9, 1978, 53-27331
Int. Cl.³ C08F 4/02, 4/64
U.S. Cl. 252—429 B 9 Claims

1. A catalyst system comprising three components A, B and C:

A: a solid catalyst produced as follows:

(1) an organo-magnesium compound represented by the general formula RMgX, wherein R is C_1–C_8 alkyl, aryl or alkenyl group and X is a halogen atom, synthesized in the presence of an ether (I) solvent is reacted in solution in said solvent with at least one halogen-containing compound of (a) and (b),

(a) halogeno-silicon compounds of the formula

$$R_n^1SiX_{4-n}$$

wherein R^1 is a C_1–C_8 alkyl, aryl or alkenyl group, X is a halogen atom and n is a number satisfying $0 \leqq n < 4$,

(b) halogeno-aluminum compounds of the formula

$$R_l^2AlX_{3-l}$$

wherein R^2 is a C_1–C_8 alkyl, aryl or alkenyl group, X is a halogen atom and l is a number satisfying $0 \leqq l < 3$, at 0° to 100° C. in the former to the latter molar ratio of 1:10 to 10:1, and the resulting solid product is separated from the reaction system and washed with an inert hydrocarbon solvent, thereby obtaining a solid product containing 20 to 60% by weight of said ether (I),

(2) the solid product is reacted, at −50° to 150° C., with an electron donor of 10^{-5} to 0.1 mole per gram of solid product, selected from the group consisting of amines, amides, ethers, esters, alcohols, phenols, ketones, nitriles, phosphines, phosphites, sulfides, and lactones, and the resulting solid carrier is separated from the reaction system and washed with an inert hydrocarbon solvent, thereby obtaining a solid carrier containing 1 to 30% by weight of the ether (I) and 1 to 20% by weight of the electron donor, and

(3) the solid carrier is reacted with titanium tetrachloride of 0.01 to 10 moles per gram of solid carrier at 0° to 150° C., and the resulting solid catalyst is separated from the reaction system and washed with an inert hydrocarbon solvent, thereby obtaining a solid catalyst containing 0.1 to 15% by weight of the ether (I) and 0.1 to 10% by weight of the electron donor and 0.1 to 20% by weight of titanium,

B: an activating agent of the formula,

$$R_m^3AlY_{3-m}$$

wherein R^3 is a C_1-C_8 alkyl, aryl or alkenyl group, Y is a halogen or hydrogen atom and m is a number satisfying $2 \leqq m \leqq 3$ and

C: an electron donor selected from the group consisting of amines, amides, ethers, esters, alcohols, phenols, ketones, nitriles, phosphines, phosphites, sulfides, and lactones, the molar ratio of titanium to activating agent being 10:1 to 1:500 and the molar ratio of titanium to electron donor (c) being 10:1 to 1:500.

4,279,777

MOLYBDENUM-COPPER-TIN CATALYSTS

Louis J. Velenyi, Lyndhurst, and Andrew S. Krupa, Twinsburg, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Dec. 10, 1979, Ser. No. 102,087
Int. Cl.³ B01J 27/02, 27/14, 23/10, 23/14
U.S. Cl. 252—439 9 Claims

1. A catalyst composition comprising a catalyst having the following formula:

$$Mo_aCu_bSn_cA_dL_eO_x$$

wherein

A is selected form the group consisting of Li, Na, K, Cs, Mg, Ca, Sr, Ba, La, Ce, Th, U and mixtures thereof;

L is selected from the group consisting of Zn, Cd, Hg, Al, Ga, In, Tl, Ti, Zr, Hf, Nb, Ta, Ag, Au, Te, Se, Bi, Sb, Cr, As, S, Re, Mn, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt and mixtures thereof; and

wherein

a is 0.1–15;
b is 0.1–15;
c is 0.05–12;
d is 0.01–10;
e is 0–12; and
x is the number of oxygens sufficient to satisfy the valence requirements of the other elements present.

4,279,778

PROCESS FOR THE PREPARATION OF A SULPHIDED FLUORINE-CONTAINING NICKEL-TUNGSTEN CATALYST FOR THE CONVERSION OF HYDROCARBONS

Gerard T. Pott, and Johannes C. M. Stuiver, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed May 7, 1980, Ser. No. 147,693
Claims priority, application Netherlands, Jun. 5, 1979, 7904382
Int. Cl.³ B01J 21/04, 23/30, 27/04, 27/12
U.S. Cl. 252—439 7 Claims

1. A process for the preparation of a sulphided, fluorine-containing nickel-tungsten catalyst, which comprises evaporating to dryness a solution containing an aluminum compound and a tungsten compound wherein the atomic ratio Al/W lies in the range of 0.30–1, calcining the resultant product at a temperature from about 500° C. to 700° C., impregnating the calcined product with a solution of a nickel compound, then sulphiding and fluorinating the impregnated product.

4,279,779

SPHEROIDAL ALUMINA PARTICLES AND CATALYSTS EMPLOYING THE PARTICLES AS A SUPPORT

Moises G. Sanchez, Severna Park; Michael V. Ernest, Baltimore, and Norman R. Laine, Rockville, all of Md., assignors to W. R. Grace & Co., New York, N.Y.

Continuation of Ser. No. 781,379, Mar. 25, 1977, Pat. No. 4,179,408. This application Aug. 8, 1979, Ser. No. 64,700
Int. Cl.³ B01J 21/04, 23/42, 23/44, 23/46
U.S. Cl. 252—448 23 Claims

1. A catalyst support comprising spheroidal alumina particles having a total pore volume of about 0.8 to about 1.7 cubic centimeters per gram, a pore volume of about 0.5 to about 1.0 cubic centimeters per gram in pores of 100 to 1000 A. in diameter, a pore volume of about 0.1 to about 0.4 cubic centimeters per gram in pores of 1000 to 10,000 A. in diameter, a surface area of about 80 to about 135 square meters per gram, an attrition loss of less than about 5%, a crush strength of at least about 5 pounds, a volume shrinkage of less than about 6% upon exposure to a temperature of 1800° F. for 24 hours, and a compacted bulk density of about 20 to about 36 pounds per cubic foot.

4,279,780

METHOD OF PREPARING CATALYST SUPPORTS

Robert A. Dombro, Clinton, Iowa, assignor to Chemplex Company, Rolling Meadows, Ill.

Filed Apr. 18, 1980, Ser. No. 141,570
Int. Cl.³ B01J 29/00, 37/02
U.S. Cl. 252—452 10 Claims

1. The method of preparing large pore volume zirconia-silica useful as a catalyst support for a catalyst for polymerizing and copolymerizing olefins, comprising:

a. reacting a zirconium compound of the formula $M_4Zr(C_2O_4)_4.nH_2O$, where M is an alkali metal or ammonium ion and n equals 0 to 10, with a silicon compound of the type A_2SiO_3, where A is an alkali metal, in an aqueous solution at a pH of at least 11 and then adding an acidic material to a pH of about 5–9, to produce a hydrocogel;

b. aging said hydrocogel at a temperature between about ambient to 90° C. for at least one hour;

c. washing said hydrocogel of b first with water, then with aqueous ammonium nitrate and again with water;

d. partially dehydrating the resulting washed hydrocogel of c by azeotropic distillation by mixing with a compound capable of forming an azeotrope with water or by washing the hydrocogel with a water miscible solvent to produce a substantially water-free, large pore volume zirconia-silica catalyst support;

e. removing residual water from the product of d by chemically reacting this water with a ketal of the formula $RC(OR)_2R$ in which R is the same or different and is an alkyl group of 1–5 carbon atoms; and

f. calcining the resulting xerocogel at a temperature of about 1000°–1850° F. preparatory to its use as an olefin polymerization catalyst support.

4,279,781

CATALYST FOR THE SYNTHESIS OF METHANOL

Edward K. Dienes; Ray L. Coleman, and Arthur L. Hausberger, all of Louisville, Ky., assignors to United Catalysts Inc., Louisville, Ky.

Filed Oct. 9, 1979, Ser. No. 82,790
Int. Cl.³ B01J 21/04, 23/06, 23/72
U.S. Cl. 252—463 11 Claims

1. A methanol synthesis catalyst precursor, which comprises:

A. a major portion by weight of the oxides of copper and zinc,

B. a minor portion by weight of a thermal stabilizing metal oxide in which:

1. the ratio of copper oxide to zinc oxide, each expressed

as the metal by weight, is in the range of from 2:1 to 3.5:1, and

2. the oxides of copper and zinc are in intimate association with each other and with said thermal stabilizing metal oxide, and in which

C. the concentration of iron oxide inpurity in the total catalyst precursor, expressed as the metal by weight, is less than 150 parts per million in which said impurity is introduced in preparing the catalyst precursor.

4,279,782

APPLICATION OF AN ALUMINA COATING TO OXIDE WHISKER-COVERED SURFACE ON AL-CONTAINING STAINLESS STEEL FOIL

Lloyd R. Chapman, St. Clair Shores, and John F. Watton, Mt. Clemens, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 31, 1980, Ser. No. 135,484
Int. Cl.³ B01J *21/04, 23/86*
U.S. Cl. 252—465 **4 Claims**

1. A method of coating a surface comprising closely spaced oxide whiskers with an adherent ceramic layer, said method comprising:

wetting the whisker covered surface with an aqueous alumina gel, said gel penetrating between the whiskers; and

applying to the still-wet surface a material comprising macroscopic ceramic particles suspended in an aqueous alumina gel, said gels combining to form a continuous alumina gel matrix about said particles and said whiskers that, upon drying and firing, bonds said particles to said whisker surface with improved adhesion.

4,279,783

ELECTRICALLY CONDUCTIVE SILICONE ELASTOMERS

Gerald P. Kehrer, Auburn, Mich., and William G. Smith, Saint Charles, Ill., assignors to Dow Corning Corporation, Midland, Mich.

Filed Apr. 4, 1979, Ser. No. 27,188
Int. Cl.³ D02G *3/00*; H01B *1/06*
U.S. Cl. 252—511 **2 Claims**

1. A silicone composition curable to an electrically conductive silicone elastomer comprising a product obtained by mixing

(A) an electrically conductive curable silicone elastomeric mixture having a viscosity below 1,000 Pa.s at 25° C. and

(B) graphite fibers with an average length of from about 1 mm to about 6 mm, the graphite fibers being present in an amount of from 0.3% to 5.0% by weight based on the weight of the composition.

4,279,784

THERMIONIC EMISSION CATHODES

Akira Misumi, and Shunji Saito, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 26, 1978, Ser. No. 972,873
Claims priority, application Japan, Dec. 26, 1977, 52-155551
Int. Cl.³ H01B *1/02*
U.S. Cl. 252—513 **20 Claims**

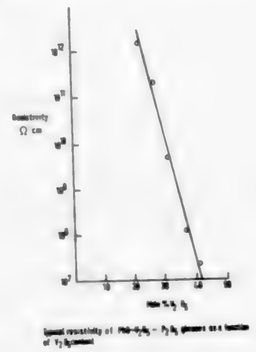
1. A thermionic emission cathode which comprises a base made of a nickel-tungsten series alloy comprising 90 to 70% by weight of nickel and 10 to 30% by weight of tungsten, and an emitter layer, which is formed on the base and which is made from a mixture of (a) tungsten powder or nickel-tungsten alloy powder, (b) Ba_3WO_6 powder and (c) zirconium powder or ZrH_2 powder.

4,279,785

GLASS ENCAPSULATION OF SEMICONDUCTOR DEVICES

Clive E. E. Stewart, Bishops Stortford; William J. N. Rosser, Stansted Mount Fitchet, and Martin P. Ansell, Bath, all of England, assignors to ITT Industries, Inc., New York, N.Y.

Filed Nov. 6, 1979, Ser. No. 91,916
Claims priority, application United Kingdom, Nov. 28, 1978, 46345/78
Int. Cl.³ C03C *3/16, 3/12*; H01B *1/08*
U.S. Cl. 252—518 **5 Claims**



1. A glass composition consisting essentially of 56 to 58 mol % lead oxide (PbO), 22 to 28 mol % vanadium pentoxide (V_2O_5) and 16 to 20 mol % phosphorus pentoxide (P_2O_5) wherein the bulk resistivity of said glass composition is at least 1×10^{11} ohm cm. and the coefficient of thermal expansion of said glass composition is greater than 120×10^{-7}/° C.

4,279,786

HOMOGENEOUS AQUEOUS ALPHA-OLEFIN SULFONATE COMPOSITION

Shizuo Sekiguchi, Funabashi; Tetsuo Tano, and Kyozo Kitano, both of Chiba, all of Japan, assignors to The Lion Fat & Oil Co., Ltd., Tokyo, Japan

Filed Dec. 12, 1979, Ser. No. 102,827
Claims priority, application Japan, Dec. 26, 1978, 53/162084
Int. Cl.³ C11D *3/34*
U.S. Cl. 252—536 **3 Claims**

1. A homogeneous aqueous alpha-olefin sulfonate composition consisting essentially of:

A. 100 parts by weight, in terms of alpha-olefin sulfonate, of an aqueous solution of at least one alpha-olefin sulfonate having from 10 to 20 carbon atoms; and

B. from approximately 1 to approximately 10 parts by weight of at least one additive selected from the group consisting of sorbic acid, gluconic acid, malic acid and the salts of said acids.

4,279,787

METHOD OF BINDING ANTIGENS TO INSOLUBLE POLYMERIC SUBSTANCES

Meano Huizinga, Amsterdam, Netherlands, assignor to Tetra Consultants Inc., New Rochelle, N.Y.

Filed Jul. 30, 1979, Ser. No. 62,035
Int. Cl.³ C08L *89/00, 5/00*
U.S. Cl. 260—8 **11 Claims**

1. A method for affixing antigenically active material to the surface of a water insoluble hydrophobic polymeric substance which comprises first treating the surface of the water insoluble hydrophobic substance with an aldehyde of the formula OCH—(X)—CHO, where —(X)— may be alkylene, cycloalkyl, aryl, substituted cycloalkyl or substituted aryl; and then reacting the thus treated polymeric substance with a purified antigenically active material in order to bond said biologically active material to the surface of said polymeric substance.

4,279,788

AQUEOUS POLYISOCYANATE-LIGNIN ADHESIVE

Alan L. Lambuth, Boise, Id., assignor to Boise Cascade Corporation, Boise, Id.

Filed Apr. 18, 1980, Ser. No. 141,381
Int. Cl.³ C08H *5/02*; C08L *97/02*
U.S. Cl. 260—9 **29 Claims**

1. An aqueous polyisocyanate-lignin adhesive comprising an aqueous solution of lignin solids derived from the chemical pulping of lignocellulose and an adhesive-forming quantity of organic polyisocyanate polymer having a molecular weight of from 200 to 10,000, the water being used in amount sufficient to establish a working adhesive viscosity.

4,279,789

ACRYLIC COPOLYMERIC COATING COMPOSITION

Donald E. Laeddecke, St. Charles, Mo.; John J. Mottine, Jr., Red Bank Township, Monmouth County, N.J., and William C. Vesperman, Bel Air, Md., assignors to Western Electric Company, Inc., New York, N.Y. and Bell Telephone Laboratories, Inc., Murray Hill, N.J.

Division of Ser. No. 967,550, Dec. 7, 1978, Pat. No. 4,227,042.
This application Mar. 3, 1980, Ser. No. 126,604
Int. Cl.³ C08L *1/14*
U.S. Cl. 260—17 R **10 Claims**

1. A coating composition comprising a binder which comprises (a) 75–90 weight percent of a medium molecular weight methyl methacrylate and ethylhexyl acrylate copolymer, (b) 5–15 weight percent cellulose acetate butyrate having a viscosity of from about 1.9 to 2.1 poise and (c) 5–10 weight percent of a carbalkoxy benzyl phthalate lasticizer which is the condensation product of benzyl phthalate and the esters derived from the condensation of trimethylpentanediol with isobutyric acid.

4,279,790

COMPOSITE MATERIAL COMPOSITIONS USING WASTERPAPER AND METHOD OF PRODUCING SAME

Yoshikazu Nakajima, Musashino, Japan, assignor to Kabushiki Kaisha Mikuni Seisakusho, Tokyo, Japan

Filed Jul. 5, 1979, Ser. No. 54,685
Int. Cl.³ C08L *1/02*
U.S. Cl. 260—17.4 R **3 Claims**

1. A composition produced by mixing and beating 100 parts by weight of cut wastepaper pieces of a size less than 30 mm. with a molten mixture consisting essentially of about 70 to 150 parts by weight of thermoplastic resin and about 20 parts by weight of rubber, the cut wastepaper being impregnated with the molten mixture.

4,279,791

RECOVERY OF CERIUM FROM POLYMER DISPERSIONS

Edwin L. Speakman, Clinton, Iowa, assignor to Standard Brands Incorporated, New York, N.Y.

Filed May 8, 1980, Ser. No. 147,775
Int. Cl.³ C08L *3/02*
U.S. Cl. 260—17.4 GC **18 Claims**

1. The process for removing cerium (III) from a stable, acidic, aqueous polymeric dispersion having a pH of less than about 5.0 which comprises contacting said dispersion with a strong acid cation exchange resin wherein said cation is selected from the group consisting of hydrogen and hydrogen in combination with sodium, potassium, lithium or ammonium ion thereby adsorbing said cerium (III) onto the resin and thereafter separating said resin along with adsorbed cerium (III) from said dispersion.

4,279,792

COMPOSITIONS INCLUDING MERCAPTOORGANOPOLYSILOXANES AND STANNOUS SALTS OF CARBOXYLIC ACIDS

Gary R. Homan, and Chi-long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

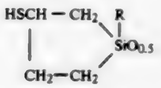
Filed Dec. 3, 1979, Ser. No. 99,301
Int. Cl.³ C08L *91/00*
U.S. Cl. 260—18 S **5 Claims**

1. A composition of matter comprising a material prepared by mixing

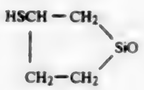
(A) a mercaptoorganopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units, trimethylsiloxane units, hydroxydimethylsiloxane units, units of the formula



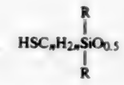
units of the formula



units of the formula



and units of the formula



wherein R is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive and phenyl radicals; and, n has a value of from 1 to 4 inclusive, there being in said mercaptoorganopolysiloxane an average of greater than two mercapto-containing siloxane units per molecule and no more than 10 mole percent mercapto-containing siloxane units based on the total number of siloxane units in the mercaptoorganopolysiloxane;

(B) a stannous salt of a carboxylic acid selected from the group consisting of those represented by the formula

wherein R^1 is a monovalent acyl radical, said stannous salt being present in an amount of from 0.1 to 10 parts by weight per 100 parts by weight of (A);

(C) a filler in an amount of from 0 to 200 parts by weight per 100 parts by weight of (A); and

(D) an organic peroxide in an amount of from 0 to about 6 parts by weight per 100 parts by weight of (A).

4,279,793

WATER-HARDENABLE MIXTURES

Wolfgang Wellner, and Manfred Hajek, both of Cologne, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,408

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1978, 2853477

Int. Cl.³ C08G 69/00, 69/26

U.S. Cl. 260—18 R 9 Claims

1. A water-hardenable mixture comprising

(A) at least one reversibly blocked polyamine; and

(B) at least one compound having at least two cyclic carboxylic acid anhydride groups.

4,279,794

SIZING METHOD AND SIZING COMPOSITION FOR USE THEREIN

David H. Dumas, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 33,618, Apr. 26, 1979, abandoned, which is a continuation of Ser. No. 875,663, Feb. 6, 1978, abandoned. This application Dec. 26, 1979, Ser. No. 106,606

Int. Cl.³ C08L 63/00

U.S. Cl. 260—29.2 EP 4 Claims

1. A sizing composition for cellulose fibers consisting essentially of an aqueous emulsion of a hydrophobic cellulose reactive sizing agent selected from the group consisting of ketene dimers, acid anhydrides, and organic isocyanates containing a sizing accelerator, said sizing accelerator being selected from a water-soluble poly(diallylamine)-epihalohydrin resin and a water-soluble poly(N-methyldiallylamine)-epihalohydrin resin in an amount sufficient to increase the off-the-machine sizing effect of the sizing agent, the amount of epihalohydrin used in reaction with the poly(diallylamine) being from about 0.5 mole to about 1.5 moles per mole of secondary amine present in the polymer and the amount used in reaction with the poly(N-methyldiallylamine) being from about 0.5 mole to about 1.5 moles per mole of tertiary amine present in the polymer.

4,279,795

HYDROPHILIC-HYDROPHOBIC GRAFT COPOLYMERS FOR SELF-REINFORCING HYDROGELS

Shuzo Yamashita; Kyoichiro Shibatani; Kiochi Takakura, and Kiyokazu Imai, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Dec. 28, 1973, Ser. No. 429,207

Claims priority, application Japan, Dec. 29, 1972, 48-3150; Feb. 14, 1973, 48-18634

Int. Cl.³ C08L 51/00

U.S. Cl. 260—29.6 RW 13 Claims

1. A copolymer for a self-reinforced and highly bio-compatible hydrogel which comprises (1) a hydrophilic polymer backbone moiety from a free radical polymerizable vinyl monomer capable of forming a hydrophilic polymer and (2) graft moieties attached to said backbone moiety from a hydrophobic macromolecular compound, 5 to 80% based on the weight of the copolymer, having a chain-terminated polymerizable double bond and a molecular weight of 1,000 to 100,000, said copolymer being swelled with water in a degree of an equilibrium water absorption of at least 10% by weight.

4,279,796

CARPET CLEANING/COATING MIXTURE AND METHOD

Kevork W. Tarkinson, Boynton Beach, Fla., assignor to Ann Ward Tarkinson, Boynton Beach, Fla.

Filed Mar. 20, 1980, Ser. No. 132,393

Int. Cl.³ B08B 3/08

U.S. Cl. 260—29.6 R 2 Claims

1. In an aqueous dispersion containing a nonfluorinated vinyl polymer and at least 5 weight percent of a perfluoroalkyl ester of a carboxylic acid of from 3 to 30 carbon atoms in amounts effective to provide substantial dry soil resistance in carpet to which said aqueous dispersion is applied, the improvement which comprises:

an additional ingredient in said aqueous dispersion consisting of hydrogen peroxide in an amount effective to remove soil from carpet to which said aqueous dispersion is applied followed by buffing the carpet to promote foaming of the aqueous dispersion.

4,279,797

SOLVENT BLENDS FOR ETHYLENE COPOLYMERS

Alfred R. Nelson, Edenville, and Kenneth E. Johnsen, Midland, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 29, 1979, Ser. No. 98,466

Int. Cl.³ C08K 5/05

U.S. Cl. 260—33.4 R 9 Claims

1. A solution comprising a solvent blend which comprises from about 5 to about 35 percent by weight of an acyclic alcohol having from 2 to 12 carbon atoms, based upon the total weight of said solvent blend, about 3 percent to about 90 percent by weight of a monocyclic aromatic hydrocarbon, based upon the total weight of said solvent blend, and from about 5 to about 92 percent by weight of a halogenated C_2 hydrocarbon, based upon the total weight of said solvent blend, and a copolymer of ethylene and ethylenically unsaturated carboxylic acid having from about 17 to about 30 percent by weight of said carboxylic acid, based on the total weight of said copolymer, characterized in that said copolymer remains dissolved at ambient temperatures.

4,279,798

POLYDIENE POLYALKYLENE OXIDE BLOCK COPOLYMERS AND THEIR USE AS ALCOHOL HYDROCARBON DISPERSANTS

Sundar L. Aggarwal, Akron; Ivan G. Hargis, Tallmadge, and Russell A. Livigni, Akron, all of Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio

Filed Mar. 28, 1980, Ser. No. 134,854

Int. Cl.³ C08L 53/00; C08K 5/01, 5/05

U.S. Cl. 260—33.4 R 2 Claims

1. In a dispersion containing alcohol, and liquid hydrocarbon, the improvement comprising the presence of a small but effective amount to stabilize the dispersion of a block copolymer having within its molecular structure at least two segments, segment A being a polydiene containing a major portion of a 1,4 structure diene, and segment B being a double metal cyanide complex catalyst polymerized alkylene oxide.

4,279,799

LOADED POLYURETHANE ARTICLES

Cline J. MacGregor, Lancaster, and Roy A. Parker, Athens, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 31, 1979, Ser. No. 89,820

Int. Cl.³ C08L 75/04

U.S. Cl. 260—37 N 4 Claims

1. A polyurethane composition containing a sufficient amount of milled glass fibers to exhibit ansitropic properties, said ansitropic properties being reduced by the presence of an effective amount of mica.

4,279,800

HIGH SOLIDS PIGMENTED COATING COMPOSITION CONTAINING A BLEND OF ESTER DIOLS AND A CURING AGENT

Ritse E. Boomgaard, Oegstgeest; Roelof Buter, Dieren, and Aleidus A. Kiffen, Angerlo, all of Netherlands, assignors to Akzo NV, Arnhem, Netherlands

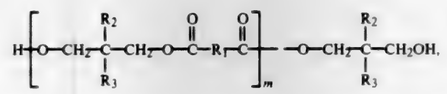
Filed Apr. 15, 1980, Ser. No. 140,482

Claims priority, application Netherlands, Apr. 19, 1979, 7903056

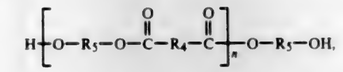
Int. Cl.³ C08L 61/28, 67/02

U.S. Cl. 260—39 P 8 Claims

1. A pigment-containing high solids coating composition prepared from a blend of ester diols as binder and a curing agent for the binder, characterized in that as ester diol there is used a mixture of (a) 20–80 mole % of a compound having the general formula:



where R_1 represents the group formed by abstraction of the two carboxyl groups from a cycloaliphatic and/or aromatic dicarboxylic acid having 8 to 20 carbon atoms and R_2 and R_3 may be the same or different and represent a hydrogen atom and/or a hydrocarbon group having 1 to 9 carbon atoms, and m is a number of 1–4, and of (b) 80–20 mole % of a compound having the general formula



where R_4 represents the group formed by abstraction of the two carboxyl groups from a cycloaliphatic and/or aromatic dicarboxylic acid having 8 to 20 carbon atoms, and R_5 represents the group formed by abstraction of the two hydroxyl groups from a terminal diol having 4 to 12 carbon atoms in the main chain, and n is a number of 1–4.

4,279,801

THERMOPLASTIC MOLDING COMPOSITIONS OF A LINEAR POLYESTER AND A POLY(ESTER URETHANE)

Morton Kramer, Pittsfield, Mass., and Allen D. Wambach, Evansville, Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Jul. 2, 1975, Ser. No. 592,769

Int. Cl.³ C08L 67/02, 75/06

U.S. Cl. 260—40 R 8 Claims

1. A thermoplastic molding composition which comprises:

(a) from 95 to 75 parts by weight of poly(1,4-butylene terephthalate); and

(b) from 5 to 25 parts by weight of a thermoplastic poly(ester-urethane) elastomer.

4,279,802

METHOD FOR THE PRODUCTION OF A PIGMENT PREPARATION FOR COLORING LINEAR POLYESTERS IN THE MELT

Andreas Laely, Allschwil; Günther Zwahlen, Dornach, both of Switzerland, and Lothar Buxbaum, Lindenfels, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,426

Claims priority, application Switzerland, Aug. 1, 1978, 8218/78; Jun. 21, 1979, 5803/79

Int. Cl.³ C08L 67/00

U.S. Cl. 260—40 P 8 Claims

1. A method for the production of a pigment preparation for colouring linear polyesters in the melt, which comprises forming a concentrate from 20 to 80 parts of pigment and 80 to 20 parts of a linear thermoplastic polyester comprising a polycondensate of dicarboxylic acids with diols, said acids of aromatic, aliphatic or mixtures thereof which melts between 60° and 160° C., by kneading in the presence of an organic or inorganic salt and a solvent which serves to increase the distribution of the pigment in the thermoplastic polyester and at least partially solubilize said polyester, mixing said concentrate with a fiber forming linear polyester comprising a polycondensate of terephthalic acid, esters thereof, or mixtures of terephthalic acid and other dicarboxylic acids, with a glycol of the formula $HO-(CH)_n-OH$(n=2–10), 1,4-di(hydroxymethyl)cyclohexane, or mixtures of said glycols with other diols, or a polycondensate of a glycol ether of a hydroxybenzoic acid, melting the concentrate-polyester mixture and processing it to granules.

4,279,803

POLYESTER OF PHENYL-4-HYDROXYBENZOIC ACID AND 4-HYDROXYBENZOIC ACID AND/OR 6-HYDROXY-2-NAPHTHOIC ACID CAPABLE OF FORMING AN ANISOTROPIC MELT

Gordon W. Calundann, N. Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

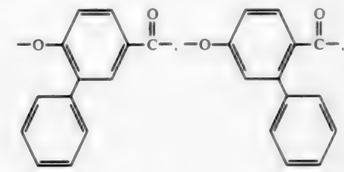
Filed Mar. 10, 1980, Ser. No. 128,778

Int. Cl.³ C08L 67/04

U.S. Cl. 260—40 P 39 Claims

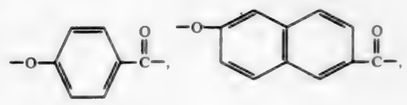
1. A melt processable wholly aromatic polyester capable of forming an anisotropic melt phase at a temperature below approximately 350° C. consisting essentially of moieties I and II wherein:

I is selected from the group consisting of:



and mixtures thereof, and

II is selected from the group consisting of:



and mixtures thereof,

wherein moiety I is present in a concentration of approximately 20 to 90 mole percent, and moiety II is present in a concentration of approximately 10 to 80 mole percent, and wherein the total molar concentration of moieties I and II in said wholly aromatic polyester is at least 90 percent.

4,279,804

PIPERIDINE COMPOUNDS AND THEIR USE AS STABILIZERS FOR SYNTHETIC POLYMERS

Giuseppe Cantatore, Casalecchio Di Reno, and Paolo Casandrini, Bologna, both of Italy, assignors to Chimosa Chimica Organica S.p.A., Italy

Filed Mar. 13, 1979, Ser. No. 20,088

Claims priority, application Italy, Jul. 28, 1978, 26239 A/78

Int. Cl.³ C07D 239/04

U.S. Cl. 260—45.8 N 16 Claims

1. Compound of formula

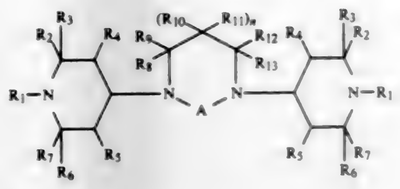
4,279,805

ALKYLENE-BIS-THIOALKANOIC ACID AMIDE STABILIZERS FOR SYNTHETIC RESINS AND SYNTHETIC RESIN COMPOSITIONS CONTAINING THE SAME

Toshio Ohzeki, Urawa, and Takanori Semba, Matsudo, both of Japan, assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Filed Dec. 7, 1979, Ser. No. 101,300
Claims priority, application Japan, Jan. 10, 1979, 54-1932
Int. Cl.³ C08K 5/20; C07C 103/38
U.S. Cl. 260—45.9 NC 36 Claims

1. Alkylene bis-thioalkanoic acid amide stabilizers having the formula:



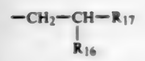
(I)

in which:

R_1 represents hydrogen, —0', —CN, a linear or branched alkyl containing 1 to 20 carbon atoms, an alkenyl or alkinyl containing 2 to 20 carbon atoms, benzyl, benzyl substituted by 1 to 3 alkyls containing 1 to 4 carbon atoms, hydroxybenzyl, hydroxybenzyl substituted by 1 to 3 alkyls containing 1 to 4 carbon atoms; or

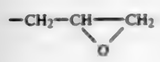
a —COR_{14}, —$COOR_{14}$, —CH_2COOR_{14} or —$CONR_{14}R_{15}$ radical in which R_{14}, R_{15}, which can be equal or different, represent a linear or branched alkyl containing 1 to 20 carbon atoms, an alkenyl containing 2 to 20 carbon atoms, a cycloalkyl containing 5 to 12 carbon atoms, phenyl, phenyl substituted by 1 to 3 alkyls containing 1 to 8 carbon atoms, hydroxyphenyl, hydroxyphenyl substituted by 1 to 3 alkyls containing 1 to 4 carbon atoms, an aralkyl containing 7 to 12 carbon atoms, or when bonded to N they can be hydrogen, or together with the N to which they are bonded they can form from five to eight membered nitrogenous containing heterocyclic rings or

a



radical in which R_{16} is hydrogen or methyl, and R_{17} is —OH, —OR_{14}, —$OCOR_{14}$ or —$CONR_{14}R_{15}$, in which R_{14} and R_{15} are always as heretofore defined; or

a



radical;

R_2, R_3, R_6, R_7, which can be equal or different, represent an alkyl containing 1 to 6 C atoms;

R_4, R_5, which can be equal or different, represent hydrogen or an alkyl containing 1 to 6 C atoms;

R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, which can be equal or different, represent hydrogen or an alkyl containing 1 to 6 carbon atoms; n is zero or 1;

A represents >C=O, >C=S, or >CH—R_{18} in which R_{18} is hydrogen, an alkyl containing 1 to 20 carbon atoms, a cycloalkyl containing 5 to 12 carbon atoms, phenyl, a hydroxyphenyl, a hydroxyphenyl substituted by 1 to 3 alkyls containing 1 to 4 carbon atoms, benzyl, or benzyl substituted by 1 to 3 alkyls containing 1 to 4 carbon atoms.



wherein

R_1 is alkyl having from one to about fifty carbon atoms;

R_2 is alkylene having from one to about three carbon atoms; and

R_3 is alkylene having from two to about twelve carbon atoms.

17. A polyvinyl chloride resin composition having improved resistance to deterioration when heated at 350° F., comprising a polyvinyl chloride resin and an alkylene bis-thioalkanoic acid amide stabilizer in accordance with claim 1.

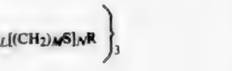
4,279,806

ANTIMONY MERCAPTIDES AS PROCESSING STABILIZERS FOR VINYL HALIDE RESINS

Charles N. Muldrow, Jr., East Windsor, N.J., assignor to Associated Lead Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 936,121, Aug. 23, 1978, abandoned. This application Aug. 8, 1979, Ser. No. 63,597
Int. Cl.³ C08K 5/59; C07D 9/90
U.S. Cl. 260—45.75 B 8 Claims

1. A vinyl halide resin composition comprising a vinyl halide resin and a stabilizer composition which comprises an antimony mercaptide having the following formula:



wherein

K is 1 to 4;

L is 0 to 1;

M is 1 to 4;

N is 1 to 4;

R is an alkyl, alkenyl or alkynyl having 1 to 18 carbon atoms and combinations thereof.

3. A vinyl halide resin composition comprising a vinyl halide resin and a stabilizer which comprises an antimony mercaptide of the following formula:

wherein

K is 1 to 4;

M is 1 to 4;

N is 1 to 4;

R is an alkyl, alkenyl or alknyl having 1 to 18 carbon atoms and combinations thereof.

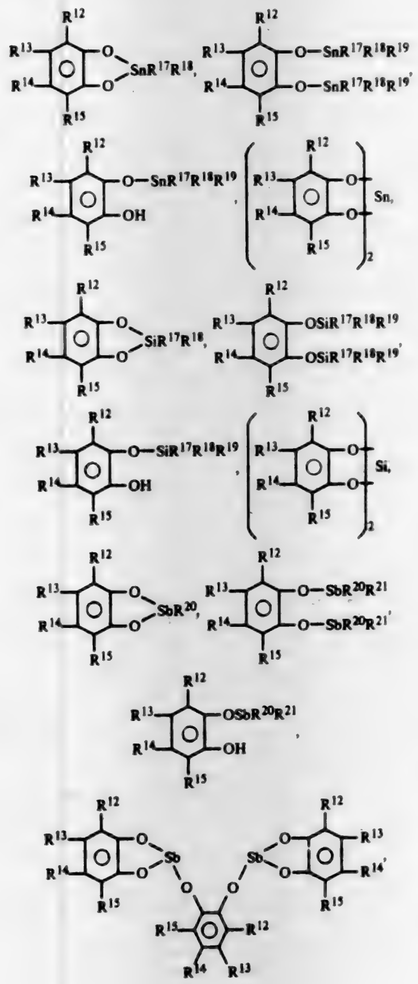
4,279,807

SYNERGISTIC HEAT STABILIZER COMPOSITIONS CONTAINING AN ANTIMONY OR A BISMUTH COMPOUND

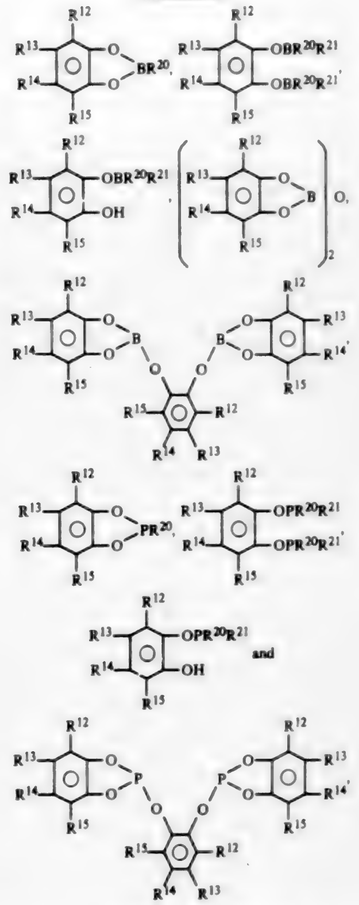
Robert D. Dworkin, Old Bridge, N.J., assignor to M&T Chemicals Inc., Woodbridge, N.J.

Division of Ser. No. 72, Jan. 2, 1979, Pat. No. 4,231,895. This application Dec. 13, 1979, Ser. No. 103,364
Int. Cl.³ C08K 5/57, 5/56, 5/53, 5/52, 5/36, 5/13
U.S. Cl. 260—45.75 B 13 Claims

1. A vinyl halide resin composition comprising a vinyl chloride resin, an effective amount of a heat stabilizer for said resin and a synergistically effective amount of a synergist for said heat stabilizer, wherein the heat stabilizer exhibits the general formula MX_3 wherein M is antimony or bismuth and X represents the residue obtained by removing (1) the hydrogen atom from a carboxy (—COOH) group of a mono- or polycarboxylic acid or (2) the hydrogen atom from the sulfur atom of a mercaptan, mercaptoacid ester or mercaptoalkanol ester, and the synergist exhibits a general formula selected from the group consisting of



-continued



wherein R^{12}, R^{13}, R^{14} and R^{15} are individually selected from the group consisting of hydrogen, halogen, amine, nitro, nitroso, sulfonyl, hydroxymethylene, alkyl containing from 1 to 20 carbon atoms and aryl, R^{17}, R^{18} and R^{19} are individually selected from the group consisting of alkyl, aryl, alkaryl and aralkyl wherein any alkyl group or the alkyl portion of any alkaryl or aralkyl group contains from 1 to 20 carbon atoms, and R^{20} and R^{21} are individually selected from the group consisting of hydroxyl, alkoxy and aryloxy.

4,279,808

POLYBROMOSTYRENE RESIN

Edwin D. Hornbaker, and Allan A. Eisenbraun, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Feb. 14, 1980, Ser. No. 121,311
Int. Cl.³ C08F 275/00; C08K 3/22; C08L 51/00
U.S. Cl. 260—45.75 B 15 Claims

1. Moldable, flame resistant thermoplastic resins formed by addition polymerization of

(a) monomers consisting of nuclear brominated styrenes in the presence of

(b) a rubbery polymer selected from the group consisting of a diene rubber and an ethyleneпropylene rubber,

the weight ratio of (a):(b) falling within the range of about 25:1 to 2:1.

11. A thermoplastic blend comprising on a weight basis:

(1) Between about 10 and about 70 parts of a moldable, flame resistant thermoplastic resin formed by addition polymerization of

(a) monomers consisting of nuclear brominated styrenes in the presence of

(b) a rubbery polymer selected from the group consisting of a diene rubber and an ethylenepropylene rubber, the weight ratio of (a):(b) falling within the range of about 25:1 to 2:1; and

(2) Between about 90 and about 30 parts of a high impact polystyrene.

14. The blend of claim **11** further including from about 1 to about 10 parts of a flame retardant synergist.

4,279,809

STABILIZED POLYOLEFIN COMPOSITIONS

John L. H. Allan, Glen Rock; Arnold B. Finestone, Woodcliff Lake, both of N.J., and John J. Roderick, Avon Lake, Ohio, assignors to El Paso Polyolefins Company, Paramus, N.J.

Filed Jul. 14, 1976, Ser. No. 705,303

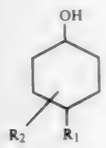
Int. Cl.[3] **C08L** *23/00*

U.S. Cl. 260—45.95 C **22 Claims**

1. The method of imparting stability to a mono-α-olefin polymer composition against copper-activated accelerated oxidative degradation, comprising:

incorporating into a mono-α-olefin polymer resin from about 0.1 to about 10 percent by weight based on the weight of the composition of a polymeric compound as the sole copper deactivating agent, which polymeric compound has been prepared by:

(a) reacting at least one para-substituted phenol of the formula:



wherein R_1 is a C_3–C_{30} group selected from alkyl, cycloalkyl, alkaryl or aryl and R_2 is either hydrogen, a sulfonic acid group or a sulfonic acid salt group, with an aldehyde or ketone of the formula:



wherein R_3 and R_4 independently from each other can be either hydrogen or a C_1–C_{36} group selected from alkyl, cycloalkyl, alkaryl or aryl, in a molar ratio of aldehyde or ketone to phenol of at least about 2:1 in the presence of an alkaline catalyst; and

(b) reacting the product of step (a) with hydrogen sulfide or a polysulfide of the formula:

$HS(R_5)SH$

wherein R_5 is a C_2–C_{20} group selected from alkylene, cycloalkylene, alkarylene or arylene, in about a 1:1 molar ratio of hydrogen sulfide or polysulfide to the phenol used in step (a).

4,279,810

EASILY SPLIT SUBSTRATES FOR THE QUANTIFICATION OF PROTEASES

Karl G. Claeson, Lidingö; Leif E. Aurell, Särö; Leif R. Simonsson, Hising Backa, and Salo Arielly, Kungsbacka, all of Sweden, assignors to Kabi AB, Stockholm, Sweden

Filed Jan. 29, 1979, Ser. No. 7,447

Claims priority, application Sweden, Feb. 7, 1978, 7801373

Int. Cl.[3] **C07C** *103/52;* **C01G** *3/00*

U.S. Cl. 260—112.5 R **14 Claims**

1. Easily splitable enzyme substrate suitable for the quantification of proteases having the general formula

$$R_1\text{-p-Glu}\text{—}A_1\text{—}A_2\text{—NH—}R_2$$

wherein

R_1 is H or a protective group;

A_1 is Gly, Ala, Val, Leu, Ile, Ser, Thr, Pro, Pip, Phe or Tyr;

A_2 is Arg or Lys; and

wherein —NH—R_2 is a chromogenic or fluorogenic group which is splittable by enzymatic hydrolysis to form a cleavage product of the formula H_2N—R_2 the amount of which can be quantified.

4,279,811

TREATMENT OF COTTONSEED MEALS FOLLOWED BY EXTRACTION WITH CERTAIN SOLVENTS TO REMOVE GOSSYPOL

Marie S. Gray, Harahan, and John P. Cherry, Slidell, both of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jun. 29, 1979, Ser. No. 53,474

Int. Cl.[3] **A23J** *1/14*

U.S. Cl. 260—123.5 **11 Claims**

1. A process for reducing total gossypol and in particular toxic free gossypol pigments in defatted cottonseed meal to a level acceptable for food and feed uses comprising the steps of:

(a) adding to a free gossypol containing defatted glanded cottonseed meal a humidifying agent selected from the group consisting of water, propylene glycol, and aqueous solutions of propylene glycol, methanol, ethanol, propanol, butanol, and methyl ethyl ketone in amounts sufficient to weaken and rupture gossypol glands;

(b) allowing the cottonseed meal containing the humidifying agent to stand for a time sufficient for said humidifying agent to weaken and rupture said gossypol glands;

(c) extracting the product of step (b) with methylene chloride sufficiently to obtain a free gossypol content of below about 0.045% by dry weight of meal; and

(d) desolventizing the product of step (c).

4,279,812

PROCESS FOR PREPARING MACROMOLECULAR BIOLOGICALLY ACTIVE COLLAGEN

Gheorghe Cioca, Belleview, N.J., assignor to Seton Company, Newark, N.J.

Filed Sep. 12, 1979, Ser. No. 74,738

Int. Cl.[3] **C07G** *7/00*

U.S. Cl. 260—123.7 **12 Claims**

1. A process of preparing macromolecular reconstituted collagen fiber comprising:

(a) treating natural insoluble collagen with an aqueous solution comprised of 0.5 to 1 molar of an alkali sulfate salt and 1.0 to 2.5 molar of an alkali metal hydroxide for at least 48 hours and up to 96 hours to saponify fats suspended within the natural insoluble collagen and to uniformly swell the collagen fibers;

(b) treating the fat free collagen with an aqueous solution comprised of an alkali metal sulfate for at least four hours to stabilize the interfibular bonds;

(c) dissolving the collagen in an aqueous solution; and

(d) freezing said solution to effect a temperature reduction rate of −18° C. to −24° C./hour to a temperature of −60° C. to −70° C.;

(e) vacuum drying said solution at 10^{-3} to 10^{-5} torr for at least 12 hours to obtain collagen having an average molecular weight of 383,000 to 460,000.

4,279,813

AQUEOUS PROCESS FOR THE PREPARATION OF AROMATIC PHOSPHORUS COMPOUNDS

Otto Schallner, and Rainer Hamprecht, both of Cologne, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 29, 1979, Ser. No. 43,496

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829710

Int. Cl.[3] **C09B** *43/00*

U.S. Cl. 260—163 **11 Claims**

1. In the preparation of a phosphorus-containing compound of the formula



(I)

by reacting a phosphorus compound of the formula



(II)

with an activated aromatic halogen compound of the formula

A—Hal (III)

wherein

A represents an aromatic radical substituted by substituents with positive Hammet σ-para values,

Hal represents halogen,

X and Y independently of one another represent —OR, —SR, —NR_2 or R,

R represents C_1–C_6-alkyl, C_1–C_6-alkyl substituted by C_1–C_4-alkoxy, phenyl or CN, cyclohexyl, cyclohexyl substituted by methyl or Cl, phenyl, or phenyl substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy, NO_2 or Cl,

Z represents —OR′, —SR, or —NR'_2 and

R′ represents H or R,

in the presence of a Cu-II salt, the improvement comprising carrying out the reaction in an aqueous solution at a pH of 6–9.

4,279,814

SALICYL PHENYL NAPHTHYL TRISAZO DI AND TRISULFONIC DEVELOPED DIRECT BLACK DYES

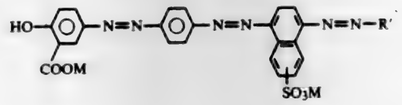
Howard L. Smith, Douglassville, Pa., assignor to Crompton & Knowles Corporation, New York, N.Y.

Filed Jun. 27, 1979, Ser. No. 52,622

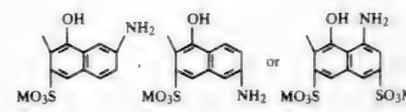
Int. Cl.[3] **C09B** *31/22, 33/22, 33/28;* **D06P** *3/32*

U.S. Cl. 260—173 **11 Claims**

1. A compound having the structure:



wherein R′ is



and where M is —H, —Na, —K, —Li or —$N(R)_3H$ and R represents the same or different substituents selected from the group —H, lower alkyl or lower hydroxyalkyl.

4,279,815

PRODUCTION OF HIGH-QUALITY AROMATIC AMINO AZO COMPOUNDS BY THE REARRANGEMENT OF 1,3-DIARYL TRIAZENES

Frank E. Herkes, 2530 Dartmouth Woods Rd., Wilmington, Del. 19810

Filed Jan. 9, 1979, Ser. No. 2,010

Int. Cl.[3] **C07C** *107/06, 115/00;* **C09B** *27/00*

U.S. Cl. 260—205 **10 Claims**

1. A method of preparing a carbocyclic aromatic amino azo compound with a high para/ortho isomer ratio and minimum formation of binuclear byproducts comprising contacting a strong acid at a temperature in the range of about from 50° C. to 120° C. with a solution separated from the gas/liquid product obtained by the treatment of an excess of a primary carbocyclic aromatic monoamine with a gas containing nitric oxide and nitrogen dioxide to effect the diazotization-coupling of said monoamine, said solution being substantially homogeneous at said temperature and containing said primary carbocyclic aromatic monoamine and up to about 30 percent by weight of a dissolved 1,3-diaryl triazene based on the weight of said solution, and the weight of said strong acid being about from 0.4 to 2.0 percent of the weight of said triazene-containing solution contacted therewith.

4,279,816

N-FORMYL LEUROSINE DERIVATIVES IN A DOSAGE FORM EFFECTIVE FOR TREATING LYMPHOID LEUKEMIA

Karola Jovanovics; Kalman Szasz; Bela Kellner; Laszlo Nemeth; Zsuzsa Relle; Emil Bittner; Eszter Dezseri, and Janos Eles, all of Budapest, Hungary, assignors to Richter Gedeon Vegyszeti Gyar Rt., Budapest, Hungary

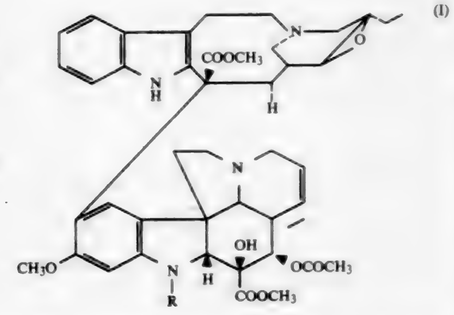
Division of Ser. No. 422,100, Dec. 5, 1973, Pat. No. 4,189,432.

This application Feb. 5, 1975, Ser. No. 547,374

Int. Cl.[3] **C07D** *519/04;* **A61K** *31/475*

U.S. Cl. 260—244.4 **2 Claims**

1. A compound of the formula I in a dosage form effective for treating lymphoid leukemia in a dosage of 0.3 to 5.0 mg/kg:



(I)

wherein R stands for formyl, or a pharmaceutically acceptable acid addition salt thereof, in pure crystalline form.

2. N-formyl-leurosine monosulfate in a dosage form effective for treating lymphatic leukemia in a dosage form of 0.3 to 5.0 mg/kg and in pure crystalline form.

4,279,817

METHOD FOR PRODUCING DIMER ALKALOIDS

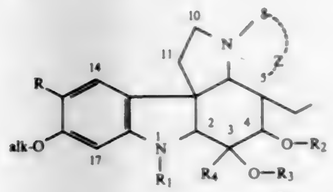
James P. Kutney, Vancouver, Canada, assignor to The United States of America as represented by the Department of Health & Human Services, Washington, D.C.

Filed May 30, 1975, Ser. No. 582,373

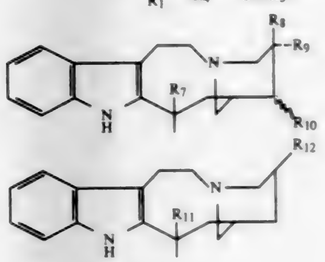
Int. Cl.³ C07D *519/04*

U.S. Cl. 260—244.4 **5 Claims**

1. A process for the production of compounds represented by the following formulas



I



II

III

wherein in Formula I

Alkyl=CH_3

R_1=CH_3

R_2=$COCH_3$

R_3=H

R^4=$COOCH_3$

Z=—CH=CH—

R=II or III

R^7=$COOCH_3$

R^8=H or C_2H_5

R^9=H or C_2H_5

R^{10}=H

R^{11}=$COOCH_3$

R^{12}=C_2H_5

wherein the process is for the synthesis of a dimer derived from an indole unit of the natural Iboga alkaloid family containing an aza bicyclo-octane portion and a dihydroindole unit of the natural Aspidosperma and Vinca alkaloid family, the stereochemistry of the carbon-carbon linkage between these units being identical with that of vinblastine which consists of

(a) forming an N-oxide intermediate in the cold at a temperature of −10° to +10° C. from said indole unit by oxidizing the bridge nitrogen and without isolating said intermediate;

(b) treating said N-oxide indole intermediate in the presence of one member of the group consisting of acetic anhydride, halogenated acetic anhydride, and acetyl chloride to effect a Polonovski-type fragmentation reaction;

(c) without isolating the product of step (b), coupling said reaction product with a dihydroindole unit in the presence of acetic anhydride, halogenated acetic anhydride, and acetyl chloride at a low temperature of about −10° C. to +10° C. under inert conditions; and

(d) subsequently, without isolating said coupled product, reducing the immonium nitrogen on the indole unit by reacting with aqueous alkali metal borohydride to produce the dimer,

in which the improvement comprises in step (a) the non-isolation of said intermediate.

4,279,818

SYN-ISOMERS OF 7-[2-ALKOXYIMINO-2-(2-AMINO-THIAZOL-4-YL)ACETAMIDO]-3-[NITROBENZOYL-, OR BENZOYL-OXYMETHYL]-3-CEPHEM-4-CARBOXYLIC ACID

Takao Takaya, Kawanishi; Takashi Masugi, Kitamachi; Hisashi Takasugi, Kohamanishi, and Hiromu Kochi, Sakai, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

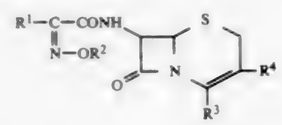
Continuation-in-part of Ser. No. 767,700, Feb. 11, 1977, Pat. No. 4,166,115. This application Mar. 20, 1978, Ser. No. 887,999

Claims priority, application United Kingdom, Apr. 12, 1976, 14916/76; Jun. 7, 1976, 23490/76; Japan, Oct. 19, 1976, 51-125826

Int. Cl.³ A61K *31/545*; C07D *501/34*

U.S. Cl. 424—246 **4 Claims**

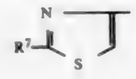
1. Syn-isomer of 3,7-disubstituted-3-cephem-4-carboxylic acid compounds of the formula:



II

in which

R^1 is



III

wherein R^7 is amino

R^2 is lower alkyl;

R^3 is carboxy; and

R^4 is benzoyloxymethyl or nitrobenzoyloxymethyl.

4. An antibacterial composition comprising a compound of claim 1 or pharmaceutically acceptable salt thereof in association with a pharmaceutically acceptable non-toxic carrier or excipient.

4,279,819

AMINOALKYL FURAN DERIVATIVES

Barry J. Price, Hertford; John W. Clitherow, Sawbridgeworth, and John Bradshaw, Ware, all of England, assignors to Allen & Hanburys Ltd., England

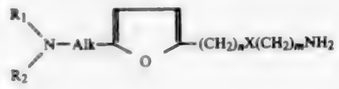
Division of Ser. No. 818,762, Jul. 25, 1977, Pat. No. 4,128,658. This application Oct. 13, 1978, Ser. No. 951,025

Claims priority, application United Kingdom, Aug. 4, 1976, 32465/76; Dec. 6, 1976, 50685/76; May 13, 1977, 20187/77

Int. Cl.³ C07D *307/52, 405/06*

U.S. Cl. 260—326.5 S **9 Claims**

1. A compound of the formula



(II)

wherein R_1 and R_2 independently represent hydrogen, alkyl of 1 to 3 carbon atoms or phenethyl;

X is —S—;

Alk denotes methylene;

m is 2 or 3; and

n is 1.

4,279,820

PROCESS FOR PREPARING 2-PYRROLIDONES

Johannes G. M. Nieuwkamp, Limbricht, Netherlands, assignor to Stamicarbon B.V., Geleen, Netherlands

Filed Mar. 27, 1980, Ser. No. 136,115

Claims priority, application Netherlands, Apr. 1, 1979, 7902537

Int. Cl.³ C07D *207/38*

U.S. Cl. 260—326.5 FM **10 Claims**

1. In a process for preparing 2-pyrrolidone comprising the steps of catalytically hydrogenating succinonitrile in the liquid phase, in the presence of ammonia, and then hydrolyzing the resulting reaciton product with water and thereafter recovering the 2-pyrrolidone product,

the improvement consisting essentially of conducting the hydrogenation step at a temperature between about 40° to 150° C. by passing succinonitrile, together with a stream of hydrogen at a partial hydrogen pressure of 100 to 35,000 kPa, through a fixed bed of nickel catalyst having a nickel content in the amount of from 5 to about 80% by weight, said catalyst carried on an alkaline carrier that is the oxide, hydroxide or carbonate of an alkaline earth metal, an alkali metal, thorium, zirconium or mixtures thereof.

4,279,821

PROCESS FOR PREPARING 3-AZABICYCLO(3.1.0)HEXANE-2-CARBOXYLIC ACID

Janet A. Day, Gillingham; Barry R. J. Devlin, Sittingbourne, and Robert J. G. Searle, Green, all of England, assignors to Shell Oil Company, Houston, Tex.

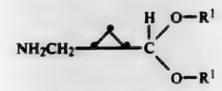
Division of Ser. No. 49,374, Jun. 18, 1979, Pat. No. 4,255,334. This application Jul. 7, 1980, Ser. No. 165,996

Claims priority, application United Kingdom, Jun. 27, 1978, 27978/78

Int. Cl.³ C07D *209/52*

U.S. Cl. 260—326.27 **2 Claims**

1. A process for preparing 3-azabicyclo(3.1.0)hexane-2-carboxylic acid which comprises treating at a temperature of from about 40° C. to about 120° C. a compound of the formula:



wherein each R^1 is alkyl and contains from one to four carbon atoms, said compound being in the cis-isomeric configuration, with a stoichiometric excess of up to about ten percent of a cyanide in the presence of at least the stoichiometric amount of an alkane carboxylic acid of from two to five carbon atoms and treating the resulting crude product containing the corresponding 3-alkanoyl-3-azabicyclo(3.1.0)hexane-2-carbonitrile with a stoichiometric amount of a strong inorganic acid.

4,279,822

N-(1-SUBSTITUTED-3-PYRROLIDINYL)BENZAMIDES

Albert D. Cale, Jr., Mechanicsville, and Charles A. Leonard, Richmond, both of Va., assignors to A. H. Robins Company, Inc., Richmond, Va.

Continuation of Ser. No. 658,990, Feb. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 518,125, Oct. 25, 1974, abandoned, which is a continuation of Ser. No. 340,417, Mar. 12, 1973, abandoned, which is a continuation-in-part of Ser. No. 240,840, Apr. 30, 1972, abandoned. This application Dec. 6, 1976, Ser. No. 747,762

Int. Cl.³ C07D *207/14*; A61K *31/40*

U.S. Cl. 260—326.47 **4 Claims**

1. N-(1-cyclohexyl-3-pyrrolidinyl)-4-acetamidobenzamide.

2. N-(1-cyclohexyl-3-pyrrolidinyl)-2-methoxy-5-sulfamoylbenzamide.

3. The fumarate salt of N-(1-cyclohexyl-3-pyrrolidinyl)-2-methoxy-4-amino-5-chlorobenzamide.

4. N-(1-cyclohexyl-3-pyrrolidinyl)-2-methoxy-4-amino-5-chlorobenzamide.

4,279,823

THALLATION CARBONYLATION OF ARENES

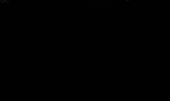
Richard C. Larock, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Dec. 11, 1979, Ser. No. 102,567

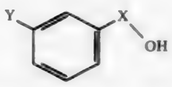
Int. Cl.³ C07D *307/83, 311/00*

U.S. Cl. 260—343.21 **10 Claims**

1. A process of synthesis of certain five membered ring lactones and six membered ring lactones of the formula:



said method comprising reacting an aryl alcohol of the formula:



with an electrophilic thallium salt in the presence of an organic solvent for said reactants to provide an arylthallium intermediate compound; and

carbonylating under a substantially ambient pressure and temperature, said arylthallium compound by reacting with carbon monoxide in the presence of an inorganic alkali metal halide salt and magnesium oxide and a catalytically effective amount of noble metal carbonylation catalysts to provide said lactones,

with Y being the same in both the starting aryl alcohol and the lactone, and being selected in each instance from the group of hydrogen, methoxy and hydroxy,

with X being selected from the group consisting of methylene, dimethylene, cis-cyclohexyl and trans-cyclohexyl.

4,279,824

METHOD AND APPARATUS FOR PROCESSING HERBACEOUS PLANT MATERIALS INCLUDING THE PLANT CANNABIS

Laurence O. McKinney, 881 Massachusetts Ave., Cambridge, Mass. 02139

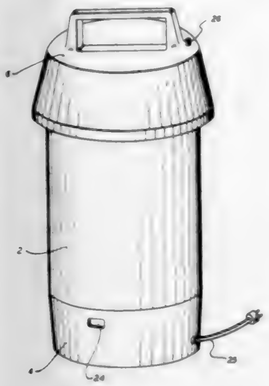
Filed Nov. 1, 1979, Ser. No. 90,375

Int. Cl.³ C07D *311/78*

U.S. Cl. 260—345.3 **10 Claims**

1. A method of treating a plant material consisting essentially of the plant cannabis, which contains a chemical ingredi-

ent comprising an organic carboxylic acid, which method comprises placing the plant material in a fluid medium which is essentially non-oxidizing to said plant material, and heating said plant material while in said fluid medium at a temperature



of from about 95° C. to about 120° C. to cause the decarboxylation of said carboxylic acid, whereby said plant material contains the maximum possible amount of delta-9-tetrahydrocannabinol.

4,279,825

PROCESS FOR THE PREPARATION OF 1,4-DIAMINOANTHRAQUINONE-2,3-DISULPHONIC ACID

Reinold Schmitz, Odenthal, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 83,131

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846622

Int. Cl.[3] **C07L** *143/665*

U.S. Cl. 260—371 **5 Claims**

1. A process for the preparation of 1,4-diaminoanthraquinone-2,3-disulphonic acid consisting of reacting 1,4-diamino-2,3-dichloroanthraquinone with boric acid in the absence of any additional condensation agent, and treating the reaction product with an alkali metal sulphite.

4,279,826

23,25-DIHYDROXYVITAMIN D_3

Hector F. DeLuca; Heinrich K. Schnoes; Yoko Tanaka, and Joseph K. Wichmann, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Sep. 22, 1980, Ser. No. 189,481

Int. Cl.[3] **C07J** *9/00*

U.S. Cl. 260—397.2 **1 Claim**

1. 23,25-dihydroxyvitamin D_3.

4,279,827

PROCESS FOR THE PREPARATION OF A β-SITOSTEROL CONCENTRATE CONTAINING LESS THAN 5% BY WEIGHT OF α-SITOSTEROL

Keijo A. Ukkonen, and Esa J. Simpura, both of Lappeenranta, Finland, assignors to Oy Kaukas AB, Lappeenranta, Finland

Filed Oct. 23, 1979, Ser. No. 87,517

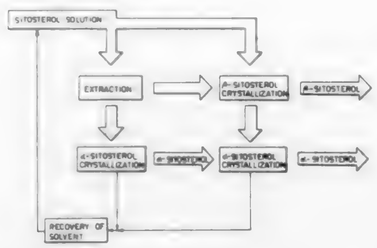
Claims priority, application Finland, Oct. 27, 1978, 783279

Int. Cl.[3] **C07J** *9/00*

U.S. Cl. 260—397.25 **4 Claims**

1. A process for the removal of α-sitosterol from sitosterol concentrates based on plants to obtain a β-sitosterol concentrate containing less than 5% by weight of α-sitosterol, comprising dissolving a sitosterol concentrate containing β-sitosterol and more than 5% by weight of a α-sitosterol, in a solvent mixture consisting essentially of

30–90 parts by weight of hexane
5–30 parts by weight of xylene
2–10 parts by weight of ethyl acetate
0–2 parts by weight of water



0–2 parts by weight of acetic acid
0–2 parts by weight of methanol
0–5 parts by weight of acetone, and

cooling the resultant solution to about 5° C. thereby to separate by crystallization from said resultant solution β-sitosterol containing less than 5% by weight of α-sitosterol.

4,279,828

PROCESS FOR SEPARATING 3-HYDROXY STEROIDS OR STEROLS FROM MIXTURES SUCH AS LIPIDS

Charles H. Foster, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 13, 1980, Ser. No. 159,095

Int. Cl.[3] **C07J** *9/00*

U.S. Cl. 260—397.25 **9 Claims**

1. A process for separating 3-hydroxy steroids from sterol-lipid containing mixtures comprising combining a solution of the sterol-containing mixture in an aliphatic solvent with a slurry or solution of $CaCl_2$ in an aliphatic solvent and agitating said combined solutions for a sufficient time to provide sterol $-CaCl_2$ complexes, removing said aliphatic solvent, washing said residue with a hydrocarbon solvent and recovering said sterol $-CaCl_2$ complex.

4,279,829

METAL COMPLEX CATALYSTS

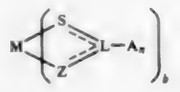
Louis J. Velenyi, Lyndhurst; Christos Paparizos, Cleveland, and Serge R. Dolhyj, Parma, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 973,070, Dec. 26, 1978. This application Oct. 31, 1979, Ser. No. 90,161

Int. Cl.[3] **C07F** *3/06*

U.S. Cl. 260—429.9 **12 Claims**

1. A catalyst represented by the formula:



wherein

M is a positively charged metal or metal compound;
Z is S, O, P, S—P or S—S;
L is C, P or N;
A is one or more of the groups consisting of halogen; hydrogen; $C_{1\text{-}30}$ alkoxy; $N{-}R_2$ wherein R is selected from the group consisting of H, $C_{1\text{-}30}$ alkyl and phenyl or phenyl substituted with one or more $C_{1\text{-}20}$ alkyl and $C_{1\text{-}20}$ alkoxy; and $C_{1\text{-}30}$ hydrocarbon groups or $C_{1\text{-}30}$ hydrocarbon groups substituted with one or more substituents selected from the group consisting of halogen, $C_{1\text{-}12}$ hydroxy groups, $C_{1\text{-}12}$ acid groups, $C_{1\text{-}12}$ aldehyde groups, $C_{1\text{-}12}$ ketone groups, and $C_{1\text{-}10}$ nitrile groups; and

wherein

n is 1 or 2; and
b is 1, 2 or 3;
with the proviso that when Z is S or O, then A is one or more of the group consisting of halogen; hydrogen; NH_2; and $C_{1\text{-}30}$ hydrocarbon groups or $C_{1\text{-}30}$ hydrocarbon groups substituted with one or more substituents selected from the group consisting of halogen, $C_{1\text{-}12}$ hydroxy groups, $C_{1\text{-}12}$ acid groups, $C_{1\text{-}12}$ aldehyde groups, $C_{1\text{-}12}$ ketone groups, and $C_{1\text{-}10}$ nitrile groups.

4,279,830

CONVERSION OF SYNTHESIS GAS TO HYDROCARBON MIXTURES UTILIZING DUAL REACTORS

Werner O. Haag, Lawrenceville, and Tracy J. Huang, Trenton, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 826,487, Aug. 22, 1977, Pat. No. 4,159,995. This application Jun. 1, 1979, Ser. No. 44,872

The portion of the term of this patent subsequent to Jul. 3, 1996, has been disclaimed.

Int. Cl.[3] **C07L** *1/04*

U.S. Cl. 518—700 **11 Claims**

1. In a process for converting syngas to carbon compounds comprising oxygenates and hydrocarbon products wherein syngas is contacted with an iron-containing Fischer-Tropsch catalyst at a temperature with the range of 400° to 600° F. and a pressure within the range of 1–1500 psig so as to achieve high conversion of said syngas to substantial amounts of C_3+ carbon compounds comprising no more than 20% methane plus ethane, and all or a portion of the product of said syngas conversion is passed in contact with an acidic crystalline zeolite having a pore dimension greater than 5 Angstroms, a silica-to-alumina ratio of at least 12, and a constraint index within the range of 1–12 at a temperature of 530°–850° F., a pressure from about 1 atmosphere to about 800 psig, and at a space velocity of from about 0.2 to 30 WHSV so as to promote the formation of gasoline and distillate materials; the improvement which comprises increasing the rate of syngas conversion by maintaining a H_2/CO ratio in the range of 0.5 to 1 and achieving an overall syngas conversion of greater than 60%.

4,279,831

2-CHLORO-2-ALKYL SUBSTITUTED ASYMMETRICAL DIACYL PEROXIDES

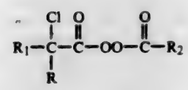
Reidar Halle, Novato; David Peterson, Hercules, and Roger N. Lewis, Martinez, all of Calif., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Filed Aug. 10, 1979, Ser. No. 65,410

Int. Cl.[3] **C07C** *179/14*

U.S. Cl. 260—453 RZ **10 Claims**

1. An organic peroxide of the formula:



where R and R_1 are alkyl which together contain up to about 10 carbon atoms, and R_2 is an alkyl group having up to about 18 carbon atoms.

4,279,832

PROCESS FOR THE PRODUCTION OF ISOCYANATOARYL SULFONIC ACIDS

Dieter Dieterich, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 23, 1980, Ser. No. 171,562

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1979, 2932094

Int. Cl.[3] **C07C** *118/00, 143/24;* **C07D** *229/00*

U.S. Cl. 260—453 P **7 Claims**

1. A process for the production of isocyanatoaryl sulfonic acids comprising:

(a) reacting a mixture of reaction components comprising:
  (i) aromatic carbamic acid chlorides,
  (ii) sulfur trioxide or chlorosulfonic acid, at a temperature of from −10° C. to 140° C. to produce sulfonic acids with carbamic acid chloride groups;
(b) converting said carbamic acid chloride groups into isocyanate groups by heating to a temperature of 40° C. to 180° C. with the evolution of hydrogen chloride; and optionally,
(c) neutralizing at least some of the sulfonic acid groups present with an inorganic or organic base forming sulfonate groups.

4,279,833

ACRYLIC MONOMERS CONTAINING CARBAMATE FUNCTIONALITY

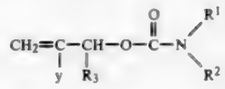
Billy M. Culbertson, Worthington, and Larry K. Post, Columbus, both of Ohio, assignors to Ashland Chemical Company, Columbus, Ohio

Filed Dec. 17, 1979, Ser. No. 103,971

Int. Cl.[3] **C07C** *125/065, 125/073*

U.S. Cl. 260—464 **11 Claims**

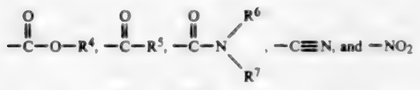
1. A compound having the formula:



whereiN R^1 and R^2 are selected from the group consisting of hydrogen, alkyl, cycloalkyl, dicycloalkyl, aryl, aralkyl, and alkaryl; and

wherein R^3 is selected from the group consisting of: alkyl, alkaryl, aralkyl and aryl; and

wherein y is selected from the group consisting of:



wherein R^4, R^5, R^6 and R^7 are selected from the group consisting of: alkyl, cycloalkyl, aryl, aralkyl, alkaryl, halogen substituted aryl and alkoxyaryl.

4,279,834

METHOD FOR SYNTHESIZING DINITRILES, PRODUCTS OBTAINED THEREBY AND THEIR DERIVATIVES

Aldo Prevedello, San Donato Milanese; Maurizio Brunelli, Milan, and Edoardo Platone, Asti, all of Italy, assignors to Anic S.p.A., Palermo, Italy

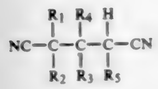
Continuation of Ser. No. 899,797, Apr. 25, 1978, abandoned. This application Jan. 17, 1980, Ser. No. 113,093

Claims priority, application Italy, Apr. 26, 1977, 22806 A/77; Feb. 24, 1978, 20560 A/78

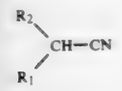
Int. Cl.[3] **C07C** *120/00, 121/46, 121/20, 121/26*

U.S. Cl. 260—464 **7 Claims**

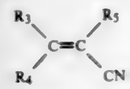
1. A method of preparing a dinitrile compound represented by the formula:



when a saturated nitrile represented by the formula:



is reacted with an unsaturated nitrile represented by the formula:



and wherein R_1 and R_2 are the same or different and are selected from the group consisting of hydrogen, an aliphatic hydrocarbon radical which may be substituted with a cycloaliphatic hydrocarbon radical and a cycloaliphatic hydrocarbon radical, R_3 and R_4 are the same or different and are selected from the group consisting of an aliphatic hydrocarbon radical which may be substituted with a cycloaliphatic hydrocarbon radical and a cycloaliphatic hydrocarbon radical, and R_5 is selected from the group consisting of hydrogen, an aliphatic hydrocarbon radical, cyclopropyl or phenyl, said method comprising

(a) contacting said saturated nitrile with a strong base in an amount from 1 to 5 mols of strong base per mol of said saturated nitrile in the presence of a solvent selected from the group consisting of ammonia, ethylether, tetrahydrofuran, and hexane to form a reaction mixture whereby said saturated nitrile is ionized,

(b) reacting said unsaturated nitrile with said ionized saturated nitrile for one to 60 minutes to form a second reaction mixture, and

(c) adding an acid or a salt of a strong acid and a weak base to said second reaction mixture to thereby stop the reaction,

and wherein said method is conducted at a temperature of from −80° C. to −10° C.

4,279,835

NOVEL CYCLOPROPANE CARBOXYLIC ACID ESTERS

Jacques Martel, Bondy; Jean Tessier, Vincennes, and Jean-Pierre Demoute, Montreuil-sous-bois, all of France, assignors to Roussel Uclaf, Paris, France

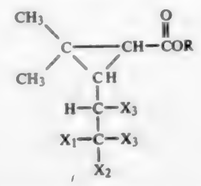
Continuation-in-part of Ser. No. 834,659, Sep. 19, 1977, abandoned, and Ser. No. 5,375, Jan. 22, 1979, abandoned. This application May 14, 1979, Ser. No. 38,728

Claims priority, application France, Sep. 21, 1976, 76-28279; Jul. 19, 1977, 77 22078; Mar. 17, 1978, 78 07780

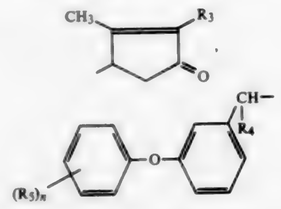
Int. Cl.[3] **C07C** *69/74;* **A01N** *53/00*

U.S. Cl. 260—465 D **16 Claims**

1. A compound of the formula



wherein X_1 is selected from the group consisting of hydrogen, fluorine, chlorine and bromine, X_2 is selected from the group consisting of fluorine, chlorine and bromine, X_3 is selected from the group consisting of chlorine, bromine and iodine and R is selected from the group consisting of



and benzyl optionally substituted with at least one member of the group consisting of alkyl of 1 to 4 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkenyloxy of 2 to 6 carbon atoms, alkadienyl of 4 to 8 carbon atoms, methylenedioxy, benzyl and halogens, R_3 is an aliphatic of 2 to 6 carbon atoms having at least one double bond, R_4 is selected from the group consisting of hydrogen, —CN and —C|CH, R_5 is selected from the group consisting of chlorine and methyl, n is 0,1 or 2.

4,279,836

HYDROXAMIC ACID DERIVATIVE AND METHOD OF PREPARING METOCLOPRAMIDE USING SAME

Joji Nishikido, Fuji; Yobei Fukuoka, Kurashiki, and Nobuhiro Tamura, Chigasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

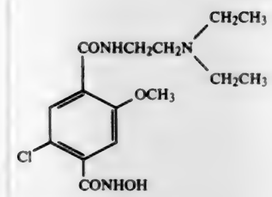
Filed May 14, 1979, Ser. No. 38,696

Claims priority, application Japan, May 12, 1978, 53/55675

Int. Cl.[3] **C07C** *83/02, 101/02, 103/26*

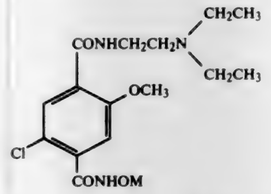
U.S. Cl. 260—500.5 H **19 Claims**

1. 2-Chloro-4-N-(β-diethylaminoethyl)aminocarbonyl-5-methoxybenzhydroxamic acid of the formula (I),



(I)

or its metal salt of the formula (II),



(II)

wherein M is an alkali metal or an alkaline earth metal.

C. in an aqueous solution of a mineral acid having a concentration of from 5 to 30% by weight to form said ester compound.

4,279,837

PROCESS FOR THE PREPARATION OF ALKALINE EARTH METAL SALTS OF ALKYL BENZENESULFONIC ACIDS

Werner Wellbrock, Bad Soden am Taunus, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 28, 1980, Ser. No. 125,462

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, 2908265

Int. Cl.[3] **C07C** *143/24*

U.S. Cl. 260—505 N **2 Claims**

1. Process for the preparation of alkaline earth metal salts of alkyl benzene sulfonic acids by the neutralization of alkyl benzenesulfonic acids, which comprises neutralizing the alkyl benzene sulfonic acid with the necessary amount of a basic alkaline earth metal compound in an inert organic solvent and in the presence of 1 to 10% by weight of an oxalkylate, calculated on the weight of the alkyl benzene sulfonic acid.

4,279,838

PROCESS FOR THE PREPARATION OF AMINOARYL THIOPHOSPHATES AND AMINOARYL PHOSPHATES

Ryuichi Yamamoto, Shirogane, and Masaaki Torisu, Suwa, both of Japan, assignors to Mitsui Toatsu Chemicals Inc., Tokyo, Japan

Filed Feb. 12, 1980, Ser. No. 120,863

Claims priority, application Japan, Apr. 16, 1979, 54-45315; May 17, 1979, 54-59694; Aug. 31, 1979, 54-110263

Int. Cl.[3] **C07F** *9/09, 9/165*

U.S. Cl. 260—968 **15 Claims**

1. A process for the preparation of an ester compound selected from the group consisting of tris(aminoaryl)thiophosphates and tris(aminoaryl)phosphates which comprises the steps of

(a) reacting an N-acetylaminophenol with phosphorus oxychloride or phosphorus thiochloride in a molar ratio of 2.5 to 3.5:1, in the presence of an alkali metal hydroxide or carbonate, water and an inert organic solvent selected from the group consisting of aliphatic ketones and ethers, at a temperature of 80° C. or below to form tris-(acetylaminoaryl)thiophosphate or tris(acetylaminoaryl)-phosphate; and

(b) hydrolyzing said tris(N-acetylaminoaryl)thiophosphate or tris(N-acetylaminoaryl)phosphate by heating it without separation treatment at a temperature of from 50° to 100°

4,279,839

PROCESSES FOR MAKING PHOSPHORUS CONTAINING AMINOTHIOCARBAMOYL HALIDES

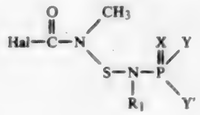
Stephen J. Nelson, Comstock Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 43,276, Jun. 1, 1979, Pat. No. 4,234,521. This application Mar. 21, 1980, Ser. No. 132,639

Int. Cl.[3] **C07F** *9/24;* **C07C** *125/03*

U.S. Cl. 260—968 **37 Claims**

1. A process for preparing compounds having the formula:



II

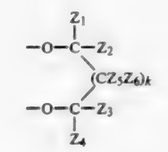
wherein Hal is selected from the group consisting of fluoro, and chloro; R_1 is selected from the group consisting of loweralkyl, phenyl, substituted phenyl, phenyl loweralkyl, and cycloalkyl; X is oxygen or sulfur; Y and Y′ are the same or different and are selected from the group consisting of:

Y_1 and Y_1' I$_1$

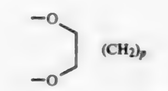
and

Y and Y′

taken together to form a radical selected from the group consisting of:

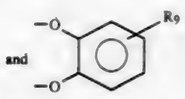


I′



I″

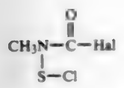
and



I‴

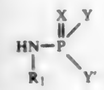
wherein Y_1 and Y_1' are selected from the group consisting of lower-alkyl, lower-alkoxy, lower-alkylthio, cycloalkyl, phenyl, substituted phenyl, phenoxy, substituted phenoxy, thiophenoxy, and substituted thiophenoxy; Z_1 through Z_6 are the same or different and are selected from the group consisting of hydrogen, methyl and ethyl; and k is 0 or 1, p is three or four and R_9 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen; which comprises:

reacting N-chlorothio-N-methylcarbamoyl fluoride having the formula:



IV

and a phosphoramide having the formula:



wherein Hal, R_1, X, Y and Y' are the same as above.

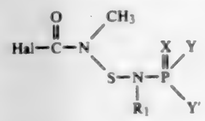
4,279,840

PROCESSES FOR MAKING PHOSPHORUS CONTAINING AMINOTHIOCARBAMOYL HALIDES

Stephen J. Nelson, Comstock Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 43,276, Jun. 1, 1979, Pat. No. 4,234,521. This application Mar. 21, 1980, Ser. No. 132,640
Int. Cl.³ C07F 9/24; C07C 125/03
U.S. Cl. 260—968 **37 Claims**

1. A process for preparing compounds having the formula



II

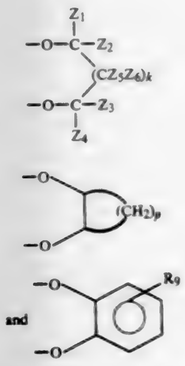
wherein Hal is selected from the group consisting of fluoro and chloro; R_1 is selected from the group consisting of loweralkyl, phenyl, substituted phenyl, phenyl lower-alkyl, and cycloalkyl; X is oxygen or sulfur; Y and Y' are the same or different and are selected from the group consisting of:

Y_1 and Y_1' I_1

and

Y and Y'

taken together to form a radical selected from the group consisting of:



I'

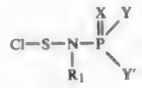
I''

and

I'''

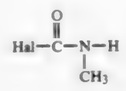
wherein Y_1 and Y_1' are selected from the group consisting of lower-alkyl, lower-alkoxy, lower-alkylthio, cycloalkyl, phenyl, substituted phenyl, phenoxy, substituted phenoxy, thiophenoxy, and substituted thiophenoxy; Z_1 through Z_6 are the same or different and are selected from the group consisting of hydrogen, methyl and ethyl; and k is 0 or 1, p is three or four and R_9 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen; which comprises:

reacting a compound having the formula:



III

wherein R_1, X, Y and Y' are the same as above, with N-methylcarbamoyl halide having the formula:



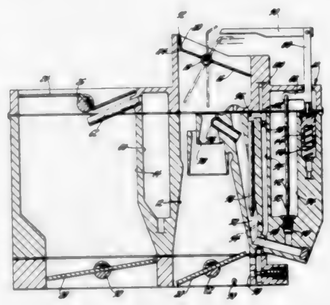
wherein Hal, R_1, X, Y and Y' are as defined above.

4,279,841

CARBURETOR WITH IMPROVED CHOKE MECHANISM

Ernest R. Stettner, Spencerport, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 9, 1979, Ser. No. 65,133
Int. Cl.³ F02M 7/20
U.S. Cl. 261—23 A **5 Claims**



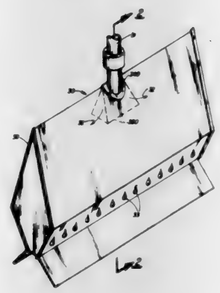
1. A carburetor comprising an induction passage, a fuel passage extending to a fuel nozzle opening into said induction passage, a metering apparatus movable between a lean position restricting flow through said fuel passage and a rich position permitting increased flow through said fuel passage, and a choke mechanism including a choke plate in said induction passage upstream of said nozzle and movable from a wide open position for decreasing the pressure adjacent said nozzle and thus effecting increased fuel flow from said nozzle, wherein said choke mechanism includes a driver mechanically connected to said choke plate and operable both in a cold enrichment region and in a closed loop region for moving said choke plate from its wide open position, and wherein said choke mechanism further includes a stop member physically engaged by said metering apparatus for limiting movement of said metering apparatus toward said rich position when said driver is operating in said closed loop region but not when said driver is operating in said cold enrichment region, whereby said driver may be operated in said closed loop region for both effecting increased fuel flow from said nozzle and limiting movement of said metering apparatus toward said rich position and in said cold enrichment region for effecting increased fuel flow from said nozzle without limiting movement of said metering apparatus toward said rich position.

4,279,842

AIR DIFFUSER ASSEMBLY

Robert E. Belveal, New Iberia, La., assignor to Houston Systems Manufacturing Co., Inc., Houston, Tex.

Continuation-in-part of Ser. No. 60,844, Jul. 26, 1979. This application Jul. 17, 1980, Ser. No. 169,620
Int. Cl.³ B01F 5/06
U.S. Cl. 261—124 **9 Claims**



1. An air diffuser assembly comprising:

a. an aerator body comprising a plurality of side walls connected to form an enclosure, and at least a pair of intersecting angularly oriented side walls forming an air container envelope for retaining an air volume therewithin;

b. an air inlet adapted to convey air into said air body at said air container envelope;

c. a plurality of tear-shaped openings being provided in said body below said air container envelope allowing air to discharge from said body through said tear-shaped openings, each of said tear-shaped openings providing an upper pointed portion which minimizes bubble-size of air discharged through said openings, and a lower circular portion communicating with said upper pointed portion, forming together said tear-shaped opening.

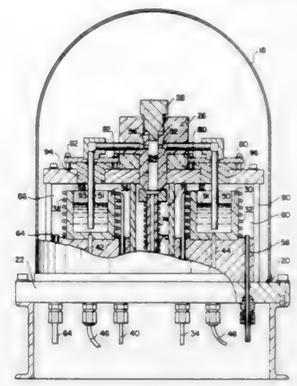
4,279,843

PROCESS FOR MAKING UNIFORM SIZE PARTICLES

Nam P. Suh, Sudbury, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 78,320, Sep. 24, 1979, abandoned. This application Mar. 26, 1980, Ser. No. 134,181
Int. Cl.³ B01J 2/06
U.S. Cl. 264—11 **7 Claims**

1. The process for forming solid particles from at least one selected from at least two liquid streams, each of said streams selected from the group consisting of a metal, a metal alloy and a ceramic which comprises impinging said liquid streams upon each other to form a turbulent mixture having small eddies, each of said liquid streams having a Reynolds number based on the nozzle diameter of at least about 50, regulating the temperature and flow rates of each of said streams to solidify at least one component of the turbulent mixture before substantial coalescence of the components of said streams while at least one component of said turbulent mixture remaining liquid and removing said solidified component as solid particles from the component which remains as a liquid.

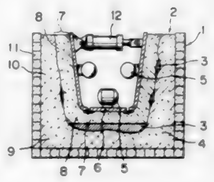


4,279,844

METHOD FOR THE REPAIR OF RUNNER FOR MOLTEN METAL

Hiroyuki Danjyo, Bizen, and Masashi Mori, Okayama, both of Japan, assignors to Shinagawa Refractories Co., Ltd., Japan

Filed Feb. 15, 1979, Ser. No. 12,444
Claims priority, application Japan, Jun. 23, 1978, 53-75483
Int. Cl.³ B28B 1/08
U.S. Cl. 264—30 **3 Claims**



1. A method for the repair of runner lining for molten metal comprising the steps of setting an inner molding former provided with a vibrating mechanism, in a repairing runner for molten metal, filling up under vibration the void space formed between the former and the existing lining, with a runner material containing less than 1.0 percent by weight of water, and curing the filled-up material under heating.

4,279,845

PROCESS FOR COATING THE INNER WALL OF A FURNACE OR LIKE APPARATUS

Pierre Maisonnave, Oye Plage, France, assignor to Union Siderurgique du Nord et De L'est De La France (USINOR), Paris, France

Filed Oct. 10, 1979, Ser. No. 83,275
Claims priority, application France, Oct. 19, 1978, 78 29780
Int. Cl.³ F27D 1/16
U.S. Cl. 264—30 **5 Claims**

1. A process for the maintenance, repairing or reconstitution of the refractory lining of a wall of a furnace or like apparatus by means of a protecting product, comprising first injecting through at least one orifice in the furnace wall a first product adapted to constitute an intermediate layer between a charge contained in the furnace and the protecting product, and then

injecting through said orifice, after a sufficient period of time, the protecting product proper between said intermediate layer



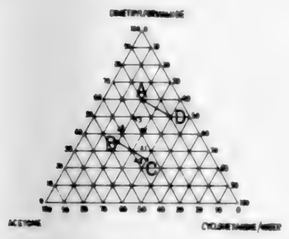
and the wall of the furnace, said protecting product adhering to the wall and setting to form a repaired surface.

4,279,846

PROCESS FOR PREPARING SEMIPERMEABLE MEMBRANE HAVING SELECTIVE PERMEABILITY

Kiyoshi Ishii; Zenjiro Honda, and Hitoshi Tsugaya, all of Oimachi, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 31, 1980, Ser. No. 135,590
Claims priority, application Japan, Apr. 6, 1979, 54/41654
Int. Cl.³ B29D *27/00*; **B29H** *7/20*; **B29D** *7/02*; **B01D** *13/00*
U.S. Cl. 264—41 **2 Claims**



1. In a process for preparing a semipermeable membrane suitable for use in an artificial kidney of the filtration type for purifying blood, which comprises the steps of casting a film of a solution of cellulose acetate dissolved in a solvent which solution also contains a swelling agent, then partially evaporating the solvent from the film, and then immersing the film in a non-solvent to gel the film and to remove the solvent from the film, whereby to form a semipermeable membrane, the improvement which comprises:

said cellulose acetate has an acetylation degree of from 52 to 56%, said solvent consists essentially of a mixture of dimethylformamide and acetone, said swelling agent consists essentially of a mixture of cyclohexanone and water in which the weight ratio of cyclohexanone to water is from 0.8 to 1.3, and wherein the weight ratio of dimethylformamide/acetone/swelling agent in said solution lies within the area bounded by points A, B, C and D in the attached drawing, wherein the coordinates of points A, B, C and D, expressed in terms of weight ratio of dimethylformamide/acetone/swelling agent, are as follows:

point A, 60/20/20
point B, 35/45/20
point C, 25/35/40
point D, 50/10/40.

4,279,847

METHOD FOR CONTINUOUS MANUFACTURE OF FOAMED PLASTIC

Alf G. Assarsson, and Heikki Korpela, both of Helsingborg, Sweden, assignors to Gulfeber, A.B., Sweden

Filed Jul. 9, 1979, Ser. No. 56,143
Claims priority, application Sweden, Jun. 1, 1979, 7904856
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—51 **3 Claims**



1. A method for the continuous manufacture of foamed plastic, in which pre-expanded granules of thermoplastic material are introduced into a channel defined on at least two sides by the inside surfaces of the two confronting inner sections of a pair of endless, perforated moving belts, and in which the granules, passing through a first zone of the channel, are in direct contact with steam injected through the belts, and are caused to expand further and sinter or agglomerate to form a coherent, continuous strip or web which is then treated by a vacuum process in a second zone of the channel, and is finally cooled in a third zone of the channel, characterized in that two main surfaces of the web are subjected to the same forced, rapid cooling process from 100°–120° C. to approximately 70° C. by causing the outside surfaces of said two inner sections of the belts, for at least a part of the third zone of the channel, to be acted upon by a coolant of higher thermal capacity than air, said web thus being indirectly cooled by said coolant via the belts, the mixture of gases present under pressure in said web, being made to diffuse out of the thermoplastic material to reduce the positive pressure thereof to such an extent that the walls of its cells withstand further undesired expansion.

4,279,848

PROCESS FOR EXTRUDING AN OPEN-CELL FOAMED POLYOLEFIN FILTER

Samuel Baxter, Penhow, England, and Pushpkumar D. Changani, Glasgow, Scotland, assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 643,287, Dec. 22, 1975, Pat. No. 4,232,130, which is a division of Ser. No. 486,549, Jul. 8, 1974, Pat. No. 3,939,849, which is a continuation of Ser. No. 193,710, Oct. 29, 1971, abandoned. This application Feb. 11, 1980, Ser. No. 120,447
Claims priority, application United Kingdom, Nov. 18, 1970, 54806/70; Apr. 16, 1971, 9646/71
Int. Cl.³ B29D *27/00*
U.S. Cl. 264—53 **5 Claims**



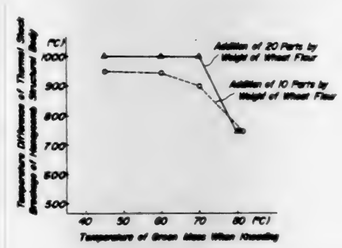
1. In a process for the extrusion through a metal die of a high density polyethylene resin having a melt temperature between 130° C. and 150° C. or a polypropylene resin having a melt temperature of between 160° C. and 180° C., wherein each resin contains a volatile blowing agent in an amount less than 0.2 moles per 100 grams of the final extruded resin, the improvement which comprises maintaining the temperature of the die within 5 millimeters of the metal-resin interface at a temperature of between 120° C. and 136° C. where the resin is polyethylene and between 155° C. and 165° C. where the resin is polypropylene.

4,279,849

METHOD FOR PRODUCING CORDIERITE CERAMIC HONEYCOMB STRUCTURAL BODIES

Yutaka Ogawa, Nagoya; Toshio Takehara, Kagamihara, and Seiichi Asami, Okazaki, all of Japan, assignors to NGK Insulators, Inc., Nagoya, Japan

Filed Jan. 15, 1980, Ser. No. 112,325
Claims priority, application Japan, Jan. 25, 1979, 54/7587
Int. Cl.³ C04B *35/64*
U.S. Cl. 264—63 **2 Claims**



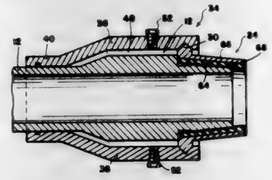
1. A method for producing cordierite ceramic honeycomb structural bodies having an excellent thermal shock resistance, which comprises adding a binder, water and 1 to 30 parts by weight of ungelatinized starch powder to 100 parts by weight of ceramic starting material to crystallize cordierite by firing, kneading the resulting mixture at a temperature of not higher than 70° C., extruding the mixture into a honeycomb structural body, and drying and firing the honeycomb structural body.

4,279,850

DRILL PIPE TOOL JOINT PROTECTOR

Paul E. Lynch, 721 Milky Way, Garland, Tex. 75040

Filed May 15, 1979, Ser. No. 39,127
Int. Cl.³ B29D *3/00*
U.S. Cl. 264—135 **6 Claims**



1. A method of applying a protective shield to a male tool joint of a drill pipe having tapered threads, comprising;

positioning a centering hub on the male end of the tool joint, the hub having a tubular portion engaging the tool joint external threads, and having an enlarged diameter centering portion thereof of larger diameter than the outside diameter of the tool joint providing an outer enlarged diameter circumferential centering surface;

positioning a sectioned mold around the portion of the tool joint to receive the protective shield, the mold having a rearward end engaging the tool joint and a forward end having an enlarged internal diameter circumferential recess therein which receives the hub circumferential centering surface, the mold having an opening therein, the interior diameter of the mold being greater than the exterior diameter of the tool joint in the area to receive the protective shield providing an annular cavity defining the preselected shape of the protective shield;

injecting liquid material through the opening into the mold to fill the annular cavity;

allowing the liquid material to solidify; and

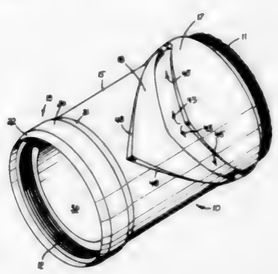
removing the mold and hub.

4,279,851

METHOD AND APPARATUS FOR EXTRUDING TUBULAR JACKETS

Herbert A. Lord, Mercer County, N.J., and Randy G. Schneider, Gwinnett County, Ga., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,173
Int. Cl.³ B29F *3/10*
U.S. Cl. 264—174 **6 Claims**



1. A method of extruding a plastic jacket onto a cable being advanced through an extruder crosshead which comprises the steps of:

(a) forcing a stream of plastic fluid into the crosshead;

(b) bifurcating the stream of plastic fluid into two branch streams:

(c) channeling the branch streams to two diametrically opposite locations about the cable where each stream is shaped with a prespread width;

(d) directing each branch stream from the locations axially along the cable while spreading each branch stream at an axial to lateral spread ratio of between approximately 1:2 tangent 30° and 1:2 tangent 40° into a confluent stream about the cable of tubular shape having a circumference of between approximately 22 and 50 times that of the prespread width of each branch stream at said locations; and

(e) extruding the confluent stream onto the cable.

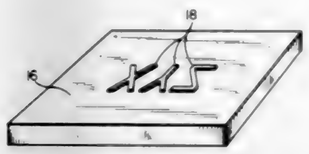
4. A diverter tube mountable within an interior cylindrical wall of an extruder crosshead for forming a stream of plastic fluid introduced into the crosshead through an entrance port in the crosshead interior wall into a tubular shape of uniform wall thickness and with the exterior surface of said diverted tube having raised lands defining first channel means for channeling plastic fluid from the entrance port to two diametrically opposite channel orifices of the same circumferential width, and wherein said raised lands further define second channel means for spreading the plastic fluid out from said orifices at an axial to lateral spread ratio of between approximately 1:2 tangent 30° and 1:2 tangent 40° along the exterior surface of the diverter tube into a recombined stream of tubular configuration having a circumference of between approximately 22 and 50 times the complete prespread width of each channel orifice.

4,279,852

INDICIA PRODUCING METHOD

Rudolph H. Engelmann, Box 687, Willmar, Minn. 56201

Filed Mar. 6, 1980, Ser. No. 127,917
Int. Cl.³ B29C *1/02*
U.S. Cl. 264—227 **8 Claims**



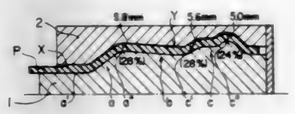
1. A method of producing an indicia transferring surface comprising:
- providing a base with a surface having a curing inhibitor coating thereon;
- affixing an inert material in the shape of indicia to the curing inhibitor coating;
- placing a first curable compound in direct contact with the curing inhibitor coating and the inert material in the shape of indicia;
- allowing the first curable compound to cure;
- separating the base from the first curable compound; and
- removing the uncured layer of the first curable compound thereby exposing cured raised areas of the first curable compound that were in contact with the indicia shaped inert material.

4,279,853

METHOD OF FORMING A SOCKET END ON A PLASTIC PIPE AND A MOLDING DEVICE FOR USE OF THE METHOD

Ryozo Ohta; Tadao Yoshizawa; Masayuki Sakaguchi; Yoshiaki Hara; Junsuke Kyomen; Ryuichi Yoneda, and Hidekazu Enomoto, all of Ishizukita, Japan, assignors to Kubota Ltd., Osaka, Japan

Filed Sep. 28, 1979, Ser. No. 80,035
Claims priority, application Japan, Oct. 3, 1978, 53-122326; Nov. 28, 1978, 53-147402; Mar. 5, 1979, 54-25899
Int. Cl.³ B29D *23/00*
U.S. Cl. 264—230 **3 Claims**



1. A method of processing the end of a plastic pipe to form a pipe end socket wherein a processing and molding space, through which a softened end wall of sad plastic pipe is passed, includes a first outwardly slanted portion for enlarging the radius of the pipe as the pipe end wall is advanced, a second outwardly slanted portion arranged behind the first outwardly slanted portion and enlarging the radius of the pipe as the pipe end wall is advanced, and an inwardly slanted portion extending from the top of said first outwardly slanted portion to a valley portion of said second outwardly slanted portion and shortening the radius of the pipe as the pipe end wall is advanced, which comprises:
- enlarging the softened pipe end in the circumferential direction thereof at the first outwardly slanted portion,
- pushing said pipe end in the axial direction thereof,
- shrinking the softened pipe end after passing through the top of the first outwardly slanted portion in the circumferential direction thereof at the inwardly slanted portion,
- relatively increasing the softened pipe wall in the radial direction thereof while the front end of the pipe passes through the valley portion of the second outwardly slanted portion and reaches the top thereof, and
- thickening the softened pipe wall in the processing and molding space by pushing pressure exerted on the pipe end after it passes through the top of the second outwardly slanted portion and reaches an end portion of the molding space.

4,279,854

METHOD AND APPARATUS FOR FORMING SOAP BARS WITH AN EMBEDDED INSERT

Henry Blaszkowski, P.O. Box 114, Southfield, Mich. 48075

Filed Jul. 25, 1979, Ser. No. 60,725
Int. Cl.³ B29C *6/02*; **B29D** *3/00*
U.S. Cl. 264—275 **2 Claims**



1. The method of making a soap bar having a pair of opposed faces and a relatively rigid, centrally apertured insert embedded therein in a plane spaced between said opposed faces, said insert having a lateral dimension substantially greater than its central aperture and substantially less than the lateral dimension of the soap bar so that the periphery of the insert is spaced substantially inwardly from the periphery of the soap bar, said insert having opposed, laterally extending faces and being relatively thin as compared to its lateral dimension, said method comprising the steps of providing a die having a pair of vertically separable sections each having a cavity therein which is relatively shallow as compared to its lateral dimension, both cavities being open at the parting face of the die and having corresponding dimensions at said parting face, the parting face portion of at least one die section surrounding the cavity therein being inclined to the central vertical axis of the die at an acute angle and intersecting the periphery of the cavity in a relatively sharp edge so that when the two die sections completely close at the parting face, said inclined surrounding face cooperates with the cavity-surrounding face portion of the other die section to form an annular recess at the parting faces of the die which diverges in a radially outward direction, each cavity corresponding in size and shape to generally one of the opposite half sections of the soap bar, each of said cavities having a central, vertically extending pedestal fixed therein which terminates in a free end portion having a flat end face spaced vertically from the base of the respective cavity, said pedestals having a vertical dimension such that the said free end faces advance into substantial coplanar abutting relation when the die is closed, the free end portion of one of said pedestals corresponding in size with the insert aperture and having an enlarged concentric annular shoulder spaced axially from its free end face a distance substantially equal to the thickness of the insert at the annular portion thereof surrounding the aperture therein, said shoulder extending in a plane substantially perpendicular to the vertical axis of the pedestal, the end face of the other pedestal being sized and shaped to correspond generally with the outer periphery of said shoulder, separating the die sections so that the cavities are spaced apart vertically in axially opposed relation, positioning the insert over the free end of said one pedestal and seating it on said shoulder so that it extends in a generally horizontal plane with the free end portion of the pedestal received within the aperture of the insert with a relatively close fit so as to support the insert in a fixed, stable position on said one pedestal with its periphery spaced laterally inwardly from the surrounding wall of the cavity and vertically from the underlying wall portion of the cavity, placing a pressure deformable soap blank having a volume greater than the cavities between the cavity of the other die section and the face of the insert adjacent thereto, progressively closing the die sections so that the soap blank applies an axial force to the insert which maintains it firmly seated on said shoulder and during initial closing movement of the die the insert cooperates with the wall of the other cavity to cause the soap in the blank to flow laterally outwardly over the adjacent face of the insert, around the periphery of the insert and axially into the cavity of said one die section and simultaneously said end faces causing the soap therebetween to be displaced radially outwardly as they approach one another and, during continued closing movement, the cavity wall of said one die section causes the soap flowing therein to flow laterally inwardly toward said one pedestal and against the opposite face of the insert so that when the die completely closes said free end faces are in substantial coplanar engagement, the soap completely fills the die cavity and the excess soap flows radially outwardly into said annular recess whereby to form through the finished soap bar an opening which corresponds in size and shape with the portions of the pedestal on opposite sides of the insert and to leave an annular portion of the insert surrounding the aperture therein exposed at the opposite faces of the embedded insert, separating the die sections and thereafter removing the finished soap bar with the insert embedded therein from the free end portion of said one pedestal.

4,279,855

METHOD FOR THE CASTING OF ULTRATHIN POLYMER MEMBRANES

William J. Ward, III, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 356,514, May 2, 1973, abandoned. This application Dec. 26, 1974, Ser. No. 536,650
Int. Cl.³ B29D *7/02*
U.S. Cl. 264—298 **9 Claims**



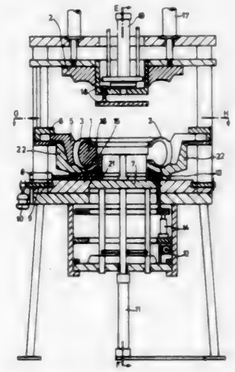
1. In the process of casting a polymer film wherein a quantity of casting solution comprising polymer dissolved in a solvent system is deposited in a narrow, longitudinally-extending defined region on the surface of a liquid casting substrate, both the surface area and perimeter of said defined region are enlarged over the surface of said casting substrate in a direction transverse to the longitudinal direction of the original defined region and said quantity of casting solution is converted to a thin desolvated, solid polymer film covering an area much larger than the area of said defined region, the improvement comprising the steps of:
- (a) employing a casting solution able to spontaneously spread over the liquid casting substrate, the polymer therein being insoluble in and not subject to swelling by the liquid of said casting substrate,
- (b) controllably enlarging both the surface area and perimeter of said defined region over the surface of said casting substrate at such a rate relative to the volatility of the solvent system that only casting solution moves relative to said casting substrate during such enlargement, the solid polymer film being formed from the casting solution upon desolvation thereof and remaining stationary relative to said casting substrate and
- (c) removing at least a portion of the solidified film from the surface of said casting substrate, said portion of solidified film being substantially free of applied tensile stress during the formation thereof and having a surface area of at least about one square foot.

4,279,856

METHOD AND AN APPARATUS FOR ASSEMBLING AND REMOVING A SEGMENTED TIRE MOLD CORE IN A TIRE MOLD

Paul Vente, Leverkusen; Dieter Seidenschnur, Neunkirchen-Seelscheid; Ulrich Knipp, Bergisch-Gladbach, and Anton Spenner, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 7, 1980, Ser. No. 110,043
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1979, 2900565
Int. Cl.³ B29F *1/00*; **B29C** *5/00*; **B29H** *17/00*
U.S. Cl. 264—313 **4 Claims**



1. A method of assembling a tire mold core comprising:
- (a) moving simultaneously approximately perpendicularly into and toward the center of the approximate tire plane containing the radii of the tire to be formed, a first unexpanded core segment group;
- (b) radially expanding said first core segment group within the tire plane;
- (c) arresting the expansion of said first core segment group by stopping the radial movement of the respective core segments of said group when the core segments are positioned so as to partially form a tire mold core; and
- (d) repeating steps (a), (b) and (c) for each remaining unexpanded core segment group until the tire mold core is complete.

4,279,857

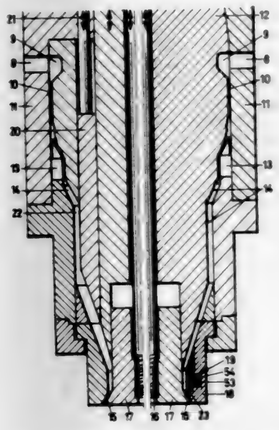
METHOD FOR CONTROLLING WALL THICKNESS IN EXTRUDED TUBULAR SYNTHETIC-RESIN BLANK

Harald Feuerherm, Alfred-Delp-Str. 1, 5210 Troisdorf, Fed. Rep. of Germany

Continuation of Ser. No. 854,748, Nov. 25, 1977, abandoned. This application Nov. 1, 1979, Ser. No. 90,442
Claims priority, application Fed. Rep. of Germany, Nov. 27, 1976, 2654001
Int. Cl.³ B29C *17/07*
U.S. Cl. 264—541 **5 Claims**

1. In a method of producing containers of thermoplastic material wherein a solid strand of plastic synthetic resin is first formed into a tubular plastic strand and subsequently formed

into a container having a closed bottom by squeezing together the tubular strand and blow molding the container, the steps of periodically deforming said tubular strand to vary its thickness at axially spaced portions by passing said tubular strand through an axially stationary ring nozzle defining an annular passage of non-uniform width for the flow of the plastic synthetic resin therethrough; and periodically adjusting the cross



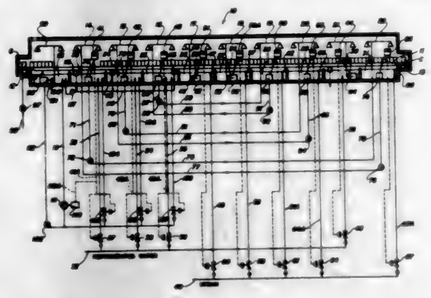
section of said annular passage to thereby asymmetrically deform said tubular strand over a portion of its circumference to impart to a high stretch region of said tubular strand a larger wall thickness than to a low stretch region thereof, so that the wall thickness of the strand portions forming the corners of the container is reduced in such a manner that after blow molding the container the latter will have a substantially uniform wall thickness.

4,279,858

ENERGY CONSERVATION FOR PASTEURIZER APPARATUS

James K. Huling, Belleville, Ill., assignor to Barry-Wehmiller Company, St. Louis, Mo.

Filed Nov. 26, 1979, Ser. No. 97,511
Int. Cl.³ A61L 2/04, 2/24; A23C 3/027; A23L 3/04
U.S. Cl. 422—25 3 Claims



1. A process for conserving the use of water in a pasteurizer for moving initially cold containers through successive preheating zones where the containers are raised in temperature and give up the cold temperature values and through precooling zones where the containers are lowered in temperature from a pasteurizing temperature by giving up heat, the process comprising: providing a cooled water containing compartment in advance of the movement of the initially cold containers into the preheating zones and showering the cooled water over the cold containers to acquire the cooling values therefrom while raising the temperature thereof, and making the cooled water from the water containing compartment available initially for use in the precooling zones to acquire heat therefrom imparted to the containers passing out of the pasteurizing zone when a skip occurs in the movement of containers in the preheating zones.

4,279,859

SIMULTANEOUS RADIOASSAY OF FOLATE AND VITAMIN B_{12}

Sidney Gutcho, Monsey, and Lillian Mansbach, New City, both of N.Y., assignors to Becton Dickinson & Company, Paramus, N.J.

Division of Ser. No. 817,563, Jul. 21, 1977, Pat. No. 4,146,602, which is a continuation-in-part of Ser. No. 762,992, Jan. 27, 1977, abandoned. This application Jun. 26, 1978, Ser. No. 919,387
Int. Cl.³ B65D 71/00; G01N 33/48
U.S. Cl. 422—61 67 Claims

1. A reagent kit for use in effecting a simultaneous assay for folate and vitamin B_{12} in a sample containing both substances but free of endogenous binder therefor, wherein said sample is contacted with a binder for the folate, a binder for the vitamin B_{12}, a folate tracer labeled with radioiodine, and a vitamin B_{12} tracer labeled with radiocobalt and the radioactivity of at least one of the bound and unbound portions is counted to determine both folate tracer and vitamin B_{12} tracer, said reagent kit comprising:

a binder for the folate and a binder for the vitamin B_{12}; and

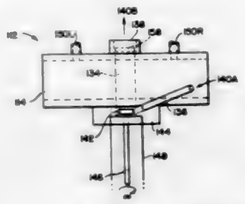
a folate tracer labeled with radioiodine and a vitamin B_{12} tracer labeled with radiocobalt.

4,279,860

MULTIPLE INJECTOR FLOW THROUGH DISSOLUTION CELL FOR DISSOLUTION TESTING APPARATUS

Victor F. Smolen, Anchorage Lodge, Rouses Point, N.Y. 12979

Filed Jun. 25, 1980, Ser. No. 162,780
Int. Cl.³ G01N 21/13
U.S. Cl. 422—63 9 Claims



1. A multiple-injector dissolution cell comprising:

(a) a body member having a central aperture, and a dissolution chamber positioned between an input port region and an output port region;

(b) a moveable insert member having a plurality of flow channels and adapted for an air tight fit within said aperture;

(c) means for selectively moving said moveable insert member within said aperture to align one of said flow channels with said dissolution chamber; and

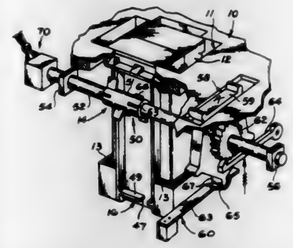
(d) at least one evacuation port positioned within said body member for evacuating the air from a selected flow chamber prior to its being aligned with said dissolution chamber.

4,279,861

CARTRIDGE DISCRIMINATOR FOR AN AUTOMATED ANALYSIS SYSTEM

Thomas C. Jessop, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 9, 1979, Ser. No. 37,250
Int. Cl.³ G01N 35/04
U.S. Cl. 422—67 20 Claims



5. Apparatus for chemical analysis of a sample fluid whereby a plurality of operations are performed in sequence on a test element adapted to receive said fluid and to produce a response indicative of a characteristic of the fluid, said elements being contained in a cartridge and being removable therefrom by a transfer means, said cartridge having code means thereon indicative of the type of test element contained in the cartridge, said apparatus comprising:

support means for receiving a cartridge of test elements and for locating the cartridge such that the elements can be sequentially removed from the cartridge by said transfer means;

discriminator means disposed adjacent the support means for controlling the loading of cartridges into said support means, said discriminator means having projection means adapted to cooperate with said support means to prevent the loading of cartridges not having a predetermined code means; and

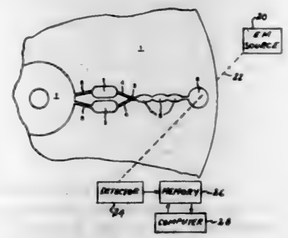
control means operatively connected to said discriminator means, said control means being adapted to position said discriminator means such that only a cartridge having a code means corresponding to a selected type of test element can be loaded into said support means.

4,279,862

CENTRIFUGAL PHOTOMETRIC ANALYZER

Jean-Pierre Bretaudiere, 1 Alden Pl., Schenectady, N.Y. 12308, and Paul Prunenec, 44, Rue des Ecoles, Paris, France (75005)

Filed Nov. 16, 1978, Ser. No. 961,478
Claims priority, application France, Nov. 17, 1977, 77 34544
Int. Cl.³ G01N 21/07
U.S. Cl. 422—72 13 Claims



1. A rotor for a centrifugal analyzer comprising:

a generally disc shaped member defining therein;

a loading cell for a sample to be analyzed, said sample cell including an outlet,

a loading cell for a reagent, said reagent cell including an outlet,

a measuring chamber,

a common transfer channel having an inlet and an outlet, a separate communicating passage between the outlet of each said loading cell and said transfer channel inlet each of which passages passes the fluid from the respective cell to said transfer channel inlet without passing through the other cell, the outlet of said transfer channel transferring both the sample and the reagent to the measuring chamber, and

obstacle means in said transfer channel for mixing the sample and the reagent during the transfer.

4,279,863

REAGENT SEPARATOR FOR A BLOOD COLLECTION TUBE

William R. Friehler, St. Louis, Mo., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Sep. 12, 1979, Ser. No. 75,327
Int. Cl.³ C01G 23/00, 9/00; B04B 9/12
U.S. Cl. 422—102 4 Claims



1. An apparatus (10) for retaining a reagent material (17) disposed within a sample collection tube (11) physically separate from a sample until centrifugation, comprising:

a flexible barrier (10) positioned within said sample collection tube (11) between the reagent material (17) and an evacuated upper chamber (12) into which the sample is drawn, said flexible barrier (10) having a spherical bottom wall (20) and a cylindrical side wall (21), said barrier (10) having a first ridge (22) formed around the upper peripheral edge of said side wall (21), said first ridge (22) forming a first seal with the inner surface of the sample collection tube (11), said first seal remaining intact until centrifugation of the sample collection tube (11),

a second ridge (23) formed around the lower peripheral edge of said side wall (21), said second ridge (23) forming a second seal with the inner surface of the sample collection tube (11), said second seal (23) remaining intact until centrifugation of the sample collection tube (11),

said spherical bottom wall (20) of the flexible barrier (10) mates with the bottom of the sample collection tube (11) to discharge substantially all of the reagent material past the barrier upon centrifugation of the collection tube.

4,279,864

MONOLITHIC CATALYST CONVERTER

Akio Nara, Niiza; Shigeru Takagi, Okazaki, and Kazuma Matsui, Toyohashi, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Dec. 3, 1979, Ser. No. 99,753
Claims priority, application Japan, Dec. 4, 1978, 53/150336; Dec. 27, 1978, 53/180300[U]; Mar. 15, 1979, 54/30420
Int. Cl.³ F01N 3/28, 7/14, 7/16
U.S. Cl. 422—179 4 Claims

1. A monolithic catalyst converter to be disposed in an

exhaust gas passage of an internal combustion engine comprising:

a monolithic catalyst composed of a honeycomb structure having a plurality of axially extending open passages and retaining catalyst metal in the walls defining said passages;

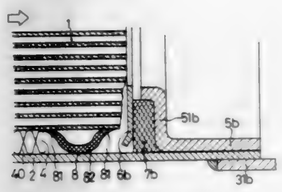
a cylindrical metallic container for receiving said catalyst therein;

a radial shock absorbing member composed of metallic fine wires, which is disposed in a space between said monolithic catalyst and said container;

the annular metallic plate disposed in the periphery of each of the axial end surfaces of said monolithic catalyst,

a retaining member fixed to an inner wall of said container in each of the ends thereof so as to be opposed to said plate at a predetermined distance;

an axial shock absorbing member composed of metallic fine wire fabric, which is disposed between said plate and said retaining member; and



at least one heat-resistance and resilient annular sealing member having high density which is disposed in said space between said monolithic catalyst and said container under pressure for preventing passage of exhaust gas through that space,

said annular sealing member being a compact body of compressed metallic fine wire fabric and having a saddle shape in radial cross section for continuously causing an effective exhaust gas seal of said space even though said sealing member has said high density and even when the container is subjected to temperature changes during operation of said converter,

wherein said annular sealing member has a radial cross section of a letter V or a letter U shape and a bottom portion of said sealing member is contacted with the inner wall of said container and edge portions of said sealing ember are contacted with the outer wall of said catalyst.

4,279,865

ORGANIC COMPOUND OXIDATION PLANT

Genrikh D. Lyakhevich, ulitsa Matusevicha, 3, kv. 146; Petr I. Belkevich, ulitsa Kulmana, 15, kv. 55, both of Minsk; Alexandr D. Radkovsky, ulitsa Dvinskaya, 13, kv. 1, Novopolotsk; Alexandr E. Sokolovsky, ulitsa Olshevskogo, 33, korpus 1, kv. 67, and Alexandr I. Kirilchik, ulitsa Yakuba Kolosa, 34, kv. 46, both of Minsk, all of U.S.S.R.

Filed Dec. 27, 1979, Ser. No. 107,538

Int. Cl.³ B01J *14/00, 19/26*

U.S. Cl. 422—187 **8 Claims**

1. An organic compound oxidation plant, comprising:

a vessel for organic compounds;

a vessel for a liquid-phase oxidizer;

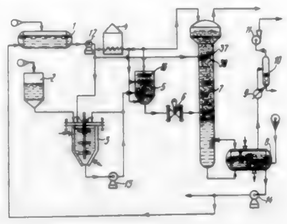
a mixer communicating with the vessel for the organic compounds and with the vessel for the liquid-phase oxidizer, which forms an oxidizer premix.

a furnace for heating the organic compound, communicating with said vessel for organic compounds;

a reactor having spray means communicating with said furnace for introducing the organic compounds therein, and dispersing means communicating with the mixer for introducing the oxidizer premix therein, to thereby form a reaction mass, and wherein said spray means and said dispersing means are arranged opposite each other and adapted so that their respective flows intimately contact each other;

a reducing means communicating with said reactor, to receive the reaction mass;

a froth breaker having an upper enlarged portion and a lower narrower portion, the froth breaker communicating with said furnace, with means for receiving the organic compounds therein;



said froth breaker also communicating with said organic compound vessel, having additional means for receiving the organic compounds therein;

said froth breaker also communicating with said reducing unit, with means for receiving the reaction mass therein;

a degassing unit communicating with said froth breaker to receive the reaction mass.

4,279,866

METHOD OF PRODUCING WEAKLY ACIDIC CATION EXCHANGE RESIN PARTICLES CHARGED WITH URANYL IONS

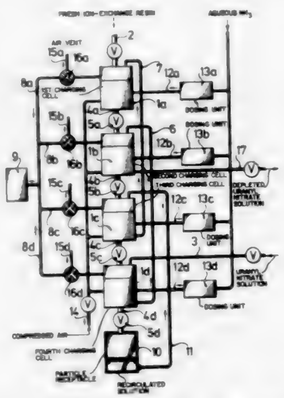
Helmut Ringel, Niederzier-Hambach; Erich Zimmer, Jülich, and Nabil Abdelmonem, Niederzier-Hambach, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich Gesellschaft mit beschränkter Haftung, Jülich, Fed. Rep. of Germany

Filed Jul. 19, 1978, Ser. No. 926,103

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1977, 2733396

Int. Cl.³ C01G *43/00*

U.S. Cl. 423—7 **7 Claims**



1. A process for charging weakly acidic cationic ion exchange resin particles with uranyl ions, comprising contacting the particles stepwise in a succession of separate contacting stages with respective aqueous uranyl nitrate solutions, said solutions having higher uranium concentrations from stage to stage, and adding an alkaline medium to the uranyl nitrate solution in each stage to establish successive pH values of the uranyl nitrate solution contacting the particles in the successive stages in dependence upon the uranium concentration effective for maximum charging of the particles with uranyl ions and which numerically increases in pH value from stage to stage in the succession in which said particles are contacted, the pH being adjusted in each stage by adding the alkaline medium until precipitation is about to commence.

4,279,867

PROCESS FOR THE RECOVERY OF COPPER AND ZINC VALUES FROM SULPHIDIC ORE

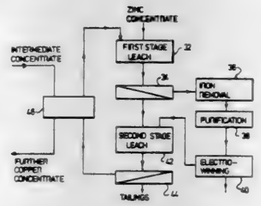
Donald R. Weir, Fort Saskatchewan, Canada, assignor to Sherritt Gordon Mines Limited, Toronto, Canada

Filed Mar. 13, 1980, Ser. No. 129,926

Claims priority, application Canada, Feb. 8, 1980, 345417

Int. Cl.³ C01G *9/06*

U.S. Cl. 423—26 **12 Claims**



1. A process for the recovery of copper and zinc values from copper and zinc containing sulphidic ore comprising subjecting ground ore to a flotation operation including a first flotation step to float an initial copper concentrate, feeding said initial copper concentrate to a second flotation step to float a relatively zinc free copper concentrate, feeding remaining ore from the first flotation step to a third flotation step to float an initial zinc concentrate, feeding the remaining ore from the third flotation step to a fourth flotation step to float a copper and zinc containing material, producing an intermediate concentrate containing from about 5 to about 25% copper and from about 2 to about 25% zinc, with a total of at least about 12% copper and zinc, by selecting at least the remaining ore from the second flotation step, and producing a zinc concentrate containing at least about 20% zinc by at least selecting a portion of the initial zinc concentrate.

10. A process for the recovery of copper and zinc values from copper and zinc containing sulphidic ore comprising subjecting ground ore to a flotation operation including a first flotation step to float an initial copper concentrate, feeding said initial copper concentrate to a second flotation step to float a relatively zinc free copper concentrate, feeding remaining ore from the first flotation step to a third flotation step to float an initial zinc concentrate, feeding the remaining ore from the third flotation step to a fourth flotation step to float a copper and zinc containing material, producing an intermediate concentrate containing from about 5 to about 25% copper and from about 2 to about 25% zinc, with a total of at least about 12% copper and zinc, by selecting at least the remaining ore from the second flotation step, producing a zinc concentrate containing at least about 20% zinc by at least selecting a portion of the initial zinc concentrate, and leaching said zinc concentrate under oxidizing acidic conditions at superatmospheric pressure to produce a leach solution containing dissolved zinc.

4,279,868

METHOD FOR LEACHING METAL BEARING ORES

Henry Von Kohorn, 22 Perkins Rd., Greenwich, Conn. 06830

Filed Mar. 24, 1980, Ser. No. 133,516

Int. Cl.³ G22B *3/00;* **C01G** *5/00, 7/00*

U.S. Cl. 423—29 **12 Claims**

1. A method for the extraction and recovery of metals from ores by leaching crushed ore comprising:

(a) providing a plurality of removable, void-creating members inside the ore body to be leached,

(b) partially performing the leaching,

(c) removing said members by pulling out so as to create internal voids in said ore body, causing partial internal collapse and shifting of ore in said ore body, and

(d) completing the leaching.

6. The method of claim 1 applied to the alkaline cyanide heap leaching of gold and silver bearing ores.

4,279,869

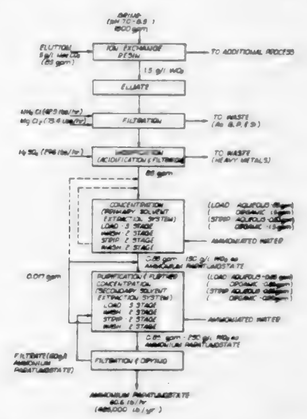
PROCESS FOR RECOVERING CONCENTRATED, PURIFIED TUNGSTEN VALUES FROM BRINE

Norman W. Coulson, Oklahoma City, Okla., assignor to Kerr-McGee Corporation, Oklahoma City, Okla.

Filed Dec. 13, 1979, Ser. No. 103,031

Int. Cl.³ C01G *41/00*

U.S. Cl. 423—54 **22 Claims**



1. A process for recovering concentrated, purified tungsten values from a brine, the brine containing a minor amount of soluble tungsten and a substantial amount of impurities, the process comprising:

(a) contacting the brine with a water-insoluble ion exchange resin to adsorb the tungsten;

(b) eluting the adsorbed tungsten from the water-insoluble ion exchange resin with an effective amount of an aqueous eluant to provide an aqueous eluate rich in tungsten values;

(c) treating the aqueous eluate rich in tungsten values to convert the tungsten values to an extractable species of tungsten values;

(d) recovering the extractable species of tungsten values from the aqueous eluate to substantially concentrate the tungsten values;

(e) contacting the concentrated tungsten values with an extractant preferential to the tungsten values to substantially load the extractant with the concentrated tungsten values and to exclude impurities from the extractant; and

(f) stripping the tungsten values from the extractant to provide a product having concentrated, purified tungsten values.

4,279,870

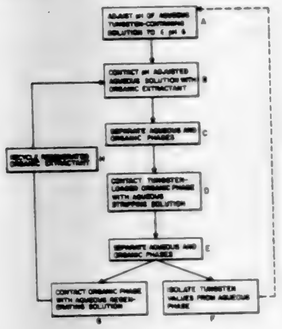
LIQUID-LIQUID EXTRACTION PROCESS FOR THE RECOVERY OF TUNGSTEN FROM LOW LEVEL SOURCES

Samuel Natansohn, Sharon, and Sophia R. Su, Wellesley, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Continuation-in-part of Ser. No. 59,803, Jul. 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 18,488, Mar. 8, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 186,950

Int. Cl.³ C01G 41/00

U.S. Cl. 423—54 17 Claims



1. A recyclable process for recovering tungsten from aqueous solutions containing low levels of tungsten comprises the steps of:

(a) Adjusting the pH of the aqueous tungsten-containing solution to a value below about pH 6;

(b) Contacting the pH-adjusted aqueous tungsten-containing solution with an extractant organic phase comprising:

(1) A chelate compound comprising a vicinally disubstituted aromatic ring having substituents selected from the group consisting of amino, carboxyl, hydroxyl, and sulfhydryl,

(2) A transfer agent, and

(3) An inert organic solvent, to extract tungsten from said pH-adjusted aqueous solution into said organic phase;

(c) Separating the tungsten-loaded organic phase from the tungsten-spent aqueous solution;

(d) Contacting said tungsten-loaded organic phase with a basic aqueous stripping solution to transfer tungsten from said tungsten-loaded organic phase to said aqueous stripping solution;

(e) Separating the tungsten-loaded aqueous stripping solution from the tungsten-spent organic phase and thereafter isolating the tungsten values from said tungsten-loaded aqueous stripping solution;

(f) Contacting the tungsten-spent organic phase with an aqueous regenerating solution to regenerate said extractant organic phase; and

(g) Recycling the regenerated extractant organic phase in step (b).

4,279,871

PROCESS FOR TREATING CHLORINATED TITANIFEROUS MATERIAL TO REMOVE VANADIUM

James P. Bounsek, Aberdeen, Md., assignor to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 89,982, Oct. 31, 1979, abandoned. This application Jun. 6, 1980, Ser. No. 157,279

Int. Cl.³ C01G 23/047, 31/04

U.S. Cl. 423—74 10 Claims

1. A process for removing vanadium values from chlorinated vanadium-containing titaniferous materials, which comprises:

reducing substantially all of said vanadium values to a less volatile form by reacting with an effective amount of a high surface area carbon at a temperature in excess of about 700° C., said high surface area carbon having a surface area of at least about 10 m^2/g.,

cooling said chlorinated titaniferous materials containing reduced vanadium values to a temperature of less than about 450° C., producing a chlorinated reduced vanadium-values containing phase and a chlorinated titaniferous material-containing phase distinct from said chlorinated, reduced vanadium-values containing phase, and

separating said chlorinated, reduced, vanadium-values containing phase from said chlorinated titaniferous material-containing phase.

4,279,872

METHOD OF SCRUBBING ACID GASES FROM GAS MIXTURES

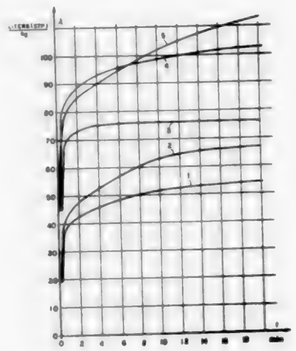
Eberhard Lassmann, Herrnhausen; Peter Köhler, Siegertsbrunn; Franz Beran, and Hans J. Gerhards, both of Munich, all of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,801

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1978, 2839506

Int. Cl.³ C01B 17/16

U.S. Cl. 423—228 7 Claims



1. A method of scrubbing an acid gas selected from the group consisting of carbon dioxide and a sulfur containing gas from a gas mixture which comprises the step of treating the gas mixture with an aqueous scrubbing solution consisting of 5 to 40% hexamethylene diamine and balance water at a temperature enabling the scrubbing solution to absorb said acid gas from the gas mixture.

4,279,873

PROCESS FOR FLUE GAS DESULFURIZATION

Karsten S. Felsvang, Allerod; Ove E. Hansen, Vaerlose, and Elisabeth L. Rasmussen, Holte, all of Denmark, assignors to A/S Niro Atomizer, Soborg, Denmark

Filed May 17, 1979, Ser. No. 39,892

Claims priority, application Denmark, May 19, 1978, 2237/78

Int. Cl.³ C01B 17/00

U.S. Cl. 423—242 13 Claims

1. A process for desulfurization of fly ash-containing flue gas from the combustion of coal, comprising the steps of:

(a) atomizing an aqueous feed suspension comprising $Ca(OH)_2$ and fly ash into the hot flue gas coming from a boiler without previous removal of fly ash therein, the amount of said suspension and the water content thereof being adjusted to obtain a temperature of the desulfurized flue gas being 8°–40° C. above the saturation temperature of said gas, thereby simultaneously drying the atomized droplets of suspension and reducing the SO_2 content of the flue gas;

(b) collecting a fly ash-containing dry powder comprising conglomerates of fly ash originating from said feed suspension with materials formed by the drying and SO_2 absorption step;

(c) preparing an aqueous suspension from a recycled portion of said fly ash-containing dry powder and disposing of the remaining portion; and

(d) adding freshly slaked lime to the last-mentioned suspension as makeup $Ca(OH)_2$ to produce a feed suspension to be atomized in step (a).

4,279,874

CU(1) ACETYLACETONATE COMPLEXES FOR CO SEPARATION

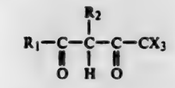
Gerald Doyle, Whitehouse Station, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 17, 1980, Ser. No. 141,055

Int. Cl.³ B01D 53/34

U.S. Cl. 423—246 10 Claims

1. A process for removing CO from a gas stream which comprises contacting the gas stream with an absorbent solution containing an inert solvent and a Cu(I) salt, said salt being the reaction product of a Cu(I) compound and a halogenated acetylacetone of the formula:



where X is F or Cl, R_1 is CX_3, linear or branched C_1 to C_8 alkyl, C_4 to C_6 heterocycle containing O, S or N, or C_6 to C_{10} aryl, R_2 is hydrogen or C_1 to C_6 alkyl, or R_1 and R_2 are joined together to form a C_6 ring.

4,279,875

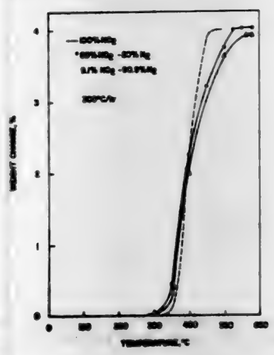
METHOD OF RELEASING FISSION GASES FROM IRRADIATED FUEL

Lane A. Bray, Richland, and Allyn L. Boldt, Kennewick, both of Wash., assignors to Exxon Nuclear Company, Inc., Bellevue, Wash.

Continuation of Ser. No. 766,142, Feb. 7, 1977, abandoned. This application Oct. 13, 1978, Ser. No. 951,266

Int. Cl.³ G21F 9/30

U.S. Cl. 423—249 17 Claims



1. A process for releasing tritium from irradiated fuel which comprises reacting an irradiated nuclear fuel pellet with an oxidizing gas consisting essentially of nitrogen oxide constant at a reaction temperature between about 325° and 800° C. for a time sufficient to form a fine powder thereby releasing the tritium.

4,279,876

CONVERSION OF EXTRACTION RESIDUES ORIGINATING FROM PHOSPHORIC ACID DECONTAMINATION TO SOLID DEPOSITION PRODUCTS

Klaus Schrödter, Cologne; Reinhard Gradl, Hürth-Knapsack; Klaus-Peter Ehlers, Erftstadt, and Wolfgang Scheibitz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 7, 1980, Ser. No. 128,265

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909572

Int. Cl.³ C01B 15/16, 25/26

U.S. Cl. 423—305 5 Claims

1. A process for converting raffinates, which are obtained in the decontamination of phosphoric acid by extraction with a solvent, to solid deposition products, wherein the water-containing raffinates are reacted with solid hydrate of lime or quicklime which comprises:

(a) admixing the raffinates with a quantity of water necessary for them to ensure, after reaction with hydrate of lime or quicklime, the formation of an aqueous filterable suspension;

(b) admixing the raffinates with a quantity of hydrate of lime or quicklime necessary for them to ensure, after reaction and filtration of the suspension, the formation of a filter cake having a pH-value within the range 9 to 14 in aqueous suspension;

(c) filtering the reaction suspension, after incomplete reaction at a pH-value within the range 5 to 8; and

(d) allowing the resulting filter cake to react completely and depositing it.

4,279,877

OXIDATIVE CONTROL OF POST PRECIPITATION IN PHOSPHORIC ACID

Richard N. Hill, Lakeland, Fla., and Moises G. Sanchez, Severna Park, Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Jan. 10, 1980, Ser. No. 111,013

Int. Cl.³ C01B 25/16

U.S. Cl. 423—321 R 10 Claims

1. In the method of making wet process phosphoric acid analyzing about 57–63% P_2O_5 prepared by steps including

(a) clarifying crude feed acid in a clarifier to provide a clarified acid and a sludge-containing underflow, said feed acid analyzing about 26–36% P_2O_5, having an Fe (as Fe_2O_3):-P_2O_5 weight ratio of at least 0.04; and at least some of said Fe being present as Fe^{++};

(b) treating the clarified acid with aluminum silicate in an aluminum silicate treatment zone;

(c) concentrating the treated acid to about 46–51% P_2O_5;

(d) settling solids in the concentrated acid in a crystallizer-settler providing an overflow and an underflow;

(e) sending crystallizer-settler underflow to the clarifier in (a) and sending clarifier underflow to the reaction train;

(f) further concentrating the overflow in (d) to about 57–63% P_2O_5; the improvement comprising adding an oxidant to the acid at a point between the clarification step in (a) and the concentration step in (c) to oxidize substantially all Fe^{++} to Fe^{+++}, whereby the post-precipitation characteristics of the acid are improved.

4,279,878

PROCESS FOR FREEING PHOSPHORIC ACID FROM ORGANIC CONTAMINANTS

Alexander Maurer, Hürth; Klaus Schrödter, Cologne, and Gero Heymer, Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 131,234

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910711

Int. Cl.³ C01B *25/16*

U.S. Cl. 423—321 R 8 Claims

1. A process for freeing aqueous phosphoric acid solutions from organic contaminants by admixing the solutions with hydrogen peroxide, which comprises: admixing and reacting the solutions with hydrogen peroxide in the presence of, as catalyst, (a) a noble metal, (b) a mixture of metal oxides or (c) a mixture of (a) and (b), the metal oxide mixture consisting of Al_2O_3 and an oxide of manganese, cerium, iron or copper, the amount of catalyst being at least 0.01 g per g H_2O_2.

4,279,879

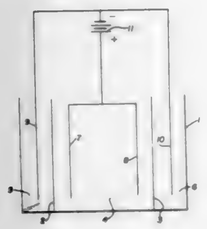
SILICA GEL

Milton E. Winyall, Columbia, Md., and Charles Davidoff, Manhasset, N.Y., assignors to W. R. Grace & Co., New York, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,485

Int. Cl.³ C01B *33/14*; C25B *1/00, 7/00*

U.S. Cl. 423—335 14 Claims



1. A regular density silica xerogel having at least about 85 percent of the pore volume provided by pores having a pore diameter of less than about 30 angstroms.

4,279,880

ACETYLENE BLACK WITH HIGH ELECTRICAL CONDUCTIVITY AND HIGH ABSORPTIVE POWER

Claude Giet, La Barthe de Neste, France, assignor to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Continuation of Ser. No. 884,442, Mar. 7, 1978, abandoned. This application Sep. 11, 1979, Ser. No. 74,569

Claims priority, application France, Mar. 9, 1977, 77 06894

Int. Cl.³ C01B *31/00, 31/02*; C09C *1/48*

U.S. Cl. 423—445 9 Claims

1. A carbon black having a carbon content greater than 99%, a mean particle diameter of 250 to 300 Å, an electrical resistivity, measured under a pressure of 6.3 bars, of 0.270 to 0.350 ohm.cm and a DBP index of 400 to 500 ml per 100 g of black.

4,279,881

CARBON BLACK PRODUCTION FROM SOLID CARBONACEOUS FEEDSTOCK

Paul J. Cheng, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 860,801, Dec. 15, 1977, Pat. No. 4,206,175, which is a continuation of Ser. No. 690,810, May 27, 1976, abandoned, which is a continuation-in-part of Ser. No. 276,374, Jul. 31, 1972, abandoned. This application Dec. 21, 1979, Ser. No. 106,200

Int. Cl.³ C01B *31/02*; C09C *1/48*

U.S. Cl. 423—456 8 Claims

1. A process for producing carbon black comprising:

a. introducing a hydrocarbon feed upward in essentially axial direction into the aspiration end of a reaction section arranged coaxially within a carbon black reactor having a vertical axis;

b. introducing a hot combustion mass comprising hot combustion gases, solid carbonaceous material, and ash into said reactor, said hot combustion mass being produced by the oxidation of solid carbonaceous material, said hot combustion mass being introduced tangentially into said reactor;

c. passing said hot combustion mass in a path surrounding the reactor axis in an essentially helically shaped line through said reactor at a velocity sufficient to cause a principal portion of said ash to flow proximate the inner wall of the reactor, said hot combustion mass being passed in a direction generally opposite to the direction of injection of the hydrocarbon feed;

d. separating hot combustion gases from said hot combustion mass and passing the hydrocarbon feed and the hot combustion gases separated from the combustion mass into said reaction section, thereby mixing the hot combustion gases with the hydrocarbon feed in said reaction section to cause the decomposition of the hydrocarbon feed and the formation of the carbon black;

e. removing ash from the base of said reactor at least intermittently and

f. recovering carbon black from said reaction section.

4,279,882

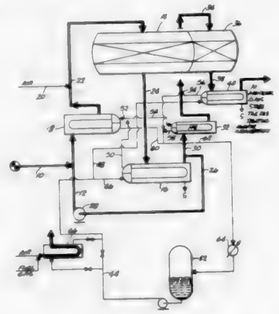
PROCESS FOR SULFUR PRODUCTION

David K. Beavon, Pasadena, Calif., assignor to Ralph M. Parsons Company, Pasadena, Calif.

Filed Apr. 27, 1979, Ser. No. 33,873

Int. Cl.³ C01B *17/04*

U.S. Cl. 423—574 R 31 Claims



1. A process for the production of sulfur with control of process temperature by use of a liquid heat transfer fluid which comprises:

(a) providing a closed loop heat transfer system including a liquid heat transfer fluid;

(b) condensing sulfur from a product gas stream containing sulfur, sulfur dioxide, and hydrogen sulfide by indirect heat exchange with cooled liquid heat transfer fluid stream in a first indirect heat exchange zone to provide a cooled residual gas comprising hydrogen sulfide and sulfur dioxide and a heated liquid heat transfer fluid stream, said product gas stream being formed by contacting, in a catalytic selective oxidation zone, a feed gas heated, at least in part, for feed to said catalytic selective oxidation zone by indirect heat exchange with a first portion of the heated liquid heat transfer fluid stream in a second indirect heat exchange zone, said feed gas comprising an acid gas stream containing from about 1 to 100 percent by volume hydrogen sulfide in admixture with oxygen present in an amount of from about 70 to 130 percent of the stoichiometric amount required for oxidation of the hydrogen sulfide to elemental sulfur and a recycle gas which is a portion of a residual gas comprising hydrogen sulfide and sulfur dioxide resulting from condensation of sulfur from the effluent of the catalytic selective oxidation zone, with a selective oxidation catalyst capable of selectively oxidizing hydrogen sulfide to sulfur dioxide substantially without formation of sulfur trioxide and catalytically converting introduced hydrogen sulfide to sulfur dioxide and sulfur at a temperature above the kindling temperature of the catalyst and below an upper reaction temperature of about 850° F., the upper reaction temperature being selectively controlled by the amount of recycle gas introduced to the catalytic selective oxidation zone;

(c) indirectly heating the balance of cooled residual gas exiting the first heat exchange zone in a third indirect heat exchange zone with a second portion of the heated liquid heat transfer fluid stream to a temperature for feed to a Claus conversion stage;

(d) passing the heated balance of the residual gas stream to at least one Claus conversion zone to form additional sulfur; and

(e) combining liquid heat transfer fluid streams from the second and third indirect heat exchange zones and cooling the combined liquid heat transfer fluid streams for recycle to the process.

4,279,883

PROCESS FOR PRODUCING HYDROGEN PEROXIDE

Yusuke Izumi, Shinnanyo; Hidetaka Miyazaki, and Shin-ichi Kawahara, both of Tokuyama, all of Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi, Japan

Filed Dec. 3, 1976, Ser. No. 747,214

Claims priority, application Japan, Dec. 10, 1975, 50-146312

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—584 6 Claims

1. A continuous process for preparing hydrogen peroxide by reacting hydrogen with oxygen in an aqueous medium containing a platinum-group catalyst which comprises:

a. dissolving hydrogen into the aqueous medium in an amount such that the partial pressure of hydrogen in a gaseous phase contacting the aqueous medium is at least 0.001 atmospheres,

b. adding platinum-group catalyst having adsorbed thereon hydrogen in an amount ranging from at least 0.1 hydrogen atom adsorbed per atom of the platinum-group metal to the saturated amount of adsorption to the aqueous medium containing hydrogen dissolved therein,

c. introducing hydrogen and oxygen gas into the aqueous medium to form hydrogen peroxide,

d. withdrawing aqueous medium containing hydrogen peroxide and spent catalyst,

e. adding fresh platinum-group catalyst having adsorbed thereon hydrogen in an amount ranging from at least 0.1 hydrogen atom adsorbed per atom of the platinum-group metal to the saturated amount of adsorption to the withdrawn aqueous medium to replace the spent platinum-group catalyst,

f. recycling the withdrawn aqueous medium to which the fresh catalyst has been added for further reaction.

4,279,884

PROCESS FOR PREPARATION OF ANTISERA

Arthur R. Bradwell, Harborne, and David Burnett, Finchfield, both of England, assignors to University of Birmingham, Birmingham, England

Filed Aug. 16, 1977, Ser. No. 825,126

Claims priority, application United Kingdom, Aug. 25, 1976, 35319/76

Int. Cl.³ A61K *33/48, 49/00, 43/00*; C01G *7/00*

U.S. Cl. 424—1 7 Claims

1. A process for the preparation of an antiserum, including steps of:

(i) reacting, by means of two dimensional electrophoresis a serum sample which includes a protein to which the required antiserum is to be specific, with a first antiserum sample which is known to include the required specific antiserum,

(ii) selecting, from the results of the aforesaid reaction, of a first antigen/antibody complex which corresponds to the protein to which the required antiserum is specific,

(iii) injecting an animal with said first complex, the antigen in said first complex being the only antigen so injected which was present in the serum which provided said serum sample,

(iv) subsequent withdrawal of antiserum from the animal.

7. A process as claimed in claim 1 in which the second dimension step of said electrophoresis reaction is continued for 24 hours.

4,279,885

SOLID PHASE ASSAY

Max G. Reese, Salt Lake City; Dennis K. Ransom, Granger, and LaVell R. Johnson, Salt Lake City, all of Utah, assignors to Becton Dickinson & Company, Paramus, N.J.

Filed May 19, 1978, Ser. No. 907,741

Int. Cl.³ G01N *33/48*; G01T *1/00*

U.S. Cl. 424—1 8 Claims

1. In a competitive protein binding assay wherein an analyte and tracer are passed through a flow through chamber containing a receptor for both the tracer and analyte supported on a solid support, and at least one of the amount of tracer bound to the receptor and the amount of tracer which passes through the chamber is determined, the improvement comprising:

passing the analyte in the absence of tracer through said chamber to bind analyte to the receptor with any unbound analyte passing through the chamber; and subsequently passing tracer through the chamber to bind tracer to the receptor with any unbound tracer passing through the chamber.

4,279,886

TEST FOR PANCREATIC EXOCRINE FUNCTION

Robert H. Allen, Englewood, Colo., assignor to University Patents, Inc., Norwalk, Conn.

Filed Jan. 2, 1979, Ser. No. 270

Int. Cl.³ A61K *49/00, 43/00*; G01T *1/00*

U.S. Cl. 424—1 46 Claims

1. In the method of testing pancreatic exocrine function of a subject the steps of:

placing in the subject's digestive system a complex of (first) labelled vitamin B_{12} bound to intrinsic factor protein (IF) said complex being designated as IF-B_{12}; and

also placing in the subject's digestive system a composition including (second) labelled vitamin B_{12} bound to binding (means), substance, (wherein said binding means bind with said second labelled B_{12}, and) wherein said binding (means) substance substantially inhibits the binding of said (second) labelled B_{12} bound to said binding substance by

IF in said subject's digestive system until said composition is acted upon by exocrine pancreatic enzymes.

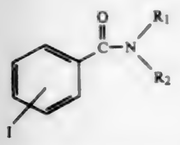
4,279,887

AMIDES USEFUL AS BRAIN IMAGING AGENTS

Ronald M. Baldwin, San Francisco; Tz-Hong Lin, Fremont, and Harry S. Winchell, Lafayette, all of Calif., assignors to Medi-Physics, Inc., Emeryville, Calif.

Filed Nov. 29, 1978, Ser. No. 964,562
Int. Cl.³ A61K 49/00, 43/00; C07C 103/37
U.S. Cl. 424—1.5 7 Claims

1. A method of imaging the brain comprising intravenously injecting an effective amount of a composition comprising a compound of the formula



wherein I is a radioisotope of iodine, R_1 and R_2 are the same or different and are selected from the group consisting of hydrogen, hydroxy, alkyl, aryl, substituted aryl, aralkyl, anilino and carbamoylmethyl or R_1 and R_2 taken together with the nitrogen to which they are attached form a 5- or 6-membered ring, in a carrier suitable for intravenous injection and scanning the brain with a scintiscanning means.

4,279,888

ORAL COMPOSITION

Nobuo Sugasawa, Funabashi; Michio Uematsu, Isehara; Hiroshi Mandai, Chiba; Yasunobu Horiguchi, Kamagaya, and Koji Matsumiya, Tokyo, all of Japan, assignors to Lion Corporation, Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 107,868
Claims priority, application Japan, Dec. 29, 1978, 53-165284; Dec. 30, 1978, 53-165049
Int. Cl.³ A61K 7/16, 7/18, 7/28
U.S. Cl. 424—49 22 Claims

1. An oral composition having a favorable feeling upon use and improved stability comprising: 0.1 to 5% by weight of the total composition of a fatty acid ester of a sugar alcohol selected from the group consisting of lactitol, maltitol, maltotriitol, maltotetraitol, maltopentaitol, maltohexaitol, maltoheptaitol and mixtures thereof, the acyl group of the sugar alcohol fatty acid ester having 8 to 20 carbon atoms and the balance being at least one other oral composition ingredient.

4,279,889

PERIODONTAL DENTAL COMPOSITION

Eric Baines, Flixton, and Kenneth Harvey, Wilmslow, both of England, assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,066
Claims priority, application United Kingdom, May 15, 1979, 16873/79
Int. Cl.³ A61K 7/16, 7/18
U.S. Cl. 424—57 6 Claims

1. A periodontal dental composition consisting essentially of about 0.01–5% by weight of folic acid and a polishing agent which is principally dicalcium phosphate.

4,279,890

COSMETIC FACIAL POWDER CONTAINING WALNUT SHELL FLOUR

Thomas C. Harris, Paterson, and Arthur Georgalas, Leonardo, both of N.J., assignors to Chattem, Inc., Chattanooga, Tenn.

Continuation of Ser. No. 620,731, Oct. 8, 1975, abandoned. This application May 23, 1977, Ser. No. 799,229
Int. Cl.³ A61K 7/021
U.S. Cl. 424—69 10 Claims

1. A loose face powder composition which comprises about 40 percent by weight walnut shell flour having a particle size less than 30 microns, about five percent by weight titanium coated mica, about four percent by weight magnesium stearate, about 49.25 percent by weight ground mica of not more than about 80 microns, and the balance selected from the group consisting of a fungicide, a colorant, and a perfume.

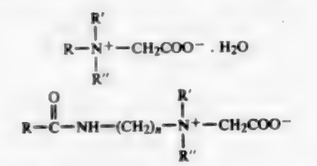
4,279,891

LOW ALCOHOL CONTENT AFTER-SHAVE LOTION

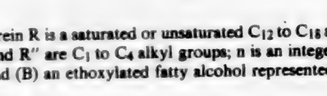
Herbert W. Henkel, East Hanover, and Mary R. Paradiso, Clifton, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 10,198, Feb. 8, 1979, abandoned, which is a continuation of Ser. No. 863,564, Dec. 22, 1977, abandoned. This application Dec. 13, 1979, Ser. No. 102,724
Int. Cl.³ A61K 7/15, 7/42
U.S. Cl. 424—73 4 Claims

1. A clear, non-oily, non-greasy, low-sting aqueous alcoholic after-shave lotion consisting essentially of at least about 66 percent by weight water and from about 15 to 20 percent by weight ethanol; from about 0.25 to 3.75 percent by weight of a perfume compound which is insoluble in said aqueous alcohol solution; and from about 2 to 8 percent by weight of propylene glycol; and, as a solubilizer for said perfume compound (A), an amphoteric betaine surfactant selected from the group consisting of compounds represented by (I) and (II):



(I)



(II)

wherein R is a saturated or unsaturated C_{12} to C_{18} alkyl group; R′ and R″ are C_1 to C_4 alkyl groups; n is an integer from 1 to 6; and (B) an ethoxylated fatty alcohol represented by (III):

$$R'''—OCH_2CH_2)_nOH$$

wherein R‴ represents a saturated or unsaturated C_{12} to C_{18} alkyl group and n has an average value of about 10 to 20; the weight ratio of said perfume compound to said amphoteric betaine in said lotion being from about 2/1 to 4.6/1, and the weight ratio of said perfume compound to said ethoxylated fatty acid being from about 1/1 to 3/1.

4,279,892

ORGANOGERMANIUM INDUCTION OF INTERFERON PRODUCTION

Nakao Ishida, Sendai; Hiroshi Satoh, Tokyo; Fujio Suzaki, Sendai, and Kouhei Miyao, Tokyo, all of Japan, assignors to Asai Germanium Research Institute, Tokyo, Japan

Filed Mar. 13, 1980, Ser. No. 129,997
Claims priority, application Japan, Mar. 15, 1979, 54/30297
Int. Cl.³ A61K 45/02, 39/00
U.S. Cl. 424—85 4 Claims

1. A method for therapeutically inducing interferon production in living animal cells, comprising subjecting said cells to the species-specific interferon inducing effect of an effective

amount of an organogermanium compound having the formula:

$$(GeCH_2CH_2COX)_2O_3$$

wherein X is selected from the group consisting of —OH, $—NH_2$ and —O—alkyl.

4,279,893

VACCINE AGAINST NEWCASTLE FOWL DISEASE, METHOD FOR PREPARING AND USE THEREOF

July K. Kreimer, Yantarny proezd, 33, kv. 28, and Ljubov S. Ageeva, ulitsa Korneichuka, 52, kv. 1, both of Moscow, U.S.S.R.

Filed Sep. 8, 1980, Ser. No. 184,933
Claims priority, application U.S.S.R., Oct. 29, 1979, 2833299
Int. Cl.³ A61K 39/155, 39/17
U.S. Cl. 424—89 12 Claims

1. A vaccine against Newcastle fowl disease comprising a virus-containing extra-embryonic liquid of a lentogenic strain Paramyxovirus a-1 "Bor-74 VGNKI" deposited at the All-Union State Research and Control Institute for Veterinary Preparations of the USSR Ministry of Agriculture and having its biological activity within the range of from 10^8 to $10^{9.75}$ EID_{50}/ml.

4,279,894

STREPTOMYCES METABOLITE

David H. Davies, Macclesfield, and Geoffrey L. F. Norris, Sandbach, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jul. 25, 1979, Ser. No. 60,682
Claims priority, application United Kingdom, Aug. 3, 1978, 32172/78
Int. Cl.³ A61K 35/00
U.S. Cl. 424—122 6 Claims

1. The compound M.139603 which has the following characteristics:
(a) molecular formula $C_{35}H_{53}O_8Na$ as indicated by mass spectrometry, which shows a molecular ion, M^+, of mass 624.361 (calculated for $C_{35}H_{53}O_8Na$=624.364), and by elementary analysis; C=67.5, H=8.8%, (calculated for $C_{35}H_{53}O_8.Na$—C=67.3, H=8.5%);
(b) infra-red spectrum in nujol mull, as shown in FIG. 1, containing characteristic absorptions at 3300, 1725, 1645, 1565 and 915 $cm.^{-1}$;
(c) proton magnetic resonance spectrum in deuteriochloroform as shown in FIG. 2;
(d) ultra-violet spectrum in methanol solution shows a characteristic absorption at 234 nm (ϵ=12900) and 272 nm (ϵ=10800);
(e) melting point 176°-178° C.;
(f) $[\alpha]_D^{23}=-82°$ (c=0.2 in methanol);
and the corresponding "free acid" form thereof of the molecular formula $C_{35}H_{54}O_8$, characterised by R_F=0.55 (approximately) on thin layer chromatography on silica gel (Merck's "Kieselgel 60F-254"—trade mark), 0.25 mm, thickness, developed with a mixture of diethyl ether, methanol and formic acid in the proportion 95:4:1 by volume; UV in ethanol 274 nm (ϵ=13900), broad;
or other alkali metal salts which can be derived therefrom.

4,279,895

INSECTICIDAL NATURAL BAIT COMPOSITION AND METHOD OF USING SAME

Arthur Carle, 3390 rue Simard, St-Hubert, Quebec, Canada (J3Y 6T4)

Filed Jul. 13, 1979, Ser. No. 57,436
Int. Cl.³ A01N 59/00
U.S. Cl. 424—127 7 Claims

1. An insecticidal natural bait comprising:
(a) between about 75 and about 95 percent by weight of humidified diatomaceous silica having a particle size of at most 50 microns;
(b) between about 5 and about 25 percent by weight of lumolinine;
(c) said composition being humidified to contain about 1 to about 25 percent by weight water enable it to be swallowed by an insect and to prevent said lumolinine from being washed away from said composition.
7. An insecticidal method which comprises contacting insects with a composition as defined in claim 1.

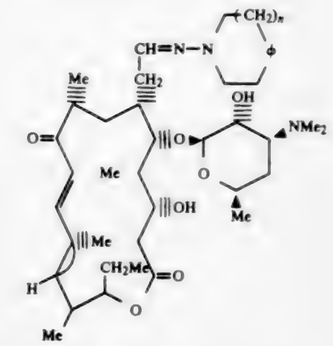
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NOVEL 20-IMINO MACROLIDE ANTIBACTERIAL AGENTS

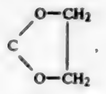
Ashit K. Ganguly, Upper Montclair, and Yi-Tsung Liu, Morris County, both of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed Jun. 23, 1980, Ser. No. 161,947
Int. Cl.³ A61K 31/71; C07H 17/08
U.S. Cl. 424—180 57 Claims

1. A compound of the formula:



Wherein D, bridging positions 12 and 13 represents a double bond or an oxirane ring; Q is a member of the group consisting of CH_2, CRR_1, NH, NR, O, S, SO_2,

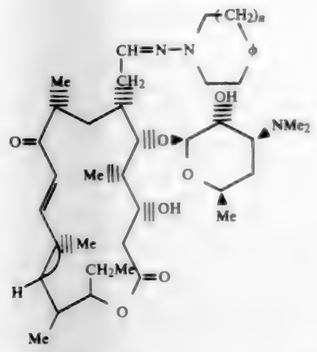


CHOH, CHOR, $CROR_1$,

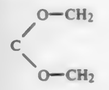


CHCOOH, CHCOOR, $CHCONH_2$, and $CHCONRR_1$; R and R_1 may be the same or different, each being a member of the group consisting of (C_1–C_8) alkyl, (C_7–C_{10}) aralkyl and (C_6–C_{10}) aryl including X-substituted aryl and aralkyl, wherein X is a member of the group consisting of halogen, trifluoromethyl, (C_1–C_5) alkoxy, and (C_1–C_5) alkylcarbonyl; and n is an integer of the group consisting of 0, 1 and 2.

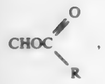
48. A method of eliciting an antibacterial response in a mammal having a bacterial infection which comprises administering to the mammal a therapeutically effective quantity of a compound of the formula:



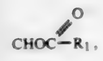
Wherein D bridging positions 12 and 13 represents a double bond or an oxirane ring; Q is a member of the group consisting of CH_2, CRR_1, NH, NR, O, S, SO_2,



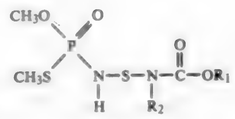
CHOH, CHOR,



CROR,



CHCOOH, CHCOOR, $CHCONH_2$, and $CHCONRR_1$; Wherein R and R_1 may be the same or different, each being a member of the group consisting of (C_1–C_8) alkyl, (C_7–C_{10}) aralkyl and (C_6–C_{10}) aryl including X-substituted aryl and aralkyl wherein X is a member of the group consisting of halogeno, trifluoromethyl, (C_1–C_5) alkoxy and (C_1–C_5) alkylcarbonyl, and N is an integer of the group consisting of 0, 1 and 2.



where R_1 is alkyl containing from 1 to 12 carbon atoms and R_2 is alkyl containing 2 to 8 carbon atoms.

13. The method of controlling insects which comprises applying to the sites of infestation an insecticidally effective amount of a compound as defined in claim 1.

4,279,898

IN VIVO INHIBITORS OF CHOLESTEROL BIOSYNTHESIS

Robert R. Engel, Carle Place; Virender K. Sarin, New York; Barry Gotlinksy, Bronx; Burton E. Tropp, Manhasset Hills, and Thomas S. Parker, New York, all of N.Y., assignors to Research Foundation of the City University of New York, New York, N.Y.

Filed Apr. 22, 1980, Ser. No. 142,631
Int. Cl.³ A01N *57/00, 45/00*
U.S. Cl. 424—217 **6 Claims**

1. Dialkyl 5-carbo[etiocholane-3′α,7′α,12′α-trihydroxy-17′β (1″ methyl-4″ butyl]oxy-4-hydroxy-4-methylpentyl-1-phosphonate wherein the alkyl group contains 1 to 8 carbon atoms.

6. The use of diethyl 5-carbohexadecyloxy-4-hydroxy-4-methylpentyl-1-phosphonate for the inhibition of cholesterol synthesis in rat liver cells.

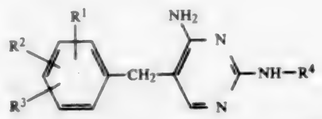
4,279,899

BENZYLPYRIMIDINES, PROCESSES FOR THEIR MANUFACTURE, AND DRUGS CONTAINING THE SAID COMPOUNDS

Klaus Gutsche, Reilingen; Peter Scharwaechter; Wilhelm Kohlmann, both of Moorege, and Gerd Kroemer, Elmshorn, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 27, 1978, Ser. No. 919,505
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1977, 2730467
Int. Cl.³ A61K *31/505;* **C07D** *237/20;* **A61K** *31/535;* **C07D** *237/49*
U.S. Cl. 424—229 **7 Claims**

1. A benzylpyrimidine of the formula



where R^1, R^2, and R^3, which may be identical or different, are in the 3-, 4-, and 5-positions of the benzene ring, and each may be selected from the group consisting of hydrogen, methyl, methoxy or chlorine, and R^4 is methyl which is substituted by alkoxy of 1 to 6 carbon atoms, wherein the alkyl may additionally be substituted by a chlorine atom or an alkoxy group of 1 or 2 carbon atoms which in turn may be substituted by alkoxy of 1 to 4 carbon atoms, or by allyloxy, cyclohexoxy, or benzyloxy, or R^4 is allyl or alkyl of 1 to 3 carbon atoms which is substituted by phenyl, chlorophenyl, hydroxyl, alkoxy of 1 or 2 carbon atoms, dialkylamino (where alkyl is of 1 or 2 carbon atoms), pyrrolidino or morpholino, or R^4 is 3-alkylisoxazolyl-5-methyl, wherein the alkyl is 1 to 4 carbon atoms.

7. An antimicrobial active composition consisting essentially of a benzylpyrimidine according to claim 1, with or without a sulfoamide, and a non-toxic pharmaceutically acceptable solid or liquid carrier.

4,279,897

(ALKOXYCARBONYL)(ALKYL)AMINOSULFENYL DERIVATIVES OF PHOSPHORAMIDOTHIOATE ESTERS

Mohamed A. H. Fahmy, and Tetsuo R. Fukuto, both of Riverside, Calif., assignors to The Regents of the University of California, Los Angeles, Calif.

Filed Mar. 7, 1979, Ser. No. 18,415
Int. Cl.³ A01N *57/30;* **C07F** *9/24*
U.S. Cl. 424—211 **19 Claims**

1. N-[(alkoxycarbonyl)(alkyl)aminosulfenyl]phosphoramidothioates of the formula

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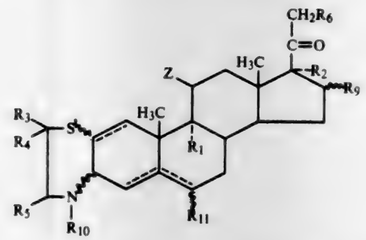
4,279,900

PRODRUGS FOR THE IMPROVED DELIVERY OF HALOGEN-CONTAINING GLUCOCORTICOSTEROIDS

Nicholas S. Bodor, Gainesville, Fla., and Kenneth B. Sloan, Eudora, Kans., assignors to Intrex Research Corporation, Lawrence, Kans.

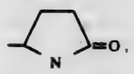
Continuation-in-part of Ser. No. 924,304, Jul. 13, 1978, abandoned. This application Jul. 27, 1979, Ser. No. 61,177
Int. Cl.³ A61K *3/58*
U.S. Cl. 424—241 **67 Claims**

1. A compound having the structural formula

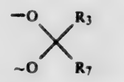


(I)

wherein R_1 and R_{11} are each H, F or Cl, with the proviso that R_1 and R_{11} cannot simultaneously be H; R_2 is OH, —$OCOC_7$, —$OCOC_8$ or C_1–C_{10} alkyl; R_3 and R_4 may be the same or different and are each H or C_1–C_8 alkyl; R_5 is H or —$COOR_7$; R_6 is OH, F, Cl, Br or —$OCOR_8$; R_7 is H, C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_5–C_7 cycloalkyl, C_5–C_7 cycloalkyl-C_6–C_{10} aryl, phenyl or C_1–C_4 alkylsubstituted phenyl; R_8 is C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_5–C_7 cycloalkyl, C_5–C_7 cycloalkyl-C_6–C_{10} aryl, phenyl, C_1–C_4 alkyl-substituted phenyl, —$(CH_2)_n$COOH wherein n is an integer of 1 to 5, or —$(CH_2)_n$$CON(R_7)_2$ wherein n and R_7 are defined as above, or R_8 is



or a 2, 3 or 4 pyridyl, wherein at least one of the hydrogen atoms therein can be replaced by a member selected from the group consisting of —$N(R_4)_2$, —$CON(R_4)_2$, —SOR_4, a halogen atom (Cl, Br, I), —$COOR_4$, —$COOCH_2N(R_4)_2$ and —$COOCH_2$—S—R_4, wherein R_4 is defined above; R_9 is H, C_1–C_8 alkyl, F, Cl or OH; or R_2 and R_9 may be combined to form a cyclic ketal of the formula



wherein R_3 and R_7 are defined as above; R_{10} is H, —COR_7 or —$COOR_7$ wherein R_7 is defined as above, with the proviso that when R_{10} is H, then the compound of formula (I) can be in the form of a pharmaceutically acceptable acid addition salt; Z is =O, β—OH or β—$OCOR_7$ wherein R_7 is defined as above; the dotted line at the 1(2)-position indicates the presence of an optional double bond; the dotted lines at the 4(5) and 5(6) positions indicate the presence of a double bond at either the 4(5) or the 5(6) position; and the wavy lines indicate the α or β configuration.

66. A pharmaceutical composition of matter useful in alleviating inflammation in or on a warm-blooded animal which comprises an anti-inflammatory effective amount of a compound as defined by claim 1, in combination with a nontoxic pharmaceutically acceptable oral or topical inert carrier therefor.

4,279,901

TOPICAL OINTMENT

Ronald M. Kudla, New York, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Dec. 31, 1979, Ser. No. 109,017
Int. Cl.³ A61K *31/58*
U.S. Cl. 424—241 **1 Claim**

1. An ointment which is essentially non-oxidizing and essentially non-aqueous for topical application of medicament, such ointment comprising from 0.5 to 5 weight percent of ethylene carbonate, polawax and white petrolatum in an amount that forms a total of 100 weight percent in the presence of an active medicament wherein the active medicament is 16α,17α-cyclopentylidenedioxy-9α-fluoro-11α,21-dihydroxy-1,4-pregnadiene-3,20-dione-21-acetate.

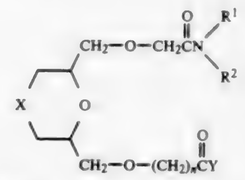
4,279,902

ANTI-ARRHYTHMIA AGENTS

Frederic P. Hauck, Bridgewater, and Glenn A. Jacobs, Princeton, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Aug. 6, 1980, Ser. No. 175,626
Int. Cl.³ A61K *31/34, 31/35, 31/335;* **C07D** *307/24*
U.S. Cl. 424—246 **11 Claims**

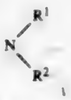
1. A compound having the structure



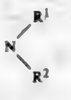
wherein X is a single bond, —CH_2— or —O—,
R^1 and R^2 may be the same or different and are lower akyl, lower alkenyl, phenyl lower alkyl, phenyl-lower alkoxy-lower alkyl, or lower alkoxy or



may be taken together to form a 5- to 7-membered saturated heterocyclic ring optionally containing one other hetero atom, which is nitrogen, oxygen, or sulfur,
Y is hydroxyl, OR or



wherein R is lower alkyl, lower alkenyl, or lower alkanoyl and R^1, R^2 and



are as defined above, with the proviso that where both



and Y are heterocycles, they are the same heterocycle, and n is an integer from 1 to 6, and when Y=OH, pharmaceutically acceptable base addition salts thereof.

11. A method for treating arrhythmia in mammals which comprises administering to a mammalian host an antiarrhythmia effective amount of a compound as defined in claim 1.

4,279,903

DIHYDROTHIAZINE DERIVATIVES

Martin Anderson, Whitstable, and Roger E. Woodall, Sittingbourne, both of England, assignors to Shell Oil Company, Houston, Tex.

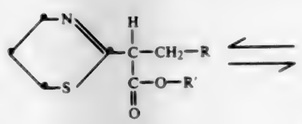
Filed May 20, 1980, Ser. No. 151,569

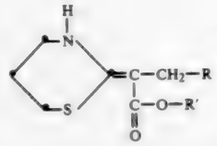
Claims priority, application United Kingdom, May 23, 1979, 17981/79; European Pat. Off., Apr. 17, 1980, 80200351.7

Int. Cl.³ A01N *43/86*; **C07D** *279/06*

U.S. Cl. 424—246 **6 Claims**

1. A tautomeric compound represented by the formulae:





wherein R is thienyl or furyl, or one of these substituted by alkyl of from one to six carbon atoms, and R^1 contains from one to ten carbon atoms, and is alkyl, alkenyl, alkynyl, cycloalkyl, or cycloalkylalkyl or one of these substituted by alkoxy or halogen, or is phenyl or benzyl, or one of these substituted by alkyl, alkoxy, halogen, haloalkyl, amino, alkylamino, dialkylamino, or nitro, and the pharmacologically acceptable acid-addition salts thereof.

6. A method for controlling helminths in an animal which comprises orally administering to an infested animal an anthelmintically effective dosage of a compound of claim 3.

4,279,904

3-AMINO-1-BENZOXEPINE DERIVATIVES AND THEIR SALTS AND PHARMACEUTICAL COMPOSITIONS THEREOF

Heinrich-Wilhelm Ohlendorf, Hanover; Klaus-Ullrich Wolf, Haenigsen; Wilhelm Kaupmann, Hannover-Kirchrode, and Henning Heinemann, Hanover, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

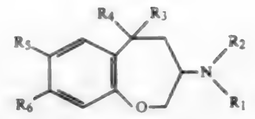
Filed Jul. 28, 1980, Ser. No. 173,075

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1979, 2931399

Int. Cl.³ A61K *31/335*; **C07D** *313/08*

U.S. Cl. 424—246 **9 Claims**

1. 3-amino-1-benzoxepine derivatives of the following Formula I:



I

wherein:

R_1 and R_2 independently of one another are
hydrogen,
C_1–C_5 alkyl,
C_1–C_5 alkyl substituted with a terminal phenyl, or a phenyl containing one or two halogens, methyl or methoxy groups, a 3,4-methylenedioxy or a 3,4-ethylenedioxy group,
C_2–C_5 alkyl substituted with terminal hydroxy or methoxy or,
C_3–C_4 alkenyl; or
one of R_1 and R_2 are hydrogen or a C_1–C_5 alkyl and the other is a C_2–C_5 alkyl substituted with a terminal NR_7R_8;
R_7 and R_8 independently of one another are hydrogen or C_1–C_5 alkyl; or
R_7 and R_8 are together a 5 to 7 member ring or said ring having heterogeneous oxygen, sulfur or nitrogen, or
R_1 and R_2 are together a 5 to 7 member ring or said ring having heterogeneous oxygen, sulfur or NR_9;
R_9 is hydrogen, methyl, benzyl, or phenyl;
one of R_3 and R_4 is hydrogen and the other hydroxy, or R_3 and R_4 together are oxygen;
R_5 and R_6 independently of one another are hydrogen, halogen, C_1–C_4 alkyl, C_1–C_4 alkoxy or C_1–C_4 alkylthio; or
one of R_5 and R_6 is trifluoromethyl or nitro and the other is hydrogen; the stereo isomers and the acid addition salts thereof.

9. A method of treating motility disorders of the gastrointestinal tract comprising administering an effective amount of 3-amino-1-benzoxepine derivative of claim 1.

4,279,905

1-BENZOXEPIN-5 (2H)-ONE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS

Heinrich-Wilhelm Ohlendorf, Hanover; Klaus-Ullrich Wolf, Haenigsen, and Wilhelm Kaupmann, Hannover-Kirchrode, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

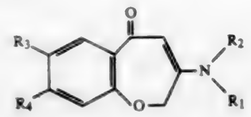
Filed Jul. 28, 1980, Ser. No. 173,076

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1979, 2931398

Int. Cl.³ A61K *31/335*; **C07D** *313/08*

U.S. Cl. 424—246 **9 Claims**

1. 3-amino-1-benzoxepin-5(2H)-one derivatives of the following Formula I



I

wherein:

R_1 and R_2 independently of one another are
hydrogen,
C_1–C_5 alkyl,
C_1–C_5 alkyl substituted with a terminal phenyl, or a phenyl containing one or two halogens, methyl or methoxy groups, a 3,4-methylenedioxy or a 3,4-ethylenedioxy group,
C_2–C_5 alkyl substituted with terminal hydroxy or methoxy or,
C_3–C_4 alkenyl; or

one of R_1 and R_2 are hydrogen or a C_1–C_5 alkyl and the other is a C_2–C_5 alkyl substituted with a terminal NR_5R_6;
R_5 and R_6 independently of one another are hydrogen or C_1–C_5 alkyl; or
R_5 and R_6 are together a 5 to 7 member ring, or
R_5 and R_6 are together a 5 to 7 member ring having heterogeneous oxygen, sulfur or nitrogen;
R_1 and R_2 are together a 5 to 7 member ring, or
R_1 and R_2 are together a 5 to 7 member ring having heterogeneous oxygen, sulfur or NR_7;
R_7 is hydrogen, methyl, benzyl or phenyl;
R_3 and R_4 independently of one another are hydrogen, halogen, C_1–C_4 alkyl, C_1–C_4 alkoxy or C_1–C_4 alkylthio; or
one of R_3 and R_4 is trifluoromethyl or nitro and the other is hydrogen;
and the acid addition salts thereof.

9. A method of treating motility disorders of the gastrointestinal tract comprising administering an effective amount of 3-amino-1-benzoxepin-5(2H)-one derivative of claim 1.

4,279,906

INDOMETHACIN-ANTIHISTAMINE COMBINATION FOR GASTRIC ULCERATION CONTROL

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Patricia A. Brown, Menlo Park, and Joan V. Danellis, Cupertino, both of Calif.

Filed Nov. 10, 1977, Ser. No. 850,504

Int. Cl.³ A61K *31/40, 31/54, 31/445*

U.S. Cl. 424—247 **8 Claims**

4. The process of claim 1 wherein there is administered about 0.025 to 0.400 gram of indomethacin and from about 0.2 to 2.0 grams of the antihistamine.

4,279,907

1,3,4-THIADIAZOLE-2-CARBOXYLIC ACID DERIVATIVES, PROCESS FOR MAKING THE SAME AND FUNGICIDAL AND NEMATOCIDAL COMPOSITIONS CONTAINING SAME

Ludwig Nüssler; Dietrich Baumert, and Ernst A. Pierok, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Berghamen, Fed. Rep. of Germany

Division of Ser. No. 101,061, Dec. 6, 1979. This application Jun. 6, 1980, Ser. No. 157,635

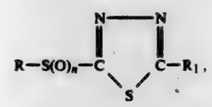
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1978, 2853196

Int. Cl.³ A01N *43/82, 43/84*

U.S. Cl. 424—248.51 **1 Claim**

1. A composition having fungicidal and nematocidal activity comprising as active agent

1,3,4-thiadiazole-2-carboxylic acid derivatives of the formula



I

wherein

R is C_1–C_6-alkyl, C_2–C_6-Alkenyl, C_2–C_6-Alkinyl or C_3–C_6-Cycloalkyl,

R_1 is C_1–C_6-alkoxycarbonyl, aminocarbonyl, C_1–C_8-alkylaminocarbonyl, C_3–C_6-cycloalkylaminocarbonyl, di-C_1–C_8 alkylaminocarbonyl, cyclohexylmethylaminocarbonyl, methoxy-C_2–C_3-alkylaminocarbonyl, morpholinocarbonyl, pyrrolidinocarbonyl, piperidinocarbonyl or cyano,

and n is 0, 1 or 2,

in an amount of about 1 to 95% by weight and a liquid or solid carrier material in an amount of about 99 to 5% by weight which carrier material may be replaced in an amount up to 20% by weight by a surface active agent.

4,279,908

PYRIDAZINE DERIVATIVES AND THEIR USE AS AGRICULTURAL FUNGICIDES

Teruomi Jojima; Hideo Takeshiba, both of Hiromachi, and Yukiyoshi Takahi, Shiga, all of Japan, assignors to Sankyo Company Limited, Tokyo, Japan

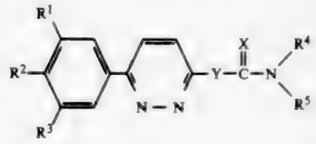
Filed Apr. 7, 1980, Ser. No. 137,779

Claims priority, application Japan, Apr. 19, 1979, 54-48209; Apr. 19, 1979, 54-48210

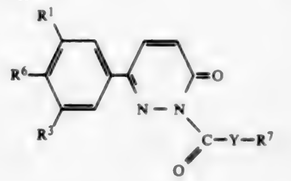
Int. Cl.³ A01N *47/16, 47/18*; **C07D** *237/14, 413/12*

U.S. Cl. 424—248.55 **24 Claims**

1. Compounds of formulae (Ia) and (Ib):



(Ia)

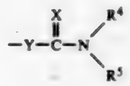


(Ib)

wherein:

R^1 and R^3 are the same or different and each represents a halogen atom, or one of R^1 and R^3 represents a halogen atom and the other represents a hydrogen atom;

R^2 represents a hydrogen atom, an alkyl group, an alkoxy group, a halogen atom or a group of formula



wherein R^4, R^5, X and Y are as defined below);

R^4 and R^5 are the same or different and each represents an alkyl group, a phenyl group, a phenyl group having one or more substituents selected from halogen atoms and lower alkyl groups, a benzyl group or a benzyl group having one or more substituents selected from halogen atoms and lower alkyl groups in its aromatic ring; or

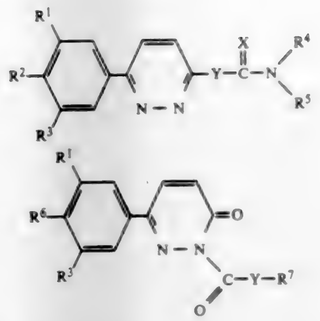
R^4 and R^5, together with the nitrogen atom to which they are attached, represent an optically substituted nitrogen-containing heterocyclic ring;

R^6 represents a hydrogen atom, an alkyl group, an alkoxy group or a halogen atom;

R^7 represents an alkyl group, a phenyl group, a phenyl group having one or more substituents selected from halogen atoms and lower alkyl groups, a benzyl group or a benzyl group having one or more substituents selected from halogen atoms and lower alkyl groups in the aromatic ring; and

X and Y, which are the same or different, each represents an oxygen atom or a sulphur atom.

9. A fungicidal composition comprising, as active ingredient an effective amount of a compound of formula (Ia) or (Ib) in admixture with an agriculturally or horticulturally acceptable carrier or diluent:



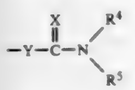
(Ia)

(Ib)

wherein:

R^1 and R^3 are the same or different and each represents a halogen atom, or one of R^1 and R^3 represents a halogen atom and the other represents a hydrogen atom;

R^2 represents a hydrogen atom, an alkyl group, an alkoxy group, a halogen atom or a group of formula



(wherein R^4, R^5, X and Y are as defined below);

R^4 and R^5 are the same or different and each represents an alkyl group, a phenyl group, a phenyl group having one or more substituents selected from halogen atoms and lower alkyl groups, a benzyl group or a benzyl group having one or more substituents selected from halogen atoms and lower alkyl groups in its aromatic ring; or

R^4 and R^5, together with the nitrogen atom to which they are attached, represent an optionally substituted nitrogen-containing heterocyclic ring;

R^6 represents a hydrogen atom, an alkyl group, an alkoxy group or a halogen atom;

R^7 represents an alkyl group, a phenyl group, a phenyl group having one or more substituents selected from halogen atoms and lower alkyl groups, a benzyl group or a benzyl group having one or more substituents selected from halogen atoms and lower alkyl groups in the aromatic ring; and

X and Y, which are the same or different, each represents an oxygen atom or a sulphur atom.

4,279,909

ANTIALLERGIC METHOD

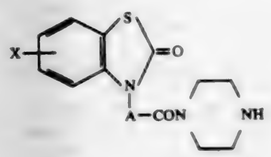
Toshiyuki Takashima, Nagaoka, Japan, assignor to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Filed Feb. 13, 1980, Ser. No. 121,039

Int. Cl.³ A61K *31/495*

U.S. Cl. 424—250 **5 Claims**

1. A method for treating allergic diseases in mammals which comprises administering an antiallergic amount of a compound of the formula:



wherein A is lower alkylene and X is halogen, or a phamaceutically acceptable salt thereof, to said mammals.

4,279,910

QUINAZOLINE THERAPEUTIC AGENTS

Simon F. Campbell, Deal, England, assignor to Pfizer Inc., New York, N.Y.

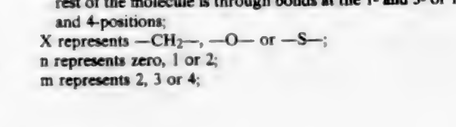
Filed Apr. 15, 1980, Ser. No. 140,534

Claims priority, application United Kingdom, Apr. 25, 1979, 14431/79

Int. Cl.³ A61K *31/505*; C07D *403/04*

U.S. Cl. 424—251 **7 Claims**

1. A compound of the formula:



and the pharmaceutically acceptable acid addition salts thereof, wherein R is alkyl having from one to four carbon atoms; and m and n are each zero, one or two, with the proviso that m plus n always equals one or two and when m is zero, n is 2.

7. A pharmaceutical composition suitable for oral or parenteral administration comprising a pharmaceutically acceptable carrier and an effective antihypertensive amount of a compound as claimed in claim 1.

4,279,911

AMINE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Michael Martin-Smith; Barry J. Price, both of Hertford; John Bradshaw, Ware, and John W. Clitherow, Sawbridgeworth, all of England, assignors to Glaxo Group Limited, London, England

Division of Ser. No. 970,534, Dec. 18, 1978, Pat. No. 4,233,302. This application Jun. 6, 1980, Ser. No. 157,203

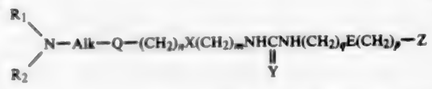
Claims priority, application United Kingdom, Dec. 23, 1977, 53716/77; Nov. 16, 1978, 44778/78

Int. Cl.³ A61K *31/34, 31/44*; C07D *213/58, 307/54*

U.S. Cl. 424—251 **7 Claims**

1. A compound of the formula (I)

(I)



or a physiologically acceptable salt, N-oxide, or hydrate thereof, in which

Y represents =O, =S, $=CHNO_2$ or $=NR_3$ where R_3 represents hydrogen, nitro, cyano, lower alkyl, aryl, lower alkyl sulphonyl or aryl sulphonyl;

R_1 and R_2, which may be the same or different each represent hydrogen, lower alkyl, cycloalkyl, lower alkenyl, aralkyl, hydroxy, lower trifluoroalkyl, lower alkyl substituted by hydroxy, lower alkoxy, amino, lower alkylamino or lower dialkylamino, or R_1 and R_2 together with the nitrogen atom to which they are attached form a pyrrolidine or piperidine ring;

Q represents a benzene ring in which incorporation into the rest of the molecule is through bonds at the 1- and 3- or 1- and 4-positions;

X represents $—CH_2—$, —O— or —S—;

n represents zero, 1 or 2;

m represents 2, 3 or 4;

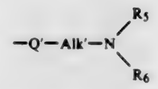
Alk represents a straight chain alkylene group of 1 to 3 carbon atoms;

q represents 2, 3 or 4 or can additionally represent zero or 1 when E is a $—CH_2—$ group;

p represents zero, 1 or 2;

E represents $—CH_2—$, —O— or —S—; and

Z represents a phenyl ring optionally substituted by at least one of lower alkyl, hydroxy, lower alkyl hydroxy, amino, lower alkoxy or halo or a furyl, thienyl, pyridyl, imidazolyl, thiazolidinyl, oxazolidinyl or pyrimidinyl ring optionally substituted by lower alkyl optionally substituted by hydroxy or halo or Z represents the group



where Q' represents a benzene ring in which incorporation into the rest of the molecule is through bonds at the 1- and 3-positions or 1- and 4-positions; Alk' represents any of the groups defined for Alk; and R_5 and R_6, which may be the same or different, each represent any of the groups defined for R_1 and R_2; except that p is not zero when E is oxygen and Z is a furan or thiophen ring system.

7. A method of treating a condition mediated through histamine H_2-receptors which comprises administering to a patient an effective amount of a compound as defined in claim 1 to relieve said condition.

4,279,912

NOVEL IMIDAZOQUINOLINES

Ian R. Ager, and Peter J. Ramm, both of Swindon, England, assignors to Roussel Uclaf, Paris, France

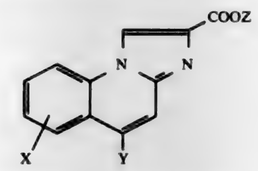
Filed Jan. 16, 1978, Ser. No. 869,842

Claims priority, application United Kingdom, Jan. 20, 1977, 2377/77

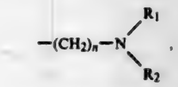
Int. Cl.³ A61K *31/47*; C07D *471/14*

U.S. Cl. 424—258 **24 Claims**

1. A compound selected from the group consisting of a compound of the formula



wherein Y is hydrogen, X is selected from the group consisting of hydrogen, halogen and alkoxy of 1 to 5 carbon atoms, Z is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, alkyl, of 1 to 5 carbon atoms substituted with two hydroxyls or protected hydroxyls and



n is an integer from 1 to 6 and R_1 and R_2 are individually alkyl of 1 to 5 carbon atoms and taken together with the nitrogen to which they are attached form a heterocyclic ring selected from the group consisting of pyrrolidino, piperidino, morpholino, piperazinyl, N-methyl-piperazinyl, N-ethyl-piperazinyl, N-propyl-piperazinyl and N-butyl-piperazinyl and non-toxic, pharmaceutically acceptable salts thereof.

8. An antiallergic and bronchodilatory composition comprising an antiallergically and bronchodilatory effective amount of at least one compound of claim 1 and an inert pharmaceutical carrier.

12. A method of relieving allergic symptoms in warm-blooded animals comprising administering to warm-blooded animals on antiallergically effective amount of a compound of claim 1.

4,279,913

POLYSUBSTITUTED-2-(3-LOWERALKYLAMINO-2-R_1O-PROPOXY)PYRIDINES

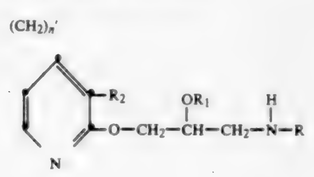
John J. Baldwin, and Gerald S. Ponticello, both of Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 866,961, Jan. 4, 1978, abandoned. This application Jan. 29, 1979, Ser. No. 7,092

Int. Cl.³ C07D *215/20, 221/04*; A61K *31/44, 31/47*

U.S. Cl. 424—258 **9 Claims**

1. A compound having the formula



wherein

n' is 3 or 4,

R is C_3–C_4 branched alkyl,

R_1 is H or



wherein L is selected from C_1–C_{10} alkyl, phenyl and substituted phenyl having up to two substituents which are independently selected from C_1–C_4 alkyl, C_1–C_4 alkoxy and halo, and

R_2 is CN,

and pharmaceutically acceptable salts thereof.

8. A pharmaceutical composition for effecting β-adrenergic blockade containing an effective amount of a compound of claim 1 and a diluent.

4,279,914

THROMBOCYTE AGGREGATION INHIBITING COMPOSITION AND METHODS

Alfred G. Maasböl, Hamburg, Fed. Rep. of Germany, and Alexander K. Sim, Falkirk, Scotland, assignors to Hermann Gottfried Schnabel Fa. and Karl O. Helm, both of Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 895,717, Apr. 12, 1978, abandoned. This application Aug. 7, 1979, Ser. No. 64,540

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1977, 2717001

Int. Cl.³ A61K *31/47, 31/485*

U.S. Cl. 424—258 **5 Claims**

1. A method for inhibiting platelet aggregation, which comprises administering to a patient in need of such treatment a composition comprising a physiologically acceptable solid or aqueous liquid carrier and a platelet aggregation inhibiting amount of at least one active compound selected from the group consisting of:

(a) tetrahydroxyaporphine,

(b) glaucine containing 50 to 100% l-glaucine, and

(c) the physiologically acceptable salts and N-alkyl ammonium salts of said compounds.

4,279,915

METHOD OF TREATMENT USING NEW LEUROSINE DERIVATIVES

Karola Jovanovics; Kalman Szasz; Bela Kellner; Laszlo Nemeth; Zsuzsa Relle; Emil Bittner; Eszter Deszeri, and Janos Eles, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Continuation-in-part of Ser. No. 422,100, Dec. 5, 1973, Pat. No. 4,189,432. This application Nov. 17, 1976, Ser. No. 742,463

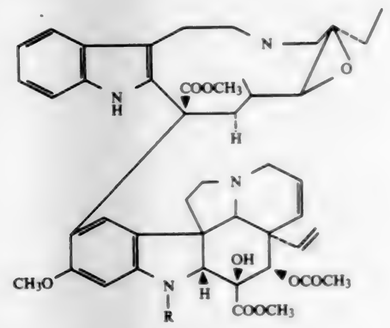
Claims priority, application Hungary, Feb. 16, 1973, RI 502

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ A61K *31/475*

U.S. Cl. 424—262 **3 Claims**

1. A method of treating leukemia, lymphomas or Hodgkin's disease in human patients comprising administering to a human patient a cytostatically effective amount of a compound effective amount of a compound of the formula I,



wherein R is formyl, or a pharmaceutically acceptable acid addition salt thereof.

4,279,916

METHOD OF TREATMENT USING NEW LEUROSINE DERIVATIVES

Karola Jovanovics; Kalman Szasz; Bela Kellner; Laszlo Nemeth; Zsuzsa Relle; Emil Bittner; Eszter Deszeri, and Janos Eles, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Continuation-in-part of Ser. No. 742,463, Nov. 17, 1976, which is a continuation-in-part of Ser. No. 422,100, Dec. 5, 1973, Pat. No. 4,189,432. This application Sep. 20, 1977, Ser. No. 834,871

Claims priority, application Hungary, Feb. 16, 1973, RI 502

Int. Cl.³ H61K *31/475*

U.S. Cl. 424—262 **1 Claim**

1. A method of treating multiple myeloma in a human patient susceptible to treatment comprising administering to a human patient susceptible to treatment a cytostatically effective amount of N-formyl-leurosine or N-formyl-leurosine sulfate.

4,279,917

AMINO ACID SOLUTION FOR INTRAVENOUS NUTRITION

Toru Takami, Yokosuka, and Yuriko Yonekawa, Kashiwa, both of Japan, assignors to Ajinomoto Company, Incorporated, Tokyo, Japan

Filed Sep. 5, 1979, Ser. No. 72,670

Claims priority, application Japan, Sep. 8, 1978, 53-110892

Int. Cl.³ A61K *31/415, 31/40, 31/195*

U.S. Cl. 424—273 R **3 Claims**

1. An amino acid based nutritional solution for intravenous administration, comprising an aqueous solution of the following amino acids:

	Mole %
L-isoleucine	6.95–7.69
L-leucine	15.36–16.98
L-lysine	3.36–3.72
L-methionine	1.06–1.18
L-phenylalanine	7.99–8.83
L-threonine	7.74–8.56
L-tryptophan	1.71–1.89
L-valine	16.35–18.07
L-cystine	2.28–2.52
L-tyrosine	0.25–0.27
L-alanine	4.22–4.66
L-arginine	5.03–5.55
L-aspartic acid	0.66–0.72
L-glutamic acid	0.40–0.44
glycine	11.58–12.80
L-histidine	3.85–4.25
L-proline	4.77–5.27
L-serine	1.39–1.53

4,279,918

2-(NUCLEARLY-SUBSTITUTED)BENZYLPYRROLIDINES

Klaus Elstetter; Hartmann Schaefer, and Heinz G. Menge, all of Constance, Fed. Rep. of Germany, assignors to Byk Gulden Lomberg Chemische Fabrik G.m.b.H., Constance, Fed. Rep. of Germany

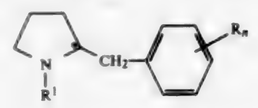
Filed Jul. 27, 1977, Ser. No. 819,460

Claims priority, application Luxembourg, Jul. 28, 1976, 75478

Int. Cl.³ C07D *207/108, 207/09, 207/10*; A61K *31/40*

U.S. Cl. 424—274 **36 Claims**

1. A physiologically-active pharmacologically-acceptable compound of the formula



(I)

wherein

R^1 is a member selected from the group consisting of —H, aliphatic hydrocarbyl, alicyclic hydrocarbyl, cycloalkylalkyl aralkyl;

each R is, independently, a member selected from the group consisting of halo, alkyl, —OH, alkoxy, acyloxy, $—NH_2$, monosubstituted amino, disubstituted amino, $—NO_2$, phenyl and substituted phenyl;

n is a positive whole number of at most 4;

and any substituent bound to an aromatic carbon atom is a sterically unhindered member selected from the group consisting of halo, alkyl, —OH, alkoxy, acyloxy, $—NH_2$, substituted amino, $—NO_2$, phenyl or substituted phenyl; any substituent bound to an aliphatic carbon atom of aralkyl is a member selected from the group consisting of —OH and oxo; any substituent of substituted amino is a member selected from the group consisting of alkyl and alkanoyl having up to 5 carbon atoms;

"aliphatic" is an open-chain, linear or branched, substituted or unsubstituted, saturated or unsaturated carbon-based radical having up to 7 carbon atoms;

"hydrocarbyl" is a saturated or unsaturated organic radical having a single available bond and composed entirely of hydrogen and carbon atoms;

"aralkyl" is aryl-substituted alkyl wherein the alkyl has from 1 to 4 carbon atoms;

"aryl" is a substituted or unsubstituted monovalent unsaturated aromatic carbocyclic radical having at most 12 ring members and from 1 to 3 rings, each of which has from 5 to 7 ring members;

"acyloxy" is a radical having at most 7 carbon atoms and of one the formulae: —O—CO—R* and —O—CS—R*, wherein R* is alicyclic hydrocarbyl, cycloalkylalkyl, phenyl or aliphatic hydrocarbyl;

"alicyclic" is a saturated or aliphatically unsaturated radical having from 3 to 7 ring carbon atoms;

"alkyl" is a straight-chain or branched-chain saturated aliphatic hydrocarbon radical having from 1 to 7 carbon atoms and a single available bond; and

"cycloalkylalkyl" is alkyl (having from 1 to 4 carbon atoms) substituted by cycloalkyl (having from 3 to 7 ring carbon atoms).

35. A process which comprises administering a CNS-stimulant or antidepressant amount of a pharmacologically-acceptable compound according to claim 1 to a warm-blooded animal requiring CNS stimulation or afflicted with depression.

4,279,919

NOVEL LACTONES OF CYCLOPENTANOLS

Jean Buendia, Le Perreux-sur-Marne, and Michel Vivat, Lagny-sur-Marne, both of France, assignors to Roussel Uclaf, Paris, France

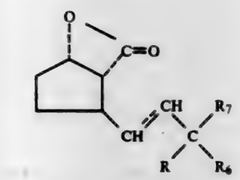
Continuation-in-part of Ser. No. 36,877, May 8, 1979, Pat. No. 4,221,809, which is a continuation-in-part of Ser. No. 779,178, Mar. 18, 1977, abandoned. This application Mar. 17, 1980, Ser. No. 131,053

Claims priority, application France, Mar. 19, 1976, 76 08004; Oct. 28, 1978, 78 30054

Int. Cl.³ A61K *31/365*; C07D *305/14*

U.S. Cl. 424—279 **6 Claims**

1. A lactone of the formula



I'

wherein the dotted line indicates the optional presence of a second bond, R is selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms and alkenyl and alkynyl of 2 to 4 carbon atoms, and R and R_6 together form a keto group, R_7 is $—(CH_2)_{m_A}—CH_3$, m_A is 3,4,5 or 6 or R_6 and R_7 taken together form $=CH—(CH_2)_{n_A}—CH_3$, n_A is 2,3,4, or 5.

5. A method of relieving hypertension and circulatory troubles in warm-blooded animals comprising administering to warm-blooded animals an hypotensively effective amount of a compound of claim 1.

4,279,920

2,2-DIMETHYL-3-(2-BROMO-2-PHENYL-VINYL)-CYCLOPROPANECARBOXYLIC ACID 3-PHENOXYBENZYL ESTERS AND PESTICIDAL USE

Rainer Fuchs; Hellmut Hoffmann, both of Wuppertal; Ingeborg Hammann, Cologne; Bernhard Homeyer, Leverkusen, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

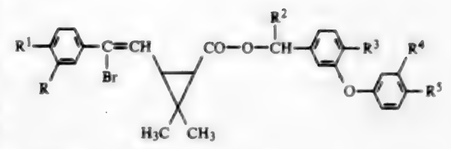
Filed Sep. 10, 1979, Ser. No. 74,045

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842542

Int. Cl.³ A01N *43/30*; C07C *69/743, 121/75*

U.S. Cl. 424—282 **10 Claims**

1. A 2,2-dimethyl-3-(2-bromo-2-phenyl-viyl)-cyclopropanecarboxylic acid 3-phenoxybenzyl ester of the formula



in which

R is hydrogen, halogen, alkyl or alkoxy,

R^1 is hydrogen, halogen, alkyl, alkoxy or alkylthio, or R and R^1 together are methylenedioxy,

R^2 is hydrogen, cyano or ethynyl, and

R^3, R^4 and R^5 each independently is hydrogen or fluorine, with the proviso that at least one of R^3, R^4 and R^5 is fluorine.

9. A method of combating arthropods which comprises applying to the arthropods, or to a habitat thereof, an arthropodically effective amount of a compound according to claim 1.

4,279,921

DICHLOROMALEIC ACID DIAMIDE DERIVATIVES AND THEIR USE AS FUNGICIDES

Gerhard Bonse, Cologne; Heinz U. Blank, Odenthal; Wilhelm Brandes, Leichlingen, and Volker Paul, Solingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

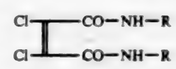
Division of Ser. No. 8,145, Jan. 31, 1979. This application Feb. 22, 1980, Ser. No. 123,868

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1978, 2807662

Int. Cl.³ A01N *43/08, 43/16*; C07D *307/54, 309/32*

U.S. Cl. 424—285 **5 Claims**

1. A dichloromaleic acid diamide of the formula



in which

R is an aliphatic radical with up to 6 carbon atoms carrying a heterocyclic group which contains 5 or 6 ring members and an oxygen hetero-atom.

4. A method of combating fungi which comprises applying to the fungi, or to a habitat thereof, a fungicidally effective amount of a compound according to claim 1.

4,279,922

PHOTOSENSITIZING BENZOFURANACRYLICS

Kurt D. Kaufman, Kalamazoo, Mich., assignor to Thomas C. Elder, Inc., Hamilton, Ind.

Filed Jul. 29, 1980, Ser. No. 173,438

Int. Cl.³ A61K *31/34*; C07D *307/79*

U.S. Cl. 424—285 **20 Claims**

1. A compound selected from the group consisting of

(a) alpha-R-beta-R-2-R-3-R-4-R-7-R-6-loweralkanoyloxy-5-benzofuranacrylic acid, wherein R in each of the stated positions is independently selected from hydrogen and loweralkyl,

(b) alkali and alkaline earth metal salts thereof, and

(c) loweralkyl esters thereof.

15. The method of effecting photochemical sensitivity on the skin of a mammal comprising the step of orally or topically administering to the said mammal an effective photosensitizing dose of a compound of claim 1.

4,279,923

COMBATING PESTS WITH 3-(2,3-DICHLORO-3,3-DIFLUORO-PROP-1-EN-1-YL)-2,2-DIMETHYL-CYCLO-PROPANECARBOXYLIC ACID FLUORO-BENZYL ESTERS

Rainer Fuchs, Wuppertal; Klaus Naumann, Cologne; Reinhard Lantzsch, Leverkusen; Hermann Hagemann; Ingeborg Hammann, both of Cologne; Bernhard Homeyer, Leverkusen; Wolfgang Behrenz, Overath, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

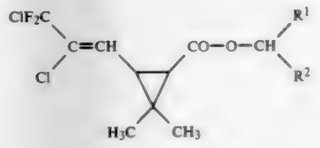
Filed Sep. 10, 1980, Ser. No. 185,836

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1979, 2939913

Int. Cl.³ A01N *53/00*; C07C *69/743, 121/75*

U.S. Cl. 424—304 9 Claims

1. A 3-(2,3-dichloro-3,3-difluoro-prop-1-en-1-yl)-2,2-dimethyl-cyclopropanecarboxylic acid fluorobenzyl ester of the formula



in which

R^1 represents hydrogen, cyano, alkyl with up to 4 carbon atoms, alkenyl with up to 4 carbon atoms or alkynyl with up to 4 carbon atoms, and

R^2 represents a phenyl radical which is substituted by fluorine and/or optionally fluorinesubstituted phenoxy, with the proviso that the radical R^2 in total contains at least one fluorine substituent.

8. A method of combating pests, comprising applying to the pests, or to a habitat thereof, a pesticidally effective amount of a compound according to claim 1.

4,279,924

MIXTURE OF STEREOISOMERS OF α-CYANO-3-(4-HALOGENOPHENOXY)BENZYL 2-(4-CHLOROPHENYL)ISOVALERATE, A PROCESS FOR PRODUCING THE SAME, AND A COMPOSITION CONTAINING THE SAME

Yukio Suzuki, Toyonaka; Kiyoshi Kasamatsu, Takarazuka, and Kohichi Aketo, Kawanishi, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

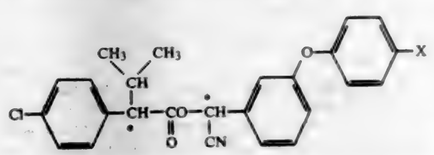
Filed Feb. 6, 1980, Ser. No. 118,887

Claims priority, application Japan, Feb. 6, 1979, 54/13034

Int. Cl.³ A01N *37/34*; C07C *121/75*

U.S. Cl. 424—304 14 Claims

1. A mixture of stereoisomers of an α-cyano-3-(4-halogenophenoxy)benzyl 2-(4-chlorophenyl)isovalerate of the formula:



wherein X is a fluorine atom, a chlorine atom or a bromine atom, and • indicates an asymmetric carbon atom, which contains at least 60% of an enantiomer pair of a compound of said formula having an (S)-configuration on both the acid and alcohol moieties and an enantiomer thereof having an (R)-configuration on both the acid and alcohol moieties.

4,279,925

N-PHENETHYLAMINOPROPIOPHENONES AS LIPOGENESIS INHIBITORS

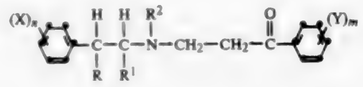
George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 115,467, Jan. 25, 1980. This application Jul. 21, 1980, Ser. No. 170,347

Int. Cl.³ A61K *31/22, 31/275, 31/165*

U.S. Cl. 424—311 1 Claim

1. A method of inhibiting lipogenesis in a mammal, which comprises administering, to a mammal in need of such treatment, orally or parenterally a lipogenesis inhibiting amount of a compound of the formula:



wherein

R is hydrogen or hydroxyl;

R^1 is hydrogen or methyl;

R^2 is hydrogen or methyl;

n is zero, one or two;

X is hydroxyl, with the proviso that when n is one, the hydroxyl moiety is bonded to the carbon atom at the 4-position in the phenyl ring, and when n is two, the hydroxyl moieties are bonded to the carbon atoms in the 3- and 4-positions of the phenyl ring;

m is one;

Y is alkanoyloxy or alkenoyloxy,

and their pharmacologically acceptable acid addition salts.

4,279,926

METHOD OF RELIEVING PAIN AND TREATING INFLAMMATORY CONDITIONS IN WARM-BLOODED ANIMALS

Tiberio Bruzzese, Milan, Italy, and Rodolfo Ferrari, deceased, late of Milan, Italy (by Lorenzo Ferrari, executor), assignors to SPA-Societa Prodotti Antibiotici S.p.A., Italy

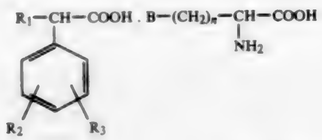
Continuation-in-part of Ser. No. 956,531, Oct. 16, 1978, abandoned, which is a continuation of Ser. No. 556,413, Mar. 7, 1975, abandoned. This application Aug. 3, 1979, Ser. No. 63,553

Claims priority, application United Kingdom, Mar. 7, 1974, 10239/74

Int. Cl.³ A61K *31/205*; C07C *101/24*

U.S. Cl. 424—316 14 Claims

1. A method of relieving pain and treating inflammatory conditions in warm-blooded animals, including humans, which comprises administering to a warm-blooded animal suffering from pain or from an inflammatory condition a phenylalkanoic acid salt of the general formula:



wherein R_1 is a hydrogen atom or a methyl radical, R_2 is a halogen atom or an alkyl radical containing up to 5 carbon atoms, which may be straight-chained or branched, or is a cycloalkyl radical or is a phenoxy or benzoyl radical, which may be substituted by one or two halogen atoms, R_3 is a hydrogen atom or an allyloxy radical, B is a primary, secondary or tertiary amino group or a guanidino or amidino group and n is a whole number not greater than 5, said salt being administered in an amount sufficient to relieve pain or to ameliorate an inflammation condition.

4,279,927

UREAS HAVING INSECTICIDE AND NEMATOCIDE ACTION

Franco Gozzo, Saronno; Luigi Abbruzzese, and Angelo Longoni, both of Milan, all of Italy, assignors to Montedison S.p.A., Milan, Italy

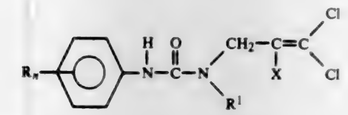
Division of Ser. No. 860,199, Dec. 13, 1977, abandoned. This application Dec. 28, 1979, Ser. No. 107,872

Claims priority, application Italy, Dec. 14, 1976, 30388 A/76

Int. Cl.³ A01N *47/28*

U.S. Cl. 424—322 23 Claims

1. Method for protecting useful agrarian plants against infestations by the insect parasites coleoptera, diptera, lepidoptera, and by nematodes, which consists in spreading on the plants quantities of at least 0.2 parts per million of a compound of general formula



in which:

R is H, halogen, methyl, ethyl or trifluoromethyl;

R^1 is H, C_1–C_3 alkyl, allyl, mono-chloroallyl, dichloroallyl, propargyl, mono-methyl propargyl, dimethyl-propargyl or phenyl;

n = 1 or 2, and

X is H or Cl.

4,279,928

METHOD OF LOWERING BLOOD PRESSURE

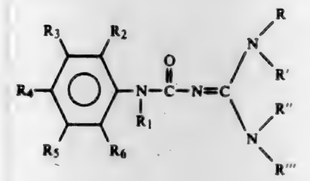
Richard L. Riley, North Wales; George H. Douglas, Malvern, and John Yelnosky, Warrington, all of Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

Filed Apr. 2, 1979, Ser. No. 26,161

Int. Cl.³ A61K *31/165, 31/16, 31/33, 31/155*

U.S. Cl. 424—324 14 Claims

1. A method for lowering blood pressure and maintaining a lowered blood pressure in humans which comprises administering multiple doses of an anti-hypertensive compound over a period of time sufficient to establish an effective blood level thereby producing a reduction in blood pressure and thereafter continuing the administration of said anti-hypertensive compound in amounts sufficient to maintain said reduction in blood pressure wherein said anti-hypertensive compound is a compound of the formula:



where:

R_2, R_3, R_4, R_5 and R_6 may be the same or different and are:

hydrogen,

halo,

lower alkyl,

halo lower alkyl,

nitro,

lower alkoxy,

hydroxy,

aryl lower alkoxy,

acyloxy,

cyano,

halo lower alkoxy or

lower alkyl sulfonyl;

R and R′ are hydrogen or lower alkyl;

R″ and R‴ are hydrogen,

lower alkyl,

lower alkoxy,

lower alkenyl,

cyano alkenyl up to 9 carbon atoms,

cyclo alkyl lower alkyl,

lower alkyl,

cyclo alkyl,

aralkyl,

lower alkynyl,

halo alkyl,

hydroxy alkyl,

alkoxy alkyl,

cyano alkyl,

amino alkyl,

mono- and di- lower alkyl amino alkyl,

carbamoyl alkyl,

mono- and di- carbamoyl alkyl,

carboxy alkyl,

alkoxy carbonyl alkyl,

aralkoxy carbonyl alkyl,

acyl,

acylalkyl,

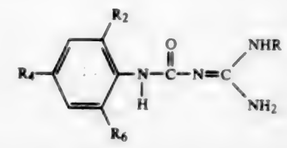
alkylsulfonyl or

aralkyl sulfonyl;

R″ and R‴ together may form a 5 to 7 atom ring which may include 0 to 2 hetero atoms of N, O or S;

R_1 is hydrogen or lower alkyl; provided at least one of R, R′, and R‴ is other than hydrogen; and the pharmaceutically-acceptable salts thereof.

10. A method for lowering blood pressure in humans which comprises the administration of a continual supply of an amidinourea sufficient to establish an effective blood level of said amidinourea, thereby inducing a reduction in blood pressure, and, thereafter, continuing the administration of said amidinourea in amounts sufficient to maintain said reduction in blood pressure; wherein said amidinourea is a compound of the formula:



wherein R is lower alkyl, or lower alkoxy; and R_2 and R_6 are the same and are lower alkyl, halo or halo lower alkyl; and R_4 is hydrogen, lower alkyl, halo, or halo lower alkyl; and the pharmaceutically-acceptable salts thereof.

4,279,929

N-PHENETHYLAMINOPROPIOPHENONES AS LIPOGENESIS INHIBITORS

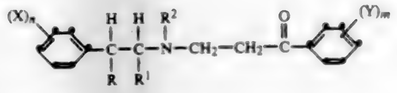
George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 115,467, Jan. 25, 1980. This application Jul. 21, 1980, Ser. No. 170,348

Int. Cl.³ A61K *31/165*

U.S. Cl. 424—324 1 Claim

1. A method of inhibiting lipogenesis in a mammal, which comprises administering, to a mammal in need of such treatment, orally or parenterally a lipogenesis inhibiting amount of a compound of the formula:



wherein
R is hydrogen or hydroxyl;
R^1 is hydrogen or methyl;
R^2 is hydrogen or methyl;
n is zero, one or two;
X is hydroxyl, with the proviso that when n is one, the hydroxyl moiety is bonded to the carbon atom at the 4-position in the phenyl ring, and when n is two, the hydroxyl moieties are bonded to the carbon atoms in the 3- and 4-positions of the phenyl ring;
m is one;
Y is one of
alkoxycarbonylamino;
alkenyloxycarbonylamino;
and their pharmacologically acceptable acid addition salts.

4,279,930

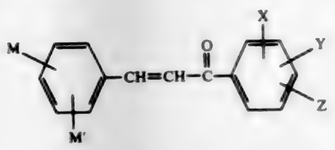
PROCESS FOR TREATING INFLAMMATION

Charles M. Hall, and Eldridge M. Glenn, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 949,457, Oct. 10, 1978, abandoned. This application Sep. 14, 1979, Ser. No. 75,822
Int. Cl.³ C07C 49/248; A01N 35/00
U.S. Cl. 424—331 **10 Claims**

1. A process for treating inflammation comprising the administration of an anti-inflammatory amount of a compound of the formula:

Formula 1



wherein M and M' are hydrogen, hydroxy, halogen, lower alkyl of from 1 to 3 carbon atoms, lower alkoxy of from 1 to 3 carbon atoms; X, Y and Z are hydrogen, hydroxy, halogen, lower alkoxy of from 1 to 3 carbon atoms or lower acyloxy of from 1 to 6 carbon atoms, in association with appropriate pharmaceutical carriers.

4,279,931

NON-CARIOGENIC HYDROGENATED STARCH HYDROLYSATE FOR CONFECTIONERY AND PROCESS FOR PREPARING THIS HYDROLYSATE

Francoise Verwaerde; Jean-Bernard Leleu, and Michel Huchette, all of Lestrem, France, assignors to Roquette Freres, France

Filed May 14, 1979, Ser. No. 38,711
Claims priority, application France, Dec. 11, 1978, 78 34830
Int. Cl.³ A23L 1/09; C13K 7/00
U.S. Cl. 426—48 **10 Claims**

1. Non-cariogenic hydrogenated starch hydrolysate for confectionery and chewing-gums, comprising less than 3% of polyols whose DP is higher than 20, 4 to 14% sorbitol, 45 to 60% of maltitol, the balance up to 100% consisting essentially of a mixture of polyols of DP 3 to 20.

4,279,932

EDIBLE LAMINAR SHEET MATERIAL AND METHOD OF PREPARATION

Daikichi Koshida, Toyonaka; Ko Sugisawa; Takashi Kimura, both of Nara, and Setsuo Nakajima, Yamatotakada, all of Japan, assignors to House Food Industrial Company Limited, Osaka, Japan

Filed Apr. 23, 1979, Ser. No. 32,705
Int. Cl.³ A23L 1/00
U.S. Cl. 426—89 **12 Claims**

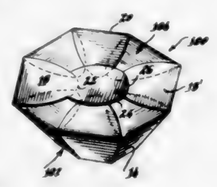
1. A method of preparing a laminar sheet material deformable in water comprising the step of adhering at least two edible sheets of different swelling properties in water along at least a portion of the surfaces of the sheets, at least one of the edible sheets being capable of swelling in water and at least one of the edible sheets being dehydrated.

4,279,933

EXPANDABLE FOOD PACKAGE CONTAINER

John J. Austin, La Grange, Ill., and George Webinger, Minneapolis, Minn., assignors to Champion International Corporation, Stamford, Conn.

Filed Jan. 30, 1980, Ser. No. 116,911
Int. Cl.³ B65D 5/28, 77/02, 81/34
U.S. Cl. 426—124 **8 Claims**



1. A quick-opening, non-metallic container housing an expandable food bag in a non-expanded stored condition and in an expanded condition having a substantially increased volume when heated, said container comprising:
a base portion including
a bottom support panel of regular polygonal shape,
an upwardly and outwardly extending trapezoidal side panel connected to each edge of said polygonally shaped bottom support panel, each one of said side panels being connected to the adjacent one thereof by a V-shaped panel to form with said bottom support panel a bowl receiving said expandable food bag in stored condition, and
an integral pop-up cover securely enclosing and storing said expandable food bag in said bowl and providing additional side support for the bag when opened and the bag is expanded, said cover including
a plurality of separate top panels, each top panel being generally semi-ovoid in configuration and having a straight edge and curved edge, said straight edge resiliently and foldably connected to one of said side panels, the edge between each top panel and said panel being greater in length than said edge between each side panel and bottom support panel
said top panels being arranged such that adjacent side edges thereof overlap while the distal end of each top panel is spaced from the distal end of the opposed top panel defining an opening over the top center of the container, and
a seal tab member of generally circular configuration, said seal tab member being removably connected to the distal end of one of said top panels,
said seal tab member being releasably attached to the distal end of the top panel opposed to said one top panel while overlapping the distal end of each of the remaining top panels so that the opening over the top center of the container is closed by the seal tab member,
said seal tab member securely holds all of said top panels in a closed position wherein the removal of said seal tab member will open said container thereby causing each of said top panels to assume a substantially upright position.

4,279,934

METHOD FOR IMPROVING THE ODOR, FLAVOR AND COLOR OF CANNED OCEAN CLAM PRODUCTS

Wayne A. Hutchison, Seaford, Del., and Steven R. DeVore, Salsbury, Md., assignors to The American Original Corporation, Seaford, Del.

Continuation-in-part of Ser. No. 839,410, Oct. 5, 1977, abandoned. This application Apr. 13, 1979, Ser. No. 29,854
Int. Cl.³ A22C 29/04; A23L 3/34
U.S. Cl. 426—262 **33 Claims**

2. A method for preparing a canned ocean quahog clam food product having improved color, odor and flavor, said method comprising the steps of:
(a) contacting an ocean quahog clam product with a treating agent selected from the group consisting of SO_2 gas, sulfurous acid, sodium sulfite, potassium sulfite, potassium bisulfite, potassium metabisulfite, ammonium sulfite and mixtures thereof;
(b) sealing the treated clam product in a container; and
(c) subjecting the sealed container to conditions of temperature and pressure sufficient to produce a sterilized canned product;
said treating agent being present in an amount sufficient to prevent the formation of off-flavor, odor and color during the treatment of step (c).

4,279,935

DRY SAUSAGE PROCESSING WITH ADDED ACID

William E. Kestor, Highland Park, Ill., assignor to Servbest Foods, Inc., Highland Park, Ill.

Filed Mar. 23, 1979, Ser. No. 23,040
Int. Cl.³ A23B 4/12
U.S. Cl. 426—264 **11 Claims**

1. A method of producing dry sausage comprising a combination of sequential substantially uninterrupted steps of:
(a) adding a quantity of food-grade bactericides and bacteriostats to comminuted meats in an amount sufficient to at least inhibit growth of commonly encountered pathogenic and nonpathogenic organisms in said meats;
(b) admixing a given amount of at least one chemical acidulating material to such meats and relatively promptly forming sausages from such acidulated meats so that a pH of less than about 5.7 is attained within said sausages;
(c) thermally treating the so-formed sausages at time-temperature conditions sufficient to attain an average internal temperature within each sausage of at least about 58° C. within about 5 to 12 hours after initiation of step (a); and
(d) subjecting the thermally treated sausages to a controlled drying environment having a relatively high temperature and a relatively low relative humidity sufficient to remove about 28 grains of water per pound of air for a period of time sufficient to reduce the moisture level in each of said sausages to a maximum of approximately 35%.

4,279,936

MALTOL TREATED CANNED MEAT PROCESS

Dorothy L. Jones, Arlington, and Frank R. Conant, Lexington, both of Mass., assignors to William Underwood Company, Westwood, Mass.

Filed Sep. 24, 1979, Ser. No. 78,240
Int. Cl.³ A23B 4/02; A23L 1/272, 1/31, 3/310
U.S. Cl. 426—265 **9 Claims**

1. In a process for preparing canned, cured, red meats wherein the pink color of the canned meat is preserved without using nitrates or nitrites, which process comprises curing the meat with a pickling brine, packing the meat in cans and heat cooking and sterilizing the canned meat,
the improvement comprising the step of mixing with said meat prior to sterilization, an amount of maltol sufficient to provide a proportion of free maltol by weight in the range of 0.02 to 0.2% in the canned meat.

4,279,937

LIQUID EXTRACT DECAFFEINATION WITH BENZYL ALCOHOL CONTAINING MIXTURES

Rudolf G. K. Strobel, Cincinnati, and Richard A. Eich, Oxford, both of Ohio, assignors to The Procter & Gamble Co., Cincinnati, Ohio

Continuation of Ser. No. 681,632, Apr. 29, 1976, abandoned. This application Jul. 11, 1977, Ser. No. 814,618
Int. Cl.³ A23F 3/38, 5/22; A23G 1/00
U.S. Cl. 426—424 **10 Claims**

1. A process for decaffeinating a liquid caffeine-containing extract selected from the group consisting of coffee beans, cocoa beans, tea and cola nuts, comprising contacting said extract with a solvent system comprising a homogeneous mixture of benzyl alcohol and one or more organic liquid thinners for benzyl alcohol, and thereafter removing the decaffeinated extract from contact with the solvent system.

4,279,938

PREPARATION OF BEVERAGES CONTAINING A HEAD OF FROTH

Peter C. R. Hildebrand, Dublin, Ireland, assignor to Arthur Guinness Son and Company, London, England

Continuation of Ser. No. 833,879, Sep. 16, 1977, abandoned. This application May 2, 1979, Ser. No. 35,426
Int. Cl.³ C12C 11/00; A23L 2/00; C12H 1/00
U.S. Cl. 426—424 **7 Claims**

1. A method of preparing and serving a beverage which includes the steps of forming a sealed container selected from the group consisting of a conventional single-chambered bottle or can for individual consumption in which the beverage is sealed from the atmosphere and has in solution therewith nitrogen gas in the range of 0.015 to 0.035 vols./vol. and carbon dioxide gas in the range of 0.8 to 1.8 vols./vol., opening the sealed container and subjecting the beverage to excitation under atmospheric pressure to an extent and time necessary to cause some of each of said gases to come out of solution and cause the formation of a head of froth, said excitation comprising injecting a liquid under pressure supersaturated with a gas selected from the group consisting of nitrogen and carbon dioxide into the beverage in such a manner as to provide small gas seeding bubbles in the body of the liquid which initiate the evolution of gas from the main body of the beverage to form a head of froth characterized by small uniform bubbles throughout.

6. A method of preparing and serving a beverage which includes the steps of forming a sealed container selected from the group consisting of a conventional single-chambered bottle or can for individual consumption in which the beverage is sealed from the atmosphere and has in solution therewith nitrogen gas in the range of 0.015 to 0.035 vols./vol. and carbon dioxide gas in the range 0.8 to 1.8 vols./vol., opening the sealed container and subjecting the beverage to excitation under atmospheric pressure to an extent and time necessary to cause some of each of said gases to come out of said solution and cause the formation of a head of froth, said excitation comprising passing the beverage through a bed of small discrete sharp edge polystyrene granules to form a head of froth characterized by small uniform bubbles througout.

4,279,939
MILK REPLACER FOR BAKING CONTAINING ISOLATED VEGETABLE PROTEIN

Iue C. Cho, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

Filed Jan. 9, 1980, Ser. No. 110,718
Int. Cl.[3] A23C *21/04;* A23J *3/00*
U.S. Cl. 426—583 13 Claims

1. A method of preparing a milk replacer containing an isolated vegetable protein for baking comprising:

(a) forming a suspension of an isolated vegetable protein material and dairy whey, said suspension having a solids level of between 3–50% by weight, said isolated vegetable protein material being present on a dry basis in an amount of 6–52% by weight and said dairy whey being present on a dry basis in an amount of 94–48% by weight;

(b) controlling the pH of the suspension to between about 5.8 to 7.5, said suspension having an added alkaline earth cation level of between 0.1 and 2.0% by weight of the solids;

(c) heating the suspension to a temperature of between about 190°–230° F. for between about 5–60 seconds; and

(d) cooling said suspension to form a milk replacer product suitable for baking.

4,279,940
CLOUDING WITH A STARCH MATERIAL

Otto B. Wurzburg, Whitehouse Station, and Julianne M. Lenchin, Plainsboro, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Feb. 1, 1980, Ser. No. 117,592
Int. Cl.[3] A23L *1/195, 2/00, 2/02*
U.S. Cl. 426—590 8 Claims

1. An improved method for clouding edible fluids, wherein the improvement comprises adding cow cockle starch, as a fat- and oil-free agent, in an amount from about 0.001% to 0.3% by weight, based on said fluid, said amount being sufficient to provide a light transmittance of 95% or less in said fluid at 540 nm, and a preservative, whereby said fluid is storage-stable.

4,279,941
LOW-FAT, BUTTER-FLAVORED SPREAD AND PROCESS

Peter M. Bosco, Brookfield Center, and William L. Sledzieski, Norwalk, both of Conn., assignors to Standard Brands Incorporated, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,626
Int. Cl.[3] A23D *3/00, 5/00*
U.S. Cl. 426—602 30 Claims

1. A low-fat, butter-flavored spread comprising: butter flavor; a dispersed phase comprising from 5 to 40%, based on the weight of the spread, of fat having an SFI profile with the following ranges

50° F.-40–80%

70° F.-25–50%

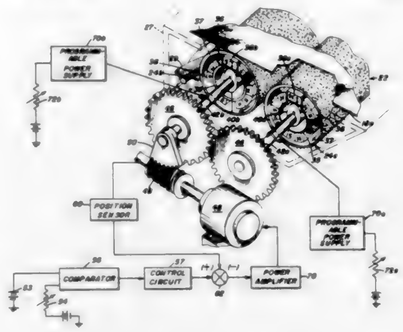
92° F.-< 10%;

a continuous aqueous phase including a stabilizer; and an emulsifier system comprising a combination of a lipophilic emulsifier and a hydrophilic emulsifier, the emulsifier system being present in an amount of from 0.3 to 4.0%, based on the total weight of the spread, and each of the lipophilic and hydrophilic emulsifiers are present at levels of at least 0.05% on the same basis; the relative and total amounts of the emulsifiers and the stabilizer being effective to provide a stable emulsion and a product which is solid at 40° F.

4,279,942
MAGNETIC FIELD ADJUSTMENT FOR MAGNETIC BRUSHES

John P. Swapceinski, Bergen, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 3, 1980, Ser. No. 126,798
Int. Cl.[3] G03G *13/08*
U.S. Cl. 427—14.1 8 Claims



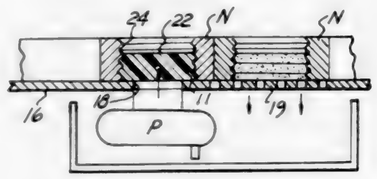
1. In magnetic brush apparatus for developing electrostatic images on an image-bearing member using a developer having a magnetic component, said apparatus including an applicator, magnetic field producing means for forming bristles of such developer on said applicator, means for contacting the bristles and images on the image-bearing member to apply toner particles to the member and bias means for applying an electric field between said applicator and image-bearing member, the improvement comprising:

means for adjusting the strength of the magnetic field forming said bristles to change the conductivity of said bristles and enhance the development of electrostatic images on the image-bearing member.

4,279,943
METHOD OF PROVIDING RING PATCH FOR NUTS

Richard B. Wallace, Bloomfield Hills, Mich., assignor to The Oakland Corporation, Troy, Mich.

Filed Jan. 28, 1980, Ser. No. 116,016
Int. Cl.[3] B05D *7/22*
U.S. Cl. 427—57 34 Claims

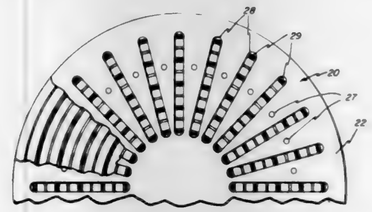


1. The method of providing a threaded nut with a solid annular coherent deposit of particles of a thermoplastic resin in the threaded interior thereof and spaced from at least one end thereof to provide a narrow circumferentially extending zone at said one end of the nut which is clear of the deposit to facilitate initiating threading onto a mating threaded part, the nut being prepared for subsequent heating to fuse the particles to form an annular zone within the nut opening in which the resin forms a solid deposit within the thread grooves and is bonded to the thread surfaces throughout said annular zone, the method comprising the steps of providing a deposit of a fluid slurry of thermoplastic resin particles in a liquid carrier in the thread grooves within the nut which deposit extends around the nut and to one end of the nut, drying the deposit sufficiently to prevent substantial fluid flow thereof and thereafter removing the deposit from thread grooves in a narrow circumferential zone extending inwardly from the said one end of the nut by the application of liquid carrier to the deposit at said one end of the nut to remove the deposit from the said narrow circumferentially extending zone, all at temperatures at least substantially below the fusion temperature of the resin particles.

4,279,944
EPOXY IMPREGNATED VENTILATED WINDING

Evangelos T. Laskaris, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,415
Int. Cl.[3] H02K *1/20*
U.S. Cl. 427—62 11 Claims



1. A method of making a superconducting winding comprising:

wrapping a strand of superconducting material around a form having a longitudinally-extending core and a flange at each end of said core to produce a plurality of layers of superconducting material surrounding said core;

following completion of wrapping of selected ones of said layers, and prior to wrapping of a next radially-outer layer, introducing a plurality of shims extending from one of said flanges in a substantially longitudinal direction to the other of said flanges at circumferentially spaced locations about the radially outer periphery of said selected ones of said layers;

impregnating said plurality of layers with a resinous bonding material in a liquid state;

curing said bonding material;

removing said form; and

removing said shims, whereby open channels are provided extending longitudinally through said windings and having an overall volume of about 5–20 percent of the total winding volume.

4,279,945
PROCESS OF PREPARING MAGNETIC RECORDING ELEMENTS CONTAINING TRANSPARENT RECORDING LAYER

Roger G. L. Audran, Villebon-sur-Yvette-Palaiseau, and Albert P. Hugueenard, Le Plessis Trevise, both of France, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 27, 1978, Ser. No. 881,968
Claims priority, application France, Mar. 2, 1977, 77 06066
Int. Cl.[3] B32B *5/16;* H01F *10/02*
U.S. Cl. 427—130 10 Claims

1. A process for preparing an element containing a magnetic recording layer which combines excellent magnetic recording and reproducing characteristics with transparency, said process comprising:

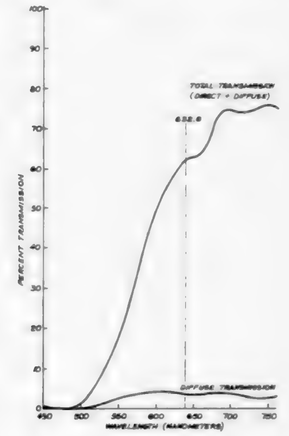
(a) Forming a substantially homogeneous dispersion of acicular magnetizable particles in a medium comprising a solution of substantially transparent binder in solvent,

said particles having an average width of less than about 0.06 micron and an average length up to about 1 micron,

said particles being ferro- or ferri-magnetic particles having a transmission of at least 10 percent for visible light having a wavelength of 632.8 nm,

the concentration of said binder being at least about 10 parts per 100 parts, by weight, of said particles; up to about 30 parts, by weight, for particles having an average length of at least about 0.06 micron and up to about 40 parts, by weight, for particles having an average length of less than about 0.06 micron,

(b) coating a support with said dispersion in an amount sufficient to provide a final dry layer thickness up to about 5 microns,



(c) removing substantially all solvent from said layer while forming pores therein and

(d) treating said layer when it contains particles having an average length of at least about 0.06 micron, with at least one of the following process steps,

(1) compacting said layer while it is in a malleable state to reduce its thickness,

(2) imbibing into said layer a substantially transparent liquid having a refractive index that is substantially the same as that of said binder, said liquid at least partially filling said pores in said layer,

said magnetic recording layer having a total transmission of at least 20 percent for visible light having a wavelength of 632.8 nm and a ratio of direct transmission to total transmission at said wavelength of at least 50 percent.

4,279,946
COATING COMPOSITIONS

Stewart Derbyshire, Birmingham, England, assignor to Foseco International Limited, Birmingham, England

Filed Aug. 29, 1978, Ser. No. 937,840
Claims priority, application United Kingdom, Sep. 7, 1977, 37385/77
Int. Cl.[3] B29C *1/04*
U.S. Cl. 427—133 10 Claims

1. A method of forming a coating on the surface of a foundry mould or core which method comprises applying to the surface a coating of a coating composition which comprises:

(i) an essentially aliphatic hydrocarbon having a flash point (Pensky-martens closed cup) in excess of 32° C., and

(ii) one or more mono alkyl ethers of a polyhydric alcohol, and a particulate refractory material, and igniting the coating to burn off the carrier liquid.

4,279,947

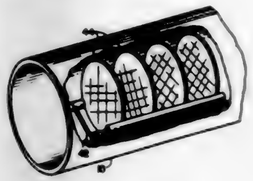
DEPOSITION OF SILICON NITRIDE

Jon C. Goldman, Tempe, Ariz.; Larry D. McMillan, Austin, Tex., and James B. Price, Phoenix, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 635,012, Nov. 25, 1975, abandoned. This application Mar. 26, 1979, Ser. No. 23,568

Int. Cl.³ C23C 11/14

U.S. Cl. 427—255.2 **4 Claims**



1. A method for the pyrolytic deposition of silicon nitride upon a plurality of substrates which comprises placing said plurality of substrates in a reactor tube with their broad faces perpendicular to the flow of a mixture of dichlorosilane and ammonia at a temperature of from about 650° C. to about 1000° C. in a vacuum of about 300 millitorr to about 10 Torr.

4,279,948

ELECTROLESS COPPER DEPOSITION SOLUTION USING A HYPOPHOSPHITE REDUCING AGENT

Peter E. Kukanskis, Watertown; John J. Grunwald, New Haven; Donald R. Ferrier, Thomaston, and David A. Sawoska, Woodbury, all of Conn., assignors to MacDermid Incorporated, Waterbury, Conn.

Division of Ser. No. 909,209, May 25, 1978, Pat. No. 4,209,331. This application Aug. 27, 1979, Ser. No. 69,742

Int. Cl.³ C23C 3/02

U.S. Cl. 427—305 **15 Claims**

1. A method of electrolessly depositing a copper plating on the surface of a workpiece comprising the steps of preparing the surface of the workpiece to render it more receptive to plating, immersing the workpiece in a solution comprising, in addition to water, a soluble source of cupric ions, a complexing agent effective to maintain said cupric ions in solution at pH levels between 5 and 13, and a reducing agent effective to reduce the cupric ion to copper as a deposited conductive metal film on the prepared nonconductive surface of the workpiece when in contact with the solution, wherein said reducing agent is a soluble source of hypophosphite ions; selecting said complexing agent to be effective at pH levels between 5 and 13 for complexing the cupric ions, and coordinating said solution pH within said range of 5 to 13 for each complexer selected to give said deposited conductive metal film.

4,279,949

PROCESS AND APPARATUS FOR COATING WEBS AND ADJUSTING THE WET APPLICATION WEIGHT OF THE COATING MATERIAL

Reinhard Esser, Bergisch-Gladbach, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Oct. 4, 1979, Ser. No. 81,784

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843371

Int. Cl.³ B05D 3/12, 1/28; B05C 11/02, 3/02

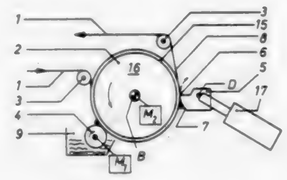
U.S. Cl. 427—356 **26 Claims**

1. A process for coating a traveling web of paper, or the like, with a coating material, comprising:

passing the traveling web over the circumferential, peripheral surface of a roll-shaped support; the support having an axis of rotation; the surface of the support being elastic where the traveling web passes over it; applying excess coating material to the outward surface of the traveling web which is passing over the support;

scraping off excess coating material from the surface of the traveling web using a scraper having a curved entrance flank that faces toward the outward surface of the traveling web, wherein the entrance flank has a sharp edged end downstream in the motion of the web past the scraper; the scraper being movable with respect to the support for moving the position of the sharp edged end thereof with respect to the support;

pressing the sharp edged end of the entrance flank against the surface of the coating material traveling by with sufficient force that the support is pressed inward by the scraper;



the axis of the support roll and the swivel axis of the scraper generally define a plane between them, and before adjustment, the sharp edged end of the entrance flank is normally pressed against the surface of the coating material at the line across the web in the said plane,

for selecting the application weight of coating material on the outward surface of the web, adjusting the length of the pressing zone at which the entrance flank presses upon the coating material by swiveling the scraper with respect to the support about a respective axis for shifting the position of the sharp edged end of the entrance flank with respect to the support so that the sharp edged end of the entrance flank is moved out of the said plane, and thereby adjusting the amount of the entrance flank that will be contacted by the coating material within the pressing zone.

4,279,950

JOINTING OF CONCRETE STRUCTURE

Hiromichi Tanaka, Chiba, and Choji Tomizawa, Funabashi, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 21, 1979, Ser. No. 105,990

Claims priority, application Japan, Dec. 26, 1978, 53-161711

Int. Cl.³ B05D 3/00, 7/00

U.S. Cl. 427—393.6 **10 Claims**

1. A method for jointing concrete structures comprising applying an adhesive to a base concrete structure and then applying new concrete thereto, said adhesive comprising an emulsion of a copolymer of ethylene and vinyl acetate, or a copolymer of ethylene, vinyl acetate and a vinyl monomer having a functional group selected from the group consisting of carboxyl, epoxy, hydroxy, methylol and alkoxy group, said copolymer emulsion having a glass transition temperature of −5° to +5° C.

4,279,951

METHOD FOR THE ELECTROLESS DEPOSITION OF PALLADIUM

William V. Hough, Butler; John L. Little, Evans City, and Kevin E. Warheit, Butler, all of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Division of Ser. No. 3,351, Jan. 15, 1979. This application Jul. 3, 1980, Ser. No. 165,479

Int. Cl.³ C23C 3/02

U.S. Cl. 427—437 **7 Claims**

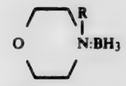
1. A method for the electroless deposition of palladium

comprising contacting a catalytically active substrate with an aqueous solution containing

(a) Between about 0.002 and 0.12 moles per liter of divalent palladium,

(b) between about 0.05 and 10 moles per liter of a base selected from ammonia, primary alkylamines having up to five carbon atoms, ethanolamine, ethylenediamine, N-methylated ethylenediamines or mixtures thereof,

(b) between about 0.005 and 0.21 moles per liter of a reducing agent selected from the group of tertiary amine boranes, consisting of trialkylamine borane, having the formula $R_1R_2R_3$, NBH_3, where R_1, R_2 and R_3 are methyl or ethyl groups; straight chain methoxy substituted dimethylamine boranes, having the formula $CH_3(OCH_2CH_2)_nN(CH_3)_2BH_3$, wherein n is an integer from 1 to 4; and N alkyl substituted morpholine borane, having the formula



where R is an alkyl group having not more than three carbon atoms, while maintaining the temperature of the bath between about 20° C. and 70° C.

4,279,952

MULTILAYER INSULATING MATERIAL AND PROCESS FOR PRODUCTION THEREOF

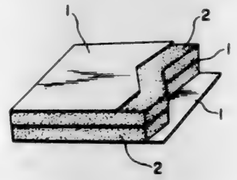
Fumio Kodama, Chofu, and Nobuo Okyama, Iwaki, both of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Japan

Filed Nov. 27, 1978, Ser. No. 965,242

Claims priority, application Japan, Dec. 14, 1977, 52/167826[U]

Int. Cl.³ D04H 1/08

U.S. Cl. 428—36 **14 Claims**



1. A multilayer heat insulating material suitable for use in heating furnaces in which a non-oxidizing atmosphere is used, which insulating material comprises a sheet of carbon fiber felt having gas permeability, and a sheet of graphite having a thickness less than 1 mm. and a density of 0.6 to 1.6 grams/cm³, bonded to at least one surface of the sheet of carbon fiber felt by means of a carbonaceous binder, the density of said graphite sheet being substantially greater than that of said felt sheet.

4,279,953

METHOD FOR TREATING POLYURETHANE FOAM

Bruce L. Barden, Mogadore, and William D. Coder, Jr., Akron, both of Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio

Filed Apr. 28, 1980, Ser. No. 144,138

Int. Cl.³ B05D 1/14, 1/16; B32B 33/00

U.S. Cl. 428—90 **10 Claims**

1. The method which comprises coating at least one surface of a flexible, open-cell polyetherurethane foam with an aqueous alkaline compounded carboxylated copolymer latex composition at a coating weight of from about 2 to 12 ounces per square yard on the foam, pressing said coating on said foam to impregnate the outer surface layers of said foam to a depth of from about 15 to 35% of the volume thickness of said foam and drying said impregnated foam at a temperature of up to about 375 degrees F. to provide said foam with an outer surface layer which resists heat degradation, the dry weight of said latex being from about 1.0 to 6.0 ounces per square yard on the foam,

I. said polyetherurethane containing from about 30 to 70 parts by weight of aluminum trihydrate per 100 parts by weight of the polyalkylenether polyol moieties of said foam and

II. said carboxylated copolymer of said latex composition being a copolymer of:

a. from about 25 to 55 parts by weight of at least one monomer selected from the group consisting of butadiene-1,3, piperylene, isoprene and 2,3-dimethyl butadiene-1,3,

b. from about 1 to 4 parts by weight of at least one monomer selected from the group consisting of acrylic acid, methacrylic acid, ethacrylic acid, sorbic acid, maleic acid, fumaric acid, itaconic acid, vinyl benzoic acid, crotonic acid and citraconic acid and

c. from about 40 to 70 parts by weight of at least one monomer selected from the group consisting of styrene, alpha-methyl styrene and vinyl toluene.

4,279,954

WEB WITH RELIEF-STRUCTURED SURFACE AND METHOD OF MAKING THE SAME

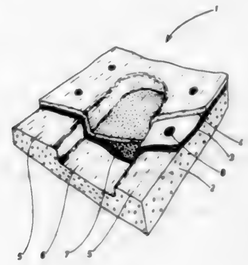
Bengt O. Johnard, Hovaas, Sweden, assignor to Forbo Betriebs AG, Zürich, Switzerland

Filed Dec. 6, 1979, Ser. No. 101,059

Claims priority, application Switzerland, Dec. 7, 1978, 12492/78

Int. Cl.³ B32B 3/12, 3/30, 3/26

U.S. Cl. 428—158 **2 Claims**



1. A decorative web, comprising a base layer of at least partially foamed macromolecular material and having a varying thickness so as to be provided with a relief-structured surface; a top layer over said surface and having a contour following the relief-structure of said surface; an intermediate printed fibrous web between said layers in conformance with said relief-structure and being composed of a fibrous material subject to deformation at the foam-forming temperature of said macromolecular material; and a printed visually observable pattern and in registry therewith a pattern of foam regulating medium which latter, on deformation of the fibrous material at the foam-forming temperature, regulates the foaming of the macromolecular material so as to cause formation of said relief-structured surface thereon.

4,279,955

WEDGE SHAPED CHUTE WALLS WITH BENT ENDS FOR CIGARETTE MAGAZINES

Heinz Focke, Verden, and Bernhard Focke, Bremen, both of Fed. Rep. of Germany, assignors to Focke & Co., Verden, Fed. Rep. of Germany

Filed Mar. 26, 1979, Ser. No. 23,916

Claims priority, application Fed. Rep. of Germany, Apr. 1, 1978, 2814166

Int. Cl.³ B32B *3/02, 15/00*

U.S. Cl. 428—174 **6 Claims**



1. A chute wall for forming chambers within a cigarette hopper, comprising:

(a) a pair of outer metal sheets (**11, 12**) disposed in an elongated V configuration,

(b) bonding means (**13**) disposed between and connecting the converging ends of the sheets together.

(c) a hardened spacer composition (**14**) filling a remaining wedge-shaped volume defined between the diverging facing inner surfaces of the sheets and not occupied by the bonding means, and

(d) a plurality of projections (**15, 16**) on the inner surfaces of the sheets proximate their diverging ends for anchoring the sheets in the spacer composition.

4,279,956

FABRIC FOR USE IN PROTECTION FOR CHAIN SAWS

Bruce E. Bartels, Cambridge, Canada, assignor to Wheelabrator Corporation of Canada Limited, Canada

Filed Mar. 28, 1980, Ser. No. 135,183

Claims priority, application Canada, Feb. 14, 1980, 345658

Int. Cl.³ B32B *23/02, 3/00*

U.S. Cl. 428—192 **15 Claims**



1. A pad for protecting against injuries caused by moving chain saw blades, comprising a plurality of superposed woven composite fabrics formed of tough synthetic resin and firmly held together at the periphery of the pad, each composite fabric comprising at least two superposed fabric layers which are interwoven into a single layer along spaced substantially parallel strips.

4,279,957

LAMINATED FILM OR SHEET STRUCTURE AND PROCESS FOR PRODUCTION THEREOF

Takayuki Hirooka, Wagi, and Kenji Fujiyoshi, Tokyo, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,067

Claims priority, application Japan, Aug. 31, 1978, 53-105636

Int. Cl.³ B32B *27/32*

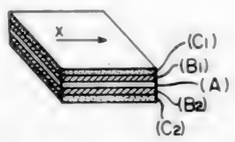
U.S. Cl. 428—212 **6 Claims**

1. A laminated film or sheet structure composed of

(i) an adhesive layer (A),

(ii) synthetic resin film layers (B_1) and (B_2) monoaxially oriented in a direction oblique to the longitudinal direction of the film, said layers (B_1) and (B_2) being located on both surfaces of said layer (A) in contact therewith, the directions of the orientations of said layers (B_1) and (B_2) crossing each other, and

(iii) at least one of a substantially non-oriented synthetic resin film layer (C_1) and a substantially non-oriented synthetic resin film layer (C_2), said layers (C_1) and (C_2)being melt-adhered to at least one of said layers (B_1) and (B_2), said layers (C_1) and (C_2) having a lower orientation temperature than said layers (B_1) and (B_2).



4,279,958

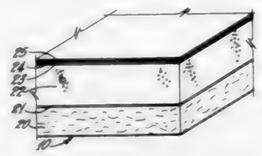
COMPOSITE FOAM PANEL

Abu Ahmad, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Nov. 23, 1979, Ser. No. 96,958

Int. Cl.³ B32B *5/20, 7/02, 17/04, 23/02*

U.S. Cl. 428—215 **10 Claims**



1. In a composite panel comprising a cellular core and an upper layer and a lower layer of organic fibers on the major surfaces of said core, said panel having upper outer and lower outer inorganic layers in contact with said upper and said lower layers of organic fibers, the improvement comprising an interposed layer of inorganic fibers in contact with said cellular core and said upper layer of organic fibers.

2. The panel of claim 1 in which said cellular core comprises a urethane foam, said upper layer and lower layer of organic fibers comprise rayon fibers, said upper outer and said lower outer inorganic layers comprise glass and said interposed layer comprises glass.

3. The panel of claim 2 in which said cellular core penetrates said interposed layer, said layers of organic fibers and said upper and lower outer glass layers to bond said layers, said core remaining substantially discrete.

4. The panel of claim 3 in which said lower outer inorganic layer comprises a glass fiber board having a thickness within the range of about ¼ inch to about 2½ inches and an apparent density within the range of about 6 to about 12 pounds per cubic foot.

5. The panel of claim 4 in which said cellular layer has a thickness within the range of from about ¼ inch to about 4 inches.

4,279,959

WATER-INSOLUBLE COPOLYMERS CONTAINING AMIDE-POLYALDEHYDE THERMOSETTABLE SYSTEM

Dominic R. Falgiatore, Philadelphia, and William D. Emmons, Huntingdon Valley, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 848,258, Nov. 3, 1977, Pat. No. 4,199,643. This application Dec. 28, 1979, Ser. No. 108,104

Int. Cl.³ D04H *1/58;* **B32B** *27/00;* **B05D** *3/02;* **D06M** *13/34*

U.S. Cl. 428—288 **19 Claims**

1. A process for making a fabric or paper which comprises treating a textile or paper substrate with

(1) a water-insoluble addition copolymer of (A) a monomer which is the product of an ethylenically unsaturated unsubstituted amide monomer condensed with one aldehyde group of a polyaldehyde, the product having at least one free aldehyde group, and (B) at least one other ethylenically unsaturated monomer; the amide monomer component of (A) and any unsubstituted amide monomer of (B) totaling up to 50% of the total monomers, by weight, and, optionally,

(2) an external crosslinker

and curing the treated substrate at an elevated temperature.

19. A treated fabric made by the process of claim 1.

4,279,960

APPLICATION OF DURABLE, ANTISTATIC, SOIL RELEASE AGENT

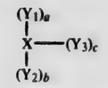
Kenneth C. Smeltz, Wilmington, Del., and Charles L. Strickler, Elkton, Md., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 932,397, Aug. 9, 1978, abandoned. This application Jun. 5, 1980, Ser. No. 156,641

Int. Cl.³ B44D *1/22;* **B32B** *27/00;* **B05D** *3/02;* **C08G** *12/30*

U.S. Cl. 428—290 **30 Claims**

1. Process for applying durable, antistatic soil release agent to a substrate, said agent being of the formula

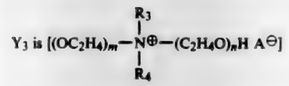


wherein

X is an aminoplast resin moiety having amino nitrogen atoms and 4 to 6 methylene groups, each of which methylene groups is attached to an amino nitrogen atom;

Y_1 is $O(C_2H_4O)_{5\text{-}20}R_1$ wherein R_1 is $C_{1\text{-}5}$ alkyl;

Y_2 is $O(C_2H_4O)_{5\text{-}88}R_1$ wherein R_2 is $C_{6\text{-}20}$ alkyl;



wherein R_3 is $C_{4\text{-}20}$ alkyl, $C_{4\text{-}20}$ alkenyl or benzyl,

R_4 is $C_{1\text{-}4}$ alkyl, $A^{\ominus}$ is an organic or inorganic anion, each of m and n is at least 1 and the sum of m and n is 12 to 100;

each of a and b is 0 to 2 and the sum of a and b is 0 to 2;

c is 1 to 2;

the sum of a, b and c is 1 to 4;

said agent having a calculated hydrophile-lipophile balance (HLB) of 14.5 to 18.0, a 20 weight % aqueous solution viscosity, as measured at 20° C. on a Brookfield viscometer, of 0.250 to 16.000 pascal seconds, an electrical resistivity (Keithley log R) on polyester fabric, at 20±2% relative humidity and 23°±1° C., of no greater than 13.00 initially and no greater than 14.25 after ten washes, and a soil release rating on polyester fabric of at least 3 initially, said process comprising the steps:

(a) diluting the agent with normally liquid medium to achieve the desired application liquid viscosity,

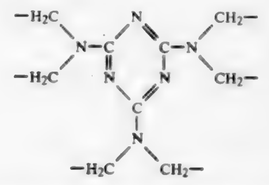
(b) adding sufficient salt of a mono-, di- or trivalent metal or of an ammonium cation to achieve a cloud point (measured as described herein), of the diluted agent of step (a) of less than 100° C. but greater than 25° C., or adding sufficient polyacidic compound having a second dissociation constant of greater than 1×10^{-8} to achieve a pH of the diluted agent of step (a) of 3.0 to 6.0, or adding both said salt and said polyacidic compound to achieve said cloud point and pH,

(c) applying the diluted agent of step (b) to the subtrate to be treated so as to achieve the desired level of agent on the substrate,

(d) drying and curing the agent on the substrate, and

(e) recovering substrate which has been durably treated with the agent of the aforesaid formula.

20. Process of claim 1 wherein Y_1 is $O(C_2H_4)_{10\text{-}16}CH_3$, Y_2 is $O(C_2H_4O)_{15\text{-}30}C_{13}H_{27}$, R_3 is $C_{8\text{-}18}$ alkyl, R_4 is CH_3, $A^{\ominus}$ is $^{\ominus}OSO_3CH_3$, m+n is 20 to 50, and X is



28. The product of the process of claim 20 which product is a textile fabric.

4,279,961

ELECTROSTATIC RECORD MATERIAL

Hironari Fujioka, and Hajime Matsubayashi, both of Amagasaki, Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Japan

Filed Apr. 16, 1980, Ser. No. 140,710

Claims priority, application Japan, Apr. 20, 1979, 54-49275

Int. Cl.³ B32B *5/16;* **G01D** *15/06*

U.S. Cl. 428—328 **2 Claims**

1. An electrostatic record material comprising a support substrate sheet, an electroconductive base layer on said support, and a record forming layer on said base layer, wherein the improvement comprises utilizing an electroconductive base layer comprising:

(i) a zinc oxide powder containing relatively small amounts of at least one additive member selected from the group consisting of Al_2O_3, Cr_2O_3, Ga_2O_3 and In_2O_3, said powder having a specific resistivity of 0.01 to 900 ohm-cm at a pressure of 150 Kg/cm^2; and

(ii) two coloring agents each in an amount of 0.0001 to 0.03 part by weight per 100 parts by weight of said zinc oxide powder, wherein one of said coloring agents has a spectral reflectance of 400 to 530 nm and the other of said coloring agents has a spectral reflectance of 580 to 800 nm.

4,279,962
PROTECTIVE COATING FOR CATHODICALLY PROTECTED METAL SURFACES

Rainer-Leo Meyer, Krämerstrasse 1, D-7580 Bühl-Vimbuch, Fed. Rep. of Germany; Reinmar John, Achern, Fed. Rep. of Germany; Bernhard Eisenhauer, Rastatt, Fed. Rep. of Germany, and Herta Baumstark, Rheinmünster, Fed. Rep. of Germany, assignors to Olga Meyer and Rainer Meyer, both of Bühl, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,207

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1978, 2855120

Int. Cl.³ B32B *15/08, 15/18*

U.S. Cl. 428—332 **12 Claims**

1. Protective coating on a cathodically protected metal surface comprising a base coating and a cover coating, in which the base coating includes a zinc powder capable of hardening or curing under ambient air humidity and having a composition, all parts being approximate and by weight, comprising:

6–10 parts polyisocyanate-prepolymer with an NCO content of about 16% and capable of hardening under ambient humidity,
7–9 parts high boiling point aromatic solvent,
0.01–0.03 parts deaeration substance,
0.3–0.8 parts drying and stabilizing substance,
3–6 parts gelling substance,
0.3–0.5 parts wetting agent,
4–7 parts pigment in flake form and
65–75 parts zinc powder and
a cover coating which comprises a polyurethane-tar coating capable of hardening under ambient air humidity comprising:
16–20 parts aromatic polyisocyanate with an NCO content of 5–7%,
1–3 parts liquid higher molecular polyisocyanate with an NCO content of 3–4%,
5–20 parts tar with a viscosity of 5600 to 6400 poise/25° C.,
6.5–8 parts drying agent,
0.05–0.1 parts deaeration agent,
3.5–4.5 parts precipitation prevention agent,
30–40 parts micaceous iron ore or hematite powder,
5–10 parts inorganic filler, and
2–5 parts stabilizing agent.

4,279,963
ENAMEL SLIP

Vasily M. Gladush, ulitsa Kirova, 7, kv. 41; Nesa G. Eremenko, Topol, 3, korpus 2, kv. 45; Ljudmila V. Markina, prospekt Geroev, 11, kv. 29; Evgeny S. Kochnev, prospekt Pravdy, 67, kv. 363, all of Dnepropetrovsk; Mikhail P. Krainik, ulitsa Suchkova, 228, kv. 2; Evgenia E. Cherkasova, ulitsa Shosseinaya, 2, kv. 9, both of Novomoskovsk, and Nikolai M. Lyashenko, ulitsa Suchkova, 71, Novomoskovsk, all of U.S.S.R.

Filed Mar. 20, 1980, Ser. No. 132,098

Int. Cl.³ B32B *15/04, 17/06;* **C03C** *5/06*

U.S. Cl. 428—433 **5 Claims**

1. An enamel slip containing frit, an electrolyte, quartz sand and water, characterized in that it contains nepheline as the suspending agent and has the following composition, parts by weight:

frit	100
electrolyte	0.8–2.5
nepheline	1.5–10
quartz sand	1.0–40
water	40–50

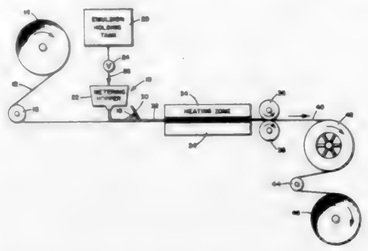
4,279,964
FROTH COATING OF PAPER PRODUCTS AND PROCESS FOR FORMING SAME

David S. Heller, Dover, Del., assignor to Reichhold Chemicals, Incorporated, White Plains, N.Y.

Filed Nov. 26, 1979, Ser. No. 97,144

Int. Cl.³ B32B *23/08, 27/10;* **B05D** *3/12, 3/02*

U.S. Cl. 428—496 **27 Claims**



1. A process for producing a smooth coated paper product having improved opacity and ink hold-out characteristics comprising:

(a) applying at least one coating to the surface of a paper substrate of a frothed emulsion containing a plurality of very fine cells formed from a curable elastomeric resin emulsion having at least 10 parts by weight of filler solids based on 100 parts by weight of elastomeric resin solids;
(b) spreading said frothed elastomeric resin emulsion over the surface of a paper substrated to produce a substantially uniform, thin frothed coating;
(c) partially curing said applied thin frothed coating;
(d) passing said partially cured froth coated paper substrate through a set of calendar rolls to compress said frothed coating to reduce its thickness by about 80 to about 99 percent to form a thin, densified smooth layer, the said layer being from about 2 to about 6 mils in thickness; and
(e) finally curing said densified frothed coating to form a smooth continuous coating intimately bonded to the surface of the paper product.

19. A smooth coated paper substrate having at least one thin densified frothed surface formed on a paper substrate by compressing a thin layer of a frothed elastomeric emulsion according to the process of claim 1.

4,279,965
BLANK PIPE FOR MANUFACTURE

Orvar Elmqvist, Bodalsvägen 4,, 141 36 Lidingö, Sweden

PCT No. PCT/SE78/00023, § 371 Date Apr. 2, 1979, § 102(e) Date Mar. 15, 1979, PCT Pub. No. WO79/00079, PCT Pub. Date Feb. 22, 1979

This PCT application filed Mar. 15, 1979, Ser. No. 24,653

Int. Cl.³ F16L *9/16, 11/16*

U.S. Cl. 428—582 **3 Claims**

1. A blank for pipe manufacture, intended to be wound helically so that a joint is formed between adjacent turns in the helically wound blank thereby, that a portion on one lateral edge (**11**) on the blank in a turn is fitted into a portion on the remaining lateral edge (**12**) of the blank in an adjacent turn, characterized in that a portion (**13**) located between said two portions on the lateral edges of the blank has a bulge, which encloses a cavity and has such configuration, that the cross-section area (**18**) of the cavity enclosed by the bulge in a section through the transverse direction of the blank is substantially greater than the cross-section area (**21**) in said section between the two adjacent edges (**19,20**) on the blank, which edges constitute the places of attachment of the bulge, and that the cross-section area (**18**) of the cavity enclosed by the bulge

includes distances in said section substantially in parallel with the transverse direction of the wall blank, which distances (for



example **22**) are substantially longer than the distance (**21**) between said adjacent edges (**19,20**) on the blank.

4,279,966
PRESSURE RESISTANT SQUARE PANEL

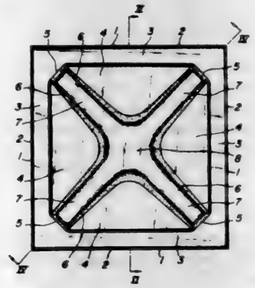
Hiroshi Wakana, Fuchu; Shigeru Yamada, Kiyose, and Akira Sato, Higashimurayama, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan

Filed Apr. 6, 1979, Ser. No. 27,702

Claims priority, application Japan, Apr. 10, 1978, 53-45894[U]

Int. Cl.³ E04C *2/32, 2/50*

U.S. Cl. 428—595 **13 Claims**



1. In a pressure resistant panel receiving a uniform loading by hydraulic pressure and made of steel, cast iron and the like, including reinforcing ribs extending from corners to a center of said panel to form a substantially X-shaped rib as viewed in a plane of the panel, and flanges extending in a uniform height along peripheral edges of a pressure receiving surface of the panel, the improvement comprising, a bottom portion along bottom edges of said flanges of said pressure receiving surface and flat portions slightly higher than and inside said bottom portion, said reinforcing ribs being formed progressively higher from said corners toward the center of the panel.

4,279,967
SOFT COPPER ALLOY CONDUCTORS AND THEIR METHOD OF MANUFACTURE

Kazuo Sawada, Abenomotomachi, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 1,955, Jan. 8, 1979, Pat. No. 4,233,067. This application Apr. 23, 1980, Ser. No. 143,114

Claims priority, application Japan, Jan. 19, 1978, 53-5070; Jan. 20, 1978, 53-5530

Int. Cl.³ B32B *15/20*

U.S. Cl. 428—647 **4 Claims**

1. A soft copper alloy conductor which consists essentially of 5–200 ppm of calcium, the balance being substantially copper, and a coating on the surface of the copper alloy conductor of at least one metal selected from the group consisting of tin, lead and their alloys.

4,279,968
COINS AND SIMILARLY DISC-SHAPED ARTICLES

Michael J. H. Ruscoe, St. Albert; Kshitindra M. Sarkar, Saskatoon, and Maurice A. Clegg, Fort Saskatchewan, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Canada

Division of Ser. No. 31,709, Apr. 20, 1979. This application Aug. 11, 1980, Ser. No. 176,944

Int. Cl.³ B32B *15/00*

U.S. Cl. 428—677 **1 Claim**

1. A blank suitable for minting into a coin or similarly disc-shaped article comprising a disc-shaped steel core, an intermediate metal coating electroplated on and encasing the core, said intermediate metal being selected from the group consisting of nickel and zinc, and said intermediate metal coating having a thickness of at least about 0.005 mm on each opposed face of the core and a thickness on the peripheral edge of the core measured radially in the range of from about 2 to about 4 times the face thickness, and a copper coating electroplated on and encasing the intermediate coating and core, the copper coating having a thickness of at least about 0.05 mm on each opposed face of the core and a thickness on the peripheral edge of the core measured radially in the range of from about 2 to about 4 times the face thickness, the intermediate metal coating being metallurgically bonded to the core by a layer of interdiffused intermediate metal and steel, the copper coating being metallurgically bonded to the intermediate metal coating by a layer of interdiffused copper and intermediate metal, and the hardness of the steel core being less than about 65 on the Rockwell 30T hardness scale.

4,279,969
METHOD OF FORMING THIN NIOBIUM CARBONITRIDE SUPERCONDUCTING FILMS OF EXCEPTIONAL PURITY

Thomas L. Francavilla, Washington, D.C., and Stuart A. Wolf, Greenbelt, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 20, 1980, Ser. No. 122,945

Int. Cl.³ C23C *15/00*

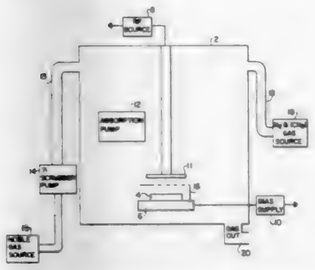
U.S. Cl. 428—698 **8 Claims**

1. A method for the preparation of superconducting thin films of niobium carbonitride of exceptional purity, comprising:

assembling within a closed reactor a dielectric substrate and a pure niobium target;
evacuating the reactor to a pressure of about 10^{-10} Torr, while heating the components contained within the reactor so as to substantially eliminate all volatile impurities therefrom;
admitting an inert gas into the reactor until the inert gas attains a pressure within the range of about 6 to 8×10^{-2} Torr;
heating the dielectric substrate to a temperature of 600° C. to 1200° C.;

initiating presputtering while protecting the substrate from any deposition with a protective cover;

admitting cyanogen gas or a nitrogen-cyanogen gas mixture at a substantially constant volumetric flow rate of about 10^{-6} Torr liters/sec into the reactor, wherein the cyanogen gas is admitted into the reactor at a constant flow rate which ranges from 10^{-9} to 10^{-6} Torr liters/sec;



removing the protective-covering of the dielectric substrate after a partial pressure of about 5 microns of reactant gas is obtained in the reactor;

applying a constant RF power density of about 10–20 watts/cm^2 to the niobium target in order to initiate reactive sputtering;

forming a thin NbCN film of a desired thickness;

cooling the reactor and the deposited film back to room temperature and pressure.

4,279,970

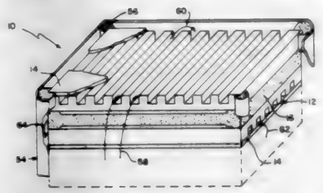
ELECTROCHEMICAL CELL INCLUDING RIBBED ELECTRODE SUBSTRATES

Richard D. Breault, Coventry, Conn.; Glen J. Goller, West Springfield, Mass.; Richard J. Roethlein, Stafford Springs, and Gilbert C. Sprecher, Bolton, both of Conn., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Feb. 20, 1980, Ser. No. 122,857

Int. Cl.^{3} H01M *2/08*

U.S. Cl. 429—35 **8 Claims**



1. In an electrochemical cell including an electrolyte retaining matrix layer located between and in contact with a pair of catalyst layers, a pair of substrates to be positioned in confronting engagement with said catalyst layers, respectively, each of said substrates comprising a gas porous main body having an overall outer periphery including opposite ends of opposite lengthwise sides, an inner face adapted for confronting engagement with one of said catalyst layers and an outer face including a ribbed section thereof which is provided for receiving reactant gas and which extends lengthwise from one end of said main body to the other end thereof between opposite lengthwise side portions of said main body, each of said lengthwise side portions including along its entire length between the opposite ends of said main body a channel extending inwardly therein from one of said inner or outer faces to but stopping short of the other of said faces so as to provide a web directly between said channel and said other face, each of said channels being filled with a gas impervious substance and each of said webs being impregnated with a gas impervious substance so as to provide a gas impervious seal along the entire length of each of said side portions and between the opposite faces thereof.

5. An electrochemical cell comprising an electrolyte retaining matrix layer located between and in contact with a pair of catalyst layers, a pair of substrates positioned in confronting relationship with said catalyst layers, respectively, each of said substrates including a gas porous main body having an overall outer periphery including opposite ends and opposite lengthwise sides, an inner face adapted for confronting engagement with one of said catalyst layers and an outer face including a ribbed section thereof which is provided for receiving reactant gas and which extends lengthwise from one end of said main body to the other end thereof between opposite lengthwise side portions of said main body, each of said lengthwise side portions including along its entire length between the opposite ends of said main body a channel therein extending inward from one of said faces to but stopping short of the other of said faces so as to provide a web directly between said channel and said other face, each of said channels being filled with a gas impervious substance and each of said webs being impregnated with a gas impervious substance so as to provide a gas impervious seal along the entire length of each of said side portions and between the opposite faces thereof.

4,279,971

ELECTROLYTE STRUCTURE WITH STRONTIUM TITANATE MATRIX FOR MOLTEN CARBONATE FUEL CELLS

Ronald H. Arendt, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 90,880, Nov. 5, 1979. This application Apr. 24, 1980, Ser. No. 143,173

Int. Cl.^{3} H01M *8/08*

U.S. Cl. 429—46 **1 Claim**

1. An improved molten carbonate fuel cell electrolyte structure consisting essentially of, based on the total weight of the electrolyte structure, from about 55% by weight to about 75% by weight of strontium titanate and about 25% by weight to about 45% by weight of alkali metal carbonate electrolyte, said strontium titanate having a crystallite morphology which is at least significantly spherical and which has an average size ranging from about 0.1 micron to about 1 micron, said strontium titanate being selected from the group consisting of stoichiometric strontium titanate, strontium-rich titanate and mixtures thereof, said alkali carbonate being selected from the group consisting of a ternary lithium-potassium-sodium carbonates composition, a binary lithium-potassium carbonates composition, a binary lithium-sodium carbonates composition, a binary sodium-potassium carbonates composition and mixtures thereof, said electrolyte structure being at least substantially pore-free when said electrolyte is in molten form.

4,279,972

NON-AQUEOUS ELECTROLYTE CELL

Peter R. Moses, Windham, N.H., assignor to Duracell International Inc., Bethel, Conn.

Filed Aug. 27, 1979, Ser. No. 70,198

Int. Cl.^{3} H01M *10/44*

U.S. Cl. 429—50 **18 Claims**

1. A stabilized electrochemical cell comprising an anode comprised of a metal above hydrogen in the EMF series, a water retaining metal oxide cathode having water in normally detrimental amounts up to 2% by weight thereof retained therein, a nonaqueous electrolyte solvent and an electrolyte salt dissolved in said solvent characterized in that said solvent and said salt are substantially unreactive with respect to the formation of a gaseous reaction product in the presence of said water and wherein said salt is selected from the group consisting of lithium salts of PF_6^-, $CF_3SO_3^-$ and BF_4^-.

4,279,973

ELECTROCHEMICAL CELL

Hanumanthiya V. Venkatasetty, Burnsville, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 14, 1980, Ser. No. 139,933

Int. Cl.^{3} H01M *6/14*

U.S. Cl. 429—101 **6 Claims**

1. A high rate electrochemical cell, comprising:

a lithium anode;

a cathode and a depolarizer electrolyte of an electrolyte amount of aluminum chloride dissolved in thionyl chloride; and

a conductivity increasing amount of gallium chloride.

4,279,974

SOLID ELECTROLYTIC MATERIAL AND USE THEREOF

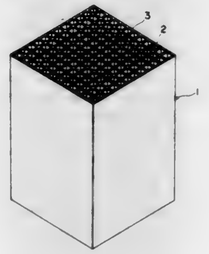
Shinji Nishio, Nagoya, Japan, assignor to NGK Spark Plug Co., Ltd., Nagoya, Japan

Division of Ser. No. 939,109, Sep. 1, 1978, abandoned. This application Mar. 19, 1980, Ser. No. 131,721

Claims priority, application Japan, Sep. 2, 1977, 52/106193; Jan. 26, 1978, 53/6745; Feb. 23, 1978, 53/19029

Int. Cl.^{3} H01M *4/36*

U.S. Cl. 429—104 **9 Claims**



1. A storage battery comprising a partitioning membrane, an anolyte consisting of molten sodium metal and a catholyte selected from the group consisting of sodium sulfide and a mixture of antimony chloride, aluminum chloride and sodium chloride, wherein the partitioning membrane has a honeycomb structure formed by a plurality of unit tubes arranged in close configuration, the cross-sectional shape of said unit tubes being polygonal, said partitioning membrane with said honeycomb structure consisting of fluid-impermeable alkali ion-conductive material selected from β-alumina (β-Al_2O_3) or β-alumina containing β''-alumina (β''-Al_2O_3), and said partitioning membrane with said honeycomb structure providing alternating anode and cathode cells, each separated by said membrane, and thus providing a plurality of unit cells, said unit cells being connected in series or in parallel.

4,279,975

HERMETIC SEAL CLOSURE

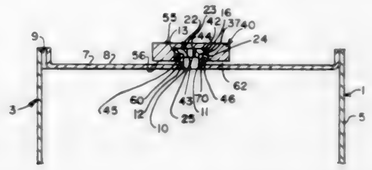
Benjamin Bowsky, Warren County, Ohio, assignor to Emerson Electric Co., St. Louis, Mo.

Filed Jun. 9, 1980, Ser. No. 157,900

Int. Cl.^{3} H01M *2/02*

U.S. Cl. 429—181 **10 Claims**

1. In a battery having a sealed case containing corrosive liquid, said case including an end wall with an aperture in it, the improvement comprising an axially out turned lip in said end wall, said lip having an outer side wall, an inner side wall and a free radial surface between said side walls, said inner side wall defining said aperture in said end wall; a washer of material substantially impervious and resistant to said corrosive liquid, said washer having a wall part with an under surface projecting radially beyond the perimeter of said lip and covering the free radial surface of said lip and positioning means for locating said washer with respect to said lip, said washer having an opening extending axially through it; a terminal cap of electrically conductive material having a cavity defined by an inner side wall and a central web spanning the boundry defined by said inner side wall, said inner side wall embracing said washer and projecting axially beyond said washer toward said case end wall but spaced axially from said case end wall, and



bonding material bonded to and extending hermetically uninterruptedly through space between the said outer side wall of the said lip and the inner side wall of said terminal cap and between those said walls and said under surface of the said washer, whereby the said cap, washer and case are bonded to one another, and the case is hermetically sealed at said terminal cap.

4,279,976

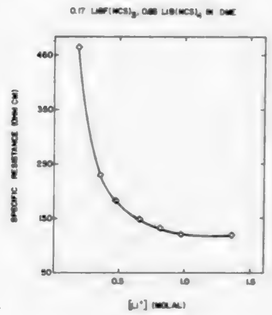
PSEUDOHALIDE-CONTAINING SALTS FOR ELECTROLYTES OF ALKALI-METAL ELECTROCHEMICAL DEVICES

Lawrence P. Klemann, Somerville, and Gerald H. Newman, Westfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jul. 7, 1980, Ser. No. 166,066

Int. Cl.^{3} H01M *6/14*

U.S. Cl. 429—197 **13 Claims**



1. An electrolyte for an alkali-metal electrochemical device, comprising:

(a) an organic solvent selected from a group consisting of ethers, esters, sulfones, organic sulfites, organic sulfates, organic nitrites and organic nitro compounds; and

(b) at least one electrolytically active alkali-metal complex anion salt having the formula:

$$ZMR_xQ_y$$

wherein Z is an alkali metal;

wherein M is an element selected from a group consisting of B, Al, P and As;

wherein Q is at least one pseudohalide selected from a group consisting of: SCN^-, $SeCN^-$, CN^- and OCN^-;

wherein R is selected from a group consisting of: heteroa-

tom-containing groups bonded to M, the core element, through the heteroatom site, aryls, alkaryls, F, Cl, Br, fluorine-substituted aryls, and fluorine-substituted alkaryls; and

wherein x and y are positive integers, a sum of x plus y being equal to one plus the valence of the core element M, and further,

wherein x is zero or a positive integer.

4,279,977

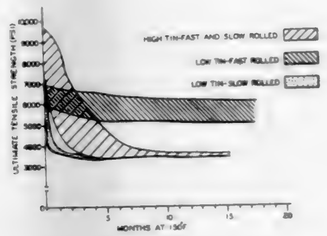
LEAD-CALCIUM-TIN BATTERY GRID

Robert C. Matter, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 940,993, Sep. 11, 1978, Pat. No. 4,228,580, which is a continuation-in-part of Ser. No. 886,078, Jun. 20, 1978, abandoned. This application May 27, 1980, Ser. No. 153,335

Int. Cl.³ H01M 4/66

U.S. Cl. 429—245 **1 Claim**



1. In an automotive, maintenance-free, lead-acid storage battery including leady, electrochemically active material and supporting grids for said material, the improvement comprising said grids: being less than 0.07 in. thick and comprising a fine-grained, wrought, recrystallized, lead-calcium alloy consisting essentially of about 0.07% to about 0.11% calcium, no more than about 0.35% tin and the balance principally lead; displaying a corrosion-resisting microstructure comprising a substantially fine-grained structure having small islands of substantially uniform-calcium-content structureless phase dispersed throughout a pearlite-like lamellar-structure phase having alternate layers of Ca-rich and Ca-lean lamella; and manifesting a tensile strength of at least about 5000 psi which is stable at 150° F. for periods of at least 1 year.

4,279,978

BATTERY SEPARATOR EMPLOYING ZINC SELECTIVE ADDITIVE MATERIALS

Mark G. Dodin, Danbury, and Allen Charkey, Brookfield, both of Conn., assignors to Energy Research Corporation, Danbury, Conn.

Filed May 23, 1980, Ser. No. 152,725

Int. Cl.³ H01M 2/16

U.S. Cl. 429—248 **18 Claims**

1. A battery separator for use with battery having an alkaline electrolyte and an electrode comprised of zinc active material, said separator including a polyamide constituent, a wettable polymeric constituent and a filler material reactive with zinc.

4,279,979

NONWOVEN FIBROUS SUBSTRATE FOR BATTERY SEPARATOR

Arthur L. Benson, Suffield, and David A. Jordan, Simsbury, both of Conn., assignors to The Dexter Corporation, Windsor Locks, Conn.

Filed Nov. 9, 1978, Ser. No. 959,110

Int. Cl.³ H01M 2/16

U.S. Cl. 429—254 **10 Claims**

1. A nonwoven fibrous web material suited for use as a substrate for an alkaline battery separator comprising a light weight, porous, heat bonded, synthetic organic sheet material resistant to degradation upon prolonged exposure at elevated temperatures to a highly concentrated alkaline environment, said fibrous web material having a basis weight of less than 50 gsm and a thickness of less than about 200 microns, a major fibrous component of the web being a synthetic thermoplastic polyolefin fiber having a microfibrillar structure comprised of microfibrils similar to wood pulp, a minor fibrous component of the web being a polyamide fiber having a fiber length greater than about 6 mm, the heat bonding by partial fusion of the microfibrillar polyolefin being sufficient to impart to the sheet material a wet tensile strength of at least 400 g/in. width while retaining an air permeability greater than about 50 liters/min., said substrate exhibiting excellent receptivity to pore-forming battery separator coatings.

4,279,980

ELECTROPHOTOGRAPHIC SENSITIZING SCREEN

Masaji Nishikawa; Norio Amemiya; Tadahiro Yasuda, and Shigeru Nakayama, all of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Division of Ser. No. 918,823, Jun. 22, 1978, abandoned. This application Nov. 28, 1979, Ser. No. 98,316

Claims priority, application Japan, Jun. 24, 1977, 52/74969; Jun. 24, 1977, 52/74970; Jun. 24, 1977, 52/74971; Jun. 24, 1977, 52/74972; Jun. 24, 1977, 52/74973

Int. Cl.³ G03G 5/04

U.S. Cl. 430—68 **2 Claims**

1. An electrographic sensitizing screen being provided with a conductive mesh having at least an insulating layer, a successively formed conductive layer, a photosensitizing layer on said conductive mesh opposite said insulating layer and a thin dielectric surface layer associated therewith; wherein: said conductive mesh is formed of a metal thin sheet by an etching process so as to leave an outer peripheral portion of said sheet as a frame; and a number of convex portions each having a size larger than an aperture pitch of said mesh formed near boundaries between said outer peripheral portion and mesh portions constituting said mesh.

4,279,981

ELECTROPHOTOGRAPHIC ELEMENTS CONTAINING TRISAZO COMPOUNDS

Masafumi Ohta, Yokohama; Kiyoshi Sakai, Tokyo; Mitsuru Hashimoto, Hino; Akio Kozima, Yokohama, and Masanori Suzuki, Kawasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 18, 1978, Ser. No. 897,508

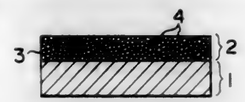
Claims priority, application Japan, Apr. 22, 1977, 52/45812; Apr. 25, 1977, 52/46859

Int. Cl.³ G03G 5/06

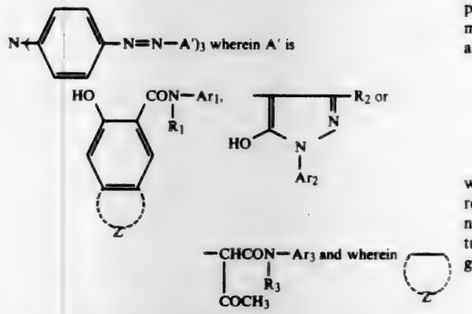
U.S. Cl. 430—73 **66 Claims**

1. An electrophotographic material which comprises an

electrically conductive support and a photosensitive layer



formed thereon, said photosensitive layer consisting essentially of fine particles of a trisazo compound having the formula



is a fused ring selected from the group consisting of benzene ring, bromobenzene ring, naphthalene ring, indole ring, carbazole ring and benzofuran ring; Ar_1 is a member selected from the group consisting of phenyl, methylphenyl, methoxyphenyl, chlorophenyl, nitrophenyl, ethoxyphenyl, dimethylphenyl, methylchlorophenyl, methoxychlorophenyl, methoxybromophenyl, methylmethoxyphenyl, dimethoxyphenyl, dimethoxychlorophenyl, dimethylaminophenyl, cyanophenyl, carboxyphenyl, benzenesulfonic acid sodium salt, tert-butoxyphenyl, naphthyl, methoxydibenzofuryl and carbazolyl; each of Ar_2 and Ar_3 is a member selected from the group consisting of phenyl, naphthyl, nitrophenyl, benzenesulfonamide, benzenesulfonic acid, trichlorobenzenesulfonic acid, methylphenyl, methoxyphenyl, chlorophenyl, dinitrophenyl, cyanophenyl, dimethylaminophenyl and acetylaminophenyl; each of R_1 and R_3 is a member selected from the group consisting of hydrogen, methyl, ethyl, phenyl and chlorophenyl; and R_2 is selected from the group consisting of methyl, carboxyl and $COOC_2H_5$; and a resinous binder.

4,279,982

PHOTOSENSITIVE COMPOSITIONS

Masayuki Iwasaki; Akira Nagashima, both of, Shizuoka, and Shigeru Sato, Odawara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

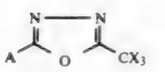
Filed Dec. 6, 1979, Ser. No. 101,040

Claims priority, application Japan, Dec. 8, 1978, 53-152150

Int. Cl.³ G03C 1/72, 1/52, 1/68

U.S. Cl. 430—170 **24 Claims**

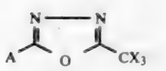
1. A printout composition for providing printout faculty comprising the 2-trihalomethyl-5-aryl-1,3,4-oxadiazole compound represented by the following general formula and a discoloring agent, said discoloring agent being an arylamine inherently colorless but being colored upon reaction with the photodecomposition product of the compound of the formula, or said discoloring agent being originally colored but is discolored upon reaction with said photodecomposition product and being selected from the group consisting of a diphenylmethane series dye, a triphenylmethane series dye, a thiazine series dye, an oxazine series dye, a xanthene series dye, an anthraquinone series dye, an imino naphtholquinone series dye, and an azomethine series dye:



(I)

wherein X represents a chlorine atom or a bromine atom and A represents a phenyl group, a naphthyl group or a phenyl or naphthyl group substituted by a halogen atom, an unsubstituted alkyl group, an alkoxy group, a nitro group, a cyano group or a methylenedioxy group.

21. In a photopolymerizable composition comprising a vinyl monomer having at least two terminal vinyl groups, a photopolymerization initiator, and a polymeric binder, the improvement characterized in that said photopolymerization initiator is a compound represented by the following general formula:



(I)

wherein X represents a chlorine atom or bromine atom and A represents a phenyl group, a naphthyl group or a phenyl or naphthyl group substituted by a halogen atom, an unsubstituted alkyl group, an alkoxy group, a nitro group, a cyano group or a methylenedioxy group.

4,279,983

SILVER IMAGE STABILIZATION

Ruth C. Bilofsky, Lexington, and Mara O. Nestle, Natick, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 33,003, Apr. 24, 1979, abandoned. This application Apr. 24, 1980, Ser. No. 143,439

Int. Cl.³ G03C 5/54, 5/38, 1/48, 7/00

U.S. Cl. 430—228 **26 Claims**

25. An additive color diffusion transfer film unit which comprises a transparent support carrying, in order, an additive color screen, a layer comprising palladium metal silver-precipitating nuclei, a photosensitive silver halide emulsion layer; and an antihalation layer; wherein said antihalation layer includes a stabilizing compound consisting of a noble metal complexed with a ligand, said ligand being adapted to hydrolyze in aqueous alkali to provide a diffusible complex of said noble metal.

4,279,984

POSITIVE RESIST FOR HIGH ENERGY RADIATION

Shunsuke Matsuda; Soji Tsuchiya; Masami Honma, all of Kawasaki, and Gentaro Nagamatsu, Tokyo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka and Fuji Chemicals Industrial Co., Ltd., Tokyo, both of, Japan

Continuation of Ser. No. 804,163, Jun. 6, 1977, abandoned. This application Dec. 28, 1978, Ser. No. 974,003

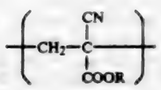
Claims priority, application Japan, Jun. 16, 1976, 51/71535

Int. Cl.³ G03C 1/68; B05D 3/06; G03C 1/70; C08F 22/32

U.S. Cl. 430—270 **5 Claims**

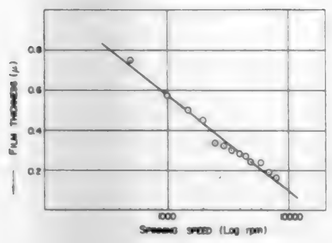
1. A positively imaged resist film, said film consisting essentially of a polymer selected from the group consisting of

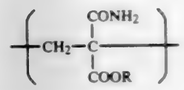
(A) a homopolymer consisting of structural units of the formula



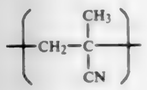
(I),

(B) a homopolymer consisting of structural units of the formula





(C) a copolymer of (I) and (II) and
(D) a terpolymer consisting of units (I) and (II) and



(III)

(where R represents an alkyl group with 1 to 4 carbon atoms), wherein the molar ratio of (I):(II):(III) in said copolymer or terpolymer is 1.0 to 0.5:0 to 0.2:0 to 0.5 and wherein the average molecular weight is 50,000 to 1,000,000.

4,279,985

PHOTOPOLYMER IMAGING USING EPOXY AND BROMINE CONTAINING ETHYLENICALLY UNSATURATED COMPOUNDS

Saburo Nonogaki, Tokyo, and Yoshio Hatano, Hachioji, both of Japan, assignors to Nippon Telegraph and Telephone Public Corporation and Hitachi, Ltd., both of, Japan

Continuation-in-part of Ser. No. 768,728, Feb. 15, 1977, abandoned. This application Apr. 27, 1979, Ser. No. 33,842
Claims priority, application Japan, Feb. 18, 1976, 51-16029
Int. Cl.[2] G03C *1/68*
U.S. Cl. 430—280 **10 Claims**

1. A method for forming radiation images comprising the steps of (a) preparing a substrate, (b) forming on said substrate a radiation-sensitive film composed of at least one polymeric compound selected from the group consisting of brominated and epoxidized polymers of butadiene, brominated and epoxidized copolymers of butadiene, brominated and epoxidized polymers of isoprene, brominated and epoxidized copolymers of isoprene, brominated products of copolymers of butadiene with addition-polymerizable compounds containing an epoxy group, brominated products of copolymers of isoprene with addition-polymerizable compounds containing an epoxy group and epoxidized products of copolymers of one of butadiene and isoprene with addition-polymerizable compounds containing at least one bromine atom, wherein the degree of epoxidation of the polymeric compound is about 17 to about 70% and the degree of bromination of the polymeric compound is about 7 to about 50%, the value of the sum of the epoxidation degree and bromination degree being lower than 100%, (c) exposing at least a part of said film to radiations to thereby render said part of the film solvent-insoluble, and (d) removing solvent-soluble parts of said film by development.

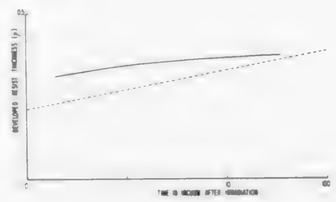
4,279,986

NEGATIVE RESIST AND RADICAL SCAVENGER COMPOSITION WITH CAPABILITY OF PREVENTING POST-IRRADIATION POLYMERIZATION

Yoshitake Ohnishi; Masaki Itoh; Kenji Mizuno, and Hiroshi Gokan, all of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 911,580, Jun. 1, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,845
Claims priority, application Japan, Jun. 1, 1977, 52/65082; Jul. 6, 1977, 52/81318; Jul. 6, 1977, 52/81319
Int. Cl.[3] G03C *1/68*
U.S. Cl. 430—280 **5 Claims**

(II),



(III) 1. A radiation sensitive composition comprising a negative resist material having epoxy groups and from about 2.5 to about 10 weight percent of 1,1-diphenyl-2-picrylhydrazyl.

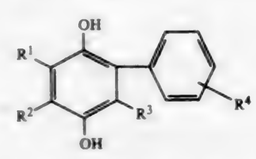
4,279,987

LIGHT-SENSITIVE, DIRECT POSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIAL

Keiji Ogi; Takashi Sasaki, and Yasuo Tosaka, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,734
Claims priority, application Japan, Nov. 14, 1978, 53/140136
Int. Cl.[3] G03C *5/24, 1/485*
U.S. Cl. 430—409 **11 Claims**

1. A direct positive photographic material comprising a light-sensitive internal latent image type silver halide emulsion layer coated on a support, characterized by containing a compound of the general formula



wherein R^1, R^2 and R^3 which may be the same or different represent independently a hydrogen or halogen atom or a substituted or unsubstituted alkyl or aryl group, R^4 represents a hydrogen or halogen atom or a substituted or unsubstituted alkyl, alkoxy, acyl, amino, aryl, aryloxy, nitro, hydroxy, carboxy or alkoxycarbonyl group.

4,279,988

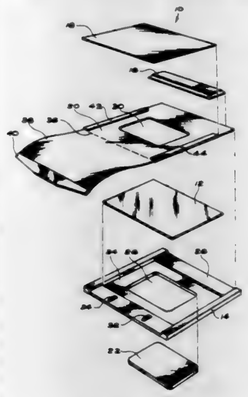
PHOTOGRAPHIC FILM UNIT

William P. Ewald, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 15, 1980, Ser. No. 112,269
Int. Cl.[3] G03C *1/48, 1/76*
U.S. Cl. 430—499 **9 Claims**

1. A photographic film unit suitable for exposure and processing with processing liquid, said unit comprising:
a substantially rigid mount having front and rear surfaces and a central opening therethrough;

a film element supported in the opening and spaced from the rear surface of said mount, said film element being viewable, after it has been exposed and processed, by light transmitted therethrough;
a strippable cover sheet on said mount extending across and in front of said film element to form a confined region between said film element and said sheet for receiving



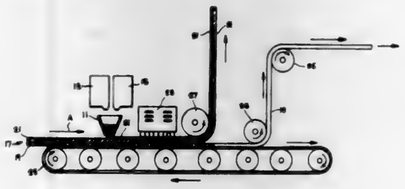
processing liquid, said cover sheet being adapted to transmit light to said film element;
means for admitting processing liquid between said film element and said cover sheet; and
a film support plug in said central opening between said film element and the rear surface of said mount for inhibiting displacement of said film element by the processing liquid.

4,279,989

GELATIN-EPOXY SHEET MATERIALS

Jerome Drexler, Los Altos Hills, and Carl R. Betz, Los Altos, both of Calif., assignors to Drexler Technology Corporation, Mountain View, Calif.

Continuation-in-part of Ser. No. 951,359, Oct. 16, 1978, abandoned. This application Nov. 30, 1979, Ser. No. 98,830
Int. Cl.[3] G03C *1/78*
U.S. Cl. 430—531 **5 Claims**



1. A gelatin-epoxy sheet material comprising,
a uniformly thick layer of gelatin having on a first side a directly contacting, bonding, uniformly thick layer of fluid-setting epoxy plastic.

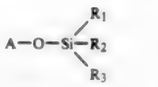
4,279,990

COLOR PHOTOGRAPHIC MATERIALS

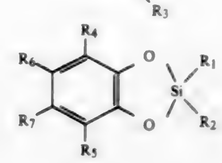
Kozo Aoki; Nobuo Furutachi, and Satoru Sawada, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Sep. 10, 1980, Ser. No. 185,848
Claims priority, application Japan, Sep. 10, 1979, 54-116283
Int. Cl.[3] G03C *1/40*
U.S. Cl. 430—551 **11 Claims**

1. A silver halide color photographic material comprising a photographic layer containing at least one of the compounds represented by the formula (I) or (II)

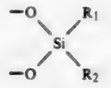


(I)



(II)

wherein A represents an aryl group; R_1, R_2 and R_3 each represents hydrogen, a halogen atom, an alkyl group, or an aryl group except that R_1, R_2, and R_3 cannot all be hydrogen; R_4 and R_5 each represents hydrogen, a halogen atom, an alkyl group, an aryl group, an alkoxy group, an alkylthio group, an acyl group, an aryloxy group, a carboxy group, a sulfo group, or a hydroxy group; and R_6 and R_7 each represents hydrogen, a halogen atom, an alkyl group, an aryl group, an alkoxy group, an aryloxy group, an alkylthio group, an acyl group, or a hydroxy group; or R_6 and R_7 together form an



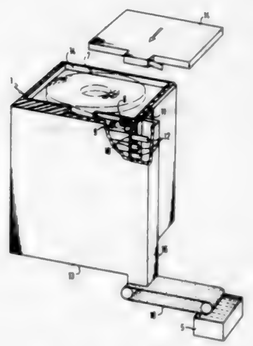
group or a 5-membered or 6-membered carbocyclic or heterocyclic ring.

4,279,991

PROCESS AND APPARATUS FOR PREPARING MULTI-COMPONENT REAGENT SOLUTIONS

Alexander Hagen; Hermann Edelmann, both of Tutzing, and Sigmar Klose, Berg, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Waldhof, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,168
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1978, 2852994
Int. Cl.[3] C12Q *1/00*; C12M *1/00*
U.S. Cl. 435—4 **19 Claims**



1. A process for the preparation of a multi-component reagent solution, comprising:
providing each of a plurality of individual reagent components in a redissolvable form on a separate solid carrier

capable of being formed into discrete sub-elements carrying a defined amount of a reagent component of said plurality of reagent components; simultaneously forming sub-elements from at least one solid carrier; and introducing the sub-elements into a common reagent solvent to dissolve the associated reagent components and form the reagent solution.

8. Apparatus for the preparation of reagent solutions for analytical purposes containing a plurality of individual components which apparatus comprises a magazine containing a plurality of carrier materials each of which carries, per unit volume or weight, a defined amount of an individual reagent component, a proportioning device capable of measuring and separating off defined amounts from several carrier materials, conveyor means for transporting the separated-off amounts of carrier to a solvent container, and control means which actuates and controls said proportioning device for any specific reagent composition.

4,279,992

SPECIFIC BINDING ASSAY EMPLOYING AN ENZYME-CLEAVABLE SUBSTRATE AS LABEL

Robert C. Boguslaski; John F. Burd, and Robert J. Carrico, all of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 886,094, Mar. 13, 1978, Pat. No. 4,226,978. This application Oct. 23, 1979, Ser. No. 87,819

Int. Cl.³ G01N *33/54*; C12Q *1/34, 1/44*; C12N *9/96*

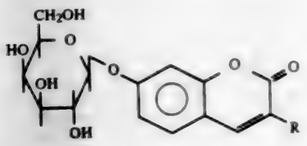
U.S. Cl. 435—7 **50 Claims**

1. In a homogeneous specific binding assay method for determining a ligand in a liquid medium,

wherein a reaction mixture is formed by combining said liquid medium with reagent means, including a conjugate having a label component and a binding component, to form a binding reaction system having a bound-species and a free-species of said labeled conjugate, said label component of the conjugate comprising an enzyme substrate-active portion and an indicator portion whereby the conjugate is cleavable by an enzyme to produce a detectable indicator product, said labeled conjugate being substantially inactive as a substrate for said enzyme when in said bound-species,

wherein said cleaving enzyme is added to said reaction mixture and the resulting indicator product measured as a function of the amount of said ligand in said liquid medium,

the improvement which comprises employing as said label component of the conjugate, a residue having the formula:



wherein R is a linking group through which said residue is covalently bound to said binding component, and employing β-galactosidase as said cleaving enzyme whereby the β-galactosyl group in said residue can be cleaved to release a detectable dye product.

4,279,993

INDICATOR COMPOSITION AND TEST DEVICE CONTAINING AMINE OXIDE, AND METHOD OF USE

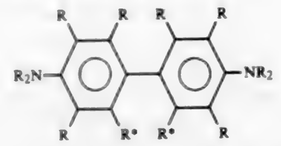
Thomas A. Magers, 63251 Mulberry Rd., South Bend, Ind. 46614, and David L. Tabb, 213 N. Ward St., Elkhart, Ind. 46514

Filed Nov. 13, 1979, Ser. No. 93,492

Int. Cl.³ C12Q *1/54*

U.S. Cl. 435—14 **45 Claims**

1. In a composition for detecting the presence of a constituent in a test sample wherein said composition comprises a benzidine-type indicator having the structure



in which the R and R* substituents, same or different, are hydrogen, lower alkyl, lower alkyloxy, aryl, or aryloxy, or in which the R* substituents together comprise $—CH_2—_n$ in which n is 1 or 2,

the improvement wherein said composition additionally comprises, as an enhancer, an amine oxide compound.

4,279,994

LIPASE DETERMINATION METHOD AND REAGENT

Cleo L. Huang, Carmel, Ind., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jul. 13, 1979, Ser. No. 57,525

Int. Cl.³ C12Q *1/44*

U.S. Cl. 435—19 **5 Claims**

1. In a method of determining lipase activity in biological fluids by incubating a biological fluid specimen in the presence of an S-acyl compound, a chromogenic sulfhydryl reagent and a carboxyesterase inhibitor and measuring the resulting color, the improvement which comprises:

(a) carying out said incubation in the presence of a diagnostically-acceptable cholinesterase/-pseudocholinesterase inhibitor in a concentration sufficient to inhibit cholinesterase and pseudocholinesterase in the specimen;

(b) incubating a diagnostically-acceptable S-(aminoloweralkyl)isothiuronium salt with said S-acyl compound, chromogenic sulfhydryl reagent and said inhibitors;

(c) measuring the color obtained; and

(d) comparing the color measurements.

4,279,995

SELECTIVE SALMONELLA CARBOHYDRATE AND MEDIUM CONSTRUCTED THEREFROM

Leodis V. Woods, St. Louis; Paul Stassi, Hazelwood, and Ralph A. Wilkinson, Florissant, all of Mo., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Dec. 3, 1979, Ser. No. 99,649

Int. Cl.³ C12Q *1/10*

U.S. Cl. 435—38 **13 Claims**

1. A process of selectively differentiating Salmonella spp., Arizona spp., and some of the *Citrobacter freundii* from other members of the Enterobacteriaceae family in a liquid medium including adding 2-Deoxy-D-Ribose to the liquid medium as the carbohydrate source in an amount sufficient to differentiate Salmonella spp., Arizona spp., and some of the *Citrobacter freundii* from other members of the Enterobacteriaceae family.

4,279,996

KERATIN HYDROLYZATE USEFUL AS HAIR FIXATIVES

Isei Yoshioka, Hirakata, and Yoichi Kamimura, Osaka, both of Japan, assignors to Seiwa Kasei Co., Ltd., Osaka, Japan

Filed Sep. 25, 1979, Ser. No. 78,850

Claims priority, application Japan, Oct. 9, 1978, 53-124289; Dec. 1, 1978, 53-149279; Dec. 29, 1978, 53-163085

Int. Cl.³ C12P *21/06*

U.S. Cl. 435—69 **7 Claims**

1. A process for preparing a water-soluble keratin hydrolyzate which comprises reducing keratin in an aqueous solution of a reducing agent selected from the group consisting of mercaptans and sulfides under alkaline conditions, removing the reducing agent from the resulting reduction product and then subjecting the reduction product to enzymatic hydrolysis in an aqueous medium in the presence of an enzyme capable of hydrolyzing protein, to give a water-soluble keratin hydrolyzate having at least two mercapto groups in one molecule and having an average molecular weight of 2,000 to 20,000.

4,279,997

PROCESS FOR PRODUCTION OF AMINOGLYCOSIDE ANTIBIOTICS

Yoshihiko Oka, Kawagoe; Hitoshi Ishida, Ageo; Moto Morioka, Niiza; Yoso Numazaki, Ageo; Tsutomu Yamafuji, Tokyo; Takashi Ooono, Tokyo, and Hamao Umezawa, Tokyo, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

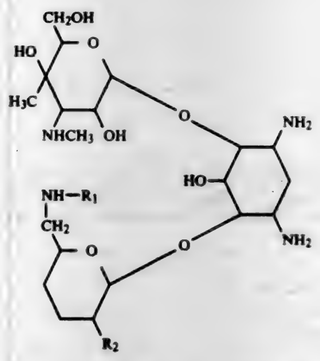
Division of Ser. No. 793, Jan. 3, 1979, Pat. No. 4,209,511. This application Sep. 5, 1979, Ser. No. 72,654

Claims priority, application Japan, Jan. 13, 1978, 53/3188

Int. Cl.³ C12P *19/48*

U.S. Cl. 435—80 **4 Claims**

1. A process for producing aminoglycoside antibiotics represented by the formula



wherein R_1 is a hydrogen atom or a methyl group and R_2 represents an amino group or a hydroxyl group, or their pharmacologically acceptable acid addition salts, which comprises cultivating a Gentamicin producing strain of Micromonospora species or a mutant thereof in a medium containing Kanamycin A or Kanamycin B.

4,279,998

REGENERABLE INSOLUBLE SUPPORT FOR PROTEIN IMMOBILIZATION

Khemchand M. Shahani, Lincoln; Frederick W. Wagner, Walton, both of Nebr., and Arun Kilara, State College, Pa., assignors to The Board of Regents of the University of Nebraska, Lincoln, Nebr.

Continuation-in-part of Ser. No. 697,240, Jun. 17, 1976, abandoned. This application Jun. 12, 1979, Ser. No. 47,727

Int. Cl.³ C12N *11/00, 11/16, 11/10, 11/06*

U.S. Cl. 435—174 **12 Claims**

1. A process of preparing a solid insoluble carrier for replaceably immobilizing proteins, comprising the steps of:

coupling to said solid insoluble carrier, chemical arms including diazo linkages within them and a group that forms a bond with functional groups of the proteins; and

the step of coupling comprising covalently coupling one end of chemical arms to a solid insoluble chemical carrier wherein each coupled arm has a length of between 5 and 15 angstrom units from said one end to the other, each arm has therein between its ends a diazo linkage and each arm has adjacent the diazo linkage a phenolic compound containing a carboxylic acid group or an aromatic compound containing a carboxylic acid group on its other end that forms a covalent bond to an α-amino group of the protein remote from the active center of the protein under a predetermined set of chemical conditions.

4,279,999

MEANS FOR ACCELERATING PRECIPITATION IN IMMUNOASSAY AND IMMUNOASSAY METHOD

Giorgio Ricci, Rome, Italy, assignor to Biodata S.p.A., Italy

Filed Jul. 20, 1978, Ser. No. 926,703

Claims priority, application Italy, Jul. 27, 1977, 50459 A/77

Int. Cl.³ C12N *9/00*; G01N *33/54*

U.S. Cl. 435—183 **3 Claims**

1. A serum free serum factor capable of accelerating precipitation during radioimmunoassay having the following chemical-physical characteristics:

(a) a molecular weight higher than 50,000,

(b) being of the Euglobulin type completely insoluble in distilled water,

(c) having an electrophoretic mobility which is the same as serum alpha or beta globulins,

(d) not assimilated to any component of the serum complement,

(e) homogeneous on Sephadex G-100,

(f) extracted by dialysis from animal serum or anti-serum, and

(g) being thermolabile.

4,280,000

METHOD FOR OBTAINING MOLD SPORE MATERIAL

Peter P. Kozak, Jr., Santa Ana, and Janet M. Gallup, Garden Grove, both of Calif., assignors to Cummins, Kozak and Gillman and Janet Gallup, both of Orange, Calif., part interest to each

Filed Jan. 7, 1980, Ser. No. 110,203

Int. Cl.³ C12N *3/00*

U.S. Cl. 435—242 **13 Claims**

1. A method of obtaining mold spore material from a mold colony which includes mold spores and mycelia, said method comprising:

providing a porous barrier on a medium which supports growth of the mold colony;

growing a mold colony which includes mold spores and mycelia on the medium to provide the mold spores and mycelia on one side of the barrier which is remote from the medium and mycelia in the medium and on the other side of the barrier;

removing the barrier from the medium, said barrier having

at least some of the mold spores and mycelia on said one side of the barrier;

drying the mold spores and mycelia which are on the removed barrier;

removing at least some of the mold spores and mycelia from said one side of the barrier whereby said step of removing, separates the removed mold spores and mycelia from the mycelia on said other side of said barrier; and

separating the mold spores from at least major portions of the mycelia removed from the barrier to thereby obtain the mold spore material, said step of separating including sieving the mold spores and mycelia removed from the barrier.

4,280,001

BIOLOGICALLY PURE CULTURE

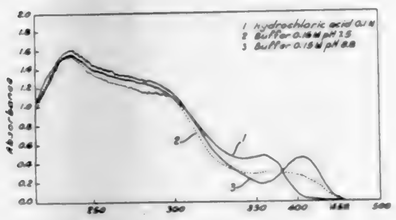
Hermes Pagani; Francesco Parenti; Carolina Coronelli, and Giorgio Tamoni, all of Milan, Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

Division of Ser. No. 802,215, May 31, 1977, Pat. No. 4,100,273. This application Apr. 7, 1978, Ser. No. 894,221

Claims priority, application United Kingdom, Jun. 29, 1976, 26934/76

Int. Cl.³ C12N *1/20*; C12R *1/045*

U.S. Cl. 435—253 **1 Claim**



1. A biologically pure culture of the microorganism strain *Actinoplanes sarveparensis* CBS No. 305.76, said culture being capable of producing antibiotic L 13365 in a recoverable quantity upon aerobic fermentation of assimilable sources of carbon, nitrogen and inorganic salts, said antibiotic having the following characteristics:

(a) Melting point: 210° C.;

(b) Approximate elemental composition of 51.35 percent carbon, 5.05 percent hydrogen, 10.50 percent nitrogen, 11.05 percent sulfur and 22.05 percent oxygen;

(c) Ultraviolet spectrum: characteristic ultraviolet absorption bands in the following

solvent systems Solvent	γ_{max} (nm)	$E_{1cm}^{1\%}$
Hydrochloric acid 0.1N	360	103
	290 (shoulder)	
	237	326
Buffer 0.15 M pH 7.5	408 (shoulder)	
	378	67
	290 (shoulder)	
	237	326
Buffer 0.15 M pH 8.8	408	99
	290 (shoulder)	
	238	336

(d) Infrared spectrum: characteristic infrared absorption bands in nujol at the following frequencies (cm^{-1}): 3400 (shoulder), 3350, 3200 (shoulder), 3100 (sharp), 2930 and 2870 (nujol), 2800–2400, 2380 (atmospheric carbon dioxide), 1750 (sharp), 1670 (sharp), 1620 (sharp), 1540 (sharp), 1480 (sharp), 1460 and 1380 (nujol), 1420 (sharp), 1340 (sharp), 1320 (sharp), 1280 (sharp), 1240 (sharp), 1195 (sharp), 1170 (sharp), 1145 (sharp), 1120 (sharp), 1075 (broad), 1015 (sharp), 990 (sharp), 865 (sharp), 840 (sharp), 800 (sharp), 770 (sharp), 755 (sharp), 740 (sharp), 720 (nujol);

(e) Specific rotation: $[\alpha]_{436}^{25} = +125°$ (C=0.8 percent in methanol:chloroform 1:1);

(f) Solubility: Soluble in dimethylsulfoxide, dimethylformamide and in chloroform/methanol mixtures. Slightly soluble in chloroform, methanol, methanol/ethyl acetate mixtures, sodium bicarbonate solutions and glacial acetic acid; insoluble in water and in the other common organic solvents;

(g) Characteristic reactions:

Fehling	positive
Tollens	positive
$KMnO_4$	positive
H_2SO_4 conc.	dark brown color
Ninhydrin	negative
$FeCl_3$	positive
Millon	negative
Schiff	negative
Anthrone	positive
Folin Ciocalteau	negative
Elson Morgan	negative

(h) Ionizable functions: an ionizable function potentiometrically evidenced with $pK_a = 7.8$ (methylcellosolve:water 4:1);

(i) R.F. values: chromatography on Whatman paper No. 1; Visualization of the spots by microbiological development on *Staphylococcus aureus*

Eluting System	Rf value
Buffer pH 6.0 saturated n-butanol	0.75
Water saturated n-butanol + 2% p-toluenesulfonic acid	0.80
Water saturated n-butanol + 2% conc. ammonia	0.70
Butanol saturated buffer pH 6.0	0.0
Ammonium chloride (20% W/V in water)	0.0
n-butanol:methanol:water 40:10:20 containing 0.75 g methyl orange	0.90
n-butanol:methanol:water 40:10:30	0.90
water:acetone 1:1	0.35
water saturated ethyl acetate	0.0–0.31
Thin layer chromatography on silica gel plates HF/UV_{254}. Visualization of the fluorescent spot under the ultraviolet light.	
chloroform:methanol 85:15	0.51

4,280,002

MICROBIOLOGICAL GROWTH CONTAINER

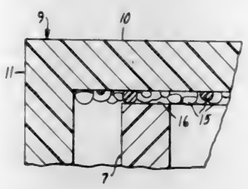
Dale O. Bailey, and Paul G. Houl, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 3, 1979, Ser. No. 99,319

Int. Cl.³ C12M *1/22*

U.S. Cl. 435—298 **4 Claims**

1. A microbiological growth container adapted to contain a culture medium in which to cultivate one or more different microorganisms, said container comprising a base having a bottom wall and upstanding side walls, a cover having a top wall of a configuration to mate with the base and depending side walls with the inside dimension of the depending walls exceeding the outside dimension of the side walls of the base to afford a loose fit, and a monolayer of a microsphere pressure-sensitive adhesive on the inner surface of the cover adjacent the depending edge walls and exposed to and opposed to the upper surface of the side walls of the base for affording a releasable bond between the upper surface of the side walls and



the cover and a permeable seal to restrict evaporation from the culture medium but affording gaseous transfer.

4,280,003

PROCESS FOR THE PREPARATION OF HIGH DENSITY ANION EXCHANGE RESINS BY BROMINATION OF CROSSLINKED VINYLTOLUENE COPOLYMERS

Jean E. E. Herbin, and Paul D. A. Grammont, both of Chauny, France, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jun. 15, 1979, Ser. No. 48,794

Claims priority, application France, Jun. 27, 1978, 78 19146

Int. Cl.³ C08F *8/22*; B01D *15/04*; C22B *3/08*; B01J *1/08*

U.S. Cl. 521—31 **4 Claims**

1. A process for the preparation of anion exchange resins having high capacity and a density greater than about 1.34 grams per milliliter by bromination of particles of crosslinked vinylaromatic copolymers, characterized in that vinyltoluene crosslinked with about 0.5 to about 8 percent divinylbenzene is swollen in a chlorinated hydrocarbon solvent, then is dibrominated by the addition of bromine or a bromine-releasing agent in the amount of two bromine equivalents per aromatic ring of copolymer in the presence of a catalyst to attach one bromine atom on the aromatic ring and one bromine atom on the associated lateral chain, and then is aminated.

4,280,004

MIXTURES OF AZODICARBONAMIDE AND E-AMIDOSULPHONES AND THEIR PRODUCTION AND USE AS A BLOWING AGENT

Werner Jeblick, Leverkusen; Ernst Roos, Odenthal; Theo Kempermann, and Manfred Abele, both of Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

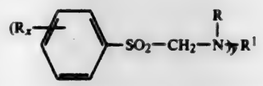
Division of Ser. No. 132,861, Mar. 24, 1980. This application Sep. 22, 1980, Ser. No. 189,736

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1979, 2912290

Int. Cl.³ C08J *9/10*

U.S. Cl. 521—89 **3 Claims**

1. In the process of producing a foamed article from a rubber with the aid of a blowing agent, the improvement wherein said blowing agent is a mixture of azodicarbonamide and an α-amidosulphone of the formula



wherein each R is hydrogen, C_1–C_4 alkyl or halogen; x is from 0 to 5; y is from 1 to 3 and corresponds to the valency of R^1; R^1 is an aromatic carboxylic acid radical; a sulphonic acid radical having 6 carbon atoms; said sulphonic acid radical substituted at least once with halogen, C_1–C_4 alkyl, C_1–C_4 alkoxy, nitro or cyano; an aliphatic carboxylic acid radical having 1 to 4 carbon atoms; a sulphonic acid radical having 1 to 4 carbon atoms; a carbonic acid radical; a thiocarbonic acid radical or a phosphoric radical which, corresponding to the numerical value of y, contains 0–2 phenoxy radicals of C_1–C_4 alkoxy radicals or said phenoxy or alkoxy radical substituted with C_1–C_4 alkyl or halogen; R^2 is the same as R^1 or hydrogen; C_1–C_4 alkyl; C_5–C_7 cycloalkyl; phenyl; phenyl substituted at least once by C_1–C_4 alkyl or halogen; phenyl alkyl having 1 to 3 carbon atoms in the alkyl moiety; said phenyl alkyl substituted at least once by C_1–C_4 alkyl or R^1 or R^2 together with the nitrogen atom to which they are attached form a lactam ring which has 4 to 6 carbon atoms, said mixture containing 99.7–70% by weight of azodicarbonamide and 0.3–30% by weight of said α-amidosulfone.

4,280,005

FOAMABLE POLYESTER COMPOSITION

Daniel W. Fox, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 903,192, May 5, 1978, abandoned, which is a continuation of Ser. No. 486,211, Jul. 5, 1974, abandoned. This application Sep. 24, 1979, Ser. No. 78,380

Int. Cl.³ C08J *9/10*

U.S. Cl. 521—90 **9 Claims**

1. A foamable thermoplastic injection moldable composition consisting of an admixture of:

(a) a polyester resin selected from the group consisting of (1) a poly(ethylene terephthalate) resin or a copolyester thereof, (2) a combination of a poly(ethylene terephthalate) resin and a poly(1,4-butylene terephthalate) resin or copolyesters thereof and (3) a combination of a poly(1,4-butylene terephthalate) resin or a copolyester thereof and a linear aliphatic polyester resin;

(b) a filler selected from the group consisting of fibrous glass or a mineral or mixtures thereof in an amount of from about 5 to about 50 weight percent;

(c) a flame retardant additive in minor proportion but in an amount at least sufficient to render the polyester non-burning or selfextinguishing; and

(d) a foaming agent selected from the group consisting of dinitrosopentamethylene tetramine, p-toluene sulfonyl semicarbozide, 5-phenyltetrazole, calcium oxalete and trihydrazine-s-triazene in an amount from 0.2 to 2.0 weight percent; said weight percent being based on the total weight of the resin.

4,280,006

PROCESS FOR THE PRODUCTION OF POLYISOCYANATE SILICATE PLASTICS UTILIZING AN ALKALI METAL CELLULOSE SILICATE CONDENSATION PRODUCT

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Division of Ser. No. 169,973, Jul. 18, 1980, Pat. No. 4,262,108, which is a continuation of Ser. No. 29,202, Apr. 12, 1979, Pat. No. 4,220,757. This application Oct. 30, 1980, Ser. No. 202,192

Int. Cl.³ C08B *31/00*

U.S. Cl. 521—154 **21 Claims**

1. A cellular polyisocyanate organic silicate plastic, having high strength, elasticity, flame resistance and dimentional stability with increase in temperature, is prepared by the process which comprises substantially simultaneously mixing and reacting an organic polyisocyanate or polyisothiocyanate, an alkali metal cellulose silicate polymer selected from the group consisting of sodium cellulose silicate polymer and potassium cellulose silicate polymer, an organic additive selected from the group consisting of monoalcohols, monothioalcohols, monophenols, and monothiophenols, said organic additive having a molecular weight of up to about 400, and a curing agent selected from the group consisting of an activator, water, water containing polyols, and water containing an alkali metal silicate, said polyisocyanate silicate plastic being the cellular solid product.

4,280,007

PROCESS FOR THE PRODUCTION OF CELLULAR POLYURETHANE ELASTOMERS

Ernst Meisert, Leverkusen; Franz-Josef Bohne, Burscheid; Klaus Brocht, Kuerten; Werner Mormann, Leverkusen; Wolfgang Krohn, Cologne, and Gerhard Heses, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 8, 1980, Ser. No. 147,905

Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920502

Int. Cl.[3] **C08G** *18/14*

U.S. Cl. 521—159 **11 Claims**

1. A process for the production of a cellular polyurethane elastomer having a density of 300 to 800 kg/m^3, comprising:

(a) preparing a prepolymer having an isocyanate content of 10 to 25% by weight from aromatic polyisocyanates and a portion of one or more polyhydroxyl compounds having a molecular weight of from 400 to 6,000; and

(b) reacting said prepolymer with the remainder of said polyhydroxyl compound and water;

wherein the quantity of said water is 0.3 to 1% by weight and the equivalent ratio of isocyanate groups to isocyanate reactive compounds is in the range of 0.95:1 to 1.1:1, characterized in that from 0.1 to 0.8% by weight, based on the whole reaction mixture, of aromatic diprimary diamines having a molecular weight from 108 to 500 are also used in (a) or (b).

4,280,008

CHIRALLY SUBSTITUTED 2-IMIDAZOLIN-5-ONES

Ulrich Schoellkopf, Bovenden; Hans-Heinrich Hausberg, Goettingen; Walter Boell, Darmstadt-Schnerrsheim; Hans-Joachim May, Neustadt, and Horst Koenig, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

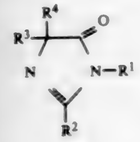
Filed Dec. 16, 1977, Ser. No. 861,731

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1976, 2658941; Dec. 24, 1976, 2658942

Int. Cl.[2] **C07D** *233/32*

U.S. Cl. 548—301 **4 Claims**

1. A 2-imidazolin-5-one of the formula I



where

R^1 is L-α-phenylethyl, (+)-3-pinyl-methyl, (−)-nopinyl or L-α-carbo-tert.-butoxyethyl,

R^2 is hydrogen, alkyl of 1 to 4 carbon atoms, benzyl or phenyl,

R^3 and R^4 are different, and

R^3 is alkyl of 1 to 4 carbon atoms;

alkyl of 1 to 4 carbon atoms substituted by alkoxy of 1 to 4 carbon atoms, by alkylthio of 1 to 4 carbon atoms, by dialkylamino, each alkyl of which contains 1 to 4 carbon atoms, by benzyloxy, by benzylthio, by acyloxy where the acyl radical contains 1 to 4 carbon atoms, by cyano, by carbalkoxy where the alkyl contains 1 to 4 carbon atoms, by benzoyl, by bromo-benzoyl, by benzyl or by phenyl;

benzyl, benzyl which is mono- or di-substituted by alkoxy of 1 to 4 carbon atoms, by acyloxy where the acyl radical contains from 1 to 4 carbon atoms, by benzyloxy, by methylenedioxy, or by alkyl of 1 to 4 carbon atoms; or phenyl;

R^4 is alkyl of 1 to 6 carbon atoms;

alkyl of 1 to 6 carbon atoms substituted by alkoxy of 1 to 4 carbon atoms, by alkylthio of 1 to 4 carbon atoms, by benzyloxy, by cyano, by carbalkoxy where the alkyl contains from 1 to 4 carbon atoms, by benzoyl, or by benzoyl substituted by halogen;

benzyl;

benzyl which is mono- or di-substituted by alkyl of 1 to 4 carbon atoms, by alkoxy of 1 to 4 carbon atoms, by acyloxy of 1 to 4 carbon atoms, by nitro, by chloro, by bromo, by haloacetoxy, by methoxyacetoxy, by benzyloxy, or by methylenedioxy; or allyl.

4,280,009

CONTINUOUS PRODUCTION OF 2-ETHYL-HEXYL ACRYLATE FREE FROM DIOCTYLETHER

Heinz Erpenbach; Klaus Guhrmann, and Herbert Joest, all c/o Hoechst Aktiengesellschaft, Werk Knapsack, Knapsack bei Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 797,812, Oct. 26, 1976, abandoned. This application Aug. 14, 1979, Ser. No. 66,510

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1975, 2548561

Int. Cl.[2] **C07C** *9/54*

U.S. Cl. 560—205 **3 Claims**

1. An improved process for the continuous production of 2-ethyl-hexlacrylate free from dioctylether by reacting acrylic acid and 2-ethyl-hexanol-(1) in a molar ratio of 1:1 to 1:2 at temperatures of 85° to 140° C. in the presence of an acid catalyst the improvement which is: continuously introducing essentially only acrylic acid, 2-ethyl-hexanol-(1) and a sulfuric acid catalyst into a reaction zone; distilling off the resulting reaction water azeotropically together with the 2-ethyl-hexanol-(1) near the head of a first distilling zone being mounted on the reaction zone; condensing the azeotrope and separating it into an alcoholic phase and an aqueous phase; recycling the alcoholic phase to the head of the first distilling zone and removing the aqueous phase; conveying reaction mixture maintained for a period of 2 to 8 hours in the reaction zone from the reaction zone to a second distilling zone; distilling off overhead 2-ethyl-hexanol-(1) in excess together with traces of unreacted acrylic acid and recycling the distillate to the reaction zone; delivering base product obtained in the second distilling zone to a third distilling zone; distilling overhead pure 2-ethyl-hexylacrylate and removing a high-boiling residue from the base of the third distilling zone.

4,280,010

CONTINUOUS PRODUCTION OF ALKYL ACRYLATES FREE FROM ETHER

Heinz Erpenbach, Sürth bei Köln; Klaus Gehrmann, Erftstadt Lechenich; Hans-Klaus Kübbeler, Swisttal, and Winfried Lork, Erftstadt Friesheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

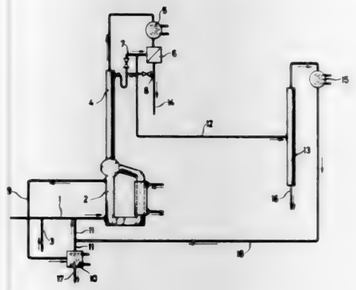
Continuation of Ser. No. 744,172, Nov. 22, 1976, abandoned. This application Aug. 14, 1979, Ser. No. 66,511

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1975, 2552987

Int. Cl.[2] **C07C** *69/54*

U.S. Cl. 560—205 **11 Claims**

1. An improved process for the continuous production of alkyl acrylates free from ether by reacting acrylic acid with a C_1–C_4-alkanol, in a molar ratio of 1:1 to 1:2, in liquid phase, at temperatures of 80° to 130° C., under pressures of 100 to 760 mm Hg, in the presence of an acid catalyst, the improvement which is: continuously introducing essentially only a reaction mixture of acrylic acid, alkanol and a sulfuric acid or organic sulfonic acid catalyst into a reaction zone, the reaction mixture containing sulfuric acid in a concentration of 0.1 to 3 weight %, or the organic sulfonic acid in a concentration of 1 to 8 weight %, reacting the reaction mixture over a period of 4 to 10 hours in the reaction zone, distilling off, near the head of a first distilling zone mounted on the reaction zone, an azeotropic mixture of alkyl acrylate, reaction water and unreacted alkanol; condensing the mixture, and separating the mixture into an aqueous phase and organic phase; recycling a portion of the organic phase to the head of the first distilling column, and removing the remaining aqueous phase; delivering the balance portion of the organic phase to a second distilling zone, distilling off overhead an azeotropic mixture of alkanol and ester, condensing the mixture, recycling it to the reaction zone, and removing ether-free alkyl acrylate through the base portion of



the second distilling zone; continuously taking a portion of reaction mixture from the reaction zone, distillatively freeing said reaction mixture from high-boiling matter, admixing the resulting distillate with a quantity of catalyst equivalent to that removed together with said high-boiling matter, and then recycling the distillate to the reaction zone.

4,280,011

ALDEHYDE GENERATORS AND FOODSTUFFS CONTAINING SUCH GENERATORS

Robert S. DeSimone, Middletown, N.Y., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 761,183, Jan. 21, 1977, abandoned. This application Apr. 5, 1978, Ser. No. 893,907

Int. Cl.[3] **C07C** *41/50, 41/54*

U.S. Cl. 568—603 **1 Claim**

1. 1,2,3,4,5,6-hexa[(1'-ethoxy)ethoxy]hexane.

4,280,012

METHOD OF REMOVING CHLORINATED PHENOL IMPURITIES

Albino Pastura, Herdecke; Gerhard Kelbch, Witten, and Hans-Leo Hülsmann, Wetter, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Mar. 1, 1979, Ser. No. 16,477

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 2810142; Apr. 1, 1978, 2814126

Int. Cl.[3] **C07C** *37/70, 39/26*

U.S. Cl. 568—755 **24 Claims**

1. A method of removing an impurity of the group chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans, chlorinated hydroxydiphenylethers and chlorinated diphenylethers from a halogenated phenol composition containing said impurity which comprises contacting at 20° to 200° C. under a pressure of normal up to 15 atmospheres said composition containing halogenated phenol with 0.5 to 5 weight percent of an agent which is hydrazine, acetylene, or a compound which under the processing conditions is a source of hydrazine or acetylene.

4,280,013

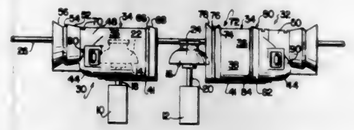
INSULATOR COVER

Melvin E. Clutter, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.

Filed Jun. 16, 1980, Ser. No. 159,490

Int. Cl.³ H02G 1/02; H01B 17/00

U.S. Cl. 174—5 R **5 Claims**



1. A removable two-piece insulative cover adapted for installation over at least one conductor-supporting insulator through use of an elongated manipulative tool by an installer remote from the insulator, said covering comprising:

elongated, open-ended, first and second separable cover sections each integrally formed of yieldable insulative synthetic resin material, each of said sections including

an elongated upper wall segment having depending, laterally spaced parts;

a pair of elongated inwardly extending, generally opposed bottom wall portions respectively extending from said spaced parts,

said wall segment and bottom wall portions cooperatively defining an elongated, insulator-receiving space which extends along the length of said section from one end thereof,

the innermost adjacent edges of said bottom wall portions being spaced apart a distance less than the maximum width of said insulator-receiving space for presenting only a restricted opening for receiving a base of an insulator;

structure adjacent the end of said section remote from said one end for connection of the section to an additional, longitudinally aligned conductor cover; and

means on said section for removable connection of a manipulative tool;

said one end of said first section being telescoped into said one end of the second section for presenting an interfitted cover.

4,280,014

ELECTRIC CABLE INSTALLATIONS

Michael S. Papadopulos, Higham, England, assignor to BICC Limited, London, England

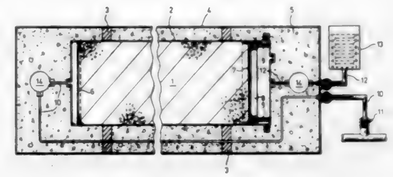
Filed Feb. 14, 1980, Ser. No. 121,468

Claims priority, application United Kingdom, Feb. 27, 1979, 06825/79

Int. Cl.³ B01D 35/02

U.S. Cl. 174—14 R **3 Claims**

1. An oil-filled electric power cable installation comprising a plurality of oil-filled cable lengths electrically connected in series and hydraulically sectionalized by a plurality of stop joints, each said cable length having an impregnating oil maintained under pressure by oil tanks connected to said stop joints and incorporating an oil-purifying unit located between the oil tank and the stop joint of at least one such connection, said oil-purifying unit comprising a column or bed of an active purifying agent wherein said active purifying agent is in the form of compact granules having diameters in the range of 1 to 5 mm, where by the interstitial space between the granules is such that the maximum pressure drop across said purifying unit in service is not greater than $20kN/m^2$, flow being reversible through said oil-purifying unit.



4,280,015

HIGH-TENSION LINE

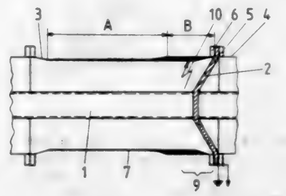
Franz Czech, Niederhasli, and George-Heinz Krieter, Würenlos, both of Switzerland, assignors to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Apr. 24, 1979, Ser. No. 32,754

Claims priority, application Switzerland, May 24, 1978, 5630/78

Int. Cl.³ H01B 9/04

U.S. Cl. 174—28 **12 Claims**



1. An electric line, especially a high-tension line, comprising:

a metallic casing which includes an arc-endangered portion of the casing;

a conductor arranged within said metallic casing;

a first electrically insulative covering extending around and outside said arc-endangered portion of the metallic casing, which covering includes a heat and pressure resistant insulative tape material wound about said portion of the metallic casing.

4,280,016

FIRE RESISTANT ELECTRIC CABLE

Sigmund Ege, Oslo, Norway, assignor to International Standard Electric Corporation, New York, N.Y.

Continuation of Ser. No. 898,823, Apr. 21, 1978, abandoned.

This application Aug. 20, 1979, Ser. No. 68,096

Int. Cl.³ H01B 7/24

U.S. Cl. 174—102 R **5 Claims**

1. A fire damage resistant, electric cable comprising:

a layer of wires stranded about the perimeter of a central

circle forming an interior longitudinally extending space having a center axis;

a layer of electrical insulating material surrounding said layer of wires and a jacket of conductive material over said insulating material;

a solid, straight center wire placed within said longitudinally



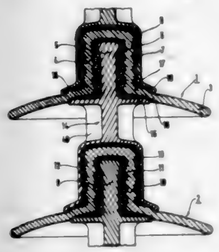
extending space, said center wire having an average diameter over its length which is less than that of said central circle, said center wire having regularly spaced weak spots such that when said center wire is subjected to compressive forces, small distributed deformations will take place at each of said weak spots so that no large kink will occur in said center wire.

4,280,017

MULTIPLE-DIELECTRIC INSULATOR

Michel Willem, Abrest, France, assignor to Societe Anonyme dite: Ceraver, Paris, France

Filed Dec. 6, 1979, Ser. No. 101,007
Claims priority, application France, Dec. 21, 1978, 78 35918
Int. Cl.³ H01B *17/02, 17/08*
U.S. Cl. 174—182 **1 Claim**



1. An insulator which includes at least one plate-shaped dielectric component having a cylindrical head, a connecting member having at least one pin end, each pin end being embedded inside a recess defined within the head of a corresponding one of the dielectric components, and another connecting member having at least one cap end, each cap end covering the head of a corresponding one of the dielectric components and being sealed thereon, each connecting member having a pin end also having a flange spaced from the embedded pin end, the flange having an outside diameter larger than the outside diameter of the head of the dielectric component in which said pin end is embedded, and each cap has a flared base which covers an annular portion of the plate-shaped part of the dielectric component which extends beyond the outside diameter of the head, so as to define a rigid extension on either side of the dielectric component, wherein the improvement comprises:

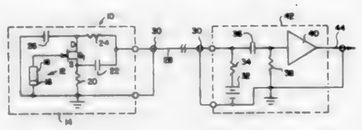
said dielectric component is made of tempered glass, and the plate-shaped part of the dielectric component has an annular step which forms a raised circular boss on the head end side of the plate-shaped part and a circular depression on the other side of the plate-shaped part, the outer perimeter of said boss being covered by the flared base of the cap end, and the flange of the pin end contiguously abutting the outer perimeter of said depression, whereby in the event that the dielectric component is shattered, substantially all of the pieces forming the head and that portion of the plate-shaped part within the annular step will be trapped between the flanged pin end of the one connecting member and the flared cap end of the other connecting member to maintain resistance of the insulator to bending.

4,280,018

INTEGRATED PIEZOELECTRIC SOUND TRANSDUCER AND PREAMPLIFIER

Arnold Lazarus, San Francisco, and Stuart L. Weiss, Boulder Creek, both of Calif., assignors to Strobotronix, Inc., San Francisco, Calif.

Filed May 14, 1979, Ser. No. 38,555
Int. Cl.³ G10H *5/00*
U.S. Cl. 179—1 M **5 Claims**



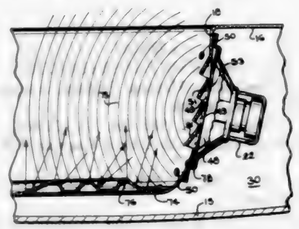
1. An integrated piezoelectric sound transducer and preamplifier within a single enclosure adapted to be affixed to a resonant cavity of a musical instrument comprising a field-effect transistor having a source, a drain and a gate, said transistor being connected with a source resistor connected in a source-follower configuration, with said sound transducer connected in series between said gate and the outer conductor of a coaxial cable to both provide DC bias for said gate and provide audio signals produced by said transducer to said gate, said drain being connected to the outer conductor of said coaxial cable through a capacitor and to an inner conductor of said coaxial cable through an impedance device for receiving DC power over said inner conductor, said source being coupled to the inner conductor of said coaxial cable by a capacitor and to the outer conductor of said coaxial cable by said source resistor.

4,280,019

COMBINATION ACOUSTIC CONDITIONER AND LIGHT FIXTURE

Robert L. Propst, Ann Arbor; Travis M. Randolph, and Theodore M. Reyda, both of Saugatuck, all of Mich., assignors to Herman Miller, Inc., Zeeland, Mich.

Division of Ser. No. 857,894, Dec. 6, 1977, Pat. No. 4,214,298.
This application Nov. 23, 1979, Ser. No. 96,769
Int. Cl.³ H04M *1/19;* **H04K** *1/00;* **H05K** *5/00*
U.S. Cl. 179—1.5 M **4 Claims**



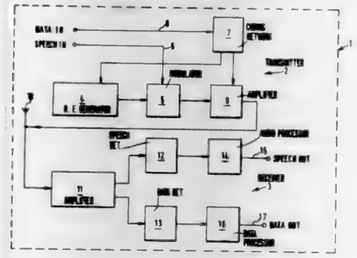
1. Sound generating apparatus adaptable for use in a room enclosure having a ceiling comprising a support, a bowl shape reflecting element mounted on said support, circuit means providing an electrical signal and converting said signal into an audible sound signal, modulation means for cyclically varying frequencies of said sound signal and a speaker mounted on said support and positioned adjacent said reflecting element so that sound waves emanating from said speaker are directed toward said element, said reflecting element having incurvate surfaces provided with non-uniform undulations so that sound waves contacting said undulations are dispersed in a plurality of directions and reflect from said ceiling, thus producing an indistinct, unintelligible sound for masking external sounds in the vicinity of said sound generating apparatus.

4,280,020

RADIO TELEPHONE SYSTEM WITH DIRECT DIGITAL CARRIER MODULATION FOR DATA TRANSMISSION

Lewis E. Schnurr, Harlow, England, assignor to Essex County Council, Chelmsford, England

Filed Jan. 9, 1979, Ser. No. 2,189
Int. Cl.³ H04Q *7/04*
U.S. Cl. 179—2 EA **7 Claims**



1. In an automatic telephone system in which communication is effected by transmission of signals via radio link, a method of transmitting speech signals together with supervisory signals for supervising establishment and subsequent release of a connection to a selected subscriber comprising:

generating a carrier signal;

linearly modulating said carrier signal with the speech signals to produce speech-related sideband energy;

imposing the supervisory signals on said carrier signal so that a characteristic of said carrier signal assumes a plurality of discrete states to represent the supervisory signals at a low baud rate thereby producing supervisory signal related sideband energy containing frequencies all of which are closer to the frequency of said carrier signal than are the frequencies in the speech-related sideband energy, whereby the supervisory signal-related sideband energy is entirely seperate in the frequency domain from said speech-related sideband energy; and

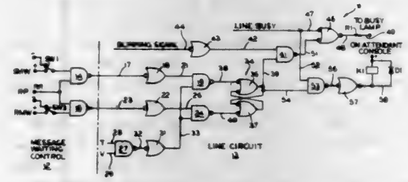
transmitting at least said sidebands via the radio link.

4,280,021

MESSAGE WAITING SYSTEM

William K. C. Yuan, LaGrange, Ill., assignor to Estel Corporation, Riverside, Ill.

Filed Jul. 23, 1979, Ser. No. 59,960
Int. Cl.³ H04M *3/42*
U.S. Cl. 179—84 C **10 Claims**



1. An improved message waiting system for use with PABX systems having attendant's console means and busy lamp field means for indicating a busy condition of any subscriber station by providing a steady signal to the lamp in the field means corresponding to the busy subscriber station,

said improved message waiting system comprising message waiting control means at said console means for operation by the attendant for initiating a message waiting condition,

a first message waiting signal source,

selecting means for selecting the busy lamp in the busy lamp field means representing the desired station that has the message waiting, and

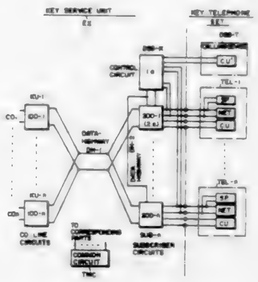
means for connecting the first message waiting signal source to the selected busy lamp to thereby indicate the message waiting condition.

4,280,022

KEY TELEPHONE SYSTEMS

Koichi Sekiguchi, Asaka; Hikaru Takematsu, Higashikurume, and Kazutada Tatsukura, Tokorozawa, all of Japan, assignors to Iwasaki Tsushinki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 25, 1979, Ser. No. 6,519
Claims priority, application Japan, Feb. 7, 1978, 53-11893; Feb. 7, 1978, 53-11894; Feb. 7, 1978, 53-11895; Feb. 7, 1978, 53-11896
Int. Cl.³ H04Q *5/20*
U.S. Cl. 179—99 A **20 Claims**



7. A key telephone system adapted to selectively connect a plurality of key telephone sets to a plurality of CO lines or intercomm. lines through a key service unit and pluralities of talking lines and control lines; wherein the key service unit is provided with a first pulse generator for generating clock pulses, a plurality of high-speed time slot pulse trains respectively corresponding to the CO lines or intercomm. lines and a plurality of control signal transmitting low-speed time slot pulse trains respectively corresponding to the plurality of control lines, a plurality of memories such as circulating memories provided respectively corresponding to the plurality of key telephone sets, a plurality of write means each provided corresponding to one of the key telephone sets for writing a control output transmitted via a corresponding one of the control lines from the corresponding key telephone set in a corresponding one of the plurality of memories in synchronism with the plurality of control signal transmitting low-speed time slot pulse trains, a switching element provided corresponding to one of the CO lines or intercomm. lines and one of the key telephone sets and having a holding function controlled by an AND output of the output signal from a corresponding one of the memories and a corresponding one of the plurality of high-speed time slot pulse trains respectively to the CO lines or intercomm. lines and switching means for controlling the switching element; wherein the plurality of key telephone sets are each provided with a second pulse generator for generating a synchronizing time slot pulse train substantially synchronized with a corresponding one of the plurality of control signal

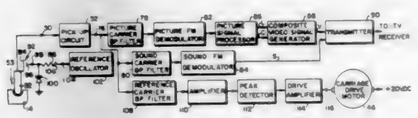
transmitting low-speed time slot pulse trains, actuating means including a plurality of CO line or intercomm. line selecting keys respectively corresponding to the CO lines or intercomm. lines and control output means for deriving the control output from the corresponding key telephone set by an AND output of the output from the actuating means and the synchronizing time slot pulse train; and wherein one of the CO lines or intercomm. lines selected by the control output sent out by the selecting operation of one of the selecting keys of one of the key telephone sets is connected to the key telephone set to enable talking.

4,280,023

STYLUS POSITION SENSING APPARATUS FOR VIDEO DISC PLAYER

Todd J. Christopher, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 9, 1979, Ser. No. 55,976
Int. Cl.³ G11B *3/38*
U.S. Cl. 369—43 **3 Claims**



1. In a system for recovering prerecorded signals from a disc record having information recorded thereon along a spiral track disposed on the surface thereof by means of a track-following stylus; said system including a pickup circuit coupled to an electrode incorporated in the stylus for sensing the variations in a signal representative capacitance formed by said pickup electrode and conductive material disposed in said record to recover said prerecorded signals at the output terminal thereof; apparatus comprising:

(a) a carriage subject to translation along a path disposed radially of said disc record;

(b) compliant means for securing said stylus to said carriage;

(d) first means including a stylus position indicative capacitance defined by a first electrode secured in fixed relation to said stylus and coupled to said pickup circuit and a second electrode mounted to said carriage adjacent to said first electrode; said first means further including means coupled to said second electrode and modulated at a given frequency rate; and

(e) second means coupled to said pickup circuit output terminal for deriving signals at said given frequency to the relative exclusion of said prerecorded signals for generating a signal indicative of the relative position of said stylus with respect to said carriage along said path.

4,280,024

SELECTIVELY DAMPED VIDEO DISC STYLUS ASSEMBLY

Anil R. Dholakia, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 22, 1979, Ser. No. 68,504
Int. Cl.³ G11B *3/38*
U.S. Cl. 369—219 **13 Claims**

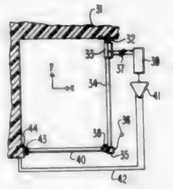
1. A signal pickup assembly for use with a record disc having an information bearing spiral groove, said assembly comprising:

a signal pickup stylus contoured for reception within the spiral groove;

a support housing having a compliant member attached thereto;

a stylus arm having a first end at which said stylus is attached and a second end attached to the compliant member for providing limited unrestrained movement of the stylus in at least two dimensions, said stylus arm being substantially parallel with the tangent to the groove at the point of stylus contact when the stylus is operatively tracking the spiral groove;

a longitudinal rigid member of relatively low density having a first end connected to the stylus arm proximate the first end of the stylus arm and having a second end, said rigid member being positioned substantially perpendicular to said stylus arm;



a member of relative high density rigidly attached near the second end of the longitudinal rigid member for increasing the inertial mass of the stylus and stylus arm combination to resist radial movement of the stylus due only to impulsive forces imparted to the stylus; and

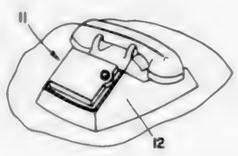
means for connecting the second end of the longitudinal rigid member to the support housing such that the rigid member is approximately parallel to the plane of the disc when the stylus is engaged with the groove.

4,280,025

LOCKABLE COVER ASSEMBLY FOR PUSH-BUTTON KEY PAD

David Carlberg, Los Altos, Calif., assignor to Engineering Systems Corp., Santa Clara, Calif.

Filed Jan. 9, 1980, Ser. No. 110,660
Int. Cl.³ H04M *1/66*
U.S. Cl. 179—189 D **7 Claims**



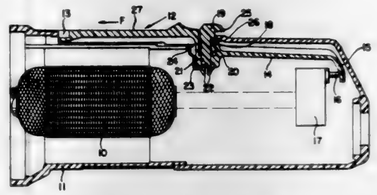
1. In conjunction with a telephone instrument having a faceplate opening and an internal flange therein; a lockable cover assembly comprising a faceplate received in said opening and supported by said flange, a matrix of holes in said faceplate through which the telephone push-button keypad extends, a plurality of slots extending through said faceplate and disposed adjacent to one edge thereof, a lock access hole extending through said faceplate and disposed adjacent to the edge opposite said one edge; a keypad cover member removably secured over said keypad to prevent access thereto, said cover member including a plurality of locking lugs extending from one edge thereof and adapted to extend through said slots to engage said internal flange in locking fashion, a lock device secured adjacent to the opposite edge of said cover member, said locking device including a shaft extending therefrom through said lock access hole, and latch means extending from said shaft to engage said internal flange and prevent removal of said cover member from said telephone instrument.

4,280,026

ACTUATOR MECHANISM FOR A PORTABLE, HAND-HELD TOOL

Lorenzo E. Alessio, Lecco, Italy, assignor to Black & Decker Inc., Newark, Del.

Filed Nov. 21, 1978, Ser. No. 962,591
Claims priority, application Italy, Nov. 21, 1977, 22780/77[U]; Nov. 21, 1977, 22781/77[U]
Int. Cl.³ H01H *15/00*
U.S. Cl. 200—157 **14 Claims**



1. An actuator mechanism for controlling the operation of the motor of a portable, motor-driven tool having a housing for enclosing the motor, the actuator mechanism comprising:

a switch having an actuating plunger movable between first and second positions corresponding to the off and on conditions of said switch, said actuating plunger being spring-loaded to normally maintain said switch in said off condition,

a slider engaging said plunger and slideably mounted in the wall of the housing of the tool so as to be slideable against the resilient force of said plunger between first and second locations corresponding to the off and on conditions of said switch;

a latch member mounted on the slider so as to be movable with respect thereto from a latching locked-off position wherein said latch member coacts with said housing to prevent the slider from being displaced from said first location to said second location thereby locking said switch in said off condition to an intermediate position in which said latch member permits manual displacement of said slider to said second location against the force of said spring-loaded plunger whereby said slider returns to said first location upon manual release of said slider, and to a latching locked-on position wherein said latch member coacts with said housing to maintain said slider in said second location thereby locking said switch in said on condition.

4,280,027

SWITCH BLADE MECHANISM AND MULTI-ARRANGEMENT

John Comerford, Glendale Heights, and Robert E. Zimmer, Niles, both of Ill., assignors to The Singer Company, Stamford, Conn.

Filed May 27, 1980, Ser. No. 153,445
Int. Cl.³ H01H *19/00*
U.S. Cl. 200—6 A **10 Claims**

1. A switch assembly enclosed in a housing and including a swich comprising

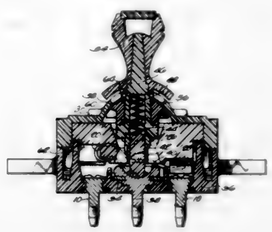
first and second terminals mounted in the housing in generally the same plane,

a resilient switch blade reversely bent to provide long and short legs,

the short leg being pivotally mounted on the first terminal and the free end of the long leg overlying and spaced from the second terminal,

a fixed support in the housing elevated with respect to said plane,

an actuator pivoted in the housing and normally engaging the long leg of the blade between the reverse bend and the centerline joining the blade pivot point and the actuator pivot point so as to normally hold the reversely bent portion of the blade against the support,



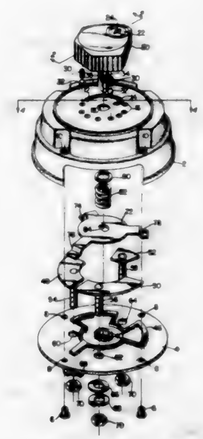
actuation of the actuator in one direction moving its point of engagement with the blade along the long leg past said centerline to cause the blade to pivot and bring the free end of the long leg into contact with said second terminal.

4,280,028

BOAT BATTERY SELECTOR SWITCH COMBINED WITH LOCK

Leroy F. Hollenbeck, Jr., Miami, Fla., assignor to Perko, Inc., Miami, Fla.

Filed Feb. 11, 1980, Ser. No. 120,230
Int. Cl.³ H01H *9/28, 19/20*
U.S. Cl. 200—44 **3 Claims**



1. A single pole, triple throw selector switch for boat batteries having:

(a) a housing for said selector switch with a hole through the top center thereof;

(b) a travelling groove describing a semi-circle about said hole on said top center of the housing;

(c) a locking position groove at one end of said travelling groove;

(d) a selector knob having a spindle inserted for rotation in said hole; and

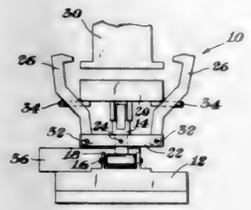
(e) a locking cylinder mounted for rotation by a key in said selector knob and having a locking pin projecting from the bottom thereof for engagement with said travelling and locking position groove.

4,280,029

ELECTRICAL SWITCH

John W. Lewis, Baton Rouge, La., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 26, 1979, Ser. No. 15,394
Int. Cl.³ H01H *9/20*
U.S. Cl. 200—50 R **11 Claims**



1. An electrical switch comprising:
(a) a base member;
(b) an electrical conducting contact member;
(c) a means in cooperative combination with said base member and said electrical contact member adapted to move said contact member outwardly from said base member toward an electrical bus member;
(d) a releasable clamping means in cooperative combination with said base member and said electrical contact member; said moving means and said clamping means in combination adapted to clamp and engage the bus member and said electrical contact member together with a sufficient force to permit flow of electrical current between the bus member and said electrical contact member.

4,280,030

HIGH CURRENT MECHANISM HAVING FLEXIBLE CONTACT ARM

Gordon A. Leiter, Rome, Ga., and Herman H. Schall, Hudson, Ohio, assignors to General Electric Company

Filed Apr. 7, 1977, Ser. No. 785,500
Int. Cl.³ H01H *21/54*
U.S. Cl. 200—237 **5 Claims**



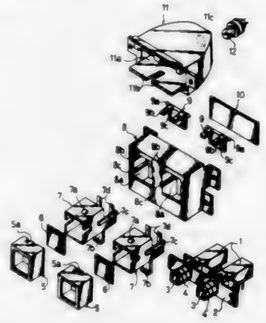
1. In a high current carrying mechanism of the type that includes at least one high current carrying, electrically conductive flexible connection between first and second points,
said second point being rotatable through less than half a revolution,
about an axis that is generally parallel to or coincident with an axis through said first point,
the improvement comprising:
that said high current carrying, electrically conductive flexible connection between said first and second points is fabricated of electrically conductive, laminated material, with individual laminae being electrically connected to adjacent laminae,
at least in the region where said laminated, electrically conductive flexible connection is attached to said first and second points; and
said laminated, electrically conductive flexible connection includes at least a portion that is of S-shape.

4,280,031

ILLUMINATING TYPE PUSH-BUTTON SWITCH DEVICE

Shiro Kondo, and Yasuo Takii, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1979, Ser. No. 107,525
Claims priority, application Japan, Dec. 28, 1978, 53-179707[U]
Int. Cl.³ H01H *9/16*
U.S. Cl. 200—314 **8 Claims**



1. An assembly of push button switches having push members continually illuminated, including a frame carrying an array of push button switches each having an operation rod slidable therein for changing the status of the respective switch, a plurality of push members carried slidably by said frame, said push members being each engaged with a respective one of said operation rods for unitary movement therewith and having at its forward end portion a respective display window for transmitting light, a light source held rearwardly of said frame, a plurality of shutter members each held pivotally to said frame, said shutter members including a shutter plate formed by a light transmitting material and held at a location between said light source and a respective one of said display windows, a light diffusing plate extending between said light source and each said shutter member to provide a uniform amount of light to each display window of every non-depressed push member, and respective means associated with each said push member for pivoting the respective shutter member out of the path of light to the respective display window during depression of said push member to increase the amount of light thereto.

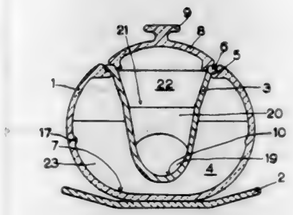
4,280,032

EGG COOKING IN A MICROWAVE OVEN

Melvin L. Levinson, 1 Meinzer St., Avenel, N.J. 07001

Filed Feb. 14, 1979, Ser. No. 12,050
Int. Cl.³ H05B *6/80*
U.S. Cl. 219—10.55 E **9 Claims**

1. A utensil to cook an egg in a microwave oven which comprises:
a microwave-reflective, heat-conductive, open-mouthed first container with inner side walls and a floor which define a chamber and where said inner walls and floor are constructed so that, when said egg is contained in said chamber, the yoke of said egg, which is denser than the white of said egg, will sink through said egg white by gravity until said yolk is microwave shielded from beneath by contacting said first container's floor and lower side walls and said yolk rests on said floor beneath said egg white,



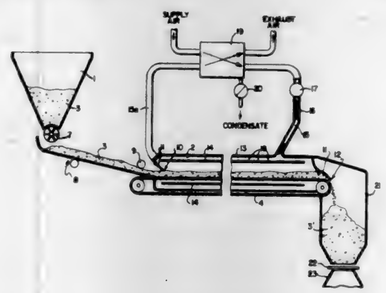
a microwave-permeable second container disposed in a spaced relationship with said first container to that, at least, a portion of the heat-conductive outer surface of said first container will be in physical contact with a microwave-lossy liquid when said liquid is outside said first container and inside said second container.

4,280,033

PROCESS AND APPARATUS FOR THE THERMAL TREATMENT OF COAL

Dietrich Wagener; Horst Fach, and Hayri Ergun, all of Essen, Fed. Rep. of Germany, assignors to Didier Engineering GmbH, Essen, Fed. Rep. of Germany

Filed Mar. 22, 1979, Ser. No. 23,093
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 2812521
Int. Cl.³ H05B *6/78*
U.S. Cl. 219—10.55 A **15 Claims**



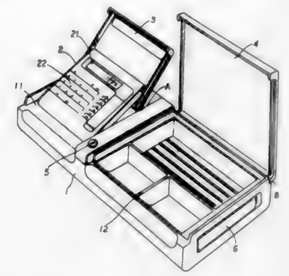
1. An apparatus for the thermal treatment of coal, said apparatus comprising:
a treatment zone through which coal is passed, said treatment zone comprising a substantially enclosed chamber, and conveyor means for continuously passing ground coal through said enclosed chamber, said conveyor means comprising an endless conveyor belt having an upper run extending through said chamber; and
means associated with said treatment zone for thereat exposing said coal to microwave radiation, said exposing means comprising microwave electrodes in the form of plates positioned above and below said upper run of said endless belt conveyor.

4,280,034

VISUAL ANGLE ADJUSTABLE PORTABLE CASH REGISTER

Akira Ezaki; Yoshiaki Kobayashi, and Sigeaki Hayashi, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 28, 1979, Ser. No. 16,076
Claims priority, application Japan, Feb. 28, 1978, 53-26785[U]; Mar. 25, 1978, 53-38564[U]
Int. Cl.³ G06C *5/02*; **G07G** *1/00*
U.S. Cl. 235—1 D **11 Claims**



1. A calculating machine unit, comprising:
calculating means having an outer housing; and
case means having an outer housing for retaining said calculating means therein, the outer housing of said case means being held in contact with one end of the outer housing of said calculating means at a first contacting point, said case means being a separate unit relative to said calculating means, said case means further including,
cash case means for storing currency therein, and
support means mounted to the outer housing of said case means for supporting the other end of said calculating means, said support means being held in contact with said other end of said calculating means at a second contacting point, said support means being movable to an angular position for selectively varying the angle of orientation of said calculating means relative to said case means.

4,280,035

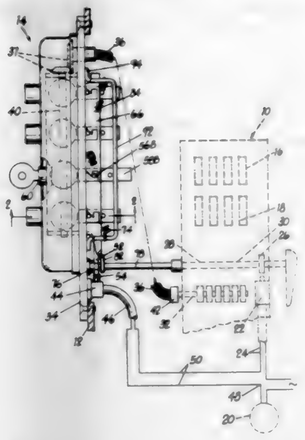
PLURAL KEY ACTUATED TOTALIZER FOR GASOLINE SALES PUMP

Eugene F. Settlemire, Tucson, Ariz., assignor to Austin A. Webb, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 6,534, Jan. 25, 1979, Pat. No. 4,217,485. This application Feb. 13, 1980, Ser. No. 121,099
Int. Cl.³ B67D *5/22*
U.S. Cl. 235—94 R **7 Claims**

1. In a totalizer attachment for a gasoline sales pump having plural totalizers on axially shiftable shafts, a key operated lock for each shaft, a control slide actuated by each lock, a control detent and a release detent interlocked by said control slides, a switch arranged to be actuated by said control detent and adapted to be to the delivery circuit of the pump, a release element arranged to actuate said release detent and adapted to be connected to the reset control of the pump, a common drive shaft to which said shiftable shafts are selectively engagable, a connecting element adapted to be drivingly connected between said common shaft and the non-resettable accumulator of said pump, and a mounting plate for said attachment, the improvement which comprises:
means connecting the bodies of said locks to said plate in spaced relation to the ends of said shiftable shafts,
lugs connected to the cylinders of said locks and projecting from the bodies of the locks toward said shiftable shafts,

and cam portions on said lugs movable therewith in camming engagement across the ends of said shiftable shafts to



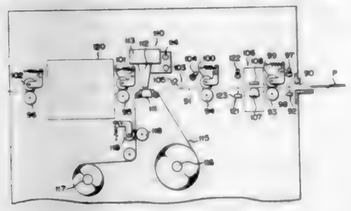
move the shafts into driven engagement with said common shaft.

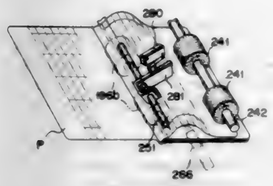
4,280,036

BANKING APPARATUS USING PASSBOOKS

Kunio Fukatsu, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 23, 1979, Ser. No. 87,649
Claims priority, application Japan, Oct. 24, 1978, 53-130053; Oct. 24, 1978, 53-130055; Oct. 24, 1978, 53-145314[U]; Apr. 11, 1979, 54-43033
Int. Cl.³ G06F 15/30; B41J 3/28
U.S. Cl. 235—379 21 Claims





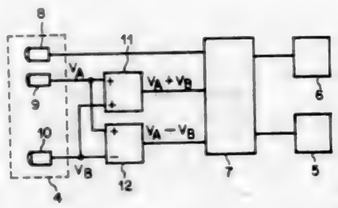
1. A passbook printing apparatus, comprising:
a passbook inlet;
a substantially straight passbook path with a fixed length and having one end connected to said inlet, said path defining a printing position for a passbook;
passbook conveying means capable of being driven so as to feed the passbook in one direction from said inlet along said passbook path and to return said passbook to said inlet in the opposite direction;
printing means including a common platen, said platen being disposed in the printing position in said passbook path;
a journal paper having a part always placed on said platen; and
feed means for feeding said journal paper on said platen.
14. A banking apparatus using passbooks, comprising;
an inlet through which a passbook is inserted;
a passbook path with one end connected to said inlet;
a driving mechanism carrying the passbook along said path; and
a passbook page turning mechanism disposed in said passbook path.

4,280,037

APPARATUS FOR CASHLESS PAYMENT OF MERCHANDISE OR SERVICES

Rolf Schmidhauser, Cham, Switzerland, assignor to LGZ Landis & Gyr Zug AG, Switzerland

Filed Jan. 17, 1980, Ser. No. 112,903
Claims priority, application Switzerland, Jan. 31, 1979, 928/79
Int. Cl.³ G06K 7/10, 13/00, 19/06
U.S. Cl. 235—454 6 Claims



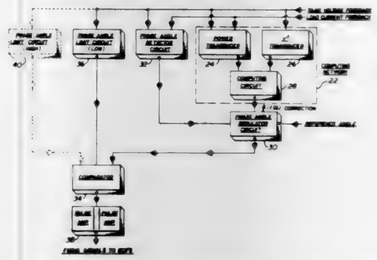
1. The combination of an apparatus for the transfer of fungible goods or services, for example, cashless payment for merchandise or services with
transfer means having marked thereon a plurality of cancellable value units in the form of at least first and second types of optical markings different from one another, said markings being arranged in a predetermined cyclical sequence on at least one track of said transfer means, so as to preclude the occurrence of any gap between adjacent markings, each individual marking modifying light impinging thereon in a characteristic manner, a transition region being formed between said adjacent markings, said apparatus comprising:
reading means, including a light source, and at least first and second light sensors associated with said first and second types of optical markings, respectively, said reading means being arranged for reading and generating signals from said markings, and from said transition regions,
activatable erasing means for erasing said markings in dependence of the number of value units to be cancelled,
transport means for effecting a relative movement between said transfer means, and respectively, said reading means and said erasing means, along said track, said reading means and said erasing means being movable near to said transition regions, and
control means for controlling the movement of said transport means, and of said erasing means, for evaluating the signals from said reading means, and for disabling said transport means and activating said erasing means upon said erasing means being near one of said transition regions; so as to erase said one transition region.

4,280,038

METHOD AND APPARATUS FOR INDUCTING HEATING AND MELTING FURNACES TO OBTAIN CONSTANT POWER

George Havas, Youngstown, and Fred D. Esenwein, Columbiana, both of Ohio, assignors to Ajax Magnethermic Corporation, Warren, Ohio

Filed Oct. 24, 1978, Ser. No. 954,312
Int. Cl.³ H05B 6/06; H02M 5/45
U.S. Cl. 219—10.77 8 Claims



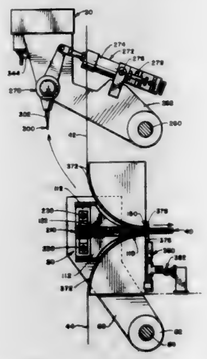
1. Power control means for induction heating or melting furnace of varying load conductance, a parallel resonant circuit DC/AC inverter supplying AC power to said furnace, means for holding the said AC power constant by adjustment of the power factor angle to the parallel resonant circuit load as a function of the varying load conductance of the said load while maintaining the direct current to the inverter constant, and limit means to restrict the power factor angle to a predetermined minimum value.

4,280,039

APPARATUS FOR FABRICATING AND WELDING CORE REINFORCED PANEL

James R. Campbell, South Laguna, and Roy L. Anspach, Anaheim, both of Calif., assignors to Thomas P. Mahoney, Balboa Island; Donald A. Ruston; Robert S. Barnes, both of Newport Beach; Edward K. Nance, Jr.; The Nance Childrens's Trust, both of Fullerton; Gloria I. Ruston, Laguna Niguel; Jeane O'Connor, Fullertos; Terri Lynn Ruston; Donald Alan Ruston, both of Laguna Niguel; Donald M. Cislo and George E. Schick, both of Marina Del Ray, all of, Calif., part interest to each

Filed Jan. 12, 1979, Ser. No. 2,761
Int. Cl.³ B23K 11/10, 37/02
U.S. Cl. 219—78.11 23 Claims



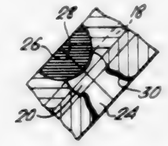
1. In a welding apparatus for welding metallic face sheets to metallic core strips located in a cavity between said face sheets, said core strips having securement portions thereupon for weldment to contiguous and opposed inner surfaces of said face sheets, the combination of: welding head means movable into and out of said cavity; welding electrode means on said welding head means, said welding electrode means including spaced banks of individually energizable and movable electrodes engageable with said securement portions of a core strip to carry said core strip into said cavity when said welding head means is moved into said cavity; means for moving said spaced banks of welding electrodes away from one another to urge said securement portions of said core strip into engagement with the inner surfaces of said face sheets; a source of welding potential; and welding potential controlling means for impressing said welding potential sequentially across said individually energizable electrodes of each bank to weld said securement portions of said core strips to the inner surfaces of said face sheets.

4,280,040

METHOD OF ARC WELDING POROUS SHEET METAL

John J. Gilkison, Nelson, England, assignor to Rolls-Royce Limited, London, England

Filed Mar. 22, 1979, Ser. No. 22,838
Claims priority, application United Kingdom, May 20, 1978, 20952/78
Int. Cl.³ B23K 9/02
U.S. Cl. 219—104 4 Claims



1. A method of butt welding together two edges of a porous sheet metal material having holes therein opening to each surface thereof by an electric arc welding process including the steps of:
positioning the two edges to be welded in abutting relationship to form a butt joint running along the two edges, the butt joint having inside and outside surfaces;
first welding, from one of the inside or outside surfaces, along the butt joint with an electric arc welding apparatus having a welding electrode using an amperage and a speed of relative movement between the material and the welding electrode causing the metal material to melt to a depth of not more than half of the material thickness with the holes opening to each surface, in the line of the weld, remaining open after welding; and
second welding, from the other of the inside or outside surfaces, along the butt joint with the electric arc welding apparatus using an amperage and a speed of relative movement between the material and the welding electrode causing the metal material to melt to a depth of not more than half the material thickness with the holes opening to each surface, in the line of the weld, remaining open after welding.

4,280,041

APPARATUS FOR ARC WELDING OR PLASMA CUTTING

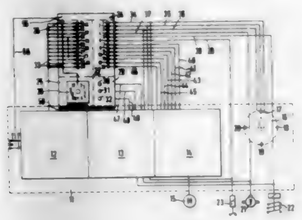
Werner Kiessling, Eching, and Wolfgang Lookhof, Stein-Laboe, both of Fed. Rep. of Germany, assignors to Messer Griesheim, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 7, 1978, Ser. No. 940,371

Claims priority, application Fed. Rep. of Germany, Sep. 15, 1977, 2741469

Int. Cl.³ B23K *9/10, 9/00*

U.S. Cl. 219—121 PT **4 Claims**



1. In an apparatus for arc welding or plasma cutting wherein the apparatus includes welding/cutting equipment having a current source in a current source housing as well as a set of controls to influence the welding/cutting process, the improvement being a diagnosis apparatus selectively operatively hooked up to at least one of said current source and said controls, said diagnosis apparatus containing indicating means for indicating signals transmitted from said controls and/or the current source units to be controlled, said diagnosis apparatus further containing switching circuits for simulating the operation of said controls and/or the current source units to be controlled, said diagnosis apparatus further having circuits for monitoring the live voltages and flowing currents for said controls and the units to be controlled of said current source, said current source housing having a front face with an openable door for exposing a slide-in unit, said slide-in unit being slidable partially out of said housing and having an exposed upper surface upon being partially pulled out, said diagnosis apparatus being constructed as a plug-in module having connectors, said slide-in unit having complementary connectors exposed on its upper surface whereby said slide-in unit may be selectively operatively connected to said plug-in module, and said slide-in unit connectors being shielded within said housing upon disconnection of said plug-in module and upon closure of said housing front face.

4,280,042

PROCESS AND INSTALLATION FOR AUTOMATIC IGNITION OF A PLASMA CUTTING TORCH

Jean-Yves Berger, Bessancourt; Michel Kostelitz, Versailles; Bernard Reynaud, L'Isle Adam, and Raymond Egee, Champagne-sur-Oise, all of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude and La Soudure Autogene Francaise, both of Paris, France

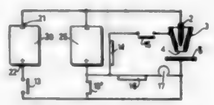
Filed Jan. 22, 1980, Ser. No. 114,200

Claims priority, application France, Feb. 1, 1979, 79 02610

Int. Cl.³ B23K *9/10*

U.S. Cl. 219—121 PT **10 Claims**

1. In a method for the automatic ignition of a plasma cutting torch having an electrode and a tube for producing a plasma, of the kind in which said torch is arranged for forward and reverse feed with respect to a workpiece and the approach of said torch towards the workpiece is carried out until the appearance of an electric signal for measurement of the correct cutting gap between said torch and the workpiece which causes the stopping of the torch, the invention which comprises supplying said electric signal in response to the sensed



current intensity of a low-power electric circuit between said electrode and the workpiece.

4,280,043

WELDING TORCH WITH MECHANICAL AND PNEUMATIC CLEANING

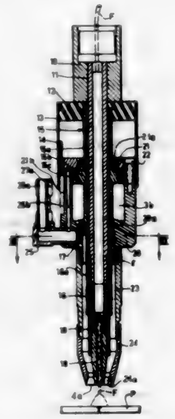
Jacques Feix, Saint Ouen l'Aumone, and Frederic Cardot, Andresy, both of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Jan. 15, 1979, Ser. No. 3,910

Claims priority, application France, Feb. 8, 1978, 78 03458

Int. Cl.³ B23K *9/16, 9/26*

U.S. Cl. 219—137.31 **13 Claims**



1. An electric welding torch having a chamber exposed to particles of material from the weld, the torch comprising, in combination:

a first assembly including a welding electrode protruding from one end thereof;

a second assembly in spaced relationship with the first assembly to define said chamber, a portion of said second assembly being located adjacent said one end and forming with said first assembly an outlet orifice for said chamber;

scraper means carried by one of said assemblies in position to engage the other assembly adjacent said outlet orifice for detaching firmly adhering particles from said chamber, said other assembly defining an enclosed cylinder disposed about said one assembly;

operating means for moving said scraper means into engagement with said other assembly to thereby detach said firmly adhering particles, said operating means including a piston enclosed in said other assembly and slidably disposed in said cylinder for controlling the movement of said scraper means; and

means for directing a cleaning fluid through the entire volume of said chamber at a pressure sufficient to detach lightly adhering particles therefrom and sweep both the lightly adhering particles and the firmly adhering particles detached by the scraper means through said outlet orifice, the cleaning fluid being directed through said chamber subsequent to the formation of said weld.

4,280,044

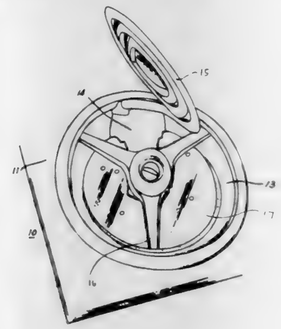
HEAT ABSORBING AND RADIATING DEVICE FOR ELECTRIC STOVES

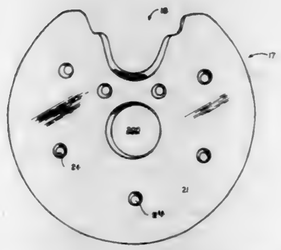
Peter Princevalle, 5 E. Quail St., Sparks, Nev. 89431

Continuation-in-part of Ser. No. 857,120, Dec. 5, 1977, abandoned. This application Sep. 28, 1979, Ser. No. 80,045

Int. Cl.³ H05B *3/68*

U.S. Cl. 219—462 **13 Claims**





1. A heat absorbing and radiating device wherein said device comprises a ceramic disc having a flat top surface, a convex bottom surface, a central vertical hole therein, said hole being shaped sized to maintain said device positioned above a reflector pan and below a burner element of an electric range, and a plurality of spaced-apart cone shaped throughbores for inhibiting cracking of said disc, said disc having a cutout portion of irregular shape and spaced from said hole said cut out portion extending radially inward from the periphery of said disc said disc having a refractive glaze thereon.

4,280,045

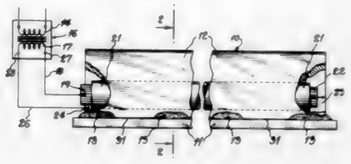
SKIN EFFECT HEAT GENERATING UNIT HAVING CONVECTIVE AND CONDUCTIVE TRANSFER OF HEAT

Douglas Blackmore, 57 Hillcrest Dr., Upper Saddle River, N.J. 07458

Continuation-in-part of Ser. No. 794,437, May 6, 1977, abandoned. This application Jan. 4, 1979, Ser. No. 1,044

Int. Cl.³ H05B *3/00;* **F16L** *53/00*

U.S. Cl. 219—540 **9 Claims**





1. A heat generating system having a heat generator structure utilizing skin effect alternating current and including a ferromagnetic, elongate hollow element and an insulated conductor freely movable for expansion within said hollow element, the inner surfaces of said element defining an air space at least partially surrounding said conductor, said conductor being connected at one end to one pole of a source of alternating current, the other end of said conductor being connected to a far end of said hollow element, and a near end of the hollow element being connected to another pole of the alternating current source, said hollow element comprising two parts with one part defining an open face channel having two elongated, coextensive, spaced longitudinal edges, the other part covering the open face of the channel defined by said one part, means for securing said other part in spaced relationship to said longitudinal edges so as to provide openings between the surface of said other part and said longitudinal edges of said one part along the length of said hollow element enabling substantial transverse air flow freely therethrough across said conductor and internal surfaces of said hollow element with resultant convection heating air-flow of said generated heat, and said two parts being of such thickness that the alternating current is confined along the inner surface portion of said hollow element when said conductor and hollow element are energized by said source.

4,280,046

SHEATH HEATER

Kazumi Shimotori, Kawasaki; Isao Izumi, Yokohama, and Hideki Murabayashi, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 30, 1979, Ser. No. 98,717

Claims priority, application Japan, Dec. 1, 1978, 53-148914

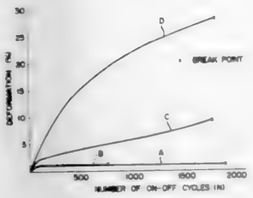
Int. Cl.³ H05B *3/44*

U.S. Cl. 219—544 **5 Claims**

1. A metal sheath heater having a coiled heating wire embedded in a ceramic insulator, enclosed in said sheath, such that the thermal deformation of the heating wire is is substantially prevented by the insulator, characterized in that the heating wire is formed of a nichrome-based wire having an

Al-rich surface layer which is converted into alumina by thermal oxidation and alloyed with the nichrome-based wire





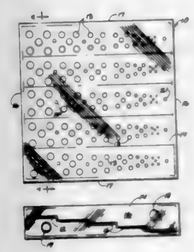
wherein the Al-rich surface layer is formed by a hot dipping on the surface of the nichrome-based wire.

4,280,047

NUCLEAR IMAGING PHANTOM

Gary Enos, 12 Clintonville Rd., Northford, Conn. 06472

Filed Jun. 11, 1979, Ser. No. 47,366
Int. Cl.³ G01D *18/00*
U.S. Cl. 250—252 **11 Claims**



1. A phantom for evaluation of nuclear imaging systems, comprising:

a closed container of radiolucent material;

a liquid filling said container, said liquid serving as a scattering medium;

a plurality of parallel steps made of radiolucent material and fixed within the container, the steps presenting individual planar surfaces progressively spaced from a first wall of the container and arranged side-by-side within the liquid in a direction that is perpendicular to their respective lengths;

and a plurality of identical groupings of discrete geometrical attenuation objects arranged along the respective planar surfaces of said steps

said objects having a common thickness between oppositely facing parallel surfaces arranged in planes parallel to the planar surfaces of the respective steps;

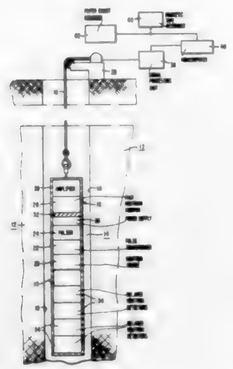
each grouping comprising a plurality of objects having a progression of object size and spacing between adjacent objects.

4,280,048

NEUTRON ACTIVATION PROBE

Richard C. Smith, Pittsburgh, Pa., assignor to Wyoming Mineral Corporation, Lakewood, Colo.

Continuation of Ser. No. 873,343, Jan. 30, 1978. This application Jun. 7, 1979, Ser. No. 46,734
Int. Cl.³ G01V *5/00*; **G21G** *4/02*
U.S. Cl. 250—264 **1 Claim**



1. A neutron activation probe for assaying the amount of fissionable isotopes in an ore body comprising:

a casing;

drive means located above ground and attached to said casing for moving said casing through a borehole in said ore body;

a sealed-tube accelerator disposed in said casing and capable of producing pulses of 14.3 MeV neutrons by a deuterium-tritium reaction for fissioning said fissionable isotopes within said ore body and consequently emitting delayed neutrons;

a plurality of helium-3 gas filled delayed neutron detectors arranged colinearly in said casing below said sealed-tube accelerator for detecting said delayed neutrons;

a scintillation detector together with a phototube for detecting the amount of fast neutrons emitted by said sealed-tube accelerator;

a direct current power source disposed in said casing and connected to an above ground alternating current power supply;

a high voltage pulse transformer disposed in said casing and connected to said direct current power source for increasing the voltage from said direct current power source;

a pulser connected to said high voltage pulse transformer and connected to said sealed-tube accelerator for providing a high voltage pulse to said sealed-tube accelerator for emitting neutrons;

an amplifier mechanism disposed in said casing and connected to said scintillation detector and said phototube for transmitting signals to above ground instrumentation; and

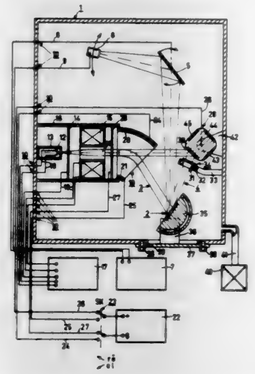
control means for controlling the pulsing of said sealed-tube accelerator, for registering the signals from said delayed neutron detectors between pulses of said sealed-tube accelerator and for delaying the signal of each of said delayed neutron detectors by an amount sufficient to correspond each of said signals with the same ore zone of said ore body and for adding each of said signals so delayed and recording the result of such addition thereby increasing the accuracy of the reading of said delayed neutrons resulting from each ore zone.

4,280,049

X-RAY SPECTROMETER

Helmut W. W. Werner; Antonius W. Witmer, and Wilhelmus F. Knippenberg, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 24, 1979, Ser. No. 42,269
Claims priority, application Netherlands, Jun. 12, 1978, 7806330
Int. Cl.³ G01M *23/00*
U.S. Cl. 250—310 **7 Claims**



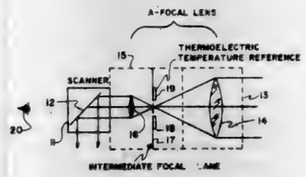
1. An X-ray spectrometer comprising an evacuated housing, a wavelength dependent X-ray detection system, electron means for generating an electron beam to irradiate a specimen to be examined, deflection means for directing said electron beam, an X-ray source having an anticathode on which said electron beam may be directed by said deflection means to generate an X-ray beam for irradiating said specimen, wherein said electron beam is directed to said anticathode when said deflection means is switched off, and wherein said electron beam is directly incident on said specimen when said deflection means is switched on, and means arranged between said anticathode and said specimen in the incident X-ray beam path for filtering reflected electrons from said anticathode and passing only said X-rays to said specimen.

4,280,050

INFRARED VIEWER AND SPECTRAL RADIOMETER

Robert E. Callender, Woodbridge; Loren C. Doyle, Alexandria, and William J. Lightel, Springfield, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 17, 1980, Ser. No. 130,957
Int. Cl.³ H01J *31/49*
U.S. Cl. 250—330 **10 Claims**



1. A combined infrared viewer means for producing a visible image of one or more distant objects using only the infrared radiation therefrom and spectral radiometer comprising:

an objective lens means to project a primary image of said distant infrared emitting objects on a primary image plane;

at least one electrically controlled reference temperature strip mounted in said primary focal plane adjacent said primary image;

a second lens means interconnected with said first lens means to refocus said primary image and the emission from said strip on a secondary image plane as a combined secondary image;

an infrared image detector in said image plane centered on and equally responsive to all portions of said secondary image; and

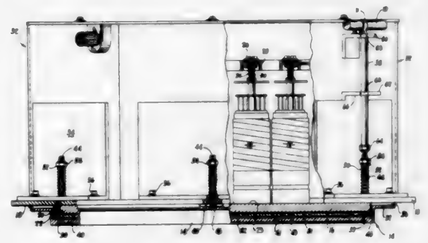
a variable center-frequency narrow-bandwidth optical filter of infrared frequencies located between said second lens means and said image detector.

4,280,051

SCINTILLATION CRYSTAL MOUNTING APPARATUS

Lawrence W. Engdahl, Guilford, and Allan J. Deans, Hamden, both of Conn., assignors to Picker Corporation, Cleveland, Ohio

Filed Oct. 4, 1978, Ser. No. 948,341
Int. Cl.³ G01T *1/20*
U.S. Cl. 250—363 S **14 Claims**



1. In a gamma imaging device, an improved detector head comprising:

(a) a housing

(b) a detector assembly removably mounted within said housing, said assembly comprising:

(i) a crystal sub-assembly including an output window, generally light transparent, and an input window, generally opaque to light but transparent to gamma radiation;

(ii) a plurality of spaced phototubes for receiving light energy emitted from said crystal sub-assembly;

(iii) an optical member for transmitting light energy from said crystal sub-assembly to said phototubes, said member having an input and an output surface;

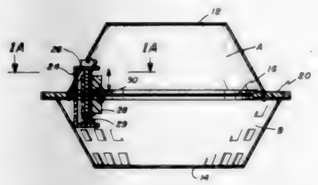
(iv) optical member mounting means for rigidly mounting said optical member to said detector assembly, said mounting means preventing relative movement between said optical member and said detector assembly;

(v) a first biasing means urging said phototubes into abutting engagement with the output surface of said rigidly mounted optical member;

(vi) a resilient second biasing means urging said crystal sub-assembly into abutting engagement with the input surface of said optical member;

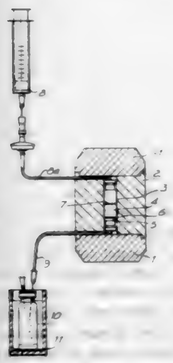
(vii) optical coupling means in the interface between the phototubes and the output surface of the optical member and between the output window of the crystal sub-assembly and the input surface of the optical member.

4,280,052
MULTIPLE CHAMBER IONIZATION DETECTOR
Elias E. Solomon, 20 Christina Ct., Duxbury, Mass. 02332
Filed Nov. 9, 1978, Ser. No. 959,102
Int. Cl.³ G01T 1/18
U.S. Cl. 250—381 14 Claims



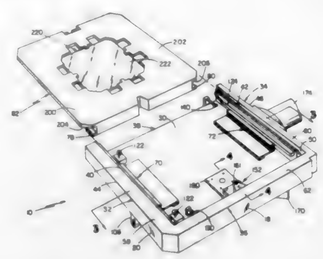
1. An ionization detector comprising;
means defining at least first and second chambers,
electrode means associted with the chambers including a common conductive wall means defining a common electrode between chambers and defining at least a side of each chamber,
a radioactive source common to both chambers and having portions thereof disposed in each chamber,
means providing adjustable positioning between the source and common electrode to alter the proportion of the source that is disposed in each chamber,
and means coupled from said common electrode for sensing changes in ionization current.

4,280,053
TECHNETIUM-99M GENERATORS
John V. Evans, Lilli Pilli, and Ralph W. Matthews, Georges Hall, both of Australia, assignors to Australian Atomic Energy Commission, Australia
Filed Jun. 2, 1978, Ser. No. 912,146
Claims priority, application Australia, Jun. 10, 1977, PD0412
Int. Cl.³ G21G 1/04; C01G 57/00
U.S. Cl. 250—432 PD 7 Claims



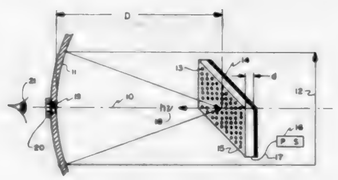
1. A generator for technetium-99 m comprising a container including a matrix in which technetium-99 m is produced, the matrix comprising a polymolybdate compound other than a heteropolymolybdate compound, said polymolybdate compound being of molybdenum containing molybdenum-99, being of gel-like structure and being substantially non-elutable in an eluant which may be used in a radiopharmaceutical, the matrix permitting diffusion of technetium-99 m therethrough and elution therefrom by said eluant.

4,280,054
X-Y WORK TABLE
Nicholas Guarino, Arlington, Mass., assignor to Varian Associates, Inc., Palo Alto, Calif.
Filed Apr. 30, 1979, Ser. No. 34,505
Int. Cl.³ H01J 37/26
U.S. Cl. 250—440 3 Claims



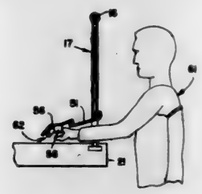
1. A precision interferometer system including a work table for supporting a workpiece, said work table being moveable along orthogonal axes, a pair of orthogonal mirrors attached to and moveable with said table and intersecting respective ones of said orthogonal axes, optical sensing means mounted along each of said orthogonal axes to reflect a beam from said mirrors and thereby sense the displacement of said system along each axis, the improvement comprising
said work table comprises a solid block of metal having two orthogonal external surfaces of said block polished to constitute said mirrors, said block also having an interior Faraday cup support surface;
a precalibrated Faraday cup assembly mounted on said interior Faraday cup support surface of said block so that the sensing grid of said Faraday cup has a fixed relationship to the surface of a workpiece supported on said work table; and
means for securing said workpiece to move with said block.

4,280,055
MICROWAVE IMAGE CONVERTER
Reinhold Gerharz, Bethesda, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Feb. 8, 1980, Ser. No. 120,011
Int. Cl.³ H05B 33/00
U.S. Cl. 250—484 10 Claims



1. A method for converting an image transmitted by microwaves of a given wavelength and pulsed at a given pulse frequency into a visible image comprising the steps of:
focussing the microwaves at a first image plane;
placing an array of electroluminescent detectors spaced apart at least a half of said given wavelength in said first image plane to cause emission of photons therefrom;
focussing said photons into a photon image much smaller than said microwave image at a second image plane that does not lie in the path of said microwaves; and
generating a final image containing a much larger number of visible photons in direct proportion to the photons at each point in said photon image.

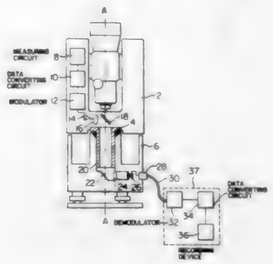
4,280,056
PROTECTIVE SHIELD FOR ARTHROGRAMS
Governor K. Renshaw, 14448 Merced St., San Leandro, Calif. 94579
Filed Oct. 30, 1979, Ser. No. 89,511
Int. Cl.³ G21C 11/00; G21F 3/02
U.S. Cl. 250—515 6 Claims



1. An X-ray shield for protecting an operator physically gripping a patient upon an X-ray table during irradation and adapted for removable attachment to a diagnostic table comprising:
a frame having vertical legs depending from a horizontal cross piece;
a pair of feet connected one to the bottom of each said legs in angularly adjustable relation thereto and being adapted for slidable engagement with at least one of two tracks extending along the top of said table for mounting said frame in adjustable position on said table in extension above the table;
an upper sheet of flexible radiation resistance material depending from said crosspiece between said legs with a lead glass window therein, and removably attached to said legs for protecting said operator standing on the opposite side of said shield from the table from stray X-rays and secondary radiation; a lower sheet of flexible radiation resistant material having attachment means along the top thereof adapted to cooperate with attachment means along the bottom of said upper sheet for removably engaging said sheets in overlapping relation whereby said lower sheet is free to move about the top thereof for extension over said table to protect the hands of said operator thereat.

4,280,057
A SURVEYING INSTRUMENT HAVING MEANS FOR TRANSMITTING SIGNALS BETWEEN AN ALIDADE AND A FIXED MEMBER
Akio Takahama, Kawasaki, and Tatsuro Hatano, Yokohama, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan
Filed Oct. 30, 1978, Ser. No. 955,779
Claims priority, application Japan, Oct. 29, 1977, 52-129246
Int. Cl.³ G02B 27/02
U.S. Cl. 250—551 7 Claims

1. A survey instrument having an alidade portion and a fixed portion rotatably holding the alidade portion, comprising:
a light-emitting portion provided in at least one of said alidade portion and said fixed portion;
a light-receiving portion provided in the other of said alidade portion and said fixed portion so as to make a pair with said light-emitting portion;
first optical means provided in at least one of said alidade portion and said fixed portion together with said light-emitting portion, the first optical means collimating substantially the light beam from said light-emitting portion and directing the collimating beam to said other of said alidade portion and said fixed portion so that the collimated beam may be substantially parallel to the axis of rotation of said alidade portion; and second optical means provided in said other of said alidade portion and said fixed portion together with said light-receiving portion, the second optical means being so formed that a certain amount of the light beam from said first optical means may be always incident on the second optical means notwithstanding rotation of said alidade portion, the second optical means condensing the light beam from said first optical means on said light-receiving element;
said alidade portion has an optical plummet scope; said fixed portion has a through-opening for said optical plummet scope; and the light path between said light-emitting portion and said light-receiving portion is partly used for the optical path of said optical plummet scope.



4,280,058
FLAME DETECTOR
Domokos Tar, Stäfa, Switzerland, assignor to Cerberus AG, Mannedorf, Switzerland
Filed Apr. 19, 1979, Ser. No. 31,431
Claims priority, application Switzerland, Apr. 25, 1978, 44678/78
Int. Cl.³ H01L 9/00
U.S. Cl. 250—554 16 Claims



1. A flame detector of the type having a first circuit for sensing at least the flame-resonant radiation having a wavelength of 4.4 μm which is characteristic of carbon dioxide and in response thereto generating a first electrical signal for activating an alarm means, the first circuit comprising a photoelectric means for producing a first circuit signal and a band-pass filter which passes the first circuit signal only at the flicker frequency range of the flame,
a second circuit for sensing the presence of spurious radiation of the same flicker frequency range as that sensed by the first circuit, said second circuit sensing only radiation having a wavelength substantially greater than the characteristic wavelength of resonant radiation of carbon dioxide at 4.4 μm, comprising second photoelectric means generating a second electrical signal, and further comprising a second band-pass filter having the same pass-band as the band-pass filter of the first circuit and
connecting means interconnecting said first and second circuits and comprising comparator means for comparing said first and said second electrical signals and blocking activation of said alarm means by said first electrical signal whenever the radiation sensed by said second circuit

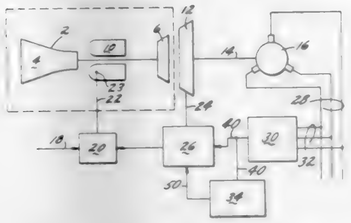
corresponds in frequency and is synchronous to the radiation sensed by that first circuit.

4,280,059

DETECTING POWER LOSS IN FREE TURBINES

Herbert C. Zickwolf, Jr., Bozrah, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 26, 1979, Ser. No. 107,294
Int. Cl.³ F02C *1/00*; H02P *9/04*
U.S. Cl. 290—40 B **5 Claims**



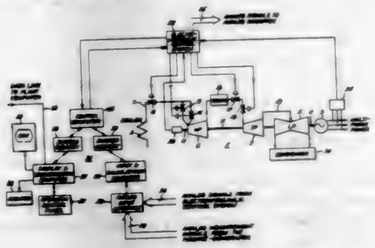
1. A control for a turbine engine including:
a gas generator comprising a compressor in the turbine and a burner for heating the air from the compressor before it reaches the turbine;
a free turbine driven by hot gas from the gas generator; and
a power output device driven by the free turbine, said control including;
a fuel control valve for the flow of fuel to the burner,
a control means for moving said valve at least in part as a function of free turbine speed;
a power sensor for determining the load on the power output device and providing a signal as a function of the load,
a load loss detector for sensing a power loss in the power output device and providing a signal as a function of the load loss including a time lag device; and
means for comparing the signals from the power sensor and the detector to determine the rate of power loss and for actuating said control means at or above a predetermined rate loss.

4,280,060

DEDICATED MICROCOMPUTER-BASED CONTROL SYSTEM FOR STEAM TURBINE-GENERATORS

Jens Kure-Jensen; Richard S. Gordon, both of Schenectady; Charles L. Devlin, Ballston Lake, and Frederick C. Krings, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 9, 1980, Ser. No. 157,348
Int. Cl.³ F01D *17/02*
U.S. Cl. 290—40 R **22 Claims**



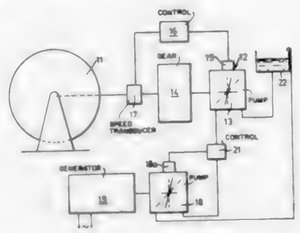
1. In combination with a turbine-generator set having a feedback control system operative in a manual mode and in a remote supervisory mode for operational control of said turbine-generator, a supervisory control system for providing direction to the feedback control system whereby the turbine-generator is controlled through all phases of operation to provide the quickest turbine-generator response without exceeding allowable levels of thermal or mechanical stress, said supervisory controller comprising:
an analog interface subsystem for receiving from said turbine-generator analog signals representing operating parameters thereof and for converting said analog signals to digital data signals;
a hierarchy of microcomputer subsystems wherein there is a distribution of function between such microcomputer subsystems, said hierarchy including an input and calculations microcomputer for receiving said digital data signals and for deriving therefrom other turbine generator operating parameters including thermal and mechanical stress values imposed on component parts of said turbine-generator, a display and communications microcomputer for inter-communication with peripheral equipment and operating personnel, and a control microcomputer for receiving information from other microcomputers of the hierarchy, for making decisions based on said information, and for providing said feedback control system with control directions; and
a plurality of shared memory units, each unit of which is shared between at least two microcomputers of the hierarchy and through which information is exchanged and shared between microcomputers of the hierarchy.

4,280,061

METHOD AND APPARATUS FOR GENERATING ELECTRICITY FROM A FIXED PITCH WIND WHEEL

Henry Lawson-Tancred, Boroughbridge, England, assignor to Sir Henry Lawson-Tancred, Sons & Co. Ltd., Yorkshire, England

Filed Oct. 25, 1978, Ser. No. 954,471
Int. Cl.³ F03D *9/00*; H02P *9/04*; F16D *31/02*; F01B *25/06*
U.S. Cl. 290—55 **13 Claims**



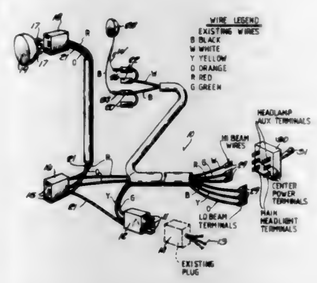
1. A method for generating electricity from wind using hydraulic pump means, variable hydraulic motor means and a wind wheel with fixed pitch hydraulically connected to a generator which comprises:
driving said generator by said wind wheel at a fixed rotational speed,
operating said wind wheel at optimum tip speed by driving said hydraulic pump means connected therewith;
controlling driving of said hydraulic pump means to effect a torque reaction on the wheel at least roughly proportional to the square of the rotational speed of the wind wheel;
supplying variable hydraulic pressure by said pump means to said motor means for driving said generator;
controlling operation of said motor means such as to maintain constant hydraulic pressure in the system while driving said generator at said fixed speed; and
obtaining a frequency synchronous with mains frequency.

4,280,062

AUXILIARY LIGHT WIRING HARNESS

Richard R. Miller, Milwaukee, and Edward A. Simi, Menomonee Falls, both of Wis., assignors to Douglas Dynamics Inc., Milwaukee, Wis.

Filed Aug. 22, 1979, Ser. No. 68,874
Int. Cl.³ H02B *1/20*
U.S. Cl. 307—10 LS **7 Claims**



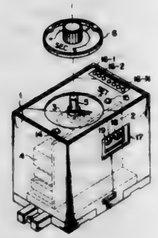
1. An auxiliary light wiring harness for use with a vehicle headlight system including an existing vehicle plug connected to a vehicle headlight power source, said wiring harness comprising;
first connector means adapted for connection to said existing vehicle plug for establishing an electrical connection to the vehicle headlight power source,
second connector means adapted for connection to a vehicle headlight,
third connector means adapted for connection to an auxiliary light,
conductor means connected to said first, second, and third connector means, and
switch means connected to said conductor means and operable for selective movement between a first position wherein said conductor means electrically connects said first and second connector means so that the vehicle headlight is energized, and a second position wherein said conductor means electrically connects said first and third connector means so that the auxiliary light is energized.

4,280,063

ELECTRONIC TIMER DEVICE

Mitsuo Yokomori, Shizuoka, and Tsugimi Kawakami, Mishima, both of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Filed Sep. 25, 1979, Ser. No. 78,810
Claims priority, application Japan, Oct. 4, 1978, 53-122269
Int. Cl.³ G04B *47/00*; G04F *8/00*; H01H *3/34*
U.S. Cl. 307—141.4 **10 Claims**



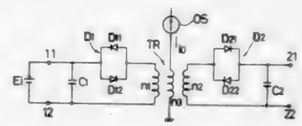
1. A timer device comprising:
a power supply terminal;
a frequency variable oscillating circuit;
a counter circuit for counting an output signal from said oscillating circuit and generating a first output signal from a first output terminal thereof when the count of the counter circuit has reached a prescribed value;
switching means coupled to said first output terminal of said counter circuit and whose operation is controlled by said first output signal from said counter circuit;
a relay circuit connected between said power supply terminal and switching means and being energized responsive to a turn-on operation of said switching means; and
first light-emitting diode means connected in parallel with said switching means and having a current voltage characteristic such that when said switching means is turned off after energization of said relay circuit, current flow through said first light-emitting diode means maintains said relay circuit energized, said current flow, however, being insufficient to initially energize said relay circuit from a de-energized state, said first light-emitting diode means emitting light when said relay circuit is de-energized and being extinguished when said relay circuit is energized by said switching means.

4,280,064

SIGNAL ISOLATOR

Keiki Yamaguchi, and Shinichi Sano, both of Musashino, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Sep. 1, 1978, Ser. No. 938,953
Claims priority, application Japan, Sep. 7, 1977, 52/107511
Int. Cl.³ H03F *9/00*
U.S. Cl. 307—149 **9 Claims**



1. An isolator comprising a transformer having a primary winding and a secondary winding, first and second non-linear circuits having nonlinear voltage-to-current characteristics, each of said nonlinear circuits including a pair of diodes having the same characteristics connected in parallel with each other with opposite polarities, means connecting said first nonlinear circuit in series with said primary winding to form an input network, means connecting said second nonlinear circuit in series with said secondary winding to form an output network, averaging means connected to said output network, and means for applying pulse signals to one of said networks, the input network and the output network being isolated from each other with respect to direct current.

4,280,065

TRI-STATE TYPE DRIVER CIRCUIT

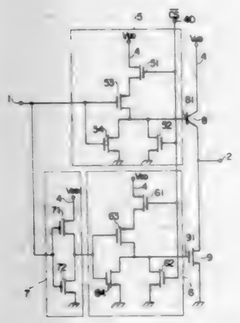
Osamu Minato, Kokubunji; Toshiaki Masuhara, Hachioji; Toshio Sasaki, Hachioji, and Masaharu Kubo, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 14, 1978, Ser. No. 969,269
Claims priority, application Japan, Dec. 26, 1977, 52-155570
Int. Cl.³ H03K *3/01*, *19/08*
U.S. Cl. 307—473 **13 Claims**

1. A tri-state type driver circuit capable of providing "on" and "off" state outputs in response to the state of a driver circuit input signal applied to the driver circuit and a "float" state output which remains constant regardless of the state of said driver circuit input signal, comprising:
an output inverter circuit to provide said three state outputs, which output inverter circuit employs a bipolar transistor as a load thereof and a MOS-FET as a driver thereof,

a first logical circuit which is coupled with an input terminal of said bipolar transistor of said output inverter circuit, which first logical circuit is made up of a C-MOS circuit receiving an external select signal and a C-MOS circuit having the driver circuit input signal transmitted thereto, wherein the output of said first logical circuit can be specified by said external select signal,

a second logical circuit which is coupled with an input terminal of said MOS-FET of said output inverter circuit, which second logical circuit is made up of a C-MOS circuit receiving said external select signal and a C-MOS circuit having the driver circuit input signal transmitted thereto, wherein the output of said second logical circuit can be specified by said external select signal, and



a first C-MOS inverter which is coupled with said second logical circuit and which functions to invert said driver circuit input signal which is applied to said second logical circuit,

wherein when the external select signal is in a first state, the first and second logical circuits will produce output signals to set the output of the output inverter circuit to the "float" state output, and when the external select signal is in a second state, the first and second logical circuits will produce output signals to allow the output of the output inverter circuit to be in the "on" or "off" state depending upon the state of the driver input signal.

4,280,066

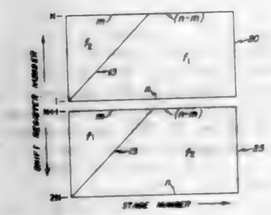
CHARGE TRANSFER APPARATUS

William E. Engeler, Scotia, and Jerome J. Tiemann, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 16, 1978, Ser. No. 961,260

Int. Cl.³ G11C *19/28*; H01L *29/78*

U.S. Cl. 307—221 D **1 Claim**



1. In combination,

a first plurality of N charge transfer shift registers,

said first plurality of shift registers formed in parallel on a first substrate and consecutively numbered from 1 to N, each shift register including n identical stages, each stage including a plurality of electrodes, said n identical stages of each shift register divided into a first part and a second part, the first shift register including n stages in the first part and zero stages in the second part, the number of stages included in the second parts of said shift registers between said first and said N^{th} shift register varying linearly with shift register number from said first to said N^{th} shift register with each successively numbered shift register having p stages more than the previously numbered shift register, the Nth shift register including m stages in the second part and n−m stages in the first part where m is p stages less than n−m, whereby the number n of stages in each shift register equals (2N−1) p,

a first set of conductors, each interconnecting respective electrodes of the stages of the first parts of said first plurality of shift registers,

a second set of conductors, each interconnecting respective electrodes of the stages of the second parts of said first plurality of shift registers,

a second plurality of N charge transfer shift registers,

said second plurality of shift registers formed in parallel on a second substrate and consecutively numbered from 2N to N+1, each shift register including n identical stages, each stage including a plurality of electrodes, said n identical stages of each shift register divided into a first part and a second part, the $2N^{th}$ shift register including n stages in the first part and zero stages in the second part, the number of stages included in the second parts of said shift registers between said $2N^{th}$ and said $(N+1)^{th}$ shift register varying linearly with shift register number from said $2N^{th}$ to said $(N+1)^{th}$ shift register with successively numbered shift registers having p stages more than the previously numbered shift register, the $(N+1)^{th}$ shift register including m stages in the second part and n−m stages in the first part where m is p stages less than n−m, whereby the number n of stages in each shift register equals (2N−1) p,

each of said first set of conductors interconnecting respective electrodes of the stages of the second parts of said second plurality of shift registers,

each of said second set of conductors interconnecting respectively electrodes of the stages of the first parts of said second plurality of shift registers,

means for providing 2N analog signals consecutively numbered from 1 to 2N, signals 1 to N constituting a first plurality of analog signals and signals 2N to N+1 constituting a second plurality of signals,

means for inverting each of the signals of said second plurality of signals,

means for introducing a first plurality of series of packets of charge into said first plurality of shift registers, each series representing successive samples of a respective one of said first plurality of analog signals,

means for introducing a second plurality of series of packets of charge into said second plurality of shift registers, each series representing successive samples of a respective one of said inverted signals of second plurality of analog signals,

means for applying a first set of clocking voltages of a first frequency to said first set of conductors and for applying a second set of clocking voltages of a second frequency to said second set of conductors,

means for detecting and summing the outputs of said first plurality of shift registers to obtain a first sum output,

means for detecting and summing the outputs of said second plurality of shift registers to obtain a second sum output, and

means for obtaining an output representing the difference of said first sum output and said second sum output.

4,280,067

SEMICONDUCTOR CHARGE TRANSFER DEVICE HAVING A DECOUPLING GATE FOR STOPPING REVERSE CHARGE FLOW

Susumu Kohyama, Kawasaki, Japan, assignor to Tokyo Shibaura Denki Electric Co., Ltd., Kawasaki, Japan

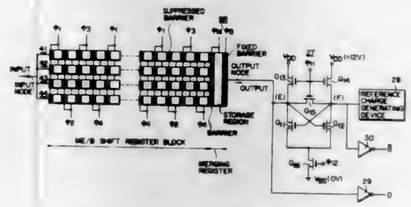
Continuation of Ser. No. 821,212, Aug. 2, 1977, abandoned. This application May 15, 1979, Ser. No. 39,123

Claims priority, application Japan, Aug. 2, 1976, 51-92206

The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.

Int. Cl.³ G11C *19/28*; H01L *29/78*

U.S. Cl. 307—221 D **2 Claims**



1. A semiconductor charge transfer device comprising:

a semiconductor charge transfer element including a plurality of transfer electrodes on an insulating layer formed on a semiconductor substrate and a detection node formed on the semiconductor substrate;

potential barrier means comprising an output electrode connected via a direct short circuit connection to a potential source of fixed value for signal charge packets provided between a final stage cell of the semiconductor charge transfer element and the detection node;

a differential detecting circuit of flip-flop type having a drive transistor for driving a load directly coupled with the detection node;

wherein said potential barrier means provided a potential barrier against a low level of the detection node when the drive transistor is conductive and said potential source of fixed value is connected to the low level side of said drive transistor;

said semiconductor charge transfer element, having a multiplex electrode per bit (ME/B) structure, comprising:

N charge transfer channels arranged in parallel whose inputs are connected to a common input means and outputs to a common output means, which includes a merging shift register of one bit storage cell including a barrier, a storage region, and a fixed barrier region, these regions being common to all said N charge transfer channels;

said charge transfer channels each including a semiconductor substrate, an insulating layer formed on said semiconductor substrate, P transfer electrodes per one channel disposed on said insulating layer, the N corresponding transfer electrodes of said N charge transfer channels being electrically connected together, and means for forming a potential barrier in part at a prescribed portion of a semiconductor region under each of a series of said P transfer electrodes of each of said charge transfer channels such that a number M of said P charge transfer electrodes, where M is less than P, remain dedicated as charge transfer electrodes, in response to application of a potential for a storage mode to the transfer electrode thereby to form a potential well in the remaining part of said semiconductor region for storing a signal charge packet, and said potential barrier being lowered in potential compared to the potential barrier being in the storage mode in response to application of a potential for the transfer mode to the transfer electrode;

means for applying N-phase non-overlapping offset clock pulse signals to said transfer electrodes of said N charge transfer channels, said clock pulse signals each being biased to low level for storage and pulsed to high level for transfer in order that a series of N transfer electrodes in each of said charge transfer channel are successively set to the transfer mode in the direction opposite to a charge transfer direction; and

means for forming a fat "0" potential barrier in part at the charge incoming side of a semiconductor region under each of transfer electrodes disposed between the input of said each charge transfer channel and the set of M transfer electrodes, when said transfer electrodes are at the storage mode, to store a fat "0" charge in the remaining part of said semiconductor region.

4,280,068

BULK CHANNEL CHARGE COUPLED DEVICE HAVING IMPROVED INPUT LINEARITY

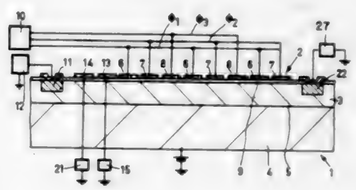
Pieter J. Snijder, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 937,311, Aug. 28, 1978, abandoned. This application May 29, 1980, Ser. No. 154,252

Claims priority, application Netherlands, Sep. 9, 1977, 7709916

Int. Cl.³ G11C *19/28*; H01L *29/78*

U.S. Cl. 307—221 D **4 Claims**



1. A bulk channel charge coupled device, which comprises:

a semiconductor body having a semiconductor layer of at least substantially one conductivity type situated at a major surface thereof;

means for depleting the semiconductor layer over its whole thickness at least in the absence of a supply of majority charge carriers while avoiding breakdown;

a row of electrodes provided on the surface of the body above the semiconductor layer and separated therefrom by a barrier junction, said row of electrodes being connected to voltage sources for applying clock voltages during operation to cause potential wells for storing and transporting information-representing charge packets to be generated in the interior of the semiconductor layer and separated from the surface;

an input stage having a zone which forms a source of charge carriers and an input electrode which is situated between said zone and said row of electrodes and which is separated from the body by an insulating layer, a potential well being induced in the semiconductor layer during operation by means of said input electrode;

an input signal source for supplying an input signal in the form of a voltage difference between the charge carrier source and the input electrode which determines the size of a packet of charge carriers which flows from the source in the potential well below the input electrode;

means for forming said potential well in said semiconductor layer and below the input electrode during operation, the minimum of said well being situated at a smaller distance from the surface of the body than the potential wells which are induced in the semiconductor layer by means of the clock voltages applied to said electrodes, so that a substantially linear relationship between the size of said charge packet and the magnitude of the input signal is obtained; and

a sampling electrode for sampling the input signal provided

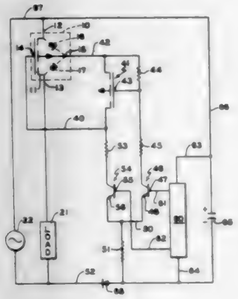
between the zone which forms the source of majority charge carriers and said input electrode, said sampling electrode having means for applying a potential in the semiconductor layer during sampling of the input signal which is at most equal to the potential in the potential well below the input electrode.

4,280,069

FIELD EFFECT TRANSISTOR DEVICE MEANS CONTROL SYSTEM

Arlon D. Kompelien, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 2, 1979, Ser. No. 53,870
Int. Cl.³ H03K *17/687*
U.S. Cl. 307—571 **14 Claims**



1. A control system for field effect transistor device means with said control system adapted to control an alternating current potential to load means, including: field effect transistor device means including drain-source channel means adapted to be connected in series circuit with said load means and said alternating current potential with said field effect transistor device means being capable of being switched between conductive and non-conductive states; said field effect transistor device means further including gate means and substrate electrode means; energy storage means including rectifier means connected to said alternating current potential to directly derive energy therefrom; condition responsive circuit means having input means connected to said energy storage means to thereby power said condition responsive circuit means; and condition responsive circuit output means including solid state switch means connected to said gate means, to said substrate electrode means, and to said drain-source channel means to control a voltage between said gate means and said drain-source channel means; said solid state switch means being controlled by said condition responsive circuit means to in turn control said voltage to operatively switch said field effect transistor device means between said conductive and said non-conductive states.

4,280,070

BALANCED INPUT BUFFER CIRCUIT FOR SEMICONDUCTOR MEMORY

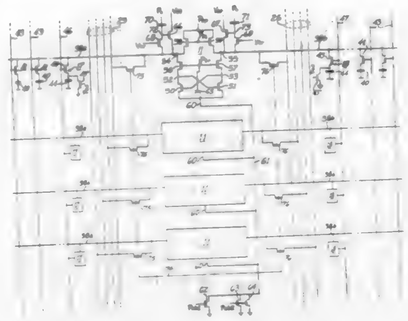
Edmund A. Reese, Sugar Land; Lionel S. White, Jr., Houston, and Joseph C. McAlexander, III, Sugar Land, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 20, 1978, Ser. No. 953,145
Int. Cl.³ H03K *3/26, 5/00*
U.S. Cl. 307—279 **10 Claims**

1. An input buffer circuit for a semiconductor memory of the type having a large number of enhancement mode transistors, comprising:

a bistable differential voltage detector having first and second field effect transistors with the gates of the transistors providing inputs to the detector,

means for coupling an input terminal to the gate of one of said transistors,



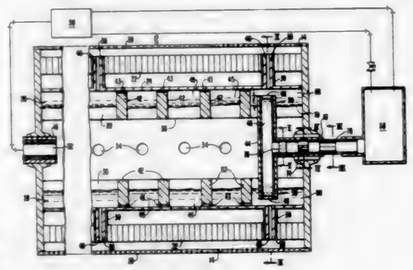
said first and second field effect transistors having a threshold voltage significantly less than that of said enhancement mode transistors.

4,280,071

VAPOR TRAP AND REGULATOR FOR SUPERCONDUCTIVE TURBOGENERATORS

Phillip W. Eckels, Penn Hills, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 30, 1979, Ser. No. 61,564
Int. Cl.³ H02K *9/00*
U.S. Cl. 310—52 **11 Claims**



1. In an internally cooled rotor having a generally cylindrical outer shell concentric with an axis of rotation, a member to be cooled, said member disposed interiorly of the shell for rotation therewith, a liquid coolant intake, rigidly attached to said rotor and concentric with said axis of rotation, a coolant outlet, and a sufficient quantity of liquid coolant introduced into the interior of the shell by the coolant intake, whereby said liquid coolant forms an annular coolant bath when the rotor is rotated at its operating speed, and forms an inner substantially concentric core space surrounded by the bath, whereby evaporated vapor collects in the core space and can be withdrawn from the space through the coolant outlet, THE IMPROVEMENT to the coolant intake comprising:

a stationary means for introducing said liquid coolant into said coolant intake;

a cylindrical axial conduit, connected to and in fluid communication with said coolant intake, said axial conduit disposed interiorly of said rotor and concentric with said axis of rotation;

a pair of radial conduits, connected to and in fluid communication with said axial conduit, said radial conduits disposed interiorly of said rotor in diametrical opposition to each other with their outermost termini in fluid communication with said coolant bath;

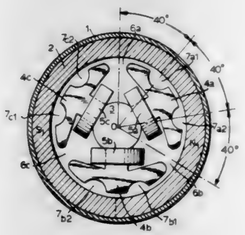
a vapor trapping means disposed interiorly of said axial conduit for trapping the coolant vapor and thereby regulating the coolant flow during transient operating conditions.

4,280,072

ROTATING ELECTRIC MACHINE

Makoto Gotou, Kadoma; Kazutsugu Kobayashi, Takatsuki, and Kenichiro Okumura, Sakai, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed May 26, 1978, Ser. No. 910,904
Claims priority, application Japan, May 26, 1977, 52/61979; Jun. 7, 1977, 52/67671; Jun. 21, 1977, 52/73971
Int. Cl.² H02K *21/22*
U.S. Cl. 310—67 R **19 Claims**



1. A rotating electric machine comprising a field permanent magnet member of a circular form and an armature core made of a magnetic material, said magnet member being permanently magnetized as N and S poles alternately positioned around the rotary axis of said rotating electric machine to produce field fluxes, the number of said N and S poles being P which is an even number larger than or equal to 2, and said armature core being coaxial with said magnet member and having a plurality of saliencies facing said magnet member and a plurality of polyphase winding coils which generate polyphase alternate voltages during relative rotation between said armature core and said magnet member, at least one of said saliencies having at least one indented portion in the face thereof opposed to said magnet member, and the angle between a line from the center of said indented portion to said rotary axis and a line from the center of a neighbouring indented portion or from the center of a neighboring space between two neighbouring saliencies to said rotary axis is not equal to an integral multiple of the quotient of (360/P)°.

4,280,073

ELECTROMAGNETICALLY RELEASED SPRING APPLIED FRICTION BRAKE WITH TORQUE BOOSTER

Donald L. Miller, Horseheads, N.Y., assignor to Facet Enterprises, Inc., Tulsa, Okla.

Filed Mar. 1, 1979, Ser. No. 16,586
Int. Cl.³ H02K *7/10*
U.S. Cl. 310—77 **10 Claims**

1. A friction braking arrangement comprising:

at least one rotatable member to be braked;

a stationary ferromagnetic housing mounted adjacent to said at least one rotatable member;

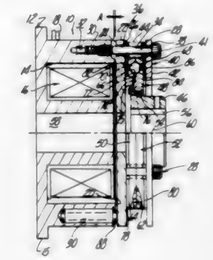
a ferromagnetic armature interposed said rotatable member and said stationary ferromagnetic housing and means mounting said armature to said housing for relative axial movement while restraining said armature against free relative rotation;

spring operator means interposed said armature and said ferromagnetic housing for generating a force acting on said armature tending to urge said armature axially away from said housing;

friction engagement means for creating a frictional breaking force on said at least one rotatable member by the urging of said armature away from said stationary housing;

electromagnetic means mounted in said ferromagnetic housing and acting when energized, for urging said armature axially towards said ferromagnetic housing with a force nullifying said spring operator force; and

torque booster means comprising non self-energizing camming means reacting to the torque reaction generated by



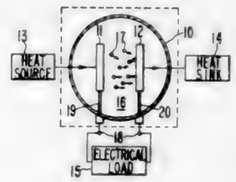
said friction engagement means to increase the axial engagement force only when said spring operator force is exerted on said armature, whereby the increased axial engagement force increases the torque capacity of said brake arrangement, said camming means comprising conical ballrecess engagement means interposed said at least one of said rotatable member and at least another of said rotatable members.

4,280,074

COLLECTOR FOR THERMIONIC ENERGY CONVERTER

Ronald L. Bell, Woodside, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Feb. 16, 1979, Ser. No. 12,687
Int. Cl.³ H02N *3/00*
U.S. Cl. 310—306 **11 Claims**



1. In a thermionic energy converter having within a sealed enclosure, an emitter for emitting electrons upon receipt of heat from a heat source, an electron transport medium, a collector for collecting electrons and adapted to communicate waste heat to a heat sink, and means for conducting electrical current between said emitter and a first terminal exterior to said enclosure, and means for conducting electrical current between said collector and a second terminal exterior to said enclosure the improvement comprising:

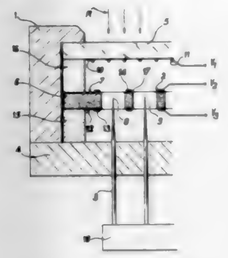
said collector comprising a first layer of a p-type semiconductor material formed on a second layer of an n-type semiconductor material, said first and second layers forming a p-n junction and having a forward bias therebetween, one side of said p-type layer forming the exposed surface of said collector and said n-type layer being in electrical contact with said means to conduct electrical current between said collector and said second terminal.

4,280,075

DEVICE FOR DETECTING AND LOCATING RADIATIONS, AND IN PARTICULAR ELECTRON RELEASING PHENOMEA

Georges Comby, Rambouillet, and Philippe Mangeot, Paris, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 6, 1979, Ser. No. 55,750
Claims priority, application France, Jul. 12, 1978, 78 20807
Int. Cl.³ G01T 1/185; H01J 47/08
U.S. Cl. 313—93 8 Claims



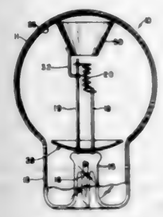
1. A device for detecting and locating radiations, comprising at least one cathode brought to a first potential with respect to a reference potential in a sealed enclosure, a plurality of thread-like anodes insulated from one another and photosensitive means, said enclosure being provided with a port-hole transparent to the radiation involved, situated in register with said cathode and anodes, said device further comprising an insulating support with two faces, a portion of one of said two faces, situated in register with said port-hole, being coated with a layer of a conductive material forming a mesh network constituting said cathode, the extremities of said anodes being in the shape of a point and the axes of said anodes respectively coinciding with the axes of the meshes of said network, these points being recessed with respect to the insulating support face, coated with the network of conductive meshes.

4,280,076

INCANDESCENT LAMP WITH STRUCTURE FOR COLLECTING EVAPORATED FILAMENT MATERIAL

Peter Walsh, Stirling, N.J., assignor to Duro-Test Corporation, North Bergen, N.J.

Filed Oct. 18, 1978, Ser. No. 952,268
Int. Cl.³ H01K 1/00, 1/26
U.S. Cl. 313—114 23 Claims



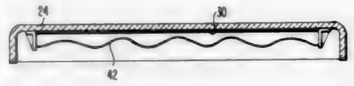
1. An incandescent electric lamp comprising:
an envelope,
incandescent filament means located within said envelope, said filament means emitting light in all directions therefrom upon incandescence, material from the filament means being vaporized therefrom which moves by diffusion toward the envelope,
means for supplying voltage to the filament means to cause the filament means to incandesce,
and means having a continuous and smooth light reflective surface located adjacent a portion of said filament means intermediate the filament means and the wall of the envelope in the diffusion path of the vaporized filament material for collecting material vaporized from the filament means, said collecting means shaped with respect to the portion of the filament means to which it is adjacent so that a substantial portion of the light emitted by said filament means toward said collecting means misses said collecting means and is transmitted to the envelope in the original direction of emission or grazes said collecting means at a small angle of incidence to be reflected to travel toward the envelope.

4,280,077

CATHODE-RAY TUBE HAVING CORRUGATED SHADOW MASK WITH VARYING WAVEFORM

Sigmund T. Villanyi, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed May 11, 1978, Ser. No. 904,778
Int. Cl.³ H01J 29/07
U.S. Cl. 313—402 9 Claims



1. In an apertured shadow mask type cathode-ray tube, comprising an evacuated envelope including a faceplate, a phosphor viewing screen located on an inner surface of said faceplate, a multiapertured shadow mask mounted adjacent to said screen, and means for generating and projecting electrons along a plurality of convergent paths through said mask and to said screen, the improvement comprising,
a shadow mask including a corrugated cross-section having a varying waveform wherein the cross-sectional contour of said mask at the edge of said mask is different than the cross-sectional contour at the center of said mask.

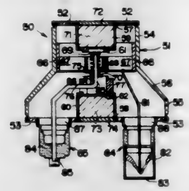
4,280,078

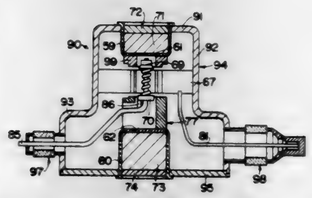
MAGNETRON

Kenziro Tsutsui, Otsu, and Masamitsu Kakei, Hikone, both of Japan, assignors to New Nippon Electric Co. Ltd., Osaka, Japan

PCT No. PCT/JP78/00033, § 371 Date Jul. 30, 1979, § 102(e) Date Jul. 23, 1979, PCT Pub. No. WO79/00329, PCT Pub. Date Jun. 14, 1979
This PCT application filed Jul. 23, 1979, Ser. No. 103,949
Claims priority, application Japan, Nov. 30, 1977, 52-144425
Int. Cl.³ H01J 25/50
U.S. Cl. 315—39.51 11 Claims

1. In a magnetron comprising an evacuated envelope including an annular wall anode and sealing end walls sealing both ends of the annular wall anode in airtight relationship, said annular wall anode and sealing end walls being made of permeable material forming portions of a magnetic circuit, anode assembly means including a plurality of anode vanes mounted on the inside of said annular wall anode and extending from said wall within the envelopes, cathode assembly means including a cathode filament mounted within said envelope coaxial with the center axis of said annular wall anode and support plate means located at each end of said cathode filament, permanent magnet means positioned adjacent each end of the cathode assembly means, output means for transmitting microwave oscillations including an output antenna extending from said anode assembly means and coupled to said envelope, input means including cathode leads coupled to each of said support plate means of the cathode assembly means, insulating member means mounted in one of said sealing end walls in airtight relationship, said cathode leads passing through said insulating member means in airtight sealing relationship, and a magnetic pole piece mounted within said envelope between one of said permanent magnet means and one of said cathode assembly support plate means, the improvement characterized in that said annular wall anode means comprises a smaller cross-sectional area cylindrical wall first portion and a greater





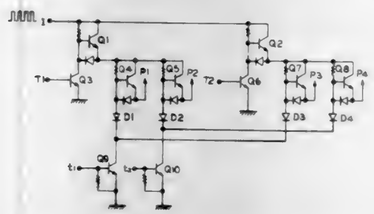
cross-sectional area annular wall second portion, said first and second portions of the annular wall anode being integrally formed, said input and output member means being coupled to the greater cross-sectional area second portion, thereby improving the spacing of components and enhancing the cooling of components in said magnetron.

4,280,079

DRIVING SYSTEM FOR A PLASMA DISPLAY PANEL

Kazunori Nishida, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Jan. 11, 1979, Ser. No. 47,328
Claims priority, application Japan, Jun. 10, 1978, 53-70261; Nov. 10, 1978, 53-138679
Int. Cl.³ H05B 37/00, 41/00
U.S. Cl. 315—169.4 14 Claims



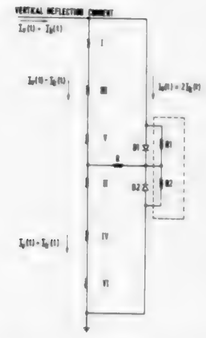
1. A driving system for a plasma display wherein a pair of insulator plates have a plurality of electrodes thereon, coated with dielectic layers, said plates being disposed in an opposed relationship with a gas discharge medium sandwiched therebetween, said system comprising:
a. a first switching means for passing a toggled voltage from one end of said first switching means to the other end thereof;
b. a plurality of a second switching means commonly connected to said other end of first switching means, for passing said toggled voltage to a selected one of said electrodes; and
c. a plurality of third switching means respectively connected to said electrodes for clamping all of said electrodes at other than said selected one electrode at a fixed potential.

4,280,080

DEFLECTION-COIL SYSTEM FOR COLOR PICTURE TUBES

Patrick Brown, Straubing, Fed. Rep. of Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Sep. 12, 1979, Ser. No. 74,644
Claims priority, application Fed. Rep. of Germany, Sep. 14, 1978, 2839935
Int. Cl.³ H01J 29/70, 29/76
U.S. Cl. 315—368 9 Claims



1. A deflection-coil system for a multibeam color-picture tube to provide a vertical deflection field and a 45°/45° four-pole field for dynamic convergence correction superimposed on said deflection field comprising:
a vertical deflection toroidal coil having two halves each of which are separated into three component windings;
first means to connect alternate ones of said six component windings into two groups of three series connected component windings each; and
second means connected to said two groups of component windings to produce a current traversing each of said two groups of component windings to provide said vertical deflection field and said 45°/45° four-pole field simultaneously.

4,280,081

MOTOR DRIVE SYSTEM WITH INERTIA COMPENSATION

Edward H. Dinger, Waynesboro, and Allen M. Ritter, Rocky Mount, both of Va., assignors to General Electric Company, Salem, Va.

Filed Dec. 21, 1979, Ser. No. 105,907
Int. Cl.³ B65H 59/38
U.S. Cl. 318—6 22 Claims

1. A motor control system for use with a d.c. shunt motor, having separately excitable armature and field windings, operable to wind a web of material into a coil comprising:
(a) a first variable voltage source for supplying electrical power to said field winding;
(b) a second variable voltage source for supplying electrical power to said armature winding;
(c) means to sense the linear speed of said web and to provide a speed feedback signal proportional thereto;
(d) means to provide a signal proportional to the armature voltage of said motor;
(e) means responsive to said speed feedback signal and said armature voltage signal to provide a control signal for said first variable voltage source whereby the voltage supplied

to said field winding is controlled to thereby maintain a prescribed relationship between web material speed and armature voltage;

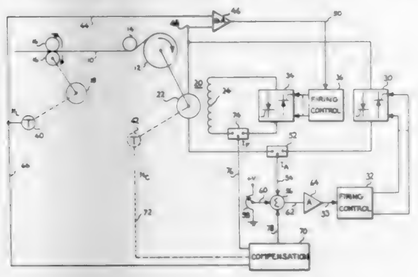
(f) reference means for providing a reference signal proportional to a desired level of operation of said motor;

(g) feedback means for providing a current feedback signal proportional to the current in said armature winding;

(h) combining means for combining said reference signal, said current feedback signal and an inertia compensation signal to develop a control signal for controlling the operation of said second variable voltage to thereby control the electrical power supplied to said armature winding;

(i) means for generating said inertia compensation signal comprising:

(1) means responsive to said speed feedback signal for generating a modifying signal having distinct values



respectively representing whether said web material is accelerating, decelerating or remaining constant in speed;

(2) means to provide an additional feedback signal proportional to the extant radius of the web material coil radius; and,

(3) means responsive to said additional feedback signal for generating first and second clamp limit signals, said first clamp limit signal having values which increase with an increase in web coil radius and said second clamp limit signal having values which decrease with an increase in said web coil radius; and,

(j) clamp means for gating said inertia compensation signal to said combining means as a function of the state of said modifying signal and the value of the larger of the first and second clamp limit signals.

4,280,082

DIGITAL DC MOTOR SPEED CONTROL CIRCUIT

Rajguru M. Acharya, Neptune Township, Monmouth County, N.J., and James R. Del Signore, II, Ithaca, N.Y., assignors to NCR Corporation, Dayton, Ohio

Filed Apr. 23, 1979, Ser. No. 32,449
Int. Cl.³ H02P *5/16*
U.S. Cl. 318—341 **11 Claims**

1. A circuit for controlling the speed of a D.C. motor to which a variable torque and a voltage pulse is applied to the motor and where the width of the pulse is inversely proportional to the speed of the motor, comprising:

a source of supply voltage whose level varies with the speed of the motor;

pickup means mounted on said motor for generating a plurality of analog waveform signals representing the rotational speed of the motor;

logic means coupled to the output of said pickup means for generating a reset rectangular waveform signal for each analog waveform signal received;

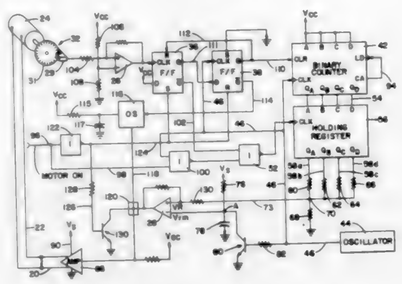
a source of clock pulses;

counter means coupled to said source of clock pulses and to the output of said logic means to count said clock pulses and to be reset with each reset signal;

means coupled to the output of said counter means to generate a time-varying reference voltage signal in accordance with the output count of said counter means;

means coupled to said supply voltage for generating a ramp voltage whose slope varies in accordance with the level of the supply voltage applied to the motor;

comparing means coupled to said reference signal generating means and said ramp voltage generating means for



generating a control signal upon said ramp voltage becoming equal to said voltage output;

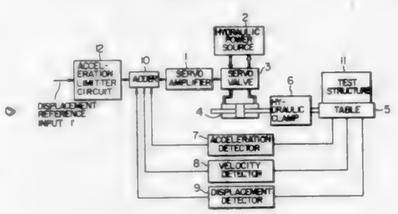
and amplifier means coupled to the output of said comparing means and said supply voltage for outputting a voltage pulse to the motor whose width is selected substantially in accordance with the time said control signal is generated by said comparing means.

4,280,083

APPARATUS FOR LIMITING ACCELERATION IN A SERVOSYSTEM

Hiromu Hirai, Yatabemachi, and Shin Hamano, Shimoinayoshi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 17, 1979, Ser. No. 58,370
Claims priority, application Japan, Jul. 17, 1978, 53-86099
Int. Cl.³ G05B *23/02*
U.S. Cl. 318—565 **4 Claims**



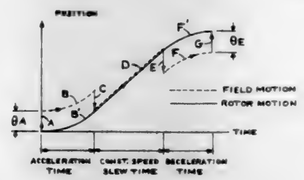
1. A servosystem comprising a servo-valve converting an externally applied displacement reference input signal into a corresponding hydraulic power, an actuator driven by the hydraulic power supplied from said servo-valve, a movable part actuated by said actuator to make controlled displacement, an acceleration limiter circuit comprising means for producing an acceleration signal on the basis of the displacement reference input signal, limiting the amplitude of the acceleration signal to a level lower than a predetermined level, producing a displacement signal on the basis of the limited acceleration signal, and applying this displacement signal to said servo-valve, a slow stop instruction circuit comparing the amplitude of the acceleration signal from said acceleration limiter circuit with a predetermined setting and generating a slow stop instruction signal for slowly stopping the motion of said movable part when the amplitude of the acceleration signal exceeds the setting, and a slow stop circuit attenuating the displacement signal from said acceleraton limiter circuit in response to the slow stop instruction signal applied from said slow stop instruction circuit thereby slowly stopping the motion of said movable part.

4,280,084

METHOD OF AND APPARATUS FOR OPERATING STEPPING MOTORS

David Chiang, 649 Caledonia Rd., Dix Hills, N.Y. 11746

Continuation-in-part of Ser. No. 872,656, Jan. 26, 1978, Pat. No. 4,215,302. This application Oct. 9, 1979, Ser. No. 82,742
Int. Cl.³ G05B *19/40*
U.S. Cl. 318—696 **17 Claims**



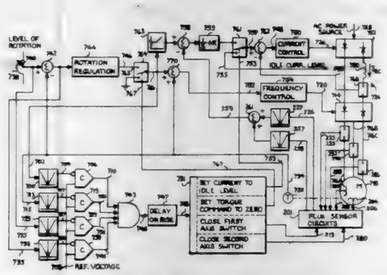
1. The method of driving a stepping motor from a first velocity to a second velocity, said stepping motor having a stator means for generating a revolvable magnetic field and a rotor whose angular position is influenced by the revolvable magnetic field, said method comprising first angularly displacing the revolvable magnetic field with respect to the rotor by a first displacement angle, in a given direction of revolution, continuously revolving the revolvable magnetic field until the rotor rotates at the second velocity, second angularly displacing the revolvable magnetic field with respect to the rotor by a second displacement angle in a direction of revolution opposite said given direction, and revolving the revolvable magnetic field at the second velocity.

4,280,085

APPARATUS AND METHOD FOR PROVIDING A SIGNAL PROPORTIONAL TO FLUX IN AN AC MOTOR FOR CONTROL OF MOTOR DRIVE CURRENT

John H. Cutler, Roanoke, and Loren H. Walker, Salem, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 24, 1979, Ser. No. 32,856
Int. Cl.³ H02P *5/34, 5/36*
U.S. Cl. 318—803 **27 Claims**



1. A system for generating a drive current of variable current magnitude and frequency that drives an AC induction motor, comprising:

(a) means for providing a first signal proportional to the rate of change of the flux of said motor;

(b) means for supplying a second signal proportional to said current magnitude of said drive current; and

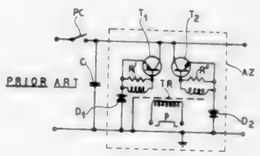
(c) means for generating a flux signal proportional to the integral of said first signal when said frequency of said drive current is above a preselected value and which is proportional to said second signal when said frequency of said drive current is below said preselected value, said flux signal being effective to control the generation of said drive current.

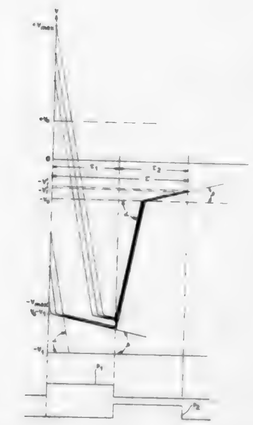
4,280,086

METHOD OF AND CIRCUIT ARRANGEMENT FOR DISCHARGING A STORAGE CAPACITOR

Giancarlo Babini, Turin, Italy, assignor to CSELT Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Dec. 27, 1979, Ser. No. 107,661
Claims priority, application Italy, Dec. 28, 1978, 69975 A/78
Int. Cl.³ H02J *3/00, 15/00*
U.S. Cl. 320—1 **6 Claims**





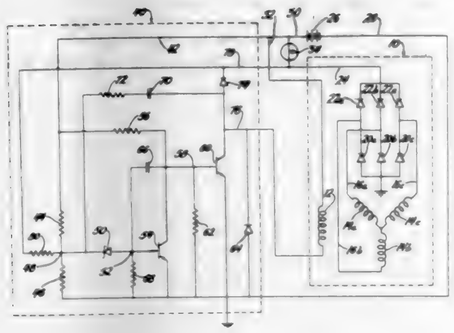
4. A circuit arrangement for periodically dissipating the charge of a storage capacitor provided with intermittently conducting gate means for charging said capacitor with message samples within a predetermined range of positive and negative signal amplitudes between resetting intervals, comprising:

a first electronic switch connected across said capacitor in series with a source of unipolar biasing voltage of an absolute magnitude substantially exceeding the maximum signal amplitude of the same polarity;

a second electronic switch connected across said capacitor in parallel with the series combination of said first switch and said source; and

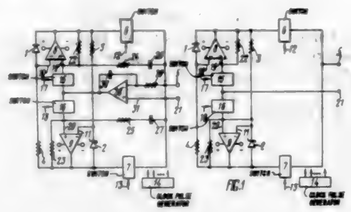
timing means for closing said first switch during a first phase of each resetting interval, thereby charging said capacitor to a level close to said biasing voltage, and closing said second switch during a second phase of each resetting interval following said first phase, thereby discharging said capacitor to a level close to zero.

4,280,087
VOLTAGE REGULATOR
Stanley J. Kaslewicz, Southfield, Mich.
Continuation of Ser. No. 855,105, Nov. 25, 1977, This application Sep. 19, 1979, Ser. No. 76,882
Int. Cl.³ H02J 7/14
U.S. Cl. 322—28 4 Claims



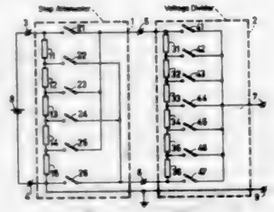
1. A voltage regulator circuit for use in the regulation of the energization of an electrical storage device by a generator, the generator being of the type having a field winding and at least one output winding, the output winding being responsive to energization of the field winding to provide an energizing voltage on a generator output terminal, the electrical storage device being of the type having an output terminal for receiving an energizing voltage interconnected to the generator output terminal, the voltage regulator circuit comprising:
control means, coupled to the generator field winding, and responsive to a control signal of a first level for enabling the energization of the field winding, and responsive to a control signal of a second level for disabling the energization of the field winding;
first and second resistors connected in a series circuit across the terminals of the electrical storage device, the junction of the first and second resistors being connected to the control means for providing a control signal of the first level when the energization of the electrical storage device is below a first predetermined threshold and of the second level when the energization exceeds the first predetermined threshold; and
a third resistor connected in a series circuit with said second resistor across the terminals of the generator, all of said resistors being bilateral resistors and both of said series circuits being bilaterally conductive, said first resistor and said third resistor being in parallel circuit relation to each other and having ohmic values for providing, upon the occurrence of a fault in the interconnection between output terminals of the generator and electrical storage device, a control signal of the first level when the energizing voltage on the generator output terminal is below a second, predetermined threshold, and of the second signal level when the energizing voltage exceeds the second predetermined threshold and a fault indicator connected directly between the output terminal of the generator and the output terminal of the storage device and being energized upon said occurrence of said fault.

4,280,088
REFERENCE VOLTAGE SOURCE
Toom A. Pungas, bulvar Sypruse, 219, kv. 3, Tallin, U.S.S.R.
Filed Oct. 25, 1978, Ser. No. 954,576
Claims priority, application U.S.S.R., Nov. 1, 1977, 2531855
Int. Cl.³ G05F 3/04
U.S. Cl. 323—304 4 Claims



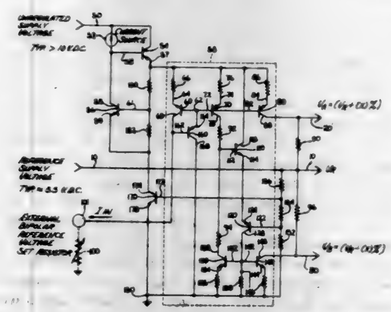
1. A reference voltage source, comprising
a bridge network having two opposite arms each including a respective zener diode, and two other arms each including a respective resistor;
two operational amplifiers each having an inverting input, a non-inverting input, and an output, the inverting input of said first operational amplifier being coupled to the anode of a first one of said two zener diodes, the inverting input of said second operational amplifier being coupled to the cathode of said second zener diode, the output of said first operational amplifier being coupled to the cathode of said first zener diode, and the output of said second operational amplifier being coupled to the anode of said second zener diode;
two switches each having an input and an output, a control voltage from the reference voltage source being applied to the inputs of said switches, and the outputs of said switches being coupled respectively to the non-inverting inputs of said operational amplifiers; and
an output terminal to which the outputs of said operational amplifiers are alternately connected.

4,280,089
AUTOMATIC INCREMENTING ATTENUATION ARRANGEMENT
Rudy J. van de Plassche, and Eise C. Dijkmans, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 26, 1979, Ser. No. 88,734
Claims priority, application Netherlands, Nov. 14, 1978, 7811229
Int. Cl.³ G05F 3/08
U.S. Cl. 323—354 4 Claims



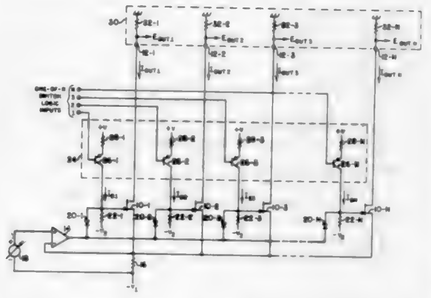
1. An attenuation arrangement comprising:
a step attenuator having two input terminals, a first and a second output terminal and a reference terminal, a series arrangement of n attenuating elements connected between said input terminals, said series arrangement comprising n+1 coupling points, defined respectively as C_1, C_2, ... C_{n+1}, which successively correspond to the free end of the first attenuating element, the common junctions of the successive attenuating elements and the free end of the last attenuating element in the series arrangement, and a switching circuit arranged between the coupling points and the output terminals for coupling selectably the attenuation elements to said output terminals;
a voltage divider having two inputs coupled respectively to said first and second output terminals of said step attenuator, a voltage dividing arrangement connected between said inputs, an output and a coupling arrangement for selectably coupling said output to a part of the voltage divider arrangement; and
a control arrangement for controlling the switching circuit of the step attenuator and the coupling arrangement of the voltage divider,
characterized in that the switching circuit is arranged to selectably couple the first output terminal with any of the alternate coupling points starting with C_1 and to selectably couple the second output terminal with any of the other alternate coupling points starting with C_2, whereby when switching the two output terminals of said step attenuator from a first to an adjacent second attenuation element under the control of said control arrangement, the connection through said switching circuit of the common junction between said two adjacent attenuation elements and one of said two output terminals is maintained while the connection from the other one of said output terminals to the end of said first attenuation element, located opposite from the common junction is switched over to the end of the second attenuation element located opposite the common junction thereby preventing the occurrence of voltage peaks.

4,280,090
TEMPERATURE COMPENSATED BIPOLAR REFERENCE VOLTAGE CIRCUIT
Charles R. Lindberg, Yorba Linda, Calif., assignor to Silicon General, Inc., Garden Grove, Calif.
Filed Mar. 17, 1980, Ser. No. 131,256
Int. Cl.³ G05F 1/56
U.S. Cl. 323—315 9 Claims



1. An electronic circuit for generating a first reference voltage and a second reference voltage, said first reference voltage and said second reference voltage being equal in magnitude but of opposite polarity with respect to a reference supply voltage, said electronic circuit comprising:
a source of electrical current;
a first means for duplicating current coupled to said source of electrical current and having output current and input current, said first means being so configured that said output current is proportional in magnitude to said input current;
a second means for duplicating current coupled to said source of electrical current and to said first means for duplicating current, and having output current and input current, said second means being so configured that said output current is proportional in magnitude to said input current;
said input current of said second means being an output current of said first means;
output current of said first means flowing through a first resistor so as to generate said first reference voltage;
output current of said second means flowing through a second resistor so as to generate said second reference voltage; and
a single and selectable resistor coupled to said first means for duplicating current whereby selection of a value of resistance for said resistor determines the magnitude of said first and second reference voltages.

4,280,091
VARIABLE CURRENT SOURCE HAVING A PROGRAMMABLE CURRENT-STEERING NETWORK
David F. Hiltner, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Oct. 29, 1979, Ser. No. 89,067
Int. Cl.³ G05F 1/44
U.S. Cl. 323—315 4 Claims



1. A current source for providing current to a plurality of output nodes, comprising:
a voltage follower comprising an operational amplifier having inverting and non-inverting inputs and an output, wherein said output is coupled to said inverting input to thereby provide an output loop;
a current-setting resistor connected to said inverting input;
a voltage generator connected to said non-inverting input to provide a reference voltage for said current-setting resistor;
a plurality of field-effect transistors switchable into and out of said output loop, said field-effect transistors being associated with respective ones of said plurality of current output nodes and being adapted to conduct substantially all of the current produced by said current-setting resistor; and
means for switching said field-effect transistors into and out of said output loop.

4,280,092
GROUND FAULT INTERRUPTER TESTER
Peter M. Wells, Jr., Sycamore, Ill., and Roger E. Mitchell, Minneapolis, Minn., assignors to Ideal Industries, Inc., Sycamore, Ill.
Filed Apr. 23, 1979, Ser. No. 32,349
Int. Cl.³ G01R 31/02
U.S. Cl. 324—51 8 Claims

1. A hand-held ground fault interrupter tester comprising:
a housing,

a potentiometer contained within the housing,
electrical terminal blades mounted in the housing and protruding from one end in fixed positional relationship for insertion into a wall receptacle,
electrical connecting means between the potentiometer and



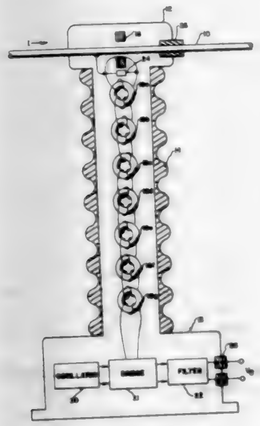
terminal blades, said means permitting a potentiometer-controlled current leakage to the ground path which, upon reaching a desired level, will trip a properly functioning ground fault interrupter so that tripping at a lower level or failure to trip at higher levels will indicate a defective interrupter.

4,280,093

ZERO-CURRENT DETECTOR FOR HIGH VOLTAGE DC TRANSMISSION LINE

John M. Houston, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 27, 1979, Ser. No. 69,835
Int. Cl.³ G01R *15/02*
U.S. Cl. 324—117 R **8 Claims**



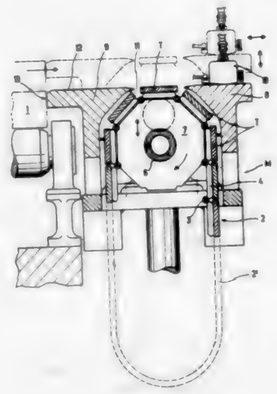
1. A zero-current detector for a high voltage, multi-conductor DC power transmission line comprising:
a saturable magnetic reactor disposed about one of said conductors;
a cascade step-down transformer electromagnetically coupled to said reactor; and
means to detect impedance changes in said magnetic reactor, said detection means being connected to said reactor through said transformer cascade.

4,280,094

TEST PLATE METHOD AND AN ARRANGEMENT FOR TESTING THE SERVICEABILITY AND FOR SETTING AND CALIBRATING A TEST APPARATUS FOR THE NON-DESTRUCTIVE ELECTRICAL OR MAGNETIC TESTING OF METALLIC BLANKS

Per-Olle Karlsson, Oxelösund, Sweden, assignor to Svenskt Stal Aktiebolag, Stockholm, Sweden

Filed Dec. 14, 1978, Ser. No. 969,274
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1977, 2756244
Int. Cl.³ G01R *35/00, 33/00*
U.S. Cl. 324—202 **19 Claims**



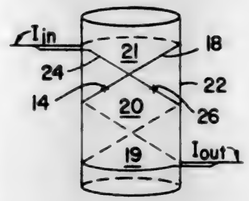
1. A method for testing the serviceability and for setting and calibrating a test apparatus for the non-destructive electrical, magnetic and/or magneto-inductive testing of steel slabs of different thickness and with different electrical and/or magnetic parameters for defects such as surface or below-surface cracks, laps, shrinkholes, blowholes or the like, comprising at least one inspecting head or sensor capable of detecting defects such as these and mounted for displacement relative to the surface of the slab to be tested, the slabs being delivered to the area of the test apparatus by means of transporting means, such as transporting rollers arranged at intervals from one another, characterized in that one or more test plates simulating a defective slab and having the same electrical and/or magnetic parameters as the slab are arranged in a raisable and lowerable test plate holder along one side of the slab to be tested, said test plate or plates extending substantially along the whole length of said side of said slab, and by raising or lowering said test plate holder are brought into a position in which they are in substantial alignment with the upper surface of the slab to be tested, and for setting said test apparatus said sensor is brought into contact with the surface of the test plate or plates and/or the surface of the test plate holder, which surface of the test plate holder is in alignment with the surface of the test plate or plates, and the sensor, when travelling towards and/or away from the upper surface of the slab to be tested simultaneously travels over the test plate or plates, and, while doing so, is tested for working order and calibrated.

4,280,095

EXTREMELY SENSITIVE SUPER CONDUCTING QUANTUM INTERFERENCE DEVICE CONSTRUCTED AS A DOUBLE-HELIX ARRAY

George F. Hinton, Pass Christian, Miss., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 22, 1979, Ser. No. 22,764
Int. Cl.³ G01R *33/035;* **H01L** *39/22*
U.S. Cl. 324—248 **4 Claims**



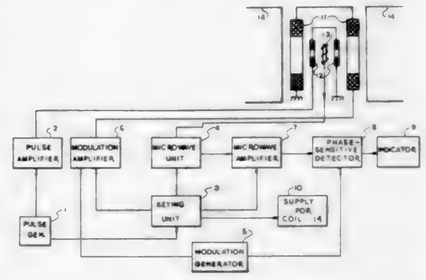
1. A SQUID array device comprising:
(a) a solid flux path of constant cross-section area along one body axis having a first groove with an upper and a lower end and having very close turns scribed into the surface of said flux path about said body axis;
(b) a first conducting material deposited in said first groove;
(c) a first Josephson Junction attached at some point on said first groove;
(d) a first layer of non-conducting material uniformly deposited over the surface of said flux path;
(e) a second groove having an upper and a lower end and having very close turns scribed into the surface of said first layer of non-conducting material, said second groove having depth less than the thickness of said first layer of non-conducting material, pitch similar to that of said first groove and sense opposite that of said first groove such that said turns of said first groove and said turns of said second groove are intermeshed and coaxially aligned;
(f) a second conducting material deposited in said second groove;
(g) a second Josephson Junction attached at some point on said second groove;
(h) a second layer of non-conducting material uniformly deposited over the surface of said flux path;
(i) a third groove having an upper and a lower end and having very close turns scribed into the surface of said second layer of non-conducting material, said third groove having depth less than the thickness of said second layer of non-conducting material, pitch similar to that of said first and said second groove and sense similar to that of said first groove such that said turns of said third groove are intermeshed and coaxially aligned with said turns of said second groove;
(j) a third conducting material deposited in said third groove;
(.) a third Josephson Junction attached at some point on said third groove;
(l) a third layer of non-conducting material uniformly deposited over the surface of said flux path;
(m) a fourth groove having an upper and a lower end and having very close turns scribed into the surface of said third layer of non-conducting material, said fourth groove having depth less than the thickness of said third layer of non-conducting material, pitch similar to that of said first, second and third grooves and sense opposite that of said third groove such that said turns of said fourth groove are intermeshed and coaxially aligned with said turns of said third groove;
(n) a fourth conducting material deposited in said fourth groove;
(o) a fourth Josephson Junction attached at some point on said fourth groove;
(p) a fourth layer of non-conducting material uniformly deposited over the surface of said flux path;
(q) first means for connecting said upper and said lower ends of said first groove to respective said upper and said lower ends of said second groove forming a first double groove array;
(r) second means for connecting said upper and said lower ends of said third groove to respective said upper and said lower ends of said fourth groove forming a second double groove array; and
(s) third means for connecting said first and said second double groove arrays.

4,280,096

SPECTROMETER FOR MEASURING SPATIAL DISTRIBUTIONS OF PARAMAGNETIC CENTERS IN SOLID BODIES

Wolfgang Karthe, Jena, and Elke Wehrsdorfer, Eisenberg, both of German Democratic Rep., assignors to Akademie der Wissenschaften der DDR, Berlin, German Democratic Rep.

Filed Nov. 7, 1978, Ser. No. 959,185
Int. Cl.³ G01N *27/00*
U.S. Cl. 324—316 **5 Claims**



1. In a spectrometer which contains a field coil, modulating coils, and gradient coils and applies a modulated inhomogeneous magnetic field to a sample, an improvement comprising:
means for adjusting orientation of the modulating coils and gradient coils with respect to the sample;
a modulation generator providing a modulating waveform for use in the modulating coils;
a pulse generator providing pulses for use in the gradient coils;
a first means connected to the sample and responsive to resonance thereof; and
a keying unit cooperating with the modulation generator, the pulse generator, and the first means, the keying unit operating in a manner that the modulated inhomogeneous magnetic field is applied in pulses and the first means responds to resonance of the sample during and only during such pulses.

4,280,097

ISOLATED DC VOLTAGE MONITORING SYSTEM

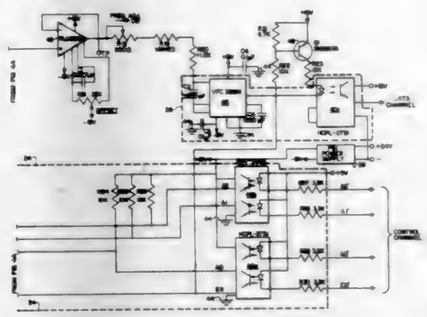
Richard L. Carey, Cardiff, and Gale W. McGuffey, San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 14, 1980, Ser. No. 167,874
Int. Cl.³ G01N *27/02*
U.S. Cl. 324—434 **13 Claims**

1. Apparatus for electrically isolating a DC voltage source while the voltage of said source is being monitored, said apparatus comprising:

electronic switching means for selectively coupling said apparatus to said source;

first optical means coupled to said switching means and receiving a control signal which directs the operation of said switching means, said first optical means comprising means for electrically isolating said switch means from a voltage monitoring system which generates said control signal;



means coupled to said switching means for generating an internal data signal which varies in relationship to the voltage of said source; and

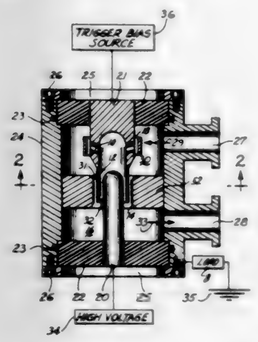
second optical means receiving said internal data signal for coupling an external data signal to said voltage monitoring system, said external data signal varying in relationship to said internal data signal, said second optical means comprising further means for electrically isolating said switching means from said voltage monitoring system.

4,280,098

COAXIAL SPARK GAP SWITCH

S. James Veraldi, Burbank, Calif., assignor to Versadyne Corp., Burbank, Calif.

Filed May 25, 1979, Ser. No. 42,722
Int. Cl.³ H01T *3/00, 1/08*
U.S. Cl. 328—59 **9 Claims**



1. A multiple-gap spark gap switch, comprising:

a first chamber having an inlet port for admitting a fluid;

a second chamber having an outlet port to permit egress of the fluid;

a first electrode partitioning said first chamber from said second chamber and having more than one separate passages extending through it, said first chamber communicating with said second chamber through the passages in said first electrode;

trigger electrodes each associated with one of the passages in said first electrode, each having a hollow cylindrical portion extending from within said first chamber into and concentric with the passage with which it is associated, that part of each hollow cylindrical portion lying within said first chamber having an opening to permit fluid to pass inside said hollow cylindrical portion from said first chamber to said passage; and,

a set of second electrodes each associated with one of said trigger electrodes, each extending from within said second chamber into the trigger electrode with which it is associated and concentric with that trigger electrode, said set of second electrodes all being electrically interconnected;

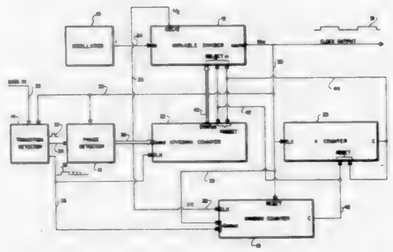
whereby, fluid supplied to said first chamber through said inlet port flows through said passage on both the insides and outsides of the hollow cylindrical portions of said trigger electrode and into said second chamber, from which the fluid is discharged through said outlet port.

4,280,099

DIGITAL TIMING RECOVERY SYSTEM

Glen D. Rattlingourd, Salt Lake City, Utah, assignor to Sperry Corporation, New York, N.Y.

Filed Nov. 9, 1979, Ser. No. 92,765
Int. Cl.³ H03K *5/26;* **H03L** *7/00*
U.S. Cl. 328—63 **13 Claims**



1. A digital timing recovery system for producing a clock signal in synchronization with received digital data comprising:

an oscillator for generating a fixed frequency signal;

clock derivation means coupled to said oscillator for deriving from said fixed frequency signal said clock signal, said clock signal having a frequency that is 1/m of said fixed frequency signal where m is a variable derivation factor, and said clock signal further having a clocking transition that separates one clock cycle from another;

data transition detector means responsive to said received digital data for detecting data transitions of said received digital data and for generating a data transition pulse coincident with said detected data transition;

time comparison means coupled to said clock derivation means, oscillator, and said data transition detector means for comparing and measuring the time at which said output data transition pulse occurs with respect to the time at which said clocking transition of said clock signal occurs and for producing error and timing signals in response to the results of said time comparison and measurement; and

update means coupled to said clock derivation means and responsive to said error and timing signals for increasing the value of m when said data transition occurs after said clocking transition, and for decreasing the value of m when said data transition occurs before said clocking transition, said increase and decrease of m occurring frequently if the time difference between said data transition pulse and said clocking transition is greater than a predetermined time measurement of said time comparison means, and said increase and decrease of m occurring less frequently if the time difference between said data transition pulse and said clocking transition is less than said predetermined time measurement,

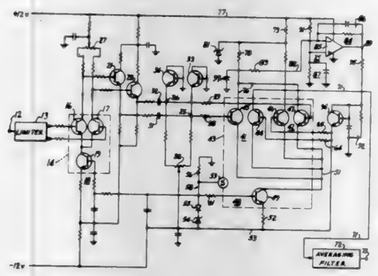
whereby said clock signal quickly synchronizes with said received digital data and smoothly maintains said synchronization thereafter.

4,280,100

TIME MODULATION PULSE AVERAGING DEMODULATOR

Bert H. Dann, South Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Sep. 20, 1979, Ser. No. 77,511
Int. Cl.³ H03D *3/14;* **H03K** *9/04, 9/06, 9/08*
U.S. Cl. 329—103 **11 Claims**



1. In a method of demodulating, with the aid of four transistors grouped in two comparator pairs, a carrier time modulated by an information signal, the improvement comprising in combination the steps of:

matching all four transistors with each other at least as to base-emitter drop;

providing a single constant current source for all four transistors;

metallically interconnecting emitters of said four transistors with each other and with an output of said single constant current source;

applying a common threshold reference voltage to one transistor in one comparator pair and one transistor in the other comparator pair;

generating first and second repetitive pulses in response to alternate successive zero crossings of said time modulated carrier;

controlling the other transistor in said one comparator pair with said first pulses and the other transistor in said other comparator pair with said second pulses to generate a train of constant area pulses corresponding to zero crossings of said time modulated carrier; and

reproducing said information signal by averaging constant area pulses in said train.

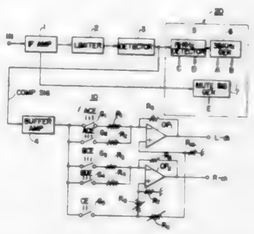
4,280,101

STEREOPHONIC SIGNAL DEMODULATION CIRCUIT

Kohji Ishida, and Tatsuo Numata, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 54,117
Claims priority, application Japan, Jun. 30, 1978, 53-80008
Int. Cl.³ H03D *1/00*
U.S. Cl. 329—167 **14 Claims**

1. In a stereophonic signal demodulation circuit which receives an input signal including a signal modulated with first and second channel information to separate said first and second channel information from each other, the improvement comprising: first and second operational amplifiers; a first switching means for applying said input signal to one input terminal of said first operational amplifier, a second switching means for applying said input signal to one input terminal of said second operational amplifier; and control means for controlling the operations of said first and second switching means; wherein said first and second operational amplifiers output said first and second channel information, respectively, and said first switching means comprises a parallel circuit of first and second switch elements each coupled to said first



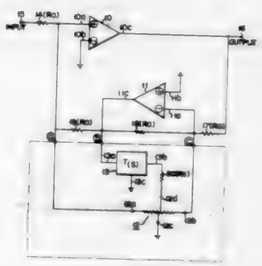
operational amplifier through first and second resistors, respectively, and said second switching means comprises a second parallel circuit of third and fourth switch elements each coupled to said second operational amplifier through third and fourth resistors, respectively.

4,280,102

FREQUENCY RESPONSE CHARACTERISTIC ADJUSTABLE CIRCUIT

Kenji Yokoyama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Nov. 23, 1979, Ser. No. 96,914
Claims priority, application Japan, Dec. 4, 1978, 53-149796
Int. Cl.³ H03F *1/34*
U.S. Cl. 330—85 **13 Claims**



1. A frequency response characteristic adjustable circuit comprising:

a first operational amplifier having its first input terminal connected through a first resistor to an input terminal for receiving an input signal, its second input terminal connected to circuit ground and its output terminal connected to an output terminal for taking out an output signal;

a second operational amplifier having its first input terminal connected to circuit ground, its second input terminal connected through a second resistor to said output terminal of said first operational amplifier and its output terminal connected through a third resistor to said second input terminal of said second operational amplifier and also connected through a fourth resistor to said first input terminal of said first operational amplifier;

a potentiometer having a first fixed terminal connected to said first input terminal of said first operational amplifier, a second fixed terminal connected to said second input terminal of said second operational amplifier, a center tap connected to circuit ground and a slider terminal; and

a filter circuit having a first terminal connected to said out-

put terminal of said second operational amplifier, a second terminal connected to said slider terminal of said potentiometer and a third terminal connected to circuit ground.

4,280,103

MULTISTAGE TRANSISTOR AMPLIFIER

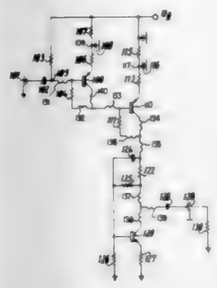
Bonno Poppinga, Berlin, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 31, 1979, Ser. No. 62,475

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1978, 2834641

Int. Cl.³ H03F *3/04*

U.S. Cl. 330—290 **10 Claims**



1. A multistage transistor amplifier for amplifying alternating voltages comprising at least two successive cascade-connected amplifier stages having d.c. feedback, a following amplifier stage a.c. coupled to the output of said cascade-connected amplifier stages, and a resistor coupling said following amplifier stage to said cascade-connected amplifier stages, said cascade-connected amplifier stages supplying said following amplifier stage with direct current, the d.c. operating resistance for said following amplifier stage including said cascade-connected amplifier stages and said resistor.

4,280,104

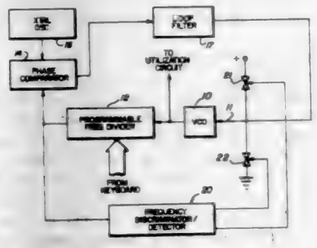
PHASE LOCKED LOOP SYSTEM WITH IMPROVED ACQUISITION

Theodore S. Rzeszewski, Lombard, Ill., assignor to Matsushita Electric Corporation of America, Franklin Park, Ill.

Filed Aug. 10, 1979, Ser. No. 65,589

Int. Cl.³ H03L *7/00*

U.S. Cl. 331—1 A **13 Claims**



1. In a phase-locked circuit in which the frequency of a controlled oscillator means is locked to that of a reference signal, a system for improving the acquisition time including in combination:

first means having first and second inputs and having an output coupled with the control input of said controlled oscillator means, the first input thereof coupled to receive said reference signal and the second input thereof coupled to the output of said controlled oscillator means for producing a control signal on the output thereof representative of the phase difference between said reference signal and the signal produced by said controlled oscillator;

frequency discriminator/detector means coupled with the output of said controlled oscillator and producing a first output signal when the frequency of said controlled oscillator means is a predetermined amount above a desired frequency and producing a second output signal when the frequency of said controlled oscillator means is a predetermined amount below such desired frequency; and

first and second control gate means each having a control input coupled to receive respectively, the first and second output signals of said frequency discriminator means and each operated in response to such output signals applied thereto, said first and second control gate means each further coupled with the output of said first means for applying respectively first and second predetermined maximum control potentials to the control input of said controlled oscillator means for overriding the output signals from said first means.

4,280,105

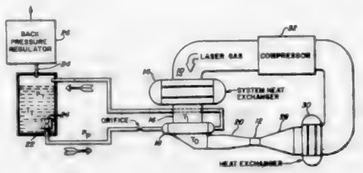
LASER GAS TEMPERATURE CONTROL AND SPACIAL EQUALIZER

Robert D. Marcy, Chatsworth, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 26, 1979, Ser. No. 6,840

Int. Cl.³ H01S *3/045, 3/095*

U.S. Cl. 331—94.5 P **3 Claims**



1. In a laser system including a laser cavity with means for supplying a flow of laser gas through said cavity; apparatus for providing a substantially uniform laser gas inlet temperature T_o, without temperature transients and spacial temperature gradients at the laser inlet nozzle of the flow through the cavity, comprising: a first, large capacity, heat exchanger, upstream of said laser cavity, for providing a heat exchanger exit temperature T_i, with a nominal time dependent tolerance; a second, boiling liquid, heat exchanger connected in series with the first heat exchanger and positioned between the first heat exchanger and the laser inlet nozzle; a coolant supply tank with supply and return lines from the second heat exchanger for supplying liquid coolant to said second heat exchanger; a back pressure regulator connected to said tank for maintaining the saturated liquid temperature of the coolant slightly below the desired laser inlet temperature T_o; and means, providing a coolant flow through said second heat exchanger for removing a maximum heat load corresponding to the tolerance of said first heat exchanger while maintaining boiling liquid operation of the second heat exchanger.

4,280,106

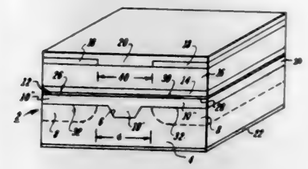
STRIPED SUBSTRATE PLANAR LASER

Donald R. Scifres, Los Altos; Robert D. Burnham, Los Altos Hills, and William Streifer, Palo Alto, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed May 15, 1979, Ser. No. 39,425

Int. Cl.³ H01S *3/19*

U.S. Cl. 331—94.5 H **7 Claims**



1. A heterojunction solid state laser comprising:

a semiconductor body including a substrate and a plurality of layers, one of said layer being an active region layer, said layers being doped to provide a rectifying junction adjacent said active region layer;

another of said layers being a layer of non-uniform thickness having at least one thick portion, said layer of non-uniform thickness being of a material having a bandgap higher than the bandgap of the material of said active region layer;

resonator means for providing an optical resonant cavity including said active region layer;

electrode means on the substrate and non-substrate sides of said semiconductor body for the application of forward bias to said rectifying junction to provide pump current to said active region layer of said laser; and

pump current confining means for providing that the path of said pump current includes said thick portion of said layer of non-uniform thickness and that the width of the path of said pump current is substantially wider than the width of said thick portion of said layer of non-uniform thickness.

4,280,107

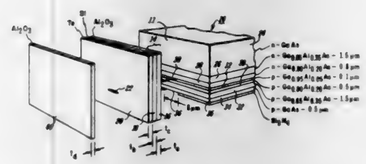
APERTURED AND UNAPERTURED REFLECTOR STRUCTURES FOR ELECTROLUMINESCENT DEVICES

Donald R. Scifres, Los Altos; Fernando A. Ponce, Stanford; G. A. Neville Connell, Cupertino, and William Streifer, Palo Alto, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 8, 1979, Ser. No. 64,698

Int. Cl.³ H01S *3/19*

U.S. Cl. 331—94.5 H **26 Claims**



1. In a semiconductor laser device including an active layer formed at a p-n junction in the device capable of emitting a substantially coherent light at a predetermined wavelength along said active layer when made opertive by means of a current applied across said junction, the emission of the light from the device being from opposed facet surfaces thereof perpendicular to said active layer, a plurality of contiguous layers on at least one facet surface of said device characterized in that these layers comprise, as consecutively deposited, a low refractive index material, an intermediate refractive index material, and a high refractive index ablative material, the total thickness of said layers being substantially antireflective at said predetermined wavelength, said device, when operated, forms an aperture through said high index material, said low and intermediate materials having a total thickness at said aperture substantially reflective to said light at said predetermined wavelength.

4,280,108

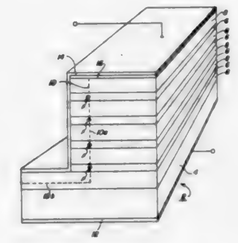
TRANSVERSE JUNCTION ARRAY LASER

Donald R. Scifres, Los Altos; Robert D. Burnham, Los Altos Hills, and William Streifer, Palo Alto, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 12, 1979, Ser. No. 57,159

Int. Cl.³ r101S *3/19*

U.S. Cl. 331—94.5 H **7 Claims**



1. A solid state light emitting device comprising:

a semiconductor body including a plurality of active region layers;

each of said active region layers being sandwiched between semiconductor material having a bandgap higher than the bandgap of the material of that active region layer;

a rectifying junction within said semiconductor body, at least a portion of said rectifying junction traversing said active region layers;

resonator means for providing a plurality of optical resonant cavities each of which includes one of said active region layers; and

electrode means for the application of forward bias to said rectifying junction to provide pump current to said active region layers whereby, upon sufficient forward bias, each of said active region layers emits a light beam.

4,280,109

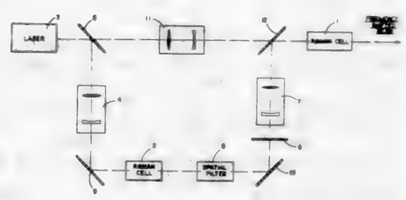
EFFICIENT FREQUENCY CONVERTER UTILIZING HIGHER ORDER STOKES-RAMAN SCATTERING

Eddy A. Stappaerts, Redondo Beach, Calif., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Nov. 23, 1979, Ser. No. 96,750

Int. Cl.³ H01S *3/30*

U.S. Cl. 331—94.5 N **5 Claims**



1. A device utilizing higher order Stokes-Raman scattering

for converting a beam of radiation from a laser into radiation at other wavelengths comprising:

(a) a gaseous Raman oscillator cell,

(b) a gaseous Raman amplifier cell,

(c) a laser which emits a beam of laser energy,

(d) a first beam splitter which splits the beam emitted by the laser into first and second parts, the first part being reflected by the first beam slitter and the second part passing through the first beam splitter,

(e) a first telescope oriented such that the first part of the laser beam passes through it after leaving the first beam splitter, which first telescope acts on the first part of the laser beam to reduce its cross section and thereby to concentrate the energy density of the first part of the laser beam,

(f) first reflecting means for reflecting radiation, oriented so as to direct the first part of the laser beam, after exiting from the first telescope, into the Raman oscillator cell, so as to pass through the Raman oscillator cell and so that any unconverted portion thereof exits from the Raman oscillator cell, the energy density of the first part of the laser beam being sufficiently concentrated by the first telescope such that its power density within the Raman oscillator cell exceeds the threshold necessary to initiate the generation of Stokes-Raman radiation of various Stokes orders, part of which radiation is emitted from the Raman oscillator cell, together with the unconverted portion of the first part of the laser beam,

(g) frequency filter means for transmitting only Stokes order radiation up to and including a selected order and for not transmitting Stokes-Raman radiation of higher orders than the selected order,

(h) a second reflecting means for reflecting radiation oriented so as to reflect the Stokes-Raman radiation emitted from the Raman oscillator cell into the frequency filter means,

(i) a second telescope oriented such that the filtered Stokes-Raman radiation transmitted by the frequency filter means passes through the second telescope,

(j) a second beam splitter which transmits the second part of the laser beam and reflects the Stokes-Raman radiation emitted from the second telescope so as to superimpose the Stokes-Raman waves upon the second part of the laser beam,

(k) said second telescope expanding the cross section of the Stokes-Raman radiation so as to reduce the energy density thereof and so as to cause the cross section thereof to be comparable to that of the second part of the laser beam after it has passed through the second beam splitter means,

(l) the laser, the second beam splitter and the Raman amplifier cell being so oriented so that the second part of the laser beam which is transmitted by the second beam splitter, together with the Stokes-Raman radiation reflected by the second beam splitter, both enter and traverse the Raman amplifier cell along approximately the same path,

(m) the length of the path through the Raman amplifier cell and the power densities of the second part of the laser beam and of the Stokes-Raman radiation entering the Raman amplifier cell being adjusted so as to concentrate most of the energy exiting from the Raman amplifier cell into one, higher order, Stokes-Raman beam of radiation.

4,280,110

MILLIMETER WAVE SOURCE COMPRISING AN OSCILLATOR MODULE AND A VARIABLE-CAPACITY MODULE

Gerard Cachier, and Jean Stevance, both of Paris, France, assignors to Thomson-CSF, Paris, France

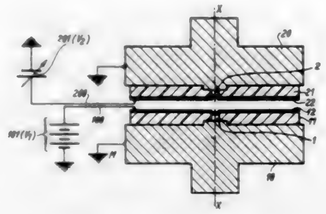
Filed Apr. 11, 1979, Ser. No. 29,045

Claims priority, application France, Apr. 14, 1978, 78 11059

Int. Cl.³ H03K *9/04*

U.S. Cl. 331—107 DP **5 Claims**

1. A millimeter wave source of the type comprising a first module formed by a first diode, a disc of solid dielectric surrounding the diode, a first electrode acting as support and a first metallization acting as biassing electrode, the source additionally comprising biassing means enabling the first diode to function as a diode having negative resistance at high frequencies, the source further comprising a second module formed by a second diode capable of functioning as a variable-capacity diode under predetermined biassing conditions, variable voltage means providing said biassing conditions to said second diode, a second metallization acting as a biassing electrode, said second diode facing said first the diode of the first module so as to form a capacitive coupling between said first and second metallizations, the source additionally comprising a conductive body acting as an electrical earth and as a mechanical support for both modules.



4,280,111

WAVEGUIDE CIRCULATOR HAVING COOLING MEANS

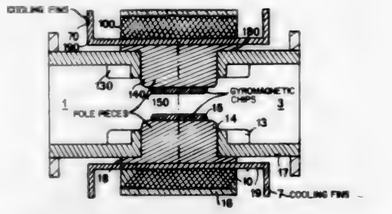
Gerard Forterre, and Jacques Berthe, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 10, 1979, Ser. No. 101,504

Claims priority, application France, Dec. 8, 1978, 78 34622

Int. Cl.³ H01P *1/39, 1/30*

U.S. Cl. 333—1.1 **6 Claims**



1. A three-gate power circulator on a Y wave-guide whose magnetic biasing circuit comprises soft iron pole pieces passing through the walls of the cavity joining said wave-guides whose ends plunging into said cavity are directly in contact with a gyromagnetic material chip, the improvement consisting in said pole pieces each passing, furthermore, through a metal matching block integral with the wall of the cavity, having a section between that of the gyromagnetic chips and that of said blocks and being in contact with a cooling device, said cooling device being formed by heat-conducting metal members brazed to shoulders of the pole pieces and whose periphery thereof is bent back to form fins which are cooled by natural convection.

4,280,112

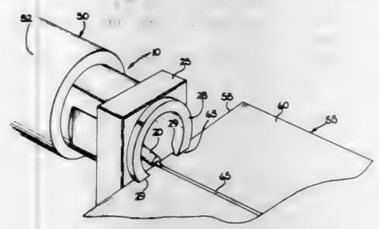
ELECTRICAL COUPLER

Robert L. Eisenhart, 6180 Dalecrest Ave., Woodland Hills, Calif. 91364

Filed Feb. 21, 1979, Ser. No. 13,605

Int. Cl.³ H01P *5/08, 1/04, 3/08*

U.S. Cl. 333—21 R **20 Claims**



1. An electrical coupler for electrically connecting a coaxial transmission line to a microstrip transmission line comprising:

outer conductor means having first and second ends, said first end adapted for coupling to the outer conductor of said coaxial line, said second end adapted for coupling to a first conductor of such microstrip transmission line;

inner conductor means adapted for disposition within said outer conductor means, having first and second ends, said first end adapted for coupling to the inner conductor of said coaxial line, said second end disposed offset relative to the axis of said outer conductor of said microstrip transmission line, said inner conductor means gradually shifted off-center relative to said axis of said outer conductor means from said first end to said second end thereof.

4,280,113

FILTER FOR MICROWAVES

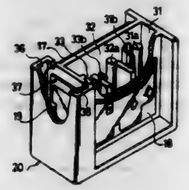
Mitsuo Sekiguchi, Soma, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1979, Ser. No. 107,526

Claims priority, application Japan, Dec. 28, 1978, 53/179706[U]

Int. Cl.³ H01P *1/208, 7/06, 1/20*

U.S. Cl. 333—202 **7 Claims**



1. In a filter for signals in the microwave frequencies, comprising a plurality of resonator cavities separated by respective walls therebetween, each said cavity being formed of a housing and a respective resonance rod formed unitarily with said housing, means including windows formed in said walls for coupling said cavities together and coupling loops for transmitting said signals;

the improvement comprising the fact that at least one of said windows is formed in proximity to top end portions of the resonance rods and that a portion of one of said coupling loops is substantially coplanar with said window.

4,280,114

DISCONTINUOUS METAL AND CERMET FILM RESISTORS AND STRAIN GAUGES

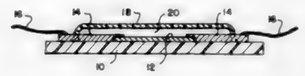
Robert M. DelVecchio, Vandergrift, and Zvi H. Meiksin, Pittsburgh, both of Pa., assignors to University of Pittsburgh, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 78,486, Sep. 24, 1979, Pat. No. 4,231,011. This application Apr. 14, 1980, Ser. No. 140,133

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ G01L *1/22*

U.S. Cl. 338—2 **5 Claims**



1. A strain gauge comprising:

a. a substrate composed of nonconductive material,

b. a cermet film on the substrate,

c. a plurality of electrodes attached to the cermet film, and

d. means for maintaining an environment having a constant humidity in the range of 15% to 45% about the discontinuous metal film.

4,280,115

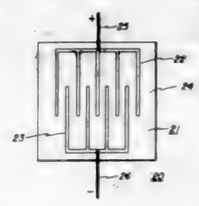
HUMIDITY SENSOR

Gregory C. Farrington, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 878,924, Feb. 17, 1978, abandoned. This application Jun. 18, 1979, Ser. No. 49,222

Int. Cl.³ H01L *7/00*

U.S. Cl. 338—35 **7 Claims**



1. A humidity sensor responsive to changes in atmospheric water content by changes in sensor impedance which consists essentially of a nonporous, water impervious ionic-conductive beta-alumina substrate, at least a pair of spaced apart, thin electrodes mounted on at least one major surface of the substrate, and an electrical lead in contact with each of the electrodes.

4,280,116

DECELERATION ALERT SYSTEM

Richard H. Camp, P.O. Box 62, Haines, Oreg. 97833

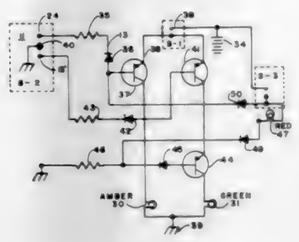
Continuation-in-part of Ser. No. 567,162, Apr. 11, 1975, abandoned, and a continuation-in-part of Ser. No. 742,663, Nov. 11, 1976, abandoned. This application Jul. 12, 1978, Ser. No. 923,957

Int. Cl.³ B60Q *1/26*

U.S. Cl. 340—66 **5 Claims**

3. In a deceleration alert system for vehicles operable to indicate acceleration, deceleration and braking operating modes of vehicle operation, the combination of a double acting switch and a signal indicating circuit comprising a first transistor having an emitter connected to a positive power source through an ignition switch of an automotive vehicle, a base of said first transistor being connected to chassis ground through

a first semi-conductor diode connected to a first of two contact terminals of said double acting switch, a collector of said first transistor being connected to one terminal of an indicating lamp having its opposite terminal connected to chassis ground, a second transistor having an emitter connected to a positive power source through an ignition switch, a base of said second transistor being connected to chassis ground through a second semi-conductor diode connected to the second of the two



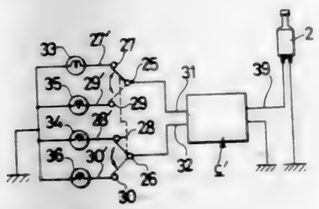
contact terminals of said double acting switch, a collector of said second transistor being connected to one terminal of a second indicating lamp having an opposite terminal connected to chassis ground, a brake switch connected to a positive power source and having a contact connected to one terminal of a third lamp and to the base of the first transistor through a third semi-conductor diode, an opposite terminal of said third lamp being connected to chassis ground.

4,280,117

DIRECTION INDICATION APPARATUS FOR VEHICLES

Yoshikatsu Furusawa, No. 19, Aza Uwamichi, Kemansi, Towsda-machi, Kazuno-shi Akita-ken, Japan

Filed Jul. 6, 1979, Ser. No. 55,168
Claims priority, application Japan, Aug. 11, 1978, 53-111084
Int. Cl.³ B60Q *1/26*
U.S. Cl. 340—81 R **17 Claims**



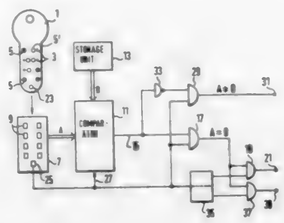
1. Direction indication apparatus for a vehicle comprising a power generation unit containing a miniature electric power generator arranged so as to permit a rotor thereof to optionally engage or disengage with the tire of said vehicle, such as bicycle, by the drawing operation of a Bowden wire, an electric flasher system causing alternate flickering of direction indication signal lamps disposed suitably on both sides in front and rear of said vehicle so as to cause flickering to alternate between the front and rear signal lamps and a manipulation means for performing direction indication operation which has a mechanism simultaneously effecting the operation of said power generation unit and junction of contacts connected to either one side of said signal lamps in such a manner that, by moving a manipulation knob forward or backward along a T-shaped cut-off slit, engagement of said power generator with the tire is effected and by further tipping said manipulation knob on either one side or the other, switching to said signal lamps on the corresponding side of the vehicle is effected.

4,280,118

KEY-CONTROLLED ELECTROMAGNETIC OPERATING MECHANISM FOR A LOCK AND THE LIKE

Gerd Brunken, Dittelbrunn; Volker Eibl, Munich, and Hans Fliege, Obertheres, all of Fed. Rep. of Germany, assignors to Sachs-Systemtechnik GmbH, Schweinfurt, Fed. Rep. of Germany

Continuation of Ser. No. 963,275, Nov. 24, 1978, abandoned. This application Dec. 14, 1979, Ser. No. 103,728
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1977, 2753381
Int. Cl.³ H04Q *3/00*; E05B *47/00*; H01H *27/00*; G08B *13/08*
U.S. Cl. 340—147 MD **12 Claims**



1. A key-controlled, electromagnetic operating mechanism for a lock and the like comprising:
(a) a key including
(1) a key body,
(2) securing means for releasably securing respective magnets to portions of said key body, said portions defining a fixed pattern of available magnet positions on said key body;
(b) a plurality of magnets secured to said key body by said securing means in selected ones of said positions, at least one other position being free of a magnet;
(c) a reading device including
(1) a reader body,
(2) guide means for guiding said key body into a predetermined position relative to said reader body;
(d) a plurality of sensing means on said reader body,
(1) said sensing means being contiguously adjacent respective available magnet positions on said key body when said key body is in said predetermined position,
(2) each sensing means responding to the presence of a magnet in the adjacent magnet position for generating an electrical signal;
(e) a source of a reference signal;
(f) comparator means operatively connected to said sensing means and to said source for comparing the electrical signals generated by said sensing means with said reference signal and for generating an operating signal in response to agreement of said electrical signals with said reference signal.

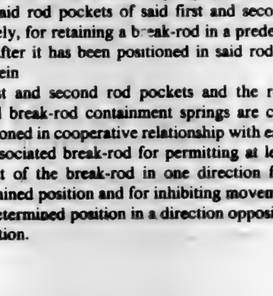
4,280,119

ULTRASONIC AND CAPACITIVE ELECTRONIC KEY SYSTEMS

George A. May, R.R. 1 E. Sooke Rd., Sooke, Canada (VOS1NO)

Division of Ser. No. 947,596, Oct. 2, 1978. This application Nov. 26, 1979, Ser. No. 97,163
Int. Cl.³ H04Q *9/00*; G08B *13/16*
U.S. Cl. 340—147 MD **6 Claims**

1. An electronic key system for use with a locking device comprising
key means having a preselected pattern of impedance to an ultrasonic pulse propagated therethrough for reflecting an applied ultrasonic pulse in a preselected pattern,
means for generating and sensing ultrasonic pulses, and



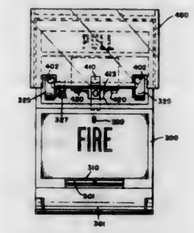
means for coupling said generating and sensing means to said key means when said key means is located in juxtaposition to said coupling means.

4,280,120

FIRE ALARM SIGNAL STATION

Larry F. Trafford, and John W. K. Thompson, both of Owen Sound, Canada, assignors to General Signal Corporation, Stamford, Conn.

Filed Apr. 18, 1980, Ser. No. 141,494
Int. Cl.³ G08B *25/00*
U.S. Cl. 340—303 **50 Claims**



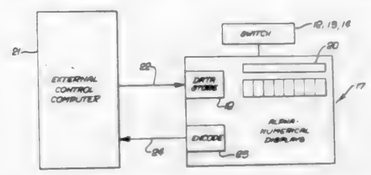
1. A unitary base for a fire alarm box to be equipped with a break-rod and comprising in combination:
(a) a base fabricated of a material capable of at least some yield, without fracture, in response to an applied force;
(b) said base including first and second break-rod support posts with each break-rod support post having an associated rod pocket;
(c) said base including, as integral members thereof, first and second break-rod containment springs juxtaposed proximate to said rod pockets of said first and second posts, respectively, for retaining a break-rod in a predetermined position after it has been positioned in said rod pockets; and wherein
(d) said first and second rod pockets and the respective associated break-rod containment springs are contoured and positioned in cooperative relationship with each other and an associated break-rod for permitting at least some movement of the break-rod in one direction from said predetermined position and for inhibiting movement from said predetermined position in a direction opposite to said one direction.

4,280,121

KEYBOARD ASSEMBLY WITH CONTROLLABLE KEY LEGENDS

Geoffrey J. Crask, 3010 S. Pacific Ave., Santa Ana, Calif. 92704

Filed Jun. 5, 1978, Ser. No. 912,260
Int. Cl.³ G06F *3/02*; G06G *3/00*
U.S. Cl. 340—365 VL **7 Claims**



1. In an interactive keyboard and display assembly, the combination of
(a) a mounting structure comprising a first rigid sheet of transparent, insulative material, the sheet having front and rear sides,
(b) a planar array of transparent switches on said sheet, each switch comprising first, second and third parallel, electrically conductive and transparent layers, the first layer located at the front side of the sheet, the second and third layers located at the rear side of the sheet and being everywhere separated from the first layer by the material of the first sheet, the first layer overlapping the second and third layers, there being space between said second and third layers, said three layers defining an adjacent pair of capacitors forming a touch sensitive switch,
(c) rigid sheet means extending at the rear side of the first sheet,
(d) alphanumeric display devices carried by the rigid means in relatively closely spaced opposed relation to said respective switches, and characterized in that each device is in registration with multiple of said layers of a single switch and also in registration with and closely adjacent said space between the second and third layers, whereby said devices are visible through said switch layers, said space and the first sheet, and
(e) multiple data storage devices, at least one for each display device, mounted on said rigid sheet means.

4,280,122

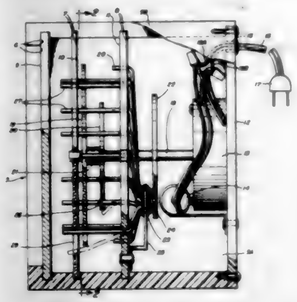
OPTICAL FIBERS

Ronald R. McKinley, Lawrence; Robert E. Hamel, Jr., Amesbury, and Bernard J. Dolan, Stoneham, all of Mass., assignors to Dolan-Jenner Industries, Inc., Woburn, Mass.

Filed Jun. 30, 1980, Ser. No. 164,835
Int. Cl.³ G08B *5/00*; G09F *19/12*; F21V *7/04*
U.S. Cl. 340—380 **13 Claims**

1. A device for displaying the lit ends of optical fibers, said device including a box provided with a transverse partition dividing the box into front and rear sections, the front of the box a window of one way sheet material, optical fibers extending through said partition with their ends in the front section free, resilient, parallel and at right angles to said window and their ends in the rear section in the form of a bundle, means in said rear section operable to direct light against the bundled ends of the fibers, and means in the front section of the box

operable to effect the displacement of and the return of the free ends of at least some of the fibers thereby to produce the effect,



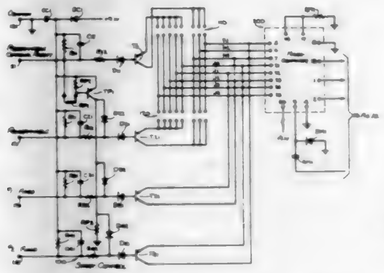
when the lit free ends of the fibers are viewed through the window, of pin points of light moving in space.

4,280,123

MULTITONE SIGNALING DEVICE

Robert W. Right, Huntington, Conn.; Herbert W. McCord, Warren, N.J., and Vaclav O. Podany, Holyoke, Mass., assignors to General Signal Corporation, Stamford, Conn.

Filed May 5, 1980, Ser. No. 146,913
Int. Cl.³ G08B 3/00
U.S. Cl. 340—384 E **24 Claims**



1. A multiple tone programmable speaker comprising in combinaton:

(a) a microcomputer having a plurality of input control terminals for selectively controlling the production of any one of N unique output signals on a plurality of output terminals in response to the coupling together of the leads of a predetermined one of N predetermined unique combinations of said plurality of input control terminals;

(b) a system power supply;

(c) a speaker;

(d) an audio amplifier coupled between said speaker and said output terminals of said microcomputer for amplifying said one of said N unique output signals and applying the amplified signal to said speaker;

(e) start control means including not more than N, start control terminals coupled by first coupling means to at least selected ones of said plurality of input control terminals;

(f) circuit means interconnecting said system power supply, said microcomputer, said audio amplifier and said start control means; and wherein

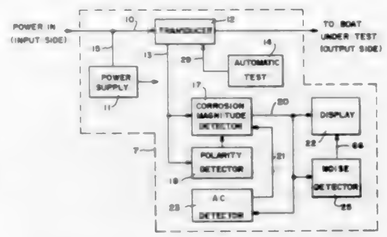
(g) said first coupling means includes means for coupling together the leads of one of said N predetermined unique combinations of said plurality of input control terminals in response to coupling a predetermined potential to one of said start control terminals.

4,280,124

CORROSION DETECTOR

James W. Wuertele, 155 Acalanes Dr., Apt. 27, Sunnyvale, Calif. 94086

Filed Oct. 12, 1978, Ser. No. 950,663
Int. Cl.³ G08B 21/00
U.S. Cl. 340—650 **10 Claims**



1. A maritime corrosion detector comprising:

transducer means for detecting leakage electrical current in a conductor connected to one or more boats and for generating a first control signal representing the occurrence, level and polarized condition of said detected leakage current,

means responsive to said first control signal for generating a second control signal representing whether said leakage current is AC or DC leakage current,

means responsive to said first control signal for generating a third control signal corresponding to the polarized condition of said DC leakage current, and

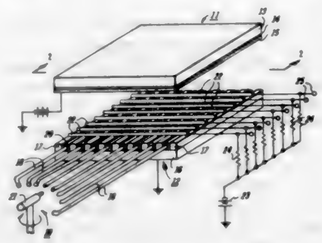
means responsive to said first, second and third control signals for generating a fourth control signal representing the corrosive activity of said detected leakage current.

4,280,125

THIN VACUUM PANEL DISPLAY DEVICE

Benjamin Kazan, Palo Alto, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 27, 1979, Ser. No. 61,349
Int. Cl.³ G06F 3/14
U.S. Cl. 340—795 **10 Claims**



1. A vacuum panel display device including a viewing wall having thereon a phosphor layer on which information is displayed in response to electron beam excitation, the improvement comprising:

an electron source wall spaced from and parallel to said viewing wall,

a generally planar array of parallel, elongate optical waveguide elements supported upon said electron source wall,

a portion of each waveguide element bearing a coating of photoemissive material along its length

a light energy source coupled to each of said waveguide elements for selectively introducing light into and along the length of each of said selected waveguide elements to cause photoemission of electrons from said coating along the length of said selectively illuminated waveguide elements,

means for controlling the flow of electrons to said phosphor layer from preselected areas of said coating along the length of each selectively illuminated waveguide element and

timing means associated with said light energy source for sequentially illuminating each of said optical waveguide elements in said array.

4,280,126

LIQUID LEVEL DETECTOR

Kenneth T. White, Chicago Heights, Ill., assignor to Chemetron Corporation, Chicago, Ill.

Filed May 14, 1979, Ser. No. 39,047
Int. Cl.³ G08B 21/00
U.S. Cl. 340—621 **10 Claims**



1. An apparatus for locating the level of interface of two fluids in a closed metallic container having curvilinear walls with a thickness of from ¼ to ½ inch comprising:

a manually portable transducer having a piezoelectric material for transmitting and receiving sonic signals,

a sonic pulse generator capable of exciting the piezoelectric material to emit sonic waves into the container wall from a location adjacent the outside surface of the container wall at a frequency within about 20% of the natural resonant frequency of the container wall,

means for determining that the reception of the sonic signals transmitted into the container wall is above a minimum preselected amplitude when the transducer is at a location above the interface of the fluids within the container, and

means for determining the vertical location at which the reception of sonic signals transmitted into the container wall is below the minimum preselected amplitude as the transducer is manually moved toward the interface of the fluids.

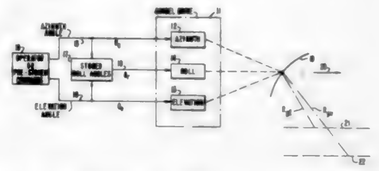
4,280,127

RANGE SWATH COVERAGE METHOD FOR SYNTHETIC APERTURE RADAR

Henry E. Lee, Columbia; Francisco J. Guilles, and R. Noel Longuemare, Jr., both of Ellicott City, all of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 25, 1979, Ser. No. 60,514
Int. Cl.³ G01S 13/90
U.S. Cl. 343—5 CM **2 Claims**

1. A method of increasing the range swath coverage in an airborne synthetic aperture radar antenna that is operated by a gimbal drive mechanism to position the antenna about axes in elevation and azimuth and to position the antenna about a roll axis that is orthogonal to both the elevation and azimuth axes, said antenna being configured to project a beam that changes the area of illumination in accordance with its angular position about the roll axis, comprising positioning the antenna about



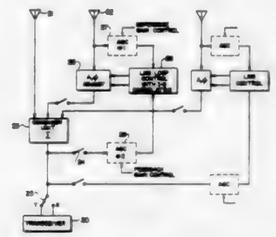
the roll axis a selected angle effective to more closely align the isogain line and the isodop line.

4,280,128

ADAPTIVE STEERABLE NULL ANTENNA PROCESSOR

Raymond J. Masak, East Northport, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 24, 1980, Ser. No. 132,941
Int. Cl.³ G01S 3/06
U.S. Cl. 343—100 LE **9 Claims**



1. A steerable null antenna processor system for receiving desired wave energy signals from at least one angular region of space within the area covered by the system and for suppressing interfering signals from at least one other angular region comprising:

antenna means having at least first and second antenna elements;

antenna signal path means including combining means coupled between said antenna elements and a common port for supplying said desired wave energy signals to said common port;

nulling means comprising phase means and amplitude means forming part of said antenna signal path means, both the phase means and the amplitude means being adjustable in incremental steps and having control inputs, operative in response to digital control inputs to adjust the phase and amplitude values of the nulling means;

analog controller means having correlator means, at least one reference input and at least one feedback input from said antenna signal path means, said analog controller means being operative to generate analog phase and amplitude control signals, converter means to change the last said signals to digital control signals and to supply them to said control inputs of the nulling means, to thereby steer at least one null to interfering signals;

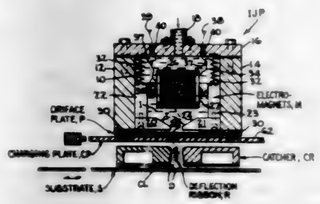
said correlator means comprising an in phase hybrid and a quadrature hybrid with inputs coupled to said feedback and reference inputs, two mixers connected to multiply together outputs from said hybrids, and integration means to generate said analog phase and amplitude control signals.

4,280,129
VARIABLE MUTUAL TRANSDUCTANCE TUNED ANTENNA
Donald H. Wells, 7127 Kipling, Holland, Ohio 43528
Continuation-in-part of Ser. No. 831,880, Sep. 9, 1978, abandoned. This application Sep. 10, 1979, Ser. No. 73,695
Int. Cl.³ H01Q *1/32*
U.S. Cl. 343—715 **19 Claims**



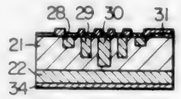
1. A tuning device comprising: a generally tubular metallic body having a central chamber therein and with a magnetic flux escaping window in the sidewalls thereof, electromagnetic flux producing means in said central chamber, said means having first and second electrical terminals which communicate externally of said body, an inductance tuning loop externally of said tubular body and crossing over said window, said loop producing a counter electromagnetic flux which opposes the flux escaping from said window, and means for varying said counter electromagnetic flux produced by said loop.

4,280,130
FORMING DROPLETS FOR INK JET PRINTING
Arthur J. Slemmons, 19655 Redberry Dr., Los Gatos, Calif. 95030
Filed Nov. 13, 1979, Ser. No. 98,902
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—75 **21 Claims**



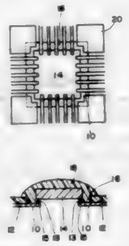
1. Printing head apparatus for producing a jet of small droplets of printing ink, said apparatus being of the type comprising an ink reservoir, means for forming at least one small diameter orifice for said reservoir, means for supplying electrically conductive ink to said reservoir under pressure for forcing an ink stream through each orifice, and electro-magnetic means including opposed pole pieces straddling each orifice for applying a magnetic field to the flowing ink at each orifice; the improvement wherein said ink has a low magnetic susceptibility and said pole pieces are disposed in close proximity to one end of each orifice, means for periodically energizing said electromagnetic means at a high frequency for creating periodically generated eddy currents in said flowing ink at each orifice which eddy currents provide periodic flowing ink retarding forces for perturbing the ink stream emitting from each orifice to stimulate stream ink stream break up into uniformly spaced discrete droplets at a uniform distance from the orifice forming means, said magnetic pole pieces being the sole means for providing electrically generated energy to the flowing ink at said orifice forming means for perturbing the ink stream.

4,280,131
PLEOCHROIC LIGHT EMITTING DIODE AND METHOD OF FABRICATING THE SAME
Yuichi Ono; Kazuhiro Ito, both of Tokyo; Mitsuhiro Mori; Masaaki Aoki, both of Kokubunji, and Kazuhiro Kurata, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 7, 1979, Ser. No. 18,330
Claims priority, application Japan, Mar. 17, 1978, 53-29958
Int. Cl.³ H01L *33/00*
U.S. Cl. 357—17 **7 Claims**



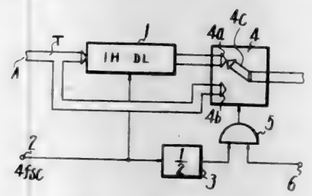
1. A pleochroic light emitting diode comprising:
a mixed crystal compound semiconductor layer of a first conductivity type whose mixing ratio is continuously varied in the direction of thickness from a planar surface of said layer; and
a plurality of regions of a second conductivity type formed in said planar surface of said compound semiconductor layer with different depths respectively relative to said planar surface to form p-n junctions with said compound semiconductor layers,
whereby plural light emissions with different center wavelengths generated at said p-n junctions are derived from said planar surface of said compound semiconductor layer.

4,280,132
MULTI-LEAD FRAME MEMBER WITH MEANS FOR LIMITING MOLD SPREAD
Masao Hayakawa, Kyoto; Takamichi Maeda, Yamatokoriyama, and Masao Kumura, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 872,314, Jan. 25, 1978. This application Oct. 15, 1979, Ser. No. 84,542
Claims priority, application Japan, Jan. 25, 1977, 52-7972
Int. Cl.³ H01L *23/48, 29/44, 29/60*
U.S. Cl. 357—70 **6 Claims**



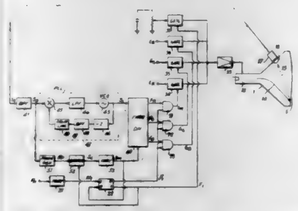
1. A multiple-lead frame member comprising a semiconductor unit disposed within an aperture, a plurality of metallic lead connectors bonded to said semiconductor unit by bump means, and blocking means provided for limiting mold spread when the semiconductor unit is molded, said blocking means being positioned at at least one corner of said aperture and being composed of a metallic material common to said leads, wherein the semiconductor unit is disposed in a predetermined pattern extending cantileverwise inwardly, beyond the periphery of the aperture.

4,280,133
VIDEO SIGNAL PROCESSING CIRCUIT
Tetsuro Kato, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Nov. 13, 1979, Ser. No. 93,852
Claims priority, application Japan, Nov. 14, 1978, 53-140017
Int. Cl.³ H04N *5/783*
U.S. Cl. 358—8 **19 Claims**



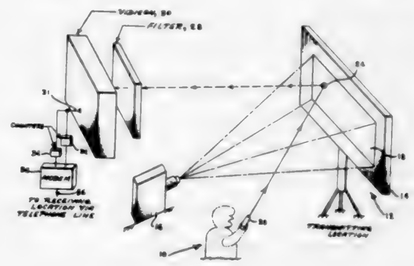
1. A video signal processing circuit for processing a video signal comprised of field intervals each having a plurality of line intervals, said processing circuit comprising:
a video signal input for said video signal;
delay means connected with said input for delaying said video signal for a duration of a predetermined number of said line intervals, thereby providing a delayed version of said video signal;
switching means connected with said input and said delay means for alternately applying said video signal and said delayed version thereof to an output terminal of the processing circuit; and
means for causing said switching means to switch at a sampling rate sufficient to supply samples of said video signal and the delayed version thereof a plurality of times during each said line interval.

4,280,134
BEAM INDEX COLOR TELEVISION RECEIVER APPARATUS
Akira Tooyama, Tokyo; Takashi Tooyama, Kokubunji, and Takashi Hosono, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jul. 3, 1979, Ser. No. 54,490
Claims priority, application Japan, Jul. 5, 1978, 53-81787
Int. Cl.³ H04N *9/24*
U.S. Cl. 358—67 **11 Claims**



1. Apparatus for controlling the electron beam in a beam index color television receiver of the type having a cathode ray tube whose display screen is provided with beam-excitable color elements and index elements which are scanned by said beam, said apparatus comprising index signal generating means for generating a periodic index signal as said index elements are scanned by said beam; color gate means for sequentially gating respective color control signals individually to modulate said electron beam as said beam scans said color elements; gating signal generating means for generating sequential gating signals at a frequency synchronized with the frequency of said periodic index signal, said gating signals being supplied in sequence to said color gate means to control the latter to gate said respective color control signals; and driving means responsive to said periodic index signal to drive said gating signal generating means, said driving means including time adjustment means for compensating the inherent time delay of at least said color gate means, said gating signal generating means and said driving means such that said respective color control signals are gated in time correspondence with the position of said beam at a color element that is associated with the gated color control signal.

4,280,135
REMOTE POINTING SYSTEM
Howard R. Schlossberg, 4811 Hercules Ct., Annandale, Va. 22003
Filed Jun. 1, 1979, Ser. No. 44,813
Int. Cl.³ H04N *7/18*
U.S. Cl. 358—93 **9 Claims**



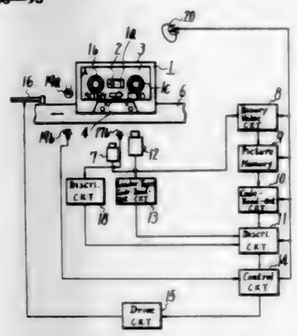
1. A remote pointing system comprising first means situated at a preselected location for emitting a visible beam of radiant energy of preselected wavelength, first means having a preselected configuration located adjacent said first beam emitting means for displaying thereon said visible beam of radiant energy and allowing further transmission of said visible beam of radiant energy, means in optical alignment with said beam of radiant energy transmitted from said first display means for receiving only said preselected wavelength of said beam of radiant energy and transmitting a signal capable of transmission over a telephone line corresponding to the position of said beam of radiant energy on said first display means, said receiving and telephone line transmission signal transmitting means including a video camera in optical alignment with said beam of radiant energy transmitted from said first display means and means operably connected to said video camera for converting a signal emanating from said video camera into said signal capable of transmission over said telephone line, means situated at a location other than said preselected location for receiving said telephone line transmission signal corresponding to the position of said beam of radiant energy on said first display means and transmitting a signal in accordance therewith, second means situated at said other location for emitting a visible beam of radiant energy, second means having a preselected configuration located adjacent said second beam emitting means for displaying said visible beam of radiant energy emitted therefrom, means operably connected to said position signal receiving and transmitting means at said other location for directing said beam of radiation emitted from said second beam emitting means onto said second display means in accordance with said position signal whereby the position of said beam of radiant energy on said second display means corresponds to the position of said beam of radiant energy on said first display means.

4,280,136

TAPE CASSETTE AND LABEL INSPECTION SYSTEM THEREFOR

Tsunehiro Kashima, Tokyo; Shunsuke Sakoda, Yokohama; Hidetoshi Tsuda, Sendai; Tamihei Hiramatsu, Chigasaki, and Kazuyuki Morita, Ebina, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 11, 1979, Ser. No. 83,859
Claims priority, application Japan, Oct. 13, 1978, 53-126531
Int. Cl.³ G11B 23/04; H04N 7/18
U.S. Cl. 358—93 **16 Claims**



1. A tape cassette having a magnetic tape loaded therein and having a label on the outer surface of said tape cassette, comprising:

first sensible means on said label for indicating at least one physical characteristic of a magnetic tape;

second sensible means on said magnetic tape and not visually associated with said first sensible means for indicating said at least one characteristic of said magnetic tape; and

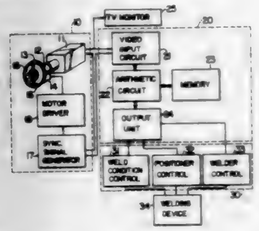
wherein said at least one characteristic indicated on said label is adapted to be compared with said at least one characteristic indicated on said magnetic tape to determine whether said first sensible means on said label correctly indicates said at least one characteristic of said magnetic tape.

4,280,137

METHOD AND APPARATUS FOR AUTOMATICALLY CONTROLLING ARC WELDING

Eiji Ashida; Masayasu Nibe; Hiroshi Wachi, all of Hitachi; Akira Sato, Takahagi, and Satoshi Kokura, Hitachiota, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 22, 1979, Ser. No. 5,075
Claims priority, application Japan, Jan. 25, 1978, 53-6229
Int. Cl.³ H04N 7/18
U.S. Cl. 358—101 **12 Claims**



1. A method for automatically controlling arc welding comprising the steps of:

alternately picking up, by optical means, pieces of optical information provided by at least two bands of different wavelengths of light radiated from a weld area being arc-welded under predetermined welding conditions;

extracting the weld factors representing the actual steps of the weld area from said optical information, with said weld factors including at least one of the shape of the groove, the physical position of the weld torch, the height of the lower end of the weld torch from the molten pool, the shape of the molten pool, and the shape of the arc;

comparing said extracted weld factors representing the actual status of the weld area with the desired values of the weld factors representing the desired status of the weld area so as to compute the error or errors of the welding conditions; and

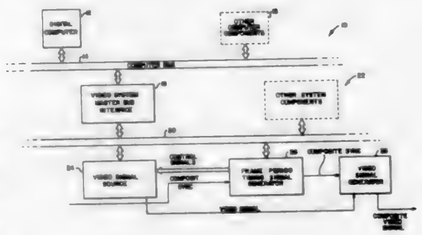
correcting the welding conditions on the basis of said detected error or errors of the welding conditions, whereby said weld factors can be controlled to their desired values.

4,280,138

FRAME PERIOD TIMING GENERATOR FOR RASTER SCAN

Rodney D. Stock, Palo Alto, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 11, 1980, Ser. No. 139,332
Int. Cl.³ H04N 5/06, 9/46; G06F 1/04; H03K 5/04, 5/13
U.S. Cl. 358—150 **16 Claims**



1. A high speed timing signal generator comprising:

an addressable, readable data store having a plurality of data outputs indicating data stored at corresponding bit positions of state defining addressed word locations, the data outputs including a plurality of timing signals and a plurality of state duration control outputs;

a clock signal source providing an elemental clock signal; and

address control circuitry coupled to receive the elemental clock signal and data from the state duration control outputs and address the readable store in response thereto to cause the timing signal generator to remain at a given state for a number of periods of the elemental clock signal indicated by the data from the state duration control outputs for an addressable location in the store corresponding to the prior address location.

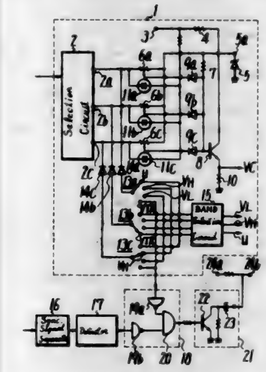
4,280,139

MUTING CIRCUIT FOR A TELEVISION RECEIVER

Takao Mogi; Yoshio Ishigaki, both of Tokyo, and Hisao Okada, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 10, 1979, Ser. No. 83,415
Claims priority, application Japan, Oct. 12, 1978, 53-140166
Int. Cl.³ H04N 5/60
U.S. Cl. 358—165 **4 Claims**

1. Apparatus for muting signals transmitted over a relatively low frequency transmission path in a television receiver of the type having channel selector means for producing a channel select signal to select a corresponding one of a plurality of presettable channels and tuning means responsive to said channel select signal to tune said television receiver to said corresponding channel, said apparatus comprising means for providing a predetermined channel select signal when a predetermined channel is selected; detecting means for producing an output signal when the presence of a video signal at said television receiver is detected irrespective of the particular channel to which said television receiver is tuned; muting signal generating means conditioned when said predetermined channel select signal is provided so as to respond to the absence of said output signal to produce a muting signal; and a muting circuit coupled to said relatively low frequency transmission path and operative in response to said muting signal to attenuate the signals transmitted thereover.

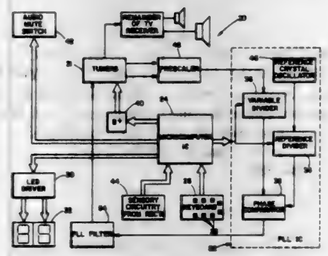


4,280,140

MICROCOMPUTER-CONTROLLED ONE-STEP-BACK AUTOMATIC FREQUENCY CONTROL TUNING SYSTEM

Peter C. Skerlos, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Feb. 19, 1980, Ser. No. 107,732
Int. Cl.³ H04N 5/44; H04B 1/26
U.S. Cl. 358—195.1 **10 Claims**



1. A method for tuning a television receiver having automatic frequency control to the carrier frequency of a selected broadcast channel with an associated channel number including generating a variable frequency signal by means of a local oscillator, generating a reference frequency signal by means of a reference oscillator, and generating a local oscillator correction signal for matching an intermediate frequency signal derived from said local oscillator signal and the carrier frequency signal with a predetermined nominal intermediate frequency signal, said method being characterized by the use of a microcomputer and comprising:

generating binary signals representing first and second digital tune words, said digital tune words representing a selected channel;

storing said first and second digital tune words in a first data memory in said microcomputer;

reading said first and second digital tune words from said first memory and generating a divided-down local oscillator frequency by the use of said first digital tune word and a divided-down reference oscillator frequency by the use of said second digital tune word;

comparing said divided-down local oscillator and reference frequencies and generating a control signal representative of the difference in frequency of said divided-down local oscillator and reference frequencies;

coupling said control signal to said local oscillator for causing it to be locked to the frequency of said received carrier signal;

mixing the local oscillator frequency signal and the carrier frequency signal to generate an intermediate frequency signal;

comparing said intermediate frequency signal with said predetermined nominal intermediate frequency signal and providing a tuning voltage to said microcomputer, said tuning voltage being indicative of the magnitude and direction of a tuning error between said intermediate frequency signal and said predetermined nominal intermediate frequency signal;

incrementally adjusting the reference oscillator frequency by means of a tuning signal provided to said reference oscillator by said microcomputer in response to said tuning voltage;

detecting when the incrementally changing, divided-down reference oscillator frequency causes the intermediate frequency signal to pass said predetermined nominal intermediate frequency signal; and

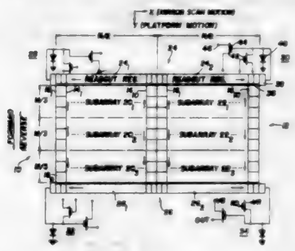
incrementally stepping the divided-down reference oscillator frequency back a predetermined number of steps following the passage of said predetermined nominal intermediate frequency signal by said intermediate frequency signal in tuning said television receiver to the selected channel.

4,280,141

TIME DELAY AND INTEGRATION DETECTORS USING CHARGE TRANSFER DEVICES

David H McCann, Ellicott; Marvin H. White, Columbia; Alfred P. Turly, Glen Burnie, all of Md., and Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of David H. McCann, Marvin H. White, Alfred P. Turly

Filed Sep. 22, 1978, Ser. No. 945,043
Int. Cl.³ H04N 3/15, 7/18
U.S. Cl. 358—213 **18 Claims**



18. A charge transfer imaging system comprising in combination:

a matrix of interconnected plural photosensitive charge transfer elements having plural charge signal channels along one direction of the matrix, each channel being comprised of a plurality of elements;

control means for controlling the translation of charge signals in different portions of the respective channels bidirectionally within said matrix and where the direction of charge flow in each element comprising each channel may be selectively reversed; and

means for operating said system in a variable time delay and integration mode by selecting and varying the number of said elements whose charge is to be summed.

4,280,142

OPTICAL REPRODUCING DEVICE FOR A SUPER-8 FILM READER

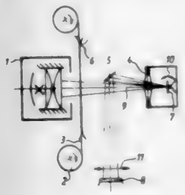
Otto Stemme, Munich; Eduard Wagensonner, Aschheim, and Wolfgang Ruf, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Dec. 17, 1979, Ser. No. 104,161

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855799

Int. Cl.³ H04N *3/36*

U.S. Cl. 358—214 **7 Claims**



1. An optical reproduction device for a Super-8 film scanner to reproduce the film images on a television screen, comprising means for advancing a film in a plane; a light source at one side of said plane; an image-reproducing lens at the other side of said plane and positioned on the optical axis of the light source so that light passing through the film enters and passes through the lens; a tilt mirror arranged beyond but adjacent to said lens so as to reflect the light rays leaving the lens, back through the same; and a fixed mirror between said lens and film advancing means, said fixed mirror being positioned to intercept light rays reflected back through the lens by said tilt mirror and to reflect them to a device for converting the light rays into electrical signals.

4,280,143

METHOD AND MEANS FOR SCALE-CHANGING AN ARRAY OF BOOLEAN CODED POINTS

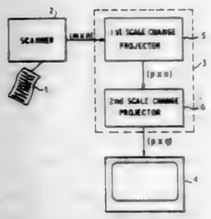
Ian D. Judd, Chandlers Ford, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 28, 1979, Ser. No. 79,779

Claims priority, application United Kingdom, Dec. 15, 1978, 48628/78

Int. Cl.³ H04N *1/00, 1/04*

U.S. Cl. 358—260 **3 Claims**



1. A method for the lossy compression of an mxn array of Boolean coded pels (black/white) into a smaller pxq array of Boolean coded pels, the method steps comprise:

forming a pxn array of Boolean coded pels from the mxn array, p being less than or equal to m, by encoding each ith vector in row major order with reference to the ith-1 vector through the substitution of a predetermined number of pels of the same color value in a weighted position for each run of pels, i lying in the range from 1 to n; and

forming a pxq array of Boolean coded pels from the pxn array, q being less than or equal to n, by the encoding of each rth vector in column major order with reference to the rth-1 vector through the substitution of a predetermined number of pels of the same color value in a weighted position for each run of pels, r lying in the range from 1 to p.

4,280,144

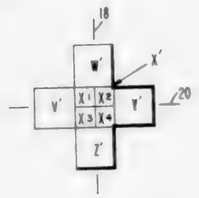
COARSE SCAN/FINE PRINT ALGORITHM

James L. Bacon, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,370

Int. Cl.³ H04N *1/40*

U.S. Cl. 358—280 **16 Claims**



1. Image processing device for transforming coarse scan information into fine scan information comprising:

means for encoding the coarse scan information into grey level information;

logic means for combining the grey level information from a coarse PEL of interest and its adjoining surrounding coarse PELs; and

conversion means operable to convert a combined grey level information into a fine PEL of black/white information.

4,280,145

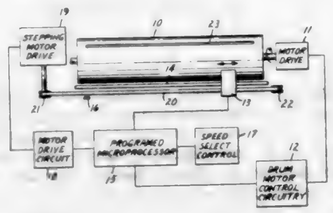
NON-LINEAR, MULTI-SPEED, BI-DIRECTIONAL FACSIMILE SUBSCAN DRIVE CONTROL

Donald L. Norrell, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 15, 1977, Ser. No. 833,473

Int. Cl.³ H04N *1/06*

U.S. Cl. 358—289 **6 Claims**



1. A bi-directional, multi-speed, facsimile subscan drive control for the scan head of a drum-type facsimile machine which provides a scan operation by rotation of the drum with movement of the scan head axially of the drum including:

a single stepping motor drive having a rated operating frequency;

means for selectively and continuously providing forward control signals during a scan operation at any one of a plurality of frequencies all of which are less than said rated frequency and providing reverse control signals upon completion of a scan operation at a frequency that is higher than any of the forward control signals;

a motor drive circuit connected to said means for receiving said control signals and in response thereto providing motor drive stepping signals with said stepping motor drive connected to said motor drive circuit for receiving said motor drive stepping signals to step said motor drive; and

means operatively connecting said motor drive to the scan head of the facsimile machine for moving the scan head in response to operation of said motor drive whereby a helical stepped scan is produced when said forward control signals are provided and said scan head is moved toward its starting position when said reverse control signals are provided and wherein said forward control signals at any of said plurality of frequencies cause said motor drive circuit to provide said motor drive stepping signals at a rate for stepping said motor drive at least twice during each revolution of the drum during a scan operation with each of said stepping signals provided during a revolution of the drum occurring essentially at the same point as the corresponding stepping signals for the preceding revolution of the drum.

4,280,146

ROTARY HEAD TYPE MAGNETIC VIDEO RECORDING AND REPRODUCING APPARATUS

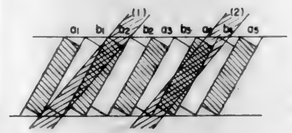
Takashi Misaki, Hirakata; Takanori Aoki, Higashiosaka, and Yukihiko Miyawaki, Kadoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 7, 1978, Ser. No. 967,357

Claims priority, application Japan, Dec. 13, 1977, 52-150205

Int. Cl.³ H04N *5/78;* **G11B** *27/02, 15/48*

U.S. Cl. 360—10 **3 Claims**



1. A rotary head type magnetic video recording and reproducing apparatus for recording and reproducing a video signal sequentially on a magnetic tape driven by a capstan by alternately using two rotary heads switched in response to a pulsed switching signal, such that each field of a frequency modulated video signal follows a record locus which is oblique to the length of the magnetic tape, characterized in that said apparatus comprises:

a capstan motor for driving the capstan;

gate means for providing a first motor driving signal corresponding to a first tape speed at a time of normal recording and reproduction and a second motor driving signal corresponding to a second tape speed which is slower than said first tape speed, said gate means selectively supplying said first motor driving signal to said capstan motor at the time of the normal recording and reproduction and for selectively supplying said second motor driving signal at the time of reproducing still pictures;

means for generating an envelope pulse signal at the time the envelope level of the reproduced video signal of said rotary head is a minimum;

means for comparing the phase of said switching signal corresponding to two rotary head switching points with the phase of said envelope pulse signal and for generating an output pulse signal when the phases of said signals are substantially the same;

a flip-flop connected to receive said switching signal as a set signal and connected to receive said output pulse signal as a reset signal, said flip-flop providing an enabling voltage to said gating means when a set signal is received; and

a motor braking means for braking said capstan motor in response to the reset of said flip-flop, whereby said motor is enabled when said flip-flop is set and said braking means is activated when said flip-flop is reset.

4,280,147

DIGITAL TELEVISION SYSTEM AND METHOD

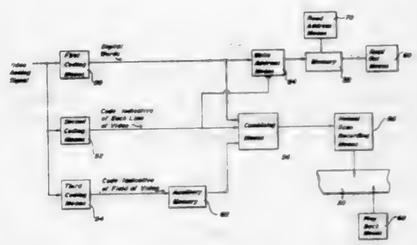
John L. E. Baldwin, Eastleigh, England, assignor to Independent Broadcasting Authority, London, England

Filed Feb. 2, 1979, Ser. No. 9,185

Claims priority, application United Kingdom, Feb. 2, 1978, 04326/78

Int. Cl.³ H04N *5/79*

U.S. Cl. 360—10 **16 Claims**



1. A method of assembling digital data representing a T.V. picture comprising,

producing digital words representing a line of video;

producing a digital code indicative of each line of video;

producing a digital code indicative of the field containing the line;

combining said digital codes and said digital words for each line of video;

storing said digital words line by line until a number of lines at least equal in number to the number of lines in a field has been stored; and

reading out said digital words.

4,280,148

AUDIO RECORDING APPARATUS AND METHOD

Arjun N. Saxena, 4217 Pomona Ave., Palo Alto, Calif. 94306

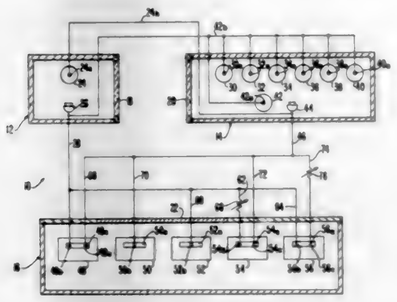
Filed Jan. 21, 1980, Ser. No. 113,886

Int. Cl.³ G11B *27/02*

U.S. Cl. 360—13 **10 Claims**

1. Apparatus for recording audio signals from a plurality of locations comprising: a first room for housing at least one performer, the first room having a first microphone therein for receiving audio signals from the performer therein; a second room adapted to house at least one other performer, the second room having a second microphone therein for receiving audio signals from the second performer; a third room having a plurality of recording devices therein, each of the rooms being acoustically isolated from the other rooms; means for each room, respectively, for placing it in visual contact with the other rooms, each recording device having a recording medium associated therewith, each recording medium having at least one recording channel thereon, there being a recording head for each channel, respectively, of each recording medium; and means for electrically coupling the first and second microphones with the recording heads of selected ones of the recording devices so that audio signals of the performers in

both rooms can be recorded together on a first medium, can be recorded separately on second and third media, and can be



recorded at greater or lesser volume on channels of fourth and fifth media.

4,280,149

EQUIPMENT FOR PREVENTING GAPS BETWEEN PREVIOUSLY RECORDED AND NEWLY RECORDED INFORMATION ON AN INFORMATION CARRIER

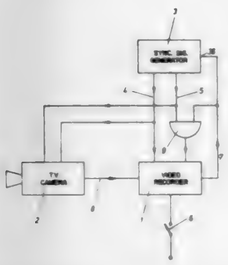
Peter Bragas, Hildesheim-Itzum, Fed. Rep. of Germany, assignor to Blaupunkt-Werke GmbH, Hildesheim, Fed. Rep. of Germany

Filed Oct. 4, 1979, Ser. No. 81,621

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844897

Int. Cl.³ H04N *5/795*

U.S. Cl. 360—14 **5 Claims**



1. In television equipment operable in a recording and in a reproducing mode, and comprising information carrier means (12), read/write means (16) for recording signals on and reading signals from said information carrier means, means (2) for furnishing information signals to said read/write means when said equipment is operative in said recording mode, synchronization signal generator means (3) for furnishing horizontal and vertical synchronization signals to said information signal furnishing means, means (14, 20, 21, 32, 33) connected to said synchronization signal generator means for driving said record carrier means past said read/write means at a speed controlled by selected ones of said synchronization signals, and means (6) operative under external control for initiating reproduction of a brief section of last-recorded information on said information carrier means prior to recording of next subsequent information thereon, whereby said read/write means furnishes reproduced horizontal and vertical synchronization signals during said reproduction of said brief section of last-recorded information, the improvement comprising

means (18, 24) interconnected between said read/write means and said synchronization signal generator means for synchronizing said synchronization signal generator means to predetermined ones of said reproduced synchronization signals;

further comprising means (9,30) for automatically switching said equipment to said recording mode when said synchronization signals furnished by said synchronization signal generator means are in synchronism with said reproduced synchronization signals;

mode selector means (31) for switching said equipment to said recording mode or to said reproducing mode in response to, respectively, a first or a second mode selector signal; and

wherein said automatic switching means comprises an AND gate (9) having a first input connected to said synchronization signal generator means, a second input connected to said read/write means, and an output connected to said mode selector means for furnishing said first mode selector signal thereto.

4,280,150

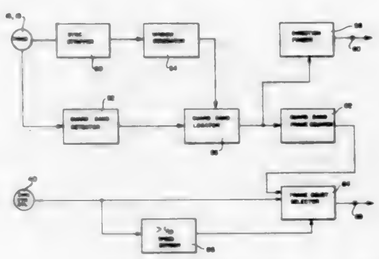
HELICAL SCAN VIDEO TAPE RECORDER GUARD BAND INTERFERENCE DETECTOR FOR GENERATING CONTROL PULSES AT LOW TAPE SPEEDS

George W. Bates, Santa Ana, Calif., assignor to Convergence Corporation, Irvine, Calif.

Filed Oct. 22, 1979, Ser. No. 87,204

Int. Cl.³ G11B *27/02, 15/48;* **G11b** *21/10;* **H04N** *5/78*

U.S. Cl. 360—14 **4 Claims**



1. A detection system for use with a helical scan video tape recorder which includes a video tape on which a composite video signal having vertical and horizontal synchronizing pulses is recorded in successive fields in a series of diagonal tracks separated from one another by a corresponding series of guard bands, with two such fields representing a frame of video information, said system serving to detect guard band interference signals and for generating control pulses in response thereto which indicate the frames of video information on the video tape at low tape speeds, said video tape recorder including magnetic head means for reading the composite video signal recorded in said diagonal tracks, and said detector system including: synchronizing signal stripper circuit means coupled to said magnetic head means for removing the vertical and horizontal synchronizing signals from the composite video signals; generator circuit means coupled to said synchronizing stripper circuit means for generating at least one control pulse during each field of said composite video signal and at a predetermined location in said field; a guard band detector circuit means coupled to said magnetic head means and responsive to the horizontal synchronizing signals of said composite video signal for detecting a guard band interference signal during each field of said composite video signal when the tape speed falls below a particular level; guard band locator circuit means coupled to said generator circuit means and to said guard band detector circuit means for producing output signals establishing the location of said guard band interference signal with respect to said control pulse generated by said generator circuit means during each of said fields; output circuitry coupled to said guard band locator circuit for producing an output

pulse each time a frame of video signal on the video tape is sensed by said electromagnetic head means, the video tape including a control track having pulses recorded thereon indicative of the frames of video signal recorded on the tape, the video tape recorder including a further magnetic head means for reading the pulses recorded on the control track, and said output circuitry including a selector circuit coupled to said further magnetic head means; and a speed sensor circuit coupled to said further magnetic head means and to said selector circuit for causing said selector circuit normally to select pulses generated by said further magnetic head means, and to cause said selector circuit to select pulses from said guard band locater circuit means when the tape speed falls below said particular level.

4,280,151

HIGH SPEED IMAGE RECORDING SYSTEM

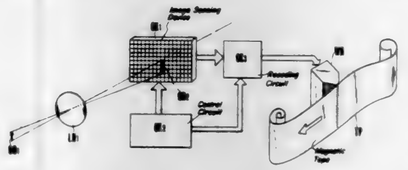
Tokuichi Tsunekawa; Toshio Sakane, both of Yokohama, and Tatsuya Taguchi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 21, 1979, Ser. No. 13,364

Claims priority, application Japan, Feb. 24, 1978, 53-20658; Mar. 27, 1978, 53-35672; Mar. 27, 1978, 53-35673

Int. Cl.³ H04N *5/78*

U.S. Cl. 360—33 **17 Claims**



2. An image recording system comprising:

(a) an image scanning device having an array of a plurality of linear scanning means arranged for concurrently producing a plurality of sequences of linear scanning signals corresponding to a received image;

(b) means for concurrently extracting at most all the sequences of linear scanning signals from said plurality of linear scanning means in said scanning device;

(c) circuit means for concurrently receiving the extracted sequences of scanning signals and for concurrently producing a plurality of sequences of recording signals in response to said extracted sequences of scanning signals; said circuit means including:

means for converting said extracted sequences of scanning signals into said plurality of sequences of recording signals;

means for concurrently accepting said extracted sequences of scanning signals extracted by said extracting means from said plurality of linear scanning means in said scanning device;

means for concurrently storing said extracted sequences of scanning signals from said accepting means; and

means for selecting either one of the scanning signals accepted through said accepting means and the scanning signals stored in said storing means for alternate application to said converting means; wherein said converting means produces first and second field recording signals in response to the signals accepted through said accepting means and the signals stored in said storing means, respectively; and

(d) means for concurrently receiving said plurality of sequences of recording signals and for concurrently recording the sequences of recording signals on different corresponding portions of a recording medium; said recording means having at least the same number of recording members for concurrently recording the signals on a recording channel of the recording medium at different portions of the recording medium as the number of said linear scanning means in said scanning device; and said recording means including rotating means for concurrently rotating said recording members along corresponding ones of the recording channels of the recording medium.

4,280,152

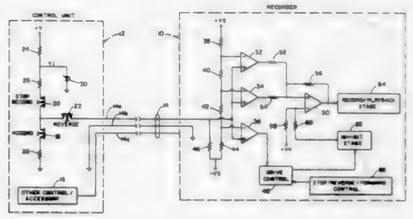
PLAYER REMOTE CONTROL HAVING SINGLE WIRE CONTROL

Bruce R. Silver, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 13, 1979, Ser. No. 29,680

Int. Cl.³ G11B *15/12*

U.S. Cl. 360—61 **5 Claims**



1. A control apparatus for a record and playback apparatus of the type having means for recording information on a recording medium and for thereafter retrieving such recorded information from the recording medium, and means for either advancing, stopping or reversing the movement of the recording medium past the recording and playback means, said control apparatus comprising:

control means responsive to the manual actuation thereof for providing at least four different control signals along a single conductor, said control means comprising three switch elements electrically interconnected with respect to each other so as to enable said control means to provide said four different control signals upon the manual actuation of said three switch elements in a manner wherein one of said four control signals occurs when all of said switch elements are in a closed conductive state and wherein each of the other three of said four control signals occurs respectively upon the opening of one of the switch elements with the other switch elements remaining in the closed conductive state; and

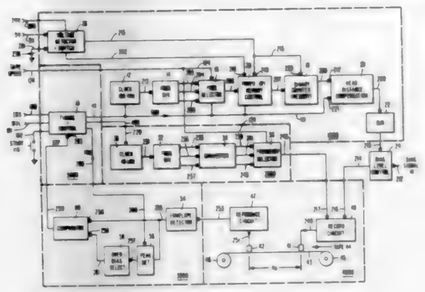
logic means responsive to a first of said four different control signals from said control means for providing a record signal to actuate the recording and retrieving means to record, responsive to a second of said four different control signals from said control means for providing a stop record signal to actuate the recording and retrieving means to stop recording, responsive to a third of said four different control signals from said control means for providing a reverse signal to actuate the advancing, stopping and reversing means to drive the recording medium in the reverse direction past the recording and retrieving means, and responsive to a fourth of said four different control signals occurring immediately subsequent to said third control signal for providing an advance signal to actuate the advancing, stopping and reversing means to drive the recording medium in the advance direction past the recording and retrieving means, and for providing a retrieve signal to actuate the recording and retrieving means to retrieve information recorded on the recording means.

4,280,153

DIGITALLY CONTROLLED AUTOMATIC BIAS CIRCUIT FOR MAGNETIC RECORDING

Lucas K. Tin, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Nov. 1, 1979, Ser. No. 90,137
Int. Cl.³ G11B 5/47
U.S. Cl. 360—66 **15 Claims**



1. An apparatus for automatically detecting an optimum A. C. bias signal level and storing that level in a memory device, for use in magnetic recording/reproducing systems, said apparatus receiving an A. C. bias signal of a known frequency, comprising in combination:

(a) a first means coupled to provide a digital signal linearly increasing at a known constant rate, said first means comprising a memory means;

(b) a second means coupled to convert said digital signal of said first means into an analog signal for controlling said received A.C. bias signal to have a linearly increasing level;

(c) a third means coupled to provide an analog signal of a known frequency and constant level;

(d) a fourth means coupled to receive and combine said A.C. bias signal controlled by said second means and said analog signal provided by said third means, and to record said combined signals on a movable recording medium;

(e) a fifth means coupled to provide a reproduce signal corresponding to said recorded signal;

(f) a sixth means coupled to said fifth means for detecting a maximum reproduce signal level attenuated by a predetermined amount of overbias; and

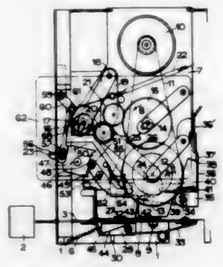
(g) a seventh means coupled to said sixth means for responsively providing a control signal to stop operation of said first means and to store said digital signal provided by said first means in said memory means when said reproduce signal level is detected.

4,280,154

SLOT LOADING CASSETTE TAPE MECHANISM

Masatoshi Ando, 34-4-701, Denenchofu 2-chome, Ohja-ku, Tokyo, Japan

Filed Jan. 24, 1979, Ser. No. 6,255
Claims priority, application Japan, Jan. 24, 1978, 53-6579
Int. Cl.³ G11B 15/28, 5/54, 21/22
U.S. Cl. 360—96.4 **6 Claims**



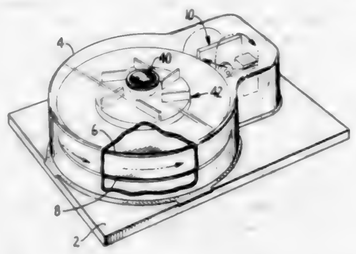
1. A slot loading cassette tape mechanism comprising: a main chassis; a sub-chassis hingedly connected at one end to the main chassis and carrying a flywheel pulley with a tape drive capstan thereon, a tape take-up spindle, and a tape rewind spindle; a first gear means for driving said tape take-up spindle; a second gear attached to said tape rewind spindle; a rotatable plate carrying an intermediate drive gear and an intermediate driven gear mounted on said sub-chassis; said intermediate driven gear being normally engaged with said first gear means and said intermediate drive gear being driven by said flywheel pulley through an intermediate drive pulley attached to said flywheel pulley and an intermediate driven pulley attached to said intermediate drive gear; a head plate mounted on the main chassis; a tape head mounted on the head plate; a pinch roller mounted on said main chassis and adapted to bear against said capstan; selector means pivotally mounted on the main chassis to pivot to a first position causing said tape-head mounted on said head plate to retract, retraction of said head plate causing disengagement of said pinch roller from the tape and capstan, thereby causing driving of said tape take-up spindle at increased speed to give fast-forward winding of the tape; the selector means being pivotable to a second position causing retraction of the tape head, disengagement of the pinch roller, and rotating said rotatable plate at the same time into a second position wherein said intermediate driven gear is disengaged from said first gear means to free the tape take-up spindle and wherein said intermediate drive gear is engaged with said second gear to rotate the tape rewind spindle and bring about rewinding of the tape; said sub-chassis being raised and said head and pinch roller being retracted from the cassette for loading and unloading.

4,280,155

METHOD OF IMPROVING AIR FLOW IN COMPACT DISC DRIVE

John C. Scott, Saratoga, and Robert L McClure, Santa Clara, both of Calif., assignors to Memorex Mini Disc Drive Corp., Santa Clara, Calif.

Filed Jun. 4, 1979, Ser. No. 45,363
Int. Cl.³ G11B 23/02, 25/04, 5/82
U.S. Cl. 360—98 **3 Claims**



1. In a compact magnetic recording disc drive having a plurality of rotatingly driven rigid magnetic recording discs each having a diameter of less than nine inches and being coaxial with and space from one another and a plurality of selectively positionable magnetic transducer heads overlying portions of said discs and being suported a predetermined distance from the rotating discs by aerodynamic lift caused by the interaction of the moving air films carried by the flat surface of the rotating discs and the transducer heads said disc drive being supported by a base plate and enclosed by a cover, said cover having a length and a width, one of the dimensions being less than nine inches, the method of improving the air flow over the disc surfaces to stabilize the support of the transducer heads while reducing thermal gradients, comprising

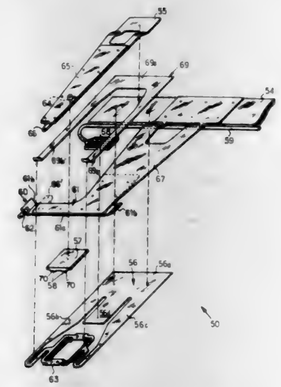
spacing adjacent said recording discs from one another a distance of at least 0.9 inch.

4,280,156

LIGHTLY LOADED RAMP-LAUNCHED READ/WRITE DEVICE FOR A DATA CARRIER

Jean Villette, Ollainville, France, assignor to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme), Paris, France

Filed Mar. 9, 1979, Ser. No. 18,984
Claims priority, application France, Mar. 24, 1978, 78 08616
Int. Cl.³ G11B 5/48, 5/54, 21/02
U.S. Cl. 360—105 **8 Claims**



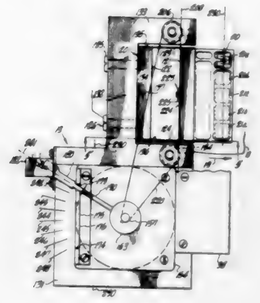
1. A ramp-launched read/write device (**50**) for a data carrier comprising: an arm (**54**), a loading spring (**55**) having one end fixedly connected to the said arm (**54**) and a free end part (**66**), a platform (**57**) incorporating at least one read/write transducer, a carrier means (**56**) for carrying the platform, said carrier means comprising a suspension spring (**56**) having one end (**56***a*) fixedly connected to the said arm (**54**) and a free end (**63**) for locating and supporting the platform (**57**), spring means (**60, 65, 67, 69**) for controlling the position of the platform (**57**) in relation to the data carrier (**51**), said controlling means (**60, 65, 67**) comprising a guide member having a level surface (**61***a*) and at least one ramp surface (**61***b*), and means (**62**) adapted to cooperate with the said guide member (**61**) for moving the platfrom (**57**) between a first, rest position and a second, read/write position close to the data carrier (**51**) to allow the data carrier (**51**) to be read from or written on, said controlling means (**60, 65, 67**) having said guide member (**61**) fixedly but flexibly connected to the said arm (**54**), the said free end part (**66**) of the loading spring contacting the said guide member (**61**) in accordance with the said positions of the platform (**50**) and anti-vibration means comprising a spring (**69**) having one end (**61***a*) fixedly connected to the said arm (**54**) and a free end (**60***b*, **69***c*) resting against the free end (**63**) of the suspension spring (**56**) of said carrier means for minimizing vibration of said platfrom.

4,280,157

ACTUATOR APPARATUS FOR MAGNETIC DISC RECORDING SYSTEMS

Robert W. Herman, Laguna Beach, and William J. Kearns, Costa Mesa, both of Calif., assignors to New World Computer Company, Inc., Costa Mesa, Calif.

Filed Jun. 1, 1979, Ser. No. 44,535
Int. Cl.³ G11B 5/48, 5/60, 21/08
U.S. Cl. 360—106 **19 Claims**



1. An actuator apparatus, having an actuator base plate, for positioning a plurality of magnetic heads transversely across the surface of a rotating disc, comprising:

parallelogram means comprising an inner member affixed to said actuator base plate, and an outer member resiliently affixed to said inner member and parallel thereto;

suspension spring means affixed to said outer member and affixed to said magnetic heads for urging said magnetic heads toward said rotating disc surface; and

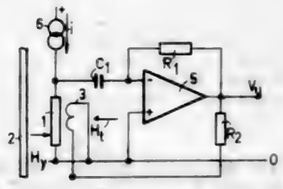
actuator means coupled to said outer member for positioning said outer member, said suspension spring means, and said magnetic heads with respect to said inner member transversely across said rotating disc surface.

4,280,158

MAGNETORESISTIVE READING HEAD

Edmond de Niet, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 6, 1979, Ser. No. 45,908
Claims priority, application Netherlands, Jun. 19, 1978, 7806568
Int. Cl.³ G11B 5/02, 5/12, 5/30
U.S. Cl. 360—113 **6 Claims**



1. A magnetic reading head for detecting information representing magnetic fields which comprises:

an electromagnetic transducer of the magneto-resistive type having at least one operating range which is substantially linear;

means for producing a varying magnetic field which counteracts the field sensed by said transducer to maintain said transducer in said one operating range;

said transducer being a substantially flat, magneto-resistive

element of metallic ferromagnetic material having an easy axis of magnetization in the plane of said element, said element being provided on two oppositely located ends with contacts for the connection to an associated source providing a measuring current and to an associated reading amplifier; and

said means for producing comprising a turn of an electrically conductive material which is provided in a negative feedback loop of the reading amplifier, said turn being arranged relative to the magneto-resistive element in such a manner, that, when a current passes through it, it generates a negative feedback field which causes a magnetic flux in the element which is directed oppositely to the magnetic flux caused in said element by a detected magnetic field.

4,280,159

METHOD OF AND APPARATUS FOR INDICATING LENGTH AND REMAINING RECORDING CAPACITY OF A RE ORDING TAPE

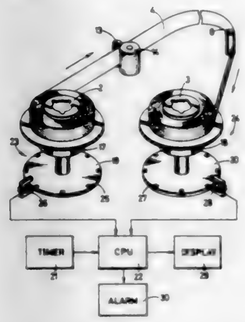
Masayuki Nakayama, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 30, 1979, Ser. No. 34,768

Claims priority, application Japan, May 8, 1978, 53-54251

Int. Cl.³ G11B *15/00, 27/00*

U.S. Cl. 360—137 **22 Claims**



1. In apparatus for recording and/or reproducing information on recording tape transported between supply and take-up reels, the combination comprising tape drive means for driving said tape from one to the other of said reels at a predetermined speed; sensing means for sensing the rotational periods of said supply and take-up reels while said tape is driven at said predetermined speed, the rotational period of said supply reel being represented as T_1 and the rotational period of said take-up reel being represented as T_K means for determining the overall length of said recording tape as a function of said sensed rotational periods; means for storing particular identifying characteristics associated with tapes of different lengths; and means for indicating selected ones of said stored characteristics in accordance with said sensed rotational periods.

4,280,160

ARC DISCHARGE PREVENTING CIRCUIT OF TRANSFER SWITCH FOR USE WITH INDUCTIVE LOADS

Toshihiro Mori, Sagamihara, Japan, assignor to JECO Co. Ltd., Kawasaki, Japan

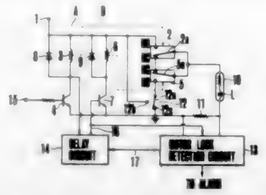
Filed Apr. 2, 1979, Ser. No. 25,810

Claims priority, application Japan, Mar. 31, 1978, 53-42511[U]

Int. Cl.³ H02P *1/04*

U.S. Cl. 361—3 **5 Claims**

1. An arc discharge preventing circuit of a transfer switch for use with an inductive load comprising a first contact drive circuit for operating a first transfer switch in response to a drive signal for driving said inductive load, means for detecting a predetermined time after initiation of said drive signal an excessively large current flowing through said inductive load to produce an output signal, a delay circuit responsive to said output signal of said detecting means for producing an output a predetermined time after termination of said drive signal, said delay circuit producing its output substantially in response to



the termination of said drive signal in the absence of said output signal of said detecting means, and a second contact drive circuit responsive to the output of said delay circuit for operating a second transfer switch to continue energization of said inductive load for a predetermined interval, said first and second transfer switches being connected in parallel between said inductive load and a source of supply, and normally closed contacts of said first and second transfer switches being interconnected.

4,280,161

OVER-VOLTAGE PROTECTED, SELF-CONTAINED MOBILE ELECTRICAL NETWORK SYSTEM, PARTICULARLY FOR AUTOMOTIVE APPLICATIONS

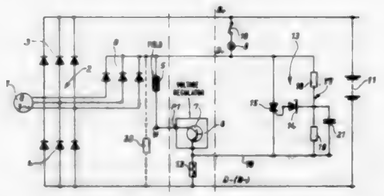
Edgar Kuhn, Gerlingen; Walter Kohl, Bietigheim, and Günter Schramm, Vaihingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 26, 1979, Ser. No. 6,922

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1978, 2811440

Int. Cl.³ H02H *3/20*

U.S. Cl. 361—18 **4 Claims**



1. Overload protected, self-contained mobile electrical network system having

two d-c terminals;

an electrical generator (G) having its output connected to the d-c terminals and further having a field winding;

a storage battery (**11**) connected to the d-c terminals of the network and to the output of the generator to store electrical energy therein;

a voltage regulator (**6**) connected to sense the output voltage of the generator and intermittently controlling current flow through the field winding (**5**) thereof;

and an over-voltage control circuit to prevent damage to the battery connected to the generator and to continuously and positively interrupt current flow to the field winding of the generator upon short circuit within the voltage regulator including

a fuse (**12**) connected in series with the field winding (**5**) of the generator and to one(−) terminal of the network;

and means providing a control current to said fuse independently of said voltage regulator under over-voltage conditions of said network,

comprising

a thyristor (**15**) having one terminal of its main current carrying path connected to the other d-c terminal (+) of the network;

a branch circuit (**16**) from the other terminal of the main current carrying path of the thyristor to the fuse (**12**) at a point remote from said one d-c terminal (−);

a Zener diode providing a reference voltage, connected to and controlling application of a trigger voltage to the gate terminal of the thyristor to cause the thyristor to become conductive when the output voltage from the generator has a prohibited excess relationship with respect to said reference voltage, whereby conduction of said thyristor will apply short circuit current directly from said other d-c terminal (+) of the network through the branch circuit (**16**) to the fuse and to the one d-c terminal (−) of the network to cause the fuse to burn out under loading by said short circuit current and thereby interrupt current flow to the field winding (**5**) regardless of the conduction condition of the voltage regulator.

4,280,162

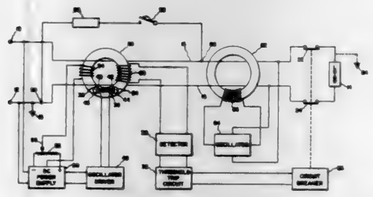
GROUND FAULT CIRCUIT INTERRUPTER

David M. Tanka, Lake Katrine, and Thomas G. Reynolds, Woodstock, both of N.Y., assignors to North American Philips Corporation, New York, N.Y.

Filed Aug. 4, 1977, Ser. No. 821,710

Int. Cl.³ H02H *3/28*

U.S. Cl. 361—45 **11 Claims**



1. A current sensing apparatus comprising a magnetically controlled ferromagnetic core adapted to be magnetically coupled to an electric conductor in which the current to be sensed flows and providing a magnetic circuit for the flow of a circulating flux determined by said current, control winding means magnetically coupled to said core for applying a periodic magnetic flux to at least a part of said core magnetic circuit, means for supplying a periodic current to said control winding means of a magnitude to induce a magnetic flux in said part of the core magnetic circuit so as to produce substantial changes in the core permeability sufficient to substantially alter the magnitude of said circulating flux when it is present in the core magnetic circuit, an output winding magnetically coupled to said core for deriving an output signal voltage determined by the rate of change of the altered circulating flux, means coupled to said core for establishing a DC bias flux therein of a magnitude to bias the core onto a linear segment of its B-H characteristic curve, and signal processing means coupled to said output winding for processing said output signal.

4,280,163

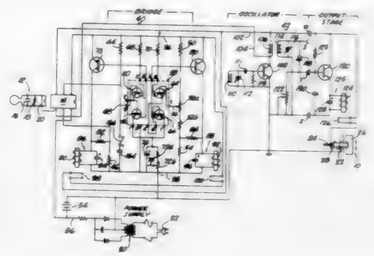
ELECTRONIC LOCK

William E. Osborne, Whittier, Calif., assignor to Homexx International Corp., Anaheim, Calif.

Filed Mar. 5, 1979, Ser. No. 17,244

Int. Cl.³ E05B *49/00*

U.S. Cl. 361—172 **9 Claims**



1. Electronic lock mechanism, comprising:

electrically operable bolt means having an energizing circuit;

a resistance bridge network having an input circuit and output circuit;

key means for controlling the activation of said bolt means, said key means in use being operative to connect the input circuit of said bridge with a voltage source and insert a resistor component into said bridge network of a value to balance the bridge; and

control means including switching means connected with the output circuit of said bridge network and being operative in a balanced bridge mode to connect the energizing circuit of said bolt means with said voltage source, said switching means comprising:

a pair of relays having their contacts connected in series and requiring simultaneous closure for the energization of said bolt; and

a pair of regenerative differentially connected electronic switch means having input connections respectively with the output junctures of said bridge network, and outputs respectively connected with said relays, and being operative to selectively activate the relays according to the direction of unbalance of said bridge, and to activate both of the relays in response to a balanced operative mode of said bridge.

4,280,164

FAIL-SAFE RELAY SYSTEM

Edward P. Kozek, Southbury, Conn., assignor to IMS Ltd., Quebec, Canada

Filed Jul. 24, 1979, Ser. No. 60,228

Int. Cl.³ H01H *47/32*

U.S. Cl. 361—179 **8 Claims**

1. A fail-safe relay system for controlling the de-energization and permissible energization of an interconnected device in response to a signal having at least two states representing the same, comprising:

(A) a first and second relay, each relay having a relay coil and a pair of relay contacts, the relay contact pairs serially connected to each other, connectable to a source of power at one end, and interconnectable to the device at the other end so as to de-energize the device if either or both pairs of relay contacts are open and to permit energization of the device if both pairs of relay contacts are closed;

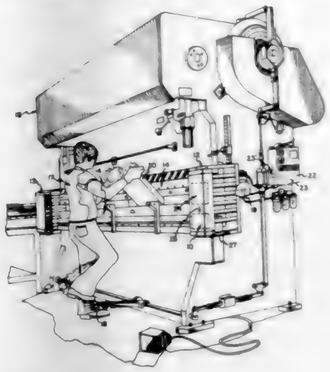
(B) means for sensing the open and closed state of each pair of relay contacts;

(C) first and second thyristors, each interconnected with one of the relay coils so as to control energization and de-energization of the interconnected relay coil;

(D) means for receiving the signal representing a desired

de-energization or permissible energization of the interconnected device;

(E) electronic initialization circuitry connected to the signal receiving means and the relay contacts state sensing means so as to energize the first and second thyristors if, and only



if, the signal is in a first state and the relay contact sensing signals both indicate that the relay contacts are in the open state; and

(F) means for maintaining energization of the thyristors once they have been energized by the initialization circuitry so long as the received signal continues to be in the first state.

4,280,165

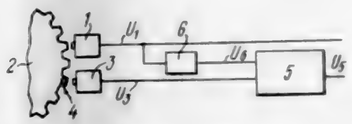
DEVICE FOR MEASURING ANGULAR POSITION OF A GEAR IN A DIGITAL IGNITION SYSTEM OF AN INTERNAL COMBUSTION ENGINE

Boris S. Pospelov, ulitsa Baaykina, 6, kv. 116; Alexandr F. Besdersky, Moskovsky prospekt, 33, kv. 265, both of Tolyatti Kuibyshevskoi oblasti; Jury A. Kolesov, ulitsa Gilyarovskogo, 54, kv. 3, Moscow; Yakov N. Nefediev, Sirenevy bulvar, 12, kv. 22, Moscow; Mikhail I. Levkovich, ulitsa 1812 goda, 8, kv. 56, Moscow, and Eduard N. Asinovsky, ulitsa Koptevskaya, 89, kv. 24, Moscow, all of U.S.S.R.

Filed Apr. 24, 1979, Ser. No. 32,906

Int. Cl.³ H01H *47/00*

U.S. Cl. 361—236 **1 Claim**



1. A device for measuring angular position of a gear in a digital ignition system of an internal combustion engine, comprising: an origin sensor responsive to the passage by of a pre-set tooth of the gear; a pulse former having a first input connected to said origin sensor; a rectifier and filter circuit having an output connected to a second input of said pulse former; an angle pulse sensor having an output coupled to the input of said rectifier and filter circuit.

4,280,166

OVER-VOLTAGE PROTECTED SOLID-STATE IGNITION SYSTEM

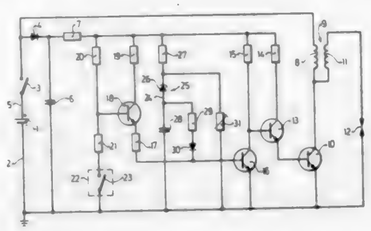
Erich Jesse, Marbach, and Reinhard Leussink, Vaihingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 9, 1978, Ser. No. 929,939

Claims priority, application Fed. Rep. of Germany, Aug. 11, 1977, 2736178

Int. Cl.³ F02P *15/00*

U.S. Cl. 361—253 **3 Claims**



1. Over-voltage protected ignition system for an internal combustion engine, for connection to a source of power (**1**) and to a source of ignition signals (**20–23**) having

an ignition coil (**9**);

a power transistor (**10**) serially connected to the source of power and the ignition coil;

and a control circuit including a control transistor (**16**) which, in turn, controls the switching state of the power transistor, the control circuit being connected to cause the control transistor to be in conductive state when the power transistor is blocked, and vice-versa,

and a base circuit (**17–19**) connected to said control transistor (**16**) and controlled by said source of ignition signals;

and comprising

a power source over-voltage monitoring circuit (**24**) sensing when the voltage of the source reaches a value which would cause excessive current flow through the power transistor (**10**) and connected to the control transistor (**16**) to apply a voltage to the control transistor which causes the control transistor to assume non-conductive state, including

a breakdown circuit element (**25**) abruptly changing its state of current conduction upon occurrence of a threshold voltage condition, the breakdown element (**25**) being serially connected to the base-emitter path of the control transistor (**16**) and providing an over-voltage conduction signal thereto;

a dropping protective resistor (**7**) having one terminal connected to the power source;

a parallel circuit network formed by the control circuit for the power transistor (**10**) and the over-voltage monitoring circuit (**24**) one end point of the parallel circuit network being connected to the control electrode of the power transistor (**13**), the other end point of the parallel circuit network being connected to the terminal of said dropping protective resistor (**7**) remote from the power source, so that the dropping protector resistor will form a common dropping resistor for the branches of said parallel circuit network;

and a capacitor (**28**) which provides, upon occurrence of an over-voltage condition, for gradual application of the over-voltage signal to the control transistor to control said control transistor (**16**) to become conductive gradually, thus causing disconnection of the power transistor (**10**) and inhibiting generation of a spurious ignition event and spurious response upon presence of noise pulses, while providing for reliably decreased reduction of the power transistor upon excessive over-voltage of the source.

4,280,167

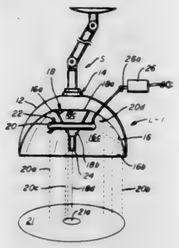
OPERATING ROOM SURGICAL LAMP

Edwin W. Ellett, 1000 Holik Dr., College Station, Tex. 77840

Filed Sep. 13, 1979, Ser. No. 75,092

Int. Cl.³ A61G *13/00*

U.S. Cl. 362—33 **11 Claims**



1. An improved operating room surgical lamp comprising:

a lamp housing having a mounting means thereon adaptable to be mounted with a suitable support;

said lamp housing having an interior concave reflective surface, said lamp housing having a first closed end and a second open end, said concave reflective surface positioned to reflect light out said second open end to illuminate a desired area;

a central reflective means mounted within said lamp housing at said closed end, said central reflective means having a reflective surface thereon to reflect light to a central position in the light field; and

a tubular light source mounted within said lamp housing about said central reflective means for emitting light rays outwardly to reflect off of said interior concave reflective surface of said housing and for emitting light rays inwardly to reflect off of said central reflective means to illuminate a work area.

4,280,168

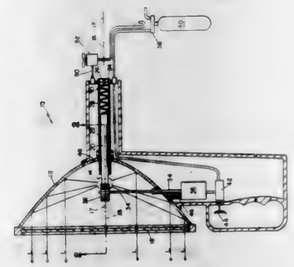
FLASHLIGHT AND SIGNALLING APPARATUS

Bronson Potter, R.F.D. #1, Mason, N.H. 03048

Filed Oct. 22, 1979, Ser. No. 87,023

Int. Cl.³ F21V *21/30*

U.S. Cl. 362—35 **18 Claims**



1. A flashlight comprising a reflector having a reflection zone and constructed to beam light from said zone to a region to be illuminated and an abrasive member and pyrophoric member, said abrasive member and pyrophoric member mounted for predetermined relative movement against each other to produce and project a stream of self-igniting particles of pyrophoric material abraded from said pyrophoric member, the direction of said relative projecting movement aligned with said reflection zone of said reflector, and the point of contact between said abrasive member and pyrophoric member positioned to present said stream of particles while burning to said reflection zone and means for producing said relative movement between said abrasive member and pyrophoric member.

4,280,169

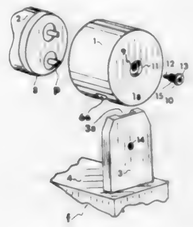
FLUORESCENT LAMP END CAP

Carl J. Allen, 16272 Glynn Rd., East Cleveland, Ohio 44112

Filed Jul. 25, 1979, Ser. No. 60,367

Int. Cl.³ F21S *3/00*

U.S. Cl. 362—217 **8 Claims**



1. An end cap for use with a fluorescent lamp fixture having spaced lampholder means between which a fluorescent lamp is suspended, said end cap comprising a body having a first cavity formed therein and opening to one end of said body, a second cavity formed in said body and connecting with said first cavity, said second cavity exiting to the exterior of said end cap and adapted to permit one of said lampholder means to be inserted therethrough and into said second cavity, each end of said lamp being inserted through said one end and into the first cavity of an end cap disposed over one of said lampholder means and releasably engageable therewith to secure said lamp end, lampholder means and end cap together.

4,280,170

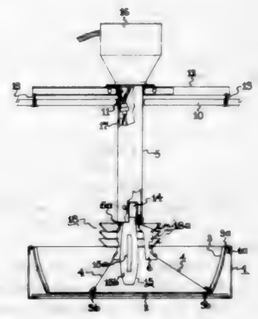
LUMINAIRE

Samuel L. Baldwin, East Flat Rock, N.C., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 26, 1979, Ser. No. 78,964

Int. Cl.³ F21S *3/00*

U.S. Cl. 362—224 **11 Claims**



1. A luminaire adapted to be suspended from a ceiling or the like for semi-indirect illumination of a work area below the ceiling comprising, in combination, an elongated support member adapted to be secured at its upper end to the ceiling, a housing suspended from said support member and arranged

below the lower end thereof, said housing having a side wall defining an open top and having a bottom comprising semi-transparent lens means, elongated lamp means removably attached to the lower end of said support member and extending with its lower portion into said housing, said housing having reflector means within its side wall extending around the lower portion of said lamp means, said reflector means reflecting direct light rays from said lamp means upwardly and outwardly from said housing toward the ceiling principally in paths between said lamp means and said side walls, said semi-transparent lens means reflecting upwardly toward the ceiling a portion of the direct light rays incident thereon and transmitting downwardly therethrough substantially the remainder of said incident light rays, said reflector means comprising an annular opaque reflector arranged closely adjacent and substantially co-extensive with said housing side wall.

4,280,171

DECORATIVE SPECULAR ILLUMINATOR

Thomas N. Huang, 6, Lin 1, Fu-Hsing Li, Ta Sih Town, Tao-Yuan County, Taiwan, Taiwan

Filed Oct. 1, 1979, Ser. No. 80,576
Int. Cl.³ F21V *1/00*
U.S. Cl. 362—240 **4 Claims**



1. A decorative illuminator comprising:
(a) at least a pair of panes capable of passing visible light, said panes having a layer of light-filtering resin disposed thereon, said layer partially reflecting light impinging both the side of the layer adjacent the pane and the side away from the pane;
(b) means for disposing said panes essentially parallel to each other; and
(c) means for disposing a plurality of bulbs between said panes, whereby light from the bulbs will project outwardly to form an image of numerous bulbs on the outer surface of the panes due to multiple reflections occurring among the panes.

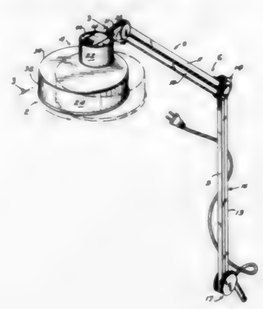
4,280,172

LAMP

Jens C. Krogsrud, Ekelyveien 10, Oslo 3, Norway

Filed Oct. 31, 1979, Ser. No. 89,909
Int. Cl.³ F21V *21/26*
U.S. Cl. 362—269 **10 Claims**

1. In a lamp construction, the combination of, an enclosure having a circular bottom opening with an annular ledge means surrounding said opening, support means positioned within said opening and having a portion overhanging said ledge and providing an opening concentric with the first-named opening and of lesser diameter, a shade having its top wall extending along the bottom of said support means and having an opening concentric with and of substantially the diameter of the second named opening, anti-friction means positioned between said flange and above the adjacent top surface of said lamp shade, and means attaching said lamp shade to said support means



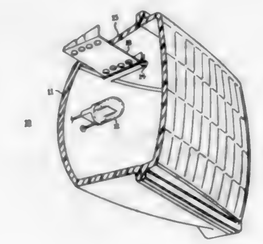
within the zone between the first-named and second-named of said openings.

4,280,173

HEAT SHIELD FOR PLASTIC HEADLAMP

Irving Bradley, Novelty, and Vincent Vodicka, South Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 19, 1978, Ser. No. 916,490
Int. Cl.³ F21V *7/20*
U.S. Cl. 362—294 **6 Claims**



1. A headlamp comprising, in combination, a plastic housing having a curved rear reflective wall having an optical focus, said housing having top, bottom and side walls intersecting said rear wall, a lamp arranged substantially at said optical focus, said top wall being substantially planar and having laterally spaced substantially parallel rails depending therefrom, and a heat shield comprising a substantially planar heat reflecting member held by said rails generally parallel to and spaced from said top wall and directly above said lamp for shielding said top wall from the heat produced by said lamp.

4,280,174

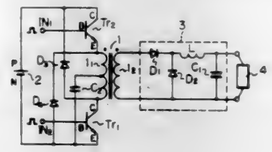
DC-DC CONVERTER

Eijiro Sonda, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Jan. 17, 1980, Ser. No. 112,752
Claims priority, application Japan, Feb. 1, 1979, 54-10802; Feb. 1, 1979, 54-12123[U]; Feb. 1, 1979, 54-12124[U]
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—24 **6 Claims**

1. A DC-DC converter for converting a primary DC voltage to a secondary DC voltage comprising a transformer with a primary winding and a secondary winding each would on a ferromagnetic core, a primary DC voltage power source, switching transistors connected between said DC voltage

power source and the ends of the primary winding of said transformer, means for controlling the status of said transistors so that the current in the primary winding from the DC voltage power source is switched, a rectify/smoothing circuit



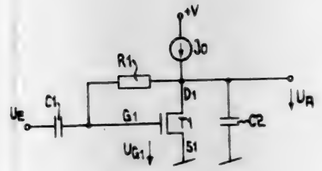
connected between the output of the secondary winding of the transformer and a load, and said primary winding of the transformer having a center tap which is connected to a fixed predetermined potential through a capacitor.

4,280,175

ALTERNATING TO DIRECT VOLTAGE CONVERTER

Oskar Leuthold, Marin, Switzerland, assignor to Ebauches Electroniques SA, Marin, Switzerland

Filed Jun. 24, 1980, Ser. No. 162,464
Claims priority, application Switzerland, Jul. 13, 1979, 6543/79
Int. Cl.³ H02M *7/217*
U.S. Cl. 363—127 **10 Claims**



1. Alternating to direct voltage converter in form of an integrated circuit comprising on a same substrate at least a first field effect transistor with insulated gate, a current limiting means feeding said first transistor and a first coupling capacitor connected to the input of said first transistor for controlling said first transistor by said alternating voltage, further comprising a second field effect transistor with insulated gate connected between the input and the output of the first transistor, a second capacitor connected to the output of the first transistor for short-circuiting said output for the alternating voltage signals, said first transistor producing on said output a direct voltage function of the amplitude of said alternating voltage.

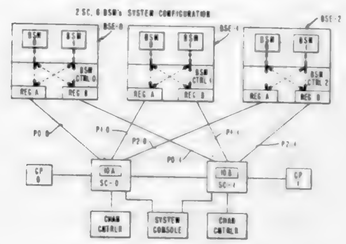
4,280,176

MEMORY CONFIGURATION, ADDRESS INTERLEAVING, RELOCATION AND ACCESS CONTROL SYSTEM

Kwang G. Tan, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,466
Int. Cl.³ G06F *9/26*
U.S. Cl. 364—200 **16 Claims**

1. A storage control for configuring and accessing a main storage in a data processing system, comprising:
a plurality of basic storage modules (BSMs) in the main storage selectable by the storage control,
BSM control means connected to the BSMs for storing an operational main storage configuration, comprising a plurality of entry registers in the BSM control means, each entry register being associated with a range of absolute addresses to be accessed in main storage, each entry register being settable to the address of any BSM selectable by the storage control,
means for loading values into the entry registers in the BSM control means,
an input register for receiving an access command for accessing an addressable unit of data in main storage, the access command containing an absolute address and command bits,
entry addressing means for selecting one of the entry registers in the BSM control means, means connecting a first



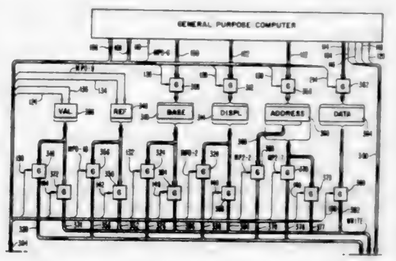
set of bit positions of the input register to the entry addressing means, wherein at least one bit position in the first set of bit positions addresses the absolute address boundaries which are spaced by an amount equal to the size of a BSM,
and means for selecting a BSM by receiving the BSM address in a selected entry register for activating a signal to the addressed BSM,
whereby a set of values loaded into the entry registers assigns absolute addresses to the different parts of the plural BSMs to obtain a main storage configuration.

4,280,177

IMPLICIT ADDRESS STRUCTURE AND METHOD FOR ACCESSING AN ASSOCIATIVE MEMORY DEVICE

Herbert Schorr, Briarcliff Manor, and Irving Waldawsky-Berger, New York, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,658
Int. Cl.³ G06F *13/00*
U.S. Cl. 364—200 **5 Claims**



1. In a general purpose computer system of the type including a general purpose computer having a storage cache containing data and base and displacement registers wherein said general purpose computer and said base and displacement registers generate data accessing instructions including base and displacement information for accessing data from said storage cache of said general purpose computer,
a structure for accessing data from an associative memory containing a plurality of implicit registers and using said

base and displacement information generated by said general purpose computer and said base and displacement registers to access said data from said associative memory comprising:

an associative memory including a plurality of associative memory implicit registers with read-in, read-out control circuits, each of said implicit registers containing data the same as data contained in said storage cache of said general purpose computer and identified by a different address word composed of a combination of a base and displacement word, means connected to said general purpose computer, said base and displacement registers and said associative memory and responsive to a data accessing instruction generated by said general purpose computer and said base and displacement registers for providing said base and displacement words obtained from said data accessing instruction and a command signal to said plurality of associative memory implicit registers, means included in said associative memory and responsive to said command signal for comparing said base and displacement words with said address words of each of said implicit registers and, upon occurrence of a compare in one of said implicit registers, producing a "data valid" signal,

means for transferring said "data valid" signal and the data contained in said implicit register on which said compare occurred, back to said general purpose computer,

wherein said general purpose computer further commences to generate an address for obtaining data from said storage cache of said general purpose computer at the same time said data accessing instructions are generated,

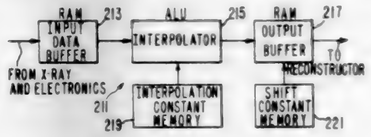
and wherein said "data valid" signal is transferred to said general purpose computer with said data and functions to abort said storage cache address generation of said general purpose computer.

4,280,178

COMPUTERIZED TOMOGRAPHIC RECONSTRUCTION METHOD UTILIZING REFLECTION

Menahem Nassi, and James P. Stonestrom, both of Palo Alto, Calif., assignors to General Electric Company, Milwaukee, Wis.

Filed Aug. 24, 1979, Ser. No. 69,943
Int. Cl.³ G06F *15/42*; G01N *21/00*
U.S. Cl. 364—414 **8 Claims**



1. In the method for constructing a two-dimensional representation of an object slice lying in a quasi-plane by positioning a radiation source for providing radiation in the form of a fan beam so that at least some of said radiation passes through said object; positioning detector means including an array of side by side detector elements opposite said source and aligned therewith and lying in said quasi-plane for detecting radiation in said quasi-plane not absorbed or scattered by said object; effecting relative rotation between said object and said source-detector combination about an axis of rotation such that said source and detector means remain in said quasi plane;

effecting measuring from said source at a plurality of angular positions during said rotation to obtain a multiplicity of measured data readings from said detector elements at each said projection;

and reconstructing a two-dimensional representation of the object by convolving, scaling and back projecting said data without reordering said fan beam into a different set of rays; the improvement comprising:

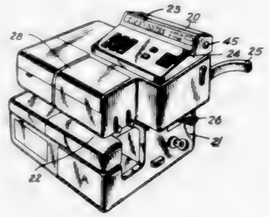
generating estimated detector data at desired projection angles which are additional to the projection angles at which said detector data is measured, by geometrically reflecting said measured detector data obtained during said projections; and performing said reconstruction step utilizing both said measured and said estimated detector data.

4,280,179

POSTAGE METER HAVING INTERACTIVE ARITHMETIC OPERATION CAPABILITY

Howell A. Jones, Jr., Fairfield, and Robert B. McFiggans, Stamford, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,424
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—464 **13 Claims**



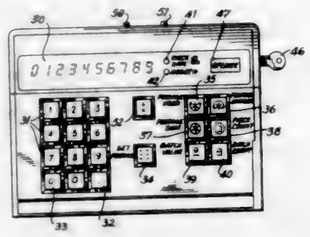
1. In a postal meter having a secure housing incorporating therein a settable printing mechanism, an electronic accounting system including an electronic register for storing a value related to postage printed by said meter, and wherein said meter has an external numeric display and a keyboard having keys for introducing signals for the setting of said printing mechanism and keys for displaying other values, said keyboard further having an arithmetic function key and a setting key for initiating the setting of said printing mechanism, said arithmetic key initiating arithmetic modification in said display and not in said printing mechanism; the improvement wherein means are provided in said housing and responsive to operation of said setting key for enabling the completion of arithmetic modification of said display and the setting of said printing mechanism in accordance therewith.

4,280,180

ELECTRONIC POSTAGE METER HAVING FIELD RESETTABLE CONTROL VALUES

Alton B. Eckert, Norwalk; Edward C. Duwel, Trumbull, both of Conn., and John H. Soderberg, Monroe, N.Y., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Oct. 30, 1979, Ser. No. 89,425
Int. Cl.³ G06F *3/02, 15/20*
U.S. Cl. 364—464 **15 Claims**



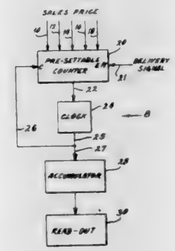
1. Postal meter having a plurality of defined states, including a first state defining meter operation and a second state defining range resettability, said meter comprising a settable printing means, computing means coupled to control the operation of said printing means and including means for storing data corresponding to a preselected postal value range, a keyboard coupled to said computing means for setting said printing means to desired values of postage to be printed, said computing means being responsive to postage values entered into said keyboard that are defined by said postal value range to control said postal meter within said postal value range, field servicing means operatively coupled to said postal meter to switch said meter from said first state to said second state, and means responsive to said second meter state and to a postage value subsequently entered in said keyboard for altering the limits of said postal value range.

4,280,181

CASH ACCOUNTABILITY CONTROL CIRCUIT FOR VENDING AND LIKE MACHINES

Joseph L. Levasseur, Chesterfield, Mo., assignor to H. R. Electronics Company, St. Louis, Mo.

Continuation of Ser. No. 688,384, May 20, 1976, abandoned. This application Nov. 15, 1979, Ser. No. 94,576
Int. Cl.³ G06F *15/21, 7/50*
U.S. Cl. 364—464 **6 Claims**



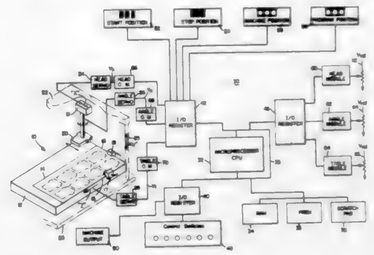
1. Means to keep a running total of sales from a vending or like machine, which machine includes means to produce signal responses to represent the value of each article that is vended and other means to produce signals to cause vend operations to take place comprising a control circuit including first entry means having first and second input means, said first input means connected to receive signal responses representing the value of each article that is vended, said second input means connected to receive vend signals, said first entry means including means responsive to a vend signal to enter therein an amount to represent the price of such vend and other means responsive to the entry of an amount into said first entry means to produce an output therefrom, a clock responsive to said first entry means output to produce periodic pulses, said clock continuing to produce output pulses regardless of the status of said second input of said first entry means so long as the price amount entered into said first entry means exceeds the number of periodic pulses produced by said clock, accumulator means operatively connected to receive such periodic pulses, said accumulator means responsive to receipt of such periodic pulses to effect an increase in the amount stored therein, means to feed back the periodic pulses from the clock to said first entry means, said periodic pulses being entered in said first entry means in a way to combine with the signals entered therein from the vending machine until the first entry means has a predetermined entry therein, and means in said first entry means responsive to the occurrence of said predetermined entry condition therein to prevent the further production of said output therefrom.

4,280,182

MICROCOMPUTER CONTROL SYSTEM

John Mickowski, 129 Main St., Franklin, N.J. 07416

Filed May 14, 1979, Ser. No. 38,387
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—475 **6 Claims**



1. A microcomputer control system for operating a die press stamping machine including a cutting die mounted in a head assembly over a movable table upon which is located stock material to be die cut by said cutting die following a predetermined cutting program selected from a multiple number of cutting programs each defined by a sequence of programmed machine positions with each position represented by a head, angle and table coordinate respectively, servo drive feedback means for adjusting the relative position between said head assembly and table along transverse axes and for rotating said cutting die in response to command signals generated from said control system in correspondence with each programmed machine position and means for reciprocating said cutting die; said microcomputer control system comprising:

non-volatile random access data storage memory means;

adjustable program position display means for identifying each address location in said memory means;

means for manually presetting the head, angle and table coordinates for each machine position and for converting said preset coordinates into digital data;

means for transferring the digital data for each preset machine position into consecutive address locations in said memory means in a direct correspondence with consecutive settings of said adjustable program position display means such that said data storage memory means contains a multiplicity of programmed machine positions in a consecutive sequence with a first given number of machine positions representing a first cutting program and a second given number of machine positions a second cutting program, etc., thereby forming said multiple number of cutting programs;

means for selecting a predetermined cutting program from said multiple number of cutting programs;

means responsive to the selected program for generating command signals for each machine position within such selected program; and

manual input adjustable means for modifying the magnitude of each generated command signal for each of said head, angle and table coordinates respectively so as to accommodate for any variations in any of such coordinates.

4,280,183

GAS ANALYZER

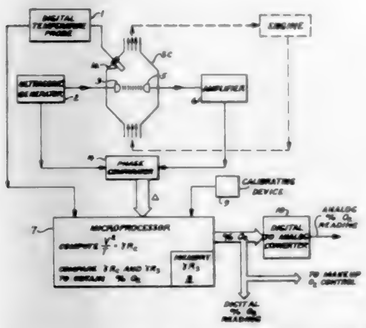
Giunio G. Santi, Milan, Italy, assignor to S.S.O.S. Sub Sea Oil Services S.p.A., Milan, Italy

Filed Jul. 30, 1979, Ser. No. 62,066
Claims priority, application Italy, Aug. 4, 1978, 26473 A/78; Feb. 9, 1979, 20059 A/79
Int. Cl.³ G01N *29/02*
U.S. Cl. 364—497 **7 Claims**

1. A gas analyzer, particularly useful in connection with the supply of fuel to an engine of a submarine, which engine has a

fuel supply conduit through which flows an atmosphere comprising primarily oxygen gas and carbon dioxide gas, with or without satured steam, said analyzer immediately providing a signal indicative of the percent of that atmosphere made up by one of said gases, said analyzer comprising:

temperature test means, including a sensor in said conduit, for providing a signal T indicative of the temperature of said atmosphere;



sound velocity test means, having a portion thereof in said conduit, for providing a signal V indicative of the sound transmission velocity in said atmosphere; and

means connected to said test means to receive said signals therefrom, to calculate the value of the ratio V^2/T and to produce therefrom a signal indicative of the percentage of said one gas in said atmosphere.

4,280,184

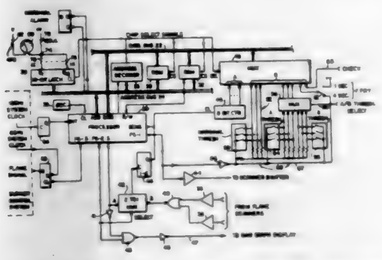
BURNER FLAME DETECTION

Nathan K. Weiner, Stoughton; Peter J. Weyman, Boston, and David D. Ketchum, Ipswich, all of Mass., assignors to Electronic Corporation of America, Cambridge, Mass.

Filed Jun. 26, 1979, Ser. No. 52,113

Int. Cl.³ G06F *15/20*; G08B *17/12*

U.S. Cl. 364—506 **37 Claims**



1. A method for providing a signal representative of the quality of a flame in a burner system of the type including a burner for producing a flame and a flame sensor responsive to the burner flame for providing signal pulses representative of the flame, the method comprising the steps of:

defining a series of successively-occurring time intervals;

counting the number of pulses produced by the flame sensor during each interval;

storing the number of pulses produced during each of a selected number of preceding intervals, the duration of said selected number of intervals defining a first period of time;

periodically determining the number of pulses produced during the preceding first period of time to define a total number equal to said number of pulses produced during the preceding first period of time;

comparing said total number with a threshold value to determine when said total number is below the threshold value and providing a signal representative thereof.

4,280,185

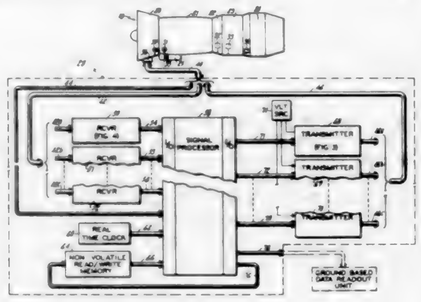
ENGINE MODULE LIFE TRACKING SYSTEM

Anthony N. Martin, Simsbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Aug. 6, 1979, Ser. No. 64,226

Int. Cl.³ G01M *15/00*

U.S. Cl. 364—506 **9 Claims**



1. A life tracking system (LTS) for automatically identifying and recording the instant configuration of a gas turbine engine by engine module type and serial number, comprising:

plurality of engine module identifier units, each disposed on an associated engine module, and each providing identification signal information definitive of the associated module type and serial number in response to interrogation signals presented thereto; and

a life tracking unit (LTU), including electronic signal processing means having memory means for storing signals, and including transmitting means and receiving means each connected for response to said processing means and to each of said module identifier units, said transmitting means providing the interrogation signals to each of said module identifier units, each provided in response to a related identifier unit command signal presented to said transmitting means from said processing means, said receiving means being responsive to said identification signal information from each module for providing a processor compatible signal manifestation of each to said processing means, said processing means storing each signal manifestation in said memory means at a location therein associated with the particular identifier unit providing the signal information corresponding to said signal manifestation.

4,280,186

EXPOSURE APPARATUS USING ELECTRON BEAMS

Yutaka Hidai, Kodaira, and Nobuo Okuda, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 29, 1979, Ser. No. 53,215

Claims priority, application Japan, Jul. 7, 1978, 53-82095; Jul. 7, 1978, 53-82096; Nov. 27, 1978, 53-145312

Int. Cl.³ G06F *3/14*

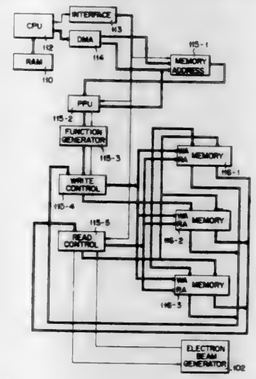
U.S. Cl. 364—518 **10 Claims**

1. An exposure apparatus using an electron beam comprising:

first memory means for storing pattern parameters which are used to represent various basic patterns;

data processing means for reading out from said first memory means the pattern parameters which represent the basic patterns necessary for forming a pattern to be drawn;

dot pattern data generating means for receiving the pattern parameters read out through said data processing means to generate dot pattern data which correspond to the received pattern parameters, and including a bit pattern generating circuit for generating bit pattern data which correspond to a plurality of parallel lines passing a basic pattern, each bit pattern data containing line segment data representing that line segment of the corresponding parallel line which meets the sides of the basic pattern, a plurality of second memory means, a write control circuit for



sequentially writing into said plurality of second memory means the bit pattern data delivered from said bit pattern generating circuit, whereby each of said plurality of second memory means stores the pattern data required for forming a pattern in a different unit pattern area, and a read control circuit for reading the bit pattern data one after another from said plurality of second memory means; and

electron beam generating means for generating an electron beam according to the bit pattern data sequentially delivered from said plurality of second memory means to achieve a raster scanning on a predetermined region, using the electron beam.

4,280,187

METHOD AND APPARATUS FOR PINPOINTING THE CAUSES OF MALFUNCTION OF MACHINES FOR THE MANUFACTURE AND/OR PROCESSING OF CIGARETTES OR THE LIKE

Joachim Reuland, Neu Börnsen, and Rolf Dahlgrün, Schwarzenbek, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

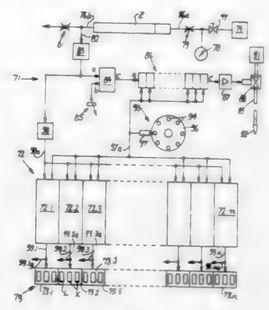
Filed Sep. 24, 1979, Ser. No. 78,073

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842461

Int. Cl.³ G01D *5/56*

U.S. Cl. 364—552 **17 Claims**

1. A method of ascertaining those components, particularly conveyors, of a plurality of components of one or more machines for the production and/or processing of smokers' products which cause the production of defective products, comprising the steps of testing the products including generating test signals which are indicative of the condition of the respective products and include, at least at times, constituents which are characteristic of the influence of various components of the respective machine or machines upon the condition of tested products; evaluating said test signals to ascertain the presence or absence of said constituents; and utilizing the results of said evaluating step to automatically pinpoint those components which have caused the presence of corresponding constituents



in or the absence of corresponding constituents from the evaluated test signals.

4,280,188

SURVIVABLE REDUNDANT VECTOR SENSORS FOR SYSTEMS WITH DIFFERING MAXIMUM OUTPUT REQUIREMENTS

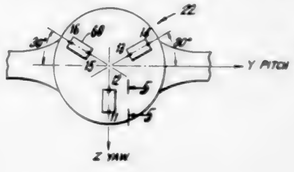
Warren D. Weinstein, Huntington Station; Jean A. Boudreau, Commack, and Donald Gertz, Carle Place, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.

Continuation of Ser. No. 950,375, Oct. 11, 1978, abandoned, and a continuation of Ser. No. 594,955, Jul. 11, 1975, abandoned.

This application Jun. 28, 1979, Ser. No. 52,804

Int. Cl.³ G06F *15/50*; G01C *21/00*

U.S. Cl. 364—566 **29 Claims**



18. A vector sensing system for measuring triad rates or accelerations of an aircraft comprising six identical vector sensors, each sensor having a pre-determined input axis; means for mounting said sensors in said aircraft with their input axes arranged in a non-orthogonal relationship relative to one another and with their input axes defining the surface of a cone having its axis coincident with the axis of maximum input to the aircraft, said cone having a central half angle such that an average total amplification factor is minimum.

4,280,189

INPUT SIGNAL PROCESSOR USED IN ELECTRONIC ENGINE CONTROL APPARATUS

Masao Takato; Masumi Imai, both of Hitachi, and Toshio Furukashi, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 18, 1978, Ser. No. 952,275

Claims priority, application Japan, Oct. 19, 1977, 52-125978

Int. Cl.³ G06F *15/20*; G05B *15/02*

U.S. Cl. 364—734 **16 Claims**

1. In a control apparatus for an internal combustion engine having:

sensor means for monitoring operating conditions of the

engine and producing signals, including any ripple components, representative thereof;

conversion means for converting the signals produced by said sensor means into digital data representative thereof;

actuator means for controlling respective energy conversion functions of said engine in response to control signals applied thereto; and

a data processing unit for carrying out engine actuator control data processing operations in accordance with digital data produced by said conversion means and thereby generating output control signals to be coupled to control said actuator means in accordance with the results of said data processing operations, said data processing unit containing a central processing unit, a random access memory and a read only memory;

a method of operating said apparatus, so as to remove any ripple components present in signals X produced by said sensor means and correspondingly converted into digital data by said conversion means, so as to obtain filtered signals Y in response to which said data processing unit operates in carrying said engine actuator control data processing operations, comprising the steps of:

sampling the digital data produced by said conversion means at periodic instants in time t_i, to obtain for each sampling time a first digital signal sample X_i representative of the output of said actuator means including any ripple data for



that respective sampling time t_i, and storing a physical record of said digital signal sample X_i in said random access memory;

storing in said random access memory a physical record of the results of a prescribed filtering process operation through which a filtered signal sample Y_i is derived by said central processing unit in response to said sample X_i and a previously-derived filtered sample Y_{i-1} for a digital signal sample X_{i-1} at sampling time t_{i-1};

applying a previously-derived and stored filtered sample Y_{i-1} and said first digital signal sample X_i from said random access memory to said central processing unit wherein a filtered signal sample Y_i for said sampling time t_i is obtained in accordance with a prescribed relationship between said digital signal sample X_i and said stored previously-derived filtered sample Y_{i-1} for the previous sampling time t_{i-1};

storing a physical record of said filtered signal sample Y_i in said random access memory;

generating output control signals by coupling said filter signal sample Y_i to said data processing unit in which engine actuator control data processing operations are carried out; and

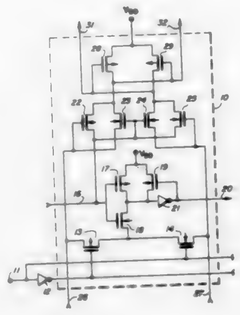
causing said output control signals to be coupled to said actuator means whereby said respective energy conversion functions of said engine are controlled.

4,280,190

INCREMENTER/DECREMENTER CIRCUIT

Philip S. Smith, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 9, 1979, Ser. No. 65,295
Int. Cl.³ G06F 7/50
U.S. Cl. 364—770 **6 Claims**



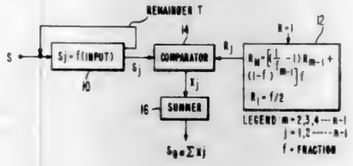
1. An incrementer/decrementer circuit, comprising: a first input for receiving a carry-in signal; a second input for receiving an increment input; a third input for receiving a decrement input; a fourth and a fifth input for receiving complementary inputs; a first and a second output for providing outputs for the incrementer/decrementer circuit; a third output for providing a carry-out output; a first and a second transistor coupled in series between the fourth and fifth inputs, the first transistor having a gate electrode coupled to the third input, the second transistor having a gate electrode coupled to the second input, the first and second transistors forming a first node therebetween; a third and fourth transistor coupled in series between the first node and a first power supply terminal, the third and fourth transistors forming a second node therebetween and having gate electrodes coupled to the first input; an inverter coupled between the second node and the third output; feedback means coupled to the inverter to form a latch with the inverter; a fifth and sixth transistor having a first and a second current carrying electrode and a gate electrode, the first electrode of the fifth and sixth transistor being coupled to the second output, the gate electrode of the fifth transistor being coupled to the fourth input, the gate electrode of the sixth transistor being coupled to the first input, the second electrode of the fifth transistor being coupled to the first input, the second electrode of the sixth transistor being coupled to the fourth input; seventh and eighth transistors having first electrodes coupled to the first output, and having second and gate electrodes, the gate electrode of the seventh transistor being coupled to the first input, the seventh transistor having its second electrode coupled to the fifth input, the gate electrode of the eighth transistor being coupled to the fifth input, the second electrode of the eighth transistor being coupled to the first input; and ninth and tenth transistors having first electrodes coupled to the first voltage terminal, the ninth transistor having a second electrode coupled to the second output and having a gate electrode coupled to the first output, the tenth transistor having a second electrode coupled to the first output and having a gate electrode coupled to the second output.

4,280,191

QUANTIZING CIRCUITS

Leonard R. Rockett, Jr., Cranbury, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 16, 1979, Ser. No. 30,513
Int. Cl.³ G06G 7/00
U.S. Cl. 364—807 **6 Claims**



1. A quantizer comprising, in combination:

means for multiplying an input signal S by a positive fraction f which is less than unity to obtain a fractional signal $S_1 = fS$ and a remainder $T_1 = S(1-f)$ and for multiplying that remainder signal and all succeeding remainder signals $T_2 \ldots T_{n-1}$, each by the same fraction f, whereby successive fractional signals $S_1, S_2 \ldots S_n$ are obtained, where n is the number of quantizing levels desired;

means for producing successive threshold levels $R_1, R_2 \ldots R_{n-1}$, each concurrent with a corresponding fractional signal $S_1, S_2 \ldots S_{n-1}$, where R_j is the following function of the values of j and f, $R_1 = f/2$, and

$$R_m = \left[\left(\frac{1}{f} - 1\right) R_{m-1} + (1-f)^{m-1}\right] f.$$

where $j = 1, 2 \ldots n-1$, and $m = 2, 3 \ldots n-1$;

means for comparing each remainder signal S_j with a threshold level R_j to produce in each case an output X_j of one value when $S_j \geq R_j$ and output X_j of different value when $S_j < R_j$; and

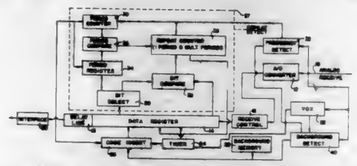
means for producing and adding to one another a number of incremental signals of the same amplitude equal to the number of outputs X_j of said one value produced by said means for comparing.

4,280,192

MINIMUM SPACE DIGITAL STORAGE OF ANALOG INFORMATION

Edward W. Moll, 32 Woodstream Dr., Norristown, Pa. 19403

Continuation-in-part of Ser. No. 757,687, Jan. 7, 1977, abandoned. This application Jan. 2, 1979, Ser. No. 61
Int. Cl.³ G06F 3/00; H03K 13/02
U.S. Cl. 364—900 **16 Claims**



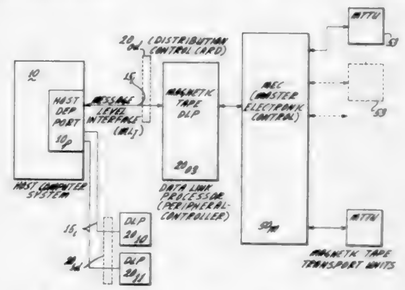
1. A system for minimizing the storage or transmission requirements of digital representation of analog signals comprising means for converting an analog signal to said digital representation, data register means for storing said digital representation at locations therein dependent upon the time related receipt of said analog signals, first means for detecting the complete absence of said analog signal, second means for detecting the duration of said absence of said analog signal, encoding means for receiving signals from said first and second means for detecting for encoding digital data relating to the absence of said analog signal and for inserting into said data register means in a time related location therein coded information corresponding to a start, time length, and end of the absence of said analog signal at a predetermined time after the end of the absence of said analog signal, and means for transferring said encoded data from said data register means to a storage means.

4,280,193

DATA LINK PROCESSOR FOR MAGNETIC TAPE DATA TRANSFER SYSTEM

Kenneth W. Baun, and Jimmy G. Saunders, both of El Toro, Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Dec. 14, 1979, Ser. No. 103,743
Int. Cl.³ G06F 3/04, 3/06
U.S. Cl. 364—900 **13 Claims**



1. A peripheral-controller for operation in a system which includes a main host computer and a plurality of magnetic tape transport units, said peripheral controller is housed in a base module which provides distribution control circuitry to connect and disconnect peripheral controllers to said main host computer and maintenance circuitry to test the operation of such peripheral-controllers, said peripheral-controller comprising:

(a) common control circuit means including:

(a1) control store means for storing micro-code word operators, each of said word operators being separately addressable and selected by control data from a peripheral dependent circuit means;

(a2) means connected to generate a current-address to said control store means to select a first micro-code word operator, said generation means receiving control data from said peripheral dependent circuit means;

(a3) means to generate the next forthcoming micro-code word operator;

(a4) stack register means to temporarily hold the current address of said first micro-code word operator;

(a5) latching register means to temporarily store and convey said micro-word operator to said peripheral dependent circuit means for execution of said operator;

(a6) connection means to signal access-requests to said host computer;

(a7) bus means to receive data from and to transmit data to said main host computer;

(a8) additional bus means to receive data from and to transmit data to selected magnetic tape transport units;

(a9) RAM buffer means to temporarily store data being transferred between a selected magnetic tape transport unit and said host computer said buffer means being controlled by signals from said peripheral dependent circuit means;

(b) said peripheral dependent circuit means including:

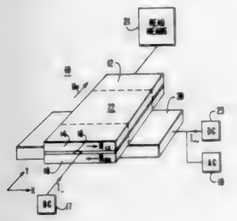
(b1) bi-directional data path means to a selected magnetic transport unit;
(b2) address logic means for formulating addresses for the read-out and write-in of data in said RAM buffer means;
(b3) multiplexor means for selecting a source of data that is to be transmitted to said RAM buffer means;
(b4) means to set a unique address to identify said peripheral dependent circuit means;
(b5) word generation shift register means to provide control and information data to said host computer and to a selected magnetic tape transport unit;
(b6) logic means for executing micro-code word operators received from said latching register means.

4,280,194

PARAMETRIC BUBBLE DETECTOR

Otto Voegeli, Morgan Hill, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 26, 1979, Ser. No. 97,451
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—7 **8 Claims**



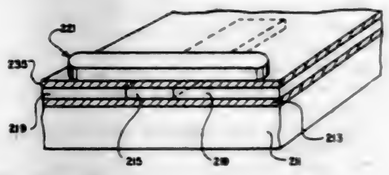
1. A parametric bubble detector comprising
a coupled film sensor strip, and
excitation means interacting over a limited area with said stripe wherein the passage of a periodically varying current in said excitation means produces a similarly periodic inductive output signal from said stripe having a waveform responsive to the present of a bubble domain proximal to said limited area.

4,280,195

PLANAR AND NEAR PLANAR MAGNETIC BUBBLE CIRCUITS

Donald K. Rose, Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 695,609, Jun. 14, 1976, Pat. No. 4,178,635. This application Jun. 11, 1979, Ser. No. 47,664
The portion of the term of this patent subsequent to Dec. 11, 1996, has been disclaimed.
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—39 **6 Claims**



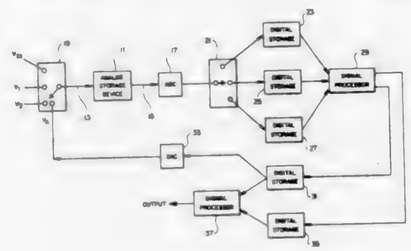
1. A magnetic bubble device comprising:
a substrate of magnetic material capable of sustaining magnetic bubble domains in the presence of a bias magnetic field;
a nominally electrically conducting layer on the substrate having regions of an electrically conducting material contiguous with insulating regions of the anodic oxide of said conducting material, said insulating regions having been formed by selective anodization of said nominally electrically conducting layer, so that said electrically conducting regions and said insulating regions have substantially co-planar top surfaces; and
magnetic bubble propagating means on said layer of electrically conducting and insulating regions.

4,280,196

CORRECTION OF ZERO DRIFT, GAIN DRIFT, AND DISTORTION ERRORS IN ANALOG STORAGE DEVICES

Thomas Hornak; John J. Corcoran, both of Portola Valley, and Samuel H. Maslak, Palo Alto, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 14, 1979, Ser. No. 94,007
Int. Cl.³ G11C *27/02, 19/28*
U.S. Cl. 365—45 **4 Claims**



1. A device for storing an input analog waveform and producing an output signal representing the input signal, said device comprising:
analog storage means for storing an input analog waveform;
input means for operating in a signal mode to input into said analog storage means, said input waveform to be stored, operating in a first reference mode to input a first reference waveform into said analog storage means, and operating in a second reference mode to input a second reference waveform into said analog storage means;
ADC means for converting the output of said analog storage means into a digital word;
first digital storage means for storing a signal digital word resulting from operation of said analog storage means and ADC means on said input analog waveform, a first reference digital word resulting from operation of said analog storage means and ADC means on said first reference waveform, and a second digital word resulting from operation of said analog storage means and ADC means on said second reference waveform;
first signal processing means for combining said signal digital word and said first and second reference digital words to produce a once-corrected digital word representing said input analog waveform corrected for gain and offset errors of said analog storage means.

4,280,197

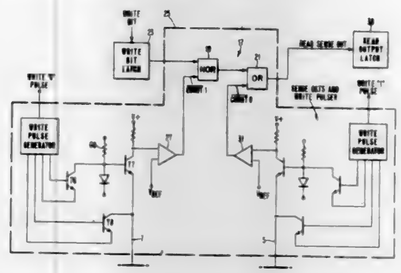
MULTIPLE ACCESS STORE

Eugene S. Schlig, Somers, N.Y., assignor to IBM Corporation, Armonk, N.Y.

Filed Dec. 7, 1979, Ser. No. 101,390
Int. Cl.³ G11C *13/00, 11/40*
U.S. Cl. 365—154 **24 Claims**

1. A multiple access memory cell, comprising:
flip-flop store means for operating in one switching state to store a binary one and for operating in another switching state to store a binary zero;

at least one pair of accessing transistors, each transistor having means for operating in a conducting state to pass a sense current to read a switching state of said flip-flop store means and at least one of said accessing transistors having means for operating in a saturation state in response to a write signal to define a particular switching state for said flip-flop store means;



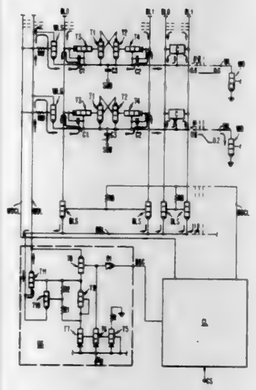
mode select means for applying a write select voltage to said flip-flop store means to allow the flip-flop store means to change switching states in response to the saturation state of one of said accessing transistors and for applying a read select voltage to said flip-flop store means to prevent the flip-flop store means from changing switching states; and
current supply means responsive to a word signal for supplying said sense current.

4,280,198

METHOD AND CIRCUIT ARRANGEMENT FOR CONTROLLING AN INTEGRATED SEMICONDUCTOR MEMORY

Klaus Heuber, Boeblingen, and Siegfried K. Wiedmann, Stuttgart, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 7, 1979, Ser. No. 101,366
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855866
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—203 **8 Claims**



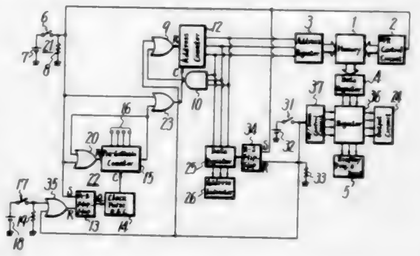
1. In a method of controlling a semiconductor memory of arrayed memory cells including arrayed memory cells arranged in merged transistor logic with said cells coupled at intersections of word and bit lines and selected via word line drivers and decoders, the improvement residing in discharging the line capacitances for reducing the access time and power consumption of said memory cells, comprising the steps of,
discharging said line capacitance before cell selection by causing said line capacitances to discharge through line control means coupled to respective ones of the bit lines or word lines associated with each cell and then through a common control means common to all line control means.

4,280,199

APPARATUS FOR SCANNING AN ADDRESSABLE MEMORY

Yoshio Osakabe, and Hiroshi Yasuda, both of Yokohama, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 3, 1979, Ser. No. 63,383
Int. Cl.³ G11C *8/00*; H03J *7/06*
U.S. Cl. 365—236 **15 Claims**



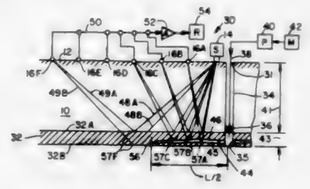
1. Apparatus for scanning an addressable memory comprising means for generating clock pulses; address counting means for counting said clock pulses to produce an address for said addressable memory; means for supplying said address to said addressable memory to designate a corresponding storage location therein from which stored data is read; means for selectively enabling said clock pulse generating means to supply said clock pulses to said address counting means; scan advance means selectively operable to change the count of said address counting means by a predetermined amount in response to each operation thereof; and OR-gate means responsive to the operation of said scan advance means or to a generated clock pulse to change the count or said address counting means, and thereby change the designated storage location in said addressable memory.

4,280,200

SEISMIC METHOD OF MAPPING HORIZONTAL FRACTURES IN THE EARTH

Daniel Silverman, 5969 S. Birmingham St., Tulsa, Okla. 74105

Filed May 21, 1979, Ser. No. 41,060
Int. Cl.³ G01V *1/24*
U.S. Cl. 367—37 **22 Claims**



1. In a shallow geological formation, a borehole drilled to said formation, a horizontal fracture in said shallow formation resulting from the prior application of pressurized fracturing fluid to said shallow formation through said borehole;

the method of mapping the shape and size of the outer perimeter of said fracture, comprising the steps of:

(a) providing a selected source of seismic waves at or below the surface of the earth at a selected position above said fracture;

(b) positioning at or near the surface of the earth at least a first sensor of seismic energy, at a known position with respect to said source, said sensor adapted to receive seismic energy generated at said source, and upwardly reflected by a reflecting interface close to said formation, and to convert said seismic energy to electrical signals;

(c) pressurizing said fracture with pressurizing fluid so that the roof of said fracture is lifted out of contact with the base of said fracture, said fracture volume filled with said pressurizing fluid;

(d) operating said source and receiving at said sensor seismic waves which have been reflected at a first reflection point, and recording a first electrical signal;

(e) depressurizing said fracture so that said roof is lowered into intimate elastic wave transmission contact to said base of said fracture;

(f) repeating step (d) to get a second electrical signal; and

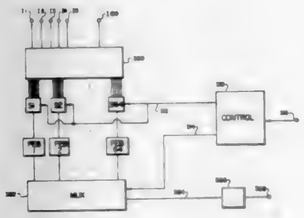
(g) comparing said first electrical signal with said second electrical signal.

4,280,201

VARIABLE GAP ROLL ALONG SWITCHING

Carl F. Mart, and Douglas B. Waits, both of El Paso, Tex., assignors to The Anaconda Company, Greenwich, Conn.

Filed Jul. 9, 1979, Ser. No. 55,554
Int. Cl.³ G01V *1/22*
U.S. Cl. 367—56 **6 Claims**



1. In a roll along geophysical prospecting system of the type having "m" geophone inputs, a smaller number "n" signal processing channels and a switching network for coupling "n" of said "m" geophone inputs to said "n" processing channels, an improved switching network comprising;

at least first and second sets of "m" switches, with one switch in each set having a first contact connected to said "m" geophone inputs respectively and with the switches of said first set having second contacts connected to said processing channels in a first repeated sequential order and the switches of the second set having second contacts—connected to said processing channels in a second repeated sequential order, where said first and second repeated sequential orders are offset relative to each other by an amount equal to a preselected selectable gap size.

4,280,202

DIGITAL HOMODYNE PROCESSING SYSTEM

Roger F. Koppelmann, Canton, Mich., assignor to The Bendix Corporation, North Hollywood, Calif.

Filed Oct. 31, 1979, Ser. No. 89,930
Int. Cl.³ G01S *15/02*
U.S. Cl. 367—87 **11 Claims**

1. A digital homodyne processing system for use in a sonar system which insonifies a volume of water, comprising:

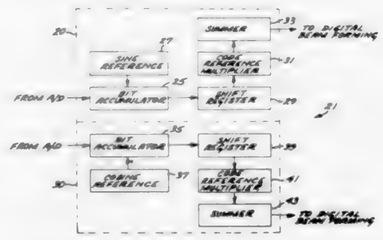
means for sensing pressure waves including sonar reflections in the insonified volume of water, and for providing a transducer output signal representative of the pressure waves detected by said sensing means;

filtering means for reducing the frequency and bandwidth of said transducer output signal for removing noise and non-useful signals to facilitate detection of sonar reflections, said filtering means providing a filtered output;

conversion means for providing a digital output signal representative of said filtered output;

reference means for providing a sine reference signal and a cosine reference signal;

first integrating means responsive to said sine reference signal for accumulating over predetermined periods of time positive or negative value of said digital output signal as a function of the polarity of said sine reference signal to provide first accumulated values at the termination of said predetermined periods of time;



second integrating means responsive to said cosine reference signal for accumulating over said predetermined periods of time positive or negative values of said digital output as a function of the polarity of said cosine reference signal to provide second accumulated values at the termination of said predetermined periods of time; and

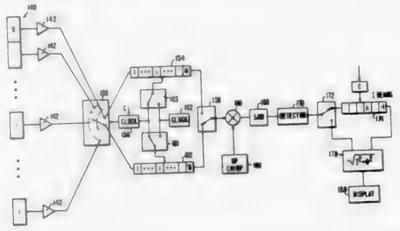
comparison means for storing separate respective sequences of said first accumulated values and said second accumulated values and for comparing said sequences against a predetermined code, said comparison means further providing a first output indicative of the comparison of said first sequence of accumulated values and a second output indicative of the comparison of said second sequence of accumulated values.

4,280,203

SONAR BEAM FORMING UTILIZING THE CHIRP Z-TRANSFORM

George A. Gilmour, Severna Park, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 14, 1979, Ser. No. 75,451
Int. Cl.³ G01S *15/04*
U.S. Cl. 367—103 **9 Claims**



1. Sonar beam forming apparatus for receiving acoustic returns from successive range increments of a target area to be examined as a result of acoustic transmissions sonifying said

area, and for forming multiple receiver beams for each said range increment, comprising:

(A) a transducer array including a plurality of active elements each operable to provide an output signal in response to said acoustic returns, the collective output signal of said array defining a spatial signal comprised of a plurality of spatial frequency components, each spatial frequency component being indicative of a different one of said receiver beams;

(B) encoding means for encoding said spatial signal and including means for providing a frequency chirp signal and means for converting said spatial signal to a corresponding temporal signal including a corresponding plurality of frequency components each indicative of a different one of said receiver beams, and mixing it with said frequency chirp signal to derive an encoded temporal signal;

(C) said encoding means including means for varying said encoding as a function of said range increments;

(D) decoding means responsive to said encoded temporal signal and operable to separate said different frequency components to provide a plurality of beam signals for each said range increment; and

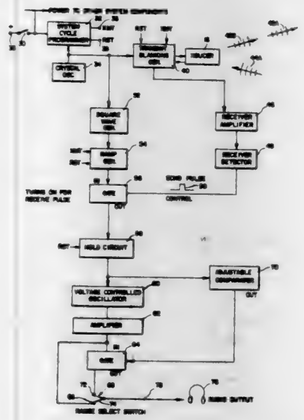
(E) means for processing and displaying said beam signals.

4,280,204

MOBILITY CANE FOR THE BLIND INCORPORATING ULTRASONIC OBSTACLE SENSING APPARATUS

Gilbert M. Elchinger, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jun. 5, 1979, Ser. No. 45,783
Int. Cl.³ G01S *15/88*
U.S. Cl. 367—116 **11 Claims**



1. A mobility cane for use by a visually impaired person, said mobility cane comprising:

an elongated member, having a longitudinal axis, that is capable of having its said longitudinal axis maintained at a fairly constant acute angle with respect to the ground by the extended hand of an ambulatory visually impaired person; and

ultrasonic obstacle detection apparatus mounted on said elongated member for warning said visually impaired person of elevated objects that might impede ambulatory movement, whenever such objects enter a predetermined spatial zone having a maximum and minimum spatial zone depth, said detection apparatus including,

an adjustably mounted transmitting and receiving, capacitance type, electrostatic transducer having a particular ultrasonic energy transmission and reception pattern wherein said predetermined zone is a function of said pattern, and

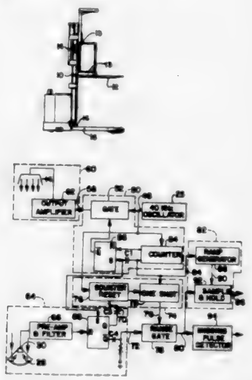
manually adjustable means for varying the depth of said predetermined zone to any one of a multiplicity of zone depths less than said maximum zone depth and greater than said minimum zone depth such that a portion of said spatial zone remains at a fixed distance from said transducer whenever said means is adjusted for the purpose of varying said spatial zone depth.

4,280,205

ULTRASONIC FORK HEIGHT MEASURING APPARATUS

Ned E. Dammeyer, New Bremen, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio

Filed Jul. 16, 1979, Ser. No. 57,772
Int. Cl.³ G01S *11/00*; B66B *3/02*
U.S. Cl. 367—119 **14 Claims**



1. A height measuring arrangement for a fork lift truck, having an extendable fork mast and forks mounted on said mast, for measuring the height of said forks and providing an electrical signal in response thereto, comprising:

electrical oscillator means for providing an ultrasonic signal,

transmitting ultrasonic transducer means, mounted in fixed position relative to said forks and responsive to said ultrasonic signal, for transmitting ultrasonic acoustic energy waves downward therefrom,

ultrasonic receiver means, mounted on said lift truck at a fixed height, for receiving said ultrasonic acoustic energy waves from said transmitting ultrasonic transducer means and for providing an electrical output signal in response thereto, said ultrasonic receiver means comprising:

an upward facing substantially parabolic reflector for reflecting upwardly said acoustic energy waves transmitted downward by said transmitting ultrasonic transducer means, and

a downward facing receiving ultrasonic transducer for receiving acoustic energy waves reflected by said parabolic reflector and for providing an electrical output signal in response thereto,

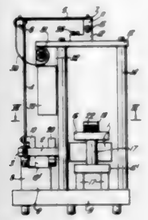
whereby the time required for acoustic energy waves to travel from said transmitting ultrasonic transducer means to said receiving ultrasonic transducer via said parabolic reflector provides an indication of the height of said forks.

4,280,206

SEISMOMETERS

Cansun M. Guralp, Reading, England, assignor to National Research Development Corporation, London, England

Filed Mar. 14, 1979, Ser. No. 20,502
Claims priority, application United Kingdom, Mar. 15, 1978, 10276/78
Int. Cl.³ G01V 1/18
U.S. Cl. 367—179 8 Claims



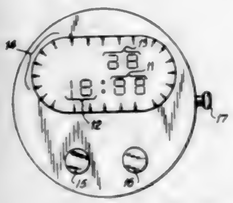
1. A vertical-component seismometer comprising:
a mass-carrying horizontally-extending boom pivoted to a rigid frame so as to move about a fixed horizontal axis;
a pre-stressed flat spring having one end rigidly connected to the boom adjacent said fixed axis so that movement of the boom applies a turning moment to the spring at said one end thereof;
means for locating the other end of said flat spring laterally relative to its longitudinal axis;
and means for applying a substantially constant compressive force at said other end along said longitudinal axis, said longitudinal axis intersecting said fixed axis so that said force applies substantially zero turning moment to the boom.

4,280,207

ELECTRONIC TIMEPIECE AND DIGITAL DISPLAY THEREFOR

Shuji Maezawa, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Feb. 14, 1977, Ser. No. 768,461
Claims priority, application Japan, Feb. 12, 1976, 51/14233
Int. Cl.³ G04B 19/22
U.S. Cl. 368—21 22 Claims



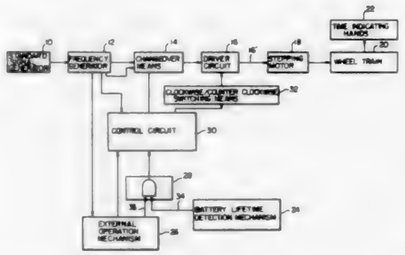
1. A digital display for an electronic timepiece, electronic timekeeping circuit means for producing timekeeping signals representative of actual time and a particular time zone, decoder and driver means for receiving said timekeeping signals and producing timekeeping driving signals and time zone driving signals, comprising in combination a plurality of numerical display digits for displaying time information in response to said timekeeping driving signals being applied thereto, a plurality of visual indication display segments peripherally disposed about said numerical display digits, each of said indication display segments being selectively rendered visually distinguishable in response to said time zone driving signal being applied thereto, a time zone corresponding to the time displayed by said numerical display digits and a plurality of indicia peripherally disposed about said visual indication display segments, each said indicia being associated with a visual indication display segment and identifying a particular time zone.

4,280,208

ELECTRONIC TIMEPIECE

Yasushi Nomura, Tokorozawa, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Jul. 24, 1978, Ser. No. 927,445
Claims priority, application Japan, Jul. 29, 1977, 52/90987; Aug. 16, 1977, 52/98108; Sep. 5, 1977, 52/106412; Sep. 12, 1977, 52/108765; Sep. 19, 1977, 52/112364
Int. Cl.³ G04B 1/26
U.S. Cl. 368—66 18 Claims



1. An electronic timepiece powered by a battery, comprising:
means for generating a relatively high frequency signal;
means for providing a time unit signal in response to the relatively high frequency signal;
a driver circuit responsive to the time unit signal to produce first driving pulses;
a stepping motor operative in response to the first driving pulses;
time indicating hand means driven in a normal mode by the stepping motor to provide a display of time data;
external operation means adapted to provide a switching signal when actuated;
battery lifetime detection means adapted to provide a detection signal when a battery voltage drops below a predetermined value;
gate means responsive to the switching signal and the detection signal to provide an output signal; and
means responsive to the output signal for causing the driver circuit to produce second driving pulses to actuate the stepping motor such that the time indicating hand means is driven in a mode different from the normal mode to provide a display of a battery lifetime warning only when the external operation means is actuated in the presence of the detection signal.

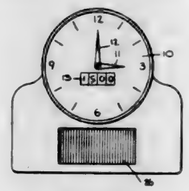
4,280,209

ELECTRONIC ALARM CLOCK

Jac A. Mooney, Great Neck, N.Y., assignor to Bradley Time Division, Elgin National, New York, N.Y.

Filed Jun. 7, 1978, Ser. No. 913,384
Int. Cl.³ G04B 25/00, 19/00; G04C 19/00
U.S. Cl. 368—71 7 Claims

1. An electronic timepiece having an analog display produced by timekeeping hands representing hours and minutes and a concurrent digital display operating in conjunction with a digital setting system for activating an alarm at a preset time, said timepiece comprising:
A. a common high-frequency crystal-controlled time base;
B. a frequency converter in the form of a binary frequency divider coupled to said time base to produce low-frequency timing pulses;
C. a motor responsive to the timing pulses to drive said timekeeping hands on a scale of 12;
D. an electro-optical display having at least four stations to provide readings of hours and minutes on a scale of 24;
E. a settable electronic actuator responsive to the timing pulses to produce digital values for concurrently actuating the digital display to provide digital time indications in synchronism with the analog display provided by the hands;
F. hour and minute setting switches operable to set the digital display to a selected wake-up alarm time;
G. a microprocessor coupled to said digital display actuator and having associated therewith a data memory operatively coupled to said switches for storing the digital value of a selected alarm setting, said microprocessor comparing the changing digital values from said digital display actuator corresponding to existing time with the stored value to produce a representative output signal when these values are coincident;
H. means responsive to said output signal to generate an alarm; and
I. a synthesized sound memory for storing in digitized form different musical sounds related to the respective hours of the day which are stored in said data memory, said microprocessor when the digital values representing existing times are coincident with said stored hours extracting said digitized sounds from said sound memory and applying said digitized sounds to digital-to-analog converter to produce musical sounds which are reproduced.

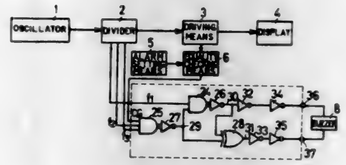


4,280,210

ELECTRONIC ALARM TIMEPIECE

Yasuhiko Nishikubo, Iruma, and Mitsuo Sekine, Tokorozawa, both of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Oct. 3, 1978, Ser. No. 948,633
Claims priority, application Japan, Oct. 3, 1977, 52/133025[U]; Dec. 14, 1977, 52/150010
Int. Cl.³ G04B 23/02; G04C 21/16
U.S. Cl. 368—73 2 Claims



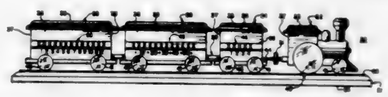
1. An electronic alarm timepiece comprising:
quartz crystal oscillator means for producing a time standard signal;
frequency divider means connected to said quartz crystal oscillator means for dividing the frequency of an output signal from said quartz crystal oscillator means for producing a plurality of signals, each of said signals being different in frequency;
driving means connected to said frequency divider means for producing a display driving signal;
display means driven by said display driving signal for indicating a display time;
alarm setting means for setting the alarm on said alarm timepiece;
comparing means responsive to an output signal from said alarm setting means and from said driving means for comparing the setting on said alarm setting means with the displayed time on said display means and for producing an alarm gate control signal when the displayed time coincides with the setting on said alarm setting means;
alarm driving means made in the form of a CMOS integrated circuit, said alarm driving means including:
means responsive to said alarm gate control signal for producing an alarm control signal having two modes of signals,
first gate means responsive to the output signals from said frequency divider means and to one mode of said alarm control signal for producing a first alarm signal,
second gate means responsive to the one mode of said alarm control signal and said first alarm signal for producing a second alarm signal having a phase which is opposite to the phase of said first alarm signal,
said first and second gate means being arranged to produce in-phase signals in response to another mode of said alarm control signal,
driving inverters responsive to said first and second alarm signal and to said in-phase signals for producing opposed-phase alarm driving signals and in-phase ineffective signals respectively; and
alarm means responsive to said opposed-phase alarm driving signals for producing an alarm sound, said alarm means being non-responsive to said in-phase ineffective signals.

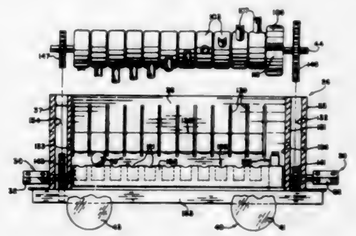
4,280,211

CLOCK APPARATUS

Harley Mayenschein, P.O. Box 117, Sextonville, Wis. 53584

Filed May 25, 1979, Ser. No. 42,566
Int. Cl.³ G04B 19/00; G04C 21/00; G04B 25/00; G04C 17/00
U.S. Cl. 368—76 25 Claims





1. A clock apparatus including in combination housing enclosure means having outer wall portions defining selected aligned groups of apertures therein, time of date indicia associated with said groups of apertures and providing time-indicating references relative to the positions of said apertures, a plurality of moveable spheroids, timing source means, rotat-

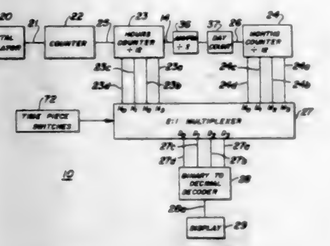
able drive shaft means mounted in the housing enclosure means, coupling means for coupling the drive shaft means to the timing source means for providing predetermined time-referenced motion to the rotatable drive shaft means, cam means mounted in time-referenced angular loading positions on the rotatable drive shaft means, first spheroid holder means comprising chute assembly means for receiving and storing spheroids thereon in positional relationship corresponding to the selected aligned groups of apertures, second spheroid holder means comprising spheroid display means pivotable between first and second positions and positioned intermediately of and adjacent to the chute assembly means and the selected groups of apertures, said first position of the spheroid display means being aligned to receive spheroids thereon for framed display within the groups of apertures, respectively, and the second position thereof being aligned to depart spheroids therefrom for return to the chute assembly means, cam follower means mounted on the spheroid display means for biasing said spheroid display means to remain in the first position thereof in response to a selected time-referenced loading angular position of the cam means, said cam follower means being responsive to the rotational movement of said cam means to selectively allow for releasing the pivotable spheroid display means from said first position so that it pivots to the second position thereof, and said spheroids being selectively moved into framed display position on the spheroid display means in response to the driven movement of the cam means mounted on the rotatable drive shaft means, and thereafter being selectively removed therefrom when said cam follower means allows for the selective pivoting of the spheroid display means to the second position thereof whereby the spheroids are indicative of attained time of day.

4,280,212

MULTIPLEXING SYSTEM FOR A SOLID STATE TIMING DEVICE

Stephen A. Ransom, Huntingdon Valley; Jere W. Hohmann, Doylestown, and Clement Nahmias, Ardmore, all of Pa., assignors to Solid State Scientific, Inc., Montgomeryville, Pa.

Filed Aug. 15, 1979, Ser. No. 66,636
Int. Cl.³ G04C *19/00*; H03K *3/01*; G08B *5/22*
U.S. Cl. 368—82 **10 Claims**



1. A solid state timing device having a chain of counters for displaying time information on a display comprising

decoder means for operating said display,

multiplexing means for coupling selected counters to said decoder means, said multiplex means having a plurality of multiplex sections,

each multiplex section including a common bus having a plurality of data transmission channels, a plurality of MOS devices of only a first type forming each of said channels, a complementary MOS device of a second type coupled to said common bus providing a complementary function with respect to said first type of MOS devices to establish predetermined operating voltage levels of the bus for the logic states,

means providing each multiplex section a first reference potential coupled to each of said channels and a second reference potential coupled to said complementary MOS device whereby said complementary MOS device operates as a low impedance pull-up resistor between said common bus and said second reference potential, and

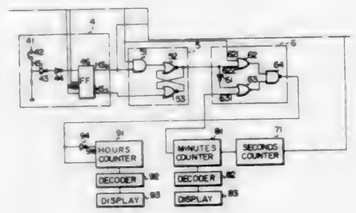
signalling means having a substantially short duty cycle coupled to a switching terminal of said complementary MOS device of each multiplex section for turning on said device and establishing for a substantially short period of time a predetermined operating voltage level on said common bus of substantially (1) said first reference potential when all the MOS devices of any channel are turned on and (2) said second reference potential when less than all the MOS devices of any channel are turned on.

4,280,213

QUICK FEEDING SYSTEM FOR A COUNTER

Masayuki Takahashi, and Hideo Monma, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 15, 1979, Ser. No. 94,435
Claims priority, application Japan, Nov. 17, 1978, 53-142532
Int. Cl.³ G04C *9/00*
U.S. Cl. 368—187 **3 Claims**



1. A counting system comprising:

an oscillator circuit for generating an oscillation signal;

a frequency divider circuit, operatively connected to said oscillator circuit, for receiving said oscillation signal and for generating first and second frequency divided signals;

a quick-feed input circuit, having a switch, for generating first and second output signals in dependence upon the actuation of said switch;

a quick-feed pulse generator circuit, operatively connected to said frequency divider circuit and said quick-feed input circuit, for receiving said first output signal and said second frequency divided signal and for generating a quick-feed pulse signal;

a switching time control circuit, operatively connected to said quick-feed input circuit and said quick-feed pulse generator circuit, for providing a control signal in dependence upon said quick-feed pulse signal and said first and second output signals;

counter and display means, operatively connected to said frequency divider circuit, for receiving said first frequency divided signal and for generating a counted output signal; and

a switching circuit, operatively connected to said quick-feed pulse generator circuit, said switching time control circuit and said counter and display means, for providing, as a switching output signal to said counter and display means, either said quick-feed pulse signal or said counted output signal in dependence upon said control signal;

said switching circuit providing said quick-feed pulse signal a predetermined constant time after the closing of said switch in said quick-feed input circuit;

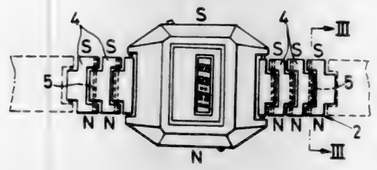
said counter and display means for counting said first frequency divided signal and said switching output signal and for displaying the counted result.

4,280,214

WRIST WATCH

Shusaku Kunii, 39-36, Nishishinjuku 4-chome, Shinjuku-ku, Tokyo, and Hitoshi Hirano, 2485, Sakaecho, Kodaira-shi, Tokyo, both of Japan

Filed Nov. 22, 1978, Ser. No. 962,972
Claims priority, application Japan, Nov. 28, 1977, 52-159425[U]
Int. Cl.³ G04B *37/00*
U.S. Cl. 368—282 **5 Claims**



1. In a wrist watch comprising

a watch apparatus, of a type operable independent of magnetic fields, for keeping and indicating the time;

a hollow watch body housing said watch apparatus therewithin and having a rear cover for facing the wrist of the wearer;

a watch band attached to said watch body for securing the watch to the wrist of the wearer such that said rear cover and band engage and circumferentially surround said wrist;

the improvement comprised in that

the watch apparatus is of a conventional digital type capable of operation in a magnetic field;

at least one of said rear cover and watch band incorporating, in operatively fixed location thereon, portions of magnetizable material magnetized to form permanent magnets each having an N-pole and an S-pole, said magnetized material being distributed substantially over the whole circumferential width of said at least one of said rear cover and watch band, there being more than one said permanent magnet, adjacent said permanent magnets lying with their lengths substantially parallel, all of said permanent magnets having their magnetic fields aimed in the same direction and substantially perpendicular to the circumferential direction of said rear cover and watch band, the N-pole of each said permanent magnet being spaced from and free of contact with the S-pole of any other said permanent magnet, said rear cover and watch band being free of closed magnetic circuits through magnetizable material from the N-pole of any permanent magnet to the S-pole of the same permanent magnet, the array of said permanent magnets covering a portion of the wrist of the wearer, which portion has a circumferential width at least as great as the circumferential width of said rear cover.

4,280,215

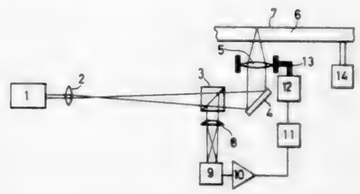
FOCUSSING LENS SERVO DRIVING DEVICE FOR OPTICAL INFORMATION READING DEVICE

Takashi Okano, Tokorozawa, Japan, assignor to Universal Pioneer Corporation, Tokyo, Japan

Filed Sep. 7, 1979, Ser. No. 73,476
Claims priority, application Japan, Sep. 7, 1978, 53-109899
Int. Cl.³ G11B *7/00*
U.S. Cl. 369—45 **5 Claims**

1. A servo focussing means in an optical information reading device, said optical reading device including a focussing lens movable between a first position and a second position in a direction perpendicular to an information recording surface of a recording medium, said servo focussing means controlling the movement of said focussing lens to focus light on said information recording surface, the improvement comprising:

means for driving said focussing lens in a direction from said first position toward said second position, position detecting means for detecting a position of said focussing lens as said focussing lens is moved past a predetermined position by said driving means, said predetermined position being closer to said second position than a lens position corresponding to the distance between said lens and said recording surface when said light is focussed on said information recording surface, means for producing a predetermined control signal is response to said detecting means for the period of time during which said lens is moved past said predetermined position, opposition force generating means for applying an opposition force to said focussing lens in a direction opposite to said driving direction, said opposition force being gradually decreased during a period of time of generation of said predetermined control signal, and means for providing an instruction signal for closing a servo loop of said servo focussing means at the end of generation of said predetermined control signal, said means for providing an instruction preventing any further output from said opposition force generating means when said servo loop is in operation.

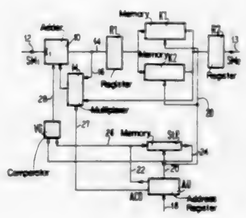


4,280,216

METHOD OF MAKING CONFERENCE CALL CONNECTIONS IN A MULTIPLEX SWITCHING SYSTEM

Rolf Zeitrag, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 12, 1979, Ser. No. 19,705
Claims priority, application Fed. Rep. of Germany, Mar. 16, 1978, 2811466
Int. Cl.³ H04M *3/56*
U.S. Cl. 370—62 **5 Claims**



1. A method for completing conference call connections in a PCM division multiplex switching system having successive pulse frames each separated into plural time slots, comprising the steps of:

(a) forming an intermediate sum code word by adding code words received from subscribers to a conference call during their respective time slots,

(b) storing said intermediate sum code word by writing it into a first section of a conference call memory,

(c) reading out the intermediate sum code word from the

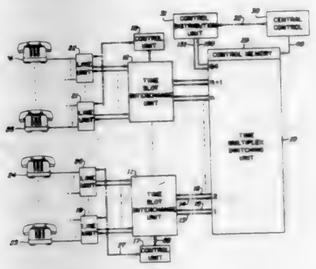
conference call memory for each time slot of a conference call subscriber,
(d) storing the total sum code word in a second section of said conference call memory, said total sum code word representing the sum of all of the subscriber code words received during the previous pulse frame,
(e) reading out said total sum code word during the time slots assigned to subscribers of the conference call,
(f) interchanging the functions of said first and second memory sections during alternate pulse frames,
(g) introducing a delay between the reading out of an intermediate sum code word and formation of a new intermediate sum code word,
(h) introducing a delay between forming a new intermediate sum code word and storing it in the conference call memory,
(i) separating the reading and writing functions of said first and second sections of said conference call memory, and
(j) when conference call subscribers have consecutive time slots, omitting the delay interposed between formation of an intermediate sum code word and reading or writing of said conference call memory, whereby said intermediate sum is accumulated directly from code words received during consecutive time slots.

4,280,217

TIME DIVISION SWITCHING SYSTEM CONTROL ARRANGEMENT

Edward H. Hafer, Winfield, and William J. Klinger, Warrenville, both of Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 26, 1979, Ser. No. 106,392
Int. Cl.³ H04Q *11/04*
U.S. Cl. 370—63 **13 Claims**



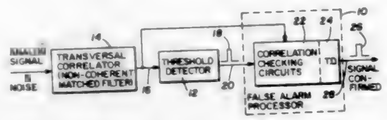
1. A telecommunication switching system comprising a switching means, a terminating unit connected to said switching means for generating data words, an originating unit connected to said switching means for generating data words and for transmitting routing information defining said terminating unit to a control means, said control means comprising means for controlling said switching means to complete a communication path, having a unique identity, between said originating unit and said terminating unit in response to said routing information characterized in that
said control means further comprises means responsive to said routing information from said originating unit for transmitting to said terminating unit a control message identifying said originating unit and further identifying said communication path;
said terminating unit further comprises terminating unit transmission means for transmitting to said originating unit a control message defining the identity of said communication path and first communication means for transmitting and receiving said data words on said uniquely defined communication path; and
said originating unit further comprises second communication means responsive to said control message from said terminating unit for transmitting and receiving said data words on said communication path.

4,280,218

FALSE ALARM PROCESSOR

Robert S. Gordy, Williamsville, N.Y.; Billy R. Poston, and David E. Sanders, both of St. Petersburg, Fla., assignors to E-Systems, Inc., Dallas, Tex.

Filed Aug. 8, 1979, Ser. No. 64,845
Int. Cl.³ H04B *15/00*; G06F *11/00*
U.S. Cl. 371—6 **18 Claims**



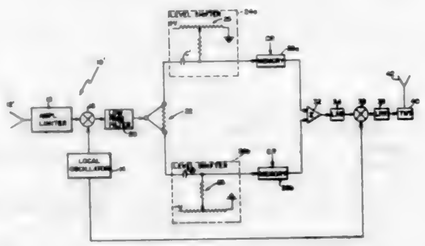
1. A circuit for processing an input signal represented by pulse signals, comprising in combination:
channel selection means responsive to a pulse signal and generating a channel assignment signal,
a plurality of checking channels receiving an assignment signal from said channel selection means and generating a confirmation signal, each of said checking channels including:
enable means for receiving the assignment signal and generating an enable signal for a selected checking channel,
a blanking generator responsive to the enable signal to apply a blanking pulse to said channel selection means to disable said channel selection means from generating a second channel assignment signal for the same pulse signal, and
means responsive to the blanking pulse to sample the input signal at specific intervals and generating a confirmed signal for a valid input, and
means responsive to the confirmed signal generated at any one channel to gate the confirmed signal to an output line.

4,280,219

DIGITAL MEMORY SYSTEM

Oscar Lowenschuss, Goleta, and Bruce E. Gordon, Santa Barbara, both of Calif., assignors to Raytheon Company, Lexington, Mass.

Filed Sep. 19, 1979, Ser. No. 77,231
Int. Cl.³ H04B *7/15*
U.S. Cl. 375—4 **3 Claims**



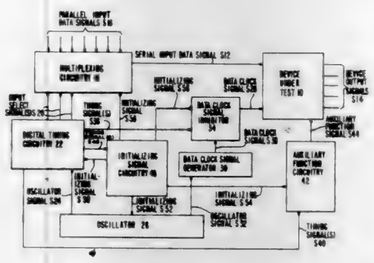
2. A digital memory system comprising:
(a) means for producing an input sinusoidal signal having a predetermined average level;
(b) means, responsive to the input sinusoidal signal, for producing a periodic signal having an amplitude periodically greater than the predetermined level of the input sinusoidal signal for periods of time different from half the period of the sinusoidal input signal;
(c) means for storing one bit samples representative of the amplitude of such periodic signal; and
(d) means for reconstructing the input signal from the one bit samples stored in the storing means.

4,280,220

ELECTRONIC TESTING SYSTEM

Theodore A. Vaeches, San Jose, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Sep. 17, 1979, Ser. No. 75,916
Int. Cl.³ G06F *11/00*
U.S. Cl. 371—27 **9 Claims**



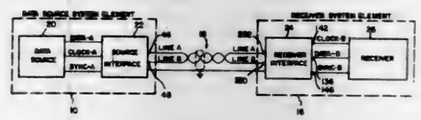
1. An electronic system for testing an electronic device responsive to a data clock signal and to a serial input data signal synchronous with the data clock signal, said system comprising:
oscillating means for repetitively generating oscillator pulses at a first selected repetition period;
data clock signal generating means responsive to the oscillator pulses for producing the data clock signal which comprises a series of data clock pulses at a second selected repetition period;
timing means for counting the oscillator pulses and for generating at least two input select signals indicative of the number of oscillator pulses counted, each input select signal being generated on a separate input select line; and
multiplexing means for receiving at least two parallel input data signals and for sequentially selecting each of the parallel input data signals in response to the input select signals provided thereto on the input select lines to generate the serial input data signal.

4,280,221

DIGITAL DATA COMMUNICATION SYSTEM

Randall K. B. Chun, Reston, and Dona E. Larsen, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 31, 1979, Ser. No. 44,287
Int. Cl.³ H04L *3/00*; H04B *3/36*
U.S. Cl. 375—17 **20 Claims**



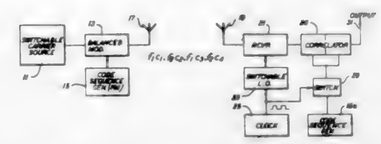
1. A digital data communication system for transferring digital information from a source to one or more receivers, comprising: source interface means for receiving digital signals generated by the source and producing encoded digital signals while controlling their rise and fall times on the basis of two source generated signal frequencies; receiver interface means for decoding said encoded digital signals into digital signals representative of said source generated digital signals for presentation to a receiver; and bus means operatively associated with said source interface means and said receiver interface means for transferring said encoded digital signals from said source interface means to said receiver interface means.

4,280,222

RECEIVER AND CORRELATOR SWITCHING METHOD

Robert A. Flower, White Plains, N.Y., assignor to The Singer Company, Little Falls, N.J.

Filed Jan. 14, 1980, Ser. No. 112,028
Int. Cl.³ H04K *1/02*; H03K *3/84*
U.S. Cl. 375—38 **4 Claims**



3. An improved communication system including a receiver correlator arrangement for receiving and correlating a plurality of pulses transmitted at two different frequencies comprising:
(a) a receiver including a switchable local oscillator for switching said receiver between said two frequencies;
(b) clock means for controlling said switchable local oscillator;
(c) a two section correlator receiving an input from said receiver;
(d) a first code sequence generating means generating and storing each of the codes to be received by said correlator; and
(e) switching means receiving an input from said clock for providing as reference inputs to said correlator sections each of the codes which are known to be transmitted at the frequency to which the receiver is then switched; and including a transmitter arrangement for transmitting the plurality of pulses at the two different frequencies comprising:
(a) a balanced modulator having an output for transmission of the pulses to the receiver at the two different frequencies;
(b) a switchable carrier source for switching between said two frequencies and for providing an input to said balanced modulator; and
(c) a second code sequence generating means adapted to be synchronized to said first code sequence generating means for providing an input to said balanced modulator.

4,280,223

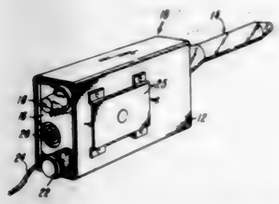
RADAR DETECTOR

Donald L. Roettele, and William E. Yohpe, both of Dayton, Ohio, assignors to ConGeneral Corporation, Dayton, Ohio

Continuation of Ser. No. 777,311, Mar. 14, 1977, abandoned.
This application Sep. 13, 1979, Ser. No. 75,016
Int. Cl.³ H04B *1/00*; H03D *1/00*
U.S. Cl. 375—93 **11 Claims**

1. An improved radar detector comprising a housing, an elongated tubular waveguide disposed within said housing, an elongated dielectric antenna having a first tapered portion projecting into said waveguide for matching the impedances of said antenna and said waveguide, said antenna having a second portion projecting outwardly from said housing for collecting radar signals, said second portion of said dielectric antenna includes a first frusto-conical portion and a second frusto-conical portion connected by an elongated substantially cylindrical portion, means for detecting radar signals received within said waveguide, oscillator means, modulator means for receiving a reference signal from said oscillator means and in response

modulating the radar signals detected by said detecting means, means for amplifying the signals detected by said detecting means, phase shifter means for receiving the amplified signals from said amplifying means and for shifting the phase of the amplified signals, phase detector means for receiving the reference signal from said oscillator means and the shifted signals from said phase shifter means, and alarm means connected to said phase detector means to produce an alarm signal when the reference and shifted signals received by said phase detector means are synchronous in frequency and have a predetermined phase relation.

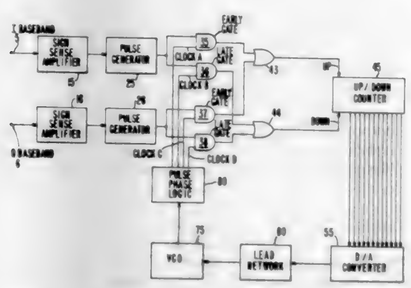


4,280,224

BIT SYNCHRONIZER WITH EARLY AND LATE GATING

Frank Chethik, Palo Alto, Calif., assignor to Ford Aerospace & Communications Corporation, Detroit, Mich.

Filed Jun. 21, 1979, Ser. No. 50,566
Int. Cl.³ H04L *5/22;* **H03K** *5/00*
U.S. Cl. 375—116 **9 Claims**



1. Apparatus for synchronizing an input antipodal data bit stream having a bit period and having crossings about a reference axis, comprising:

means for statistically estimating the mean crossing with respect to time of said input data stream;

means for generating an early gate for each bit period whose on-duration is a predetermined percentage of said bit period, said early gate embracing crossings that occur just before said mean crossing and a late gate for each bit period whose on-duration is a predetermined percentage of said bit period, said late gate embracing crossings which occur just after said mean crossing; and

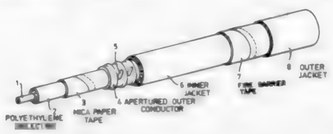
means for changing the frequency of said gates in response to the frequency of said input data stream.

4,280,225

COMMUNICATION SYSTEMS FOR TRANSPORTATION UNDERTAKINGS

Arthur J. Willis, Wirral, England, assignor to BICC Limited, London, England

Continuation-in-part of Ser. No. 931,990, Aug. 8, 1978, abandoned. This application Nov. 8, 1979, Ser. No. 92,641
Claims priority, application United Kingdom, Aug. 24, 1977, 35473/77; Dec. 2, 1977, 50309/77
Int. Cl.³ H04B *3/60;* **H01B** *7/18, 11/18;* **H01Q** *13/20*
U.S. Cl. 455—55 **5 Claims**



1. A radiating cable communication system for a transportation utility having at least one vehicle movable along at least one predetermined route comprising

(a) A radiating cable installed along the length of said route and having an inner conductor; a dielectric comprising an alkene polymer; a leaky outer conductor; and a sheath of flame retardant low-smoke insulating material.

(b) an antenna movable along said route relative to said cable consequent upon movement of said vehicle along said route

(c) a first transducer fixed with respect to said radiating cable and coupled to it

(d) a second transducer fixed with respect to said antenna and coupled to it; at least one of said first transducer and said second transducer being a transmitter supplying a signal with a frequency in the range 30–460 MHz and at least the other of said first transducer and said second transducer being a receiver responsive to said signal,

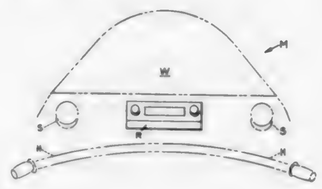
distinguished by the presence on the outer surface of said dielectric of a layer of mica paper tape.

4,280,226

PROTECTIVE COVER FOR THE FACE PLATE OF A MOTORCYCLE-TYPE RADIO

Joseph E. Jenkins, 209 13th St., Pawnee, Ill. 62558

Filed Sep. 25, 1978, Ser. No. 945,448
Int. Cl.³ B62J *23/00*
U.S. Cl. 455—345 **4 Claims**



1. A protective cover for and combined with the face-plate of a radio mounted to face the operator of a motorcycle or a like device, said cover comprising: an open-faced horizontally elongated box rectangular in vertical and horizontal longitudinal cross-sections and having a back wall at least slightly larger than the radio face-plate protectively covered thereby, said back wall being medially partially cut-away to expose the usual station-selector window of said radio, said back wall also having apertures for relatively close-fitting reception of the usual threaded bearing-sleeves for the usual radio-control shafts, which sleeves plus the usual co-operating nuts normally clamp said radio face-plate to the front surface of said radio, said open-faced box being attached to said radio by having its back wall clamped between the front of the radio proper and its face-plate by the co-operating nuts, and a moveable closure member positionable over the open face of said open-faced box for completely covering and protecting said radio face plate.

DESIGNS

JULY 21, 1981

259,895

MATERNITY DRESS

Verna G. Hager, Box 914, Conrad, Mont. 59425

Filed Mar. 26, 1979, Ser. No. 24,274
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—131



259,896

BELT BUCKLE

Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.

Filed Aug. 7, 1979, Ser. No. 64,411
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,897

BELT BUCKLE

Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.

Filed Aug. 7, 1979, Ser. No. 64,418
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440



259,898

BELT BUCKLE

Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.

Filed Aug. 7, 1979, Ser. No. 64,419
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440

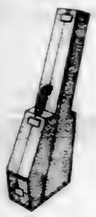


259,899
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,420
Term of patent 14 years
Int. Cl. D02—*07*
U.S. Cl. D2—440

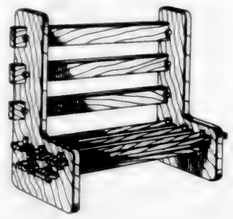




259,900
MUSICAL INSTRUMENT CASE
Jacques, 2233 Park Ave., Cincinnati, Ohio 45206
Filed May 31, 1979, Ser. No. 44,203
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—30



259,901
CHILD'S BENCH
Michael E. Herbert, Sr., 4129 Lake Sherwood Ave. East, Baton Rouge, La. 70816
Filed Aug. 15, 1978, Ser. No. 933,772
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—7



259,902
BEAD-FILLED CHAIR
Garland H. Rock, Midlothian, Va., assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Apr. 19, 1979, Ser. No. 31,646
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



259,903
STOOL
Rosalyn G. Sidewater, 200 Central Park South, #30B, New York, N.Y. 10019
Filed Nov. 6, 1978, Ser. No. 957,998
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—74



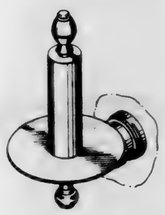
259,904
PORTABLE WORK TABLE
Joseph S. Ng, Montebello, and William F. Sommers, Pasadena, both of Calif., assignors to Joseph J. Muscolino, Inc., Arcadia, Calif.
Filed Nov. 6, 1978, Ser. No. 958,105
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—85



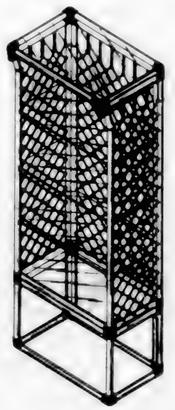
259,905
SPLASH SHIELD FOR RECESSED SOAP HOLDERS
Harold G. Bell, 1511 South St., Allentown, Pa. 18102
Filed Jul. 16, 1979, Ser. No. 57,839
Term of patent 7 years
Int. Cl. D23—*02*
U.S. Cl. D6—86



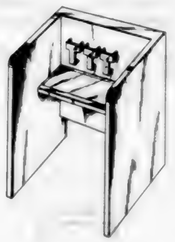
259,906
ROLLED PAPER HOLDER
Gary A. Fleischmann, Sheboygan, Wis., and Lawrence C. Peabody, Rindge, N.H., assignors to Kohler Co., Kohler, Wis.
Filed Apr. 10, 1980, Ser. No. 138,832
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—97



259,907
ETAGERE
Robert K. Thorpe, Newport Beach, Calif., assignor to The Charlton Company, Compton, Calif.
Continuation-in-part of Ser. No. 863,477, Dec. 22, 1977. This application Aug. 27, 1979, Ser. No. 70,138
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—175



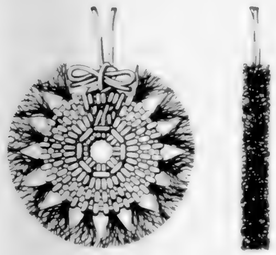
259,908
DESK CARREL
James S. Berman, New York, and Sigurd Stegmaier, Malverne, both of N.Y., assignors to Citibank, N.A., New York, N.Y.
Filed Feb. 7, 1978, Ser. No. 875,945
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—181



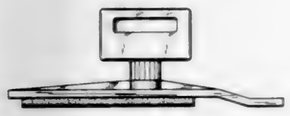
259,909
FRUIT OR CANDY CONTAINER FOR FLORAL ARRANGEMENTS, FRUIT BASKETS OR THE LIKE
John R. Cookson, Middlebury, Conn., assignor to Waterbury Companies, Inc., Waterbury, Conn.
Filed Mar. 30, 1979, Ser. No. 25,619
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—20



259,910
MACRAME COASTER OR THE LIKE
Lucine C. Simmons, Rte. 5, Box 360-B, Fayetteville, N.C. 28301
Filed Feb. 15, 1979, Ser. No. 12,467
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—45



259,911
RECORD CLEANER
C. Paul Davis, Woodland Hills, and Joseph Sandor, Reseda, both of Calif., assignors to California Sounds, Ltd., Tarzana, Calif.
Filed Dec. 26, 1978, Ser. No. 973,383
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—161



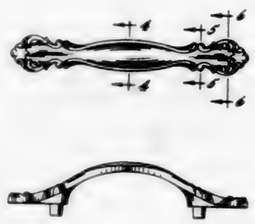
259,912
CLOTHES-PEG
Sergio Tontarelli, Via Mordini Ciriaco 37, Castelficardo (AN), Italy
Filed Feb. 26, 1979, Ser. No. 14,857
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—198



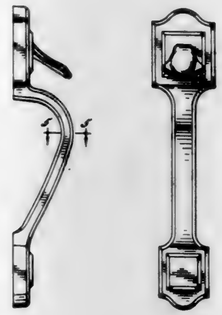
259,913
FLAT NOSE PLIERS
Ulf H. Wahlberg, Enköping, Sweden, assignor to Aktiebolaget Bahco Verktyg, Enköping, Sweden
Filed Sep. 29, 1977, Ser. No. 837,948
Claims priority, application Sweden, May 2, 1977, 770987
Term of patent 14 years
Int. Cl. D08—*05*
U.S. Cl. D8—58



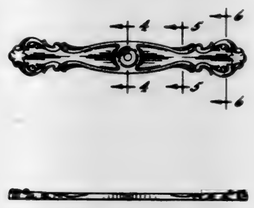
259,914
PULL
Teresa R. B. Pittenger, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Dec. 21, 1979, Ser. No. 106,377
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—318



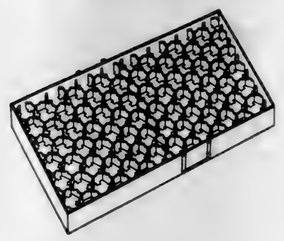
259,915
ENTRY HANDLE
Teresa R. B. Pittenger, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Jun. 23, 1980, Ser. No. 162,661
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—320



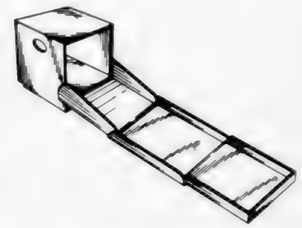
259,916
ESCUTCHEON
Teresa R. B. Pittenger, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Dec. 21, 1979, Ser. No. 106,378
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—350



259,917
EGG TRAY
Albert is G. Horsting, 6685 Sonoma Hwy., Santa Rosa, Calif. 95405
Filed Mar. 31, 1978, Ser. No. 892,465
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—348



259,918
STORAGE AND DISPLAY BOX
Austen B. Hufton, 28 W. 614 Washington, West Chicago, Ill. 60185
Filed Jun. 19, 1978, Ser. No. 916,777
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—423



259,919
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,776
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—311



259,920
BOTTLE
Alexander Homeos, 64 Panepistimiou Ave., Athens, Greece
Filed Jun. 14, 1979, Ser. No. 48,512
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349



259,921
BOTTLE OR SIMILAR ARTICLE
Norbert Hartmann, Bigogno, Switzerland, assignor to Pharmaton S.A., Lugano-Bioggio, Switzerland
Filed Nov. 17, 1978, Ser. No. 961,549
Claims priority, application Switzerland, May 28, 1978, 109840
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—377



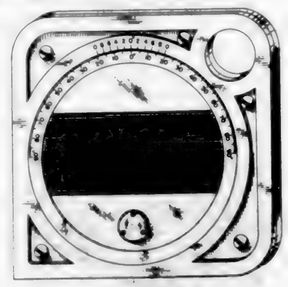
259,922
CONTAINER FOR AN ART COLOR TUBE OR THE LIKE
Kanta Seki, Ibaragi, Japan, assignor to Pentel Kabushiki Kaisha, Tokyo, Japan
Filed May 4, 1979, Ser. No. 36,225
Claims priority, application Japan, Nov. 7, 1978, 53-47203
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—418



259,923
CLOCK
Charles G. Chavana, 13132 Shasta Way, Santa Ana, Calif. 92705
Filed Dec. 26, 1978, Ser. No. 972,728
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—6



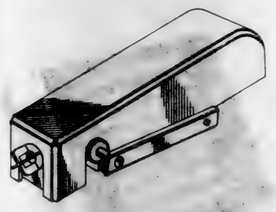
259,924
INSTRUMENT FOR THE INDICATION OF THE ANGULAR POSITION OF AN OBJECT
Lars A. Bergkvist, Gottne, 890 42 Mellansel, Sweden
Filed Nov. 13, 1978, Ser. No. 960,298
Claims priority, application Sweden, May 11, 1978, 1254
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—65



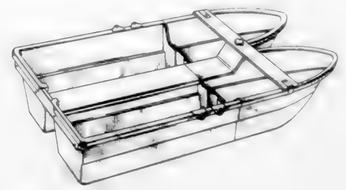
259,925
HEIGHT MEASURING SCALE
John A. Palmer, 12399 Sauridge Cir., Strongsville, Ohio 44136
Filed Mar. 26, 1979, Ser. No. 23,623
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—71



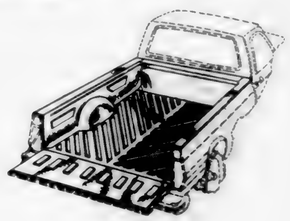
259,926
HOUSING FOR ALARM DEVICE
Ellworth R. Danz, La Salle, and John C. Crenshaw, Joliet, both of Ill., assignors to General Time Corporation, Thomaston, Conn.
Filed Oct. 10, 1978, Ser. No. 950,230
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—106



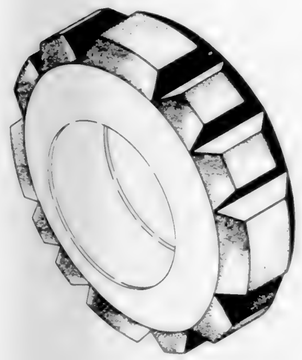
259,927
TENDER COMPRISING FOUR SEPARATE HULL PARTS
Stefan Norlund, Stältrådsvägen 32, 161 31 Bromma, Sweden
Filed Mar. 27, 1978, Ser. No. 890,759
Claims priority, application Sweden, Sep. 26, 1977, 1929
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—62



259,928
PICKUP TRUCK BED AND TAILGATE LINER
Gerald J. Weis, Dallas, Tex.; Donald L. Munoz, Bloomfield Hills, and Daniel Grote, Algonac, both of Mich., assignors to Thermoplastics Incorporated, Warren, Mich.
Filed Dec. 7, 1978, Ser. No. 967,211
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—98



259,929
TIRE TREAD
Joseph L. Weldon, 2544 N. Sydenham St., Philadelphia, Pa. 19132
Filed Dec. 18, 1978, Ser. No. 970,431
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—140

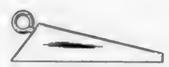


259,930
WHEEL
Ulf A. Sandberg, Kungsbacka, Sweden, assignor to AB Volvo, Goteborg, Sweden
Filed Jan. 8, 1979, Ser. No. 1,936
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—211



259,931
BOAT ANCHOR
Eugene L. Wentz, 6802 El Dorado Ct., Tampa, Fla. 33615, and R. Douglas Hannon, Rte. 2-Box 991, Odessa, Fla. 33556
Filed Jun. 23, 1978, Ser. No. 918,332
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—215





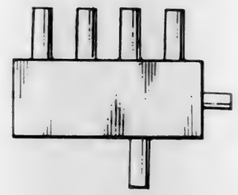
259,932
LOUDSPEAKER ENCLOSURE
James L. Hawkins, deceased, late of Philadelphia, Pa., and by Allene Hawkins, administratrix, 1434 N. 29th St., Philadelphia, Pa. 19121
Filed Oct. 10, 1978, Ser. No. 950,331
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—33



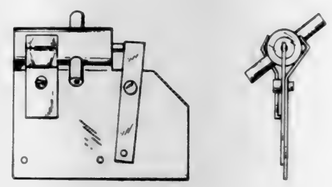
259,933
DIRECT STATION SELECTION CONSOLE
Donald A. Foggia, Ocean, N.J., and Roman F. Pomponi, Norwalk, Conn., assignors to TIE/communications, Inc., Shelton, Conn.
Filed Dec. 18, 1978, Ser. No. 970,373
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—58



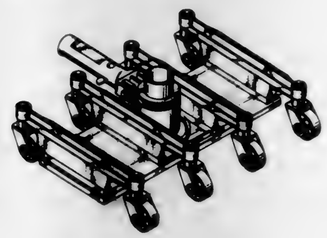
259,934
PRIMING VALVE FOR INTERNAL COMBUSTION ENGINES
John E. Lovret, 145-20 243rd St., Rosedale, N.Y. 11422
Filed Jan. 8, 1979, Ser. No. 1,470
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



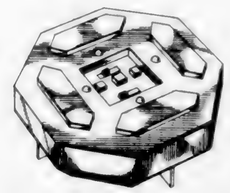
259,935
PRIMING VALVE UNIT FOR INTERNAL COMBUSTION ENGINES
John E. Lovret, 145-20 243rd St., Rosedale, N.Y. 11422
Filed Jan. 10, 1979, Ser. No. 2,375
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



259,936
SWIMMING POOL VACUUM HEAD
Kenneth E. Price, 1534 Channelwood Dr., Whittier, Calif. 90601, and Isao Sasaki, Altadena, Calif., assignors to Kenneth E. Price, Whittier, Calif.
Filed Nov. 2, 1978, Ser. No. 964,577
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—63



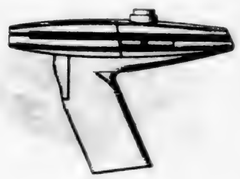
259,937
ELECTRONIC GAME HOUSING
Jeffrey P. Heuel, Riverside; William F. Palisek, Mundelein, and Lee Radke, Lake Zurich, all of Ill., assignors to Interstate Industries, Inc., Mundelein, Ill.
Filed Jul. 5, 1979, Ser. No. 53,453
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



259,938
HAND MANIPULATIVE AQUATIC TOY
Robert A. Bantin, Little Valley, and Dean R. Kilbourn, Salamanca, both of N.Y., assignors to BKB Industries, Inc., Little Valley, N.Y.
Filed Nov. 21, 1977, Ser. No. 853,637
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—59



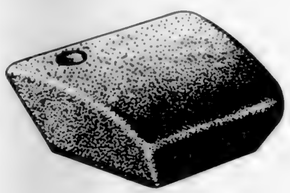
259,939
TOY WEAPON
Richard M. Rubin, Hollywood, Calif., assignor to Paramount Pictures Corporation, Los Angeles, Calif.
Filed Apr. 10, 1979, Ser. No. 28,833
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—147



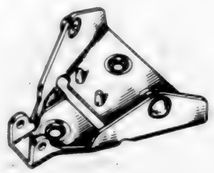
259,940
RACQUETBALL RACKET
Paul A. Witte, New Hope, Pa., and Thomas Johnson, Hopewell, N.J., assignors to AMF Incorporated, Plainsboro, N.J.
Filed Sep. 27, 1979, Ser. No. 79,504
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—212



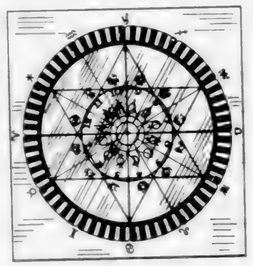
259,941
GOLF CLUB HEAD
Donald R. James, 298 Selby La., Atherton, Calif. 94025
Filed Oct. 30, 1978, Ser. No. 956,251
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D21—214



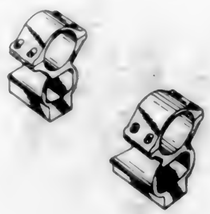
259,942
TOE FITTING FOR SKI BINDINGS
Alvar E. P. Kjellström, Sollentuna, Sweden, assignor to AB Broderna Kjellström, Stockholm, Sweden
Filed Aug. 18, 1978, Ser. No. 935,078
Claims priority, application Sweden, Feb. 21, 1978, 780499
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—229



259,943
GAME BOARD
Bernard D. Hansen, Ste. 500, 11 Yorkville Ave., Toronto, Ontario, Canada (M4W 1L3)
Filed Mar. 7, 1978, Ser. No. 884,319
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—241



259,944
RIFLESCOPE MOUNT ASSEMBLY
Donald J. Burris, Greeley, Colo., assignor to Burris Company, Greeley, Colo.
Filed Sep. 11, 1978, Ser. No. 941,270
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—7



259,945
GUN SLING
John E. Bianchi, 1601 Wilt Rd., Fallbrook, Calif. 92028
Filed Apr. 27, 1979, Ser. No. 34,158
Term of patent 14 years
Int. Cl. D22—*01*
U.S. Cl. D22—7



259,946
COMBINED BELT AND SHOULDER REVOLVER HOLSTER
John E. Bianchi, 1601 Wilt Rd., and Richard D. E. Nichols, 813 Cozy Ct., both of Fallbrook, Calif. 92390
Filed Dec. 10, 1979, Ser. No. 101,913
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D22—13



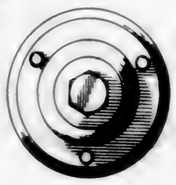
259,947
COMBINED BELT AND SHOULDER AUTOMATIC HANDGUN HOLSTER
John E. Bianchi, 1601 Wilt Rd., and Richard D. E. Nichols, 813 Cozy Ct., both of Fallbrook, Calif. 92390
Filed Dec. 17, 1979, Ser. No. 104,036
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D22—13



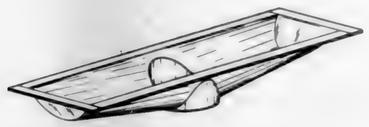
259,948
FIREARM MAGAZINE CARRIER
John E. Bianchi, 1601 Wilt Rd., and Richard D. E. Nichols, 813 Cozy Ct., both of Fallbrook, Calif. 92390
Filed Dec. 10, 1979, Ser. No. 101,916
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D22—14



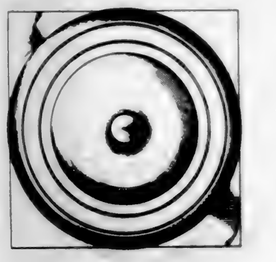
259,949
STOVE DRAFT VALVE CONTROL PLATE
John H. Bane, III, 403 N. Maple Ave., Brunswick, Md. 21716
Filed Oct. 30, 1978, Ser. No. 956,078
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—127



259,950
TRENCH DRAIN
John G. Henry, Rte. 2, Quinlan, Tex. 75474
Filed Sep. 26, 1978, Ser. No. 945,824
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—42



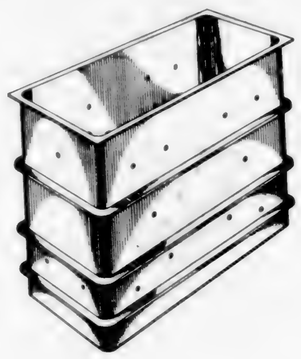
259,951
VENTILATOR
George M. Briedert, 33275 N. Canyon Quail Trail, Agua Dulce, Calif. 91350
Filed Jun. 11, 1979, Ser. No. 47,921
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—153



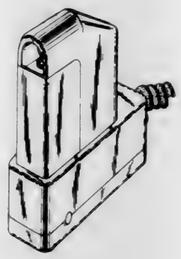
259,952
HANDHELD LIGHTED MIRROR DEVICE FOR INSPECTING THE MOUTH OR OTHER PARTS OF THE HUMAN BODY
Hiroshi Hukuba, No. 914-1, Nazukari, Nagareyama-shi, Chiba-ken, Japan, and Nobuji Nakamura, Chofu, Japan, assignors to Hiroshi Hukuba, Nagareyama, Japan
Filed Aug. 14, 1978, Ser. No. 933,728
Claims priority, application Japan, Feb. 16, 1978, 53-5476
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—13



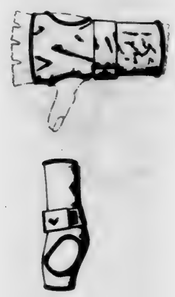
259,953
ANIMAL HYDROTHERAPY TANK
Jerry Weissman, Pumphouse Rd., Brewster, N.Y. 10509, and Ely Kass, 26 Kings Ridge Rd., Mahopac, N.Y. 10541
Filed Sep. 22, 1978, Ser. No. 944,880
Term of patent 14 years
Int. Cl. D24—*02*; D23—*02*
U.S. Cl. D24—38



259,954
COMBINED POCKET ULTRASONIC ATOMIZER AND BATTERY CHARGER THEREFOR
Ernst Reichl, Munich, Fed. Rep. of Germany, assignor to Bosch-Siemens Hausgerite GmbH, Stuttgart, Fed. Rep. of Germany
Filed Oct. 19, 1978, Ser. No. 952,672
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 4819
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—62



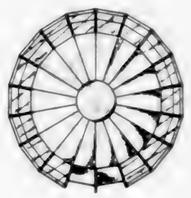
259,955
WRIST BRACE
Howard E. Helferich, Cincinnati, Ohio, assignor to Surgical Appliance Industries, Inc., Cincinnati, Ohio
Filed Mar. 14, 1979, Ser. No. 20,535
Term of patent 14 years
Int. Cl. D24—*04*; D2—*02*
U.S. Cl. D24—64



259,956
COMBINED SHORELINE PROTECTIVE STRUCTURE AND WATER PURIFICATION STRUCTURE
Joseph Shaara, Sr., 873 Montgomery St., Jersey City, N.J. 07306
Filed Apr. 17, 1978, Ser. No. 896,909
Term of patent 7 years
Int. Cl. D25—*02*
U.S. Cl. D25—1



259,957
HOUSE
Peter I. McNeall, 402 Enchanted Trail Dr., Spring, Tex. 77373
Filed Mar. 1, 1979, Ser. No. 16,622
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—19



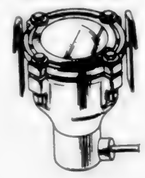
259,958
DECORATIVE COMPOSITE GLASS PANEL FOR INSTALLATION IN A DOOR OR WINDOW
B. Jeremiah Shaffer, Worthington, Ohio, assignor to Pease Company, Fairfield, Ohio
Filed Aug. 30, 1979, Ser. No. 71,412
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—72



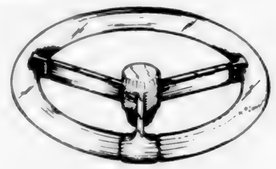
259,959
DECORATIVE COMPOSITE GLASS PANEL FOR INSTALLATION IN A DOOR OR WINDOW
B. Jeremiah Shaffer, Worthington, Ohio, assignor to Pease Company, Fairfield, Ohio
Filed Apr. 25, 1980, Ser. No. 143,589
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—72



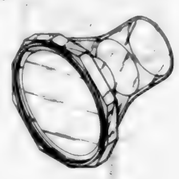
259,960
LANDSCAPE ILLUMINATION LIGHT OR SIMILAR APPARATUS
John R. Watson, Dallas, Tex., assignor to John Watson Landscape Illumination Inc., Dallas, Tex.
Filed Dec. 7, 1978, Ser. No. 967,157
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D26—24



259,961
FLUORESCENT LAMP UNIT
Joseph P. Wotowiec, Cuyahoga Falls, Ohio, and Thurman Bowls, New Smyrna Beach, Fla., assignors to General Electric Company, Schenectady, N.Y.
Filed Sep. 21, 1978, Ser. No. 944,494
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—26



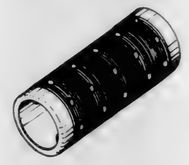
259,962
FLASHLIGHT HEAD
Knut O. Sassmannshausen, Rothenbach St., D 6580 Idar-Oberstein, Fed. Rep. of Germany
Filed Jun. 16, 1978, Ser. No. 917,012
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—37



259,963
LAMP ASSEMBLY FOR ELECTRICAL CONVERSION OF A GAS STREET LAMP
Ernest H. Pfaff, Deerfield, and William R. McIntire, Downers Grove, both of Ill., assignors to Enconserv, Inc., Downers Grove, Ill.
Filed Sep. 6, 1979, Ser. No. 73,552
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—113



259,964
HAIR CURLING ROLLER
Charles G. Edelen, 221 Orchard St., Grand Junction, Colo. 81501
Filed Apr. 18, 1979, Ser. No. 31,315
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—37



259,965
SHAVING UNIT
Klaas T. Oord, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 6, 1978, Ser. No. 949,300
Claims priority, application United Kingdom, Apr. 11, 1978, 984177/78
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—50



259,966
COSMETIC MIRROR
Beatrice Bogorad, 521½ E. Tennessee St. Apt. No. 3, Tallahassee, Fla. 32306
Filed Jun. 19, 1978, Ser. No. 916,778
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—70



259,967
FEED BUCKET HOLDER
Travis F. Ramsey, Rte. 1, Box 200, Quitman, Tex. 75783
Filed Feb. 5, 1979, Ser. No. 9,661
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—13



259,968

PICK-UP DEVICE FOR ANIMAL EXCREMENT

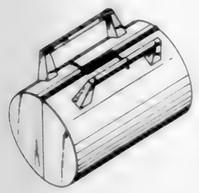
Alfons Schneider, Laurentiusstrasse 32, 6635 Schwalbach-Hulzweiler, Fed. Rep. of Germany

Filed Jan. 3, 1979, Ser. No. 730

Term of patent 14 years

Int. Cl. D30—99

U.S. Cl. D30—99



259,969

DRUM

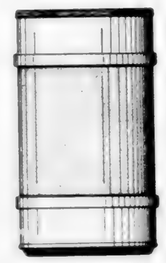
Seymour Zilbert, Demarest, N.J., assignor to Bergen Barrel & Drum Co., Demarest, N.J.

Continuation-in-part of Ser. No. 893,514, Apr. 4, 1978. This application Apr. 30, 1979, Ser. No. 34,725

Term of patent 14 years

Int. Cl. D99—99

U.S. Cl. D99—51



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF JULY, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Chance Company: *See—*
Clutter, Melvin E., 4,280,013, Cl. 174-5.00R.

A. H. Robins Company, Inc.: *See—*
Cale, Albert D., Jr.; and Leonard, Charles A., 4,279,822, Cl. 260-326.470.

A. Johnson and Company (London) Limited: *See—*
Duckworth, Edward D., 4,279,295, Cl. 165-94.000.

A/S Niro Atomizer: *See—*
Felsvang, Karsten S.; Hansen, Ove E.; and Rasmussen, Elisabeth L., 4,279,873, Cl. 423-242.000.

Aasen, Helen C. Flea vacuum system. 4,279,095, Cl. 43-139.000.

AB Volvo: *See—*
Ahlbom, Sten H. N., 4,279,328, Cl. 187-9.00R.

Abbott, Daniel B.: *See—*
Krebs, Fred G.; and Abbott, Daniel B., 4,279,173, Cl. 74-441.000.

Abbott, Ronald E., to Overhead Door Corporation. Leg latch for in-pit dock levelers. 4,279,050, Cl. 14-71.300.

Abbruzzese, Luigi: *See—*
Gozzo, Franco; Abbruzzese, Luigi; and Longoni, Angelo, 4,279,927, Cl. 424-322.000.

Abdelmonem, Nabil: *See—*
Ringel, Helmut; Zimmer, Erich; and Abdelmonem, Nabil, 4,279,866, Cl. 423-7.000.

Abele, Manfred: *See—*
Jeblick, Werner; Roos, Ernst; Kempermann, Theo; and Abele, Manfred, 4,280,004, Cl. 521-89.000.

Abeyama, Shozo: *See—*
Kato, Tetsuo; Abeyama, Shozo; Kimura, Atsuyoshi; and Nakamura, Sadayuki, 4,279,646, Cl. 75-123.0AA.

Abrahams, Marvin S.; and Blanc, Joseph, to RCA Corporation. Method of improving silicon crystal perfection in silicon on sapphire devices. 4,279,688, Cl. 156-613.000.

ACF Industries, Incorporated: *See—*
Levin, Alan, 4,279,404, Cl. 251-167.000.
Lindberg, Allen W.; Gantzert, Thomas R.; and Hicks, Donald L., 4,279,231, Cl. 123-489.000.

Acharya, Rajguru M.; and Del Signore, James R., II, to NCR Corporation. Digital DC motor speed control circuit. 4,280,082, Cl. 318-341.000.

Achelpohl, Fritz; and Decker, Werner, to Windmoller & Holscher. Apparatus for applying web sections to a flat-lying workpiece. 4,279,686, Cl. 156-517.000.

Acheva, Jivka P.: *See—*
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.

Acme Flooring Limited: *See—*
Miller, Henry, deceased; and Byrne, Desmond, legal representative, 4,279,532, Cl. 404-68.000.

Acre, Leon R., to Midland-Ross Corporation. Clutch retention feature of a hand control valve. 4,279,273, Cl. 137-627.500.

Adams, Don L.; Murphy, Richard D.; and Fischer, William C., to United Technologies Corporation. Desensitizing helicopter control response to inadvertent pilot inputs. 4,279,391, Cl. 244-17.130.

Ageeva, Ljubov S.: *See—*
Kreimer, July K.; and Ageeva, Ljubov S., 4,279,893, Cl. 424-89.000.

Agence Nationale de Valorisation de la Recherche (ANVAR): *See—*
Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, 4,279,249, Cl. 128-92.00D.

Ager, Ian R.; and Ramm, Peter J., to Roussel Uclaf. Novel imidazoquinolines. 4,279,912, Cl. 424-258.000.

AGFA-Gevaert, A.G.: *See—*
Laar, Erwin; and Sperber, Werner, 4,279,371, Cl. 226-91.000.
Stemme, Otto; Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,279,491, Cl. 355-27.000.
Stemme, Otto; Wagensonner, Eduard; and Ruf, Wolfgang, 4,280,142, Cl. 358-214.000.
Thurm, Siegfried; Bunge, Konrad; and Findeis, Gunter, 4,279,502, Cl. 355-38.000.

Aggarwal, Sundar L.; Hargis, Ivan G.; and Livigni, Russell A., to General Tire & Rubber Company, The. Polydiene polyalkylene oxide block copolymers and their use as alcohol hydrocarbon dispersants. 4,279,798, Cl. 260-33.40R.

Aguirre, Ricardo. Adjustment gasification device for gas lighters. 4,279,591, Cl. 431-344.000.

Ahlbom, Sten H. N., to AB Volvo. Device for orienting a lifting means, for example, in relation to a load. 4,279,328, Cl. 187-9.00R.

Ahmad, Abu, to Owens-Corning Fiberglas Corporation. Composite foam panel. 4,279,958, Cl. 428-215.000.

Aigner, Robert; and Lovelace, James. Bottle with separate compartments. 4,279,349, Cl. 215-6.000.

Aimants Ugimag S.A.: *See—*
Boeuf, Jean-Marie; Gerest, Pierre; and Lemaire, Henri, 4,279,763, Cl. 252-62.580.

Aimpoint AB: *See—*
Johansson, Carl B., 4,279,191, Cl. 89-185.000.

Air-Glide Corporation: *See—*
Tagg, Forrest L.; and Tourville, Francis E., 4,279,430, Cl. 280-439.000.

Air Products and Chemicals, Inc.: *See—*
Longsworth, Ralph C., 4,279,127, Cl. 62-77.000.

Airco, Inc.: *See—*
Valenta, James D.; and Heruth, Kenneth T., 4,279,250, Cl. 128-200.140.

Ajax Magnethermic Corporation: *See—*
Havas, George; and Esenwein, Fred D., 4,280,038, Cl. 219-10.770.

Ajinomoto Company, Incorporated: *See—*
Takami, Toru; and Yonekawa, Yuriko, 4,279,917, Cl. 424-273.00R.

Akademie der Wissenschaften der DDR: *See—*
Karthe, Wolfgang; and Wehrsdorfer, Eike, 4,280,096, Cl. 324-316.000.

Aketa, Kohichi: *See—*
Suzuki, Yukio; Kasamatsu, Kiyoshi; and Aketa, Kohichi, 4,279,924, Cl. 424-304.000.

Akiyama, Seigo: *See—*
Saito, Yukio; Sekiya, Koichi; Takahashi, Masaaki; and Akiyama, Seigo, 4,279,616, Cl. 23-230.00B.

Akkerman, Neil H.; Foster, Stephen R.; and Goans, Kip B., to Baker CAC, Inc. Flow line monitor pilot valve assembly. 4,279,272, Cl. 137-596.180.

Aktiebolaget SKF: *See—*
Heldt, Helge, 4,279,451, Cl. 308-26.000.

Akulov, Vladislav A.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Akzo NV: *See—*
Boomgaard, Ritse E.; Buter, Roelof; and Kiffen, Aleidus A., 4,279,800, Cl. 260-39.00P.

Alcock, James M.: *See—*
Kulesza, Ralph J.; Alcock, James M.; and Meyer, Burton C., 4,279,098, Cl. 46-101.000.

Alessio, Lorenzo E., to Black & Decker Inc. Actuator mechanism for a portable, hand-held tool. 4,280,026, Cl. 200-157.000.

Alewitz, Sam, to Perfection Corporation. Gas riser apparatus. 4,279,435, Cl. 285-242.000.

Alfanta, Teofilo. Repair kit for tubeless tires. 4,279,343, Cl. 206-582.000.

Algoma Steel Corporation, Limited, The: *See—*
Egan, James L., 4,279,408, Cl. 266-271.000.

Alikhan, Raza. Non-inverting fluid dispenser. 4,279,363, Cl. 222-94.000.

Allan, John L. H.; Finestone, Arnold B.; and Roderick, John J., to El Paso Polyolefins Company. Stabilized polyolefin compositions. 4,279,809, Cl. 260-45.95C.

Allen, Carl J. Fluorescent lamp end cap. 4,280,169, Cl. 362-217.000.

Allen & Hanburys Ltd.: *See—*
Price, Barry J.; Clitherow, John W.; and Bradshaw, John, 4,279,819, Cl. 260-326.50S.

Allen, Robert H., to University Patents, Inc. Test for pancreatic exocrine function. 4,279,886, Cl. 424-1.000.

Allied Chemical Corporation: *See—*
Colbert, Aaron; and Figiel, Francis J., 4,279,665, Cl. 134-38.000.
Figiel, Francis J.; and Colbert, Aaron, 4,279,664, Cl. 134-38.000.
Schevey, William R.; Weslowski, Robert G.; and Morentz, John D., 4,279,279, Cl. 141-5.000.

Allis-Chalmers Corporation: *See—*
Breed, Michal A.; and Prince, George T., 4,279,175, Cl. 74-473.00R.
Plate, John R.; and Lucas, James H., 4,279,334, Cl. 192-3.570.

Allred, John C. High speed particle sorter using a field emission electrode. 4,279,345, Cl. 209-3.200.

Alonso, Sydney A. Electronic music sampling techniques. 4,279,185, Cl. 84-1.010.

Alps Electric Co., Ltd.: *See—*
Kondo, Shiro; and Takii, Yasuo, 4,280,031, Cl. 200-314.000.
Sekiguchi, Mitsuo, 4,280,113, Cl. 333-202.000.

Alsthom-Atlantique: *See—*
Blanc, Jacques; Coulon, Andre; and Pellus, Gilbert, 4,279,706, Cl. 204-26.000.

Alter, Hobart L., to Coast Catamaran Corporation. Apparatus for mounting an outboard motor. 4,279,602, Cl. 440-63.000.

Altmayer, Joseph, to E & E Seegmiller Limited. Portable hydraulic gear pulling device. 4,279,068, Cl. 29-252.000.

Aluminum Pechiney: *See—*
Hanrot, Jean-Pascal; and Volpeliere, Jacky, 4,279,549, Cl. 406-14.000.

Amemiya, Norio: *See—*
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,279,980, Cl. 430-68.000.

American Aquatic Concepts and Enterprises, Inc.: *See—*
Drew, Daniel C., 4,279,039, Cl. 2-428.000.

American Can Company: *See—*
Burroughs, Reginald L.; Thompson, William J.; and Wooldridge, Derek, 4,279,663, Cl. 127-1.000.

American Colloid Company: *See—*
Clem, Arthur G., 4,279,547, Cl. 405-258.000.

American Cyanamid Company: *See—*
Henkel, Herbert W.; and Paradiso, Mary R., 4,279,891, Cl. 424-73.000.
Kudla, Ronald M., 4,279,901, Cl. 424-241.000.

American Hospital Supply Corporation: *See—*
Grimm, Phillip R., 4,279,597, Cl. 433-129.000.

American Optical Corporation: *See—*
Ramirez, Peter R.; and Canterbury, Bradford, 4,279,401, Cl. 249-139.000.

American Original Corporation, The: *See—*
Hutchison, Wayne A.; and DeVore, Steven R., 4,279,934, Cl. 426-262.000.

American Standard Inc.: *See—*
Morgan, Glenn; and Morris, Robert B., 4,279,332, Cl. 188-170.000.

American Sterilizer Company: *See—*
Miller, William R., 4,279,563, Cl. 414-611.000.

American Sunroof Corporation: *See—*
Prechter, Heinz C.; and Kaltz, Milton C., 4,279,441, Cl. 296-218.000.

AMF Incorporated: *See—*
Diacont, George P., Jr., 4,279,209, Cl. 112-104.000.
Garofalo, Giovanni, 4,279,040, Cl. 2-428.000.
Ross, Haldon, 4,279,174, Cl. 74-473.00P.

Amicel, Charles; Biot, Bernard; Butruille, Yves; and Ollivier, Christian, to Sodip SA. Hollow fiber apparatus for the fractionation of fluid especially useful as an artificial kidney. 4,279,678, Cl. 156-169.000.

Amorese, Franklyn J.; and Piarulli, Vincent J., to Sybron Corporation. Quick opening manhole cover assembly. 4,279,356, Cl. 220-314.000.

AMP Incorporated: *See—*
Zell, Dale R.; and Morningstar, Leroy J., 4,279,074, Cl. 29-866.000.

Ampex Corporation: *See—*
Stock, Rodney D., 4,280,138, Cl. 358-150.000.
Tin, Lucas K., 4,280,153, Cl. 360-66.000.

Anaconda Company, The: *See—*
Mart, Carl F.; and Waits, Douglas B., 4,280,201, Cl. 367-56.000.

Anchor Hocking Corporation: *See—*
Roberts, Cecil P.; and Ochs, Charles S., 4,279,115, Cl. 53-314.000.

Anderson, Jack A., to Bethlehem Steel Corporation. Temperature measuring system. 4,279,151, Cl. 73-343.00R.

Anderson, Martin; and Woodall, Roger E., to Shell Oil Company. Diphydrothiazine derivatives. 4,279,903, Cl. 424-246.000.

Anderson, Maynard E.; Marshall, Robert T.; and Stringer, William C., to United States of America, Agriculture. Carcass cleaning unit. 4,279,059, Cl. 17-51.000.

Anderson, Nathaniel C.; and Grover, Charles R., Jr., to International Business Machines Corporation. Electroplating of nickel-iron alloys for uniformity of nickel/iron ratio using a low density plating current. 4,279,707, Cl. 204-43.00T.

Anderson, Nevil J.: *See—*
Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., 4,279,756, Cl. 210-667.000.

Ando, Masahisa; Kato, Keigo; and Ishikawa, Tomozi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Power steering device for wheeled vehicles. 4,279,323, Cl. 180-148.000.

Ando, Masatoshi. Slot loading cassette tape mechanism. 4,280,154, Cl. 360-96.400.

Andriacchi, Thomas P.; Galante, Jorge O.; and Hampton, Steven J., to Rush-Presbyterian-St. Luke's Medical Center. Hip prosthesis. 4,279,042, Cl. 3-1.913.

Anic S.p.A.: *See—*
Prevedello, Aldo; Brunelli, Maurizio; and Platone, Edoardo, 4,279,834, Cl. 260-464.000.

Anritsu Keiki Kabushiki Kaisha: *See—*
Nakamura, Tsuneo, 4,279,154, Cl. 73-359.00R.

Ansell, Martin P.: *See—*
Stewart, Clive E. E.; Rosser, William J. N.; and Ansell, Martin P., 4,279,785, Cl. 252-518.000.

Anspach, Roy L.: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Anthony, Thomas R.; and Cline, Harvey E., to General Electric Company. Zirconium alloys having an integral β-quenched corrosion-resistant surface region. 4,279,667, Cl. 148-32.000.

Antonwitsch, Lucien M., to Oldenkamp, Jerry. Apparatus and method for removing magnetic articles from a flow of loosely packed material. 4,279,744, Cl. 209-214.000.

Aoki, Kozo; Furutachi, Nobuo; and Sawada, Satoru, to Fuji Photo Film Co., Ltd. Color photographic materials. 4,279,990, Cl. 430-551.000.

Aoki, Masaaki: *See—*
Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, 4,280,131, Cl. 357-17.000.

Aoki, Masahiro: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Aoki, Masaki; Yoshida, Shigeru; Yamazoe, Hiroshi; and Nagasawa, Masahiro, to Matsushita Electric Industrial Co. Method of making boron cantilever. 4,279,691, Cl. 156-656.000.

Aoki, Takanori: *See—*
Misaki, Takashi; Aoki, Takanori; and Miyawaki, Yukihiko, 4,280,146, Cl. 360-10.000.

Appleman, William S., to RPC Corporation. Anti-sway load handling apparatus. 4,279,347, Cl. 212-147.000.

Appleton, John M. Alternating piston rotary engine with latching control mechanism and lost motion connection. 4,279,577, Cl. 418-35.000.

Arai, Takeo: *See—*
Ban, Keisuke; Arai, Takeo; and Daimaru, Akimasa, 4,279,289, Cl. 164-97.000.

ARBED Acieries Reunies de Burbach-Eich-Dudelange, Societe Anonyme: *See—*
Block, Franz-Rudolf, 4,279,149, Cl. 73-290.00R.
Schmitz, Fernand, 4,279,139, Cl. 72-234.000.

Arco Environmental Company: *See—*
Nielson, Niel E.; Kreiling, Ronald L.; Hill, Robert C.; and Nice, Ralph A., 4,279,753, Cl. 210-605.000.

Arendt, Ronald H., to General Electric Company. Electrolyte structure with strontium titanate matrix for molten carbonate fuel cells. 4,279,971, Cl. 429-46.000.

Argus Chemical Corporation: *See—*
Halle, Reidar; Peterson, David; and Lewis, Roger N., 4,279,831, Cl. 260-453.0RZ.
Ohzeki, Toshio; and Semba, Takanori, 4,279,805, Cl. 260-45.9NC.

Arielly, Salo: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,279,810, Cl. 260-112.50R.

Arita, Kishio: *See—*
Fujiwara, Koichi; Yamauchi, Coro; Arita, Kishio; and Tsurumi, Shigeyuki, 4,279,649, Cl. 75-173.00A.

Armstrong World Industries, Inc.: *See—*
Piersol, Jay L., 4,279,696, Cl. 162-146.000.

Arndt, Carl; and Mueller, Martin, to Owens-Illinois, Inc. Cup forming mandrel. 4,279,585, Cl. 425-403.000.

Arnold, Carroll H., to Wain-Roy, Inc. Excavating buckets. 4,279,085, Cl. 37-103.000.

Arnold, Herbert; and Gerhards, Gerd, to Robert Bosch GmbH. Electronic injection-amount regulating apparatus in auto-ignited internal combustion engines. 4,279,229, Cl. 123-359.000.

Arnold, John, to W. H. Brady Co. Tape dispenser package with roll restraining cover. 4,279,359, Cl. 221-70.000.

Arora, Mulk A.; and Randall, John J., Jr., to Sprague Electric Company. AC Etching of aluminum capacitor. 4,279,714, Cl. 204-129.900.

Arora, Mulk A.; Randall, John J., Jr.; and Bernard, Walter J., to Sprague Electric Company. Etching of aluminum capacitor foil. 4,279,715, Cl. 204-129.900.

Artamonov, Viktor L.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Arthur Guinness Son and Company: *See—*
Hildebrand, Peter C. R., 4,279,938, Cl. 426-424.000.

Artusy, Bobby L. Self-regulating solar window device. 4,279,240, Cl. 126-419.000.

Arvizu, Oscar O. Timed food dispenser for animals. 4,279,221, Cl. 119-51.110.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Nishikido, Joji; Fukuoka, Yohei; and Tamura, Nobuhiro, 4,279,836, Cl. 260-500.50H.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Shono, Tetsuji; Goto, Kazuo; and Ohishi, Michiro, 4,279,489, Cl. 354-155.000.

Asai Germanium Research Institute: *See—*
Ishida, Nakao; Satoh, Hiroshi; Suzuki, Fujio; and Miyao, Kouhei, 4,279,892, Cl. 424-85.000.

Asai, Tsuyoshi: *See—*
Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, 4,279,651, Cl. 75-233.000.

Asakura, Shintaro: *See—*
Yokoyama, Tohei; Asakura, Shintaro; Urayama, Kiyoshi; and Fujii, Kenji, 4,279,165, Cl. 73-826.000.

Asami, Seiichi: *See—*
Ogawa, Yutaka; Takehara, Toshio; and Asami, Seiichi, 4,279,849, Cl. 264-63.000.

Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, to Hitachi, Ltd. Method and apparatus for automatically controlling arc welding. 4,280,137, Cl. 358-101.000.

Ashland Chemical Company: *See—*
Culbertson, Billy M.; and Post, Larry K., 4,279,833, Cl. 260-464.000.

Asinovsky, Eduard N.: *See—*
Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N., 4,280,165, Cl. 361-236.000.

Assarsson, Alf G.; and Korpela, Heikki, to Gulfeber, A.B. Method for continuous manufacture of foamed plastic. 4,279,847, Cl. 264-51.000.

Associated Lead Inc.: *See—*
Muldrow, Charles N., Jr., 4,279,806, Cl. 260-45.75B.

Astakhov, Evgeny A.: *See—*
Zverev, Anatoly I.; Astakhov, Evgeny A.; Klimenko, Valery S.; Skadin, Vasily G.; and Timoshin, Mikhail A., 4,279,383, Cl. 239-61.000.

Aubert, Paul, to Regie Nationale des Usines Renault. Multi-level pressure regulating valve. 4,279,268, Cl. 137-115.000.

Audran, Roger G. L.; and Huguenard, Albert P., to Eastman Kodak Company. Process of preparing magnetic recording elements containing transparent recording layer. 4,279,945, Cl. 427-130.000.

Aurell, Leif E.: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,279,810, Cl. 260-112.50R.

Auriemma, Peter R., to United Technologies Corporation. Sideplates for rotor disk and rotor blades. 4,279,572, Cl. 416-220.00R.

Austin, John J.; and Webinger, George, to Champion International Corporation. Expandable food package container. 4,279,933, Cl. 426-124.000.

Australian Atomic Energy Commission: *See—*
Evans, John V.; and Matthews, Ralph W., 4,280,053, Cl. 250-432.0PD.

Avery, Peter, to Rolls-Royce Limited. Turbine rotor. 4,279,575, Cl. 416-244.00A.

B. F. Goodrich Company, The: *See—*
Landsness, Clifford A., 4,279,683, Cl. 156-397.000.

Babcock-Hitachi Kabushiki Kaisha: *See—*
Kajiyama, Sigeru; Kanda, Kimio; and Sugiyama, Sakae, 4,279,158, Cl. 73-637.000.

Babini, Giancarlo, to CSELT Centro Studi e Laboratori Telecomunicazioni S.p.A. Method of and circuit arrangement for discharging a storage capacitor. 4,280,086, Cl. 320-1.000.

Bacon, James L., to International Business Machines Corporation. Coarse scan/fine print algorithm. 4,280,144, Cl. 358-280.000.

Baglai, Vitaly M.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Baier, Klaus: *See—*
Maute, Alfred; Teitz, Konrad; Baier, Klaus; and Heid, Hans, 4,279,511, Cl. 356-328.000.

Bailey, Dale O.; and Honl, Paul G., to Minnesota Mining and Manufacturing Company. Microbiological growth container. 4,280,002, Cl. 435-298.000.

Baines, Eric; and Harvey, Kenneth, to Colgate-Palmolive Company. Periodontal dental composition. 4,279,889, Cl. 424-57.000.

Baird, Donald H.; and McDonough, Martin S., to GTE Laboratories Incorporated. Process for making electroluminescent films and devices. 4,279,726, Cl. 204-192.00P.

Baker CAC, Inc.: *See—*
Akkerman, Neil H.; Foster, Stephen R.; and Goans, Kip B., 4,279,272, Cl. 137-596.180.

Baker, Philip G.; Fitch, John K.; and Vance, Henry T., Jr., to Polaroid Corporation. Adapter for coupling a camera to an optical instrument. 4,279,487, Cl. 354-79.000.

Bakewell, Brian A.: *See—*
England, Charles J.; and Bakewell, Brian A., 4,279,483, Cl. 354-5.000.

Baldwin, John J.; and Ponticello, Gerald S., to Merck & Co., Inc. Polysubstituted-2-(3-loweralkylamino-2-R_1O-propoxy)pyridines. 4,279,913, Cl. 424-258.000.

Baldwin, John L. E., to Independent Broadcasting Authority. Digital television system and method. 4,280,147, Cl. 360-10.000.

Baldwin Piano & Organ Company: *See—*
Kappes, Joseph L., 4,279,187, Cl. 84-1.030.
Kelly, Lawrence J., 4,279,189, Cl. 84-421.000.

Baldwin, Ronald M.; Lin, Tz-Hong; and Winchell, Harry S., to Medi-Physics, Inc. Amides useful as brain imaging agents. 4,279,887, Cl. 424-1.500.

Baldwin, Samuel L., to General Electric Company. Luminaire. 4,280,170, Cl. 362-224.000.

Balkanli, Hayati. Bourdon tube transducer. 4,279,155, Cl. 73-368.600.

Balzers Aktiengesellschaft fur Hochvakuumtechnik und Dunne Schichten: *See—*
Buhl, Rainer; and Signer, Hans, 4,279,216, Cl. 118-723.000.

Ban, Keisuke; Arai, Takeo; and Daimaru, Akimasa, to Honda Giken Kogyo Kabushiki Kaisha. Process for preparation of fiber-reinforced magnesium alloy materials. 4,279,289, Cl. 164-97.000.

Bank of America N.T. & S.A.: *See—*
Naffziger, Larry C., 4,279,452, Cl. 308-36.100.

Barden, Bruce L.; and Coder, William D., Jr., to General Tire & Rubber Company, The. Method for treating polyurethane foam. 4,279,953, Cl. 428-90.000.

Barden, James D., to Versar, Inc. Method and apparatus for analysis of total atmospheric sulfuric acid content. 4,279,618, Cl. 23-232.00R.

Barker, D. Roy: *See—*
Harcourt, Colin H.; and Barker, D. Roy, 4,279,603, Cl. 440-90.000.

Barnes, George A.; and Perhacs, Leslie, Jr., to Victory Games, Inc. Table top golfing figure with spring driving rotatable upper torso. 4,279,419, Cl. 273-87.400.

Barnes, Robert S.: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Barnett, Roger C.; Sharpless, Robert G.; and Mossman, Colin F., to Rank Organisation Limited, The. Apparatus for use in film splicing. 4,279,685, Cl. 156-509.000.

Barry-Wehmiller Company: *See—*
Huling, James K., 4,279,858, Cl. 422-25.000.

Bartels, Bruce E., to Wheelabrator Corporation of Canada Limited. Fabric for use in protection for chain saws. 4,279,956, Cl. 428-192.000.

BASF Aktiengesellschaft: *See—*
DeBeuckelaer, Gerard; Jarre, Wolfgang; Wurmb, Rolf; and Marx, Matthias, 4,279,757, Cl. 210-671.000.
Gutsche, Klaus; Scharwaechter, Peter; Kohlmann, Wilhelm; and Kroemer, Gerd, 4,279,899, Cl. 424-229.000.
Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, 4,280,008, Cl. 548-301.000.

Bates, George W., to Convergence Corporation. Helical scan video tape recorder guard band interference detector for generating control pulses at low tape speeds. 4,280,150, Cl. 360-14.000.

Bauer, Philippe; Lamy, Jean; and Martel, Bernard, to Societe Industrielle de Brevets et D'Etudes S.I.B.E. Fuel control systems for internal combustion engines. 4,279,230, Cl. 123-440.000.

Baumert, Dietrich: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,279,907, Cl. 424-248.510.

Baumstark, Herta: *See—*
Meyer, Rainer-Leo; John, Rainmar; Eisenhauer, Bernhard; and Baumstark, Herta, 4,279,962, Cl. 428-332.000.

Baun, Kenneth W.; and Saunders, Jimmy G., to Burroughs Corporation. Data link processor for magnetic tape data transfer system. 4,280,193, Cl. 364-900.000.

Baxter, Samuel; and Changani, Pushpkumar D., to Monsanto Company. Process for extruding an open-cell foamed polyolefin filter. 4,279,848, Cl. 264-53.000.

Baxter Travenol Laboratories, Inc.: *See—*
Ward, Gary A., 4,279,352, Cl. 215-247.000.

Bay, Marvon; and Larson, Norman L. Portable golf practice platform. 4,279,420, Cl. 273-187.00A.

Bayer AG: *See—*
Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.

Bayer Aktiengesellschaft: *See—*
Bonse, Gerhard; Blank, Heinz U.; Brandes, Wilhelm; and Paul, Volker, 4,279,921, Cl. 424-285.000.
Dieterich, Dieter, 4,279,832, Cl. 260-453.00P.
Fuchs, Rainer; Hoffmann, Helimut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, 4,279,920, Cl. 424-282.000.
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.
Jeblick, Werner; Roos, Ernst; Kempermann, Theo; and Abele, Manfred, 4,280,004, Cl. 521-89.000.
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.
Schallner, Otto; and Hamprecht, Rainer, 4,279,813, Cl. 260-163.000.
Schmitz, Reinold, 4,279,825, Cl. 260-371.000.
Schulze, Hans; Walz, Klaus; Jakobs, Karlhans; and Boehmke, Gunther, 4,279,614, Cl. 8-533.000.
Schuster, Karl-Ernst; Rudolph, Hans; Mayer, Wolfram; and Rosenkranz, Hans J., 4,279,718, Cl. 204-159.150.
Vente, Paul; Seidenschnur, Dieter; Knipp, Ulrich; and Spenner, Anton, 4,279,856, Cl. 264-313.000.
Wellner, Wolfgang; and Hajek, Manfred, 4,279,793, Cl. 260-18.00R.

BBC Brown, Boveri & Company Limited: *See—*
Czech, Franz; and Krieter, George-Heinz, 4,280,015, Cl. 174-28.000.

Beacom, Roger. Dual seal gasket. 4,279,425, Cl. 277-207.00A.

Beallie, John, to Texas Instruments Incorporated. Method of contouring the recording surface of a magnetic head transducer. 4,279,623, Cl. 51-283.00R.

Beavon, David K., to Ralph M. Parsons Company. Process for sulfur production. 4,279,882, Cl. 423-574.00R.

Beck, John R. Animal trap attachment. 4,279,094, Cl. 43-96.000.

Beckman Instruments, Inc.: *See—*
Brown, James R., 4,279,510, Cl. 356-319.000.

Becton Dickinson & Company: *See—*
Gutcho, Sidney; and Mansbach, Lillian, 4,279,859, Cl. 422-61.000.
Reese, Max G.; Ransom, Dennis K.; and Johnson, LaVell R., 4,279,885, Cl. 424-1.000.

Beguwala, Moiz M. E.; and Erdmann, Francis M., to Rockwell International Corporation. Fabrication of a nonvolatile memory array device. 4,279,069, Cl. 29-571.000.

Behrenz, Wolfgang: *See—*
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

Behringer, Rebecca K. Liner for a litter box. 4,279,217, Cl. 119-1.000.

Belden Corporation: *See—*
Nickence, John G., 4,279,457, Cl. 339-36.000.

Belger, Peter: *See—*
Strauch, Dieter; and Belger, Peter, 4,279,661, Cl. 106-288.00B.

Belgorod, Barry M. Spectacle lens having continuously variable controlled density and fast response time. 4,279,474, Cl. 350-331.00R.

Belkevich, Petr I.: *See*—
Lyakhevich, Genrikh D.; Belkevich, Petr I.; Rudkovsky, Alexandr D.; Sokolovsky, Alexandr E.; and Kirilchik, Alexandr I., 4,279,865, Cl. 422-187.000.

Bell, Alexis T.: *See*—
Osada, Yoshihito; Bell, Alexis T.; and Shen, Mitchel M., 4,279,723, Cl. 204-164.000.

Bell & Howell Company: *See*—
Dann, Bert H., 4,280,100, Cl. 329-103.000.

Bell, John P., to United States of America, Environmental Protection Agency. Particle collector and fractionator. 4,279,156, Cl. 73-863.220.

Bell, Robert L., to Fisher Corporation. Reclining seat latch. 4,279,442, Cl. 297-367.000.

Bell, Ronald L., to Varian Associates, Inc. Collector for thermionic energy converter. 4,280,074, Cl. 310-306.000.

Bell Telephone Laboratories, Incorporated: *See*—
Franey, John P.; and Graedel, Thomas E., 4,279,773, Cl. 252-408.000.
Hafer, Edward H.; and Klinger, William J., 4,280,217, Cl. 370-63.000.
Lueddecke, Donald E.; Mottine, John J., Jr.; and Vesperman, William C., 4,279,789, Cl. 260-17.00R.
Sherman, Charles J., 4,279,459, Cl. 339-75.0MP.

Bellows, Richard J.; and Grimes, Patrick G., to Exxon Research & Engineering Co. Annular electrodes for shunt current elimination. 4,279,732, Cl. 204-269.000.

Belveal, Robert E., to Houston Systems Manufacturing Co., Inc. Air diffuser assembly. 4,279,842, Cl. 261-124.000.

Bendersky, Alexandr F.: *See*—
Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N., 4,280,165, Cl. 361-236.000.

Bendix Corporation, The: *See*—
Knapp, Carl L., 4,279,458, Cl. 339-45.00M.
Koppelmann, Roger F., 4,280,202, Cl. 367-87.000.

Bendock, Edward M. Shower curtain clip. 4,279,396, Cl. 248-206.00R.

Benson, Arthur L.; and Jordan, David A., to Dexter Corporation, The. Nonwoven fibrous substrate for battery separator. 4,279,979, Cl. 429-254.000.

Beran, Franz: *See*—
Lassmann, Eberhard; Kohler, Peter; Beran, Franz; and Gerhards, Hans J., 4,279,872, Cl. 423-228.000.

Berg, Norman H. Emergency replacement pulley belt for automobiles or the like. 4,279,606, Cl. 474-257.000.

Berg, Peter G.: *See*—
Marcoux, Leo; and Berg, Peter G., 4,279,234, Cl. 123-549.000.

Berger, Fritz: *See*—
Bruckner, Georg F.; Geike, Bernd; Schoen, Bernd-Jurgen; and Berger, Fritz, 4,279,038, Cl. 2-425.000.

Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude; and La Soudure Autogene Francaise. Process and installation for automatic ignition of a plasma cutting torch. 4,280,042, Cl. 219-121.0PT.

Berisch, Volker, to ITT Industries, Inc. Brake power control unit for two-circuit brake systems incorporating a locking piston operated hydraulically. 4,279,448, Cl. 303-6.00C.

Bernard, Walter J.: *See*—
Arora, Mulk A.; Randall, John J., Jr.; and Bernard, Walter J., 4,279,715, Cl. 204-129.900.

Berner, Godwin, to Ciba-Geigy Corporation. Photocurable composition. 4,279,720, Cl. 204-159.230.

Bernick, Robert L.: *See*—
Chao, Chente; Nakaji, Edward M.; and Bernick, Robert L., 4,279,070, Cl. 29-583.000.

Berriman, Lester P.: *See*—
Paul, Donald G.; and Berriman, Lester P., 4,279,627, Cl. 55-238.000.

Berthe, Jacques: *See*—
Forterre, Gerard; and Berthe, Jacques, 4,280,111, Cl. 333-1.100.

Bertone, Andrea: *See*—
Boggio, Francesco; Bertone, Andrea; and Tumolo, Enzo, 4,279,395, Cl. 246-182.00R.

Bertrand, Yves. Method for improving the thermic insulation of a building with a rigid frame structure. 4,279,112, Cl. 52-741.000.

Bertus, Brent J.; McKay, Dwight L.; and Mark, H. Wayne, to Phillips Petroleum Company. Passivation of metals contaminating a used cracking catalyst with certain antimony carbonates and their thio analogues. 4,279,735, Cl. 208-113.000.

Bethlehem Steel Corporation: *See*—
Anderson, Jack A., 4,279,151, Cl. 73-343.00R.
Greenberg, Lawrence A., 4,279,400, Cl. 249-106.000.
Kwasnoski, Daniel; Sterner, Charles J.; Horst, Russel J.; and Burcaw, Kenneth R., 4,279,703, Cl. 202-158.000.

Bettiol, Bruno; Harsugny, Christian; and Lenne, William, to Essilor International Cie Generale d'Optique. Ophthalmic lens having an aspheric surface. 4,279,480, Cl. 351-159.000.

Betz, Carl R.: *See*—
Drexler, Jerome; and Betz, Carl R., 4,279,989, Cl. 430-531.000.

Betz Laboratories, Inc.: *See*—
Muccitelli, John A., 4,279,767, Cl. 252-178.000.

Betz, Wolfgang, to MTU Motoren-Und Turbinen-Union Munchen GmbH. Hot isostatic press. 4,279,581, Cl. 425-78.000.

BICC Limited: *See*—
Papadopulos, Michael S., 4,280,014, Cl. 174-14.00R.
Willis, Arthur J., 4,280,225, Cl. 455-55.000.

Bielawski, John C.: *See*—
Powers, Robert W.; and Bielawski, John C., 4,279,725, Cl. 204-181.00F.

Bilofsky, Ruth C.; and Nestle, Mara O., to Polaroid Corporation. Silver image stabilization. 4,279,983, Cl. 430-228.000.

Bilsing, Ulrich: *See*—
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, 4,279,742, Cl. 209-166.000.

Biodata S.p.A.: *See*—
Ricci, Giorgio, 4,279,999, Cl. 435-183.000.

Biot, Bernard: *See*—
Amicel, Charles; Biot, Bernard; Butruille, Yves; and Ollivier, Christian, 4,279,678, Cl. 156-169.000.

Birkestrand, Orville J. Tool control head for pipe and tubing cutting machine. 4,279,181, Cl. 82-21.00A.

Bittner, Emil: *See*—
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,915, Cl. 424-262.000.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

Black & Decker Inc.: *See*—
Alessio, Lorenzo E., 4,280,026, Cl. 200-157.000.

Blackmore, Douglas. Skin effect heat generating unit having convective and conductive transfer of heat. 4,280,045, Cl. 219-540.000.

Blanc, Jacques; Coulon, Andre; and Pellus, Gilbert, to Alsthom-Atlantique; and TSM Traitements de Surface et Mecanique. Method and assembly for depositing a metal on a cylindrical bore which passes through a central portion of a large part. 4,279,706, Cl. 204-26.000.

Blanc, Joseph: *See*—
Abrahams, Marvin S.; and Blanc, Joseph, 4,279,688, Cl. 156-613.000.

Blanco, Abelardo D.; Boynton, William W.; and Weber, Charles J., to International Business Machines Corporation. Print head image generator for printer subsystem. 4,279,199, Cl. 101-93.050.

Blank, Heinz U.: *See*—
Bonse, Gerhard; Blank, Heinz U.; Brandes, Wilhelm; and Paul, Volker, 4,279,921, Cl. 424-285.000.

Blaskowski, Henry J., to Combustion Engineering, Inc. Segmented ring header. 4,279,296, Cl. 165-134.00R.

Blaszkowski, Henry. Method and apparatus for forming soap bars with an embedded insert. 4,279,854, Cl. 264-275.000.

Blaupunkt-Werke GmbH: *See*—
Bragas, Peter, 4,280,149, Cl. 360-14.000.

Blazevic, Gertrud: *See*—
Scheubeck, Egmont; Blazevic, Gertrud; and Boehner, Marianne, 4,279,727, Cl. 204-195.00R.

Block, Franz-Rudolf, to ARBED Acieries Reunies de Burbach-Eich-Dudelange, Societe Anonyme. Process for measuring the level of metal in vessels, especially in continuous casting molds. 4,279,149, Cl. 73-290.00R.

Blomquist, James E.; and Wilczewski, Robert H. Dot matrix print head. 4,279,518, Cl. 400-124.000.

Bloomer, Ivan, to Carrier Drysys Limited. Paint spray booth with silencer means. 4,279,196, Cl. 98-115.0SB.

Blount, David H. Process for the production of polyisocyanate silicate plastics utilizing an alkali metal cellulose silicate condensation product. 4,280,006, Cl. 521-154.000.

Bluewater Terminal Systems N.V.: *See*—
van Heijst, Willem J., 4,279,047, Cl. 9-8.00P.

Blum, Jean, to Supra Fabrique d'Appareils de Chauffage et de Cuisine, S.A. Wood-fired fireplace. 4,279,239, Cl. 126-120.000.

Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, to Labora Mannheim GmbH fur Labortechnik. Apparatus for the analysis of test tape. 4,279,514, Cl. 356-445.000.

Bode, Gunter, to Schmalbach Lubeca GmbH. Equipment for mounting a screw-cap on a container. 4,279,114, Cl. 53-314.000.

Bodor, Nicholas S.; and Sloan, Kenneth B., to Intrex Research Corporation. Prodrugs for the improved delivery of halogen-containing glucocorticosteroids. 4,279,900, Cl. 424-241.000.

Boehmke, Gunther: *See*—
Schulze, Hans; Walz, Klaus; Jakobs, Karlhans; and Boehmke, Gunther, 4,279,614, Cl. 8-533.000.

Boehner, Marianne: *See*—
Scheubeck, Egmont; Blazevic, Gertrud; and Boehner, Marianne, 4,279,727, Cl. 204-195.00R.

Boehringer Mannheim GmbH: *See*—
Hagen, Alexander; Edelmann, Hermann; and Klose, Sigmar, 4,279,991, Cl. 435-4.000.

Boeing Company, The: *See*—
Chun, Randall K. B.; and Larsen, Donn E., 4,280,221, Cl. 375-17.000.

Boell, Walter: *See*—
Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, 4,280,008, Cl. 548-301.000.

Boeuf, Jean-Marie; Gerest, Pierre; and Lemaire, Henri, to Aimants Ugimag S.A. Process of preparing ferrite powders. 4,279,763, Cl. 252-62.580.

Bogachenko, Alexei G.: *See*—
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Bogatzki, Hans-Ulrich. Solar collector assembly. 4,279,242, Cl. 126-443.000.

Boggio, Francesco; Bertone, Andrea; and Tumolo, Enzo, to WABCO Westinghouse Compagnia Italiana Segnali S.p.A. Speed control apparatus for railroad trains. 4,279,395, Cl. 246-182.00R.

Boguslaski, Robert C.; Burd, John F.; and Carrico, Robert J., to Miles Laboratories, Inc. Specific binding assay employing an enzyme-cleavable substrate as label. 4,279,992, Cl. 435-7.000.

Bohne, Franz-Josef: *See*—
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.

Boise Cascade Corporation: *See*—
Lambuth, Alan L., 4,279,788, Cl. 260-9.000.

Boissonnet, Michel, to Societe a Responsabilite Limitee: Wichard. Snap shackle. 4,279,062, Cl. 24-305.000.

Boldt, Allyn L.: *See*—
Bray, Lane A.; and Boldt, Allyn L., 4,279,875, Cl. 423-249.000.

Bollmann, Jean-Jacques. Systems for anchoring structural members. 4,279,107, Cl. 52-169.130.

Bolt, Reginald C., to Molins Limited. Testing ventilated cigarettes. 4,279,144, Cl. 73-38.000.

Bolza-Schunemann, Hans B., to Koenig & Bauer Aktiengesellschaft. Folder for a web-fed rotary printing press. 4,279,410, Cl. 270-6.000.

Bom, Cornelis J. G.: *See*—
Van Der Lely, Cornelis; and Bom, Cornelis J. G., 4,279,138, Cl. 172-4.000.

Bondarenko, Oleg P.: *See*—
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Bonsack, James P., to SCM Corporation. Process for treating chlorinated titaniferous material to remove vanadium. 4,279,871, Cl. 423-74.000.

Bonse, Gerhard; Blank, Heinz U.; Brandes, Wilhelm; and Paul, Volker, to Bayer Aktiengesellschaft. Dichloromaleic acid diamide derivatives and their use as fungicides. 4,279,921, Cl. 424-285.000.

Boomgaard, Ritse E.; Buter, Roelof; and Kiffen, Aleidus A., to Akzo NV. High solids pigmented coating composition containing a blend of ester diols and a curing agent. 4,279,800, Cl. 260-39.00P.

Borg-Warner Corporation: *See*—
Kim, Tong S.; and Lee, John S., 4,279,578, Cl. 418-97.000.
Lamarche, Paul E., 4,279,132, Cl. 64-27.00C.
Lee, Yong N., 4,279,298, Cl. 165-181.000.

Borsuk, Leslie M.; Ciardiello, Catherine R.; and Heath, Henry S., Jr., to International Telephone and Telegraph Corporation. Fiber optic connector. 4,279,467, Cl. 350-96.210.

Boschetti, Armando; and Snoek, David J., to Paul B. Elder Company. Ultraviolet light control. 4,279,254, Cl. 128-395.000.

Bosco, Peter M.; and Sledzieski, William L., to Standard Brands Incorporated. Low-fat, butter-flavored spread and process. 4,279,941, Cl. 426-602.000.

Bossa, Edoardo, deceased (by Ferzero, Maria Piera, Loriana Bossa, Ivo Bossa, legal representatives, heirs), to Covalca Plastici S.p.A. Anti-pollution and antifire floating barrier. 4,279,538, Cl. 405-66.000.

Boudreau, Jean A.: *See*—
Weinstein, Warren D.; Boudreau, Jean A.; and Gertz, Donald, 4,280,188, Cl. 364-566.000.

Bourhis, Yves; Wermelinger, Alain; and Kostelitz, Michel, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Expolitation des procedes Georges Claude. Plant for generating an atmosphere for the heat treatment of metals. 4,279,406, Cl. 266-81.000.

Bowman, George E.: *See*—
Brandl, Michael C.; Kataoka, David T.; and Bowman, George E., 4,279,320, Cl. 180-69.00R.

Bowsky, Benjamin, to Emerson Electric Co. Hermetic seal closure. 4,279,975, Cl. 429-181.000.

Boyle, Raymond F.; and Durigon, Docile D., to Westinghouse Electric Corp. Tritium removal and retention device. 4,279,700, Cl. 176-68.000.

Boynton, William W.: *See*—
Blanco, Abelardo D.; Boynton, William W.; and Weber, Charles J., 4,279,199, Cl. 101-93.050.

Bozzoli, Giorgio: *See*—
Gamberini, Giorgio; and Bozzoli, Giorgio, 4,279,079, Cl. 33-149.00J.

Bradley, Irving; and Vodicka, Vincent, to General Electric Company. Heat shield for plastic headlamp. 4,280,173, Cl. 362-294.000.

Bradley Time Division, Elgin National: *See*—
Mooney, Jac A., 4,280,209, Cl. 368-71.000.

Bradshaw, John: *See*—
Martin-Smith, Michael; Price, Barry J.; Bradshaw, John; and Clitherow, John W., 4,279,911, Cl. 424-251.000.
Price, Barry J.; Clitherow, John W.; and Bradshaw, John, 4,279,819, Cl. 260-326.50S.

Bradwell, Arthur R.; and Burnett, David, to University of Birmingham. Process for preparation of antisera. 4,279,884, Cl. 424-1.000.

Bragas, Peter, to Blaupunkt-Werke GmbH. Equipment for preventing gaps between previously recorded and newly recorded information on an information carrier. 4,280,149, Cl. 360-14.000.

Brandes, Wilhelm: *See*—
Bonse, Gerhard; Blank, Heinz U.; Brandes, Wilhelm; and Paul, Volker, 4,279,921, Cl. 424-285.000.

Brandl, Michael C.; Kataoka, David T.; and Bowman, George E., to International Harvester Company. Hand grip/filler neck recess for a tractor hood. 4,279,320, Cl. 180-69.00R.

Braun, Eric A., to Ex-Cell-O Corporation. Method and apparatus for packaging. 4,279,675, Cl. 156-73.100.

Braun, Peter D.; and Kosak, Wolodymyr, to Licentia Patent-Verwaltungs-G.m.b.H. Method for epitaxial deposition. 4,279,669, Cl. 148-175.000.

Bray, Lane A.; and Boldt, Allyn L., to Exxon Nuclear Company, Inc. Method of releasing fission gases from irradiated fuel. 4,279,875, Cl. 423-249.000.

Breault, Richard D.; Goller, Glen J.; Roethlein, Richard J.; and Sprecher, Gilbert C., to Electric Power Research Institute, Inc. Electrochemical cell including ribbed electrode substrates. 4,279,970, Cl. 429-35.000.

Brecht, Klaus: *See*—
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.

Breed, Michal A.; and Prince, George T., to Allis-Chalmers Corporation. Adjustment for shift fork on a shift rail of a transmission. 4,279,175, Cl. 74-473.00R.

Bretaudiere, Jean-Pierre; and Prunenec, Paul. Centrifugal photometric analyzer. 4,279,862, Cl. 422-72.000.

Bridgestone Tire Co., Ltd.: *See*—
Wakana, Hiroshi; Yamada, Shigeru; and Sato, Akira, 4,279,966, Cl. 428-595.000.

Brighigna, Mario, to Stabilimenti Meccanici VM S.p.A. Hydrostatic unit with axial pistons having a variable stroke volume. 4,279,194, Cl. 91-483.000.

Brinkworth, Peter L. Cultivation of marine and aquatic species. 4,279,218, Cl. 119-2.000.

British Hovercraft Corporation Limited: *See*—
Wheeler, Raymond L.; Henry, John; and Dadswell, John E., 4,279,322, Cl. 180-128.000.

Bron, Dan. Fluid flow proportioning device. 4,279,267, Cl. 137-100.000.

Bronder, Joachim C., to Burroughs Corporation. Method and apparatus for making a wire stylus board. 4,279,075, Cl. 29-872.000.

Brooks, Cletus A., to Selective Feeder Company. Light responsive animal actuated apparatus. 4,279,219, Cl. 119-51.00R.

Brown, James R., to Beckman Instruments, Inc. Spectrophotometer with improved photomultiplier tube dark signal compensation. 4,279,510, Cl. 356-319.000.

Brown, Leon C.; Fitts, Uscoe J.; and Polakowski, David R., to International Business Machines Corporation. Copier and multifunction paper cassette. 4,279,504, Cl. 355-72.000.

Brown, Patricia A.: *See*—
United States of America, National Aeronautics and Space Administration; Brown, Patricia A.; and Danellis, Joan V., 4,279,906, Cl. 424-247.000.

Brown, Patrick, to International Standard Electric Corporation. Deflection-coil system for color picture tubes. 4,280,080, Cl. 315-368.000.

Brown, Roger K. Heat resistant alloy and method of manufacture. 4,279,645, Cl. 75-122.000.

Brubaker, Gaylen R., to FMC Corporation. Encapsulated bleaches and methods of preparing them. 4,279,764, Cl. 252-99.000.

Bruckner, Georg F.; Geike, Bernd; Schoen, Bernd-Jurgen; and Berger, Fritz, to Metzeler Schaum GmbH. Headprotector made of elastic material for athletes. 4,279,038, Cl. 2-425.000.

Bruhn, Peter E.; and Jensen, Finn U. H., to Lindab Platisol AB. Stop end piece particularly for gutters. 4,279,541, Cl. 405-119.000.

Brun, Andre G.; and Dutilleul, Henri T., to Compagnie Francaise des Petroles. Helical apparatus for coupling submerged pipes. 4,279,544, Cl. 405-202.000.

Brunelli, Maurizio: *See*—
Prevedello, Aldo; Brunelli, Maurizio; and Platone, Edoardo, 4,279,834, Cl. 260-464.000.

Brunken, Gerd; Eibl, Volker; and Fliege, Hans, to Sachs-Systemtechnik GmbH. Key-controlled electromagnetic operating mechanism for a lock and the like. 4,280,118, Cl. 340-147.0MD.

Bruzzese, Tiberio; and Ferrari, Rodolfo, deceased (by Ferrari, Lorenzo, executor), to SPA-Societa Prodotti Antibiotici S.p.A. Method of relieving pain and treating inflammatory conditions in warm-blooded animals. 4,279,926, Cl. 424-316.000.

Bucalo, Louis. Nerve stimulation method. 4,279,256, Cl. 128-419.00R.

Buchholz, Hans-Wilhelm. Endoprosthesis composed of a socket and a head receivable and lockable in the socket. 4,279,041, Cl. 3-1.912.

Buchholz, Rainer; Zodrow, Rudolf; and Rosenberg, Heinz J., to Jagenberg-Werke AG. Labeling station with glueing means for bottles or the like. 4,279,687, Cl. 156-568.000.

Buchmuller, Jurgen; Nobis, Peter; and Volker, Wolfgang, to Messer Griesheim GmbH. Apparatus for separating the gas which evaporates during the transfer of low-boiling liquified gases. 4,279,626, Cl. 55-204.000.

Buendia, Jean; and Vivat, Michel, to Roussel Uclaf. Novel lactones of cyclopentanols. 4,279,919, Cl. 424-279.000.

Buhl, Rainer; and Signer, Hans, to Balzers Aktiengesellschaft fur Hochvakuumtechnik und Dunne Schichten. Cathode shielded coating apparatus. 4,279,216, Cl. 118-723.000.

Bulpitt, Thomas H., to Kollmorgen Corporation. Spatial scanning means for a photometer. 4,279,507, Cl. 356-225.000.

Bundschuh, Robert; Thorne, George; and Cottis, David, to Cypress Gardens Skis. Heel assembly for water ski binder. 4,279,048, Cl. 9-310.0AA.

Bunes, Leonard A., to Dynapol. Polymeric red colors. 4,279,662, Cl. 106-289.000.

Bunge, Konrad: *See*—
Thurm, Siegfried; Bunge, Konrad; and Findeis, Gunter, 4,279,502, Cl. 355-38.000.

Bunker Ramo Corporation: *See*—
Makuch, John A.; and Monaghan, Kevin J., 4,279,466, Cl. 350-96.210.

Burcaw, Kenneth R.: *See*—
Kwasnoski, Daniel; Sterner, Charles J.; Horst, Russel J.; and Burcaw, Kenneth R., 4,279,703, Cl. 202-158.000.

Burd, John F.: *See*—
Boguslaski, Robert C.; Burd, John F.; and Carrico, Robert J., 4,279,992, Cl. 435-7.000.

Burnett, David: *See*—
Bradwell, Arthur R.; and Burnett, David, 4,279,884, Cl. 424-1.000.

Burnham, Robert D.: *See*—
Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, 4,280,106, Cl. 331-94.50H.
Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, 4,280,108, Cl. 331-94.50H.

Burroughs Corporation: *See*—
Baun, Kenneth W.; and Saunders, Jimmy G., 4,280,193, Cl. 364-900.000.
Bronder, Joachim C., 4,279,075, Cl. 29-872.000.
Krebs, Fred G.; and Abbott, Daniel B., 4,279,173, Cl. 74-441.000.
Siwik, Henry A.; and Kobylarz, Lawrence P., 4,279,413, Cl. 271-274.000.

Burroughs, Reginald L.; Thompson, William J.; and Wooldridge, Derek, to American Can Company. Reactor system and pump apparatus therein. 4,279,663, Cl. 127-1.000.

Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D. Device for making emergency exits in a crushed transport means. 4,279,405, Cl. 266-55.000.

Busch, Bruce D., to Fremont Industries, Inc. Service descaler for aqueous systems. 4,279,768, Cl. 252-180.000.

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Butruille, Yves: *See*—
Amicel, Charles; Biot, Bernard; Butruille, Yves; and Ollivier, Christian, 4,279,678, Cl. 156-169.000.

Buxbaum, Lothar: *See*—
Laely, Andreas; Zwahlen, Gunther; and Buxbaum, Lothar, 4,279,802, Cl. 260-40.00P.

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Eistetter, Klaus; Schaefer, Hartmann; and Menge, Heinz G., 4,279,918, Cl. 424-274.000.

Byrne, Desmond, legal representative: *See*—
Miller, Henry, deceased; and Byrne, Desmond, legal representative, 4,279,532, Cl. 404-68.000.

Byrne, Joe L.: *See*—
Egli, Hans; Byrne, Joe L.; and Nancarrow, James H., 4,279,570, Cl. 415-53.00T.

C-I-L Inc.: *See*—
Pollock, David C. I., 4,279,754, Cl. 210-608.000.

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Van Der Lely, Cornelis; and Bom, Cornelis J. G., 4,279,138, Cl. 172-4.000.

Cachier, Gerard; and Stevance, Jean, to Thomson-CSF. Millimeter wave source comprising an oscillator module and a variable-capacity module. 4,280,110, Cl. 331-107.0DP.

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Cambiaso, Cesar L.: *See*—
Masson, Pierre L.; Cambiaso, Cesar L.; De Steenwinkel, Floris; and Leek, Adrian E., 4,279,617, Cl. 23-230.00B.

Cameron, John S. Ground-based portable and collapsible structures. 4,279,105, Cl. 52-71.000.

Camp, Richard H. Deceleration alert system. 4,280,116, Cl. 340-66.000.

Campbell, James R.; and Anspach, Roy L., to Mahoney, Thomas P.; Ruston, Donald A.; Barnes, Robert S.; Nance, Edward K., Jr.; Nance Childrens's Trust, The; Ruston, Gloria I.; O'Connor, Jeane; Ruston, Terri Lynn; Ruston, Donald Alan; Cislo, Donald M.; and Schick, George E., part interest to each. Apparatus for fabricating and welding core reinforced panel. 4,280,039, Cl. 219-78.110.

Campbell, Simon F., to Pfizer Inc. Quinazoline therapeutic agents. 4,279,910, Cl. 424-251.000.

Campbell, Thomas P., to Intercontinental Development Corporation. Method and apparatus for centrifugally separating a heavy fraction from a light weight fraction within a pulp material. 4,279,741, Cl. 209-44.000.

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Inculet, Ion I.; Castle, George S. P.; and Sullivan, John L., 4,279,625, Cl. 55-131.000.

Cann, Peter L.; and Sacks, Paul S., to Carrier Corporation. Hot gas defrost system. 4,279,129, Cl. 62-278.000.

Canon Kabushiki Kaisha: *See*—
Kondo, Hideyo; and Murai, Keiichi, 4,279,500, Cl. 355-15.000.
Mashimo, Yukio; Iwashita, Tomonori; and Fukahori, Hidehiko, 4,279,490, Cl. 354-173.000.
Matsumura, Isao, 4,279,478, Cl. 351-13.000.
Tsunekawa, Tokuichi; Sakane, Toshio; and Taguchi, Tatsuya, 4,280,151, Cl. 360-33.000.
Yoshikawa, Ryoichi; Okajima, Kazuhiko; Nakahara, Shunichi; and Nakayama, Sumio, 4,279,494, Cl. 354-288.000.

Cantatore, Giuseppe; and Cassandrini, Paolo, to Chimosa Chimica Organica S.p.A. Piperidine compounds and their use as stabilizers for synthetic polymers. 4,279,804, Cl. 260-45.80N.

Canterbury, Bradford: *See*—
Ramirez, Peter R.; and Canterbury, Bradford, 4,279,401, Cl. 249-139.000.

Cantieri, Thomas B. Molded liner for pickup trucks. 4,279,439, Cl. 296-39.00R.

Cantrell, Mark: *See*—
Hopkins, Grant; and Cantrell, Mark, 4,279,429, Cl. 280-267.000.

Cardot, Frederic: *See*—
Feix, Jacques; and Cardot, Frederic, 4,280,043, Cl. 219-137.310.

Carey, Richard L.; and McGuffey, Gale W., to United States of America, Navy. Isolated DC voltage monitoring system. 4,280,097, Cl. 324-434.000.

Carlberg, David, to Engineering Systems Corp. Lockable cover assembly for push-button key pad. 4,280,025, Cl. 179-189.00D.

Carle, Arthur. Insecticidal natural bait composition and method of using same. 4,279,895, Cl. 424-127.000.

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Boguslaski, Robert C.; Burd, John F.; and Carrico, Robert J., 4,279,992, Cl. 435-7.000.

Carrier Corporation: *See*—
Cann, Peter L.; and Sacks, Paul S., 4,279,129, Cl. 62-278.000.

Carrier Drysys Limited: *See*—
Bloomer, Ivan, 4,279,196, Cl. 98-115.0SB.

Cascade Corporation: *See*—
Weinert, Harry F., 4,279,564, Cl. 414-621.000.

Cassandrini, Paolo: *See*—
Cantatore, Giuseppe; and Cassandrini, Paolo, 4,279,804, Cl. 260-45.80N.

Casterwiler, Larry J.: *See*—
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, 4,279,634, Cl. 65-182.300.

Castle, George S. P.: *See*—
Inculet, Ion I.; Castle, George S. P.; and Sullivan, John L., 4,279,625, Cl. 55-131.000.

Caterpillar Tractor Co.: *See*—
Grawey, Charles E., 4,279,285, Cl. 152-330.00R.
Harper, Robert W.; and Kleiber, Robert A., 4,279,348, Cl. 212-196.000.
Meisel, Thomas C., Jr., 4,279,318, Cl. 180-9.640.

Celanese Corporation: *See*—
Calundann, Gordon W., 4,279,803, Cl. 260-40.00P.

Centronics Data Computer Corp.: *See*—
Shiurila, John, 4,279,519, Cl. 400-124.000.

Cerberus AG: *See*—
Tar, Domokos, 4,280,058, Cl. 250-554.000.

Cha, Chang Y., to Occidental Oil Shale, Inc. Determining the locus of a processing zone in an oil shale retort by effluent off gas heating value. 4,279,302, Cl. 166-251.000.

Chabot, Francois: *See*—
Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, 4,279,249, Cl. 128-92.00D.

Challis, Louis A. Acoustic treatment for fans. 4,279,325, Cl. 181-211.000.

Chambers, William L., to NCR Corporation. Apparatus for advancing a record medium. 4,279,524, Cl. 400-564.100.

Champion International Corporation: *See*—
Austin, John J.; and Webinger, George, 4,279,933, Cl. 426-124.000.
Lohrbach, Mervin; and Peeples, Dick E., 4,279,379, Cl. 229-39.00R.
Montealegre, James, 4,279,373, Cl. 229-11.000.
Peeples, Dick E.; and Lohrbach, Mervin, 4,279,377, Cl. 229-39.00R.
Roccaforte, Harry I., 4,279,376, Cl. 229-38.000.

Webinger, George, 4,279,374, Cl. 229-34.00R.

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Baxter, Samuel; and Changani, Pushpkumar D., 4,279,848, Cl. 264-53.000.

Chao, Chente; Nakaji, Edward M.; and Bernick, Robert L., to United States of America, Air Force. Method of making integrated waveguide cavities. 4,279,070, Cl. 29-583.000.

Chapman, Lloyd R.; and Watton, John F., to General Motors Corporation. Application of an alumina coating to oxide whisker-covered surface on Al-containing stainless steel foil. 4,279,782, Cl. 252-465.000.

Charkey, Allen: *See*—
Dodin, Mark G.; and Charkey, Allen, 4,279,978, Cl. 429-248.000.

Chattem, Inc.: *See*—
Harris, Thomas C.; and Georgalas, Arthur, 4,279,890, Cl. 424-69.000.

Chauvelot, Alain: *See*—
Mangiavacchi, Jacques; Chauvelot, Alain; and Dolain, Claude, 4,279,528, Cl. 403-57.000.

Chemetron Corporation: *See*—
White, Kenneth T., 4,280,126, Cl. 340-621.000.

Chemplex Company: *See*—
Dombro, Robert A., 4,279,780, Cl. 252-452.000.

Chen, Henry, to Fabcon Incorporated. Rapid continuous clarifier. 4,279,747, Cl. 210-197.000.

Cheng, Paul J., to Phillips Petroleum Company. Carbon black production from solid carbonaceous feedstock. 4,279,881, Cl. 423-456.000.

Cherkasova, Evgenia E.: *See*—
Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Krainik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M., 4,279,963, Cl. 428-433.000.

Cherry, John P.: *See*—
Gray, Marie S.; and Cherry, John P., 4,279,811, Cl. 260-123.500.

Chethik, Frank, to Ford Aerospace & Communications Corporation. Bit synchronizer with early and late gating. 4,280,224, Cl. 375-116.000.

Chianelli, Russell R.; and Pecoraro, Theresa, to Exxon Research & Engineering Co. Hydrodesulfurization over catalysts comprising chalcogenides of group VIII prepared by low temperature precipitation from nonaqueous solution. 4,279,737, Cl. 208-217.000.

Chiang, David. Method of and apparatus for operating stepping motors. 4,280,084, Cl. 318-696.000.

Chikama, Toshio, to Machida Endoscope Co., Ltd. Device for preventing clouding of an observing window. 4,279,246, Cl. 128-6.000.

Chimosa Chimica Organica S.p.A.: *See*—
Cantatore, Giuseppe; and Cassandrini, Paolo, 4,279,804, Cl. 260-45.80N.

Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, to Hitachi, Ltd. Rotary vane type evaporator. 4,279,692, Cl. 159-6.00W.

Chisso Corporation: *See*—
Hayashi, Kohtaro; Morihara, Ko; and Nakamura, Kohji, 4,279,580, Cl. 425-72.00R.
Inukai, Takashi; Inoue, Hiromichi; Furukawa, Kenji; Sato, Hideo; and Sugimori, Shigeru, 4,279,770, Cl. 252-299.620.

Chlorine Engineers Corporation, Ltd.: *See*—
Satoh, Hitoshi; and Kosaka, Shohei, 4,279,712, Cl. 204-128.000.

Cho, Iue C., to Ralston Purina Company. Milk replacer for baking containing isolated vegetable protein. 4,279,939, Cl. 426-583.000.

Christel, Pascal: *See*—
Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, 4,279,249, Cl. 128-92.00D.

Christopher, Todd J., to RCA Corporation. Stylus position sensing apparatus for video disc player. 4,280,023, Cl. 369-43.000.

Chun, Randall K. B.; and Larsen, Donn E., to Boeing Company, The. Digital data communication system. 4,280,221, Cl. 375-17.000.

Chung, Thomas Y. Gel extruding method and apparatus. 4,279,361, Cl. 222-1.000.

Ciaperoni, Aldemaro; and Cucinella, Antonino, to Sniaviscosa Societa Nazionale Industria Applicazioni Viscosa, S.p.A. Self-extinguishing polymers. 4,279,652, Cl. 106-18.210.

Ciardiello, Catherine R.: *See*—
Borsuk, Leslie M.; Ciardiello, Catherine R.; and Heath, Henry S., Jr., 4,279,467, Cl. 350-96.210.

Ciba-Geigy Corporation: *See*—
Berner, Godwin, 4,279,720, Cl. 204-159.230.
Kirchmayr, Rudolf; and Felder, Louis, 4,279,721, Cl. 204-159.240.
Laely, Andreas; Zwahlen, Gunther; and Buxbaum, Lothar, 4,279,802, Cl. 260-40.00P.
Michaelis, Klaus P.; and Wirth, Hermann O., 4,279,761, Cl. 252-46.400.

Cioca, Gheorghe, to Seton Company. Process for preparing macromolecular biologically active collagen. 4,279,812, Cl. 260-123.700.

Cislo, Donald M.: *See*—
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Citizen Watch Co., Ltd.: *See*—
Nishikubo, Yasuhiko; and Sekine, Mitsuo, 4,280,210, Cl. 368-73.000.
Nomura, Yasushi, 4,280,208, Cl. 368-66.000.

Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, to Kabi AB. Easily split substrates for the quantification of proteases. 4,279,810, Cl. 260-112.50R.

Clark Equipment Company: *See*—
Sagaser, Thomas M.; and Mather, Joseph M., 4,279,566, Cl. 414-686.000.

Clarke, William A.: *See*—
Stanwood, Jay W.; Clarke, William A.; and MacLeane, Johannes, 4,279,275, Cl. 138-109.000.

Classen, Alvin T. Sign post construction having reciprocable driver for placement and removal. 4,279,104, Cl. 52-38.000.

Cleary, John P., to Heineman, Ralph A. Machine tool column mount. 4,279,553, Cl. 408-135.000.

Clegg, Maurice A.: *See*—
Ruscoe, Michael J. H.; Sarkar, Kshitindra M.; and Clegg, Maurice A., 4,279,968, Cl. 428-677.000.

Clem, Arthur G., to American Colloid Company. Bentonite-gelled oil waterproofing composition. 4,279,547, Cl. 405-258.000.

Cleveland, Joseph J.: *See*—
Dziedzic, Chester J.; Cleveland, Joseph J.; and Newman, Ray L., 4,279,297, Cl. 165-165.000.

Click, Robert F. Method and apparatus for the recovery of refined petroleum products from pipeline mixtures. 4,279,738, Cl. 208-253.000.

Cline, Harvey E.: *See*—
Anthony, Thomas R.; and Cline, Harvey E., 4,279,667, Cl. 148-32.000.

Clitherow, John W.: *See*—
Martin-Smith, Michael; Price, Barry J.; Bradshaw, John; and Clitherow, John W., 4,279,911, Cl. 424-251.000.
Price, Barry J.; Clitherow, John W.; and Bradshaw, John, 4,279,819, Cl. 260-326.50S.

Clutter, Melvin E., to A. B. Chance Company. Insulator cover. 4,280,013, Cl. 174-5.00R.

Coast Catamaran Corporation: *See*—
Alter, Hobart L., 4,279,602, Cl. 440-63.000.

Cobel, George B.: *See*—
Skach, Edward J., Jr.; and Cobel, George B., 4,279,641, Cl. 75-0.50B.

Cobelli, Gabriel. Archery trainer and exercise device. 4,279,601, Cl. 434-247.000.

Cocco, Vincent L.; Norris, Philip R.; and Wareham, Richard R., to Polaroid Corporation. Microfiche system. 4,279,503, Cl. 355-45.000.

Coder, William D., Jr.: *See*—
Barden, Bruce L.; and Coder, William D., Jr., 4,279,953, Cl. 428-90.000.

Coiquaud, Michel, to Etablissements Simon Souillac. Process for manufacturing footwear from a plastic material such as polyurethane. 4,279,049, Cl. 12-142.00S.

Col, Martin H.; and Peters, Ronald L., to FMC Corporation. Fruit harvesting machine with bin filling system. 4,279,118, Cl. 56-329.000.

Colbert, Aaron; and Figiel, Francis J., to Allied Chemical Corporation. Azeotrope-like compositions of trichlorotrifluoroethane, acetone and cyclopentane. 4,279,665, Cl. 134-38.000.

Colbert, Aaron: *See*—
Figiel, Francis J.; and Colbert, Aaron, 4,279,664, Cl. 134-38.000.

Cole, Charles F., Jr.: *See*—
Hinshaw, Stanley E.; and Cole, Charles F., Jr., 4,279,078, Cl. 33-126.500.

Coleman, Ray L.: *See*—
Dienes, Edward K.; Coleman, Ray L.; and Hausberger, Arthur L., 4,279,781, Cl. 252-463.000.

Colgate-Palmolive Company: *See*—
Baines, Eric; and Harvey, Kenneth, 4,279,889, Cl. 424-57.000.

Collister, Richard L., Jr. Joint construction for log buildings. 4,279,108, Cl. 52-233.000.

Colombini, Ettore, to Northern Telecom Limited. Integrated optical wavelength demultiplexer. 4,279,464, Cl. 350-96.190.

Combustion Engineering, Inc.: *See*—
Blaskowski, Henry J., 4,279,296, Cl. 165-134.00R.

Comby, Georges; and Mangeot, Philippe, to Commissariat a l'Energie Atomique. Device for detecting and locating radiations, and in particular electron releasing phenomea. 4,280,075, Cl. 313-93.000.

Comerford, John; and Zimmer, Robert E., to Singer Company, The. Switch blade mechanism and multi-arrangement. 4,280,027, Cl. 200-6.00A.

ComGeneral Corporation: *See*—
Roettele, Donald L.; and Yohpe, William E., 4,280,223, Cl. 375-93.000.

Commander, Buck C. Solar assist and filter construction for dryer inlet. 4,279,082, Cl. 34-82.000.

Commissariat a l'Energie Atomique: *See*—
Comby, Georges; and Mangeot, Philippe, 4,280,075, Cl. 313-93.000.
Delapierre, Gilles; and Meyer, Robert, 4,279,475, Cl. 350-363.000.

Commonwealth Scientific and Industrial Research Organization: *See*—
Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., 4,279,756, Cl. 210-667.000.

Compagnie Francaise des Petroles: *See*—
Brun, Andre G.; and Dutilleul, Henri T., 4,279,544, Cl. 405-202.000.

Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme): *See*—
Villette, Jean, 4,280,156, Cl. 360-105.000.

Comparetto, John E.; and Hamilton, Richard A., Jr. Foldaway bed center. 4,279,046, Cl. 5-503.000.

Conant, Frank R.: *See*—
Jones, Dorothy L.; and Conant, Frank R., 4,279,936, Cl. 426-265.000.

Connell, G. A. Neville: *See*—
Scifres, Donald R.; Ponce, Fernando A.; Connell, G. A. Neville; and Streifer, William, 4,280,107, Cl. 331-94.50H.

Conoco, Inc.: *See—*
Hinshaw, Stanley E.; and Cole, Charles F., Jr., 4,279,078, Cl. 33-126.500.
Sekora, Robert H., 4,279,338, Cl. 198-525.000.
Container Corporation of America: *See—*
Gardner, Jeffrey M., 4,279,375, Cl. 229-37.00R.
Conti, Rino, to Dart Industries, Inc. Serving tray. 4,279,354, Cl. 220-23.830.
Convergence Corporation: *See—*
Bates, George W., 4,280,150, Cl. 360-14.000.
Cook, Henry S.: *See—*
Evrard, Gerald D.; Cook, Henry S.; and Kamalich, Anthony J., 4,279,052, Cl. 15-93.00A.
Cook, Roy O. Security device. 4,279,137, Cl. 70-416.000.
Copes-Vulcan, Inc.: *See—*
Seger, Fritz O., 4,279,274, Cl. 138-42.000.
Copley, Wayne: *See—*
Cormier, Edward J.; and Copley, Wayne, 4,279,562, Cl. 414-598.000.
Corcoran, John J.: *See—*
Hornak, Thomas; Corcoran, John J.; and Maslak, Samuel H., 4,280,196, Cl. 365-45.000.
Cormier, Edward J.; and Copley, Wayne. Bucket conveyor. 4,279,562, Cl. 414-598.000.
Coronelli, Carolina: *See—*
Pagani, Hermes; Parenti, Francesco; Coronelli, Carolina; and Tamoni, Giorgio, 4,280,001, Cl. 435-253.000.
Cottis, David: *See—*
Bundschuh, Robert; Thorne, George; and Cottis, David, 4,279,048, Cl. 9-310.0AA.
Coughlin, Robert W., to University Patents, Inc. Method of gasifying carbonaceous materials. 4,279,710, Cl. 204-101.000.
Coulon, Andre: *See—*
Blanc, Jacques; Coulon, Andre; and Pellus, Gilbert, 4,279,706, Cl. 204-26.000.
Coulson, Norman W., to Kerr-McGee Corporation. Process for recovering concentrated, purified tungsten values from brine. 4,279,869, Cl. 423-54.000.
Covalca Plastici S.p.A.: *See—*
Bossa, Edoardo, deceased, 4,279,538, Cl. 405-66.000.
Cox, Andrew G., to Manawatu Textile Dyers Limited. Dyeing, washing and/or milling. 4,279,135, Cl. 68-15.000.
Crafco, Inc.: *See—*
Jacobson, Carl C., Jr.; and Crosby, Gaius P., 4,279,056, Cl. 15-373.000.
Craig, Thomas A.: *See—*
Schink, Richard R.; and Craig, Thomas A., 4,279,269, Cl. 137-206.000.
Crask, Geoffrey J. Keyboard assembly with controllable key legends. 4,280,121, Cl. 340-365.0VL.
Crawford, Andrew S. Box frame for fabric prints and the like. 4,279,087, Cl. 40-158.00R.
Crompton & Knowles Corporation: *See—*
Smith, Howard L., 4,279,814, Cl. 260-173.000.
Crosby, Gaius P.: *See—*
Jacobson, Carl C., Jr.; and Crosby, Gaius P., 4,279,056, Cl. 15-373.000.
Crosaland, William A., to International Standard Electric Corporation. Temperature responsive device. 4,279,152, Cl. 73-356.000.
Crossman, Richard L.; and Kirk, Richard L., to Goodyear Aerospace Corporation. Method and apparatus for fastening a friaction wear pad to a disk core member. 4,279,333, Cl. 188-218.0XL.
Crown Controls Corporation: *See—*
Dammeyer, Ned E., 4,280,205, Cl. 367-119.000.
Crown Zellerbach Corporation: *See—*
Reba, Imants, 4,279,610, Cl. 493-411.000.
CSELT Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See—*
Babini, Giancarlo, 4,280,086, Cl. 320-1.000.
Csonka, Albert B.: *See—*
Csonka, John J.; and Csonka, Albert B., 4,279,223, Cl. 123-25.00N.
Csonka, John J.; and Csonka, Albert B. Internal combustion engine fuel-saving and pollution-reducing system. 4,279,223, Cl. 123-25.00N.
Cucinella, Antonino: *See—*
Ciaperoni, Aldemaro; and Cucinella, Antonino, 4,279,652, Cl. 106-18.210.
Culbertson, Billy M.; and Post, Larry K., to Ashland Chemical Company. Acrylic monomers containing carbamate functionality. 4,279,833, Cl. 260-464.000.
Cummins, Kozak and Gillman: *See—*
Kozak, Peter P., Jr.; and Gallup, Janet M., 4,280,000, Cl. 435-242.000.
Custom Packaging Systems: *See—*
LaFleur, Arthur E., 4,279,183, Cl. 83-16.000.
Cutler, John H.; and Walker, Loren H., to General Electric Company. Apparatus and method for providing a signal proportional to flux in an AC motor for control of motor drive current. 4,280,085, Cl. 318-803.000.
Cypress Gardens Skis: *See—*
Bundschuh, Robert; Thorne, George; and Cottis, David, 4,279,048, Cl. 9-310.0AA.
Czech, Franz; and Krieter, George-Heinz, to BBC Brown, Boveri & Company Limited. High-tension line. 4,280,015, Cl. 174-28.000.
Dadswell, John E.: *See—*
Wheeler, Raymond L.; Henry, John; and Dadswell, John E., 4,279,322, Cl. 180-128.000.
Daffern, George M., to Syva Company. Zero volume flow cell. 4,279,509, Cl. 356-246.000.
Dahlgrun, Rolf: *See—*
Reuland, Joachim; and Dahlgrun, Rolf, 4,280,187, Cl. 364-552.000.
Dai Nippon Toryo Co., Ltd.: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.
Daicel Chemical Industries, Ltd.: *See—*
Ishii, Kiyoshi; Honda, Zenjiro; and Tsugaya, Hitoshi, 4,279,846, Cl. 264-41.000.
Daido Tokushuko Kabushiki Kaisha: *See—*
Kato, Tetsuo; Abeyama, Shozo; Kimura, Atsuyoshi; and Nakamura, Sadayuki, 4,279,646, Cl. 75-123.0AA.
Daimaru, Akimasa: *See—*
Ban, Keisuke; Arai, Takeo; and Daimaru, Akimasa, 4,279,289, Cl. 164-97.000.
Dallman, Alfred C. Automotive fuel saving system. 4,279,236, Cl. 123-573.000.
Dammeyer, Ned E., to Crown Controls Corporation. Ultrasonic fork height measuring apparatus. 4,280,205, Cl. 367-119.000.
Danellis, Joan V.: *See—*
United States of America, National Aeronautics and Space Administration; Brown, Patricia A.; and Danellis, Joan V., 4,279,906, Cl. 424-247.000.
Danjyo, Hiroyuki; and Mori, Masashi, to Shinagawa Refractories Co., Ltd. Method for the repair of runner for molten metal. 4,279,844, Cl. 264-30.000.
Dann, Bert H., to Bell & Howell Company. Time modulation pulse averaging demodulator. 4,280,100, Cl. 329-103.000.
Dart Industries, Inc.: *See—*
Conti, Rino, 4,279,354, Cl. 220-23.830.
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Yonkers, Edward H., 4,279,522, Cl. 400-196.100.
Daudi, Anwar; Golata, John H.; and Triponi, Doarde G., to Motor Wheel Corporation. Method of wheel manufacture for correcting rotational non-uniformity of a pneumatic tire and wheel assembly. 4,279,287, Cl. 152-375.000.
Davidoff, Charles: *See—*
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Davies, David H.; and Norris, Geoffrey L. F., to Imperial Chemical Industries Limited. Streptomyces metabolite. 4,279,894, Cl. 424-122.000.
Day, Janet A.; Devlin, Barry R. J.; and Searle, Robert J. G., to Shell Oil Company. Process for preparing 3-azabicyclo(3.1.0)hexane-2-carboxylic acid. 4,279,821, Cl. 260-326.270.
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Hetz, G. Brian, 4,279,276, Cl. 139-159.000.
Deakin, David A. Solar collector panel. 4,279,243, Cl. 126-450.000.
Deans, Allan J.: *See—*
Engdahl, Lawrence W.; and Deans, Allan J., 4,280,051, Cl. 250-363.00S.
DeBartolo, Paul: *See—*
Jaggi, Hans; Mathison, Pat; and DeBartolo, Paul, 4,279,055, Cl. 15-302.000.
DeBeuckelaer, Gerard; Jarre, Wolfgang; Wurmb, Rolf; and Marx, Matthias, to BASF Aktiengesellschaft. Process for separating hydrophobic organic liquids from water. 4,279,757, Cl. 210-671.000.
Decker, Werner: *See—*
Achelpohl, Fritz; and Decker, Werner, 4,279,686, Cl. 156-517.000.
Deforeit, Christian J. Polyphonic synthesizer of periodic signals using digital techniques. 4,279,186, Cl. 84-1.010.
Delapierre, Gilles; and Meyer, Robert, to Commissariat a l'Energie Atomique. Method of control of an electrolytic display cell and a circuit for the application of said method. 4,279,475, Cl. 350-363.000.
Della Croce, John B. Articulator. 4,279,595, Cl. 433-55.000.
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Acharya, Rajguru M.; and Del Signore, James R., II, 4,280,082, Cl. 318-341.000.
DeLuca, Hector F.; Schnoes, Heinrich K.; Tanaka, Yoko; and Wichmann, Joseph K., to Wisconsin Alumni Research Foundation. 23,25-Dihydroxyvitamin D_3. 4,279,826, Cl. 260-397.200.
DelVecchio, Robert M.; and Meiksin, Zvi H., to University of Pittsburgh. Discontinuous metal and cermet film resistors and strain gauges. 4,280,114, Cl. 338-2.000.
Demoute, Jean-Pierre: *See—*
Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, 4,279,835, Cl. 260-465.00D.
de Niet, Edmond, to U.S. Philips Corporation. Magnetoresistive reading head. 4,280,158, Cl. 360-113.000.
Denker, Jurgen: *See—*
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.
dePencier, Robert D. Combination stove and fireplace. 4,279,237, Cl. 126-77.000.
Derbyshire, Stewart, to Foseco International Limited. Coating compositions. 4,279,946, Cl. 427-133.000.
Derderian, George: *See—*
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DeSimone, Robert S., to Hercules Incorporated. Aldehyde generators and foodstuffs containing such generators. 4,280,011, Cl. 568-603.000.

De Steenwinkel, Floris: *See—*
Masson, Pierre L.; Cambiaso, Cesar L.; De Steenwinkel, Floris; and Leek, Adrian E., 4,279,617, Cl. 23-230.00B.
Deszeri, Eszter: *See—*
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Developak Corporation: *See—*
Evers, Jack R., 4,279,608, Cl. 493-247.000.
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de Werk, Karel J. C., to RSV-Gusto Engineering B.V. Device for sealing the lower part of a column standing on or in the bottom below a body of water with respect to the surrounding surface of the bottom. 4,279,545, Cl. 405-211.000.
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Benson, Arthur L.; and Jordan, David A., 4,279,979, Cl. 429-254.000.
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Dholakia, Anil R., to RCA Corporation. Selectively damped video disc stylus assembly. 4,280,024, Cl. 369-219.000.
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Diamond Shamrock Corporation: *See—*
Herbin, Jean E. E.; and Grammont, Paul D. A., 4,280,003, Cl. 521-31.000.
Didier Engineering GmbH: *See—*
Wagener, Dietrich; Horst, Fach; and Ergun, Hayri, 4,280,033, Cl. 219-10.55A.
Dieling, Hans; and Schindehutte, Manfred, to Wegmann & Co. Torsionally flexible railway truck frame. 4,279,202, Cl. 105-206.00R.
Dienes, Edward K.; Coleman, Ray L.; and Hausberger, Arthur L., to United Catalysts Inc. Catalyst for the synthesis of methanol. 4,279,781, Cl. 252-463.000.
Dierschke, Eugene G., to Texas Instruments Incorporated. High-radiance emitters with integral microlens. 4,279,690, Cl. 156-649.000.
Dieterich, Dieter, to Bayer Aktiengesellschaft. Process for the production of isocyanatoaryl sulfonic acids. 4,279,832, Cl. 260-453.00P.
Dietrich, William J., Sr., to DMI, Inc. High speed tiller with widely spaced discs. 4,279,311, Cl. 172-509.000.
Dijkmans, Eise C.: *See—*
van de Plassche, Rudy J.; and Dijkmans, Eise C., 4,280,089, Cl. 323-354.000.
Diker, Charles M.: *See—*
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Dilg, Carl W. Shoe construction with replaceable sole. 4,279,083, Cl. 36-101.000.
Dimond, James R.: *See—*
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Dinger, Edward H.; and Ritter, Allen M., to General Electric Company. Motor drive system with inertia compensation. 4,280,081, Cl. 318-6.000.
Djorup, Robert S. Directional heat loss anemometer transducer. 4,279,147, Cl. 73-189.000.
DMI, Inc.: *See—*
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Dodin, Mark G.; and Charkey, Allen, to Energy Research Corporation. Battery separator employing zinc selective additive materials. 4,279,978, Cl. 429-248.000.
Doi, Toshiaki; Suematsu, Shigeru; Nishida, Chikamasa; and Hiranuma, Hiroshi, to Hitachi, Ltd. Nuclear reactor operation control process. 4,279,698, Cl. 176-22.000.
Dolain, Claude: *See—*
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Dolan-Jenner Industries, Inc.: *See—*
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Dolhyj, Serge R.: *See—*
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Dolman, Roy S.: *See—*
Tomlinson, Geoffrey E. S.; and Dolman, Roy S., 4,279,180, Cl. 82-1.00C.
Dombro, Robert A., to Chemplex Company. Method of preparing catalyst supports. 4,279,780, Cl. 252-452.000.
Doryokuro Kakunenryo Kaihatsu Jigyodan: *See—*
Fukada, Tomihiro; and Kamei, Mitsuru, 4,279,160, Cl. 73-708.000.
Douglas Dynamics Inc.: *See—*
Miller, Richard R.; and Simi, Edward A., 4,280,062, Cl. 307-10.0LS.
Douglas, George H.: *See—*
Riley, Richard L.; Douglas, George H.; and Yelnosky, John, 4,279,928, Cl. 424-324.000.
Douglas, Owen. Fluid support system for a medical patient. 4,279,044, Cl. 5-453.000.
Dow Chemical Company, The: *See—*
Huang, Cleo L., 4,279,994, Cl. 435-19.000.
Lewis, John W., 4,280,029, Cl. 200-50.00R.
McIntyre, John M.; and Caldwell, Donald L., 4,279,709, Cl. 204-98.000.
Nelson, Alfred R.; and Johnsen, Kenneth E., 4,279,797, Cl. 260-33.40R.
Skach, Edward J., Jr.; and Cobel, George B., 4,279,641, Cl. 75-0.50B.
Dow Corning Corporation: *See—*
Homan, Gary R.; and Lee, Chi-long, 4,279,792, Cl. 260-18.00S.
Kehrer, Gerald P.; and Smith, William G., 4,279,783, Cl. 252-511.000.
Lee, Denis C.; and Rathjen, Arthur H., 4,279,259, Cl. 128-774.000.
Dow Corning Limited: *See—*
Hill, Michael P. L.; and Tizard, Anthony N., 4,279,765, Cl. 252-117.000.
Dow, Judith A.; and Fohl, Timothy, to GTE Products Corporation. Lamp with protective coating and method of applying same. 4,279,590, Cl. 431-360.000.
Doyle, Gerald, to Exxon Research & Engineering Co. Cu(1) Acetylacetonate complexes for CO separation. 4,279,874, Cl. 423-246.000.
Doyle, Loren C.: *See—*
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Dresser Industries, Inc.: *See—*
Helmick, James E., 4,279,316, Cl. 175-371.000.
Kunderman, Fred K., 4,279,574, Cl. 417-243.000.
Morris, Jerald D., 4,279,450, Cl. 308-8.200.
Paul, Donald G.; and Berriman, Lester P., 4,279,627, Cl. 55-238.000.
Rogers, James B., 4,279,122, Cl. 59-10.000.
Drew, Daniel C., to American Aquatic Concepts and Enterprises, Inc. Swim cap with integral eye protection. 4,279,039, Cl. 2-428.000.
Drexler, Jerome; and Betz, Carl R., to Drexler Technology Corporation. Gelatin-epoxy sheet materials. 4,279,989, Cl. 430-531.000.
Drexler Technology Corporation: *See—*
Drexler, Jerome; and Betz, Carl R., 4,279,989, Cl. 430-531.000.
Druffel, Erich, to Durkoppwerke GmbH. Looper thread tension device. 4,279,210, Cl. 112-181.000.
Duby, Paul F.: *See—*
Vining, Paul H.; Scott, Jack A.; and Duby, Paul F., 4,279,711, Cl. 204-105.00R.
Duckworth, Edward D., to A. Johnson and Company (London) Limited. Scraped-surface heat exchanger. 4,279,295, Cl. 165-94.000.
Dumas, David H., to Hercules Incorporated. Sizing method and sizing composition for use therein. 4,279,794, Cl. 260-29.2EP.
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Friar, Lawrence B.; and Smith, Kenneth M., 4,279,644, Cl. 75-118.00P.
Payne, Robert H.; and Rackley, Robert L., 4,279,053, Cl. 15-159.00A.
Smeltz, Kenneth C.; and Strickler, Charles L., 4,279,960, Cl. 428-290.000.
Duracell International Inc.: *See—*
Moses, Peter R., 4,279,972, Cl. 429-50.000.
Durigon, Docile D.: *See—*
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Duro-Test Corporation: *See—*
Walsh, Peter, 4,280,076, Cl. 313-114.000.
Dutilleul, Henri T.: *See—*
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Dworkin, Robert D., to M&T Chemicals Inc. Synergistic heat stabilizer compositions containing an antimony or a bismuth compound. 4,279,807, Cl. 260-45.75B.
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., to Mattel, Inc. Figure toy. 4,279,099, Cl. 46-119.000.
Dynamit Nobel Aktiengesellschaft: *See—*
Pastura, Albino; Kelbch, Gerhard; and Hulsmann, Hans-Leo, 4,280,012, Cl. 568-755.000.
Dynapol: *See—*
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Lindsay, Gene K.; and O'Beirne, Andrew J., 4,279,774, Cl. 252-408.000.

Dziedzic, Chester J.; Cleveland, Joseph J.; and Newman, Ray L., to GTE Products Corporation. Housing for ceramic heat recuperators and assembly. 4,279,297, Cl. 165-165.000.

E & E Seegmiller Limited: *See—*
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E. R. Squibb & Sons, Inc.: *See—*
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E-Systems, Inc.: *See—*
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Eastman Kodak Company: *See—*
Audran, Roger G. L.; and Huguenard, Albert P., 4,279,945, Cl. 427-130.000.
Ewald, William P., 4,279,988, Cl. 430-499.000.
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Hines, Stephen P., 4,279,492, Cl. 354-187.000.
Jessop, Thomas C., 4,279,861, Cl. 422-67.000.
Swapceinski, John P., 4,279,942, Cl. 427-14.100.

Ebata, Sakae; Watari, Masahide; Hayakumo, Sunao; and Oyamada, Osamu, to Hitachi, Ltd. Shield wall for surrounding reactor containment vessel for nuclear reactor and method for constructing the same. 4,279,701, Cl. 176-87.000.

Ebauches Electroniques SA: *See—*
Leuthold, Oskar, 4,280,175, Cl. 363-127.000.

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Eckberg, Richard P.; and LaRochelle, Ronald W., to General Electric Company. Ultraviolet curable epoxy silicone coating compositions. 4,279,717, Cl. 204-159.130.

Eckels, Phillip W., to Westinghouse Electric Corp. Vapor trap and regulator for superconductive turbogenerators. 4,280,071, Cl. 310-52.000.

Eckert, Alton B.; Duwel, Edward C.; and Soderberg, John H., to Pitney Bowes Inc. Electronic postage meter having field resettable control values. 4,280,180, Cl. 364-464.000.

Eda, Tadahiro; Tatsumi, Susumu; Imai, Chikara; and Koichi, Yasushi, to Ricoh Company, Ltd. Electrostatographic copying apparatus with automatic toner density control. 4,279,498, Cl. 355-14.00D.

Edelmann, Hermann: *See—*
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Edwards, Alfred R.: *See—*
Leniger, David J., 4,279,128, Cl. 62-238.600.

Edwards, Jesse B. Firearm recoil reducer. 4,279,091, Cl. 42-1.00V.

Effenberger, Alfred; and Staehle, Hermann, to Staehle Maschinenbau GmbH. Extruder with exchangeable housing insert. 4,279,315, Cl. 366-76.000.

Egami, Tetsufumi, to Shimano Industrial Company Limited. Front derailleur for a bicycle. 4,279,605, Cl. 474-82.000.

Egan, James L., to Algoma Steel Corporation, Limited, The. Apparatus for changing tuyeres on a blast furnace. 4,279,408, Cl. 266-271.000.

Ege, Sigmund, to International Standard Electric Corporation. Fire resistant electric cable. 4,280,016, Cl. 174-102.00R.

Egee, Raymond: *See—*
Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, 4,280,042, Cl. 219-121.0PT.

Egli, Hans; Byrne, Joe L.; and Nancarrow, James H., to Garrett Corporation, The. Energy transfer machine. 4,279,570, Cl. 415-53.00T.

Ehlers, Klaus-Peter: *See—*
Schrodter, Klaus; Gradl, Reinhard; Ehlers, Klaus-Peter; and Scheibitz, Wolfgang, 4,279,876, Cl. 423-305.000.

Eibl, Volker: *See—*
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Eich, Richard A.: *See—*
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Eistetter, Klaus; Schaefer, Hartmann; and Menge, Heinz G., to Byk Gulden Lomberg Chemische Fabrik G.m.b.H. 2-(Nuclearly-substituted)benzylpyrrolidines. 4,279,918, Cl. 424-274.000.

El Paso Polyolefins Company: *See—*
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El Paso Products Company: *See—*
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Elastogran Maschinenbau GmbH & Co.: *See—*
Wallner, Josef; and Metzinger, Lothar, 4,279,517, Cl. 366-177.000.

Elchinger, Gilbert M., to Polaroid Corporation. Mobility cane for the blind incorporating ultrasonic obstacle sensing apparatus. 4,280,204, Cl. 367-116.000.

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Electronic Corporation of America: *See—*
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Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.
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Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

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Elleman, Daniel D.: *See—*
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Ellett, Edwin W. Operating room surgical lamp. 4,280,167, Cl. 362-33.000.

Elmqvist, Orvar. Blank pipe for manufacture. 4,279,965, Cl. 428-582.000.

Elsner, Emil, to Korf-Stahl AG. Metallurgical furnace in particular an electric arc furnace. 4,279,407, Cl. 266-193.000.

Eltsov, Konstantin S.: *See—*
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Ema, Shigeo: *See—*
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Emerson Electric Co.: *See—*
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Emmons, William D.: *See—*
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Energy Research Corporation: *See—*
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Energy Synergistics, Inc.: *See—*
Wymer, Robert L.; and Prater, Perry, 4,279,628, Cl. 55-238.000.

Engdahl, Lawrence W.; and Deans, Allan J., to Picker Corporation. Scintillation crystal mounting apparatus. 4,280,051, Cl. 250-363.00S.

Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., to Research Foundation of the City University of New York. In vivo inhibitors of cholesterol biosynthesis. 4,279,898, Cl. 424-217.000.

Engeler, William E.; and Tiemann, Jerome J., to General Electric Company. Charge transfer apparatus. 4,280,066, Cl. 307-221.00D.

Engelmann, Rudolph H. Indicia producing method. 4,279,852, Cl. 264-227.000.

Engineering Systems Corp.: *See—*
Carlberg, David, 4,280,025, Cl. 179-189.00D.

England, Charles J.; and Bakewell, Brian A., to Monotype Corporation Limited, The. Electro-optical character generator for photocomposing apparatus. 4,279,483, Cl. 354-5.000.

Enomoto, Hidekazu: *See—*
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Enos, Gary. Nuclear imaging phantom. 4,280,047, Cl. 250-252.000.

Entel Corporation: *See—*
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Epstein, Ira J. Portable electric drill guide. 4,279,552, Cl. 408-112.000.

Equipment Company of America: *See—*
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Erb, Tom L.; and Miller, Wendell D., to Ramsey Engineering Company. Liquid coupling for doppler sonic flowmeter. 4,279,167, Cl. 73-861.250.

Erbstoesser, Steven R., to Exxon Production Research Company. Polyurethane ball sealers for well treatment fluid diversion. 4,279,303, Cl. 166-284.000.

Erdmann, Francis M.: *See—*
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Eremenko, Nena G.: *See—*
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Ergun, Hayri: *See—*
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Erickson, John W., to Kobe, Inc. Pitot pump with fluid lubricated bearings. 4,279,571, Cl. 415-89.000.

Ernest, Michael V.: *See—*
Sanchez, Moises G.; Ernest, Michael V.; and Laine, Norman R., 4,279,779, Cl. 252-448.000.

Ernst Kaull & Co. GmbH: *See—*
Grunbacher, Martin, 4,279,485, Cl. 354-51.000.

Erpenbach, Heinz; Guhrmann, Klaus; and Joest, Herbert. Continuous production of 2-ethyl-hexyl acrylate free from dioctylether. 4,280,009, Cl. 560-205.000.

Erpenbach, Heinz; Gehrmann, Klaus; Kubbeler, Hans-Klaus; and Lork, Winfried, to Hoechst Aktiengesellschaft. Continuous production of alkyl acrylates free from ether. 4,280,010, Cl. 560-205.000.

Ersoy, Okan K., to Sentralinstitutt for Industriell Forskning. Method of holographic processing of waves. 4,279,462, Cl. 350-3.600.

Esenwein, Fred D.: *See—*
Havas, George; and Esenwein, Fred D., 4,280,038, Cl. 219-10.770.

Esser, Reinhard, to J. M. Voith GmbH. Process and apparatus for coating webs and adjusting the wet application weight of the coating material. 4,279,949, Cl. 427-356.000.

Essex County Council: *See—*
Schnurr, Lewis E., 4,280,020, Cl. 179-2.0EA.

Essilor International Cie Generale d'Optique: *See—*
Bettiol, Bruno; Harsigny, Christian; and Lenne, William, 4,279,480, Cl. 351-159.000.

Etablissements Simon Souillac: *See—*
Coiquaud, Michel, 4,279,049, Cl. 12-142.00S.

Ethyl Corporation: *See—*
Hornbaker, Edwin D.; and Eisenbraun, Allan A., 4,279,808, Cl. 260-45.75B.
King, Roderick V., 4,279,350, Cl. 215-228.000.

Euteco S.p.A.: *See—*
Merli, Claudio; and Francia, Carlo, 4,279,286, Cl. 152-353.00R.

Evans, John V.; and Matthews, Ralph W., to Australian Atomic Energy Commission. Technetium-99m generators. 4,280,053, Cl. 250-432.0PD.

Everroad, Herbert L. Method and apparatus for testing air filters and the like. 4,279,508, Cl. 356-237.000.

Evers, Jack R., to Developak Corporation. Bag bottom forming machine and transfer apparatus. 4,279,608, Cl. 493-247.000.

Evrard, Gerald D.; Cook, Henry S.; and Kamalich, Anthony J., to Southwire Co.; and National Steel Corp. Flue wall coke build-up removal device. 4,279,052, Cl. 15-93.00A.

Ewald, William P., to Eastman Kodak Company. Photographic film unit. 4,279,988, Cl. 430-499.000.

Ex-Cell-O Corporation: *See—*
Braun, Eric A., 4,279,675, Cl. 156-73.100.

Exxon Nuclear Company, Inc.: *See—*
Bray, Lane A.; and Boldt, Allyn L., 4,279,875, Cl. 423-249.000.

Exxon Production Research Company: *See—*
Erbstoesser, Steven R., 4,279,303, Cl. 166-284.000.
Wirsch, Michael J., 4,279,300, Cl. 166-90.000.

Exxon Research & Engineering Co.: *See—*
Bellows, Richard J.; and Grimes, Patrick G., 4,279,732, Cl. 204-269.000.
Chianelli, Russell R.; and Pecoraro, Theresa, 4,279,737, Cl. 208-217.000.
Doyle, Gerald, 4,279,874, Cl. 423-246.000.
Klemann, Lawrence P.; and Newman, Gerald H., 4,279,976, Cl. 429-197.000.

Ezaki, Akira; Kobayashi, Yoshiaki; and Hayashi, Sigeaki, to Sharp Kabushiki Kaisha. Visual angle adjustable portable cash register. 4,280,034, Cl. 235-1.00D.

F. lli Marzoli & C. S.p.A.: *See—*
Marzoli, Angelo, 4,279,119, Cl. 57-124.000.

F. Lli Zucchini: *See—*
Zucchini, Guido, 4,279,456, Cl. 339-32.00R.

Fabcon Incorporated: *See—*
Chen, Henry, 4,279,747, Cl. 210-197.000.

Facet Enterprises, Inc.: *See—*
Miller, Donald L., 4,280,073, Cl. 310-77.000.

Fahmy, Mohamed A. H.; and Fukuto, Tetsuo R., to University of California, The Regents of the. (Alkoxycarbonyl)(alkyl)aminosulfenyl derivatives of phosphoramidothioate esters. 4,279,897, Cl. 424-211.000.

Fairchild Camera & Instrument Corp.: *See—*
Vaeches, Theodore A., 4,280,220, Cl. 371-27.000.

Fairchild Industries, Inc.: *See—*
Miller, Matthew N., 4,279,195, Cl. 92-88.000.

Falgiatore, Dominic R.; and Emmons, William D., to Rohm and Haas Company. Water-insoluble copolymers containing amide-polyaldehyde thermosettable system. 4,279,959, Cl. 428-288.000.

Farrington, Gregory C., to General Electric Company. Humidity sensor. 4,280,115, Cl. 338-35.000.

Fedorovsky, Boris B.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Feix, Jacques; and Cardot, Frederic, to L'Air Liquide, Scoiete Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Welding torch with mechanical and pneumatic cleaning. 4,280,043, Cl. 219-137.310.

Felder, Louis: *See—*
Kirchmayr, Rudolf; and Felder, Louis, 4,279,721, Cl. 204-159.240.

Felsvang, Karsten S.; Hansen, Ove E.; and Rasmussen, Elisabeth L., to A/S Niro Atomizer. Process for flue gas desulfurization. 4,279,873, Cl. 423-242.000.

Ferag AG: *See—*
Glatz, Werner, 4,279,412, Cl. 271-108.000.

Fergg, Berthold: *See—*
Stemme, Otto; Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,279,491, Cl. 355-27.000.

Ferrari, Lorenzo, executor: *See—*
Bruzzese, Tiberio; and Ferrari, Rodolfo, deceased, 4,279,926, Cl. 424-316.000.

Ferrari, Mario C.: *See—*
Righi, Nardino; and Ferrari, Mario C., 4,279,170, Cl. 74-10.330.

Ferrari, Rodolfo, deceased: *See—*
Bruzzese, Tiberio; and Ferrari, Rodolfo, deceased, 4,279,926, Cl. 424-316.000.

Ferrier, Donald R.: *See—*
Kukanskis, Peter E.; Grunwald, John J.; Ferrier, Donald R.; and Sawoska, David A., 4,279,948, Cl. 427-305.000.

Ferzero, Maria Piera, Loriana Bossa, Ivo Bossa, legal representatives, heirs: *See—*
Bossa, Edoardo, deceased, 4,279,538, Cl. 405-66.000.

Feuerherm, Harald. Method for controlling wall thickness in extruded tubular synthetic-resin blank. 4,279,857, Cl. 264-541.000.

Fiat-Allis Construction Machinery, Inc.: *See—*
Joyce, Hardin, Jr., 4,279,319, Cl. 180-12.000.

Fiat Auto S.p.A.: *See—*
Lampredi, Aurelio; Leoni, Aldo; and Ioli, Luigi, 4,279,226, Cl. 123-90.550.

Figiel, Francis J.; and Colbert, Aaron, to Allied Chemical Corporation. Azeotrope-like compositions of trichlorotrifluoroethane, acetone and n-hexane. 4,279,664, Cl. 134-38.000.

Figiel, Francis J.: *See—*
Colbert, Aaron; and Figiel, Francis J., 4,279,665, Cl. 134-38.000.

Finch, Ray N.; and Nash, William D., to El Paso Products Company. Recovery of 1,3-butadiene by fractional crystallization from four-carbon mixtures. 4,279,130, Cl. 62-544.000.

Findeis, Gunter: *See—*
Thurm, Siegfried; Bunge, Konrad; and Findeis, Gunter, 4,279,502, Cl. 355-38.000.

Finestone, Arnold B.: *See—*
Allan, John L. H.; Finestone, Arnold B.; and Roderick, John J., 4,279,809, Cl. 260-45.95C.

Finike Italiana Marposs S.p.A.: *See—*
Gamberini, Giorgio; and Bozzoli, Giorgio, 4,279,079, Cl. 33-149.00J.

Finnigan, Oliver D., III. Juggling club. 4,279,416, Cl. 272-124.000.

Fischer, Michael A.; and Mears, James W., to Grinnell Fire Protection Systems Company, Inc. Sprinkler head with noncircular throat. 4,279,309, Cl. 169-37.000.

Fischer, William C.: *See—*
Adams, Don L.; Murphy, Richard D.; and Fischer, William C., 4,279,391, Cl. 244-17.130.

Fisher Corporation: *See—*
Bell, Robert L., 4,279,442, Cl. 297-367.000.

Fishgal, Semyon I. Hydraulic system. 4,279,751, Cl. 210-388.000.

Fitch, John K.: *See—*
Baker, Philip G.; Fitch, John K.; and Vance, Henry T., Jr., 4,279,487, Cl. 354-79.000.

Fitts, Uscoe J.: *See—*
Brown, Leon C.; Fitts, Uscoe J.; and Polakowski, David R., 4,279,504, Cl. 355-72.000.

Fitzgerald, Joseph C. Anti-clogging flume and structure for metering fluid flow. 4,279,148, Cl. 73-215.000.

Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., to United Technologies Corporation. Heat pipe bag system. 4,279,294, Cl. 165-45.000.

Flack, Earl, Jr. Seal for space between window openings of a vehicle cab and a camper carried thereby. 4,279,426, Cl. 277-237.00R.

Flaig, Ulrich; Piwonda, Fridolin; Stumpp, Gerhard; and Wessel, Wolf, to Robert Bosch GmbH. Apparatus for fixing the composition of the gas content of internal combustion engine cylinders. 4,279,235, Cl. 123-569.000.

Flameless Furnaces Limited: *See—*
Pearce, Arnold P., 4,279,222, Cl. 122-4.00D.

Fliege, Hans: *See—*
Brunken, Gerd; Eibl, Volker; and Fliege, Hans, 4,280,118, Cl. 340-147.0MD.

Flower, Robert A., to Singer Company, The. Receiver and correlator switching method. 4,280,222, Cl. 375-38.000.

FMC Corporation: *See—*
Brubaker, Gaylen R., 4,279,764, Cl. 252-99.000.
Col, Martin H.; and Peters, Ronald L., 4,279,118, Cl. 56-329.000.

Focke, Bernhard: *See—*
Focke, Heinz; and Focke, Bernhard, 4,279,955, Cl. 428-174.000.

Focke & Co.: *See—*
Focke, Heinz; and Focke, Bernhard, 4,279,955, Cl. 428-174.000.

Focke, Heinz; and Focke, Bernhard, to Focke & Co. Wedge shaped chute walls with bent ends for cigarette magazines. 4,279,955, Cl. 428-174.000.

Fohl, Timothy: *See—*
Dow, Judith A.; and Fohl, Timothy, 4,279,590, Cl. 431-360.000.

Fonas Corporation: *See—*
Hancovsky, John P., 4,279,169, Cl. 74-3.540.

Forberg, Horst, to Krone GmbH. Electrical crimp connector for making a connection between an insulated wire and connecting element. 4,279,460, Cl. 339-97.00P.

Forbo Betriebs AG: *See—*
Johnard, Bengt O., 4,279,954, Cl. 428-158.000.

Ford Aerospace & Communications Corporation: *See—*
Chethik, Frank, 4,280,224, Cl. 375-116.000.

Stanwood, Jay W.; Clarke, William A.; and MacLeane, Johannes, 4,279,275, Cl. 138-109.000.

Ford Motor Company: *See*—
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, 4,279,634, Cl. 65-182.300.

Forman, Donald B., to United States of America, Navy. Separable fiber optic cable connector. 4,279,469, Cl. 350-96.220.

Forterre, Gerard; and Berthe, Jacques, to Thomson-CSF. Waveguide circulator having cooling means. 4,280,111, Cl. 333-1.100.

Fosco International Limited: *See*—
Derbyshire, Stewart. 4,279,946, Cl. 427-133.000.

Foster, Charles H., to Eastman Kodak Company. Process for separating 3-hydroxy steroids or sterols from mixtures such as lipids. 4,279,828, Cl. 260-397.250.

Foster, Stephen R.: *See*—
Akkerman, Neil H.; Foster, Stephen R.; and Goans, Kip B., 4,279,272, Cl. 137-596.180.

Foundation: The Research Institute for Special Inorganic Materials, The: *See*—
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,279,654, Cl. 106-39.600.

Four Star Corporation: *See*—
Kowalski, Daniel J., 4,279,368, Cl. 224-326.000.

Fox, Daniel W., to General Electric Company. Foamable polyester composition. 4,280,005, Cl. 521-90.000.

Francavilla, Thomas L.; and Wolf, Stuart A., to United States of America, Navy. Method of forming thin niobium carbonitride superconducting films of exceptional purity. 4,279,969, Cl. 428-698.000.

Francia, Carlo: *See*—
Merli, Claudio; and Francia, Carlo, 4,279,286, Cl. 152-353.00R.

Francis, William T., Jr., to Francis, William T., Jr. Flexible antifreeze heatconductor liquid transfer connector hose. 4,279,270, Cl. 137-340.000.

Franey, John P.; and Graedel, Thomas E., to Bell Telephone Laboratories, Incorporated. Composition useful for detecting H_2S. 4,279,773, Cl. 252-408.000.

Freeman, William L. Pocket can opener. 4,279,077, Cl. 30-442.000.

Fremont Industries, Inc.: *See*—
Busch, Bruce D., 4,279,768, Cl. 252-180.000.

Friar, Lawrence B.; and Smith, Kenneth M., to Du Pont de Nemours, E. I., and Company. Recovery of silver from photographic processor effluents. 4,279,644, Cl. 75-118.00P.

Friehler, William R., to Sherwood Medical Industries, Inc. Reagent separator for a blood collection tube. 4,279,863, Cl. 422-102.000.

Fritz Schafer GmbH: *See*—
Schafer, Gerhard, 4,279,215, Cl. 118-326.000.

Fritzvold, Bjorn H.; and Soteland, Nicolai, to Myrens Verksted A/S. Method for treating refined mechanical pulp and thermo mechanical pulp with ozone. 4,279,694, Cl. 162-28.000.

Froeschke, Reinhard, to Sandvik Conveyor GmbH. Extrusion apparatus. 4,279,579, Cl. 425-6.000.

Frosch, Robert A.: *See*—
McCann, David H; White, Marvin H.; Turly, Alfred P.; and Frosch, Robert A., 4,280,141, Cl. 358-213.000.

Fuchs, Rainer; Hoffmann, Hellmut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. 2,2-Dimethyl-3-(2-bromo-2-phenyl-vinyl)-cyclopropanecarboxylic acid 3-phenoxybenzyl esters and pesticidal use. 4,279,920, Cl. 424-282.000.

Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating pests with 3-(2,3-dichloro-3,3-difluoro-prop-1-en-1-yl)-2,2-dimethyl-cyclo-propanecarboxylic acid fluoro-benzyl esters. 4,279,923, Cl. 424-304.000.

Fuji Chemicals Industrial Co., Ltd.: *See*—
Matsuda, Shunsuke; Tsuchiya, Soji; Honma, Masami; and Nagamatsu, Gentaro, 4,279,984, Cl. 430-270.000.

Fuji Photo Film Co., Ltd.: *See*—
Aoki, Kozo; Furutachi, Nobuo; and Sawada, Satoru, 4,279,990, Cl. 430-551.000.
Fukushima, Osamu; and Shiraishi, Atsushi, 4,279,495, Cl. 354-321.000.
Iwasaki, Masayuki; Nagashima, Akira; and Sato, Shigeru, 4,279,982, Cl. 430-170.000.

Fujii, Kenji: *See*—
Yokoyama, Tohei; Asakura, Shintaro; Urayama, Kiyoshi; and Fujii, Kenji, 4,279,165, Cl. 73-826.000.

Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, to Sumitomo Electric Industries, Ltd. Sintered hard metal and the method for producing the same. 4,279,651, Cl. 75-233.000.

Fujioka, Hironari; and Matsubayashi, Hajime, to Kanzaki Paper Manufacturing Co., Ltd. Electrostatic record material. 4,279,961, Cl. 428-328.000.

Fujisawa Pharmaceutical Co., Ltd.: *See*—
Takashima, Toshiyuki, 4,279,909, Cl. 424-250.000.
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,279,818, Cl. 424-246.000.

Fujitsu Limited: *See*—
Takahashi, Masayuki; and Monma, Hideo, 4,280,213, Cl. 368-187.000.

Fujiwara, Koichi; Yamauchi, Coro; Arita, Kishio; and Tsurumi, Shigeyuki, to Nippon Telegraph and Telephone Public Corporation. Electrical contact material. 4,279,649, Cl. 75-173.00A.

Fujiyoshi, Kenji: *See*—
Hiraoka, Takayuki; and Fujiyoshi, Kenji, 4,279,957, Cl. 428-212.000.

Fukada, Tomihiro; and Kamei, Mitsuru, to Doryokuro Kakunenryo Kaihatsu Jigyodan. Pressure measuring apparatus with temperature compensating means. 4,279,160, Cl. 73-708.000.

Fukahori, Hidehiko: *See*—
Mashimo, Yukio; Iwashita, Tomonori; and Fukahori, Hidehiko, 4,279,490, Cl. 354-173.000.

Fukatsu, Kunio, to Tokyo Shibaura Denki Kabushiki Kaisha. Banking apparatus using passbooks. 4,280,036, Cl. 235-379.000.

Fukazawa, Tokuumi: *See*—
Takagi, Kazumasa; Fukazawa, Tokuumi; and Oi, Tetsu, 4,279,772, Cl. 252-301.40F.

Fukui, Yoshiharu: *See*—
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Fukuoka, Yohei: *See*—
Nishikido, Joji; Fukuoka, Yohei; and Tamura, Nobuhiro, 4,279,836, Cl. 260-500.50H.

Fukushima, Osamu; and Shiraishi, Atsushi, to Fuji Photo Film Co., Ltd. Photosensitive material processing apparatus. 4,279,495, Cl. 354-321.000.

Fukuto, Tetsuo R.: *See*—
Fahmy, Mohamed A. H.; and Fukuto, Tetsuo R., 4,279,897, Cl. 424-211.000.

Furuhashi, Toshio: *See*—
Takato, Masao; Imai, Masumi; and Furuhashi, Toshio, 4,280,189, Cl. 364-734.000.

Furukawa, Kenji: *See*—
Inukai, Takashi; Inoue, Hiromichi; Furukawa, Kenji; Sato, Hideo; and Sugimori, Shigeru, 4,279,770, Cl. 252-299.620.

Furusawa, Yoshikatsu. Direction indication apparatus for vehicles. 4,280,117, Cl. 340-81.00R.

Furutachi, Nobuo: *See*—
Aoki, Kozo; Furutachi, Nobuo; and Sawada, Satoru, 4,279,990, Cl. 430-551.000.

FXC Corporation: *See*—
Saxton, Dennis M., 4,279,392, Cl. 244-150.000.

Fylling, Tor T. Torque applicator. 4,279,171, Cl. 74-128.000.

Gabbay, Shlomo. Sternum closure device and procedure for using same. 4,279,248, Cl. 128-92.0EA.

Gagliardi, Joseph; and Lee, Charles A., to Mercantile Development, Inc. Material and system for minimizing erosion. 4,279,535, Cl. 405-15.000.

Galante, Jorge O.: *See*—
Andriacchi, Thomas P.; Galante, Jorge O.; and Hampton, Steven J., 4,279,042, Cl. 3-1.913.

Gallaher, Thomas L.: *See*—
Harvey, Richard D.; Gallaher, Thomas L.; Mullikin, Raymond L.; and Small, Thomas L., 4,279,658, Cl. 106-213.000.

Gallart, Robert. Power tool. 4,279,141, Cl. 72-482.000.

Gallup, Janet: *See*—
Kozak, Peter P., Jr.; and Gallup, Janet M., 4,280,000, Cl. 435-242.000.

Gallup, Janet M.: *See*—
Kozak, Peter P., Jr.; and Gallup, Janet M., 4,280,000, Cl. 435-242.000.

Galmiche, Rene G.: *See*—
Pottorff, Donald R.; and Galmiche, Rene G., 4,279,330, Cl. 188-71.700.

Gamberini, Giorgio; and Bozzoli, Giorgio, to Finike Italiana Marposs S.p.A. Direct feeling gage for the measurement of the sizes of moving workpieces, in particular for measurements with intermittent contact between the feeling means and the workpiece. 4,279,079, Cl. 33-149.003.

Gana, John; and Torlay, Dwight L., to United States Steel Corporation. Mill roll balance system. 4,279,140, Cl. 72-237.000.

Ganguly, Ashit K.; and Liu, Yi-Tsung, to Schering Corporation. Novel 20-imino macrolide antibacterial agents. 4,279,896, Cl. 424-180.000.

Gantzert, Thomas R.: *See*—
Lindberg, Allen W.; Gantzert, Thomas R.; and Hicks, Donald L., 4,279,231, Cl. 123-489.000.

Gardner, Jeffrey M., to Container Corporation of America. Shipping-display container. 4,279,375, Cl. 229-37.00R.

Garofalo, Giovanni, to AMF Incorporated. Diving mask. 4,279,040, Cl. 2-428.000.

Garrett Corporation, The: *See*—
Egli, Hans; Byrne, Joe L.; and Nancarrow, James H., 4,279,570, Cl. 415-53.00T.

Garvie, Ronald C.; Hannink, Richard H. J.; and McKinnon, Neil A. Partially stabilized zirconia ceramics. 4,279,655, Cl. 106-57.000.

Gebr. Hofmann GmbH, KG Machinenfabrik: *See*—
Gehron, Peter, 4,279,329, Cl. 187-25.000.

Gebruder Junghans GmbH: *See*—
Maurer, Roland, 4,279,072, Cl. 29-764.000.

Gehrmann, Klaus: *See*—
Erpenbach, Heinz; Gehrmann, Klaus; Kubbeler, Hans-Klaus; and Lork, Winfried, 4,280,010, Cl. 560-205.000.

Gehron, Peter, to Gebr. Hofmann GmbH, KG Machinenfabrik. Safety device for lift equipment. 4,279,329, Cl. 187-25.000.

Geike, Bernd: *See*—
Bruckner, Georg F.; Geike, Bernd; Schoen, Bernd-Jurgen; and Berger, Fritz, 4,279,038, Cl. 2-425.000.

Gellert, Jobst U. Hot tip seal. 4,279,588, Cl. 425-568.000.

General Battery Corporation: *See*—
Hawrylo, Stanley F., 4,279,584, Cl. 425-307.000.

General Electric Company: *See*—
Anthony, Thomas R.; and Cline, Harvey E., 4,279,667, Cl. 148-32.000.
Arendt, Ronald H., 4,279,971, Cl. 429-46.000.
Baldwin, Samuel L., 4,280,170, Cl. 362-224.000.
Bradley, Irving; and Vodicka, Vincent, 4,280,173, Cl. 362-294.000.
Cutler, John H.; and Walker, Loren H., 4,280,085, Cl. 318-803.000.
Dinger, Edward H.; and Ritter, Allen M., 4,280,081, Cl. 318-6.000.
Eckberg, Richard P.; and LaRochelle, Ronald W., 4,279,717, Cl. 204-159.130.
Engeler, William E.; and Tiemann, Jerome J., 4,280,066, Cl. 307-221.00D.
Farrington, Gregory C., 4,280,115, Cl. 338-35.000.
Fox, Daniel W., 4,280,005, Cl. 521-90.000.
Greskovich, Charles D.; Prochazka, Svante; and Palm, John A., 4,279,656, Cl. 106-73.500.
Greskovich, Charles D., 4,279,657, Cl. 106-73.500.
Houston, John M., 4,280,093, Cl. 324-117.00R.
Kramer, Morton; and Wambach, Allen D., 4,279,801, Cl. 260-40.00R.
Kure-Jensen, Jens; Gordon, Richard S.; Devlin, Charles L.; and Krings, Frederick C., 4,280,060, Cl. 290-40.00R.
Laskaris, Evangelos T., 4,279,944, Cl. 427-62.000.
Leiter, Gordon A.; and Schall, Herman H., 4,280,030, Cl. 200-237.000.
Nassi, Menahem; and Stonestrom, James P., 4,280,178, Cl. 364-414.000.
Powers, Robert W.; and Bielawski, John C., 4,279,725, Cl. 204-181.00F.
Ward, William J., III, 4,279,855, Cl. 264-298.000.
Wyler, John S.; and Pfuntner, Richard A., 4,279,168, Cl. 73-861.350.

General Motors Corporation: *See*—
Chapman, Lloyd R.; and Watton, John F., 4,279,782, Cl. 252-465.000.
Matter, Robert C., 4,279,977, Cl. 429-245.000.
Micheli, Adolph L., 4,279,666, Cl. 148-6.300.
Stettner, Ernest R., 4,279,841, Cl. 261-23.00A.

General Signal Corporation: *See*—
Right, Robert W.; McCord, Herbert W.; and Podany, Vaclav O., 4,280,123, Cl. 340-384.00E.
Trafford, Larry F.; and Thompson, John W. K., 4,280,120, Cl. 340-303.000.

General Tire & Rubber Company, The: *See*—
Aggarwal, Sundar L.; Hargis, Ivan G.; and Livigni, Russell A., 4,279,798, Cl. 260-33.40R.
Barden, Bruce L.; and Coder, William D., Jr., 4,279,953, Cl. 428-90.000.

Generator Industri AB: *See*—
Rosenblad, Gosta, 4,279,126, Cl. 60-651.000.

Georgalas, Arthur: *See*—
Harris, Thomas C.; and Georgalas, Arthur, 4,279,890, Cl. 424-69.000.

Gerest, Pierre: *See*—
Boeuf, Jean-Marie; Gerest, Pierre; and Lemaire, Henri, 4,279,763, Cl. 252-62.580.

Gerhards, Gerd: *See*—
Arnold, Herbert; and Gerhards, Gerd, 4,279,229, Cl. 123-359.000.

Gerhards, Hans J.: *See*—
Lassmann, Eberhard; Kohler, Peter; Beran, Franz; and Gerhards, Hans J., 4,279,872, Cl. 423-228.000.

Gerharz, Reinhold, to United States of America, Army. Microwave image converter. 4,280,055, Cl. 250-484.000.

Gertz, Donald: *See*—
Weinstein, Warren D.; Boudreau, Jean A.; and Gertz, Donald, 4,280,188, Cl. 364-566.000.

Gewerkschaft Eisenhutte Westfalia: *See*—
Hauschopp, Alois, 4,279,445, Cl. 299-34.000.

GG. Noell GmbH: *See*—
Kuhn, Rolf, 4,279,699, Cl. 176-30.000.

Giet, Claude, to Produits Chimiques Ugine Kuhlmann. Acetylene black with high electrical conductivity and high absorptive power. 4,279,880, Cl. 423-445.000.

Giflo, Henrik. Construction steel exhibiting high fatigue strength. 4,279,647, Cl. 75-124.000.

Gilkison, John J., to Rolls-Royce Limited. Method of arc welding porous sheet metal. 4,280,040, Cl. 219-104.000.

Gilmour, George A., to Westinghouse Electric Corp. Sonar beam forming utilizing the chirp Z-transform. 4,280,203, Cl. 367-103.000.

Giros, Marcel A. P. Apparatus for limiting the size of turns of a helically formed long product. 4,279,372, Cl. 226-118.000.

Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Krainik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M. Enamel slip. 4,279,963, Cl. 428-433.000.

Glaenzer Spicer: *See*—
Mangiavacchi, Jacques; Chauvelot, Alain; and Dolain, Claude, 4,279,528, Cl. 403-57.000.

Glardon, Remi: *See*—
Kurz, Wilfried; and Glardon, Remi, 4,279,668, Cl. 148-101.000.

Glatz, Werner, to Ferag AG. Apparatus for engaging and moving individual flat structures, especially paper sheets or printed products. 4,279,412, Cl. 271-108.000.

Glaxo Group Limited: *See*—
Martin-Smith, Michael; Price, Barry J.; Bradshaw, John; and Clitherow, John W., 4,279,911, Cl. 424-251.000.

Gleason, Charles H.; and Greenleaf, James O. Roofing panel. 4,279,106, Cl. 52-100.000.

Gleim, William K. T. Method of hydrorefining asphaltenic hydrocarbon feedstocks. 4,279,736, Cl. 208-215.000.

Glenn, Eldridge M.: *See*—
Hall, Charles M.; and Glenn, Eldridge M., 4,279,930, Cl. 424-331.000.

Globe Tool & Engineering Company, The: *See*—
Peck, Kenneth E., Jr.; and Pearsall, Harold I., 4,279,277, Cl. 140-92.200.

Goans, Kip B.: *See*—
Akkerman, Neil H.; Foster, Stephen R.; and Goans, Kip B., 4,279,272, Cl. 137-596.180.

Gokan, Hiroshi: *See*—
Ohnishi, Yoshitake; Itoh, Masaki; Mizuno, Kenji; and Gokan, Hiroshi, 4,279,986, Cl. 430-280.000.

Golata, John H.: *See*—
Daudi, Anwar; Golata, John H.; and Triponi, Doarde G., 4,279,287, Cl. 152-375.000.

Goldbarg, Herman. Refuse collecting tool. 4,279,437, Cl. 294-1.0BB.

Golding, Russell J., Sr. Motor vehicle camper. 4,279,440, Cl. 296-164.000.

Goldman, Jon C.; McMillan, Larry D.; and Price, James B., to Motorola, Inc. Deposition of silicon nitride. 4,279,947, Cl. 427-255.200.

Goller, Glen J.: *See*—
Breault, Richard D.; Goller, Glen J.; Roethlein, Richard J.; and Sprecher, Gilbert C., 4,279,970, Cl. 429-35.000.

Goodyear Aerospace Corporation: *See*—
Crossman, Richard L.; and Kirk, Richard L., 4,279,333, Cl. 188-218.0XL.

Goodyear Tire & Rubber Company, The: *See*—
Hitzky, Leon J., 4,279,283, Cl. 152-209.00R.
MacGregor, Cline J.; and Parker, Roy A., 4,279,799, Cl. 260-37.00N.
Martin, Billy P.; and Vanis, Vernon V., 4,279,449, Cl. 305-35.0EB.
Spadone, Leighton R., 4,279,284, Cl. 152-330.00R.

Gordon, Bruce E.: *See*—
Lowenschuss, Oscar; and Gordon, Bruce E., 4,280,219, Cl. 375-4.000.

Gordon, Richard S.: *See*—
Kure-Jensen, Jens; Gordon, Richard S.; Devlin, Charles L.; and Krings, Frederick C., 4,280,060, Cl. 290-40.00R.

Gordy, Robert S.; Poston, Billy R.; and Sanders, David E., to E-Systems, Inc. False alarm processor. 4,280,218, Cl. 371-6.000.

Gotlinksy, Barry: *See*—
Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., 4,279,898, Cl. 424-217.000.

Goto, Kazuo: *See*—
Shono, Tetsuji; Goto, Kazuo; and Ohishi, Michiro, 4,279,489, Cl. 354-155.000.

Gotou, Makoto; Kobayashi, Kazutsugu; and Okumura, Kenichiro, to Matsushita Electric Industrial Co., Ltd. Rotating electric machine. 4,280,072, Cl. 310-67.00R.

Gotter, Eugen, to Hoffman-Werke GmbH. Shell container comprising a centering assembly. 4,279,339, Cl. 206-3.000.

Gozzo, Franco; Abbruzzese, Luigi; and Longoni, Angelo, to Montedison S.p.A. Ureas having insecticide and nematocide action. 4,279,927, Cl. 424-322.000.

Gradl, Reinhard: *See*—
Schrodter, Klaus; Gradl, Reinhard; Ehlers, Klaus-Peter; and Scheibitz, Wolfgang, 4,279,876, Cl. 423-305.000.

Graedel, Thomas E.: *See*—
Franey, John P.; and Graedel, Thomas E., 4,279,773, Cl. 252-408.000.

Grain Processing Corporation: *See*—
Harvey, Richard D.; Gallaher, Thomas L.; Mullikin, Raymond L.; and Small, Thomas L., 4,279,658, Cl. 106-213.000.

Grammont, Paul D. A.: *See*—
Herbin, Jean E. E.; and Grammont, Paul D. A., 4,280,003, Cl. 521-31.000.

Grant, Herman L., to Herman Grant Co., Inc. Heat exchanger for pre-heating intake air for rotary dryer. 4,279,592, Cl. 432-105.000.

Grawey, Charles E., to Caterpillar Tractor Co. Apparatus and method for forming a tube article on a core. 4,279,285, Cl. 152-330.00R.

Gray, Charles E., deceased; and by Gray, Emma Dee, executrix. Surface casing stabilizer and hanger and method of employing the same. 4,279,308, Cl. 166-315.000.

Gray, Emma Dee, executrix: *See*—
Gray, Charles E., deceased; and Gray, Emma Dee, executrix, 4,279,308, Cl. 166-315.000.

Gray, Marie S.; and Cherry, John P., to United States of America, Agriculture. Treatment of cottonseed meals followed by extraction with certain solvents to remove gossypol. 4,279,811, Cl. 260-123.500.

Great Lakes Carbon Corporation: *See*—
Winters, Richard D., 4,279,612, Cl. 8-115.500.

Greenberg, Lawrence A., to Bethlehem Steel Corporation. Hot top for ingot mold. 4,279,400, Cl. 249-106.000.

Greening Donald Co. Ltd.: *See*—
McKenzie, Kenneth G., 4,279,531, Cl. 403-267.000.

Greenleaf, James O.: *See*—
Gleason, Charles H.; and Greenleaf, James O., 4,279,106, Cl. 52-100.000.

Greskovich, Charles D.; Prochazka, Svante; and Palm, John A., to General Electric Company. Light-transmitting silicon nitride. 4,279,656, Cl. 106-73.500.

Greskovich, Charles D., to General Electric Company. Light-transmitting silicon nitride. 4,279,657, Cl. 106-73.500.

Gretag Aktiengesellschaft: *See*—
Ursprung, Karl; and Zimmermann, Franz, 4,279,505, Cl. 355-77.000.

Griffin, James G.; and Schwarz, Frederick M., to United Technologies Corporation. External gas turbine engine cooling for clearance control. 4,279,123, Cl. 60-226.00R.

Grimes, Patrick G.: *See*—
Bellows, Richard J.; and Grimes, Patrick G., 4,279,732, Cl. 204-269.000.

Grimm, Phillip R., to American Hospital Supply Corporation. Chuck assembly for dental handpieces. 4,279,597, Cl. 433-129.000.

Grinnell Fire Protection Systems Company, Inc.: *See*—
Fischer, Michael A.; and Mears, James W., 4,279,309, Cl. 169-37.000.

Grover, Charles R., Jr.: *See*—
Anderson, Nathaniel C.; and Grover, Charles R., Jr., 4,279,707, Cl. 204-43.00T.

Grumman Aerospace Corporation: *See*—
Weinstein, Warren D.; Boudreau, Jean A.; and Gertz, Donald, 4,280,188, Cl. 364-566.000.

Grunbacher, Martin, to Ernst Kaull & Co. GmbH. Electromagnetic drive system for photographic shutters. 4,279,485, Cl. 354-51.000.

Grunwald, John J.: *See*—
Kukanskis, Peter E.; Grunwald, John J.; Ferrier, Donald R.; and Sawoska, David A., 4,279,948, Cl. 427-305.000.

Gruppo Lepetit S.p.A.: *See*—
Pagani, Hermes; Parenti, Francesco; Coronelli, Carolina; and Tamoni, Giorgion, 4,280,001, Cl. 435-253.000.

Gryn, Felix J.; and Young, James E., to Emerson Electric Co. Field replaceable electrode assembly for magnetic flowmeter. 4,279,166, Cl. 73-861.120.

GTE Laboratories Incorporated: *See*—
Baird, Donald H.; and McDonough, Martin S., 4,279,726, Cl. 204-192.00P.
Natansohn, Samuel; and Su, Sophia R., 4,279,870, Cl. 423-54.000.

GTE Products Corporation: *See*—
Dow, Judith A.; and Fohl, Timothy, 4,279,590, Cl. 431-360.000.
Dziedzic, Chester J.; Cleveland, Joseph J.; and Newman, Ray L., 4,279,297, Cl. 165-165.000.

Guarino, Nicholas, to Varian Associates, Inc. X-Y Work table. 4,280,054, Cl. 250-440.000.

Guhrmann, Klaus: *See*—
Erpenbach, Heinz; Guhrmann, Klaus; and Joest, Herbert, 4,280,009, Cl. 560-205.000.

Guidry, Debra K. Pull toy. 4,279,096, Cl. 46-11.000.

Guillaume, Paul; Karinthi, Pierre; and Nicolas, Jacques, to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges Claude. Method and apparatus for heat treatment of industrial wastes. 4,279,208, Cl. 110-346.000.

Guillen, Francisco J.: *See*—
Lee, Henry E.; Guillen, Francisco J.; and Longuemare, R. Noel, Jr., 4,280,127, Cl. 343-5.0CM.

Guipaud, Serge C., to Societe Pour l'Equipement de Vehicules. Electronic pinking detector. 4,279,143, Cl. 73-35.000.

Gulf Oil Corporation: *See*—
Hoffmann, Otto L.; and Kirkpatrick, Joel L., 4,279,636, Cl. 71-90.000.

Gulfeber, A.B.: *See*—
Assarsson, Alf G.; and Korpela, Heikki, 4,279,847, Cl. 264-51.000.

Gunji, Yoshihisa: *See*—
Okano, Hiroshi; and Gunji, Yoshihisa, 4,279,576, Cl. 417-407.000.

Guralp, Cansun M., to National Research Development Corporation. Seismometers. 4,280,206, Cl. 367-179.000.

Gutcho, Sidney; and Mansbach, Lillian, to Becton Dickinson & Company. Simultaneous radioassay of folate and vitamin B_{12}. 4,279,859, Cl. 422-61.000.

Gutierreza Atencio, Francisco J. Dam with transformable hydroenergetic arrangement. 4,279,539, Cl. 405-76.000.

Gutman, Arnold D., to Stauffer Chemical Company. 3,5-Disubstituted 1,2,4-oxadiazole herbicidal antidotes. 4,279,638, Cl. 71-92.000.

Gutner, Kenneth H. Canopy support for beds and method. 4,279,264, Cl. 135-5.100.

Gutsche, Klaus; Scharwaechter, Peter; Kohlmann, Wilhelm; and Kroemer, Gerd, to BASF Aktuengesellschaft. Benzylpyrimidines, processes for their manufacture, and drugs containing the said compounds. 4,279,899, Cl. 424-229.000.

Gwyn, John E., to Shell Oil Company. Coking prevention. 4,279,733, Cl. 208-48.00R.

Gwyn, John E., to Shell Oil Company. Quench Process. 4,279,734, Cl. 208-48.00Q.

H. R. Electronics Company: *See*—
Levasseur, Joseph L., 4,280,181, Cl. 364-464.000.

Haag, Werner O.; and Huang, Tracy J., to Mobil Oil Corporation. Conversion of synthesis gas to hydrocarbon mixtures utilizing dual reactors. 4,279,830, Cl. 518-700.000.

Haas, Robert V., to Singer Company, The. Combined chest of drawers and sewing machine table. 4,279,453, Cl. 312-282.000.

Haase, Gerald A. Magnet attachment for vacuum cleaners. 4,279,745, Cl. 209-215.000.

Haberle, Friedrich: *See*—
Kress, Dieter; and Haberle, Friedrich, 4,279,550, Cl. 408-59.000.

Hacker, Dennis J., to High Efficiency Insulation Technologies, Inc. Retaining clip for soffit fixing on steel beams or columns. 4,279,111, Cl. 52-714.000.

Haes, Freddy; Hermes, Guillaume M. P. G.; and Reijnhout, Cornelis M., to U.S. Philips Corporation. Epilation apparatus. 4,279,253, Cl. 128-355.000.

Hafa Fabriks AB: *See*—
Larsson, Frank, 4,279,397, Cl. 248-221.300.

Hafer, Edward H.; and Klinger, William J., to Bell Telephone Laboratories, Incorporated. Time division switching system control arrangement. 4,280,217, Cl. 370-63.000.

Hagemann, Hermann: *See*—
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

Hagen, Alexander; Edelmann, Hermann; and Klose, Sigmar, to Boehringer Mannheim GmbH. Process and apparatus for preparing multicomponent reagent solutions. 4,279,991, Cl. 435-4.000.

Hajek, Manfred: *See*—
Wellner, Wolfgang; and Hajek, Manfred, 4,279,793, Cl. 260-18.00R.

Hall, Charles M.; and Glenn, Eldridge M., to Upjohn Company, The. Process for treating inflammation. 4,279,930, Cl. 424-331.000.

Halle, Reidar; Peterson, David; and Lewis, Roger N., to Argus Chemical Corporation. 2-Chloro-2-alkyl substituted asymmetrical diacyl peroxides. 4,279,831, Cl. 260-453.0RZ.

Halliburton Company: *See*—
Knox, Lloyd C.; and Nickles, Robert B., Jr., 4,279,266, Cl. 137-68.00R.

Halm, Immanuel. Coin guard for coin protection. 4,279,113, Cl. 53-219.000.

Hamagami, Teruaki; Maetani, Kazuo; and Sato, Fumio, to Sumitomo Metal Mining Company Limited. Apparatus for securing tape to leads of semiconductor lead frame. 4,279,682, Cl. 156-367.000.

Hamano, Shin: *See*—
Hirai, Hiromu; and Hamano, Shin, 4,280,083, Cl. 318-565.000.

Hamel, Robert E., Jr.: *See*—
McKinley, Ronald R.; Hamel, Robert E., Jr.; and Dolan, Bernard J., 4,280,122, Cl. 340-380.000.

Hamilton, Richard A., Jr.: *See*—
Comparetto, John E.; and Hamilton, Richard A., Jr., 4,279,046, Cl. 5-503.000.

Hammann, Ingeborg: *See*—
Fuchs, Rainer; Hoffmann, Hellmut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, 4,279,920, Cl. 424-282.000.
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

Hamprecht, Rainer: *See*—
Schallner, Otto; and Hamprecht, Rainer, 4,279,813, Cl. 260-163.000.

Hampton, Steven J.: *See*—
Andriacchi, Thomas P.; Galante, Jorge O.; and Hampton, Steven J., 4,279,042, Cl. 3-1.913.

Hancou, Theodore, to Societe d'Exploitation de Brevets J.B. Screenwiper blade with replaceable blade rubber. 4,279,054, Cl. 15-250.420.

Hancovsky, John P., to Fonas Corporation. Timer latch mechanisms. 4,279,169, Cl. 74-3.540.

Handtmann, Dieter: *See*—
Wessel, Wolf; and Handtmann, Dieter, 4,279,146, Cl. 73-118.000.

Hanji, Katsumi: *See*—
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Hanna, Wayne E.: *See*—
Jackman, Joseph R.; and Hanna, Wayne E., 4,279,650, Cl. 75-175.500.

Hannink, Richard H. J.: *See*—
Garvie, Ronald C.; Hannink, Richard H. J.; and McKinnon, Neil A., 4,279,655, Cl. 106-57.000.

Hanrot, Jean-Pascal; and Volpeliere, Jacky, to Aluminum Pechiney. Method and apparatus of self-regulation for a pneumatic conveyor. 4,279,549, Cl. 406-14.000.

Hansen, Ove E.: *See*—
Felsvang, Karsten S.; Hansen, Ove E.; and Rasmussen, Elisabeth L., 4,279,873, Cl. 423-242.000.

Hara, Yoshiaki: *See*—
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

Harco Corporation: *See*—
Bushman, James B.; Dimond, James R.; and Hennessy, John, 4,279,729, Cl. 204-196.000.

Harcourt, Colin H.; and Barker, D. Roy, to Hoverlift Systems Ltd. Flexible paddle wheel structure. 4,279,603, Cl. 440-90.000.

Hargis, Ivan G.: *See*—
Aggarwal, Sundar L.; Hargis, Ivan G.; and Livigni, Russell A., 4,279,798, Cl. 260-33.40R.

Harloff, Gary J. Cross-flow turbine machine. 4,279,569, Cl. 415-52.000.

Harper, James C. Wire line tool release method. 4,279,304, Cl. 166-301.000.

Harper, Robert W.; and Kleiber, Robert A., to Caterpillar Tractor Co. Adjustable double link mounting. 4,279,348, Cl. 212-196.000.

Harris, Robert L.: *See*—
Hawke, Merrill P.; Elizalde, Pete, Jr.; and Harris, Robert L., 4,279,164, Cl. 73-826.000.

Harris, Thomas C.; and Georgalas, Arthur, to Chattem, Inc. Cosmetic facial powder containing walnut shell flour. 4,279,890, Cl. 424-69.000.

Harry S. Peterson Co., Inc.: *See*—
Peterson, Charles M.; and Lymburner, Frank M., 4,279,533, Cl. 404-68.000.

Harsigny, Christian: *See*—
Bettiol, Bruno; Harsigny, Christian; and Lenne, William, 4,279,480, Cl. 351-159.000.

Harvey, Kenneth: *See*—
Baines, Eric; and Harvey, Kenneth, 4,279,889, Cl. 424-57.000.

Harvey, Richard D.; Gallaher, Thomas L.; Mullikin, Raymond L.; and Small, Thomas L., to Grain Processing Corporation. Chemical-mechanical starch conversion. 4,279,658, Cl. 106-213.000.

Hasegawa, Yoshio: *See*—
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,279,654, Cl. 106-39.600.

Hashimoto, Mitsuru: *See*—
Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, 4,279,981, Cl. 430-73.000.

Hatano, Tatsuro: *See*—
Takahama, Akio; and Hatano, Tatsuro, 4,280,057, Cl. 250-551.000.

Hatano, Yoshio: *See*—
Nonogaki, Saburo; and Hatano, Yoshio, 4,279,985, Cl. 430-280.000.

Hauck, Frederic P.; and Jacobs, Glenn A., to E. R. Squibb & Sons, Inc. Anti-arrhythmia agents. 4,279,902, Cl. 424-246.000.

Hauni-Werke Korber & Co. KG: *See*—
Reuland, Joachim; and Dahlgrun, Rolf, 4,280,187, Cl. 364-552.000.
von Wichert, Nils; and Schwenke, Dieter, 4,279,609, Cl. 493-276.000.

Hausberg, Hans-Heinrich: *See*—
Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, 4,280,008, Cl. 548-301.000.

Hausberger, Arthur L.: *See*—
Dienes, Edward K.; Coleman, Ray L.; and Hausberger, Arthur L., 4,279,781, Cl. 252-463.000.

Hauschopp, Alois, to Gewerkschaft Eisenhutte Westfalia. Longwall mining installation having stable-hole plough. 4,279,445, Cl. 299-34.000.

Hauser, Erhard, to Wilhelm Hedrich Vakuumanlagen GmbH & Co. K.G. System for feeding two synthetic-resin components to a mold. 4,279,360, Cl. 222-1.000.

Havas, George; and Esenwein, Fred D., to Ajax Magnethermic Corporation. Method and apparatus for inducting heating and melting furnaces to obtain constant power. 4,280,038, Cl. 219-10.770.

Hawke, Merrill P.; Elizalde, Pete, Jr.; and Harris, Robert L., to United States of America, Air Force. Metallurgical specimen tester. 4,279,164, Cl. 73-826.000.

Hawrylo, Stanley F., to General Battery Corporation. Automatic flash removing apparatus and method. 4,279,584, Cl. 425-307.000.

Hayakawa, Masao; Maeda, Takamichi; and Kumura, Masao, to Sharp Kabushiki Kaisha. Multi-lead frame member with means for limiting mold spread. 4,280,132, Cl. 357-70.000.

Hayakumo, Sunao: *See*—
Ebata, Sakae; Watari, Masahide; Hayakumo, Sunao; and Oyamada, Osamu, 4,279,701, Cl. 176-87.000.

Hayashi, Kohtaro; Morihara, Ko; and Nakamura, Kohji, to Chisso Corporation. Apparatus for making biaxially stretched tubular films. 4,279,580, Cl. 425-72.00R.

Hayashi, Mamoru: *See*—
Koiso, Kazuhiro; Sanda, Masaaki; Hayashi, Mamoru; and Uesugi, Hiroaki, 4,279,454, Cl. 312-297.000.

Hayashi, Shizuo: *See*—
Horin, Shoji; Hayashi, Shizuo; and Okumura, Takeo, 4,279,262, Cl. 132-7.000.

Hayashi, Sigeaki: *See*—
Ezaki, Akira; Kobayashi, Yoshiaki; and Hayashi, Sigeaki, 4,280,034, Cl. 235-1.00D.

Haynes, George R., to Shell Oil Company. N-Phenethylaminopropiophenones as lipogenesis inhibitors. 4,279,925, Cl. 424-311.000.

Haynes, George R., to Shell Oil Company. N-Phenethylaminopropiophenones as lipogenesis inhibitors. 4,279,929, Cl. 424-324.000.

Hayssen Manufacturing Company: *See*—
James, Robert C.; Horsman, Dennis P.; and Sorenson, Richard D., 4,279,116, Cl. 53-466.000.

Hch. Bertrams Aktiengesellschaft: *See*—
Kuhnlein, Hans; and Jarosch, Walter J., 4,279,693, Cl. 159-47.0WL.

Hearn, Milton T. W.; and Prestidge, Ross L. Preparative electrofocusing in flat bed granulated polysaccharide gels. 4,279,724, Cl. 204-180.00G.

Heath, Henry S., Jr.: *See*—
Borsuk, Leslie M.; Ciardiello, Catherine R.; and Heath, Henry S., Jr., 4,279,467, Cl. 350-96.210.

Heath, John S., to International Business Machines Corporation. Print mechanism for wire printer. 4,279,520, Cl. 400-124.000.

Hechtman, Steven A.: *See*—
Tepoorten, Darrell M.; and Hechtman, Steven A., 4,279,421, Cl. 273-237.000.

Hedrich, Ross R.: *See*—
Horst, Ronald A.; and Hedrich, Ross R., 4,279,716, Cl. 204-149.000.

Heffel, Harold. Door lock guard protector. 4,279,436, Cl. 292-346.000.

Heid, Hans: *See*—
Maute, Alfred; Teitz, Konrad; Baier, Klaus; and Heid, Hans, 4,279,511, Cl. 356-328.000.

Heineman, Ralph A.: *See*—
Cleary, John P., 4,279,553, Cl. 408-135.000.

Heinemann, Henning: *See*—
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; Kaupmann, Wilhelm; and Heinemann, Henning, 4,279,904, Cl. 424-246.000.

Heidt, Helge, to Aktiebolaget SKF. Device for obtaining axial mobility and avoiding radial play of a bearing ring in relation to a bearing seat. 4,279,451, Cl. 308-26.000.

Heller, David S., to Reichhold Chemicals, Incorporated. Froth coating of paper products and process for forming same. 4,279,964, Cl. 428-496.000.

Heim, Karl O.: *See*—
Maasbol, Alfred G.; and Sim, Alexander K., 4,279,914, Cl. 424-258.000.

Heimick, James E., to Dresser Industries, Inc. Earth boring bit with eccentric seal boss. 4,279,316, Cl. 175-371.000.

Henderson, Jerald M.; and Yong, Yuen-Cjen, to University of California, The Regents of the. Singulator. 4,279,336, Cl. 198-443.000.

Henes, Gerhard: *See*—
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.

Henkel, Herbert W.; and Paradiso, Mary R., to American Cyanamid Company. Low alcohol content after-shave lotion. 4,279,891, Cl. 424-73.000.

Hennenfent, Douglas J.; Johnson, Robert A.; and Holmstrand, Allan L., to Magnetic Peripherals Inc. Method of manufacturing narrow track ferrite head cores. 4,279,102, Cl. 51-322.000.

Hennessy, John: *See*—
Bushman, James B.; Dimond, James R.; and Hennessy, John, 4,279,729, Cl. 204-196.000.

Henry, John: *See*—
Wheeler, Raymond L.; Henry, John; and Dadswell, John E., 4,279,322, Cl. 180-128.000.

Herbin, Jean E. E.; and Grammont, Paul D. A., to Diamond Shamrock Corporation. Process for the preparation of high density anion exchange resins by bromination of crosslinked vinyltoluene copolymers. 4,280,003, Cl. 521-31.000.

Hercules Incorporated: *See*—
DeSimone, Robert S., 4,280,011, Cl. 568-603.000.
Dumas, David H., 4,279,794, Cl. 260-29.2EP.

Hergeth KG Maschinenfabrik und Apparatebau: *See*—
Wirth, Walter, 4,279,060, Cl. 19-106.00R.

Herkes, Frank E. Production of high-quality aromatic amino azo compounds by the rearrangement of 1,3-diaryl triazenes. 4,279,815, Cl. 260-205.000.

Herman Grant Co., Inc.: *See*—
Grant, Herman L., 4,279,592, Cl. 432-105.000.

Herman Miller, Inc.: *See*—
Propst, Robert L., 4,279,204, Cl. 108-53.300.
Propst, Robert L.; Randolph, Travis M.; and Reyda, Theodore M., 4,280,019, Cl. 179-1.50M.

Herman, Robert W.; and Kearns, William J., to New World Computer Company, Inc. Actuator apparatus for magnetic disc recording systems. 4,280,157, Cl. 360-106.000.

Hermann Gottfried Schnabel Fa.: *See*—
Maasbol, Alfred G.; and Sim, Alexander K., 4,279,914, Cl. 424-258.000.

Hermes, Guillaume M. P. G.: *See*—
Haes, Freddy; Hermes, Guillaume M. P. G.; and Reijnhout, Cornelis M., 4,279,253, Cl. 128-355.000.

Heruth, Kenneth T.: *See*—
Valenta, James D.; and Heruth, Kenneth T., 4,279,250, Cl. 128-200.140.

Hetrick, Vernon L.: *See*—
Low, William H.; Hetrick, Vernon L.; and McCoy, Paul, 4,279,084, Cl. 37-42.00R.

Hetz, G. Brian, to Dayco Corporation. Loop picker and method of making same. 4,279,276, Cl. 139-159.000.

Heuber, Klaus; and Wiedmann, Siegfried K., to International Business Machines Corporation. Method and circuit arrangement for controlling an integrated semiconductor memory. 4,280,198, Cl. 365-203.000.

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Hornak, Thomas; Corcoran, John J.; and Maslak, Samuel H., 4,280,196, Cl. 365-45.000.
Maute, Alfred; Teitz, Konrad; Baier, Klaus; and Heid, Hans, 4,279,511, Cl. 356-328.000.
Rose, Donald K., 4,280,195, Cl. 365-39.000.

Heymer, Gero: *See*—
Maurer, Alexander; Schrodter, Klaus; and Heymer, Gero, 4,279,878, Cl. 423-321.00R.

Hicks, Donald L.: *See*—
Lindberg, Allen W.; Gantzert, Thomas R.; and Hicks, Donald L., 4,279,231, Cl. 123-489.000.

Hidai, Yutaka; and Okuda, Nobuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Exposure apparatus using electron beams. 4,280,186, Cl. 364-518.000.

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Hacker, Dennis J., 4,279,111, Cl. 52-714.000.

Hildebrand, Peter C. R., to Arthur Guinness Son and Company. Preparation of beverages containing a head of froth. 4,279,938, Cl. 426-424.000.

Hill, Harold J.: *See*—
Knapp, Randolph H.; Lawson, Jimmie B.; Reisberg, Joseph; Thigpen, David R.; and Hill, Harold J., 4,279,305, Cl. 166-307.000.

Hill, Michael P. L.; and Tizard, Anthony N., to Dow Corning Limited. Soap composition containing an amino-substituted polysiloxane. 4,279,765, Cl. 252-117.000.

Hill, Richard N.; and Sanchez, Moises G., to W. R. Grace & Co. Oxidative control of post precipitation in phosphoric acid. 4,279,877, Cl. 423-321.00R.
Hill, Robert C.: *See—*
Nielson, Niel E.; Kreiling, Ronald L.; Hill, Robert C.; and Nice, Ralph A., 4,279,753, Cl. 210-605.000.
Hilti Aktiengesellschaft: *See—*
Lang, Gusztav, 4,279,340, Cl. 206-219.000.
Hiltner, David F., to Tektronix, Inc. Variable current source having a programmable current-steering network. 4,280,091, Cl. 323-315.000.
Himes, John W. Solar heat absorbing and radiating wall. 4,279,241, Cl. 126-431.000.
Himsley, Alexander. Continuous countercurrent ion exchange process. 4,279,755, Cl. 210-661.000.
Hines, Stephen P., to Eastman Kodak Company. Camera with flash through viewfinder. 4,279,488, Cl. 354-145.000.
Hines, Stephen P., to Eastman Kodak Company. Planar bellows. 4,279,492, Cl. 354-187.000.
Hinshaw, Stanley E.; and Cole, Charles F., Jr., to Conoco, Inc. Fluid presence detector. 4,279,078, Cl. 33-126.500.
Hinton, George F., to United States of America, Navy. Extremely sensitive super conducting quantum interference device constructed as a double-helix array. 4,280,095, Cl. 324-248.000.
Hirai, Hiromu; and Hamano, Shin, to Hitachi, Ltd. Apparatus for limiting acceleration in a servosystem. 4,280,083, Cl. 318-565.000.
Hirai, Toshio; and Niihara, Koichi, to Research Institute for Iron, Steel and Other Metals of the Tohoku University, The. Process for producing super hard-highly pure silicon nitrides. 4,279,689, Cl. 156-614.000.
Hiramatsu, Tamihei: *See—*
Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, 4,280,136, Cl. 358-93.000.
Hirano, Hitoshi: *See—*
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Doi, Toshiaki; Suematsu, Shigeru; Nishida, Chikamasa; and Hiranuma, Hiroshi, 4,279,698, Cl. 176-22.000.
Hiraoka, Takayuki; and Fujiyoshi, Kenji, to Mitsui Petrochemical Industries, Ltd. Laminated film or sheet structure and process for production thereof. 4,279,957, Cl. 428-212.000.
Hiromori, Yasutaka: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.
Hitachi Chemical Company, Ltd.: *See—*
Takagi, Kazumasa; Fukazawa, Tokuumi; and Oi, Tetsu, 4,279,772, Cl. 252-301.40F.
Hitachi, Ltd.: *See—*
Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, 4,280,137, Cl. 358-101.000.
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.
Doi, Toshiaki; Suematsu, Shigeru; Nishida, Chikamasa; and Hiranuma, Hiroshi, 4,279,698, Cl. 176-22.000.
Ebata, Sakae; Watari, Masahide; Hayakumo, Sunao; and Oyamada, Osamu, 4,279,701, Cl. 176-87.000.
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Kajiyama, Sigeru; Kanda, Kimio; and Sugiyama, Sakae, 4,279,158, Cl. 73-637.000.
Minato, Osamu; Masuhara, Toshiaki; Sasaki, Toshio; and Kubo, Masaharu, 4,280,065, Cl. 307-473.000.
Misumi, Akira; and Saito, Shunji, 4,279,784, Cl. 252-513.000.
Nonogaki, Saburo; and Hatano, Yoshio, 4,279,985, Cl. 430-280.000.
Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, 4,280,131, Cl. 357-17.000.
Takato, Masao; Imai, Masumi; and Furuhashi, Toshio, 4,280,189, Cl. 364-734.000.
Tobita, Yuichi; and Okumura, Masamitsu, 4,279,233, Cl. 123-519.000.
Hitzky, Leon J., to Goodyear Tire & Rubber Company, The. High perimeter tread element. 4,279,283, Cl. 152-209.00R.
Hitzler, Otto; and Wunderlich, Winfried, to Rohm GmbH. Photopolymerization method with symmetric azo alkanes. 4,279,719, Cl. 204-159.230.
Hobart Corporation: *See—*
McCord, Dick P.; and Eberhardt, Mark E., Jr., 4,279,317, Cl. 177-185.000.
Hobson, Michael J., to United States of America, Navy. Non-reversible valve assembly. 4,279,403, Cl. 251-148.000.
Hochstein, Peter A. Electromagnetic field responder for respiration monitoring. 4,279,257, Cl. 128-722.000.
Hoechst Aktiengesellschaft: *See—*
Erpenbach, Heinz; Gehrmann, Klaus; Kubbeler, Hans-Klaus; and Lork, Winfried, 4,280,010, Cl. 560-205.000.
Maurer, Alexander; Schrodter, Klaus; and Heymer, Gero, 4,279,878, Cl. 423-321.00R.
Ong, Sienling, 4,279,615, Cl. 8-582.000.
Schrodter, Klaus; Gradl, Reinhard; Ehlers, Klaus-Peter; and Scheibitz, Wolfgang, 4,279,876, Cl. 423-305.000.
Wellbrock, Werner, 4,279,837, Cl. 260-505.00N.
Hoffman, John C., to Taylor, John F., a part interest. Localized body heat applicator device. 4,279,255, Cl. 128-402.000.
Hoffman-Werke GmbH: *See—*
Gotter, Eugen, 4,279,339, Cl. 206-3.000.
Hoffmann, Hellmut: *See—*
Fuchs, Rainer; Hoffmann, Hellmut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, 4,279,920, Cl. 424-282.000.
Hoffmann, Otto L.; and Kirkpatrick, Joel L., to Gulf Oil Corporation. Dichloroacetylimino herbicide antagonists as plant protection agents. 4,279,636, Cl. 71-90.000.
Hohmann, Jere W.: *See—*
Ransom, Stephen A.; Hohmann, Jere W.; and Nahmias, Clement, 4,280,212, Cl. 368-82.000.
Hohn, Herbert: *See—*
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Hollandsche Beton Groep N.V.: *See—*
Jansz, Joost W., deceased, 4,279,313, Cl. 173-112.000.
Hollenbeck, Leroy F., Jr., to Perko, Inc. Boat battery selector switch combined with lock. 4,280,028, Cl. 200-44.000.
Holloway, Fred W., Jr., to Reynolds Metals Company. Heat-sealable and peelable laminated packaging construction. 4,279,344, Cl. 206-631.000.
Holmstrand, Allan L.: *See—*
Hennenfent, Douglas J.; Johnson, Robert A.; and Holmstrand, Allan L., 4,279,102, Cl. 51-322.000.
Homan, Gary R.; and Lee, Chi-long, to Dow Corning Corporation. Compositions including mercaptoorganopolysiloxanes and stannous salts of carboxylic acids. 4,279,792, Cl. 260-18.00S.
Homexx International Corp.: *See—*
Osborne, William E., 4,280,163, Cl. 361-172.000.
Homeyer, Bernhard: *See—*
Fuchs, Rainer; Hoffmann, Hellmut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, 4,279,920, Cl. 424-282.000.
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.
Honda Giken Kogyo Kabushiki Kaisha: *See—*
Ban, Keisuke; Arai, Takeo; and Daimaru, Akimasa, 4,279,289, Cl. 164-97.000.
Honda, Zenjiro: *See—*
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Honeywell Inc.: *See—*
Kompelien, Arlon D., 4,280,069, Cl. 307-571.000.
Venkatasetty, Hanumanthiya V., 4,279,973, Cl. 429-101.000.
Honl, Paul G.: *See—*
Bailey, Dale O.; and Honl, Paul G., 4,280,002, Cl. 435-298.000.
Honma, Masami: *See—*
Matsuda, Shunsuke; Tsuchiya, Soji; Honma, Masami; and Nagamatsu, Gentaro, 4,279,984, Cl. 430-270.000.
Honma, Zenshо. Plastic bottle cap. 4,279,353, Cl. 215-254.000.
Hopkins, Grant; and Cantrell, Mark. Vehicle with adjustable steering axis angle control. 4,279,429, Cl. 280-267.000.
Hori, Mitutaka. Continuous treatment apparatus for treating waste material. 4,279,750, Cl. 210-357.000.
Horiba, Ltd.: *See—*
Horii, Yoshio, 4,279,728, Cl. 204-195.00R.
Horiguchi, Yasunobu: *See—*
Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, 4,279,888, Cl. 424-49.000.
Horii, Yoshio, to Horiba, Ltd. Apparatus for determining ion concentration. 4,279,728, Cl. 204-195.00R.
Horin, Shoji; Hayashi, Shizuo; and Okumura, Takeo, to Kao Soap Co., Ltd. Hair treating agent of the pre-shampoo type. 4,279,262, Cl. 132-7.000.
Horiuchi, Susumu: *See—*
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.
Hornak, Thomas; Corcoran, John J.; and Maslak, Samuel H., to Hewlett-Packard Company. Correction of zero drift, gain drift, and distortion errors in analog storage devices. 4,280,196, Cl. 365-45.000.
Hornbaker, Edwin D.; and Eisenbraun, Allan A., to Ethyl Corporation. Polybromostyrene resin. 4,279,808, Cl. 260-45.75B.
Horsman, Dennis P.: *See—*
James, Robert C.; Horsman, Dennis P.; and Sorenson, Richard D., 4,279,116, Cl. 53-466.000.
Horst, Fach: *See—*
Wagener, Dietrich; Horst, Fach; and Ergun, Hayri, 4,280,033, Cl. 219-10.55A.
Horst, Ronald A.; and Hedrich, Ross R., to Odor Control Systems, Inc. Odor control system. 4,279,716, Cl. 204-149.000.
Horst, Russel J.: *See—*
Kwasnoski, Daniel; Sterner, Charles J.; Horst, Russel J.; and Burcaw, Kenneth R., 4,279,703, Cl. 202-158.000.
Hosaka, Kiyokazu: *See—*
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Hosono, Takashi: *See—*
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Hough, William V.; Little, John L.; and Warheit, Kevin E., to Mine Safety Appliances Company. Method for the electroless deposition of palladium. 4,279,951, Cl. 427-437.000.
House Food Industrial Company Limited: *See—*
Koshida, Daikichi; Sugisawa, Ko; Kimura, Takashi; and Nakajima, Setsuo, 4,279,932, Cl. 426-89.000.

Houston, John M., to General Electric Company. Zero-current detector for high voltage DC transmission line. 4,280,093, Cl. 324-117.00R.
Houston Systems Manufacturing Co., Inc.: *See—*
Belveal, Robert E., 4,279,842, Cl. 261-124.000.
Hoverlift Systems Ltd.: *See—*
Harcourt, Colin H.; and Barker, D. Roy, 4,279,603, Cl. 440-90.000.
Huang, Cleo L., to Dow Chemical Company, The. Lipase determination method and reagent. 4,279,994, Cl. 435-19.000.
Huang, Thomas N. Decorative specular illuminator. 4,280,171, Cl. 362-240.000.
Huang, Tracy J.: *See—*
Haag, Werner O.; and Huang, Tracy J., 4,279,830, Cl. 518-700.000.
Huchette, Michel: *See—*
Verwaerde, Francoise; Leleu, Jean-Bernard; and Huchette, Michel, 4,279,931, Cl. 426-48.000.
Huett, Lenora M.: *See—*
Shofner, Manley R.; and Huett, Lenora M., 4,279,090, Cl. 40-617.000.
Huguenard, Albert P.: *See—*
Audran, Roger G. L.; and Huguenard, Albert P., 4,279,945, Cl. 427-130.000.
Huizinga, Menno, to Tetra Consultants Inc. Method of binding antigens to insoluble polymeric substances. 4,279,787, Cl. 260-8.000.
Huling, James K., to Barry-Wehmiller Company. Energy conservation for pasteurizer apparatus. 4,279,858, Cl. 422-25.000.
Hulsmann, Hans-Leo: *See—*
Pastura, Albino; Kelbch, Gerhard; and Hulsmann, Hans-Leo, 4,280,012, Cl. 568-755.000.
Hummel, Philip H. Break away nail. 4,279,190, Cl. 411-487.000.
Hunt, Arthur J.; and Hunt, Arthur J., Jr. Screw press with positive feed and accessible screens. 4,279,197, Cl. 100-117.000.
Hunt, Arthur J., Jr.: *See—*
Hunt, Arthur J.; and Hunt, Arthur J., Jr., 4,279,197, Cl. 100-117.000.
Husted, Douglas P. Mail box signal unit. 4,279,380, Cl. 232-35.000.
Huston, Paul O.; and Munn, Alfred. Gauge. 4,279,161, Cl. 73-743.000.
Hutchison, Wayne A.; and DeVore, Steven R., to American Original Corporation, The. Method for improving the odor, flavor and color of canned ocean clam products. 4,279,934, Cl. 426-262.000.
Hutmacher, Joan K. Fishing float container. 4,279,365, Cl. 224-42.420.
Hutson, Duane. Fishing weight. 4,279,092, Cl. 43-44.910.
Hyre, Robert W. Visual stimulation apparatus useful in therapeutic treatment. 4,279,088, Cl. 40-442.000.
Iddings, Paul J. Humane animal trap. 4,279,093, Cl. 43-81.500.
Ideal Industries, Inc.: *See—*
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Iizuka, Jinya: *See—*
Suga, Kyozo; Iizuka, Jinya; and Tsuji, Yoshiomi, 4,279,540, Cl. 405-115.000.
Ikenaka, Yoshiharu: *See—*
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Illinois Tool Works Inc.: *See—*
Pleickhardt, George C., 4,279,341, Cl. 206-345.000.
Imai, Chikara: *See—*
Eda, Tadahiro; Tatsumi, Susumu; Imai, Chikara; and Koichi, Yasushi, 4,279,498, Cl. 355-14.00D.
Imai, Kiyokazu: *See—*
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Imai, Masumi: *See—*
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Imperial Chemical Industries Limited: *See—*
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IMS Ltd.: *See—*
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Szabo, Robert C.; and Incaudo, Peter J., Jr., 4,279,224, Cl. 123-52.0MV.
Incoe Corporation: *See—*
Osuna-Diaz, Jesus M., 4,279,582, Cl. 425-159.000.
Inculet, Ion I.; Castle, George S. P.; and Sullivan, John L., to Canadian Patents & Development Ltd. Electrostatic system for concentrating, propelling and collecting airborne particulates for industrial furnaces. 4,279,625, Cl. 55-131.000.
Independent Broadcasting Authority: *See—*
Baldwin, John L. E., 4,280,147, Cl. 360-10.000.
Industrie Pirelli Societa per Azioni: *See—*
Portinari, Antonio; and Longoni, Sergio, 4,279,470, Cl. 350-96.230.
Inoue, Hiromichi: *See—*
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Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,279,748, Cl. 210-222.000.
Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. High-field gradient magnetic separator. 4,279,748, Cl. 210-222.000.
Institut National de la Sante et de la Recherche Medicale: *See—*
Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, 4,279,249, Cl. 128-92.00D.
Institute po Physikochimia: *See—*
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, 4,279,742, Cl. 209-166.000.
Institute po Zashtita na Metalite ot Korroziya: *See—*
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.
Intercontinental Development Corporation: *See—*
Campbell, Thomas P., 4,279,741, Cl. 209-44.000.
International Business Machines Corporation: *See—*
Anderson, Nathaniel C.; and Grover, Charles R., Jr., 4,279,707, Cl. 204-43.00T.
Bacon, James L., 4,280,144, Cl. 358-280.000.
Blanco, Abelardo D.; Boynton, William W.; and Weber, Charles J., 4,279,199, Cl. 101-93.050.
Brown, Leon C.; Fitts, Uscoe J.; and Polakowski, David R., 4,279,504, Cl. 355-72.000.
Heath, John S., 4,279,520, Cl. 400-124.000.
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Judd, Ian D., 4,280,143, Cl. 358-260.000.
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Ringle, Terry W., 4,279,523, Cl. 400-279.000.
Schlig, Eugene S., 4,280,197, Cl. 365-154.000.
Schorr, Herbert; and Waldawsky-Berger, Irving, 4,280,177, Cl. 364-200.000.
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International Harvester Company: *See—*
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Brown, Patrick, 4,280,080, Cl. 315-368.000.
Crossland, William A., 4,279,152, Cl. 73-356.000.
Ege, Sigmund, 4,280,016, Cl. 174-102.00R.
International Telephone and Telegraph Corporation: *See—*
Borsuk, Leslie M.; Ciardiello, Catherine R.; and Heath, Henry S., Jr., 4,279,467, Cl. 350-96.210.
Bussen, Michael R.; and Winter, David F., 4,279,461, Cl. 339-246.000.
Ivey, Francis J., 4,279,058, Cl. 17-46.000.
Intrex Research Corporation: *See—*
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,279,900, Cl. 424-241.000.
Inukai, Takashi; Inoue, Hiromichi; Furukawa, Kenji; Sato, Hideo; and Sugimori, Shigeru, to Chisso Corporation. Liquid crystal 2,3-dicyano-hydroquinone derivatives. 4,279,770, Cl. 252-299.620.
Ioli, Luigi: *See—*
Lampredi, Aurelio; Leoni, Aldo; and Ioli, Luigi, 4,279,226, Cl. 123-90.550.
Iowa State University Research Foundation, Inc.: *See—*
Larock, Richard C., 4,279,823, Cl. 260-343.210.
Ishibashi, Takao; and Osonoi, Kenjiro, to Osawa Precision Industries, Ltd. Information display arrangement for camera. 4,279,481, Cl. 352-171.000.
Ishida, Hitoshi: *See—*
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.
Ishida, Kohji; and Numata, Tatsuo, to Pioneer Electronic Corporation. Stereophonic signal demodulation circuit. 4,280,101, Cl. 329-167.000.
Ishida, Nakao; Satoh, Hiroshi; Suzuki, Fujio; and Miyao, Kouhei, to Asai Germanium Research Institute. Organogermanium induction of interferon production. 4,279,892, Cl. 424-85.000.
Ishigaki, Yoshio: *See—*
Mogi, Takao; Ishigaki, Yoshio; and Okada, Hisao, 4,280,139, Cl. 358-165.000.
Ishii, Kiyoshi; Honda, Zenjiro; and Tsugaya, Hitoshi, to Daicel Chemical Industries, Ltd. Process for preparing semipermeable membrane having selective permeability. 4,279,846, Cl. 264-41.000.
Ishikawa, Tomozi: *See—*
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Isobe, Mitsuhide: *See—*
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Isogai, Yo: *See—*
Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Takahashi, Soshiro, 4,279,639, Cl. 71-94.000.
Isogaya, Keiichi, to Marusho Industrial Co., Ltd. Light-material segregating method and apparatus. 4,279,740, Cl. 209-12.000.
Isuzu Motors Ltd.: *See—*
Minamitani, Fumio, 4,279,176, Cl. 74-493.000.
Ito, Kazuhiro: *See—*
Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, 4,280,131, Cl. 357-17.000.
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, to Sumitomo Chemical Company, Limited; and Nippon Stainless Steel Co., Ltd. High silicon chromium nickel steel for strong nitric acid. 4,279,648, Cl. 75-128.00C.
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Takahashi, Ken; and Ito, Tsunetoshi, 4,279,443, Cl. 299-1.000.
Itoh, Masaki: *See—*
Ohnishi, Yoshitake; Itoh, Masaki; Mizuno, Kenji; and Gokan, Hiroshi, 4,279,986, Cl. 430-280.000.
ITT Industries, Inc.: *See—*
Berisch, Volker, 4,279,448, Cl. 303-6.00C.

Lupertz, Hans-Henning, 4,279,331, Cl. 188-73.300.
Stewart, Clive E. E.; Rosser, William J. N.; and Ansell, Martin P., 4,279,785, Cl. 252-518.000.
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, to Institute po Physikochimia. Method of and apparatus for the flotation of mineral raw materials. 4,279,742, Cl. 209-166.000.
Ivey, Francis J., to International Telephone and Telegraph Corporation. Process for removing meat from bones. 4,279,058, Cl. 17-46.000.
Iwasaki, Masayuki; Nagashima, Akira; and Sato, Shigeru, to Fuji Photo Film Co., Ltd. Photosensitive compositions. 4,279,982, Cl. 430-170.000.
Iwasaki Tsushinki Kabushiki Kaisha: *See*—
Sekiguchi, Koichi; Takematsu, Hikaru; and Tatsukura, Kazutada, 4,280,022, Cl. 179-99.00A.
Iwashita, Tomonori: *See*—
Mashimo, Yukio; Iwashita, Tomonori; and Fukahori, Hidehiko, 4,279,490, Cl. 354-173.000.
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Bushmeyer, Richard W.; and Schwabe, Thomas M., 4,279,446, Cl. 301-20.000.
Marto, John H., 4,279,179, Cl. 74-850.000.
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Esser, Reinhard, 4,279,949, Cl. 427-356.000.
Jackman, Joseph R., to Reactive Metals & Alloys Corporation. Magnesium bearing compositions for and method of steel desulfurization. 4,279,643, Cl. 75-58.000.
Jackman, Joseph R.; and Hanna, Wayne E., to Reactive Metals & Alloys Corporation. Titanium bearing addition alloys. 4,279,650, Cl. 75-175.500.
Jackson, Dennis B., to Wiltshire Cutlery Company Proprietary Limited. Scissors. 4,279,076, Cl. 30-254.000.
Jacobs, Glenn A.: *See*—
Hauck, Frederic P.; and Jacobs, Glenn A., 4,279,902, Cl. 424-246.000.
Jacobs, Michael E. Musical instrument harness. 4,279,367, Cl. 224-257.000.
Jacobs, Stanley A. Container lid. 4,279,358, Cl. 220-321.000.
Jacobson, Carl C., Jr.; and Crosby, Gaius P., to Crafco, Inc. Pavement joint and crack cleaning machine. 4,279,056, Cl. 15-373.000.
Jagenberg-Werke AG: *See*—
Buchholz, Rainer; Zodrow, Rudolf; and Rosenberg, Heinz J., 4,279,687, Cl. 156-568.000.
Jaggi, Hans; Mathison, Pat; and DeBartolo, Paul, to PES Photographic Equipment Service Inc. Film processing involving noxious substance removal. 4,279,055, Cl. 15-302.000.
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Schulze, Hans; Walz, Klaus; Jakobs, Karlhans; and Boehmke, Gunther, 4,279,614, Cl. 8-533.000.
James, Robert C.; Horsman, Dennis P.; and Sorenson, Richard D., to Hayssen Manufacturing Company. Method of and apparatus for wrapping. 4,279,116, Cl. 53-466.000.
Jansz, Joost W., deceased (by l'Ecluse, Henriette C. Jansz-de, heir), to Hollandsche Beton Groep N.V. Under water pile driver. 4,279,313, Cl. 173-112.000.
Jarlan, Gerard E. Flow-guiding monolithic blocks for marine structures. 4,279,536, Cl. 405-31.000.
Jarosch, Walter J.: *See*—
Kuhnlein, Hans; and Jarosch, Walter J., 4,279,693, Cl. 159-47.0WL.
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DeBeuckelaer, Gerard; Jarre, Wolfgang; Wurmb, Rolf; and Marx, Matthias, 4,279,757, Cl. 210-671.000.
Jean Walterscheid GmbH: *See*—
Schott, Wilhelm, 4,279,431, Cl. 280-508.000.
Jeblick, Werner; Roos, Ernst; Kempermann, Theo; and Abele, Manfred, to Bayer Aktiengesellschaft. Mixtures of azodicarbonamide and E-amidosulphones and their production and use as a blowing agent. 4,280,004, Cl. 521-89.000.
JECO Co. Ltd.: *See*—
Mori, Toshihiro, 4,280,160, Cl. 361-3.000.
Jenkins, Donald E., to Willamette Industries, Inc. Top gap folding box having a top closure interlock. 4,279,378, Cl. 229-39.00R.
Jenkins, Joseph E. Protective cover for the face plate of a motorcycle-type radio. 4,280,226, Cl. 455-345.000.
Jenks, Harry E. Well pump breaking tool. 4,279,067, Cl. 29-239.000.
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Bruhn, Peter E.; and Jensen, Finn U. H., 4,279,541, Cl. 405-119.000.
Jesse, Erich; and Leussink, Reinhard, to Robert Bosch GmbH. Overvoltage protected solid-state ignition system. 4,280,166, Cl. 361-253.000.
Jessop, Thomas C., to Eastman Kodak Company. Cartridge discriminator for an automated analysis system. 4,279,861, Cl. 422-67.000.
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Satoh, Satoru, 4,279,193, Cl. 91-376.00R.
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Erpenbach, Heinz; Guhrmann, Klaus; and Joest, Herbert, 4,280,009, Cl. 560-205.000.
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Kruger, Friedrich; and Michel, Walter, 4,279,758, Cl. 210-700.000.
Johannessen, Leif: *See*—
Lande, Harald; and Johannessen, Leif, 4,279,529, Cl. 403-246.000.
Johansson, Carl B., to Aimpoint AB. Firearms. 4,279,191, Cl. 89-185.000.
John, E. Roy. Rapid automatic electroencephalographic evaluation. 4,279,258, Cl. 128-731.000.
John, Rainmar: *See*—
Meyer, Rainer-Leo; John, Rainmar; Eisenhauer, Bernhard; and Baumstark, Herta, 4,279,962, Cl. 428-332.000.
Johnard, Bengt O., to Forbo Betriebs AG. Web with relief-structured surface and method of making the same. 4,279,954, Cl. 428-158.000.
Johnsen, Kenneth E.: *See*—
Nelson, Alfred R.; and Johnsen, Kenneth E., 4,279,797, Cl. 260-33.40R.
Johnson & Johnson Baby Products Company: *See*—
Passafiume, Anthony, 4,279,369, Cl. 225-3.000.
Johnson, LaVell R.: *See*—
Reese, Max G.; Ransom, Dennis K.; and Johnson, LaVell R., 4,279,885, Cl. 424-1.000.
Johnson, Milton J., to Whirlpool Corporation. Refuse compactor slide bearing. 4,279,198, Cl. 100-229.00A.
Johnson, Robert A.: *See*—
Hennenfent, Douglas J.; Johnson, Robert A.; and Holmstrand, Allan L., 4,279,102, Cl. 51-322.000.
Johnston, John N., to Litton Business Systems, Inc. Calculator printer having an acoustic noise suppressor. 4,279,525, Cl. 400-656.000.
Jojima, Teruomi; Takeshiba, Hideo; and Takahi, Yukiyoshi, to Sankyo Company Limited. Pyridazine derivatives and their use as agricultural fungicides. 4,279,908, Cl. 424-248.550.
Jones, Dorothy L.; and Conant, Frank R., to William Underwood Company. Maltol treated canned meat process. 4,279,936, Cl. 426-265.000.
Jones, Henry B.; and Smith, Randlow, to Texaco Inc. Gas-gas quench cooling and solids separation process. 4,279,622, Cl. 48-197.00R.
Jones, Howell A., Jr.; and McFiggans, Robert B., to Pitney Bowes Inc. Postage meter having interactive arithmetic operation capability. 4,280,179, Cl. 364-464.000.
Jones, Paul H., to P. H. Jones Hydrogeology, Inc. Natural gas production from geopressured aquifers. 4,279,307, Cl. 166-314.000.
Jordan, David A.: *See*—
Benson, Arthur L.; and Jordan, David A., 4,279,979, Cl. 429-254.000.
Joseph, Clive E. Clothes peg. 4,279,063, Cl. 24-138.000.
Joubert, Daniel; and Vrisakis, Georges, to Rhone-Poulenc Industries. Detergent compositions comprised of non-abrasive siliceous scouring agents. 4,279,766, Cl. 252-174.250.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, to Richter Gedeon Vegyszeti Gyar Rt. N-Formyl leurosine derivatives in a dosage form effective for treating lymphoid leukemia. 4,279,816, Cl. 260-244.400.
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Joyce, Hardin, Jr., to Fiat-Allis Construction Machinery, Inc. Hydraulic control system for vehicle axle suspension. 4,279,319, Cl. 180-12.000.
Judd, Ian D., to International Business Machines Corporation. Method and means for scale-changing an array of boolean coded points. 4,280,143, Cl. 358-260.000.
Kabi AB: *See*—
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,279,810, Cl. 260-112.50R.
Kabushiki Kaisha Hosokawa Funtai Kogaku Kenkyusho: *See*—
Yokoyama, Tohei; Asakura, Shintaro; Urayama, Kiyoshi; and Fujii, Kenji, 4,279,165, Cl. 73-826.000.
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Nakajima, Yoshikazu, 4,279,790, Cl. 260-17.40R.
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Maezawa, Shuji, 4,280,207, Cl. 368-21.000.
Shionozaki, Yoshio; Kanbe, Sakao; and Takei, Katsumori, 4,279,771, Cl. 252-299.630.
Kachnik, Joseph E. Positive drive conveyor system. 4,279,337, Cl. 198-472.000.
Kaganovsky, Gary P.: *See*—
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.
Kajiyama, Sigeru; Kanda, Kimio; and Sugiyama, Sakae, to Hitachi, Ltd.; and Babcock-Hitachi Kabushiki Kaisha. Ultrasonic flaw detector driving apparatus. 4,279,158, Cl. 73-637.000.
Kakei, Masamitsu: *See*—
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Kaldenbach, Erwin: *See*—
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Kali-Chemie Pharma GmbH: *See*—
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; Kaupmann, Wilhelm; and Heinemann, Henning, 4,279,904, Cl. 424-246.000.
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; and Kaupmann, Wilhelm, 4,279,905, Cl. 424-246.000.
Kaltz, Milton C.: *See*—
Prechter, Heinz C.; and Kaltz, Milton C., 4,279,441, Cl. 296-218.000.
Kamalich, Anthony J.: *See*—
Evrard, Gerald D.; Cook, Henry S.; and Kamalich, Anthony J., 4,279,052, Cl. 15-93.00A.
Kamei, Mitsuru: *See*—
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Kameyama, Toshiaki: *See*—
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Kammerman, Steven B.; Kawasaki, Frank; and Molloy, Albert G., Jr. Playing court. 4,279,414, Cl. 272-3.000.
Kamo, Izumi; and Okahara, Tetsushi. Process for the recovery and reutilization of the used materials in existing asphalt pavements. 4,279,660, Cl. 106-281.00R.
Kanbe, Sakao: *See*—
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Fujioka, Hironari; and Matsubayashi, Hajime, 4,279,961, Cl. 428-328.000.
Kao Soap Co., Ltd.: *See*—
Horin, Shoji; Hayashi, Shizuo; and Okumura, Takeo, 4,279,262, Cl. 132-7.000.
Yagi, Kouichi; and Nakagawa, Yunosuke, 4,279,769, Cl. 252-186.000.
Kappes, Joseph L., to Baldwin Piano & Organ Company. Digital arpeggio system for electronic musical instrument. 4,279,187, Cl. 84-1.030.
Karakov, Vladimir D.: *See*—
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.
Karinthi, Pierre: *See*—
Guillaume, Paul; Karinthi, Pierre; and Nicolas, Jacques, 4,279,208, Cl. 110-346.000.
Karlsson, Per-Olle, to Svenskt Stal Aktiebolag. Test plate method and an arrangement for testing the serviceability and for setting and calibrating a test apparatus for the non-destructive electrical or magnetic testing of metallic blanks. 4,280,094, Cl. 324-202.000.
Karthe, Wolfgang; and Wehrsdorfer, Eike, to Akademie der Wissenschaften der DDR. Spectrometer for measuring spatial distributions of paramagnetic centers in solid bodies. 4,280,096, Cl. 324-316.000.
Kasamatsu, Kiyoshi: *See*—
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Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, to Sony Corporation. Tape cassette and label inspection system therefor. 4,280,136, Cl. 358-93.000.
Kasiewicz, Stanley J. Voltage regulator. 4,280,087, Cl. 322-28.000.
Kataoka, David T.: *See*—
Brandl, Michael C.; Kataoka, David T.; and Bowman, George E., 4,279,320, Cl. 180-69.00R.
Kato, Keigo: *See*—
Ando, Masahisa; Kato, Keigo; and Ishikawa, Tomozi, 4,279,323, Cl. 180-148.000.
Kato, Tetsuo; Abeyama, Shozo; Kimura, Atsuyoshi; and Nakamura, Sadayuki, to Daido Tokushuko Kabushiki Kaisha. Free cutting steel containing sulfide inclusion particles with controlled aspect, size and distribution. 4,279,646, Cl. 75-123.0AA.
Kato, Tetsuro, to Sony Corporation. Video signal processing circuit. 4,280,133, Cl. 358-8.000.
Katsumata, Akio: *See*—
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Katz, Sam. Exercising device. 4,279,415, Cl. 272-70.000.
Kaufman, Kurt D., to Thomas C. Elder, Inc. Photosensitizing benzofuranacrylics. 4,279,922, Cl. 424-285.000.
Kaupmann, Wilhelm: *See*—
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; Kaupmann, Wilhelm; and Heinemann, Henning, 4,279,904, Cl. 424-246.000.
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Kawakami, Tsugimi: *See*—
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Kawasaki, Frank: *See*—
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Kawazoe, Soichi. Ski edging device for a ski supported vehicle or the like. 4,279,427, Cl. 280-16.000.
Kazan, Benjamin, to Xerox Corporation. Thin vacuum panel display device. 4,280,125, Cl. 340-795.000.
Kazuto Nakazawa, General Director Public Works Research Institute Ministry of Construction: *See*—
Suga, Kyozo; Iizuka, Jinya; and Tsuji, Yoshiomi, 4,279,540, Cl. 405-115.000.
Kearns, William J.: *See*—
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Kehrer, Gerald P.; and Smith, William G., to Dow Corning Corporation. Electrically conductive silicone elastomers. 4,279,783, Cl. 252-511.000.
Kelbch, Gerhard: *See*—
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Kelly, Lawrence J., to Baldwin Piano & Organ Company. Bass drum spur and stabilizer assembly. 4,279,189, Cl. 84-421.000.
Kelsey-Hayes Company: *See*—
Neill, Daniel L.; and Tribe, Leonard T., 4,279,162, Cl. 73-746.000.
Kempermann, Theo: *See*—
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Kentor, William E., to Servbest Foods, Inc. Dry sausage processing with added acid. 4,279,935, Cl. 426-264.000.
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Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.
Ringel, Helmut; Zimmer, Erich; and Abdelmonem, Nabil, 4,279,866, Cl. 423-7.000.
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Coulson, Norman W., 4,279,869, Cl. 423-54.000.
Riggs, Olen L., Jr., 4,279,705, Cl. 204-1.500.
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Roach, Jack W., 4,279,739, Cl. 208-309.000.
Kersten, Herbert H. Rotary valve engine. 4,279,225, Cl. 123-80.0BB.
Kervistin, Robert; and Lardellier, Alain M. J., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Apparatus for measuring the temperature of a gas flow traversing a grid of blades. 4,279,153, Cl. 73-357.000.
Kessler, Milton; and Kessler, Ronald N. Roller skate carrier. 4,279,366, Cl. 294-162.000.
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Ketchum, David D.: *See*—
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Khasanov, Mubaraksha D.: *See*—
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.
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Kightlinger, Drew A., to International Business Machines Corporation. Wire matrix print head. 4,279,521, Cl. 400-124.000.
Kilara, Arun: *See*—
Shahani, Khemchand M.; Wagner, Frederick W.; and Kilara, Arun, 4,279,998, Cl. 435-174.000.
Kilburn, James, to Occidental Oil Shale, Inc. Jetting out weak areas for forming an in situ oil shale retort. 4,279,444, Cl. 299-2.000.
Kim, Tong S.; and Lee, John S., to Borg-Warner Corporation. Compact oil separator for rotary compressor. 4,279,578, Cl. 418-97.000.
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Kimura, Tadashi, to Olympus Optical Co., Ltd. Apparatus for measuring a range to a subject. 4,279,484, Cl. 354-25.000.
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King, Roderick V., to Ethyl Corporation. Closure with oxygen scavenging system. 4,279,350, Cl. 215-228.000.

Kinoshita, Kunio, to Olympus Optical Co., Ltd. Endoscope having a plurality of optical systems each provided with an identification mark element. 4,279,247, Cl. 128-6.000.

Kirchmayr, Rudolf; and Felder, Louis, to Ciba-Geigy Corporation. Mercaptophenyl ketones as initiators for the photopolymerization of ethylenically unsaturated compounds. 4,279,721, Cl. 204-159.240.

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Lyakhevich, Genrikh D.; Belkevich, Petr I.; Rudkovsky, Alexandr D.; Sokolovsky, Alexandr E.; and Kirilchik, Alexandr I., 4,279,865, Cl. 422-187.000.

Kirk, Richard L.: *See*—
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Kirkbride, Chalmer G. Use of microwaves in petroleum refinery operations. 4,279,722, Cl. 204-162.00R.

Kirkpatrick, Joel L.: *See*—
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Kleiber, Robert A.: *See*—
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Klemann, Lawrence P.; and Newman, Gerald H., to Exxon Research & Engineering Co. Pseudohalide-containing salts for electrolytes of alkali-metal electrochemical devices. 4,279,976, Cl. 429-197.000.

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Klinger, William J.: *See*—
Hafer, Edward H.; and Klinger, William J., 4,280,217, Cl. 370-63.000.

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Hagen, Alexander; Edelmann, Hermann; and Klose, Sigmar, 4,279,991, Cl. 435-4.000.

Knapp, Carl L., to Bendix Corporation, The. Releasing electrical connector. 4,279,458, Cl. 339-45.00M.

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Werner, Helmut W. W.; Witmer, Antonius W.; and Knippenberg, Wilhelmus F., 4,280,049, Cl. 250-310.000.

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Gotou, Makoto; Kobayashi, Kazutsugu; and Okumura, Kenichiro, 4,280,072, Cl. 310-67.00R.

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Ezaki, Akira; Kobayashi, Yoshiaki; and Hayashi, Sigeaki, 4,280,034, Cl. 235-1.00D.

Kobe, Inc.: *See*—
Erickson, John W., 4,279,571, Cl. 415-89.000.

Kobylarz, Lawrence P.: *See*—
Siwik, Henry A.; and Kobylarz, Lawrence P., 4,279,413, Cl. 271-274.000.

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Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,279,818, Cl. 424-246.000.

Kochuev, Evgeny S.: *See*—
Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Krainik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M., 4,279,963, Cl. 428-433.000.

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Bolza-Schunemann, Hans B., 4,279,410, Cl. 270-6.000.

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Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, 4,280,008, Cl. 548-301.000.

Kohl, Walter: *See*—
Kuhn, Edgar; Kohl, Walter; and Schramm, Gunter, 4,280,161, Cl. 361-18.000.

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Lassmann, Eberhard; Kohler, Peter; Beran, Franz; and Gerhards, Hans J., 4,279,872, Cl. 423-228.000.

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Gutsche, Klaus; Scharwaechter, Peter; Kohlmann, Wilhelm; and Kroemer, Gerd, 4,279,899, Cl. 424-229.000.

Kohyama, Susumu, to Tokyo Shibaura Denki Electric Co., Ltd. Semiconductor charge transfer device having a decoupling gate for stopping reverse charge flow. 4,280,067, Cl. 307-221.00D.

Koichi, Yasushi: *See*—
Eda, Tadahiro; Tatsumi, Susumu; Imai, Chikara; and Koichi, Yasushi, 4,279,498, Cl. 355-14.00D.

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Kojima, Kenji; Ota, Sakae; Katsumata, Akio; Kameyama, Toshiaki; Watanabe, Toshio; and Koike, Tadao, 4,279,501, Cl. 355-15.000.

Koiso, Kazuhiro; Sanda, Masaaki; Hayashi, Mamoru; and Uesugi, Hiroaki, to Matsushita Electric Industrial Co., Ltd. Cabinet with foldable sliding doors. 4,279,454, Cl. 312-297.000.

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Kokura, Satoshi: *See*—
Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, 4,280,137, Cl. 358-101.000.

Kolarik, Luis O.: *See*—
Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., 4,279,756, Cl. 210-667.000.

Kolesov, Jury A.: *See*—
Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N., 4,280,165, Cl. 361-236.000.

Kollmorgen Corporation: *See*—
Bulpitt, Thomas H., 4,279,507, Cl. 356-225.000.

Kolotilov, Nikolai N.: *See*—
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Komatsu, Shigeru, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for manufacturing a semiconductor device utilizing dopant predeposition and polycrystalline deposition. 4,279,671, Cl. 148-188.000.

Kompelien, Arlon D., to Honeywell Inc. Field effect transistor device means control system. 4,280,069, Cl. 307-571.000.

Kondo, Hideyo; and Murai, Keiichi, to Canon Kabushiki Kaisha. Electrophotographic apparatus and an abrading means. 4,279,500, Cl. 355-15.000.

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Konishiroku Photo Industry Co., Ltd.: *See*—
Ogi, Keiji; Sasaki, Takashi; and Tosaka, Yasuo, 4,279,987, Cl. 430-409.000.

Konrad, Eugen; and Mager, Herbert, to Wella Aktiengesellschaft. Method and composition for hair coloring. 4,279,613, Cl. 8-407.000.

Kooi B.V.: *See*—
Kooi, Hessel; and de Vries, Hendrik, 4,279,604, Cl. 414-667.000.

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Elsner, Emil, 4,279,407, Cl. 266-193.000.

Korotkov, Albert N.: *See*—
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Korpela, Heikki: *See*—
Assarsson, Alf G.; and Korpela, Heikki, 4,279,847, Cl. 264-51.000.

Kosak, Wolodymyr: *See*—
Braun, Peter D.; and Kosak, Wolodymyr, 4,279,669, Cl. 148-175.000.

Kosaka, Shohei: *See*—
Satoh, Hitoshi; and Kosaka, Shohei, 4,279,712, Cl. 204-128.000.

Koshida, Daikichi; Sugisawa, Ko; Kimura, Takashi; and Nakajima, Setsuo, to House Food Industrial Company Limited. Edible laminar sheet material and method of preparation. 4,279,932, Cl. 426-89.000.

Kostelitz, Michel: *See*—
Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, 4,280,042, Cl. 219-121.0PT.
Bourhis, Yves; Wermelinger, Alain; and Kostelitz, Michel, 4,279,406, Cl. 266-81.000.

Kosugi, Masahide: *See*—
Mikami, Teigo; Miyano, Hiroaki; and Kosugi, Masahide, 4,279,290, Cl. 164-154.000.

Koump, Valentin, to Westinghouse Electric Corp. High temperature heat exchanger having porous tube sheet portions. 4,279,293, Cl. 165-82.000.

Kowalski, Daniel J., to Four Star Corporation. Stanchion assembly. 4,279,368, Cl. 224-326.000.

Kozak, Peter P., Jr.; and Gallup, Janet M., to Cummins, Kozak and Gillman; and Gallup, Janet, part interest to each. Method for obtaining mold spore material. 4,280,000, Cl. 435-242.000.

Kozek, Edward P., to IMS Ltd. Fail-safe relay system. 4,280,164, Cl. 361-179.000.

Kozima, Akio: *See*—
Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, 4,279,981, Cl. 430-73.000.

Krainik, Mikhail P.: *See*—
Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Krainik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M., 4,279,963, Cl. 428-433.000.

Kramer, Morton; and Wambach, Allen D., to General Electric Company. Thermoplastic molding compositions of a linear polyester and a poly(ester urethane). 4,279,801, Cl. 260-40.00R.

Krebs, Fred G.; and Abbott, Daniel B., to Burroughs Corporation. Backlash free adjusting mechanism. 4,279,173, Cl. 74-441.000.

Kreiling, Ronald L.: *See*—
Nielson, Niel E.; Kreiling, Ronald L.; Hill, Robert C.; and Nice, Ralph A., 4,279,753, Cl. 210-605.000.

Kreimer, July K.; and Ageeva, Ljubov S. Vaccine against Newcastle fowl disease, method for preparing and use thereof. 4,279,893, Cl. 424-89.000.

Kress, Dieter; and Haberle, Friedrich, to MAPAL Fabrik fur Prazisionswerkzeuge Dr. Kress KG. Deep hole boring tool with replaceable blade. 4,279,550, Cl. 408-59.000.

Krieter, George-Heinz: *See*—
Czech, Franz; and Krieter, George-Heinz, 4,280,015, Cl. 174-28.000.

Krings, Frederick C.: *See*—
Kure-Jensen, Jens; Gordon, Richard S.; Devlin, Charles L.; and Krings, Frederick C., 4,280,060, Cl. 290-40.00R.

Krob, Erwin; and Szasz, Tibor, to TMC Corporation. Ski brake. 4,279,432, Cl. 280-605.000.

Kroemer, Gerd: *See*—
Gutsche, Klaus; Scharwaechter, Peter; Kohlmann, Wilhelm; and Kroemer, Gerd, 4,279,899, Cl. 424-229.000.

Krofchak, David. Process for treating phosphatic clay suspensions. 4,279,635, Cl. 71-4.00Z.

Krogsrud, Jens C. Lamp. 4,280,172, Cl. 362-269.000.

Krohn, Wolfgang: *See*—
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.

Krone GmbH: *See*—
Forberg, Horst, 4,279,460, Cl. 339-97.00P.

Kruger, Friedrich; and Michel, Walter, to Joh. A. Benckiser GmbH. Process for inhibiting the formation of mineral deposits from a water using N-N-dialkylureidomethane diphosphonic acids. 4,279,758, Cl. 210-700.000.

Krupa, Andrew S.: *See*—
Velenyi, Louis J.; and Krupa, Andrew S., 4,279,777, Cl. 252-439.000.

Kubbeler, Hans-Klaus: *See*—
Erpenbach, Heinz; Gehrmann, Klaus; Kubbeler, Hans-Klaus; and Lork, Winfried, 4,280,010, Cl. 560-205.000.

Kubo, Masaharu: *See*—
Minato, Osamu; Masuhara, Toshiaki; Sasaki, Toshio; and Kubo, Masaharu, 4,280,065, Cl. 307-473.000.

Kubota Ltd.: *See*—
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

Kudla, Ronald M., to American Cyanamid Company. Topical ointment. 4,279,901, Cl. 424-241.000.

Kuhn, Edgar; Kohl, Walter; and Schramm, Gunter, to Robert Bosch GmbH. Over-voltage protected, self-contained mobile electrical network system, particularly for automotive applications. 4,280,161, Cl. 361-18.000.

Kuhn, Rolf, to GG. Noell GmbH. Combined gripper for a nuclear reactor. 4,279,699, Cl. 176-30.000.

Kuhnlein, Hans; and Jarosch, Walter J., to Hch. Bertrams Aktiengesellschaft. Process for purifying polluted fluids. 4,279,693, Cl. 159-47.0WL.

Kukanskis, Peter E.; Grunwald, John J.; Ferrier, Donald R.; and Sawoska, David A., to MacDermid Incorporated. Electroless copper deposition solution using a hypophosphite reducing agent. 4,279,948, Cl. 427-305.000.

Kukurba, Walter. Automatic feeding device. 4,279,220, Cl. 119-51.110.

Kulesza, Ralph J.; Alcock, James M.; and Meyer, Burton C., to Marvin Glass & Associates. Toy airplane. 4,279,098, Cl. 46-101.000.

Kumura, Masao: *See*—
Hayakawa, Masao; Maeda, Takamichi; and Kumura, Masao, 4,280,132, Cl. 357-70.000.

Kunderman, Fred K., to Dresser Industries, Inc. Energy recovery system. 4,279,574, Cl. 417-243.000.

Kunii, Shusaku; and Hirano, Hitoshi. Wrist watch. 4,280,214, Cl. 368-282.000.

Kuraray Co., Ltd.: *See*—
Sueoka, Akinori; Okamoto, Takehiko; Ohmori, Akio; Kawai, Syuji; and Ueda, Minoru, 4,279,752, Cl. 210-500.200.
Yamashita, Shuzo; Shibatani, Kyoichiro; Takakura, Kiochi; and Imai, Kiyokazu, 4,279,795, Cl. 260-29.6RW.

Kurata, Kazuhiro: *See*—
Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, 4,280,131, Cl. 357-17.000.

Kure-Jensen, Jens; Gordon, Richard S.; Devlin, Charles L.; and Krings, Frederick C., to General Electric Company. Dedicated microcomputer-based control system for steam turbine-generators. 4,280,060, Cl. 290-40.00R.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Kodama, Fumio; and Ohyama, Noboru, 4,279,952, Cl. 428-36.000.

Kurz, Wilfried; and Glardon, Remi, to Les Fabriques d'Assortiments Reunies-Div. R. Directionally solidified ductile magnetic alloy. 4,279,668, Cl. 148-101.000.

Kutney, James P., to United States of America, Health & Human Services. Method for producing dimer alkaloids. 4,279,817, Cl. 260-244.400.

Kwasnoski, Daniel; Sterner, Charles J.; Horst, Russel J.; and Burcaw, Kenneth R., to Bethlehem Steel Corporation. Apparatus for the distillation of weak ammonia liquor. 4,279,703, Cl. 202-158.000.

Kyomen, Junsuke: *See*—
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

L. Schuler GmbH: *See*—
Schneider, Franz; Schumann, Burkhard; Maier, Karl; and Hohn, Herbert, 4,279,561, Cl. 414-591.000.

La Soudure Autogene Francaise: *See*—
Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, 4,280,042, Cl. 219-121.0PT.

Laar, Erwin; and Sperber, Werner, to AGFA-Gevaert, A.G. Arrangement for transporting strip-shaped material. 4,279,371, Cl. 226-91.000.

Labombarde, Raymond A.; and Tremblay, Robert A. Apparatus and method for folding blanks with an unusually elongated wall. 4,279,611, Cl. 493-418.000.

Labora Mannheim GmbH fur Labortechnik: *See*—
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.

Lacoste, Francois R., to Patentex S.A. Rackets for tennis and other games. 4,279,418, Cl. 273-73.00D.

Ladek Corporation: *See*—
Lambert, Roland, 4,279,291, Cl. 165-1.000.

Laely, Andreas; Zwahlen, Gunther; and Buxbaum, Lothar, to Ciba-Geigy Corporation. Method for the production of a pigment preparation for coloring linear polyesters in the melt. 4,279,802, Cl. 260-40.00P.

LaFleur, Arthur E., to Custom Packaging Systems. Rotary heat cutter for plastic webs. 4,279,183, Cl. 83-16.000.

Laine, Norman R.: *See*—
Sanchez, Moises G.; Ernest, Michael V.; and Laine, Norman R., 4,279,779, Cl. 252-448.000.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See*—
Feix, Jacques; and Cardot, Frederic, 4,280,043, Cl. 219-137.310.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See*—
Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, 4,280,042, Cl. 219-121.0PT.
Guillaume, Paul; Karinthi, Pierre; and Nicolas, Jacques, 4,279,208, Cl. 110-346.000.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Expolitation des procedes Georges Claude: *See*—
Bourhis, Yves; Wermelinger, Alain; and Kostelitz, Michel, 4,279,406, Cl. 266-81.000.

Lamarche, Paul E., to Borg-Warner Corporation. Vibration damper assembly. 4,279,132, Cl. 64-27.00C.

Lambert, Roland, to Ladek Corporation. Subterranean heating and cooling system. 4,279,291, Cl. 165-1.000.

Lambuth, Alan L., to Boise Cascade Corporation. Aqueous polyisocyanate-lignin adhesive. 4,279,788, Cl. 260-9.000.

Lampredi, Aurelio; Leoni, Aldo; and Ioli, Luigi, to Fiat Auto S.p.A. Hydraulic tappet for an internal combustion engine having an overhead camshaft. 4,279,226, Cl. 123-90.550.

Lamy, Jean: *See*—
Bauer, Philippe; Lamy, Jean; and Martel, Bernard, 4,279,230, Cl. 123-440.000.

Land Pyrometers Limited: *See*—
Land, Thomas, 4,279,150, Cl. 73-338.000.

Land, Thomas, to Land Pyrometers Limited. Apparatus for determining vapor content of a gas/vapor mixture. 4,279,150, Cl. 73-338.000.

Lande, Harald; and Johannessen, Leif, to Norsk Hydro a.s. Profile system. 4,279,529, Cl. 403-246.000.

Landers, Don B., to Oil States Rubber Company. Grout seal premature inflation protective system. 4,279,546, Cl. 405-225.000.

Landsness, Clifford A., to B. F. Goodrich Company, The. Tire building machine. 4,279,683, Cl. 156-397.000.

Lang, Gusztav, to Hilti Aktiengesellschaft. Two-component adhesive cartridge. 4,279,340, Cl. 206-219.000.

Lanier, George G. Adjustable frame apparatus. 4,279,288, Cl. 160-374.000.

Lantzsch, Reinhard: *See*—
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

Laporte Industries Limited: *See*—
Robinson, Michael, 4,279,640, Cl. 75-1.00R.

Lardellier, Alain M. J.: *See*—
Kervistin, Robert; and Lardellier, Alain M. J., 4,279,153, Cl. 73-357.000.

LaRochelle, Ronald W.: *See*—
Eckberg, Richard P.; and LaRochelle, Ronald W., 4,279,717, Cl. 204-159.130.

Larock, Richard C., to Iowa State University Research Foundation, Inc. Thallation carbonylation of arenes. 4,279,823, Cl. 260-343.210.

Larsen, Donn E.: *See*—
Chun, Randall K. B.; and Larsen, Donn E., 4,280,221, Cl. 375-17.000.

Larson, Norman L.: *See*—
Bay, Marvon; and Larson, Norman L., 4,279,420, Cl. 273-187.00A.

Larsson, Frank, to Hafa Fabriks AB. Attachment for wall cabinets, mirrors, shelves and similar articles. 4,279,397, Cl. 248-221.300.

Lash, Donald W. Dispenser for rolled sheet material. 4,279,370, Cl. 225-67.000.

Laskaris, Evangelos T., to General Electric Company. Epoxy impregnated ventilated winding. 4,279,944, Cl. 427-62.000.

Lassmann, Eberhard; Kohler, Peter; Beran, Franz; and Gerhards, Hans J., to Linde Aktiengesellschaft. Method of scrubbing acid gases from gas mixtures. 4,279,872, Cl. 423-228.000.

Lavoie, Gilbert V. Bag opening apparatus. 4,279,558, Cl. 414-412.000.

Law, Andrew B.: *See*—
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,279,762, Cl. 252-47.500.

Lawrence, Randall K.; and Stevens, Aaron A., to Murray Ohio Manufacturing Co., The. Combined clutch and brake arrangement for a rotary lawnmower blade. 4,279,117, Cl. 56-11.300.

Lawson, Jimmie B.: *See*—
Knapp, Randolph H.; Lawson, Jimmie B.; Reisberg, Joseph; Thigpen, David R.; and Hill, Harold J., 4,279,305, Cl. 166-307.000.

Lawson-Tancred, Henry, to Sir Henry Lawson-Tancred, Sons & Co. Ltd. Method and apparatus for generating electricity from a fixed pitch wind wheel. 4,280,061, Cl. 290-55.000.

Lazarus, Arnold; and Weiss, Stuart L., to Strobotronix, Inc. Integrated piezoelectric sound transducer and preamplifier. 4,280,018, Cl. 179-1.00M.

Leake, William R.: *See*—
Shaver, Robert G.; and Leake, William R., 4,279,702, Cl. 202-137.000.

l'Ecluse, Henriette C. Jansz-de, heir: *See*—
Jansz, Joost W., deceased, 4,279,313, Cl. 173-112.000.

Lee, Charles A.: *See*—
Gagliardi, Joseph; and Lee, Charles A., 4,279,535, Cl. 405-15.000.

Lee, Chi-long: *See*—
Homan, Gary R.; and Lee, Chi-long, 4,279,792, Cl. 260-18.00S.

Lee, Denis C.; and Raihjen, Arthur H., to Dow Corning Corporation. Mammometer. 4,279,259, Cl. 128-774.000.

Lee, Henry E.; Guillen, Francisco J.; and Longuemare, R. Noel, Jr., to Westinghouse Electric Corp. Range swath coverage method for synthetic aperture radar. 4,280,127, Cl. 343-5.0CM.

Lee, Jack W.: *See*—
Ryan, Edward J.; Rutz, David A.; and Lee, Jack W., 4,279,121, Cl. 57-258.000.

Lee, John S.: *See*—
Kim, Tong S.; and Lee, John S., 4,279,578, Cl. 418-97.000.

Lee, Yong N., to Borg-Warner Corporation. Heat exchanger with condensate blow-off suppressor. 4,279,298, Cl. 165-181.000.

Leek, Adrian E.: *See*—
Masson, Pierre L.; Cambiaso, Cesar L.; De Steenwinkel, Floris; and Leek, Adrian E., 4,279,617, Cl. 23-230.00B.

Leiter, Gordon A.; and Schall, Herman H., to General Electric Company. High current mechanism having flexible contact arm. 4,280,030, Cl. 200-237.000.

Leleu, Jean-Bernard: *See*—
Verwaerde, Francoise; Leleu, Jean-Bernard; and Huchette, Michel, 4,279,931, Cl. 426-48.000.

Lemaire, Henri: *See*—
Boeuf, Jean-Marie; Gerest, Pierre; and Lemaire, Henri, 4,279,763, Cl. 252-62.580.

Lenchin, Julianne M.: *See*—
Wurzburg, Otto B.; and Lenchin, Julianne M., 4,279,940, Cl. 426-590.000.

Leneveu, Louis J. J.; and Treneules, Didier J., to Societe Nationale des Poudres et Explosifs. Fragmentable propellant containing polyvinyl nitrate binder. 4,279,672, Cl. 149-19.800.

Leniger, David J., to Edwards, Alfred R.; and Price, Gene R. Heat pump swimming pool heater. 4,279,128, Cl. 62-238.600.

Lenne, William: *See*—
Bettiol, Bruno; Harsigny, Christian; and Lenne, William, 4,279,480, Cl. 351-159.000.

Leonard, Charles A.: *See*—
Cale, Albert D., Jr.; and Leonard, Charles A., 4,279,822, Cl. 260-326.470.

Leoni, Aldo: *See*—
Lampredi, Aurelio; Leoni, Aldo; and Ioli, Luigi, 4,279,226, Cl. 123-90.550.

Leray, Jean: *See*—
Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, 4,279,249, Cl. 128-92.00D.

Leroux, Frank W. Modular hydroponic system. 4,279,101, Cl. 47-64.000.

Les Fabriques d'Assortiments Reunies-Div. R: *See*—
Kurz, Wilfried; and Glardon, Remi, 4,279,668, Cl. 148-101.000.

Leussink, Reinhard: *See*—
Jesse, Erich; and Leussink, Reinhard, 4,280,166, Cl. 361-253.000.

Leuthold, Oskar, to Ebauches Electroniques SA. Alternating to direct voltage converter. 4,280,175, Cl. 363-127.000.

Leutz, Donald C., to Parker-Hannifin Corporation. Hydraulic fluid filter and bypass valve. 4,279,746, Cl. 210-130.000.

Levasseur, Joseph L., to H. R. Electronics Company. Cash accountability control circuit for vending and like machines. 4,280,181, Cl. 364-464.000.

Levin, Alan, to ACF Industries, Incorporated. Guide arrangement for expanding gate valves. 4,279,404, Cl. 251-167.000.

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Levinson, Melvin L. Egg cooking in a microwave oven. 4,280,032, Cl. 219-10.55E.

Levkovich, Mikhail I.: *See*—
Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N., 4,280,165, Cl. 361-236.000.

Levy, Robert M.; and Matire, P. Jeffrey, to Sam's Well Service, Inc. Rod wrenching table. 4,279,600, Cl. 434-219.000.

Lewis, Harry R., Jr., to Standard Oil Company (Indiana). Subsea well flow lines tie-in using conductors. 4,279,542, Cl. 405-169.000.

Lewis, J. Stephen: *See*—
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., 4,279,099, Cl. 46-119.000.

Lewis, John W., to Dow Chemical Company, The. Electrical switch. 4,280,029, Cl. 200-50.00R.

Lewis, Roger N.: *See*—
Halle, Reidar; Peterson, David; and Lewis, Roger N., 4,279,831, Cl. 260-453.0RZ.

Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., to Rohm and Haas Company. Cutting oils containing 3-isothiazolones as biocides. 4,279,762, Cl. 252-47.500.

LGZ Landis & Gyr Zug AG: *See*—
Schmidhauser, Rolf, 4,280,037, Cl. 235-454.000.

Licentia Patent-Verwaltungs-G.m.b.H.: *See*—
Braun, Peter D.; and Kosak, Wolodymyr, 4,279,669, Cl. 148-175.000.

Lightel, William J.: *See*—
Callender, Robert E.; Doyle, Loren C.; and Lightel, William J., 4,280,050, Cl. 250-330.000.

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Baldwin, Ronald M.; Lin, Tz-Hong; and Winchell, Harry S., 4,279,887, Cl. 424-1.500.

Lindab Platisol AB: *See*—
Bruhn, Peter E.; and Jensen, Finn U. H., 4,279,541, Cl. 405-119.000.

Lindberg, Allen W.; Gantzert, Thomas R.; and Hicks, Donald L., to ACF Industries, Incorporated. Apparatus for controlling the air-fuel ratio in an internal combustion engine. 4,279,231, Cl. 123-489.000.

Lindberg, Charles R., to Silicon General, Inc. Temperature compensated bipolar reference voltage circuit. 4,280,090, Cl. 323-315.000.

Lindblad, Nero R.: *See*—
Rezanka, Ivan; and Lindblad, Nero R., 4,279,499, Cl. 355-15.000.

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Lassmann, Eberhard; Kohler, Peter; Beran, Franz; and Gerhards, Hans J., 4,279,872, Cl. 423-228.000.
Skolaude, Werner, 4,279,631, Cl. 62-29.000.

Lindemann Maschinenfabrik GmbH: *See*—
Stodt, Eberhard; and Kaldenbach, Erwin, 4,279,557, Cl. 414-400.000.

Lindsay, Gene K.; and O'Beirne, Andrew J., to Dynasciences Corporation. Method of removing lipid inhibitors from limulus amebocyte lysate. 4,279,774, Cl. 252-408.000.

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Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, 4,279,888, Cl. 424-49.000.

Lion Fat & Oil Co., Ltd., The: *See*—
Sekiguchi, Shizuo; Tano, Tetsuo; and Kitano, Kyozo, 4,279,786, Cl. 252-536.000.

Little, John L.: *See*—
Hough, William V.; Little, John L.; and Warheit, Kevin E., 4,279,951, Cl. 427-437.000.

Little, Robert T. Combination sun-moon filter. 4,279,463, Cl. 350-17.000.

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Johnston, John N., 4,279,525, Cl. 400-656.000.

Liu, Yi-Tsung: *See*—
Ganguly, Ashit K.; and Liu, Yi-Tsung, 4,279,896, Cl. 424-180.000.

Livigni, Russell A.: *See*—
Aggarwal, Sundar L.; Hargis, Ivan G.; and Livigni, Russell A., 4,279,798, Cl. 260-33.40R.

Lobo, Mark A.; and Pembroke, Richard W., to Telex Computer Products, Inc. Compact pneumatic reel latch. 4,279,386, Cl. 242-68.300.

Lohrbach, Mervin; and Peeples, Dick E., to Champion International Corporation. Carton with self-locking end closure and blank for forming same. 4,279,379, Cl. 229-39.00R.

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Peeples, Dick E.; and Lohrbach, Mervin, 4,279,377, Cl. 229-39.00R.

Longoni, Angelo: *See*—
Gozzo, Franco; Abbruzzese, Luigi; and Longoni, Angelo, 4,279,927, Cl. 424-322.000.

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Portinari, Antonio; and Longoni, Sergio, 4,279,470, Cl. 350-96.230.

Longsworth, Ralph C., to Air Products and Chemicals, Inc. Removable refrigerator for maintaining liquefied gas inventory. 4,279,127, Cl. 62-77.000.

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Lee, Henry E.; Guillen, Francisco J.; and Longuemare, R. Noel, Jr., 4,280,127, Cl. 343-5.0CM.

Lookhof, Wolfgang: *See*—
Kiessling, Werner; and Lookhof, Wolfgang, 4,280,041, Cl. 219-121.0PT.

Lord, Herbert A.; and Schneider, Randy G., to Western Electric Company, Inc. Method and apparatus for extruding tubular jackets. 4,279,851, Cl. 264-174.000.

Lord, Tom J.; and Snyder, William V., to PPG Industries, Inc. Apparatus for installing rolls on a conveyor shaft. 4,279,071, Cl. 29-717.000.

Lork, Winfried: *See*—
Erpenbach, Heinz; Gehrmann, Klaus; Kubbeler, Hans-Klaus; and Lork, Winfried, 4,280,010, Cl. 560-205.000.

Louderback, Allan L.; and Szatkowski, Paul R. Blood gas control. 4,279,775, Cl. 252-408.000.

Lovelace, James: *See*—
Aigner, Robert; and Lovelace, James, 4,279,349, Cl. 215-6.000.

Low, William H.; Hetrick, Vernon L.; and McCoy, Paul, to Meyer Products, Inc. Snowplow blade lift mount assembly. 4,279,084, Cl. 37-42.00R.

Lowenschuss, Oscar; and Gordon, Bruce E., to Raytheon Company. Digital memory system. 4,280,219, Cl. 375-4.000.

Loy, John W. Swallowtail kite. 4,279,394, Cl. 244-153.00R.

Lucas, James H.: *See*—
Plate, John R.; and Lucas, James H., 4,279,334, Cl. 192-3.570.

Lueddecke, Donald E.; Mottine, John J., Jr.; and Vesperman, William C., to Western Electric Company, Inc.; and Bell Telephone Laboratories, Inc. Acrylic copolymeric coating composition. 4,279,789, Cl. 260-17.00R.

Lukachev, Viktor P.: *See*—
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Lundberg, Hans G., to Marinkonsult Hans Lundberg AB. Assembly for treating vessel hulls. 4,279,212, Cl. 114-222.000.

Lupertz, Hans-Henning, to ITT Industries, Inc. Floating-caliper disc brake. 4,279,331, Cl. 188-73.300.

Lyakhevich, Genrikh D.; Belkevich, Petr I.; Rudkovsky, Alexandr D.; Sokolovsky, Alexandr E.; and Kirilchik, Alexandr I. Organic compound oxidation plant. 4,279,865, Cl. 422-187.000.

Lyashenko, Nikolai M.: *See*—
Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Krainik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M., 4,279,963, Cl. 428-433.000.

Lymburner, Frank M.: *See*—
Peterson, Charles M.; and Lymburner, Frank M., 4,279,533, Cl. 404-68.000.

Lynch, Paul E. Drill pipe tool joint protector. 4,279,850, Cl. 264-135.000.

M&T Chemicals Inc.: *See*—
Dworkin, Robert D., 4,279,807, Cl. 260-45.75B.

Maasbol, Alfred G.; and Sim, Alexander K., to Hermann Gottfried Schnabel Fa.; and Helm, Karl O. Thrombocyte aggregation inhibiting composition and methods. 4,279,914, Cl. 424-258.000.

Mac Valves, Inc.: *See*—
Neff, James A., 4,279,271, Cl. 137-493.800.

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Kukanskis, Peter E.; Grunwald, John J.; Ferrier, Donald R.; and Sawoska, David A., 4,279,948, Cl. 427-305.000.

MacGregor, Cline J.; and Parker, Roy A., to Goodyear Tire & Rubber Company, The. Loaded polyurethane articles. 4,279,799, Cl. 260-37.00N.

Machida Endoscope Co., Ltd.: *See*—
Chikama, Toshio, 4,279,246, Cl. 128-6.000.

MacLeane, Johannes: *See*—
Stanwood, Jay W.; Clarke, William A.; and MacLeane, Johannes, 4,279,275, Cl. 138-109.000.

Madl, Joseph, Jr. Access floor mounting assembly. 4,279,109, Cl. 52-263.000.

Maeda, Takamichi: *See*—
Hayakawa, Masao; Maeda, Takamichi; and Kumura, Masao, 4,280,132, Cl. 357-70.000.

Maetani, Kazuo: *See*—
Hamagami, Teruaki; Maetani, Kazuo; and Sato, Fumio, 4,279,682, Cl. 156-367.000.

Maezawa, Shuji, to Kabushiki Kaisha Suwa Seikosha. Electronic timepiece and digital display therefor. 4,280,207, Cl. 368-21.000.

Mager, Herbert: *See*—
Konrad, Eugen; and Mager, Herbert, 4,279,613, Cl. 8-407.000.

Magers, Thomas A.; and Tabb, David L. Indicator composition and test device containing amine oxide, and method of use. 4,279,993, Cl. 435-14.000.

Magnetic Peripherals Inc.: *See*—
Hennenfent, Douglas J.; Johnson, Robert A.; and Holmstrand, Allan L., 4,279,102, Cl. 51-322.000.

Mahoney, Thomas P.: *See*—
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Maier, Karl: *See*—
Schneider, Franz; Schumann, Burkhard; Maier, Karl; and Hohn, Herbert, 4,279,561, Cl. 414-591.000.

Maines, Robert Q., to R. J. Harvey Instruments Corp. Photometric apparatus and methods for counting the particulate components of blood. 4,279,506, Cl. 356-39.000.

Maisonnave, Pierre, to Union Siderurgique du Nord et De L'est De La France (USINOR). Process for coating the inner wall of a furnace or like apparatus. 4,279,845, Cl. 264-30.000.

Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, to Dai Nippon Toryo Co., Ltd.; and Matsushita Electric Industrial Co., Ltd. Ink composition for ink jet recording. 4,279,653, Cl. 106-22.000.

Makuch, John A.; and Monaghan, Kevin J., to Bunker Ramo Corporation. Hermaphroditic fiber optic connector. 4,279,466, Cl. 350-96.210.

Malcolm, Elmer L. Combination water spray and rotary brush attachment. 4,279,051, Cl. 15-29.000.

Man, Maurice C. M.: *See*—
Tseung, Alfred C. C.; and Man, Maurice C. M., 4,279,713, Cl. 204-129.000.

Manawatu Textile Dyers Limited: *See*—
Cox, Andrew G., 4,279,135, Cl. 68-15.000.

Mandai, Hiroshi: *See*—
Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, 4,279,888, Cl. 424-49.000.

Mandova, Maria L.: *See*—
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.

Mangeot, Philippe: *See*—
Comby, Georges; and Mangeot, Philippe, 4,280,075, Cl. 313-93.000.

Mangiavacchi, Jacques; Chauvelot, Alain; and Dolain, Claude, to Glaenzer Spicer. Tulip member for a tripod joint and process for producing the same. 4,279,528, Cl. 403-57.000.

Mann, Arnold, to VDO Adolf Schindling AG. Device for the control of the traveling speed of a motor vehicle. 4,279,228, Cl. 123-352.000.

Mansbach, Lillian: *See*—
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MAPAL Fabrik fur Prazisionswerkzeuge Dr. Kress KG: *See*—
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Marcoux, Leo; and Berg, Peter G., to Texas Instruments Incorporated. Early fuel evaporation of carburetion system. 4,279,234, Cl. 123-549.000.

Marcy, Robert D., to United States of America, Air Force. Laser gas temperature control and spacial equalizer. 4,280,105, Cl. 331-94.50P.

Marinkonsult Hans Lundberg AB: *See*—
Lundberg, Hans G., 4,279,212, Cl. 114-222.000.

Mark, H. Wayne: *See*—
Bertus, Brent J.; McKay, Dwight L.; and Mark, H. Wayne, 4,279,735, Cl. 208-113.000.

Markart, Ernst: *See*—
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.

Markina, Ljudmila V.: *See*—
Gladush, Vasily M.; Eremenko, Nena G.; Markina, Ljudmila V.; Kochuev, Evgeny S.; Kraimik, Mikhail P.; Cherkasova, Evgenia E.; and Lyashenko, Nikolai M., 4,279,963, Cl. 428-433.000.

Marshall, Albert H.; and Derderian, George, to United States of America, Navy. Thermal target and weapon fire simulator for thermal sights. 4,279,599, Cl. 434-21.000.

Marshall, Robert T.: *See*—
Anderson, Maynard E.; Marshall, Robert T.; and Stringer, William C., 4,279,059, Cl. 17-51.000.

Mart, Carl F.; and Waits, Douglas B., to Anaconda Company, The. Variable gap roll along switching. 4,280,201, Cl. 367-56.000.

Martel, Bernard: *See*—
Bauer, Philippe; Lamy, Jean; and Martel, Bernard, 4,279,230, Cl. 123-440.000.

Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, to Roussel Uclaf. Novel cyclopropane carboxylic acid esters. 4,279,835, Cl. 260-465.00D.

Martin, A. Eugene, Sr. Apparatus for the automated manufacture of heavy concrete objects. 4,279,583, Cl. 425-253.000.

Martin, Anthony N., to United Technologies Corporation. Engine module life tracking system. 4,280,185, Cl. 364-506.000.

Martin, Billy P.; and Vanis, Vernon V., to Goodyear Tire & Rubber Company, The. Slide surface compound for track-driven vehicle. 4,279,449, Cl. 305-35.0EB.

Martin, Merritt W., Jr., to Roman Machine Co. Blow molding machine. 4,279,587, Cl. 425-531.000.

Martin, Michael T. X-ray scaling catheter. 4,279,252, Cl. 128-349.00R.

Martin-Smith, Michael; Price, Barry J.; Bradshaw, John; and Clitherow, John W., to Glaxo Group Limited. Amine derivatives and pharmaceutical compositions containing them. 4,279,911, Cl. 424-251.000.

Marto, John H., to J. I. Case Company. Ignition system control. 4,279,179, Cl. 74-850.000.

Marulic, Walter J., to Pullman Incorporated. Passenger car compartment upper sleeping berth support assembly. 4,279,203, Cl. 105-321.000.

Marusho Industrial Co., Ltd.: *See*—
Isogaya, Keiichi, 4,279,740, Cl. 209-12.000.

Marvin Glass & Associates: *See*—
Kulesza, Ralph J.; Alcock, James M.; and Meyer, Burton C., 4,279,098, Cl. 46-101.000.
Rivette, Denni F.; Meyer, Burton C.; and Nix, Donald F., 4,279,100, Cl. 46-179.000.

Marx, Matthias: *See*—
DeBeuckelaer, Gerard; Jarre, Wolfgang; Wurmb, Rolf; and Marx, Matthias, 4,279,757, Cl. 210-671.000.

Marzoli, Angelo, to F. lli Marzoli & C. S.p.A. Rotary ring for spinning and twisting frame. 4,279,119, Cl. 57-124.000.

Masak, Raymond J., to United States of America, Army. Adaptive steerable null antenna processor. 4,280,128, Cl. 343-100.0LE.

Masamizu, Koji: *See—*
Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, 4,279,888, Cl. 424-49.000.

Mashimo, Yukio; Iwashita, Tomonori; and Fukahori, Hidehiko, to Canon Kabushiki Kaisha. Electric driving device. 4,279,490, Cl. 354-173.000.

Masiak, Samuel H.: *See—*
Hornak, Thomas; Corcoran, John J.; and Maslak, Samuel H., 4,280,196, Cl. 365-45.000.

Mason, Eugene B. System for applying and wrapping line guides to a fishing rod blank. 4,279,684, Cl. 156-425.000.

Massachusetts Institute of Technology: *See—*
Suh, Nam P., 4,279,843, Cl. 264-11.000.

Masson, Pierre L.; Cambiaso, Cesar L.; De Steenwinkel, Floris; and Leek, Adrian E., to Technicon Instruments Corporation. Immunoassay involving agglutination. 4,279,617, Cl. 23-230.00B.

Masugi, Takashi: *See—*
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,279,818, Cl. 424-246.000.

Masuhara, Toshiaki: *See—*
Minato, Osamu; Masuhara, Toshiaki; Sasaki, Toshio; and Kubo, Masaharu, 4,280,065, Cl. 307-473.000.

Mather, Joseph M.: *See—*
Sagaser, Thomas M.; and Mather, Joseph M., 4,279,566, Cl. 414-686.000.

Mathison, Pat: *See—*
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Matire, P. Jeffrey: *See—*
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Matsubayashi, Hajime: *See—*
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Matsuda, Shunsuke; Tsuchiya, Soji; Honma, Masami; and Nagamatsu, Gentaro, to Matsushita Electric Industrial Co., Ltd.; and Fuji Chemicals Industrial Co., Ltd. Positive resist for high energy radiation. 4,279,984, Cl. 430-270.000.

Matsuda, Yoshio, to Yoshida Kogyo, K.K. Warp-knit stringer tape for slide fasteners. 4,279,134, Cl. 66-195.000.

Matsui, Kazuma: *See—*
Nara, Akio; Takagi, Shigeru; and Matsui, Kazuma, 4,279,864, Cl. 422-179.000.

Matsumura, Isao, to Canon Kabushiki Kaisha. Eye examining instrument. 4,279,478, Cl. 351-13.000.

Matsushita Electric Corporation of America: *See—*
Rzeszewski, Theodore S., 4,280,104, Cl. 331-1.00A.

Matsushita Electric Industrial Co.: *See—*
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Matsushita Electric Industrial Co., Ltd.: *See—*
Gotou, Makoto; Kobayashi, Kazutsugu; and Okumura, Kenichiro, 4,280,072, Cl. 310-67.00R.
Kotso, Kazuhiro; Sanda, Masaaki; Hayashi, Mamoru; and Uesugi, Hiroaki, 4,279,454, Cl. 312-297.000.
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.
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Misaki, Takashi; Aoki, Takanori; and Miyawaki, Yukihiko, 4,280,146, Cl. 360-10.000.
Nakamura, Kazuo, 4,279,633, Cl. 65-41.000.
Ohmukai, Yoshimi; Tomisawa, Takeshi; and Kawasaki, Yoshitaka, 4,279,589, Cl. 431-328.000.

Matsuura, Hideaki: *See—*
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Mattel, Inc.: *See—*
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., 4,279,099, Cl. 46-119.000.

Matter, Robert C., to General Motors Corporation. Lead-calcium-tin battery grid. 4,279,977, Cl. 429-245.000.

Matthews, Ralph W.: *See—*
Evans, John V.; and Matthews, Ralph W., 4,280,053, Cl. 250-432.0PD.

Maurer, Alexander; Schrodter, Klaus; and Heymer, Gero, to Hoechst Aktiengesellschaft. Process for freeing phosphoric acid from organic contaminants. 4,279,878, Cl. 423-321.00R.

Maurer, Roland, to Gebruder Junghans GmbH. Arrangement for the disassembly of a circuit board. 4,279,072, Cl. 29-764.000.

Maute, Alfred; Teitz, Konrad; Baier, Klaus; and Heid, Hans, to Hewlett-Packard Company. Photometric absorption detector. 4,279,511, Cl. 356-328.000.

May, George A. Ultrasonic and capacitive electronic key systems. 4,280,119, Cl. 340-147.0MD.

May, Hans-Joachim: *See—*
Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, 4,280,008, Cl. 548-301.000.

Mayenschein, Harley. Clock apparatus. 4,280,211, Cl. 368-76.000.

Mayer, Wolfram: *See—*
Schuster, Karl-Ernst; Rudolph, Hans; Mayer, Wolfram; and Rosenkranz, Hans J., 4,279,718, Cl. 204-159.150.

McAlexander, Joseph C., III: *See—*
Reese, Edmund A.; White, Lionel S., Jr.; and McAlexander, Joseph C., III, 4,280,070, Cl. 307-279.000.

McAlister, Roy E. Radiant energy heat exchanger system. 4,279,244, Cl. 126-450.000.

McBride, Edward J., Jr. Combination mounting bracket, ball tension and balloon control device. 4,279,388, Cl. 242-152.100.

McCann, David H; White, Marvin H.; Turly, Alfred P.; and Frosch, Robert A. Time delay and integration detectors using charge transfer devices. 4,280,141, Cl. 358-213.000.

McClure, Robert I.: *See—*
Scott, John C.; and McClure, Robert I., 4,280,155, Cl. 360-98.000.

McClure, William F.; and Rohrbach, Roger P., to Southeastern Blueberry Council, Inc. Asynchronous blueberry sorter. 4,279,346, Cl. 209-582.000.

McCord, Dick P.; and Eberhardt, Mark E., Jr., to Hobart Corporation. Magnetic coupling for a weighing balance assembly. 4,279,317, Cl. 177-185.000.

McCord, Herbert W.: *See—*
Right, Robert W.; McCord, Herbert W.; and Podany, Vaclav O., 4,280,123, Cl. 340-384.00E.

McCoy, Paul: *See—*
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McDonnell Douglas Corporation: *See—*
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McDonough, Martin S.: *See—*
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McFiggans, Robert B.: *See—*
Jones, Howell A., Jr.; and McFiggans, Robert B., 4,280,179, Cl. 364-464.000.

McGuffey, Gale W.: *See—*
Carey, Richard L.; and McGuffey, Gale W., 4,280,097, Cl. 324-434.000.

McIntyre, John M.; and Caldwell, Donald L., to Dow Chemical Company, The. Preparation of porous electrodes. 4,279,709, Cl. 204-98.000.

McIntyre, William H., to Westinghouse Electric Corp. Technique for in situ calibration of a gas detector. 4,279,142, Cl. 73-1.00G.

McKay, Dwight L.: *See—*
Bertus, Brent J.; McKay, Dwight L.; and Mark, H. Wayne, 4,279,735, Cl. 208-113.000.

McKenzie, Kenneth G., to Greening Donald Co. Ltd. End assembly for wire strand. 4,279,531, Cl. 403-267.000.

McKinley, Ronald R.; Hamel, Robert E., Jr.; and Dolan, Bernard J., to Dolan-Jenner Industries, Inc. Optical fibers. 4,280,122, Cl. 340-380.000.

McKinney, Laurence O. Method and apparatus for processing herbaceous plant materials including the plant cannabis. 4,279,824, Cl. 260-345.300.

McKinnon, Neil A.: *See—*
Garvie, Ronald C.; Hannink, Richard H. J.; and McKinnon, Neil A., 4,279,655, Cl. 106-57.000.

McMillan, Larry D.: *See—*
Goldman, Jon C.; McMillan, Larry D.; and Price, James B., 4,279,947, Cl. 427-255.200.

McMullan, Robert G., to SCM (Canada) Limited. Rectangular container/applicator package for dimensionally stable solid paints and related materials. 4,279,526, Cl. 401-97.000.

Mears, James W.: *See—*
Fischer, Michael A.; and Mears, James W., 4,279,309, Cl. 169-37.000.

Medi-Physics, Inc.: *See—*
Baldwin, Ronald M.; Lin, Tz-Hong; and Winchell, Harry S., 4,279,887, Cl. 424-1.500.

Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S. Method for electroslag remelting of metals. 4,279,642, Cl. 75-10.00C.

Meiksin, Zvi H.: *See—*
DelVecchio, Robert M.; and Meiksin, Zvi H., 4,280,114, Cl. 338-2.000.

Meineke, Sam W.; and Nedell, Harold. Exhaust muffler. 4,279,326, Cl. 181-228.000.

Meisel, Thomas C., Jr., to Caterpillar Tractor Co. Track tensioning apparatus. 4,279,318, Cl. 180-9.640.

Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, to Bayer Aktiengesellschaft. Process for the production of cellular polyurethane elastomers. 4,280,007, Cl. 521-159.000.

Memorex Mini Disc Drive Corp.: *See—*
Scott, John C.; and McClure, Robert I., 4,280,155, Cl. 360-98.000.

Menge, Heinz G.: *See—*
Eistetter, Klaus; Schaefer, Hartmann; and Menge, Heinz G., 4,279,918, Cl. 424-274.000.

Mercantile Development, Inc.: *See—*
Gagliardi, Joseph; and Lee, Charles A., 4,279,535, Cl. 405-15.000.

Merck & Co., Inc.: *See—*
Baldwin, John J.; and Ponticello, Gerald S., 4,279,913, Cl. 424-258.000.

Merli, Claudio; and Francia, Carlo, to Euteco S.p.A. Pneumatic tires having ornamented sidewalls, and to their manufacture. 4,279,286, Cl. 152-353.00R.

Messer Griesheim: *See—*
Kiessling, Werner; and Lookhof, Wolfgang, 4,280,041, Cl. 219-121.0PT.

Messer Griesheim GmbH: *See—*
Buchmuller, Jurgen; Nobis, Peter; and Volker, Wolfgang, 4,279,626, Cl. 55-204.000.

Metzeler Schaum GmbH: *See—*
Bruckner, Georg F.; Geike, Bernd; Schoen, Bernd-Jurgen; and Berger, Fritz, 4,279,038, Cl. 2-425.000.

Metzinger, Lothar: *See—*
Wallner, Josef; and Metzinger, Lothar, 4,279,517, Cl. 366-177.000.

Meyer, Burton C.: *See—*
Kulesza, Ralph J.; Alcock, James M.; and Meyer, Burton C., 4,279,098, Cl. 46-101.000.
Rivette, Denni F.; Meyer, Burton C.; and Nix, Donald F., 4,279,100, Cl. 46-179.000.

Meyer, Olga: *See—*
Meyer, Rainer-Leo; John, Rainmar; Eisenhauer, Bernhard; and Baumstark, Herta, 4,279,962, Cl. 428-332.000.

Meyer Products, Inc.: *See—*
Low, William H.; Hetrick, Vernon L.; and McCoy, Paul, 4,279,084, Cl. 37-42.00R.

Meyer, Rainer: *See—*
Meyer, Rainer-Leo; John, Rainmar; Eisenhauer, Bernhard; and Baumstark, Herta, 4,279,962, Cl. 428-332.000.

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Meyer, Robert: *See—*
Delapierre, Gilles; and Meyer, Robert, 4,279,475, Cl. 350-363.000.

Meyerand, Russell G., Jr.: *See—*
Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., 4,279,294, Cl. 165-45.000.

Michaelis, Klaus P.; and Wirth, Hermann O., to Ciba-Geigy Corporation. Mixture of di- or trithiophosphoric acid diesters, processes for producing it and its use. 4,279,761, Cl. 252-46.400.

Michel, Walter: *See—*
Kruger, Friedrich; and Michel, Walter, 4,279,758, Cl. 210-700.000.

Micheli, Adolph L., to General Motors Corporation. Oxidized aluminum overcoat for solid electrolyte sensor. 4,279,666, Cl. 148-6.300.

Mickowski, John. Microcomputer control system. 4,280,182, Cl. 364-475.000.

Midland-Ross Corporation: *See—*
Acre, Leon R., 4,279,273, Cl. 137-627.500.

Mikami, Teigo; Miyano, Hiroaki; and Kosugi, Masahide, to Toyota Jidosha Kogyo Kabushiki Kaisha. Device for detecting gates in an automatic pouring machine for casting. 4,279,290, Cl. 164-154.000.

Miki, Masayoshi: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Miles Laboratories, Inc.: *See—*
Boguslaski, Robert C.; Burd, John F.; and Carrico, Robert J., 4,279,992, Cl. 435-7.000.

Miller, Donald L., to Facet Enterprises, Inc. Electromagnetically released spring applied friction brake with torque booster. 4,280,073, Cl. 310-77.000.

Miller, George A.: *See—*
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,279,762, Cl. 252-47.500.

Miller, Henry, deceased; and Byrne, Desmond, legal representative, to Acme Flooring Limited. Roadway nosing unit. 4,279,532, Cl. 404-68.000.

Miller, Jan D., to University of Utah. Air-sparged hydrocyclone and method. 4,279,743, Cl. 209-211.000.

Miller, Matthew N., to Fairchild Industries, Inc. Collapsible launching system. 4,279,195, Cl. 92-88.000.

Miller, Richard R.; and Simi, Edward A., to Douglas Dynamics Inc. Auxiliary light wiring harness. 4,280,062, Cl. 307-10.0LS.

Miller, Wendell D.: *See—*
Erb, Tom L.; and Miller, Wendell D., 4,279,167, Cl. 73-861.250.

Miller, William R., to American Sterilizer Company. Unmanned material handling system for servicing a multi-level structure. 4,279,563, Cl. 414-611.000.

Milles, Peter, to S. Franzen Sohne (GmbH & Co.). Combination lock for suitcases, bags or the like. 4,279,136, Cl. 70-71.000.

Mills-Winkler, James P.: *See—*
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., 4,279,099, Cl. 46-119.000.

Milwaukee Cylinder Corporation: *See—*
Schink, Richard R.; and Craig, Thomas A., 4,279,269, Cl. 137-206.000.

Minamitani, Fumio, to Isuzu Motors Ltd. Locking device for a tilt steering wheel. 4,279,176, Cl. 74-493.000.

Minato, Osamu; Masuhara, Toshiaki; Sasaki, Toshio; and Kubo, Masaharu, to Hitachi, Ltd. Tri-state type driver circuit. 4,280,065, Cl. 307-473.000.

Mine Safety Appliances Company: *See—*
Hough, William V.; Little, John L.; and Warheit, Kevin E., 4,279,951, Cl. 427-437.000.

Minnesota Mining and Manufacturing Company: *See—*
Bailey, Dale O.; and Honl, Paul G., 4,280,002, Cl. 435-298.000.
Norrell, Donald L., 4,280,145, Cl. 358-289.000.

Minolta Camera Kabushiki Kaisha: *See—*
Kobayashi, Haruo, 4,279,493, Cl. 354-197.000.

Misaki, Takashi; Aoki, Takanori; and Miyawaki, Yukihiko, to Matsushita Electric Industrial Co., Ltd. Rotary head type magnetic video recording and reproducing apparatus. 4,280,146, Cl. 360-10.000.

Misumi, Akira; and Saito, Shunji, to Hitachi, Ltd. Thermionic emission cathodes. 4,279,784, Cl. 252-513.000.

Mitchell, Roger E.: *See—*
Wells, Peter M., Jr.; and Mitchell, Roger E., 4,280,092, Cl. 324-51.000.

Mitsui Petrochemical Industries, Ltd.: *See—*
Hiraoka, Takayuki; and Fujiyoshi, Kenji, 4,279,957, Cl. 428-212.000.

Mitsui Toatsu Chemicals Inc.: *See—*
Yamamoto, Ryuichi; and Torisu, Masaaki, 4,279,838, Cl. 260-968.000.

Mitutoyo Mfg. Co. Ltd.: *See—*
Nakaya, Tadao, 4,279,080, Cl. 33-174.00L.

Miura, Hideichi: *See—*
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.

Miyagawa, Fumiko; Ikenaka, Yoshiharu; and Sakaguchi, Makoto, to Rex Industries Co., Ltd. Machine tool. 4,279,182, Cl. 82-28.00R.

Miyake, Masaya: *See—*
Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, 4,279,651, Cl. 75-233.000.

Miyano, Hiroaki: *See—*
Mikami, Teigo; Miyano, Hiroaki; and Kosugi, Masahide, 4,279,290, Cl. 164-154.000.

Miyao, Kouhei: *See—*
Ishida, Nakao; Satoh, Hiroshi; Suzuki, Fujio; and Miyao, Kouhei, 4,279,892, Cl. 424-85.000.

Miyawaki, Yukihiko: *See—*
Misaki, Takashi; Aoki, Takanori; and Miyawaki, Yukihiko, 4,280,146, Cl. 360-10.000.

Miyazaki, Hidetaka: *See—*
Izumi, Yusuke; Miyazaki, Hidetaka; and Kawahara, Shin-ichi, 4,279,883, Cl. 423-584.000.

Mizoguchi, Akira: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.

Mizuno, Kenji: *See—*
Ohnishi, Yoshitake; Itoh, Masaki; Mizuno, Kenji; and Gokan, Hiroshi, 4,279,986, Cl. 430-280.000.

Mizusawa, Mitsutoyo, to Nissin Kogyo Kabushiki Kaisha. Brake oil pressure controlling valve device for vehicle use. 4,279,447, Cl. 303-6.00C.

Mobil Oil Corporation: *See—*
Haag, Werner O.; and Huang, Tracy J., 4,279,830, Cl. 518-700.000.

Moe, Walter; and Diker, Charles M. Liquid dispenser and applicator. 4,279,527, Cl. 401-277.000.

Mogi, Takao; Ishigaki, Yoshio; and Okada, Hisao, to Sony Corporation. Muting circuit for a television receiver. 4,280,139, Cl. 358-165.000.

Molins Limited: *See—*
Bolt, Reginald C., 4,279,144, Cl. 73-38.000.

Moll, Edward W. Minimum space digital storage of analog information. 4,280,192, Cl. 364-900.000.

Molloy, Albert G., Jr.: *See—*
Kammerman, Steven B.; Kawasaki, Frank; and Molloy, Albert G., Jr., 4,279,414, Cl. 272-3.000.

Monaghan, Kevin J.: *See—*
Makuch, John A.; and Monaghan, Kevin J., 4,279,466, Cl. 350-96.210.

Monma, Hideo: *See—*
Takahashi, Masayuki; and Monma, Hideo, 4,280,213, Cl. 368-187.000.

Monotype Corporation Limited, The: *See—*
England, Charles J.; and Bakewell, Brian A., 4,279,483, Cl. 354-5.000.

Monsanto Company: *See—*
Baxter, Samuel; and Changani, Pushpkumar D., 4,279,848, Cl. 264-53.000.

Montealegre, James, to Champion International Corporation. Air freshener carton. 4,279,373, Cl. 229-11.000.

Montedison S.p.A.: *See—*
Gozzo, Franco; Abbruzzese, Luigi; and Longoni, Angelo, 4,279,927, Cl. 424-322.000.

Mooney, Jac A., to Bradley Time Division, Elgin National. Electronic alarm clock. 4,280,209, Cl. 368-71.000.

Moore, Richard D., to Plastic Techniques, Inc. Collar for cake discharge chute of rotatable disc filter. 4,279,749, Cl. 210-330.000.

Morentz, John D.: *See—*
Schevey, William R.; Weslowski, Robert G.; and Morentz, John D., 4,279,279, Cl. 141-5.000.

Morgan, Frank S. Adjustable headgear suspension. 4,279,037, Cl. 2-421.000.

Morgan, Glenn; and Morris, Robert B., to American Standard Inc. Manual release mechanism for spring-applied parking brake. 4,279,332, Cl. 188-170.000.

Mori, Masashi: *See—*
Danjyo, Hiroyuki; and Mori, Masashi, 4,279,844, Cl. 264-30.000.

Mori, Mitsuhiro: *See*—
Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, 4,280,131, Cl. 357-17.000.

Mori, Toshihiro, to JECO Co. Ltd. Arc discharge preventing circuit of transfer switch for use with inductive loads. 4,280,160, Cl. 361-3.000.

Morihara, Ko: *See*—
Hayashi, Kohtaro; Morihara, Ko; and Nakamura, Kohji, 4,279,580, Cl. 425-72.00R.

Morimoto, Yoshinori, to Ryobi Ltd. Bail latching and releasing mechanism for spinning reel. 4,279,387, Cl. 242-84.20G.

Morioka, Moto: *See*—
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Morita, Kazuyuki: *See*—
Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, 4,280,136, Cl. 358-93.000.

Mormann, Werner: *See*—
Meisert, Ernst; Bohne, Franz-Josef; Brecht, Klaus; Mormann, Werner; Krohn, Wolfgang; and Henes, Gerhard, 4,280,007, Cl. 521-159.000.

Morningstar, Leroy J.: *See*—
Zell, Dale R.; and Morningstar, Leroy J., 4,279,074, Cl. 29-866.000.

Morris, Jerald D., to Dresser Industries, Inc. Rotary rock bit fluid center seal. 4,279,450, Cl. 308-8.200.

Morris, Robert B.: *See*—
Morgan, Glenn; and Morris, Robert B., 4,279,332, Cl. 188-170.000.

Morrison Company, Inc.: *See*—
Morrison, Donald; and Muma, William T., Jr., 4,279,676, Cl. 156-159.000.

Morrison, Donald; and Muma, William T., Jr., to Morrison Company, Inc. Process of making a belting joint. 4,279,676, Cl. 156-159.000.

Moses, Peter R., to Duracell International Inc. Non-aqueous electrolyte cell. 4,279,972, Cl. 429-50.000.

Mossman, Colin F.: *See*—
Barnett, Roger C.; Sharpless, Robert G.; and Mossman, Colin F., 4,279,685, Cl. 156-509.000.

Motor Wheel Corporation: *See*—
Daudi, Anwar; Golata, John H.; and Triponi, Doarde G., 4,279,287, Cl. 152-375.000.

Motorola, Inc.: *See*—
Goldman, Jon C.; McMillan, Larry D.; and Price, James B., 4,279,947, Cl. 427-255.200.
Smith, Philip S., 4,280,190, Cl. 364-770.000.

Mottine, John J., Jr.: *See*—
Lueddecke, Donald E.; Mottine, John J., Jr.; and Vesperman, William C., 4,279,789, Cl. 260-17.00R.

MTU Motoren-Und Turbinen-Union Munchen GmbH: *See*—
Betz, Wolfgang, 4,279,581, Cl. 425-78.000.

Muccitelli, John A., to Betz Laboratories, Inc. Use of improved hydroquinone oxygen scavenger in aqueous mediums. 4,279,767, Cl. 252-178.000.

Mueller, Martin: *See*—
Arndt, Carl; and Mueller, Martin, 4,279,585, Cl. 425-403.000.

Muldrow, Charles N., Jr., to Associated Lead Inc. Antimony mercaptides as processing stabilizers for vinyl halide resins. 4,279,806, Cl. 260-45.75B.

Mullenberg, Ralph. Flanged connection for shafts or tubes. 4,279,530, Cl. 403-337.000.

Mullikin, Raymond L.: *See*—
Harvey, Richard D.; Gallaher, Thomas L.; Mullikin, Raymond L.; and Small, Thomas L., 4,279,658, Cl. 106-213.000.

Muma, William T., Jr.: *See*—
Morrison, Donald; and Muma, William T., Jr., 4,279,676, Cl. 156-159.000.

Munn, Alfred: *See*—
Huston, Paul O.; and Munn, Alfred, 4,279,161, Cl. 73-743.000.

Munroe, Alan D., to United Technologies Corporation. Vane angle control. 4,279,568, Cl. 415-17.000.

Murabayashi, ideki: *See*—
Shimotori, Kazumi; Izumi, Isao; and Murabayashi, ideki, 4,280,046, Cl. 219-544.000.

Murai, Keiichi: *See*—
Kondo, Hideyo; and Murai, Keiichi, 4,279,500, Cl. 355-15.000.

Murakami Kaimeido Co., Ltd.: *See*—
Yamana, Toru, 4,279,473, Cl. 350-307.000.

Murakami, Tatsuo. Optical illumination device. 4,279,089, Cl. 40-547.000.

Murphy, Richard D.: *See*—
Adams, Don L.; Murphy, Richard D.; and Fischer, William C., 4,279,391, Cl. 244-17.130.

Murray Ohio Manufacturing Co., The: *See*—
Lawrence, Randall K.; and Stevens, Aaron A., 4,279,117, Cl. 56-11.300.

Myrens Verksted A/S: *See*—
Fritzvold, Bjorn H.; and Soteland, Nicolai, 4,279,694, Cl. 162-28.000.

Naffziger, Larry C., to Bank of America N.T. & S.A. Bearing assembly. 4,279,452, Cl. 308-36.100.

Nagamatsu, Gentaro: *See*—
Matsuda, Shunsuke; Tsuchiya, Soji; Honma, Masami; and Nagamatsu, Gentaro, 4,279,984, Cl. 430-270.000.

Nagano, Masashi; and Isobe, Mitsuhide, to Shimano Industrial Company Limited. Derailleur for a bicycle. 4,279,172, Cl. 474-82.000.

Nagasawa, Masahiro: *See*—
Aoki, Masaki; Yoshida, Shigeru; Yamazoe, Hiroshi; and Nagasawa, Masahiro, 4,279,691, Cl. 156-656.000.

Nagashima, Akira: *See*—
Iwasaki, Masayuki; Nagashima, Akira; and Sato, Shigeru, 4,279,982, Cl. 430-170.000.

Nahmias, Clement: *See*—
Ransom, Stephen A.; Hohmann, Jere W.; and Nahmias, Clement, 4,280,212, Cl. 368-82.000.

Nakagawa, Yunosuke: *See*—
Yagi, Kouichi; and Nakagawa, Yunosuke, 4,279,769, Cl. 252-186.000.

Nakahara, Shunichi: *See*—
Yoshikawa, Ryoichi; Okajima, Kazuhiko; Nakahara, Shunichi; and Nakayama, Sumio, 4,279,494, Cl. 354-288.000.

Nakahashi, Ken-ichi, to Olympus Optical Co., Ltd. Objective lens system for microscopes. 4,279,476, Cl. 350-414.000.

Nakaji, Edward M.: *See*—
Chao, Chente; Nakaji, Edward M.; and Bernick, Robert L., 4,279,070, Cl. 29-583.000.

Nakajima, Setsuo: *See*—
Koshida, Daikichi; Sugisawa, Ko; Kimura, Takashi; and Nakajima, Setsuo, 4,279,932, Cl. 426-89.000.

Nakajima, Yoshikazu, to Kabushiki Kaisha Mikuni Seisakusho. Composite material compositions using wasterpaper and method of producing same. 4,279,790, Cl. 260-17.40R.

Nakamura, Hiroshi, to Shinko Plant Co. Ltd. Automatic branch cut-off device. 4,279,281, Cl. 144-2.00Z.

Nakamura, Kazuo, to Matsushita Electric Industrial Co., Ltd. Method of producing magnetic head. 4,279,633, Cl. 65-41.000.

Nakamura, Kohji: *See*—
Hayashi, Kohtaro; Morihara, Ko; and Nakamura, Kohji, 4,279,580, Cl. 425-72.00R.

Nakamura, Sadayuki: *See*—
Kato, Tetsuo; Abeyama, Shozo; Kimura, Atsuyoshi; and Nakamura, Sadayuki, 4,279,646, Cl. 75-123.0AA.

Nakamura, Tsuneo, to Anritsu Keiki Kabushiki Kaisha. Surface temperature measuring device. 4,279,154, Cl. 73-359.00R.

Nakamura, Yasuhiko; and Yamakawa, Yoshio, to Nippondenso Co., Ltd. Air cleaning means for internal combustion engine. 4,279,630, Cl. 55-316.000.

Nakaya, Tadao, to Mitutoyo Mfg. Co. Ltd. Touch signalling probe. 4,279,080, Cl. 33-174.00L.

Nakayama, Masayuki, to Sony Corporation. Method of and apparatus for indicating length and remaining recording capacity of a recording tape. 4,280,159, Cl. 360-137.000.

Nakayama, Shigeru: *See*—
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,279,980, Cl. 430-68.000.

Nakayama, Sumio: *See*—
Yoshikawa, Ryoichi; Okajima, Kazuhiko; Nakahara, Shunichi; and Nakayama, Sumio, 4,279,494, Cl. 354-288.000.

Nalco Chemical Company: *See*—
Pardikes, Dennis G., 4,279,759, Cl. 210-709.000.

Nancarrow, James H.: *See*—
Egli, Hans; Byrne, Joe L.; and Nancarrow, James H., 4,279,570, Cl. 415-53.00T.

Nance Childrens's Trust, The: *See*—
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Nance, Edward K., Jr.: *See*—
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Nara, Akio; Takagi, Shigeru; and Matsui, Kazuma, to Nippon Soken, Inc. Monolithic catalyst converter. 4,279,864, Cl. 422-179.000.

Nash, William D.: *See*—
Finch, Ray N.; and Nash, William D., 4,279,130, Cl. 62-544.000.

Nassi, Menahem; and Stonestrom, James P., to General Electric Company. Computerized tomographic reconstruction method utilizing reflection. 4,280,178, Cl. 364-414.000.

Natansohn, Samuel; and Su, Sophia R., to GTE Laboratories Incorporated. Liquid-liquid extraction process for the recovery of tungsten from low level sources. 4,279,870, Cl. 423-54.000.

National Gypsum Company: *See*—
White, George H.; and Petersen, Donald J., 4,279,673, Cl. 156-39.000.
Wing, Steven D.; and Smith, Richard E., 4,279,081, Cl. 33-479.000.

National Research Development Corporation: *See*—
Guralp, Cansun M., 4,280,206, Cl. 367-179.000.
Tseung, Alfred C. C.; and Man, Maurice C. M., 4,279,713, Cl. 204-129.000.

National Starch and Chemical Corporation: *See*—
Wurzburg, Otto B.; and Lenchin, Julianne M., 4,279,940, Cl. 426-590.000.

National Steel Corp.: *See*—
Evrard, Gerald D.; Cook, Henry S.; and Kamalich, Anthony J., 4,279,052, Cl. 15-93.00A.

Naumann, Klaus: *See*—
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

NCR Corporation: *See*—
Acharya, Rajguru M.; and Del Signore, James R., II, 4,280,082, Cl. 318-341.000.
Chambers, William I., 4,279,524, Cl. 400-564.100.

Nedell, Harold: *See*—
Meineke, Sam W.; and Nedell, Harold, 4,279,326, Cl. 181-228.000.

Nefediev, Yakov N.: *See*—
Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N., 4,280,165, Cl. 361-236.000.

Neff, James A., to Mac Valves, Inc. Pressure regulator and flow control valve with pre-exhaust. 4,279,271, Cl. 137-493.800.

Neill, Daniel L.; and Tribe, Leonard T., to Kelsey-Hayes Company. Pressure transducer. 4,279,162, Cl. 73-746.000.

Nelson, Alfred R.; and Johnsen, Kenneth E., to Dow Chemical Company, The. Solvent blends for ethylene copolymers. 4,279,797, Cl. 260-33.40R.

Nelson, Stephen J., to Upjohn Company, The. Processes for making phosphorus containing aminothiocarbamoyl halides. 4,279,839, Cl. 260-968.000.

Nelson, Stephen J., to Upjohn Company, The. Processes for making phosphorus containing aminothiocarbamoyl halides. 4,279,840, Cl. 260-968.000.

Nemeth, Laszlo: *See*—
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,915, Cl. 424-262.000.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

Nestle, Mara O.: *See*—
Bilofsky, Ruth C.; and Nestle, Mara O., 4,279,983, Cl. 430-228.000.

New Nippon Electric Co. Ltd.: *See*—
Tsutsui, Kenziro; and Kakei, Masamitsu, 4,280,078, Cl. 315-39.510.

New World Computer Company, Inc.: *See*—
Herman, Robert W.; and Kearns, William J., 4,280,157, Cl. 360-106.000.

Newcomb, Rosemarie. Method for producing nature prints. 4,279,200, Cl. 101-170.000.

Newman, Gerald H.: *See*—
Klemann, Lawrence P.; and Newman, Gerald H., 4,279,976, Cl. 429-197.000.

Newman, Ray L.: *See*—
Dziedzic, Chester J.; Cleveland, Joseph J.; and Newman, Ray L., 4,279,297, Cl. 165-165.000.

NGK Insulators, Inc.: *See*—
Ogawa, Yutaka; Takehara, Toshio; and Asami, Seiichi, 4,279,849, Cl. 264-63.000.

NGK Spark Plug Co., Ltd.: *See*—
Nishio, Shinji, 4,279,974, Cl. 429-104.000.

Nice, Ralph A.: *See*—
Nielson, Niel E.; Kreiling, Ronald L.; Hill, Robert C.; and Nice, Ralph A., 4,279,753, Cl. 210-605.000.

Nickence, John G., to Belden Corporation. Cover plate for electrical connector. 4,279,457, Cl. 339-36.000.

Nickles, Robert B., Jr.: *See*—
Knox, Lloyd C.; and Nickles, Robert B., Jr., 4,279,266, Cl. 137-68.00R.

Nicolas, Jacques: *See*—
Guillaume, Paul; Karinthi, Pierre; and Nicolas, Jacques, 4,279,208, Cl. 110-346.000.

Nielson, Niel E.; Kreiling, Ronald L.; Hill, Robert C.; and Nice, Ralph A., to Arco Environmental Company. Wastewater treatment system including multiple stages of alternate aerobic-anerobic bioreactors in series. 4,279,753, Cl. 210-605.000.

Nieuwkamp, Johannes G. M., to Stamicarbon B.V. Process for preparing 2-pyrrolidones. 4,279,820, Cl. 260-326.5FM.

Nihei, Masayasu: *See*—
Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, 4,280,137, Cl. 358-101.000.

Niihara, Koichi: *See*—
Hirai, Toshio; and Niihara, Koichi, 4,279,689, Cl. 156-614.000.

Nikolov, Dobrin V.: *See*—
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, 4,279,742, Cl. 209-166.000.

Nintendo Co., Ltd.: *See*—
Yokoi, Gunpei, 4,279,417, Cl. 273-1.00E.

Nippon Electric Co., Ltd.: *See*—
Nishida, Kazunori, 4,280,079, Cl. 315-169.400.
Ohnishi, Yoshitake; Itoh, Masaki; Mizuno, Kenji; and Gokan, Hiroshi, 4,279,986, Cl. 430-280.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Yokoyama, Kenji, 4,280,102, Cl. 330-85.000.

Nippon Kogaku K.K.: *See*—
Takahama, Akio; and Hatano, Tatsuro, 4,280,057, Cl. 250-551.000.

Nippon Soken, Inc.: *See*—
Nara, Akio; Takagi, Shigeru; and Matsui, Kazuma, 4,279,864, Cl. 422-179.000.

Nippon Stainless Steel Co., Ltd.: *See*—
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Nippon Telegraph and Telephone Public Corporation: *See*—
Fujiwara, Koichi; Yamauchi, Coro; Arita, Kishio; and Tsurumi, Shigeyuki, 4,279,649, Cl. 75-173.00A.
Nonogaki, Saburo; and Hatano, Yoshio, 4,279,985, Cl. 430-280.000.

Nippondenso Co., Ltd.: *See*—
Nakamura, Yasuhiko; and Yamakawa, Yoshio, 4,279,630, Cl. 55-316.000.

Nishida, Chikamasa: *See*—
Doi, Toshiaki; Suematsu, Shigeru; Nishida, Chikamasa; and Hiranuma, Hiroshi, 4,279,698, Cl. 176-22.000.

Nishida, Kazunori, to Nippon Electric Co., Ltd. Driving system for a plasma display panel. 4,280,079, Cl. 315-169.400.

Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, to Olympus Optical Co., Ltd. Electrophotographic sensitizing screen. 4,279,980, Cl. 430-68.000.

Nishikido, Joji; Fukuoka, Yohei; and Tamura, Nobuhiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Hydroxamic acid derivative and method of preparing metoclopramide using same. 4,279,836, Cl. 260-500.50H.

Nishikubo, Yasuhiko; and Sekine, Mitsuo, to Citizen Watch Co., Ltd. Electronic alarm timepiece. 4,280,210, Cl. 368-73.000.

Nishio, Shinji, to NGK Spark Plug Co., Ltd. Solid electrolytic material and use thereof. 4,279,974, Cl. 429-104.000.

Nissin Kogyo Kabushiki Kaisha: *See*—
Mizusawa, Mitsutoyo, 4,279,447, Cl. 303-6.00C.

Nitto Electric Industrial Co., Ltd.: *See*—
Urahama, Yoshiaki; and Numoto, Tetuo, 4,279,213, Cl. 116-200.000.

Nix, Donald F.: *See*—
Rivette, Denni F.; Meyer, Burton C.; and Nix, Donald F., 4,279,100, Cl. 46-179.000.

Nobis, Peter: *See*—
Buchmuller, Jurgen; Nobis, Peter; and Volker, Wolfgang, 4,279,626, Cl. 55-204.000.

Noble, Kenneth E., Jr.: *See*—
Noble, Kenneth E., Sr.; and Noble, Kenneth E., Jr., 4,279,704, Cl. 202-175.000.

Noble, Kenneth E., Sr.; and Noble, Kenneth E., Jr. Dry cleaning still apparatus. 4,279,704, Cl. 202-175.000.

Nomura, Yasushi, to Citizen Watch Co., Ltd. Electronic timepiece. 4,280,208, Cl. 368-66.000.

Nonogaki, Saburo; and Hatano, Yoshio, to Nippon Telegraph and Telephone Public Corporation; and Hitachi, Ltd. Photopolymer imaging using epoxy and bromine containing ethylenically unsaturated compounds. 4,279,985, Cl. 430-280.000.

Norrell, Donald L., to Minnesota Mining and Manufacturing Company. Non-linear, multi-speed, bi-directional facsimile subscan drive control. 4,280,145, Cl. 358-289.000.

Norris, Alan H., to WWG Industries, Inc. Self twist yarn and method and apparatus for making such yarns. 4,279,120, Cl. 57-204.000.

Norris, Geoffrey L. F.: *See*—
Davies, David H.; and Norris, Geoffrey L. F., 4,279,894, Cl. 424-122.000.

Norris, Philip R.: *See*—
Cocco, Vincent L.; Norris, Philip R.; and Wareham, Richard R., 4,279,503, Cl. 355-45.000.

Norsk Hydro a.s.: *See*—
Lande, Harald; and Johannessen, Leif, 4,279,529, Cl. 403-246.000.

North American Philips Corporation: *See*—
Tanka, David M.; and Reynolds, Thomas G., 4,280,162, Cl. 361-45.000.

Northern Telecom Limited: *See*—
Colombini, Ettore, 4,279,464, Cl. 350-96.190.

Northrop Corporation: *See*—
Stappaerts, Eddy A., 4,280,109, Cl. 331-94.50N.

Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Achevs, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., to Institute po Zashtita na Metalite ot Korroziya. Combined brightener in sulfamate silver electroplating baths. 4,279,708, Cl. 204-46.00R.

Noz, Francis X. Equipment for continuous plating. 4,279,730, Cl. 204-206.000.

NRM Corporation: *See*—
Singh, Anand P., 4,279,438, Cl. 294-88.000.

Numata, Tatsuo: *See*—
Ishida, Kohji; and Numata, Tatsuo, 4,280,101, Cl. 329-167.000.

Numoto, Tetuo: *See*—
Urahama, Yoshiaki; and Numoto, Tetuo, 4,279,213, Cl. 116-200.000.

Numusaki, Yoso: *See*—
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., to Schering Aktiengesellschaft. 1,3,4-Thiadiazole-2-carboxylic acid derivatives, process for making the same and fungicidal and nematocidal compositions containing same. 4,279,907, Cl. 424-248.510.

Nystrand, Ernst D., to Paper Converting Machine Company. Method of lapping webs. 4,279,411, Cl. 270-39.000.

Oakland Corporation, The: *See*—
Wallace, Richard B., 4,279,943, Cl. 427-57.000.

O'Beirne, Andrew J.: *See*—
Lindsay, Gene K.; and O'Beirne, Andrew J., 4,279,774, Cl. 252-408.000.

Occidental Oil Shale, Inc.: *See*—
Cha, Chang Y., 4,279,302, Cl. 166-251.000.
Kilburn, James, 4,279,444, Cl. 299-2.000.

Occidental Research Corporation: *See*—
Woinsky, Samuel G., 4,279,125, Cl. 60-641.500.

Ochs, Charles S.: *See*—
Roberts, Cecil P.; and Ochs, Charles S., 4,279,115, Cl. 53-314.000.

O'Connor, Jeane: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Oda, Akira: *See—*
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.

Odor Control Systems, Inc.: *See—*
Horst, Ronald A.; and Hedrich, Ross R., 4,279,716, Cl. 204-149.000.

Ogasawara, Norio: *See—*
Tsuzuki, Kunihiko; Ogasawara, Norio; and Ema, Shigeo, 4,279,619, Cl. 44-56.000.

Ogawa, Mototugu, to Olympus Optical Co., Ltd. Film takeup device for an endoscope having a camera housed in a distal end portion of an endoscope sheath. 4,279,486, Cl. 354-62.000.

Ogawa, Yutaka; Takehara, Toshio; and Asami, Seiichi, to NGK Insulators, Inc. Method for producing cordierite ceramic honeycomb structural bodies. 4,279,849, Cl. 264-63.000.

Ogi, Keiji; Sasaki, Takashi; and Tosaka, Yasuo, to Konishiroku Photo Industry Co., Ltd. Light-sensitive, direct positive silver halide photographic material. 4,279,987, Cl. 430-409.000.

Ohishi, Michiro: *See—*
Shono, Tetsuji; Goto, Kazuo; and Ohishi, Michiro, 4,279,489, Cl. 354-155.000.

Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; Kaupmann, Wilhelm; and Heinemann, Henning, to Kali-Chemie Pharma GmbH. 3-Amino-1-benzoxepine derivatives and their salts and pharmaceutical compositions thereof. 4,279,904, Cl. 424-246.000.

Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; and Kaupmann, Wilhelm, to Kali-Chemie Pharma GmbH. 1-Benzoxepin-5 (2H)-one derivatives and pharmaceutical compositions. 4,279,905, Cl. 424-246.000.

Ohmori, Akio: *See—*
Sueoka, Akinori; Okamoto, Takehiko; Ohmori, Akio; Kawai, Syuji; and Ueda, Minoru, 4,279,752, Cl. 210-500.200.

Ohmukai, Yoshimi; Tomisawa, Takeshi; and Kawasaki, Yoshitaka, to Matsushita Electric Industrial Co., Ltd. Combustion device for liquid fuels. 4,279,589, Cl. 431-328.000.

Ohnishi, Yoshitake; Itoh, Masaki; Mizuno, Kenji; and Gokan, Hiroshi, to Nippon Electric Co., Ltd. Negative resist and radical scavenger composition with capability of preventing post-irradiation polymerization. 4,279,986, Cl. 430-280.000.

Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, to Ricoh Company, Ltd. Electrophotographic elements containing trisazo compounds. 4,279,981, Cl. 430-73.000.

Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, to Kubota Ltd. Method of forming a socket end on a plastic pipe and a molding device for use of the method. 4,279,853, Cl. 264-230.000.

Ohyama, Noboru: *See—*
Kodama, Fumio; and Ohyama, Noboru, 4,279,952, Cl. 428-36.000.

Ohzeki, Toshio; and Semba, Takanori, to Argus Chemical Corporation. Alkylene-bis-thioalkanoic acid amide stabilizers for synthetic resins and synthetic resin compositions containing the same. 4,279,805, Cl. 260-45.9NC.

Oi, Tetsu: *See—*
Takagi, Kazumasa; Fukazawa, Tokuumi; and Oi, Tetsu, 4,279,772, Cl. 252-301.40F.

Oil States Rubber Company: *See—*
Landers, Don B., 4,279,546, Cl. 405-225.000.

Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, to Yamanouchi Pharmaceutical Co., Ltd. Process for production of aminoglycoside antibiotics. 4,279,997, Cl. 435-80.000.

Okada, Hisao: *See—*
Mogi, Takao; Ishigaki, Yoshio; and Okada, Hisao, 4,280,139, Cl. 358-165.000.

Okahara, Tetsushi: *See—*
Kamo, Izumi; and Okahara, Tetsushi, 4,279,660, Cl. 106-281.00R.

Okajima, Kazuhiko: *See—*
Yoshikawa, Ryoichi; Okajima, Kazuhiko; Nakahara, Shunichi; and Nakayama, Sumio, 4,279,494, Cl. 354-288.000.

Okamoto, Takehiko: *See—*
Sueoka, Akinori; Okamoto, Takehiko; Ohmori, Akio; Kawai, Syuji; and Ueda, Minoru, 4,279,752, Cl. 210-500.200.

Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Takahashi, Soshiro, to Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Sato, Susumu. N-(2-Substituted-4-pyridyl)ureas and thioureas as well as plant growth regulators containing same, and method for using compounds as plant growth regulators. 4,279,639, Cl. 71-94.000.

Okamura, Kiyohito: *See—*
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,279,654, Cl. 106-39.600.

Okamura, Noriaki: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.

Okano, Hiroshi; and Gunji, Yoshihisa, to Toyota Jidosha Kogyo Kabushiki Kaisha. Rotating speed detecting device of a turbocharger. 4,279,576, Cl. 417-407.000.

Okano, Takashi, to Universal Pioneer Corporation. Focussing lens servo driving device for optical information reading device. 4,280,215, Cl. 369-45.000.

Okawa, Masahisa: *See—*
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Okubo, Masao: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Okuda, Nobuo: *See—*
Hidai, Yutaka; and Okuda, Nobuo, 4,280,186, Cl. 364-518.000.

Okumura, Kenichiro: *See—*
Gotou, Makoto; Kobayashi, Kazutsugu; and Okumura, Kenichiro, 4,280,072, Cl. 310-67.00R.

Okumura, Masamitsu: *See—*
Tobita, Yuichi; and Okumura, Masamitsu, 4,279,233, Cl. 123-519.000.

Okumura, Takeo: *See—*
Horin, Shoji; Hayashi, Shizuo; and Okumura, Takeo, 4,279,262, Cl. 132-7.000.

Oldenkamp, Jerry: *See—*
Antonwitsch, Lucien M., 4,279,744, Cl. 209-214.000.

Ollivier, Christian: *See—*
Amicel, Charles; Biot, Bernard; Butruille, Yves; and Ollivier, Christian, 4,279,678, Cl. 156-169.000.

Olympus Optical Co., Ltd.: *See—*
Kimura, Tadashi, 4,279,484, Cl. 354-25.000.
Kinoshita, Kunio, 4,279,247, Cl. 128-6.000.
Nakahashi, Ken-ichi, 4,279,476, Cl. 350-414.000.
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,279,980, Cl. 430-68.000.
Ogawa, Mototugu, 4,279,486, Cl. 354-62.000.
Takagi, Takeji; and Hosaka, Kiyokazu, 4,279,245, Cl. 128-004.000.
Tojo, Tsutomu, 4,279,477, Cl. 350-414.000.

Ong, Sienling, to Hoechst Aktiengesellschaft. Process and agent for the coloring of textiles of polyester fibers. 4,279,615, Cl. 8-582.000.

Ono, Yuichi; Ito, Kazuhiro; Mori, Mitsuhiro; Aoki, Masaaki; and Kurata, Kazuhiro, to Hitachi, Ltd. Pleochroic light emitting diode and method of fabricating the same. 4,280,131, Cl. 357-17.000.

Onodera, Takayoshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Vibration absorbing device for motor vehicle. 4,279,428, Cl. 280-95.00R.

Oronzio deNora Impianti Elettrichimici S.p.A.: *See—*
Pellegri, Alberto, 4,279,731, Cl. 204-254.000.

Osada, Yoshihito; Bell, Alexis T.; and Shen, Mitchel M., to University of California, The Regents of the. Polymerization of inorganic element-containing monomers using plasma. 4,279,723, Cl. 204-164.000.

Osakabe, Yoshio; and Yasuda, Hiroshi, to Sony Corporation. Apparatus for scanning an addressable memory. 4,280,199, Cl. 365-236.000.

Osawa Precision Industries, Ltd.: *See—*
Ishibashi, Takao; and Osonoi, Kenjiro, 4,279,481, Cl. 352-171.000.

Osborne, William E., to Homexx International Corp. Electronic lock. 4,280,163, Cl. 361-172.000.

Osegowitsch, Viktor: *See—*
Stemme, Otto; Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,279,491, Cl. 355-27.000.

Osono, Takashi: *See—*
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Osonoi, Kenjiro: *See—*
Ishibashi, Takao; and Osonoi, Kenjiro, 4,279,481, Cl. 352-171.000.

Osuna-Diaz, Jesus M., to Incoe Corporation. Method and apparatus for individual control of injection mold shut-off bushings. 4,279,582, Cl. 425-159.000.

Ota, Sakae: *See—*
Kojima, Kenji; Ota, Sakae; Katsumata, Akio; Kameyama, Toshiaki; Watanabe, Toshio; and Koike, Tadao, 4,279,501, Cl. 355-15.000.

Ovcharov, Sava D.: *See—*
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.

Overhead Door Corporation: *See—*
Abbott, Ronald E., 4,279,050, Cl. 14-71.300.

Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung; and Bayer AG. Method of and apparatus for shutting down a gas-cooled nuclear reactor. 4,279,697, Cl. 176-22.000.

Owens-Corning Fiberglas Corporation: *See—*
Ahmad, Abu, 4,279,958, Cl. 428-215.000.

Owens-Illinois, Inc.: *See—*
Arndt, Carl; and Mueller, Martin, 4,279,585, Cl. 425-403.000.
Eigenmann, Ludwig, 4,279,534, Cl. 404-72.000.

Oy Kaukas AB: *See—*
Ukkonen, Keijo A.; and Simpura, Esa J., 4,279,827, Cl. 260-397.250.

Oyamada, Osamu: *See—*
Ebata, Sakae; Watari, Masahide; Hayakumo, Sunao; and Oyamada, Osamu, 4,279,701, Cl. 176-87.000.

P. H. Jones Hydrogeology, Inc.: *See—*
Jones, Paul H., 4,279,307, Cl. 166-314.000.

PACCAR Inc: *See—*
Stone, Thomas R., 4,279,321, Cl. 180-89.140.

Packer, Marvin, to RCA Corporation. Method for releasing printed wiring boards from printed wiring board racks. 4,279,073, Cl. 29-832.000.

Pagani, Hermes; Parenti, Francesco; Coronelli, Carolina; and Tamoni, Giorgion, to Gruppo Lepetit S.p.A. Biologically pure culture. 4,280,001, Cl. 435-253.000.

Pairis, Raul R. Interchangeable dado shaft assembly for circular saws. 4,279,280, Cl. 144-1.00F.

Palazzolo, Paul H.; and Dinardo, Joseph J. Ceiling mirror assembly. 4,279,110, Cl. 52-302.000.

Palm, John A.: *See—*
Greskovich, Charles D.; Prochazka, Svante; and Palm, John A., 4,279,656, Cl. 106-73.500.

Papadopulos, Michael S., to BICC Limited. Electric cable installations. 4,280,014, Cl. 174-14.00R.

Paparizos, Christos: *See—*
Velenyi, Louis J.; Paparizos, Christos; and Dolhyj, Serge R., 4,279,829, Cl. 260-429.900.

Paper Converting Machine Company: *See—*
Nystrand, Ernst D., 4,279,411, Cl. 270-39.000.

Paradiso, Mary R.: *See—*
Henkel, Herbert W.; and Paradiso, Mary R., 4,279,891, Cl. 424-73.000.

Pardikes, Dennis G., to Nalco Chemical Company. Settling column for use with solids monitor. 4,279,759, Cl. 210-709.000.

Parenti, Francesco: *See—*
Pagani, Hermes; Parenti, Francesco; Coronelli, Carolina; and Tamoni, Giorgion, 4,280,001, Cl. 435-253.000.

Parker-Hannifin Corporation: *See—*
Leutz, Donald C., 4,279,746, Cl. 210-130.000.

Parker, Roy A.: *See—*
MacGregor, Cline J.; and Parker, Roy A., 4,279,799, Cl. 260-37.00N.

Parker, Thomas S.: *See—*
Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., 4,279,898, Cl. 424-217.000.

Passafiume, Anthony, to Johnson & Johnson Baby Products Company. Method and apparatus for partitioning and shaping a fibrous batt. 4,279,369, Cl. 225-3.000.

Pastura, Albino; Kelbch, Gerhard; and Hulsmann, Hans-Leo, to Dynamit Nobel Aktiengesellschaft. Method of removing chlorinated phenol impurities. 4,280,012, Cl. 568-755.000.

Patentex S.A.: *See—*
Lacoste, Francois R., 4,279,418, Cl. 273-73.00D.

Paul B. Elder Company: *See—*
Boschetti, Armando; and Snoek, David J., 4,279,254, Cl. 128-395.000.

Paul, Donald G.; and Berriman, Lester P., to Dresser Industries, Inc. Fine particle separation apparatus. 4,279,627, Cl. 55-238.000.

Paul, Volker: *See—*
Bonse, Gerhard; Blank, Heinz U.; Brandes, Wilhelm; and Paul, Volker, 4,279,921, Cl. 424-285.000.

Pavlov, Leonid V.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Payne, Robert H.; and Rackley, Robert L., to Du Pont de Nemours, E. I., and Company. Tri- or tetra-locular paint brush bristles. 4,279,053, Cl. 15-159.00A.

Pearce, Arnold P., to Flameless Furnaces Limited. Feed of material to fluidized beds. 4,279,222, Cl. 122-4.00D.

Pearsall, Harold I.: *See—*
Peck, Kenneth E., Jr.; and Pearsall, Harold I., 4,279,277, Cl. 140-92.200.

Peck, Kenneth E., Jr.; and Pearsall, Harold I., to Globe Tool & Engineering Company, The. Apparatus for manufacturing a dynamolelectric field member. 4,279,277, Cl. 140-92.200.

Pecoraro, Theresa: *See—*
Chianelli, Russell R.; and Pecoraro, Theresa, 4,279,737, Cl. 208-217.000.

Peeples, Dick E.; and Lohrbach, Mervin, to Champion International Corporation. Carton with self-locking top and bottom closure flaps and blank therefor. 4,279,377, Cl. 229-39.00R.

Peeples, Dick E.: *See—*
Lohrbach, Mervin; and Peeples, Dick E., 4,279,379, Cl. 229-39.00R.

Pellegri, Alberto, to Oronzio deNora Impianti Elettrichimici S.p.A. Novel electrolyzer. 4,279,731, Cl. 204-254.000.

Pellus, Gilbert: *See—*
Blanc, Jacques; Coulon, Andre; and Pellus, Gilbert, 4,279,706, Cl. 204-26.000.

Pemberton, Bernard E. Process of making signatures from preprinted webs for the manufacture of magazines or the like. 4,279,409, Cl. 270-5.000.

Pembroke, Richard W.: *See—*
Lobo, Mark A.; and Pembroke, Richard W., 4,279,386, Cl. 242-68.300.

Perez, Sergio J. Coffee dispenser contained inside a wall mounted bracket. 4,279,364, Cl. 222-162.000.

Perfection Corporation: *See—*
Alewitz, Sam, 4,279,435, Cl. 285-242.000.

Perhacs, Leslie, Jr.: *See—*
Barnes, George A.; and Perhacs, Leslie, Jr., 4,279,419, Cl. 273-87.400.

Perkins, Stephen P.; and Wormser, Alex F., to Wormser Engineering, Inc. Storage. 4,279,205, Cl. 110-245.000.

Perko, Inc.: *See—*
Hollenbeck, Leroy F., Jr., 4,280,028, Cl. 200-44.000.

Pervyshin, Alexandr N.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

PES Photographic Equipment Service Inc.: *See—*
Jaggi, Hans; Mathison, Pat; and DeBartolo, Paul, 4,279,055, Cl. 15-302.000.

Petaja, Danny A. Emergency locator beacon for skis. 4,279,433, Cl. 280-605.000.

Peters, Ronald L.: *See—*
Col, Martin H.; and Peters, Ronald L., 4,279,118, Cl. 56-329.000.

Petersen, Donald J.: *See—*
White, George H.; and Petersen, Donald J., 4,279,673, Cl. 156-39.000.

Peterson, Charles M.; and Lymburner, Frank M., to Harry S. Peterson Co., Inc. Roadway expansion joint. 4,279,533, Cl. 404-68.000.

Peterson, David: *See—*
Halle, Reidar; Peterson, David; and Lewis, Roger N., 4,279,831, Cl. 260-453.0RZ.

Petrolite Corporation: *See—*
Unmuth, George E., 4,279,659, Cl. 106-230.000.

Pfizer Inc.: *See—*
Campbell, Simon F., 4,279,910, Cl. 424-251.000.

Pfuntner, Richard A.: *See—*
Wyler, John S.; and Pfuntner, Richard A., 4,279,168, Cl. 73-861.350.

Phillips, Orville. Decorative panel and hanging device therefor. 4,279,086, Cl. 40-152.100.

Phillips Petroleum Company: *See—*
Bertus, Brent J.; McKay, Dwight L.; and Mark, H. Wayne, 4,279,735, Cl. 208-113.000.
Cheng, Paul J., 4,279,881, Cl. 423-456.000.
Reusser, Robert E., 4,279,621, Cl. 44-72.000.
Taylor, Raymond C., 4,279,607, Cl. 493-167.000.

Piarulli, Vincent J.: *See—*
Amorese, Franklyn J.; and Piarulli, Vincent J., 4,279,356, Cl. 220-314.000.

Picker Corporation: *See—*
Engdahl, Lawrence W.; and Deans, Allan J., 4,280,051, Cl. 250-363.00S.

Pierdeed Limited: *See—*
Sheppard, Elvin N., 4,279,679, Cl. 156-196.000.

Pieroh, Ernst A.: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,279,907, Cl. 424-248.510.

Piersol, Jay L., to Armstrong World Industries, Inc. Process for forming friction materials. 4,279,696, Cl. 162-146.000.

Pioneer Electronic Corporation: *See—*
Ishida, Kohji; and Numata, Tatsuo, 4,280,101, Cl. 329-167.000.

Pitney Bowes Inc.: *See—*
Eckert, Alton B.; Duwel, Edward C.; and Soderberg, John H., 4,280,180, Cl. 364-464.000.
Jones, Howell A., Jr.; and McFiggans, Robert B., 4,280,179, Cl. 364-464.000.

Pitts, Charles D.; and Pitts, David A. Coal burning system. 4,279,206, Cl. 110-263.000.

Pitts, David A.: *See—*
Pitts, Charles D.; and Pitts, David A., 4,279,206, Cl. 110-263.000.

Piwonda, Fridolin: *See—*
Flaig, Ulrich; Piwonda, Fridolin; Stumpp, Gerhard; and Wessel, Wolf, 4,279,235, Cl. 123-569.000.

Plastic Techniques, Inc.: *See—*
Moore, Richard D., 4,279,749, Cl. 210-330.000.

Plate, John R.; and Lucas, James H., to Allis-Chalmers Corporation. Mechanical detent for three speed power shift transmission. 4,279,334, Cl. 192-3.570.

Platone, Edoardo: *See—*
Prevedello, Aldo; Brunelli, Maurizio; and Platone, Edoardo, 4,279,834, Cl. 260-464.000.

Pleickhardt, George C., to Illinois Tool Works Inc. Fastener strip. 4,279,341, Cl. 206-345.000.

Plessey Handel und Investments AG: *See—*
Turley, Wilfred H.; and Robinson, John A., 4,279,468, Cl. 350-96.210.

Plumb, Edwin W. Safety device having machine drive cam control. 4,279,335, Cl. 192-134.000.

Podany, Vaclav O.: *See—*
Right, Robert W.; McCord, Herbert W.; and Podany, Vaclav O., 4,280,123, Cl. 340-384.00E.

Polakowski, David R.: *See—*
Brown, Leon C.; Fitts, Uscoe J.; and Polakowski, David R., 4,279,504, Cl. 355-72.000.

Polaroid Corporation: *See—*
Baker, Philip G.; Fitch, John K.; and Vance, Henry T., Jr., 4,279,487, Cl. 354-79.000.
Bilofsky, Ruth C.; and Nestle, Mara O., 4,279,983, Cl. 430-228.000.
Cocco, Vincent L.; Norris, Philip R.; and Wareham, Richard R., 4,279,503, Cl. 355-45.000.
Eichinger, Gilbert M., 4,280,204, Cl. 367-116.000.
Silver, Bruce R., 4,280,152, Cl. 360-61.000.

Pollock, David C. I., to C-I-L Inc. Means for separation of gas and solids from waste mixed liquor. 4,279,754, Cl. 210-608.000.

Ponce, Fernando A.: *See—*
Scifres, Donald R.; Ponce, Fernando A.; Connell, G. A. Neville; and Streifer, William, 4,280,107, Cl. 331-94.50H.

Ponticello, Gerald S.: *See*—
Baldwin, John J.; and Ponticello, Gerald S., 4,279,913, Cl. 424-258.000.

Popov, Sergei S.: *See*—
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shianko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Poppinga, Bonno, to Robert Bosch GmbH. Multistage transistor amplifier. 4,280,103, Cl. 330-290.000.

Portinari, Antonio; and Longoni, Sergio, to Industrie Pirelli Societa per Azioni. Optical cable elements. 4,279,470, Cl. 350-96.230.

Pospelov, Boris S.; Bendersky, Alexandr F.; Kolesov, Jury A.; Nefediev, Yakov N.; Levkovich, Mikhail I.; and Asinovsky, Eduard N. Device for measuring angular position of a gear in a digital ignition system of an internal combustion engine. 4,280,165, Cl. 361-236.000.

Post, Larry K.: *See*—
Culbertson, Billy M.; and Post, Larry K., 4,279,833, Cl. 260-464.000.

Poston, Billy R.: *See*—
Gordy, Robert S.; Poston, Billy R.; and Sanders, David E., 4,280,218, Cl. 371-6.000.

Pott, Gerard T.; and Stuiver, Johannes C. M., to Shell Oil Company. Process for the preparation of a sulphided fluorine-containing nickel-tungsten catalyst for the conversion of hydrocarbons. 4,279,778, Cl. 252-439.000.

Potter, Bronson. Flashlight and signalling apparatus. 4,280,168, Cl. 362-35.000.

Pottorff, Donald R.; and Galmiche, Rene G., to Walter Kidde & Company, Inc. Double-acting disc brake. 4,279,330, Cl. 188-71.700.

Powell, J. Laurence; and Powell, Richard A. Vibrometer. 4,279,159, Cl. 73-651.000.

Powell, Richard A.: *See*—
Powell, J. Laurence; and Powell, Richard A., 4,279,159, Cl. 73-651.000.

Powers, Robert W.; and Bielawski, John C., to General Electric Company. Electroforming composite beta; mainly beta''-alumina articles. 4,279,725, Cl. 204-181.00F.

PPG Industries, Inc.: *See*—
Lord, Tom J.; and Snyder, William V., 4,279,071, Cl. 29-717.000.

Prater, Perry: *See*—
Wymer, Robert L.; and Prater, Perry, 4,279,628, Cl. 55-238.000.

Prechter, Heinz C.; and Kaltz, Milton C., to American Sunroof Corporation. Air deflector and pivotable roof vent panel apparatus for vehicle roofs. 4,279,441, Cl. 296-218.000.

Pregnall, Lester W. Versatile helmsman chair for a yacht. 4,279,398, Cl. 248-405.000.

Prestidge, Ross L.: *See*—
Hearn, Milton T. W.; and Prestidge, Ross L., 4,279,724, Cl. 204-180.00G.

Prevedello, Aldo; Brunelli, Maurizio; and Platone, Edoardo, to Anic S.p.A. Method for synthesizing dinitriles, products obtained thereby and their derivatives. 4,279,834, Cl. 260-464.000.

PRF Corporation: *See*—
Vitale, Joseph, 4,279,045, Cl. 5-497.000.

Price, Barry J.; Clitherow, John W.; and Bradshaw, John, to Allen & Hanburys Ltd. Aminoalkyl furan derivatives. 4,279,819, Cl. 260-326.50S.

Price, Barry J.: *See*—
Martin-Smith, Michael; Price, Barry J.; Bradshaw, John; and Clitherow, John W., 4,279,911, Cl. 424-251.000.

Price, Gene R.: *See*—
Leniger, David J., 4,279,128, Cl. 62-238.600.

Price, James B.: *See*—
Goldman, Jon C.; McMillan, Larry D.; and Price, James B., 4,279,947, Cl. 427-255.200.

Priestley, Anthony J.: *See*—
Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., 4,279,756, Cl. 210-667.000.

Prince, George T.: *See*—
Breed, Michal A.; and Prince, George T., 4,279,175, Cl. 74-473.00R.

Princevalle, Peter. Heat absorbing and radiating device for electric stoves. 4,280,044, Cl. 219-462.000.

Pringle, William L., to United States Steel Corporation. Constant velocity joint. 4,279,131, Cl. 64-21.000.

Prochazka, Svante: *See*—
Greskovich, Charles D.; Prochazka, Svante; and Palm, John A., 4,279,656, Cl. 106-73.500.

Procter & Gamble Co., The: *See*—
Strobel, Rudolf G. K.; and Eich, Richard A., 4,279,937, Cl. 426-424.000.

Produits Chimiques Ugine Kuhlmann: *See*—
Giet, Claude, 4,279,880, Cl. 423-445.000.

Propst, Robert L., to Herman Miller, Inc. Lightweight stackable pallet. 4,279,204, Cl. 108-53.300.

Propst, Robert L.; Randolph, Travis M.; and Reyda, Theodore M., to Herman Miller, Inc. Combination acoustic conditioner and light fixture. 4,280,019, Cl. 179-1.50M.

Prunenec, Paul: *See*—
Bretaudiere, Jean-Pierre; and Prunenec, Paul, 4,279,862, Cl. 422-72.000.

Pulliam, William D. Cleaning apparatus. 4,279,263, Cl. 134-111.000.

Pullman Incorporated: *See*—
Marulic, Walter J., 4,279,203, Cl. 105-321.000.

Puma, Bernard: *See*—
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, 4,279,634, Cl. 65-182.300.

Pungas, Toom A. Reference voltage source. 4,280,088, Cl. 323-304.000.

Pursell, Grant W. Dispensing of hygienic fluids. 4,279,362, Cl. 222-94.000.

Pyle, Donald L. Dual tractor road grader with double arched center frame. 4,279,312, Cl. 172-789.000.

R. J. Harvey Instruments Corp.: *See*—
Maines, Robert Q., 4,279,506, Cl. 356-39.000.

Rackley, Robert L.: *See*—
Payne, Robert H.; and Rackley, Robert L., 4,279,053, Cl. 15-159.00A.

Ralph M. Parsons Company: *See*—
Beavon, David K., 4,279,882, Cl. 423-574.00R.

Ralston Purina Company: *See*—
Cho, Iue C., 4,279,939, Cl. 426-583.000.

Ramey, Raymond W. Hydraulic propulsion unit. 4,279,548, Cl. 405-283.000.

Ramirez, Peter R.; and Canterbury, Bradford, to American Optical Corporation. Apparatus and method for making cast ophthalmic lenses. 4,279,401, Cl. 249-139.000.

Ramm, Peter J.: *See*—
Ager, Ian R.; and Ramm, Peter J., 4,279,912, Cl. 424-258.000.

Rampf, Karl: *See*—
Schmucker, Erwin; and Rampf, Karl, 4,279,399, Cl. 249-2.000.

Rampf KG Formen GmbH & Co.: *See*—
Schmucker, Erwin; and Rampf, Karl, 4,279,399, Cl. 249-2.000.

Ramsey Engineering Company: *See*—
Erb, Tom L.; and Miller, Wendell D., 4,279,167, Cl. 73-861.250.

Randall, John J., Jr.: *See*—
Arora, Mulk A.; and Randall, John J., Jr., 4,279,714, Cl. 204-129.900.
Arora, Mulk A.; Randall, John J., Jr.; and Bernard, Walter J., 4,279,715, Cl. 204-129.900.

Randolph, Travis M.: *See*—
Propst, Robert L.; Randolph, Travis M.; and Reyda, Theodore M., 4,280,019, Cl. 179-1.50M.

Rank Organisation Limited, The: *See*—
Barnett, Roger C.; Sharpless, Robert G.; and Mossman, Colin F., 4,279,685, Cl. 156-509.000.

Ransom, Dennis K.: *See*—
Reese, Max G.; Ransom, Dennis K.; and Johnson, LaVell R., 4,279,885, Cl. 424-1.000.

Ransom, Stephen A.; Hohmann, Jere W.; and Nahmias, Clement, to Solid State Scientific, Inc. Multiplexing system for a solid state timing device. 4,280,212, Cl. 368-82.000.

Rasmussen, Elisabeth L.: *See*—
Felsvang, Karsten S.; Hansen, Ove E.; and Rasmussen, Elisabeth L., 4,279,873, Cl. 423-242.000.

Rathjen, Arthur H.: *See*—
Lee, Denis C.; and Rathjen, Arthur H., 4,279,259, Cl. 128-774.000.

Rattlingourd, Glen D., to Sperry Corporation. Digital timing recovery system. 4,280,099, Cl. 328-63.000.

Raytheon Company: *See*—
Lowenschuss, Oscar; and Gordon, Bruce E., 4,280,219, Cl. 375-4.000.
Steele, S. Robert, 4,279,670, Cl. 148-175.000.

RCA Corporation: *See*—
Abrahams, Marvin S.; and Blanc, Joseph, 4,279,688, Cl. 156-613.000.
Christopher, Todd J., 4,280,023, Cl. 369-43.000.
Dholakia, Anil R., 4,280,024, Cl. 369-219.000.
Packer, Marvin, 4,279,073, Cl. 29-832.000.
Rockett, Leonard R., Jr., 4,280,191, Cl. 364-807.000.
Villanyi, Sigmund T., 4,280,077, Cl. 313-402.000.

Reactive Metals & Alloys Corporation: *See*—
Jackman, Joseph R., 4,279,643, Cl. 75-58.000.
Jackman, Joseph R.; and Hanna, Wayne E., 4,279,650, Cl. 75-175.500.

Reba, Imants, to Crown Zellerbach Corporation. Cross-lapped web forming system. 4,279,610, Cl. 493-411.000.

Redken Laboratories, Inc.: *See*—
Tyson, Don R., 4,279,482, Cl. 353-65.000.

Reese, Edmund A.; White, Lionel S., Jr.; and McAlexander, Joseph C., III, to Texas Instruments Incorporated. Balanced input buffer circuit for semiconductor memory. 4,280,070, Cl. 307-279.000.

Reese, Max G.; Ransom, Dennis K.; and Johnson, LaVell R., to Becton Dickinson & Company. Solid phase assay. 4,279,885, Cl. 424-1.000.

Reflek Products, Incorporated: *See*—
Rigutto, Martin A., 4,279,594, Cl. 433-31.000.

Reflexite Corporation: *See*—
Rowland, William P., 4,279,471, Cl. 350-103.000.

Regie Nationale des Usines Renault: *See*—
Aubert, Paul, 4,279,268, Cl. 137-115.000.

Reichhold Chemicals, Incorporated: *See*—
Heller, David S., 4,279,964, Cl. 428-496.000.

Reijnhout, Cornelis M.: *See*—
Haes, Freddy; Hermes, Guillaume M. P. G.; and Reijnhout, Cornelis M., 4,279,253, Cl. 128-355.000.

Reisberg, Joseph: *See*—
Knapp, Randolph H.; Lawson, Jimmie B.; Reisberg, Joseph; Thigpen, David R.; and Hill, Harold J., 4,279,305, Cl. 166-307.000.

Relle, Zsuzsa: *See*—
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,915, Cl. 424-262.000.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

Remery, George F. M., to Single Buoy Moorings, Inc. Device for conveying a medium from means provided in a fixed position on a bottom below the water surface to a buoy body. 4,279,543, Cl. 405-195.000.

Renshaw, Governor K. Protective shield for arthrograms. 4,280,056, Cl. 250-515.000.

Research Foundation of the City University of New York: *See*—
Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., 4,279,898, Cl. 424-217.000.

Research Institute for Iron, Steel and Other Metals of the Tohoku University, The: *See*—
Hirai, Toshio; and Niihara, Koichi, 4,279,689, Cl. 156-614.000.

Restivo, Edward A. Portable spotting tool for carpets. 4,279,057, Cl. 15-415.00R.

Reuland, Joachim; and Dahlgrun, Rolf, to Hauni-Werke Korber & Co. KG. Method and apparatus for pinpointing the causes of malfunction of machines for the manufacture and/or processing of cigarettes or the like. 4,280,187, Cl. 364-552.000.

Reusser, Robert E., to Phillips Petroleum Company. Polyamines mixture for stabilizing certain hydrocarbons against oxidation. 4,279,621, Cl. 44-72.000.

Rex Industries Co., Ltd.: *See*—
Miyagawa, Fumiko; Ikenaka, Yoshiharu; and Sakaguchi, Makoto, 4,279,182, Cl. 82-28.00R.

Reyda, Theodore M.: *See*—
Propst, Robert L.; Randolph, Travis M.; and Reyda, Theodore M., 4,280,019, Cl. 179-1.50M.

Reynaud, Bernard: *See*—
Berger, Jean-Yves; Kostelitz, Michel; Reynaud, Bernard; and Egee, Raymond, 4,280,042, Cl. 219-121.0PT.

Reynolds Metals Company: *See*—
Holloway, Fred W., Jr., 4,279,344, Cl. 206-631.000.

Reynolds, Thomas G.: *See*—
Tanka, David M.; and Reynolds, Thomas G., 4,280,162, Cl. 361-45.000.

Rezanka, Ivan; and Lindblad, Nero R., to Xerox Corporation. Electrophotographic cleaning apparatus. 4,279,499, Cl. 355-15.000.

Rhone-Poulenc Industries: *See*—
Joubert, Daniel; and Vrisakis, Georges, 4,279,766, Cl. 252-174.250.

Ri-El Richerche Eiettroniche S.p.A.: *See*—
Righi, Nardino; and Ferrari, Mario C., 4,279,170, Cl. 74-10.330.

Ricci, Giorgio, to Biodata S.p.A. Means for accelerating precipitation in immunoassay and immunoassay method. 4,279,999, Cl. 435-183.000.

Richter Gedeon Vegyeszeti Gyar Rt.: *See*—
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,915, Cl. 424-262.000.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

Richter Gedeon Vegyszeti Gyar Rt.: *See*—
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.

Ricoh Company, Ltd.: *See*—
Eda, Tadahiro; Tatsumi, Susumu; Imai, Chikara; and Koichi, Yasushi, 4,279,498, Cl. 355-14.00D.
Kojima, Kenji; Ota, Sakae; Katsumata, Akio; Kameyama, Toshiaki; Watanabe, Toshio; and Koike, Tadao, 4,279,501, Cl. 355-15.000.
Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, 4,279,981, Cl. 430-73.000.
Satomi, Toyokazu, 4,279,497, Cl. 355-8.000.

Riedel, Tilo, to S. A. Etablissements Francois Salomon & Fils. Ski brake. 4,279,434, Cl. 280-605.000.

Riesen, Peter, to Sulzer Brothers Limited. Laying-in comb for warp knitting machines. 4,279,133, Cl. 66-84.00R.

Riggs, Olen L., Jr., to Kerr-McGee Corporation. Process for oxidizing a metal of variable valence by constant current electrolysis. 4,279,705, Cl. 204-1.500.

Righi, Nardino; and Ferrari, Mario C., to Ri-El Richerche Eiettroniche S.p.A. Pushbutton tuner. 4,279,170, Cl. 74-10.330.

Right, Robert W.; McCord, Herbert W.; and Podany, Vaclav O., to General Signal Corporation. Multitone signaling device. 4,280,123, Cl. 340-384.00E.

Rigutto, Martin A., to Reflek Products, Incorporated. Dental hand mirror. 4,279,594, Cl. 433-31.000.

Riley, Harry J., to S. W. Hart & Co. Pty. Ltd. Method of attaching a solar collector plate to a tube water way. 4,279,066, Cl. 29-157.30C.

Riley, Richard L.; Douglas, George H.; and Yelnosky, John, to William H. Rorer, Inc. Method of lowering blood pressure. 4,279,928, Cl. 424-324.000.

Ringel, Helmut; Zimmer, Erich; and Abdelmonem, Nabil, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Method of producing weakly acidic cation exchange resin particles charged with uranyl ions. 4,279,866, Cl. 423-7.000.

Ringle, Terry W., to International Business Machines Corporation. Power recovery apparatus for an electric typewriter. 4,279,523, Cl. 400-279.000.

Rite Autotronics Corporation: *See*—
Schwartz, Edwin L.; and Robson, George E., 4,279,355, Cl. 220-300.000.

Ritter, Allen M.: *See*—
Dinger, Edward H.; and Ritter, Allen M., 4,280,081, Cl. 318-6.000.

Rivette, Denni F.; Meyer, Burton C.; and Nix, Donald F., to Marvin Glass & Associates. Sounding toy. 4,279,100, Cl. 46-179.000.

Rizzello, Frank. Phonograph decoupling apparatus. 4,279,423, Cl. 369-247.000.

Roach, Jack W., to Kerr-McGee Refining Corporation. Process for separating bituminous materials. 4,279,739, Cl. 208-309.000.

Robert Bosch GmbH: *See*—
Arnold, Herbert; and Gerhards, Gerd, 4,279,229, Cl. 123-359.000.
Flaig, Ulrich; Piwonda, Fridolin; Stumpp, Gerhard; and Wessel, Wolf, 4,279,235, Cl. 123-569.000.
Jesse, Erich; and Leussink, Reinhard, 4,280,166, Cl. 361-253.000.
Kuhn, Edgar; Kohl, Walter; and Schramm, Gunter, 4,280,161, Cl. 361-18.000.
Poppinga, Bonno, 4,280,103, Cl. 330-290.000.
Schuster, Gregor; Schmid, Johann; Schmuck, Erwin; and Rose, Klaus, 4,279,232, Cl. 123-516.000.
Straubel, Max; and Voit, Willi, 4,279,385, Cl. 239-90.000.
Wessel, Wolf; and Handtmann, Dieter, 4,279,146, Cl. 73-118.000.
Yotsumoto, Toshiyuki; Ujita, Tuginobu; and Shinohara, Eisaku, 4,279,324, Cl. 180-336.000.

Roberts, Cecil P.; and Ochs, Charles S., to Anchor Hocking Corporation. High speed straight line container sealing machine. 4,279,115, Cl. 53-314.000.

Robinson, John A.: *See*—
Turley, Wilfred H.; and Robinson, John A., 4,279,468, Cl. 350-96.210.

Robinson, Michael, to Laporte Industries Limited. Process for upgrading iron-containing materials. 4,279,640, Cl. 75-1.00R.

Robinson, William W. Garbage can assembly with lid anchoring means. 4,279,357, Cl. 220-318.000.

Robson, George E.: *See*—
Schwartz, Edwin L.; and Robson, George E., 4,279,355, Cl. 220-300.000.

Roccaforte, Harry I., to Champion International Corporation. Carton with unobtrusive hanging panel. 4,279,376, Cl. 229-38.000.

Rockett, Leonard R., Jr., to RCA Corporation. Quantizing circuits. 4,280,191, Cl. 364-807.000.

Rockwell International Corporation: *See*—
Beguwala, Moiz M. E.; and Erdmann, Francis M., 4,279,069, Cl. 29-571.000.

Rodarte, Jesse. Hand tool for use in sanding louver boards. 4,279,103, Cl. 51-389.000.

Roderick, John J.: *See*—
Allan, John L. H.; Finestone, Arnold B.; and Roderick, John J., 4,279,809, Cl. 260-45.95C.

Roethlein, Richard J.: *See*—
Breault, Richard D.; Goller, Glen J.; Roethlein, Richard J.; and Sprecher, Gilbert C., 4,279,970, Cl. 429-35.000.

Roettele, Donald L.; and Yohpe, William E., to ComGeneral Corporation. Radar detector. 4,280,223, Cl. 375-93.000.

Rogers, James B., to Dresser Industries, Inc. Method of making chain. 4,279,122, Cl. 59-10.000.

Rohlcke, Friedrich-Wilhelm. Wire supporting means for orthodontic purposes. 4,279,593, Cl. 433-8.000.

Rohm GmbH: *See*—
Hitzler, Otto; and Wunderlich, Winfried, 4,279,719, Cl. 204-159.230.

Rohm and Haas Company: *See*—
Falgiatore, Dominic R.; and Emmons, William D., 4,279,959, Cl. 428-288.000.
Lewis, Sheldon N.; Miller, George A.; and Law, Andrew B., 4,279,762, Cl. 252-47.500.

Rohrbach, Roger P.: *See*—
McClure, William F.; and Rohrbach, Roger P., 4,279,346, Cl. 209-582.000.

Roll Former Corporation: *See*—
Stellrecht, Ewald A., 4,279,211, Cl. 113-55.000.

Rolls-Royce Limited: *See*—
Avery, Peter, 4,279,575, Cl. 416-244.00A.
Gilkison, John J., 4,280,040, Cl. 219-104.000.

Roman Machine Co.: *See*—
Martin, Merritt W., Jr., 4,279,587, Cl. 425-531.000.

Ronning Engineering Company, Inc.: *See*—
Ronning, Richard L., 4,279,556, Cl. 414-218.000.

Ronning, Richard L., to Ronning Engineering Company, Inc. Auger airlock assembly having product cutting knife. 4,279,556, Cl. 414-218.000.

Roos, Ernst: *See*—
Jeblick, Werner; Roos, Ernst; Kempermann, Theo; and Abele, Manfred, 4,280,004, Cl. 521-89.000.

Roquette Freres: *See*—
Verwaerde, Francoise; Leleu, Jean-Bernard; and Huchette, Michel, 4,279,931, Cl. 426-48.000.

Rose, Donald K., to Hewlett-Packard Company. Planar and near planar magnetic bubble circuits. 4,280,195, Cl. 365-39.000.

Rose, Klaus: *See*—
Schuster, Gregor; Schmid, Johann; Schmuck, Erwin; and Rose, Klaus, 4,279,232, Cl. 123-516.000.

Rosenberg, Heinz J.: *See—*
Buchholz, Rainer; Zodrow, Rudolf; and Rosenberg, Heinz J., 4,279,687, Cl. 156-568.000.

Rosenblad, Gosta, to Generator Industri AB. Method of utilizing residual heat in the production of cellulose and an installation for carrying out the method. 4,279,126, Cl. 60-651.000.

Rosenkranz, Hans J.: *See—*
Schuster, Karl-Ernst; Rudolph, Hans; Mayer, Wolfram; and Rosenkranz, Hans J., 4,279,718, Cl. 204-159.150.

Rosenthal, Janice E.: *See—*
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., 4,279,099, Cl. 46-119.000.

Ross, Haldon, to AMF Incorporated. Single lever 10-speed bicycle shifter. 4,279,174, Cl. 74-473.00P.

Rosser, William J. N.: *See—*
Stewart, Clive E. E.; Rosser, William J. N.; and Ansell, Martin P., 4,279,785, Cl. 252-518.000.

Roussel Uclaf: *See—*
Ager, Ian R.; and Ramm, Peter J., 4,279,912, Cl. 424-258.000.
Buendia, Jean; and Vivat, Michel, 4,279,919, Cl. 424-279.000.
Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, 4,279,835, Cl. 260-465.00D.

Rowland, William P., to Reflexite Corporation. Retroreflector for road surfaces. 4,279,471, Cl. 350-103.000.

RPC Corporation: *See—*
Appleman, William S., 4,279,347, Cl. 212-147.000.

RSV-Gusto Engineering B.V.: *See—*
de Werk, Karel J. C., 4,279,545, Cl. 405-211.000.

Rudkovsky, Alexandr D.: *See—*
Lyakhevich, Genrikh D.; Belkevich, Petr I.; Rudkovsky, Alexandr D.; Sokolovsky, Alexandr E.; and Kirilchik, Alexandr I., 4,279,865, Cl. 422-187.000.

Rudolph, Hans: *See—*
Schuster, Karl-Ernst; Rudolph, Hans; Mayer, Wolfram; and Rosenkranz, Hans J., 4,279,718, Cl. 204-159.150.

Ruf, Wolfgang: *See—*
Stemme, Otto; Wagensonner, Eduard; and Ruf, Wolfgang, 4,280,142, Cl. 358-214.000.

Rusch, Heinz, to Willy Rusch GmbH & Co. KG. Tube for enteral treatment. 4,279,251, Cl. 128-348.000.

Ruscoe, Michael J. H.; Sarkar, Kshitindra M.; and Clegg, Maurice A., to Sherritt Gordon Mines Limited. Coins and similarly disc-shaped articles. 4,279,968, Cl. 428-677.000.

Rush-Presbyterian-St. Luke's Medical Center: *See—*
Andriacchi, Thomas P.; Galante, Jorge O.; and Hampton, Steven J., 4,279,042, Cl. 3-1.913.

Ruston, Donald A.: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Ruston, Donald Alan: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Ruston, Gloria I.: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Ruston, Terri Lynn: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Rutz, David A.: *See—*
Ryan, Edward J.; Rutz, David A.; and Lee, Jack W., 4,279,121, Cl. 57-258.000.

Ryan, Edward J.; Rutz, David A.; and Lee, Jack W., to United Technologies Corporation. Stranded nickel braze alloy preforms. 4,279,121, Cl. 57-258.000.

Rychlik, Alan F., executor: *See—*
Rychlik, Frank J., deceased; and Rychlik, Alan F., executor, 4,279,573, Cl. 417-53.000.

Rychlik, Frank J., deceased; and by Rychlik, Alan F., executor. High pressure pump. 4,279,573, Cl. 417-53.000.

Rydell, Edmund W. F. Machine for stacking panels. 4,279,555, Cl. 414-83.000.

Ryobi Ltd.: *See—*
Morimoto, Yoshinori, 4,279,387, Cl. 242-84.20G.

Rzeszewski, Theodore S., to Matsushita Electric Corporation of America. Phase locked loop system with improved acquisition. 4,280,104, Cl. 331-1.00A.

S. A. Etablissements Francois Salomon & Fils: *See—*
Riedel, Tilo, 4,279,434, Cl. 280-605.000.

S. Franzen Sohne (GmbH & Co.): *See—*
Milles, Peter, 4,279,136, Cl. 70-71.000.

S.S.O.S. Sub Sea Oil Services S.p.A.: *See—*
Santi, Giunio G., 4,280,183, Cl. 364-497.000.

S. W. Hart & Co. Pty. Ltd.: *See—*
Riley, Harry J., 4,279,066, Cl. 29-157.30C.

Sachs-Systemtechnik GmbH: *See—*
Brunken, Gerd; Eibl, Volker; and Fliege, Hans, 4,280,118, Cl. 340-147.0MD.

Sacks, Paul S.: *See—*
Cann, Peter L.; and Sacks, Paul S., 4,279,129, Cl. 62-278.000.

Sagaser, Thomas M.; and Mather, Joseph M., to Clark Equipment Company. Backhoe frame wedge mount. 4,279,566, Cl. 414-686.000.

Saito, Kiichi: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Saito, Shunji: *See—*
Misumi, Akira; and Saito, Shunji, 4,279,784, Cl. 252-513.000.

Saito, Yukio; Sekiya, Koichi; Takahashi, Masaaki; and Akiyama, Seigo, to Sankyo Company Limited. Method for measuring blood coagulation and device therefor. 4,279,616, Cl. 23-230.00B.

Sakaguchi, Makoto: *See—*
Miyagawa, Fumiko; Ikenaka, Yoshiharu; and Sakaguchi, Makoto, 4,279,182, Cl. 82-28.00R.

Sakaguchi, Masayuki: *See—*
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

Sakai, Kiyoshi: *See—*
Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, 4,279,981, Cl. 430-73.000.

Sakane, Toshio: *See—*
Tsunekawa, Tokuichi; Sakane, Toshio; and Taguchi, Tatsuya, 4,280,151, Cl. 360-33.000.

Sakoda, Shunsuke: *See—*
Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, 4,280,136, Cl. 358-93.000.

Sam's Well Service, Inc.: *See—*
Levy, Robert M.; and Matire, P. Jeffrey, 4,279,600, Cl. 434-219.000.

Sanchez, Moises G.; Ernest, Michael V.; and Laine, Norman R., to W. R. Grace & Co. Spheroidal alumina particles and catalysts employing the particles as a support. 4,279,779, Cl. 252-448.000.

Sanchez, Moises G.: *See—*
Hill, Richard N.; and Sanchez, Moises G., 4,279,877, Cl. 423-321.00R.

Sanda, Masaaki: *See—*
Koiso, Kazuhiro; Sanda, Masaaki; Hayashi, Mamoru; and Uesugi, Hiroaki, 4,279,454, Cl. 312-297.000.

Sanders, David E.: *See—*
Gordy, Robert S.; Poston, Billy R.; and Sanders, David E., 4,280,218, Cl. 371-6.000.

Sandvik Conveyor GmbH: *See—*
Froeschke, Reinhard, 4,279,579, Cl. 425-6.000.

Sangamo Weston, Inc.: *See—*
Tucker, Billy J., 4,279,513, Cl. 356-387.000.

Sankyo Company Limited: *See—*
Jojima, Teruomi; Takeshiba, Hideo; and Takahi, Yukiyoshi, 4,279,908, Cl. 424-248.550.
Saito, Yukio; Sekiya, Koichi; Takahashi, Masaaki; and Akiyama, Seigo, 4,279,616, Cl. 23-230.00B.

Sano, Shinichi: *See—*
Yamaguchi, Keiki; and Sano, Shinichi, 4,280,064, Cl. 307-149.000.

Santi, Giunio G., to S.S.O.S. Sub Sea Oil Services S.p.A. Gas analyzer. 4,280,183, Cl. 364-497.000.

Santo, Philip J. Flexible sheet securing apparatus. 4,279,061, Cl. 24-72.500.

Santo, Philip J. Drawer assembly. 4,279,455, Cl. 312-330.00R.

Sarin, Virender K.: *See—*
Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., 4,279,898, Cl. 424-217.000.

Sarkar, Kshitindra M.: *See—*
Ruscoe, Michael J. H.; Sarkar, Kshitindra M.; and Clegg, Maurice A., 4,279,968, Cl. 428-677.000.

Sasaki, Masaomi: *See—*
Ohta, Masafumi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Kozima, Akio; and Sasaki, Masaomi, 4,279,981, Cl. 430-73.000.

Sasaki, Takashi: *See—*
Ogi, Keiji; Sasaki, Takashi; and Tosaka, Yasuo, 4,279,987, Cl. 430-409.000.

Sasaki, Toshio: *See—*
Minato, Osamu; Masuhara, Toshiaki; Sasaki, Toshio; and Kubo, Masaharu, 4,280,065, Cl. 307-473.000.
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Satake Engineering Co., Ltd.: *See—*
Satake, Toshihiko, 4,279,261, Cl. 130-5.00B.

Satake, Toshihiko, to Satake Engineering Co., Ltd. Automatic safety device for hulling machine. 4,279,261, Cl. 130-5.00B.

Sato, Akira: *See—*
Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, 4,280,137, Cl. 358-101.000.
Wakana, Hiroshi; Yamada, Shigeru; and Sato, Akira, 4,279,966, Cl. 428-595.000.

Sato, Fumio: *See—*
Hamagami, Teruaki; Maetani, Kazuo; and Sato, Fumio, 4,279,682, Cl. 156-367.000.

Sato, Hideo: *See—*
Inukai, Takashi; Inoue, Hiromichi; Furukawa, Kenji; Sato, Hideo; and Sugimori, Shigeru, 4,279,770, Cl. 252-299.620.

Sato, Shigeru: *See—*
Iwasaki, Masayuki; Nagashima, Akira; and Sato, Shigeru, 4,279,982, Cl. 430-170.000.

Sato, Susumu: *See—*
Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Takahashi, Soshiro, 4,279,639, Cl. 71-94.000.

Satoh, Hiroshi: *See—*
Ishida, Nakao; Satoh, Hiroshi; Suzuki, Fujio; and Miyao, Kouhei, 4,279,892, Cl. 424-85.000.

Satoh, Hitoshi; and Kosaka, Shohei, to Chlorine Engineers Corporation, Ltd. Method for electrolyzing hydrochloric acid. 4,279,712, Cl. 204-128.000.

Satoh, Satoru, to Jidosha Kiki Co., Ltd. Tandem type power servo booster. 4,279,193, Cl. 91-376.00R.

Satomi, Toyokazu, to Ricoh Company, Ltd. Electrostatic copying machine. 4,279,497, Cl. 355-8.000.

Saunders, Bobbie L. Transfer stand. 4,279,043, Cl. 5-81.00R.

Saunders, Jimmy G.: *See—*
Baun, Kenneth W.; and Saunders, Jimmy G., 4,280,193, Cl. 364-900.000.

Sawada, Kazuo, to Sumitomo Electric Industries, Ltd. Soft copper alloy conductors and their method of manufacture. 4,279,967, Cl. 428-647.000.

Sawada, Satoru: *See—*
Aoki, Kozo; Furutachi, Nobuo; and Sawada, Satoru, 4,279,990, Cl. 430-551.000.

Sawoska, David A.: *See—*
Kukanskis, Peter E.; Grunwald, John J.; Ferrier, Donald R.; and Sawoska, David A., 4,279,948, Cl. 427-305.000.

Saxena, Arjun N. Audio recording apparatus and method. 4,280,148, Cl. 360-13.000.

Saxton, Dennis M., to FXC Corporation. Adjustable time-delayed apparatus for opening a parachute. 4,279,392, Cl. 244-150.000.

Schaefer, Hartmann: *See—*
Eistetter, Klaus; Schaefer, Hartmann; and Menge, Heinz G., 4,279,918, Cl. 424-274.000.

Schafer, Gerhard, to Fritz Schafer GmbH. Apparatus for spraying workpieces and intercepting overspray. 4,279,215, Cl. 118-326.000.

Schall, Herman H.: *See—*
Leiter, Gordon A.; and Schall, Herman H., 4,280,030, Cl. 200-237.000.

Schallner, Otto; and Hamprecht, Rainer, to Bayer Aktiengesellschaft. Aqueous process for the preparation of aromatic phosphorus compounds. 4,279,813, Cl. 260-163.000.

Scharwaechter, Peter: *See—*
Gutsche, Klaus; Scharwaechter, Peter; Kohlmann, Wilhelm; and Kroemer, Gerd, 4,279,899, Cl. 424-229.000.

Scheibitz, Wolfgang: *See—*
Schrodter, Klaus; Gradl, Reinhard; Ehlers, Klaus-Peter; and Scheibitz, Wolfgang, 4,279,876, Cl. 423-305.000.

Scheicher, Hans M. F. Dental half-implants. 4,279,598, Cl. 433-173.000.

Schering Aktiengesellschaft: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,279,907, Cl. 424-248.510.

Schering Corporation: *See—*
Ganguly, Ashit K.; and Liu, Yi-Tsung, 4,279,896, Cl. 424-180.000.

Scheubeck, Egmont; Blazevic, Gertrud; and Boehner, Marianne, to Siemens Aktiengesellschaft. Device for measuring the emission of gaseous inorganic fluorine or chlorine compounds. 4,279,727, Cl. 204-195.00R.

Schevey, William R.; Weslowski, Robert G.; and Morentz, John D., to Allied Chemical Corporation. Filling machine and method for low particulate chemicals. 4,279,279, Cl. 141-5.000.

Schick, George E.: *See—*
Campbell, James R.; and Anspach, Roy L., 4,280,039, Cl. 219-78.110.

Schindehutte, Manfred: *See—*
Dieling, Hans; and Schindehutte, Manfred, 4,279,202, Cl. 105-206.00R.

Schink, Richard R.; and Craig, Thomas A., to Milwaukee Cylinder Corporation. Liquid flow control means for gas-liquid receptacle. 4,279,269, Cl. 137-206.000.

Schlig, Eugene S., to International Business Machines Corporation. Multiple access store. 4,280,197, Cl. 365-154.000.

Schlossberg, Howard R. Remote pointing system. 4,280,135, Cl. 358-93.000.

Schmalbach Lubeca GmbH: *See—*
Bode, Gunter, 4,279,114, Cl. 53-314.000.

Schmid, Johann: *See—*
Schuster, Gregor; Schmid, Johann; Schmuck, Erwin; and Rose, Klaus, 4,279,232, Cl. 123-516.000.

Schmidhauser, Rolf, to LGZ Landis & Gyr Zug AG. Apparatus for cashless payment of merchandise or services. 4,280,037, Cl. 235-454.000.

Schmidt, Manfred: *See—*
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, 4,279,742, Cl. 209-166.000.

Schmitz, Fernand, to ARBED Acieries Reunies de Burbach-Eich-Dudelange, Societe Anonyme. Method of rolling angle structural shapes. 4,279,139, Cl. 72-234.000.

Schmitz, Reinold, to Bayer Aktiengesellschaft. Process for the preparation of 1,4-diaminoanthraquinone-2,3-disulphonic acid. 4,279,825, Cl. 260-371.000.

Schmuck, Erwin: *See—*
Schuster, Gregor; Schmid, Johann; Schmuck, Erwin; and Rose, Klaus, 4,279,232, Cl. 123-516.000.

Schmucker, Erwin; and Rampf, Karl, to Rampf KG Formen GmbH & Co. Concrete beam molding apparatus. 4,279,399, Cl. 249-2.000.

Schneider, Franz; Schumann, Burkhard; Maier, Karl; and Hohn, Herbert, to L. Schuler GmbH. Workpiece conveyor device for an automated press line. 4,279,561, Cl. 414-591.000.

Schneider, Randy G.: *See—*
Lord, Herbert A.; and Schneider, Randy G., 4,279,851, Cl. 264-174.000.

Schnoes, Heinrich K.: *See—*
DeLuca, Hector F.; Schnoes, Heinrich K.; Tanaka, Yoko; and Wichmann, Joseph K., 4,279,826, Cl. 260-397.200.

Schnurr, Lewis E., to Essex County Council. Radio telephone system with direct digital carrier modulation for data transmission. 4,280,020, Cl. 179-2.0EA.

Schoellkopf, Ulrich; Hausberg, Hans-Heinrich; Boell, Walter; May, Hans-Joachim; and Koenig, Horst, to BASF Aktiengesellschaft. Chirally substituted 2-imidazolin-5-ones. 4,280,008, Cl. 548-301.000.

Schoen, Bernd-Jurgen: *See—*
Bruckner, Georg F.; Geike, Bernd; Schoen, Bernd-Jurgen; and Berger, Fritz, 4,279,038, Cl. 2-425.000.

Schomberg, Hermann; and Tasto, Manfred, to U.S. Philips Corporation. Method of and device for determining the internal structure of a body by means of acoustic beams. 4,279,157, Cl. 73-618.000.

Schorr, Herbert; and Waldawsky-Berger, Irving, to International Business Machines Corporation. Implicit address structure and method for accessing an associative memory device. 4,280,177, Cl. 364-200.000.

Schott, Wilhelm, to Jean Walterscheid GmbH. Coupling hook. 4,279,431, Cl. 280-508.000.

Schramm, Gunter: *See—*
Kuhn, Edgar; Kohl, Walter; and Schramm, Gunter, 4,280,161, Cl. 361-18.000.

Schremp, Edward J. System for extracting subsurface wave energy. 4,279,124, Cl. 60-505.000.

Schrier, Melvin. Vision screening kit. 4,279,479, Cl. 351-37.000.

Schrodter, Klaus; Gradl, Reinhard; Ehlers, Klaus-Peter; and Scheibitz, Wolfgang, to Hoechst Aktiengesellschaft. Conversion of extraction residues originating from phosphoric acid decontamination to solid deposition products. 4,279,876, Cl. 423-305.000.

Schrodter, Klaus: *See—*
Maurer, Alexander; Schrodter, Klaus; and Heymer, Gero, 4,279,878, Cl. 423-321.00R.

Schroeder, Robert F.: *See—*
Dyer, Robert F.; Lewis, J. Stephen; Rosenthal, Janice E.; Mills-Winkler, James P.; and Schroeder, Robert F., 4,279,099, Cl. 46-119.000.

Schulten, Rudolf: *See—*
Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.

Schulze, Hans; Walz, Klaus; Jakobs, Karlhans; and Boehmke, Gunther, to Bayer Aktiengesellschaft. Process for dyeing polyester-containing materials. 4,279,614, Cl. 8-533.000.

Schumann, Burkhard: *See—*
Schneider, Franz; Schumann, Burkhard; Maier, Karl; and Hohn, Herbert, 4,279,561, Cl. 414-591.000.

Schuster, Gregor; Schmid, Johann; Schmuck, Erwin; and Rose, Klaus, to Robert Bosch GmbH. Fuel system for internal combustion engines. 4,279,232, Cl. 123-516.000.

Schuster, Karl-Ernst; Rudolph, Hans; Mayer, Wolfram; and Rosenkranz, Hans J., to Bayer Aktiengesellschaft. Aryl-glyoxyloyloxyalkylacrylates and their use in photopolymerizable binders. 4,279,718, Cl. 204-159.150.

Schwabe, Thomas M.: *See—*
Bushmeyer, Richard W.; and Schwabe, Thomas M., 4,279,446, Cl. 301-20.000.

Schwartz, Edwin L.; and Robson, George E., to Rite Autotronics Corporation. Twist-lock container. 4,279,355, Cl. 220-300.000.

Schwarz, Frederick M.: *See—*
Griffin, James G.; and Schwarz, Frederick M., 4,279,123, Cl. 60-226.00R.

Schwenke, Dieter: *See—*
von Wichert, Nils; and Schwenke, Dieter, 4,279,609, Cl. 493-276.000.

Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, to Xerox Corporation. Striped substrate planar laser. 4,280,106, Cl. 331-94.50H.

Scifres, Donald R.; Ponce, Fernando A.; Connell, G. A. Neville; and Streifer, William, to Xerox Corporation. Apertured and unapertured reflector structures for electroluminescent devices. 4,280,107, Cl. 331-94.50H.

Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, to Xerox Corporation. Transverse junction array laser. 4,280,108, Cl. 331-94.50H.

SCM (Canada) Limited: *See—*
McMullan, Robert G., 4,279,526, Cl. 401-97.000.

SCM Corporation: *See—*
Bonsack, James P., 4,279,871, Cl. 423-74.000.

Scott, Jack A.: *See—*
Vining, Paul H.; Scott, Jack A.; and Duby, Paul F., 4,279,711, Cl. 204-105.00R.

Scott, John C.; and McClure, Robert I., to Memorex Mini Disc Drive Corp. Method of improving air flow in compact disc drive. 4,280,155, Cl. 360-98.000.

Scott, Robert D. Acoustic coupling free electric drum. 4,279,188, Cl. 84-1.140.

Searle, Robert J. G.: *See—*
Day, Janet A.; Devlin, Barry R. J.; and Searle, Robert J. G., 4,279,821, Cl. 260-326.270.

Seger, Fritz O., to Copes-Vulcan, Inc. Fluid control device with disc-type flow restrictor. 4,279,274, Cl. 138-42.000.

Seidenfaden, Heinz, to Vereinigte Flugtechnische Werke-Fokker GmbH. Tool for deburring, chamfering, trimming, and removing edges of workpieces. 4,279,554, Cl. 409-180.000.

Seidenschnur, Dieter: *See—*
Vente, Paul; Seidenschnur, Dieter; Knipp, Ulrich; and Spenner, Anton, 4,279,856, Cl. 264-313.000.

Seissan Nippon-Sha K. K.: *See—*
Takahashi, Katsuhito, 4,279,677, Cl. 156-160.000.
Seiwa Kasei Co., Ltd.: *See—*
Yoshioka, Issei; and Kamimura, Yoichi, 4,279,996, Cl. 435-69.000.
Sekiguchi, Koichi; Takematsu, Hikaru; and Tatsukura, Kazutada, to Iwasaki Tsushinki Kabushiki Kaisha. Key telephone systems. 4,280,022, Cl. 179-99.00A.
Sekiguchi, Mitsuo, to Alps Electric Co., Ltd. Filter for microwaves. 4,280,113, Cl. 333-202.000.
Sekiguchi, Shizuo; Tano, Tetsuo; and Kitano, Kyozo, to Lion Fat & Oil Co., Ltd., The. Homogeneous aqueous alpha-olefin sulfonate composition. 4,279,786, Cl. 252-536.000.
Sekine, Mitsuo: *See—*
Nishikubo, Yasuhiko; and Sekine, Mitsuo, 4,280,210, Cl. 368-73.000.
Sekiya, Koichi: *See—*
Saito, Yukio; Sekiya, Koichi; Takahashi, Masaaki; and Akiyama, Seigo, 4,279,616, Cl. 23-230.00B.
Sekora, Robert H., to Conoco, Inc. Apparatus for splitting a stream of particulate solids. 4,279,338, Cl. 198-525.000.
Selective Feeder Company: *See—*
Brooks, Cletus A., 4,279,219, Cl. 119-51.00R.
Semba, Takanori: *See—*
Ohzeki, Toshio; and Semba, Takanori, 4,279,805, Cl. 260-45.9NC.
Sentralinstitutt for Industriell Forskning: *See—*
Ersoy, Okan K., 4,279,462, Cl. 350-3.600.
Sernevi, Sten. Machine designed to fill hollow profile rods with a granular material. 4,279,065, Cl. 29-33.00K.
Servbest Foods, Inc.: *See—*
Kentor, William E., 4,279,935, Cl. 426-264.000.
Seton Company: *See—*
Cioca, Gheorghe, 4,279,812, Cl. 260-123.700.
Settlemire, Eugene F., to Webb, Austin A. Plural key actuated totalizer for gasoline sales pump. 4,280,035, Cl. 235-94.00R.
Shahani, Khemchand M.; Wagner, Frederick W.; and Kilara, Arun, to University of Nebraska, The Board of Regents of the. Regenerable insoluble support for protein immobilization. 4,279,998, Cl. 435-174.000.
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Ezaki, Akira; Kobayashi, Yoshiaki; and Hayashi, Sigeaki, 4,280,034, Cl. 235-1.00D.
Hayakawa, Masao; Maeda, Takamichi; and Kumura, Masao, 4,280,132, Cl. 357-70.000.
Yamamoto, Kunio, 4,279,384, Cl. 239-67.000.
Sharpless, Robert G.: *See—*
Barnett, Roger C.; Sharpless, Robert G.; and Mossman, Colin F., 4,279,685, Cl. 156-509.000.
Shaver, Robert G.; and Leake, William R., to Versar, Inc. Apparatus for making hollow carbon microspheres. 4,279,702, Cl. 202-137.000.
Shaw, Mark. Board game involving multiple variables and performance determination. 4,279,422, Cl. 273-256.000.
Shell Oil Company: *See—*
Anderson, Martin; and Woodall, Roger E., 4,279,903, Cl. 424-246.000.
Day, Janet A.; Devlin, Barry R. J.; and Searle, Robert J. G., 4,279,821, Cl. 260-326.270.
Gwyn, John E., 4,279,733, Cl. 208-48.00R.
Gwyn, John E., 4,279,734, Cl. 208-48.00Q.
Haynes, George R., 4,279,925, Cl. 424-311.000.
Haynes, George R., 4,279,929, Cl. 424-324.000.
Knapp, Randolph H.; Lawson, Jimmie B.; Reisberg, Joseph; Thigpen, David R.; and Hill, Harold J., 4,279,305, Cl. 166-307.000.
Pott, Gerard T.; and Stuiver, Johannes C. M., 4,279,778, Cl. 252-439.000.
Shen, Mitchel M.: *See—*
Osada, Yoshihito; Bell, Alexis T.; and Shen, Mitchel M., 4,279,723, Cl. 204-164.000.
Sheppard, Elvin N., to Pierdeed Limited. Method of manufacturing corrugated insulating structural members. 4,279,679, Cl. 156-196.000.
Sherman, Charles J., to Bell Telephone Laboratories, Incorporated. Printed wiring board and connector apparatus. 4,279,459, Cl. 339-75.0MP.
Sherritt Gordon Mines Limited: *See—*
Ruscoe, Michael J. H.; Sarkar, Kshitindra M.; and Clegg, Maurice A., 4,279,968, Cl. 428-677.000.
Weir, Donald R., 4,279,867, Cl. 423-26.000.
Sherwood Medical Industries, Inc.: *See—*
Friehler, William R., 4,279,863, Cl. 422-102.000.
Shibatani, Kyoichiro: *See—*
Yamashita, Shuzo; Shibatani, Kyoichiro; Takakura, Kiochi; and Imai, Kiyokazu, 4,279,795, Cl. 260-29.6RW.
Shibaura Engineering Works Co., Ltd.: *See—*
Takekoshi, Yoshikazu; and Yagisawa, Takeshi, 4,279,163, Cl. 73-761.000.
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, to Sumitomo Chemical Company, Limited. Catalyst system. 4,279,776, Cl. 252-429.00B.
Shimano Industrial Company Limited: *See—*
Egami, Tetsufumi, 4,279,605, Cl. 474-82.000.
Nagano, Masashi; and Isobe, Mitsuhide, 4,279,172, Cl. 474-82.000.
Shimotori, Kazumi; Izumi, Isao; and Murabayashi, Ideki, to Tokyo Shibaura Denki Kabushiki Kaisha. Sheath heater. 4,280,046, Cl. 219-544.000.
Shinagawa Refractories Co., Ltd.: *See—*
Danjyo, Hiroyuki; and Mori, Masashi, 4,279,844, Cl. 264-30.000.
Shinko Plant Co. Ltd.: *See—*
Nakamura, Hiroshi, 4,279,281, Cl. 144-2.00Z.
Shinohara, Eisaku: *See—*
Yotsumoto, Toshiyuki; Ujita, Tuginobu; and Shinohara, Eisaku, 4,279,324, Cl. 180-336.000.
Shionozaki, Yoshio; Kanbe, Sakao; and Takei, Katsumori, to Kabushiki Kaisha Suwa Seikosha. (2'-Cyano-4'-n-alkyl)phenyl-3-chloro-4-n-alkoxy benzoates and liquid crystal compositions thereof. 4,279,771, Cl. 252-299.630.
Shiraishi, Atsushi: *See—*
Fukushima, Osamu; and Shiraishi, Atsushi, 4,279,495, Cl. 354-321.000.
Shishido, Toetsu: *See—*
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, 4,279,654, Cl. 106-39.600.
Shiurila, John, to Centronics Data Computer Corp. Dot matrix printing device employing novel image transfer technique for printing on single ply or multiple ply print receiving media. 4,279,519, Cl. 400-124.000.
Shofner, Manley R.; and Huett, Lenora M. Energy releasing novelties. 4,279,090, Cl. 40-617.000.
Shono, Tetsuji; Goto, Kazuo; and Ohishi, Michiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Interchangeable eye piece-housing. 4,279,489, Cl. 354-155.000.
Shotwell, Kenneth E.: *See—*
Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., 4,279,294, Cl. 165-45.000.
Shtanko, Jury P.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.
Shuck, Lowell Z., to United States of America, Energy. Apparatus for installing condition-sensing means in subterranean earth formations. 4,279,299, Cl. 166-60.000.
Shudo, Koichi: *See—*
Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Takahashi, Soshiro, 4,279,639, Cl. 71-94.000.
Sidler, Hans: *See—*
Wey, Joseph; Sidler, Hans; and Stalder, Hans, 4,279,402, Cl. 251-63.000.
Siemens Aktiengesellschaft: *See—*
Scheubeck, Egmont; Blazevic, Gertrud; and Boehner, Marianne, 4,279,727, Cl. 204-195.00R.
Weber, Walter, 4,279,596, Cl. 433-126.000.
Zeitrag, Rolf, 4,280,216, Cl. 370-62.000.
Signer, Hans: *See—*
Buhl, Rainer; and Signer, Hans, 4,279,216, Cl. 118-723.000.
Silicon General, Inc.: *See—*
Lindberg, Charles R., 4,280,090, Cl. 323-315.000.
Silver, Bruce R., to Polaroid Corporation. Player remote control having single wire control. 4,280,152, Cl. 360-61.000.
Silverberg, Morton, to Xerox Corporation. Belt support system. 4,279,496, Cl. 355-3.0BE.
Silverman, Daniel. Seismic method of mapping horizontal fractures in the earth. 4,280,200, Cl. 367-37.000.
Sim, Alexander K.: *See—*
Maasbol, Alfred G.; and Sim, Alexander K., 4,279,914, Cl. 424-258.000.
Simi, Edward A.: *See—*
Miller, Richard R.; and Simi, Edward A., 4,280,062, Cl. 307-10.0LS.
Simme, Sture B. R. Cover-attaching device for a truck, trailer or similar vehicle. 4,279,064, Cl. 24-248.00R.
Simms, Donald S. Fire prevention filter for chimneys and the like. 4,279,629, Cl. 55-307.000.
Simonsson, Leif R.: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,279,810, Cl. 260-112.50R.
Simpura, Esa J.: *See—*
Ukkonen, Keijo A.; and Simpura, Esa J., 4,279,827, Cl. 260-397.250.
Singer Company, The: *See—*
Comerford, John; and Zimmer, Robert E., 4,280,027, Cl. 200-6.00A.
Flower, Robert A., 4,280,222, Cl. 375-38.000.
Haas, Robert V., 4,279,453, Cl. 312-282.000.
Kleinwaks, Jeffrey M., 4,279,192, Cl. 91-361.000.
Vojvodich, Mario M., 4,279,465, Cl. 350-96.200.
Singh, Anand P., to NRM Corporation. Tire loader. 4,279,438, Cl. 294-88.000.
Singh, Jasbir: *See—*
Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.
Single Buoy Moorings, Inc.: *See—*
Remery, George F. M., 4,279,543, Cl. 405-195.000.
Sir Henry Lawson-Tancred, Sons & Co. Ltd.: *See—*
Lawson-Tancred, Henry, 4,280,061, Cl. 290-55.000.
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, to Ford Motor Company. Dam construction for controlling tin currents in a float glass chamber. 4,279,634, Cl. 65-182.300.
Sistag, Maschinenfabrik Sidler Stalder AG: *See—*
Wey, Joseph; Sidler, Hans; and Stalder, Hans, 4,279,402, Cl. 251-63.000.

Siwik, Henry A.; and Kobylarz, Lawrence P., to Burroughs Corporation. Drive mechanisms for passbooks. 4,279,413, Cl. 271-274.000.
Skach, Edward J., Jr.; and Cobel, George B., to Dow Chemical Company, The. Salt-coated magnesium granules. 4,279,641, Cl. 75-0.50B.
Skadin, Vasily G.: *See—*
Zverev, Anatoly I.; Astakhov, Evgeny A.; Klimenko, Valery S.; Skadin, Vasily G.; and Timoshin, Mikhail A., 4,279,383, Cl. 239-61.000.
Skala, Stephen F. Heat storage in by-products of an intermittent process. 4,279,227, Cl. 123-179.00H.
Skerlos, Peter C., to Zenith Radio Corporation. Microcomputer-controlled one-step-back automatic frequency control tuning system. 4,280,140, Cl. 358-195.100.
Skolaude, Werner, to Linde Aktiengesellschaft. Process and apparatus for the production of oxygen by two-stage low-temperature rectification of air. 4,279,631, Cl. 62-29.000.
Sledzieski, William L.: *See—*
Bosco, Peter M.; and Sledzieski, William L., 4,279,941, Cl. 426-602.000.
Slemmons, Arthur J. Forming droplets for ink jet printing. 4,280,130, Cl. 346-75.000.
Sloan, Kenneth B.: *See—*
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,279,900, Cl. 424-241.000.
Small, Thomas L.: *See—*
Harvey, Richard D.; Gallaher, Thomas L.; Mullikin, Raymond L.; and Small, Thomas L., 4,279,658, Cl. 106-213.000.
Smeltz, Kenneth C.; and Strickler, Charles L., to Du Pont de Nemours, E. I., and Company. Application of durable, antistatic, soil release agent. 4,279,960, Cl. 428-290.000.
Smith, Howard L., to Crompton & Knowles Corporation. Salicyl phenyl naphthyl trisazo di and trisulfonic developed direct black dyes. 4,279,814, Cl. 260-173.000.
Smith, Kenneth M.: *See—*
Friar, Lawrence B.; and Smith, Kenneth M., 4,279,644, Cl. 75-118.00P.
Smith, Philip S., to Motorola, Inc. Incrementer/decrementer circuit. 4,280,190, Cl. 364-770.000.
Smith, Randlow: *See—*
Jones, Henry B.; and Smith, Randlow, 4,279,622, Cl. 48-197.00R.
Smith, Richard C., to Wyoming Mineral Corporation. Neutron activation probe. 4,280,048, Cl. 250-264.000.
Smith, Richard E.: *See—*
Wing, Steven D.; and Smith, Richard E., 4,279,081, Cl. 33-479.000.
Smith, William G.: *See—*
Kehrer, Gerald P.; and Smith, William G., 4,279,783, Cl. 252-511.000.
Smolders, Cees J., to Universal Corrugated Box Machinery Holding AG. Apparatus for processing longitudinally-moving webs of material. 4,279,184, Cl. 83-302.000.
Smolen, Victor F. Multiple injector flow through dissolution cell for dissolution testing apparatus. 4,279,860, Cl. 422-63.000.
Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa, S.p.A.: *See—*
Ciaperoni, Aldemaro; and Cucinella, Antonino, 4,279,652, Cl. 106-18.210.
Snijder, Pieter J., to U.S. Philips Corporation. Bulk channel charge coupled device having improved input linearity. 4,280,068, Cl. 307-221.00D.
Snoek, David J.: *See—*
Boschetti, Armando; and Snoek, David J., 4,279,254, Cl. 128-395.000.
Snyder, William V.: *See—*
Lord, Tom J.; and Snyder, William V., 4,279,071, Cl. 29-717.000.
Societe a Responsabilite Limitee: Wichard: *See—*
Boissonnet, Michel, 4,279,062, Cl. 24-305.000.
Societe Anonyme dite: Ceraver: *See—*
Willem, Michel, 4,280,017, Cl. 174-182.000.
Societe d'Exploitation de Brevets J.B.: *See—*
Hancou, Theodore, 4,279,054, Cl. 15-250.420.
Societe Industrielle de Brevets et D'Etudes S.I.B.E.: *See—*
Bauer, Philippe; Lamy, Jean; and Martel, Bernard, 4,279,230, Cl. 123-440.000.
Societe Nationale des Poudres et Explosifs: *See—*
Leneveu, Louis J. J.; and Treneules, Didier J., 4,279,672, Cl. 149-19.800.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Kervistin, Robert; and Lardellier, Alain M. J., 4,279,153, Cl. 73-357.000.
Societe Pour l'Equipement de Vehicules: *See—*
Guipaud, Serge C., 4,279,143, Cl. 73-35.000.
Soderberg, John H.: *See—*
Eckert, Alton B.; Duwel, Edward C.; and Soderberg, John H., 4,280,180, Cl. 364-464.000.
Sodip SA: *See—*
Amicel, Charles; Biot, Bernard; Butruille, Yves; and Ollivier, Christian, 4,279,678, Cl. 156-169.000.
Sokolovsky, Alexandr E.: *See—*
Lyakhevich, Genrikh D.; Belkevich, Petr I.; Rudkovsky, Alexandr D.; Sokolovsky, Alexandr E.; and Kirilchik, Alexandr I., 4,279,865, Cl. 422-187.000.
Solid State Scientific, Inc.: *See—*
Ransom, Stephen A.; Hohmann, Jere W.; and Nahmias, Clement, 4,280,212, Cl. 368-82.000.
Solomon, Archie. Garment rack system. 4,279,201, Cl. 104-100.000.
Solomon, Elias E. Multiple chamber ionization detector. 4,280,052, Cl. 250-381.000.
Sonda, Eijiro, to TDK Electronics Co., Ltd. DC-DC Converter. 4,280,174, Cl. 363-24.000.
Sony Corporation: *See—*
Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, 4,280,136, Cl. 358-93.000.
Kato, Tetsuro, 4,280,133, Cl. 358-8.000.
Mogi, Takao; Ishigaki, Yoshio; and Okada, Hisao, 4,280,139, Cl. 358-165.000.
Nakayama, Masayuki, 4,280,159, Cl. 360-137.000.
Osakabe, Yoshio; and Yasuda, Hiroshi, 4,280,199, Cl. 365-236.000.
Tooyama, Akira; Tooyama, Takashi; and Hosono, Takashi, 4,280,134, Cl. 358-67.000.
Sorenson, Richard D.: *See—*
James, Robert C.; Horsman, Dennis P.; and Sorenson, Richard D., 4,279,116, Cl. 53-466.000.
Soteland, Nicolai: *See—*
Fritzvold, Bjorn H.; and Soteland, Nicolai, 4,279,694, Cl. 162-28.000.
Soulard, Roger R.: *See—*
Wu, Edward S.; and Soulard, Roger R., 4,279,390, Cl. 242-192.000.
Southeastern Blueberry Council, Inc.: *See—*
McClure, William F.; and Rohrbach, Roger P., 4,279,346, Cl. 209-582.000.
Southwire Co.: *See—*
Evrard, Gerald D.; Cook, Henry S.; and Kamalich, Anthony J., 4,279,052, Cl. 15-93.00A.
Sowman, James P.: *See—*
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, 4,279,634, Cl. 65-182.300.
SPA-Societa Prodotti Antibiotici S.p.A.: *See—*
Bruzzese, Tiberio; and Ferrari, Rodolfo, deceased, 4,279,926, Cl. 424-316.000.
Spade, Vincent L.: *See—*
Sisoler, Gabriel M.; Spade, Vincent L.; Sowman, James P.; Casterwiler, Larry J.; and Puma, Bernard, 4,279,634, Cl. 65-182.300.
Spadone, Leighton R., to Goodyear Tire & Rubber Company, The. Pneumatic rubber tire containing enhanced inner liner or inner tube. 4,279,284, Cl. 152-330.00R.
Speakman, Edwin L., to Standard Brands Incorporated. Recovery of cerium from polymer dispersions. 4,279,791, Cl. 260-17.4GC.
Spenner, Anton: *See—*
Vente, Paul; Seidenschnur, Dieter; Knipp, Ulrich; and Spenner, Anton, 4,279,856, Cl. 264-313.000.
Sperber, Werner: *See—*
Laar, Erwin; and Sperber, Werner, 4,279,371, Cl. 226-91.000.
Sperry Corporation: *See—*
Rattlingourd, Glen D., 4,280,099, Cl. 328-63.000.
Spinks, Ray E. Parachute canopy suspension line release device and method. 4,279,393, Cl. 244-152.000.
Sprague Electric Company: *See—*
Arora, Mulk A.; and Randall, John J., Jr., 4,279,714, Cl. 204-129.900.
Arora, Mulk A.; Randall, John J., Jr.; and Bernard, Walter J., 4,279,715, Cl. 204-129.900.
Sprecher, Gilbert C.: *See—*
Breault, Richard D.; Goller, Glen J.; Roethlein, Richard J.; and Sprecher, Gilbert C., 4,279,970, Cl. 429-35.000.
Stabilimenti Meccanici VM S.p.A.: *See—*
Brighigna, Mario, 4,279,194, Cl. 91-483.000.
Staehle, Hermann: *See—*
Effenberger, Alfred; and Staehle, Hermann, 4,279,515, Cl. 366-76.000.
Staehle Maschinenbau GmbH: *See—*
Effenberger, Alfred; and Staehle, Hermann, 4,279,515, Cl. 366-76.000.
Stalder, Hans: *See—*
Wey, Joseph; Sidler, Hans; and Stalder, Hans, 4,279,402, Cl. 251-63.000.
Stamicarbon B.V.: *See—*
Nieuwkamp, Johannes G. M., 4,279,820, Cl. 260-326.5FM.
Standard Brands Incorporated: *See—*
Bosco, Peter M.; and Siedzieski, William L., 4,279,941, Cl. 426-602.000.
Speakman, Edwin L., 4,279,791, Cl. 260-17.4GC.
Standard Oil Company, The: *See—*
Velenyi, Louis J.; and Krupa, Andrew S., 4,279,777, Cl. 252-439.000.
Velenyi, Louis J.; Paparizos, Christos; and Dolhyj, Serge R., 4,279,829, Cl. 260-429.900.
Standard Oil Company (Indiana): *See—*
Lewis, Harry R., Jr., 4,279,542, Cl. 405-169.000.
Stanwood, Jay W.; Clarke, William A.; and MacLeane, Johannes, to Ford Aerospace & Communications Corporation. Mechanical joinder of composite shaft to metallic end members. 4,279,275, Cl. 138-109.000.
Stappaerts, Eddy A., to Northrop Corporation. Efficient frequency converter utilizing higher order Stokes-Raman scattering. 4,280,109, Cl. 331-94.50N.
Stassi, Paul: *See—*
Woods, Leodis V.; Stassi, Paul; and Wilkinson, Ralph A., 4,279,995, Cl. 435-38.000.
Stauffer Chemical Company: *See—*
Gutman, Arnold D., 4,279,638, Cl. 71-92.000.

Steele, S. Robert, to Raytheon Company. Semiconductor device manufacturing methods utilizing a predetermined flow of reactive substance over a dopant material. 4,279,670, Cl. 148-175.000.

Stellrecht, Ewald A., to Roll Former Corporation. Controllably driven seamer. 4,279,211, Cl. 113-55.000.

Stemme, Otto; Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, to AGFA-Gevaert, A.G. Apparatus for exposing and developing film units or the like. 4,279,491, Cl. 355-27.000.

Stemme, Otto; Wagensonner, Eduard; and Ruf, Wolfgang, to AGFA-Gevaert, A.G. Optical reproducing device for a super-8 film reader. 4,280,142, Cl. 358-214.000.

Stendel, Wilhelm: *See—*
Fuchs, Rainer; Hoffmann, Hellmut; Hammann, Ingeborg; Homeyer, Bernhard; and Stendel, Wilhelm, 4,279,920, Cl. 424-282.000.
Fuchs, Rainer; Naumann, Klaus; Lantzsch, Reinhard; Hagemann, Hermann; Hammann, Ingeborg; Homeyer, Bernhard; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,279,923, Cl. 424-304.000.

Sterner, Charles J.: *See—*
Kwasnoski, Daniel; Sterner, Charles J.; Horst, Russel J.; and Burcaw, Kenneth R., 4,279,703, Cl. 202-158.000.

Stetsenko, Nikolai V.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Stettner, Ernest R., to General Motors Corporation. Carburetor with improved choke mechanism. 4,279,841, Cl. 261-23.00A.

Stevance, Jean: *See—*
Cachier, Gerard; and Stevance, Jean, 4,280,110, Cl. 331-107.0DP.

Stevens, Aaron A.: *See—*
Lawrence, Randall K.; and Stevens, Aaron A., 4,279,117, Cl. 56-11.300.

Stewart, Clive E. E.; Rosser, William J. N.; and Ansell, Martin P., to ITT Industries, Inc. Glass encapsulation of semiconductor devices. 4,279,785, Cl. 252-518.000.

Stock, Rodney D., to Ampex Corporation. Frame period timing generator for raster scan. 4,280,138, Cl. 358-150.000.

Stodt, Eberhard; and Kaldenbach, Erwin, to Lindemann Maschinenfabrik GmbH. Apparatus for loading bales on to transport vehicles. 4,279,557, Cl. 414-400.000.

Stone, Thomas R., to PACCAR Inc. Latching system for a truck cab. 4,279,321, Cl. 180-89.140.

Stonestrom, James P.: *See—*
Nassi, Menahem; and Stonestrom, James P., 4,280,178, Cl. 364-414.000.

Straubel, Max; and Voit, Willi, to Robert Bosch GmbH. High pressure fuel injection apparatus for internal combustion engines. 4,279,385, Cl. 239-90.000.

Strauch, Dieter; and Belger, Peter. Mineral filler, method of preparation and use thereof. 4,279,661, Cl. 106-288.00B.

Street, Graham S. B. Laser scanning apparatus with beam position correction. 4,279,472, Cl. 250-201.000.

Streifer, William: *See—*
Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, 4,280,106, Cl. 331-94.50H.
Scifres, Donald R.; Ponce, Fernando A.; Connell, G. A. Neville; and Streifer, William, 4,280,107, Cl. 331-94.50H.
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Strickler, Charles L.: *See—*
Smeltz, Kenneth C.; and Strickler, Charles L., 4,279,960, Cl. 428-290.000.

Stringer, William C.: *See—*
Anderson, Maynard E.; Marshall, Robert T.; and Stringer, William C., 4,279,059, Cl. 17-51.000.

Strobel, Rudolf G. K.; and Eich, Richard A., to Procter & Gamble Co., The. Liquid extract decaffeination with benzyl alcohol containing mixtures. 4,279,937, Cl. 426-424.000.

Strobotronix, Inc.: *See—*
Lazarus, Arnold; and Weiss, Stuart L., 4,280,018, Cl. 179-1.00M.

Stuiver, Johannes C. M.: *See—*
Pott, Gerard T.; and Stuiver, Johannes C. M., 4,279,778, Cl. 252-439.000.

Stump, Lee K. Occlusal instrument. 4,279,260, Cl. 128-774.000.

Stumpf, Karl. Support installation for large cylindrical load units, particularly large tubes. 4,279,559, Cl. 414-431.000.

Stumpp, Gerhard: *See—*
Flaig, Ulrich; Piwonda, Fridolin; Stumpp, Gerhard; and Wessel, Wolf, 4,279,235, Cl. 123-569.000.

Su, Sophia R.: *See—*
Natansohn, Samuel; and Su, Sophia R., 4,279,870, Cl. 423-54.000.

Suematsu, Shigeru: *See—*
Doi, Toshiaki; Suematsu, Shigeru; Nishida, Chikamasa; and Hiranuma, Hiroshi, 4,279,698, Cl. 176-22.000.

Sueoka, Akinori; Okamoto, Takehiko; Ohmori, Akio; Kawai, Syuji; and Ueda, Minoru, to Kuraray Co., Ltd. Polyvinyl alcohol semi-permeable membrane and method for producing same. 4,279,752, Cl. 210-500.200.

Suga, Kyozo; Iizuka, Jinya; and Tsuji, Yoshiomi, to Kazuto Nakazawa, General Director Public Works Research Institute Ministry of Construction; and Sumitomo Electric Industries, Ltd. Collapsable dam. 4,279,540, Cl. 405-115.000.

Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, to Lion Corporation. Oral composition. 4,279,888, Cl. 424-49.000.

Sugimori, Shigeru: *See—*
Inukai, Takashi; Inoue, Hiromichi; Furukawa, Kenji; Sato, Hideo; and Sugimori, Shigeru, 4,279,770, Cl. 252-299.620.

Sugisawa, Ko: *See—*
Koshida, Daikichi; Sugisawa, Ko; Kimura, Takashi; and Nakajima, Setsuo, 4,279,932, Cl. 426-89.000.

Sugiyama, Sakae: *See—*
Kajiyama, Sigeru; Kanda, Kimio; and Sugiyama, Sakae, 4,279,158, Cl. 73-637.000.

Suh, Nam P., to Massachusetts Institute of Technology. Process for making uniform size particles. 4,279,843, Cl. 264-11.000.

Sullivan, John L.: *See—*
Inculet, Ion I.; Castle, George S. P.; and Sullivan, John L., 4,279,625, Cl. 55-131.000.

Sulzer Brothers Limited: *See—*
Riesen, Peter, 4,279,133, Cl. 66-84.00R.
Zerlauth, Ferdinand, 4,279,424, Cl. 277-83.000.

Sumitomo Chemical Company, Limited: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.
Suzuki, Yukio; Kasamatsu, Kiyoshi; and Aketa, Kohichi, 4,279,924, Cl. 424-304.000.
Tanaka, Hiromichi; and Tomizawa, Choji, 4,279,950, Cl. 427-393.600.

Sumitomo Electric Industries, Ltd.: *See—*
Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, 4,279,651, Cl. 75-233.000.
Sawada, Kazuo, 4,279,967, Cl. 428-647.000.
Suga, Kyozo; Iizuka, Jinya; and Tsuji, Yoshiomi, 4,279,540, Cl. 405-115.000.

Sumitomo Metal Mining Company Limited: *See—*
Hamagami, Teruaki; Maetani, Kazuo; and Sato, Fumio, 4,279,682, Cl. 156-367.000.

Supra Fabrique d'Appareils de Chauffage et de Cuisine, S.A.: *See—*
Blum, Jean, 4,279,239, Cl. 126-120.000.

Suzuki, Fujio: *See—*
Ishida, Nakao; Satoh, Hiroshi; Suzuki, Fujio; and Miyao, Kouhei, 4,279,892, Cl. 424-85.000.

Suzuki Jidosha Kogyo Kabushiki Kaisha: *See—*
Tsuzuki, Kunihiko; Ogasawara, Norio; and Ema, Shigeo, 4,279,619, Cl. 44-56.000.

Suzuki, Yasuo: *See—*
Ito, Teruyuki; and Suzuki, Yasuo, 4,279,560, Cl. 414-589.000.

Suzuki, Yukio; Kasamatsu, Kiyoshi; and Aketa, Kohichi, to Sumitomo Chemical Company, Limited. Mixture of stereoisomers of α-cyano-3-(4-halogenophenoxy)benzyl 2-(4-chlorophenyl)isovalerate, a process for producing the same, and a composition containing the same. 4,279,924, Cl. 424-304.000.

Svenskt Stal Aktiebolag: *See—*
Karlsson, Per-Olle, 4,280,094, Cl. 324-202.000.

Swapceinski, John P., to Eastman Kodak Company. Magnetic field adjustment for magnetic brushes. 4,279,942, Cl. 427-14.100.

Sweeney, William M., to Texaco Inc. Novel process for treating gasahol. 4,279,620, Cl. 44-56.000.

Swiatosz, Edmund, to United States of America, Navy. Charge coupled device temperature gradient and moisture regulator. 4,279,292, Cl. 165-61.000.

Sybron Corporation: *See—*
Amorese, Franklyn J.; and Piarulli, Vincent J., 4,279,356, Cl. 220-314.000.

Sylvester, Gerd: *See—*
Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.

Syme, Duncan C., to Vermont Castings, Inc. Wood burning heating apparatus. 4,279,238, Cl. 126-77.000.

Syva Company: *See—*
Daffern, George M., 4,279,509, Cl. 356-246.000.

Szabo, Robert C.; and Incaudo, Peter J., Jr. Convertible intake manifold. 4,279,224, Cl. 123-52.0MV.

Szasz, Kalman: *See—*
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Dezseri, Eszter; and Eles, Janos, 4,279,816, Cl. 260-244.400.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,915, Cl. 424-262.000.
Jovanovics, Karola; Szasz, Kalman; Kellner, Bela; Nemeth, Laszlo; Relle, Zsuzsa; Bittner, Emil; Deszeri, Eszter; and Eles, Janos, 4,279,916, Cl. 424-262.000.

Szasz, Tibor: *See—*
Krob, Erwin; and Szasz, Tibor, 4,279,432, Cl. 280-605.000.

Szatkowski, Paul R.: *See—*
Louderback, Allan L.; and Szatkowski, Paul R., 4,279,775, Cl. 252-408.000.

Tabb, David L.: *See—*
Magers, Thomas A.; and Tabb, David L., 4,279,993, Cl. 435-14.000.

Tagg, Forrest L.; and Tourville, Francis E., to Air-Glide Corporation. Fifth-wheel suspension system. 4,279,430, Cl. 280-439.000.

Taguchi, Tatsuya: *See—*
Tsunekawa, Tokuichi; Sakane, Toshio; and Taguchi, Tatsuya, 4,280,151, Cl. 360-33.000.

Taiheiyo Engineering: *See—*
Takahashi, Ken; and Ito, Tsunetoshi, 4,279,443, Cl. 299-1.000.

Takagi, Kazumasa; Fukazawa, Tokuumi; and Oi, Tetsu, to Hitachi Chemical Company, Ltd. Crystal for scintillator. 4,279,772, Cl. 252-301.40F.

Takagi, Shigeru: *See—*
Nara, Akio; Takagi, Shigeru; and Matsui, Kazuma, 4,279,864, Cl. 422-179.000.

Takagi, Takeji; and Hosaka, Kiyokazu, to Olympus Optical Co., Ltd. Flexible tube. 4,279,245, Cl. 128-004.000.

Takahama, Akio; and Hatano, Tatsuro, to Nippon Kogaku K.K. A surveying instrument having means for transmitting signals between an alidade and a fixed member. 4,280,057, Cl. 250-551.000.

Takahashi, Katsuhito, to Seissan Nippon-Sha K. K. Method of means for joining plastic fastener strip to film. 4,279,677, Cl. 156-160.000.

Takahashi, Ken; and Ito, Tsunetoshi, to Taiheiyo Engineering. Mining apparatus. 4,279,443, Cl. 299-1.000.

Takahashi, Masaaki: *See—*
Saito, Yukio; Sekiya, Koichi; Takahashi, Masaaki; and Akiyama, Seigo, 4,279,616, Cl. 23-230.00B.

Takahashi, Masayuki; and Monma, Hideo, to Fujitsu Limited. Quick feeding system for a counter. 4,280,213, Cl. 368-187.000.

Takahashi, Soshiro: *See—*
Okamoto, Toshihiko; Isogai, Yo; Shudo, Koichi; and Takahashi, Soshiro, 4,279,639, Cl. 71-94.000.

Takahi, Yukiyoshi: *See—*
Jojima, Teruomi; Takeshiba, Hideo; and Takahi, Yukiyoshi, 4,279,908, Cl. 424-248.550.

Takakura, Kiochi: *See—*
Yamashita, Shuzo; Shibatani, Kyoichiro; Takakura, Kiochi; and Imai, Kiyokazu, 4,279,795, Cl. 260-29.6RW.

Takami, Toru; and Yonekawa, Yuriko, to Ajinomoto Company, Incorporated. Amino acid solution for intravenous nutrition. 4,279,917, Cl. 424-273.00R.

Takamura, Yoshiyuki: *See—*
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.

Takashima, Toshiyuki, to Fujisawa Pharmaceutical Co., Ltd. Antiallergic method. 4,279,909, Cl. 424-250.000.

Takasugi, Hisashi: *See—*
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,279,818, Cl. 424-246.000.

Takato, Masao; Imai, Masumi; and Furuhashi, Toshio, to Hitachi, Ltd. Input signal processor used in electronic engine control apparatus. 4,280,189, Cl. 364-734.000.

Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, to Fujisawa Pharmaceutical Co., Ltd. Syn-isomers of 7-[2-alkoxyimino-2-(2-amino-thiazol-4-yl)acetamido]-3-[nitrobenzoyl-, or benzoyl-oxymethyl]-3-cephem-4-carboxylic acid. 4,279,818, Cl. 424-246.000.

Takehara, Toshio: *See—*
Ogawa, Yutaka; Takehara, Toshio; and Asami, Seiichi, 4,279,849, Cl. 264-63.000.

Takei, Katsumori: *See—*
Shionozaki, Yoshio; Kanbe, Sakao; and Takei, Katsumori, 4,279,771, Cl. 252-299.630.

Takekoshi, Yoshikazu; and Yagisawa, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha; and Shibaura Engineering Works Co., Ltd. Stress measuring apparatus. 4,279,163, Cl. 73-761.000.

Takematsu, Hikaru: *See—*
Sekiguchi, Koichi; Takematsu, Hikaru; and Tatsukura, Kazutada, 4,280,022, Cl. 179-99.00A.

Takeshiba, Hideo: *See—*
Jojima, Teruomi; Takeshiba, Hideo; and Takahi, Yukiyoshi, 4,279,908, Cl. 424-248.550.

Takii, Yasuo: *See—*
Kondo, Shiro; and Takii, Yasuo, 4,280,031, Cl. 200-314.000.

Tamoni, Giorgion: *See—*
Pagani, Hermes; Parenti, Francesco; Coronelli, Carolina; and Tamoni, Giorgion, 4,280,001, Cl. 435-253.000.

Tamura, Nobuhiro: *See—*
Nishikido, Joji; Fukuoka, Yohei; and Tamura, Nobuhiro, 4,279,836, Cl. 260-500.50H.

Tan, Kwang G., to International Business Machines Corporation. Memory configuration, address interleaving, relocation and access control system. 4,280,176, Cl. 364-200.000.

Tanaka, Hiromichi; and Tomizawa, Choji, to Sumitomo Chemical Company, Limited. Jointing of concrete structure. 4,279,950, Cl. 427-393.600.

Tanaka, Yoko: *See—*
DeLuca, Hector F.; Schnoes, Heinrich K.; Tanaka, Yoko; and Wichmann, Joseph K., 4,279,826, Cl. 260-397.200.

Tanka, David M.; and Reynolds, Thomas G., to North American Philips Corporation. Ground fault circuit interrupter. 4,280,162, Cl. 361-45.000.

Tano, Tetsuo: *See—*
Sekiguchi, Shizuo; Tano, Tetsuo; and Kitano, Kyozo, 4,279,786, Cl. 252-536.000.

Tar, Domokos, to Cerberus AG. Flame detector. 4,280,058, Cl. 250-554.000.

Tarkinson, Ann Ward: *See—*
Tarkinson, Kevork W., 4,279,796, Cl. 260-29.60R.

Tarkinson, Kevork W., to Tarkinson, Ann Ward. Carpet cleaning/coating mixture and method. 4,279,796, Cl. 260-29.60R.

Tasto, Manfred: *See—*
Schomberg, Hermann; and Tasto, Manfred, 4,279,157, Cl. 73-618.000.

Tatsukura, Kazutada: *See—*
Sekiguchi, Koichi; Takematsu, Hikaru; and Tatsukura, Kazutada, 4,280,022, Cl. 179-99.00A.

Tatsumi, Susumu: *See—*
Eda, Tadahiro; Tatsumi, Susumu; Imai, Chikara; and Koichi, Yasushi, 4,279,498, Cl. 355-14.00D.

Taub, Darrel. Ratchet wrench attachment. 4,279,314, Cl. 173-163.000.

Taylor, John F.: *See—*
Hoffman, John C., 4,279,255, Cl. 128-402.000.

Taylor, Raymond C., to Phillips Petroleum Company. Disc feeding apparatus for use with a packaging machine or the like. 4,279,607, Cl. 493-167.000.

TDK Electronics Co., Ltd.: *See—*
Sonda, Eijiro, 4,280,174, Cl. 363-24.000.

Technicon Instruments Corporation: *See—*
Masson, Pierre L.; Cambiaso, Cesar L.; De Steenwinkel, Floris; and Leek, Adrian E., 4,279,617, Cl. 23-230.00B.

Teitz, Konrad: *See—*
Maute, Alfred; Teitz, Konrad; Baier, Klaus; and Heid, Hans, 4,279,511, Cl. 356-328.000.

Tektronix, Inc.: *See—*
Hiltner, David F., 4,280,091, Cl. 323-315.000.

Telex Computer Products, Inc.: *See—*
Lobo, Mark A.; and Pembroke, Richard W., 4,279,386, Cl. 242-68.300.

Tepoorten, Darrell M.; and Hechtman, Steven A., to Tepoorten, Darrell M. Electronic gameboard. 4,279,421, Cl. 273-237.000.

Tessier, Jean: *See—*
Martel, Jacques; Tessier, Jean; and Demoute, Jean-Pierre, 4,279,835, Cl. 260-465.00D.

Tetra Consultants Inc.: *See—*
Huizinga, Menno, 4,279,787, Cl. 260-8.000.

Texaco Inc.: *See—*
Jones, Henry B.; and Smith, Randlow, 4,279,622, Cl. 48-197.00R.
Sweeney, William M., 4,279,620, Cl. 44-56.000.
Williams, Thomas E., 4,279,301, Cl. 166-250.000.

Texas Instruments Incorporated: *See—*
Bealle, John, 4,279,623, Cl. 51-283.00R.
Dierschke, Eugene G., 4,279,690, Cl. 156-649.000.
Marcoux, Leo; and Berg, Peter G., 4,279,234, Cl. 123-549.000.
Reese, Edmund A.; White, Lionel S., Jr.; and McAlexander, Joseph C., III, 4,280,070, Cl. 307-279.000.

Thigpen, David R.: *See—*
Knapp, Randolph H.; Lawson, Jimmie B.; Reisberg, Joseph; Thigpen, David R.; and Hill, Harold J., 4,279,305, Cl. 166-307.000.

Thomas C. Elder, Inc.: *See—*
Kaufman, Kurt D., 4,279,922, Cl. 424-285.000.

Thomas, James K. Thread keeper. 4,279,389, Cl. 242-156.100.

Thompson, John W. K.: *See—*
Trafford, Larry F.; and Thompson, John W. K., 4,280,120, Cl. 340-303.000.

Thompson, Larry J., to Equipment Company of America. Attachment for lift truck. 4,279,567, Cl. 414-785.000.

Thompson, Vernon F., to Tomco, Inc. Fuel efficiency display. 4,279,145, Cl. 73-115.000.

Thompson, William J.: *See—*
Burroughs, Reginald L.; Thompson, William J.; and Wooldridge, Derek, 4,279,663, Cl. 127-1.000.

Thomson-CSF: *See—*
Cachier, Gerard; and Stevance, Jean, 4,280,110, Cl. 331-107.0DP.
Forterre, Gerard; and Berthe, Jacques, 4,280,111, Cl. 333-1.100.

Thorn, Joseph W. Brake wear indicator. 4,279,214, Cl. 116-208.000.

Thorne, George: *See—*
Bundschuh, Robert; Thorne, George; and Cottis, David, 4,279,048, Cl. 9-310.0AA.

Thurm, Siegfried; Bunge, Konrad; and Findeis, Gunter, to AGFA-Gevaert, A.G. Method of and apparatus for determining the copying light amounts for copying from color originals. 4,279,502, Cl. 355-38.000.

Tibussek, Fritz, to Wirth Maschinen- und Bohrgerate-Fabrik GmbH. Apparatus for extracting cores. 4,279,315, Cl. 175-249.000.

Tiemann, Jerome J.: *See—*
Engeler, William E.; and Tiemann, Jerome J., 4,280,066, Cl. 307-221.00D.

Timashov, Grigory A.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Timoshin, Mikhail A.: *See—*
Zverev, Anatoly I.; Astakhov, Evgeny A.; Klimenko, Valery S.; Skadin, Vasily G.; and Timoshin, Mikhail A., 4,279,383, Cl. 239-61.000.

Tin, Lucas K., to Ampex Corporation. Digitally controlled automatic bias circuit for magnetic recording. 4,280,153, Cl. 360-66.000.

Tioxide Group Limited: *See—*
Tunstall, David F., 4,279,512, Cl. 356-335.000.

Tizard, Anthony N.: *See—*
Hill, Michael P. L.; and Tizard, Anthony N., 4,279,765, Cl. 252-117.000.

TMC Corporation: *See—*
Krob, Erwin; and Szasz, Tibor, 4,279,432, Cl. 280-605.000.

Tobioka, Masaaki: *See—*
Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, 4,279,651, Cl. 75-233.000.

Tobita, Yuichi; and Okumura, Masamitsu, to Hitachi, Ltd. Device for trapping fuel vapor vaporized in fuel feed system of internal combustion engine. 4,279,233, Cl. 123-519.000.

Todd Overdrive Company: *See—*
Todd, William, 4,279,178, Cl. 74-745.000.

Todd, William, to Todd Overdrive Company. Overdrive gear arrangement. 4,279,178, Cl. 74-745.000.

Tojo, Tsutomu, to Olympus Optical Co., Ltd. Objective lens system for microscopes. 4,279,477, Cl. 350-414.000.

Tokhunts, Roman D.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Tokuyama Soda Kabushiki Kaisha: *See—*
Izumi, Yusuke; Miyazaki, Hidetaka; and Kawahara, Shin-ichi, 4,279,883, Cl. 423-584.000.

Tokyo Electric Co., Ltd.: *See—*
Yokomori, Mituo; and Kawakami, Tsugimi, 4,280,063, Cl. 307-141.400.

Tokyo Shibaura Denki Electric Co., Ltd.: *See—*
Kohyama, Susumu, 4,280,067, Cl. 307-221.00D.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Fukatsu, Kunio, 4,280,036, Cl. 235-379.000.
Hidai, Yutaka; and Okuda, Nobuo, 4,280,186, Cl. 364-518.000.
Komatsu, Shigeru, 4,279,671, Cl. 148-188.000.
Shimotori, Kazumi; Izumi, Isao; and Murabayashi, ideki, 4,280,046, Cl. 219-544.000.
Takekoshi, Yoshikazu; and Yagisawa, Takeshi, 4,279,163, Cl. 73-761.000.

Tomco, Inc.: *See—*
Thompson, Vernon F., 4,279,145, Cl. 73-115.000.

Tomisawa, Takeshi: *See—*
Ohmukai, Yoshimi; Tomisawa, Takeshi; and Kawasaki, Yoshitaka, 4,279,589, Cl. 431-328.000.

Tomizawa, Choji: *See—*
Tanaka, Hiromichi; and Tomizawa, Choji, 4,279,950, Cl. 427-393.600.

Tomlinson, Geoffrey E. S.; and Dolman, Roy S., to White-BSA Tools Ltd. Multi-spindle lathes. 4,279,180, Cl. 82-1.00C.

Tooyama, Akira; Tooyama, Takashi; and Hosono, Takashi, to Sony Corporation. Beam index color television receiver apparatus. 4,280,134, Cl. 358-67.000.

Tooyama, Takashi: *See—*
Tooyama, Akira; Tooyama, Takashi; and Hosono, Takashi, 4,280,134, Cl. 358-67.000.

Top Tool Company, Inc.: *See—*
Weitz, Robert D., 4,279,306, Cl. 166-312.000.

Torisu, Masaaki: *See—*
Yamamoto, Ryuichi; and Torisu, Masaaki, 4,279,838, Cl. 260-968.000.

Torlay, Dwight L.: *See—*
Gana, John; and Torlay, Dwight L., 4,279,140, Cl. 72-237.000.

Tosaka, Yasuo: *See—*
Ogi, Keiji; Sasaki, Takashi; and Tosaka, Yasuo, 4,279,987, Cl. 430-409.000.

Tourville, Francis E.: *See—*
Tagg, Forrest L.; and Tourville, Francis E., 4,279,430, Cl. 280-439.000.

Toyoda Koki Kabushiki Kaisha: *See—*
Ito, Teruyuki; and Suzuki, Yasuo, 4,279,560, Cl. 414-589.000.

Toyoda, Tsunehiko: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Ando, Masahisa; Kato, Keigo; and Ishikawa, Tomozi, 4,279,323, Cl. 180-148.000.
Mikami, Teigo; Miyano, Hiroaki; and Kosugi, Masahide, 4,279,290, Cl. 164-154.000.
Okano, Hiroshi; and Gunji, Yoshihisa, 4,279,576, Cl. 417-407.000.
Onodera, Takayoshi, 4,279,428, Cl. 280-95.00R.

Trafford, Larry F.; and Thompson, John W. K., to General Signal Corporation. Fire alarm signal station. 4,280,120, Cl. 340-303.000.

Trapp, Werner: *See—*
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.

Tremblay, Robert A.: *See—*
Labombarde, Raymond A.; and Tremblay, Robert A., 4,279,611, Cl. 493-418.000.

Treneules, Didier J.: *See—*
Leneveu, Louis J. J.; and Treneules, Didier J., 4,279,672, Cl. 149-19.800.

Tribe, Leonard T.: *See—*
Neill, Daniel L.; and Tribe, Leonard T., 4,279,162, Cl. 73-746.000.

Triponi, Doarde G.: *See—*
Daudi, Anwar; Golata, John H.; and Triponi, Doarde G., 4,279,287, Cl. 152-375.000.

Tropp, Burton E.: *See—*
Engel, Robert R.; Sarin, Virender K.; Gotlinksy, Barry; Tropp, Burton E.; and Parker, Thomas S., 4,279,898, Cl. 424-217.000.

Tseng, An-Teh. Umbrella. 4,279,265, Cl. 135-48.000.

Tseung, Alfred C. C.; and Man, Maurice C. M., to National Research Development Corporation. Method of catalyzing the evolution of gaseous hydrogen. 4,279,713, Cl. 204-129.000.

TSM Traitements de Surface et Mecanique: *See—*
Blanc, Jacques; Coulon, Andre; and Pellus, Gilbert, 4,279,706, Cl. 204-26.000.

Tsuchiya, Soji: *See—*
Matsuda, Shunsuke; Tsuchiya, Soji; Honma, Masami; and Nagamatsu, Gentaro, 4,279,984, Cl. 430-270.000.

Tsuda, Hidetoshi: *See—*
Kashima, Tsunehiro; Sakoda, Shunsuke; Tsuda, Hidetoshi; Hiramatsu, Tamihei; and Morita, Kazuyuki, 4,280,136, Cl. 358-93.000.

Tsugaya, Hitoshi: *See—*
Ishii, Kiyoshi; Honda, Zenjiro; and Tsugaya, Hitoshi, 4,279,846, Cl. 264-41.000.

Tsuji, Yoshiomi: *See—*
Suga, Kyozo; Iizuka, Jinya; and Tsuji, Yoshiomi, 4,279,540, Cl. 405-115.000.

Tsunekawa, Tokuichi; Sakane, Toshio; and Taguchi, Tatsuya, to Canon Kabushiki Kaisha. High speed image recording system. 4,280,151, Cl. 360-33.000.

Tsurumi, Shigeyuki: *See—*
Fujiwara, Koichi; Yamauchi, Coro; Arita, Kishio; and Tsurumi, Shigeyuki, 4,279,649, Cl. 75-173.00A.

Tsutsui, Kenziro; and Kakei, Masamitsu, to New Nippon Electric Co. Ltd. Magnetron. 4,280,078, Cl. 315-39.510.

Tsuzuki, Kunihiko; Ogasawara, Norio; and Ema, Shigeo, to Suzuki Jidosha Kogyo Kabushiki Kaisha. Fuel for internal combustion engines. 4,279,619, Cl. 44-56.000.

Tucker, Billy J., to Sangamo Weston, Inc. Optical inspection system for large parts and for multiple measurements. 4,279,513, Cl. 356-387.000.

Tumolo, Enzo: *See—*
Boggio, Francesco; Bertone, Andrea; and Tumolo, Enzo, 4,279,395, Cl. 246-182.00R.

Tunstall, David F., to Tioxide Group Limited. Method of measurement. 4,279,512, Cl. 356-335.000.

Turley, Wilfred H.; and Robinson, John A., to Plessey Handel und Investments AG. Optical fiber connectors. 4,279,468, Cl. 350-96.210.

Turly, Alfred P.: *See—*
McCann, David H; White, Marvin H.; Turly, Alfred P.; and Frosch, Robert A., 4,280,141, Cl. 358-213.000.

Turner & Newall Limited: *See—*
Winterbottom, Peter H., 4,279,695, Cl. 162-146.000.

Tutzer, Michael: *See—*
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.

Tweedy, William H. Apparatus for aerating and maintaining an ice free surface area on a body of water. 4,279,537, Cl. 405-61.000.

Tyson, Don R., to Redken Laboratories, Inc. Illumination of replicas of biological surface tissue. 4,279,482, Cl. 353-65.000.

Ueda, Minoru: *See—*
Sueoka, Akinori; Okamoto, Takehiko; Ohmori, Akio; Kawai, Syuji; and Ueda, Minoru, 4,279,752, Cl. 210-500.200.

Uematsu, Michio: *See—*
Suganuma, Nobuo; Uematsu, Michio; Mandai, Hiroshi; Horiguchi, Yasunobu; and Masamizu, Koji, 4,279,888, Cl. 424-49.000.

Uesugi, Hiroaki: *See—*
Koiso, Kazuhiro; Sanda, Masaaki; Hayashi, Mamoru; and Uesugi, Hiroaki, 4,279,454, Cl. 312-297.000.

Ujita, Tugmobu: *See—*
Yotsumoto, Toshiyuki; Ujita, Tuginobu; and Shinohara, Eisaku, 4,279,324, Cl. 180-336.000.

Ukkonen, Keijo A.; and Simpura, Esa J., to Oy Kaukas AB. Process for the preparation of a β-sitosterol concentrate containing less than 5% by weight of α-sitosterol. 4,279,827, Cl. 260-397.250.

Umezawa, Hamao: *See—*
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Union Siderurgique du Nord et De L'est De La France (USINOR): *See—*
Maisonnave, Pierre, 4,279,845, Cl. 264-30.000.

United Catalysts Inc.: *See—*
Dienes, Edward K.; Coleman, Ray L.; and Hausberger, Arthur L., 4,279,781, Cl. 252-463.000.

United States of America
Agriculture: *See—*
Anderson, Maynard E.; Marshall, Robert T.; and Stringer, William C., 4,279,059, Cl. 17-51.000.
Gray, Marie S.; and Cherry, John P., 4,279,811, Cl. 260-123.500.
Air Force: *See—*
Chao, Chente; Nakaji, Edward M.; and Bernick, Robert L., 4,279,070, Cl. 29-583.000.
Hawke, Merrill P.; Elizalde, Pete, Jr.; and Harris, Robert L., 4,279,164, Cl. 73-826.000.
Marcy, Robert D., 4,280,105, Cl. 331-94.50P.
Wilson, Paul, Jr., 4,279,382, Cl. 239-11.000.
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Callender, Robert E.; Doyle, Loren C.; and Lightel, William J., 4,280,050, Cl. 250-330.000.
Gerharz, Reinhold, 4,280,055, Cl. 250-484.000.
Masak, Raymond J., 4,280,128, Cl. 343-100.0LE.

Energy: *See—*
Shuck, Lowell Z., 4,279,299, Cl. 166-60.000.

Environmental Protection Agency: *See—*
Bell, John P., 4,279,156, Cl. 73-863.220.

Health & Human Services: *See—*
Kutney, James P., 4,279,817, Cl. 260-244.400.

National Aeronautics and Space Administration; administrator; with respect to an invention of:
Brown, Patricia A.; and Danellis, Joan V. Indomethacin-antihistamine combination for gastric ulceration control. 4,279,906, Cl. 424-247.000.
Wang, Taylor G.; and Elleman, Daniel D. Method and apparatus for producing concentric hollow spheres. 4,279,632, Cl. 65-21.400.

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Carey, Richard L.; and McGuffey, Gale W., 4,280,097, Cl. 324-434.000.
Forman, Donald B., 4,279,469, Cl. 350-96.220.
Francavilla, Thomas L.; and Wolf, Stuart A., 4,279,969, Cl. 428-698.000.
Hinton, George F., 4,280,095, Cl. 324-248.000.
Hobson, Michael J., 4,279,403, Cl. 251-148.000.
Marshall, Albert H.; and Derderian, George, 4,279,599, Cl. 434-21.000.
Swiatosz, Edmund, 4,279,292, Cl. 165-61.000.

U.S. Philips Corporation: *See—*
de Niet, Edmond, 4,280,158, Cl. 360-113.000.
Haes, Freddy; Hermes, Guillaume M. P. G.; and Reijnhout, Cornelis M., 4,279,253, Cl. 128-355.000.
Schomberg, Hermann; and Tasto, Manfred, 4,279,157, Cl. 73-618.000.
Snijder, Pieter J., 4,280,068, Cl. 307-221.00D.
van de Plassche, Rudy J.; and Dijkmans, Eise C., 4,280,089, Cl. 323-354.000.
Werner, Helmut W. W.; Witmer, Antonius W.; and Knippenberg, Wilhelmus F., 4,280,049, Cl. 250-310.000.

United States Steel Corporation: *See—*
Gana, John; and Torlay, Dwight L., 4,279,140, Cl. 72-237.000.
Pringle, William L., 4,279,131, Cl. 64-21.000.

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Adams, Don L.; Murphy, Richard D.; and Fischer, William C., 4,279,391, Cl. 244-17.130.
Auriemma, Peter R., 4,279,572, Cl. 416-220.00R.
Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., 4,279,294, Cl. 165-45.000.
Griffin, James G.; and Schwarz, Frederick M., 4,279,123, Cl. 60-226.00R.
Martin, Anthony N., 4,280,185, Cl. 364-506.000.
Munroe, Alan D., 4,279,568, Cl. 415-17.000.
Ryan, Edward J.; Rutz, David A.; and Lee, Jack W., 4,279,121, Cl. 57-258.000.
Zickwolf, Herbert C., Jr., 4,280,059, Cl. 290-40.00B.

Universal Corrugated Box Machinery Holding AG: *See—*
Smolders, Cees J., 4,279,184, Cl. 83-302.000.

Universal Pioneer Corporation: *See—*
Okano, Takashi, 4,280,215, Cl. 369-45.000.

University of Birmingham: *See—*
Bradwell, Arthur R.; and Burnett, David, 4,279,884, Cl. 424-1.000.

University of California, The Regents of the: *See—*
Fahmy, Mohamed A. H.; and Fukuto, Tetsuo R., 4,279,897, Cl. 424-211.000.
Henderson, Jerald M.; and Yong, Yuen-Cjen, 4,279,336, Cl. 198-443.000.
Osada, Yoshihito; Bell, Alexis T.; and Shen, Mitchel M., 4,279,723, Cl. 204-164.000.

University of Nebraska, The Board of Regents of the: *See—*
Shahani, Khemchand M.; Wagner, Frederick W.; and Kilara, Arun, 4,279,998, Cl. 435-174.000.

University of Pittsburgh: *See—*
DelVecchio, Robert M.; and Meiksin, Zvi H., 4,280,114, Cl. 338-2.000.

University of Utah: *See—*
Miller, Jan D., 4,279,743, Cl. 209-211.000.

University Patents, Inc.: *See—*
Allen, Robert H., 4,279,886, Cl. 424-1.000.
Coughlin, Robert W., 4,279,710, Cl. 204-101.000.

Unmuth, George E., to Petrolite Corporation. Laminating composition and uses. 4,279,659, Cl. 106-230.000.

Upjohn Company, The: *See—*
Hall, Charles M.; and Glenn, Eldridge M., 4,279,930, Cl. 424-331.000.
Nelson, Stephen J., 4,279,839, Cl. 260-968.000.
Nelson, Stephen J., 4,279,840, Cl. 260-968.000.

Urahama, Yoshiaki; and Numoto, Tetuo, to Nitto Electric Industrial Co., Ltd. Resin molded productions designed to display extinction of activity. 4,279,213, Cl. 116-200.000.

Urayama, Kiyoshi: *See—*
Yokoyama, Tohei; Asakura, Shintaro; Urayama, Kiyoshi; and Fujii, Kenji, 4,279,165, Cl. 73-826.000.

Ursprung, Karl; and Zimmermann, Franz, to Gretag Aktiengesellschaft. Method for print exposure control. 4,279,505, Cl. 355-77.000.

Us, Vasily I.: *See—*
Medovar, Boris I.; Baglai, Vitaly M.; Us, Vasily I.; Bogachenko, Alexei G.; Timashov, Grigory A.; Fedorovsky, Boris B.; Bondarenko, Oleg P.; Shtanko, Jury P.; Artamonov, Viktor L.; Pavlov, Leonid V.; Eltsov, Konstantin S.; Stetsenko, Nikolai V.; Kaganovsky, Gary P.; Korotkov, Albert N.; and Popov, Sergei S., 4,279,642, Cl. 75-10.00C.

Vaeches, Theodore A., to Fairchild Camera & Instrument Corp. Electronic testing system. 4,280,220, Cl. 371-27.000.

Valenta, James D.; and Heruth, Kenneth T., to Airco, Inc. Drug nebulizing system for medical ventilators of the volume-limited type. 4,279,250, Cl. 128-200.140.

Vance, Henry T., Jr.: *See—*
Baker, Philip G.; Fitch, John K.; and Vance, Henry T., Jr., 4,279,487, Cl. 354-79.000.

van de Plassche, Rudy J.; and Dijkmans, Eise C., to U.S. Philips Corporation. Automatic incrementing attenuation arrangement. 4,280,089, Cl. 323-354.000.

Van Der Lely, Cornelis; and Bom, Cornelis J. G., to C. Van Der Lely N. V. Vehicle with a lifting device responsive to ground irregularities. 4,279,138, Cl. 172-4.000.

van der Lely, Cornelis. Soil working machine. 4,279,310, Cl. 172-47.000.

van Heijst, Willem J., to Bluewater Terminal Systems N.V. Fluid transfer body. 4,279,047, Cl. 9-8.00P.

Vanis, Vernon V.: *See—*
Martin, Billy P.; and Vanis, Vernon V., 4,279,449, Cl. 305-35.0EB.

Van Pelt, Robert. Lunch box employing a built-in radio receiver. 4,279,342, Cl. 206-542.000.

Varian Associates, Inc.: *See—*
Bell, Ronald L., 4,280,074, Cl. 310-306.000.
Guarino, Nicholas, 4,280,054, Cl. 250-440.000.

VDO Adolf Schindling AG: *See—*
Mann, Arnold, 4,279,228, Cl. 123-352.000.

Velenyi, Louis J.; and Krupa, Andrew S., to Standard Oil Company, The. Molybdenum-copper-tin catalysts. 4,279,777, Cl. 252-439.000.

Velenyi, Louis J.; Paparizos, Christos; and Dolhyj, Serge R., to Standard Oil Company, The. Metal complex catalysts. 4,279,829, Cl. 260-429.900.

Velsicol Chemical Corporation: *See—*
Wu, Frank, 4,279,637, Cl. 71-92.000.

Venkatasetty, Hanumanthiya V., to Honeywell Inc. Electrochemical cell. 4,279,973, Cl. 429-101.000.

Vente, Paul; Seidenschnur, Dieter; Knipp, Ulrich; and Spenner, Anton, to Bayer Aktiengesellschaft. Method and an apparatus for assembling and removing a segmented tire mold core in a tire mold. 4,279,856, Cl. 264-313.000.

Veradyne Corp.: *See—*
Veraldi, S. James, 4,280,098, Cl. 328-59.000.

Veraldi, S. James, to Veradyne Corp. Coaxial spark gap switch. 4,280,098, Cl. 328-59.000.

Verdy, Robert E. Hoisting apparatus for pleasure boats. 4,279,565, Cl. 414-678.000.

Vereinigte Flugtechnische Werke-Fokker GmbH: *See—*
Seidenfaden, Heinz, 4,279,554, Cl. 409-180.000.

Vermont Castings, Inc.: *See—*
Syme, Duncan C., 4,279,238, Cl. 126-77.000.

Versar, Inc.: *See—*
Barden, James D., 4,279,618, Cl. 23-232.00R.
Shaver, Robert G.; and Leake, William R., 4,279,702, Cl. 202-137.000.

Vert, Michel; Chabot, Francois; Leray, Jean; and Christel, Pascal, to Agence Nationale de Valorisation de la Recherche (ANVAR); and Institut National de la Sante et de la Recherche Medicale. New prosthesis parts, their preparation and their application. 4,279,249, Cl. 128-92.00D.

Vertes, Michael A. Container cap. 4,279,351, Cl. 215-231.000.

Verwaerde, Francoise; Leleu, Jean-Bernard; and Huchette, Michel, to Roquette Freres. Non-cariogenic hydrogenated starch hydrolysate for confectionery and process for preparing this hydrolysate. 4,279,931, Cl. 426-48.000.

Vesperman, William C.: *See—*
Lueddecke, Donald E.; Mottine, John J., Jr.; and Vesperman, William C., 4,279,789, Cl. 260-17.00R.

Victory Games, Inc.: *See—*
Barnes, George A.; and Perhacs, Leslie, Jr., 4,279,419, Cl. 273-87.400.

Viehrig, Wolfgang: *See—*
Stemme, Otto; Fergg, Berthold; Osegowitsch, Viktor; and Viehrig, Wolfgang, 4,279,491, Cl. 355-27.000.

Villanyi, Sigmund T., to RCA Corporation. Cathode-ray tube having corrugated shadow mask with varying waveform. 4,280,077, Cl. 313-402.000.

Villette, Jean, to Compagnie Internationale pour l'Informatique CII-Honeywell Bull (Societe Anonyme). Lightly loaded ramp-launched read/write device for a data carrier. 4,280,156, Cl. 360-105.000.

Vining, Paul H.; Scott, Jack A.; and Duby, Paul F. Aqueous electrowinning of metals. 4,279,711, Cl. 204-105.00R.

Vitale, Joseph, to PRF Corporation. Corner pocket for securing mattress covers and the like. 4,279,045, Cl. 5-497.000.

Vivat, Michel: *See—*
Buendia, Jean; and Vivat, Michel, 4,279,919, Cl. 424-279.000.

Vodicka, Vincent: *See—*
Bradley, Irving; and Vodicka, Vincent, 4,280,173, Cl. 362-294.000.

Voegeli, Otto, to International Business Machines Corporation. Parametric bubble detector. 4,280,194, Cl. 365-7.000.

Voit, Willi: *See—*
Straubel, Max; and Voit, Willi, 4,279,385, Cl. 239-90.000.
Vojvodich, Mario M., to Singer Company, The. Device for transmitting and receiving optical data on the same optical transmission line. 4,279,465, Cl. 350-96.200.
Volker, Wolfgang: *See—*
Buchmuller, Jurgen; Nobis, Peter; and Volker, Wolfgang, 4,279,626, Cl. 55-204.000.
Volpeliere, Jacky: *See—*
Hanrot, Jean-Pascal; and Volpeliere, Jacky, 4,279,549, Cl. 406-14.000.
Von Roll AG: *See—*
Zeltner, Erich, 4,279,516, Cl. 366-171.000.
Von Kohorn, Henry. Method for leaching metal bearing ores. 4,279,868, Cl. 423-29.000.
von Wichert, Nils; and Schwenke, Dieter, to Hauni-Werke Korber & Co. KG. Method and apparatus for making collapsible containers. 4,279,609, Cl. 493-276.000.
Vrisakis, Georges: *See—*
Joubert, Daniel; and Vrisakis, Georges, 4,279,766, Cl. 252-174.250.
W. H. Brady Co.: *See—*
Arnold, John, 4,279,359, Cl. 221-70.000.
W. R. Grace & Co.: *See—*
Hill, Richard N.; and Sanchez, Moises G., 4,279,877, Cl. 423-321.00R.
Sanchez, Moises G.; Ernest, Michael V.; and Laine, Norman R., 4,279,779, Cl. 252-448.000.
Winyall, Milton E.; and Davidoff, Charles, 4,279,879, Cl. 423-335.000.
WABCO Westinghouse Compagnia Italiana Segnali S.p.A.: *See—*
Boggio, Francesco; Bertone, Andrea; and Tumolo, Enzo, 4,279,395, Cl. 246-182.00R.
Wachi, Hiroshi: *See—*
Ashida, Eiji; Nihei, Masayasu; Wachi, Hiroshi; Sato, Akira; and Kokura, Satoshi, 4,280,137, Cl. 358-101.000.
Wadden, Marie-Claire. Process for preparing works of art. 4,279,674, Cl. 156-62.000.
Wagener, Dietrich; Horst, Fach; and Ergun, Hayri, to Didier Engineering GmbH. Process and apparatus for the thermal treatment of coal. 4,280,033, Cl. 219-10.55A.
Wagensonner, Eduard: *See—*
Stemme, Otto; Wagensonner, Eduard; and Ruf, Wolfgang, 4,280,142, Cl. 358-214.000.
Wagner, Frederick W.: *See—*
Shahani, Khemchand M.; Wagner, Frederick W.; and Kilara, Arun, 4,279,998, Cl. 435-174.000.
Wain-Roy, Inc.: *See—*
Arnold, Carroll H., 4,279,085, Cl. 37-103.000.
Waits, Douglas B.: *See—*
Mart, Carl F.; and Waits, Douglas B., 4,280,201, Cl. 367-56.000.
Wakana, Hiroshi; Yamada, Shigeru; and Sato, Akira, to Bridgestone Tire Co., Ltd. Pressure resistant square panel. 4,279,966, Cl. 428-595.000.
Waldawsky-Berger, Irving: *See—*
Schorr, Herbert; and Waldawsky-Berger, Irving, 4,280,177, Cl. 364-200.000.
Walker, Gary W. Soft playing disc. 4,279,097, Cl. 46-74.00D.
Walker, Loren H.: *See—*
Cutler, John H.; and Walker, Loren H., 4,280,085, Cl. 318-803.000.
Wallace, Richard B., to Oakland Corporation, The. Method of providing ring patch for nuts. 4,279,943, Cl. 427-57.000.
Wallner, Josef; and Metzinger, Lothar, to Elastogran Maschinenbau GmbH & Co. Mixing apparatus for chemically reacting fluid components, particularly polyurethane-forming components. 4,279,517, Cl. 366-177.000.
Walsh, Peter, to Duro-Test Corporation. Incandescent lamp with structure for collecting evaporated filament material. 4,280,076, Cl. 313-114.000.
Walter Kidde & Company, Inc.: *See—*
Pottorff, Donald R.; and Galmiche, Rene G., 4,279,330, Cl. 188-71.700.
Walz, Klaus: *See—*
Schulze, Hans; Walz, Klaus; Jakobs, Karlhans; and Boehmke, Gunther, 4,279,614, Cl. 8-533.000.
Wambach, Allen D.: *See—*
Kramer, Morton; and Wambach, Allen D., 4,279,801, Cl. 260-40.00R.
Wang Laboratories, Inc.: *See—*
Wu, Edward S.; and Soulard, Roger R., 4,279,390, Cl. 242-192.000.
Wang, Taylor G.: *See—*
United States of America, National Aeronautics and Space Administration: Wang, Taylor G.; and Elleman, Daniel D., 4,279,632, Cl. 65-21.400.
Ward, Gary A., to Baxter Travenol Laboratories, Inc. Molded injection site. 4,279,352, Cl. 215-247.000.
Ward, William J., III, to General Electric Company. Method for the casting of ultrathin polymer membranes. 4,279,855, Cl. 264-298.000.
Wareham, Richard R.: *See—*
Cocco, Vincent L.; Norris, Philip R.; and Wareham, Richard R., 4,279,503, Cl. 355-45.000.
Warheit, Kevin E.: *See—*
Hough, William V.; Little, John L.; and Warheit, Kevin E., 4,279,951, Cl. 427-437.000.
Warren, Richard A. Ventilating ladder. 4,279,327, Cl. 182-206.000.
Watanabe, Toshio: *See—*
Kojima, Kenji; Ota, Sakae; Katsumata, Akio; Kameyama, Toshiaki; Watanabe, Toshio; and Koike, Tadao, 4,279,501, Cl. 355-15.000.
Watari, Masahide: *See—*
Ebata, Sakae; Watari, Masahide; Hayakumo, Sunao; and Oyamada, Osamu, 4,279,701, Cl. 176-87.000.
Watson, Louis L., Jr. Methods for forming thinwall structures. 4,279,680, Cl. 156-212.000.
Watton, John F.: *See—*
Chapman, Lloyd R.; and Watton, John F., 4,279,782, Cl. 252-465.000.
Webb, Austin A.: *See—*
Settlemire, Eugene F., 4,280,035, Cl. 235-94.00R.
Weber, Charles J.: *See—*
Blanco, Abelardo D.; Boynton, William W.; and Weber, Charles J., 4,279,199, Cl. 101-93.050.
Weber, Heinz: *See—*
Ivanov, Rumen V.; Nikolov, Dobrin V.; Bilsing, Ulrich; Weber, Heinz; and Schmidt, Manfred, 4,279,742, Cl. 209-166.000.
Weber, Walter, to Siemens Aktiengesellschaft. Dental handpiece. 4,279,596, Cl. 433-126.000.
Webinger, George, to Champion International Corporation. Adhesive-free tray with interlocking tabs and blank therefor. 4,279,374, Cl. 229-34.00R.
Webinger, George: *See—*
Austin, John J.; and Webinger, George, 4,279,933, Cl. 426-124.000.
Wegmann & Co.: *See—*
Dieling, Hans; and Schindehutte, Manfred, 4,279,202, Cl. 105-206.00R.
Wehrsdorfer, Eike: *See—*
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Weiner, Nathan K.; Weyman, Peter J.; and Ketchum, David D., to Electronic Corporation of America. Burner flame detection. 4,280,184, Cl. 364-506.000.
Weinert, Harry F., to Cascade Corporation. Parallel arm clamp having improved attaching assembly for narrow clamp arms. 4,279,564, Cl. 414-621.000.
Weinstein, Warren D.; Boudreau, Jean A.; and Gertz, Donald, to Grumman Aerospace Corporation. Survivable redundant vector sensors for systems with differing maximum output requirements. 4,280,188, Cl. 364-566.000.
Weir, Donald R., to Sherritt Gordon Mines Limited. Process for the recovery of copper and zinc values from sulphidic ore. 4,279,867, Cl. 423-26.000.
Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., to Commonwealth Scientific and Industrial Research Organization. Water clarification. 4,279,756, Cl. 210-667.000.
Weiss, Stuart L.: *See—*
Lazarus, Arnold; and Weiss, Stuart L., 4,280,018, Cl. 179-1.00M.
Weitz, Robert D., to Top Tool Company, Inc. Well washing tool and method. 4,279,306, Cl. 166-312.000.
Wella Aktiengesellschaft: *See—*
Konrad, Eugen; and Mager, Herbert, 4,279,613, Cl. 8-407.000.
Wellbrock, Werner, to Hoechst Aktiengesellschaft. Process for the preparation of alkaline earth metal salts of alkyl benzenesulfonic acids. 4,279,837, Cl. 260-505.00N.
Wellner, Wolfgang; and Hajek, Manfred, to Bayer Aktiengesellschaft. Water-hardenable mixtures. 4,279,793, Cl. 260-18.00R.
Wells, Donald H. Variable mutual transductance tuned antenna. 4,280,129, Cl. 343-715.000.
Wells, Peter M., Jr.; and Mitchell, Roger E., to Ideal Industries, Inc. Ground fault interrupter tester. 4,280,092, Cl. 324-51.000.
Weresch, Thomas. Apparatus for stringing electrical components having two aligned connecting wires into a belt. 4,279,278, Cl. 140-147.000.
Wermelinger, Alain: *See—*
Bourhis, Yves; Wermelinger, Alain; and Kostelitz, Michel, 4,279,406, Cl. 266-81.000.
Werner, Helmut W. W.; Witmer, Antonius W.; and Knippenberg, Wilhelmus F., to U.S. Philips Corporation. X-ray spectrometer. 4,280,049, Cl. 250-310.000.
Weslowski, Robert G.: *See—*
Schevey, William R.; Weslowski, Robert G.; and Morentz, John D., 4,279,279, Cl. 141-5.000.
Wessel, Wolf; and Handtmann, Dieter, to Robert Bosch GmbH. Apparatus for measuring the air quantity supplied to an internal combustion engine. 4,279,146, Cl. 73-118.000.
Wessel, Wolf: *See—*
Flaig, Ulrich; Piwonda, Fridolin; Stumpp, Gerhard; and Wessel, Wolf, 4,279,235, Cl. 123-569.000.
Western Electric Company, Inc.: *See—*
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Lueddecke, Donald E.; Mottine, John J., Jr.; and Vesperman, William C., 4,279,789, Cl. 260-17.00R.
Westinghouse Electric Corp.: *See—*
Boyle, Raymond F.; and Durigon, Docile D., 4,279,700, Cl. 176-68.000.
Eckels, Phillip W., 4,280,071, Cl. 310-52.000.
Gilmour, George A., 4,280,203, Cl. 367-103.000.
Koump, Valentin, 4,279,293, Cl. 165-82.000.
Lee, Henry E.; Guillen, Francisco J.; and Longuemare, R. Noel, Jr., 4,280,127, Cl. 343-5.0CM.
McIntyre, William H., 4,279,142, Cl. 73-1.00G.

Wey, Joseph; Sidler, Hans; and Stalder, Hans, to Sistag, Maschinenfabrik Sidler Stalder AG. Explosion barring shutoff device. 4,279,402, Cl. 251-63.000.
Weyman, Peter J.: *See—*
Weiner, Nathan K.; Weyman, Peter J.; and Ketchum, David D., 4,280,184, Cl. 364-506.000.
Wheelabrator Corporation of Canada Limited: *See—*
Bartels, Bruce E., 4,279,956, Cl. 428-192.000.
Wheeler, Raymond L.; Henry, John; and Dadswell, John E., to British Hovercraft Corporation Limited. Air cushion vehicle flexible skirt assemblies. 4,279,322, Cl. 180-128.000.
Whirlpool Corporation: *See—*
Johnson, Milton J., 4,279,198, Cl. 100-229.00A.
White-BSA Tools Ltd.: *See—*
Tomlinson, Geoffrey E. S.; and Dolman, Roy S., 4,279,180, Cl. 82-1.00C.
White, George H.; and Petersen, Donald J., to National Gypsum Company. Hard-edge wallboard. 4,279,673, Cl. 156-39.000.
White, Kenneth T., to Chemetron Corporation. Liquid level detector. 4,280,126, Cl. 340-621.000.
White, Lionel S., Jr.: *See—*
Reese, Edmund A.; White, Lionel S., Jr.; and McAlexander, Joseph C., III, 4,280,070, Cl. 307-279.000.
White, Marvin H.: *See—*
McCann, David H; White, Marvin H.; Turly, Alfred P.; and Frosch, Robert A., 4,280,141, Cl. 358-213.000.
Whyte, Robert N. Barrel hoop drivers. 4,279,282, Cl. 147-9.000.
Wichmann, Joseph K.: *See—*
DeLuca, Hector F.; Schnoes, Heinrich K.; Tanaka, Yoko; and Wichmann, Joseph K., 4,279,826, Cl. 260-397.200.
Wiedmann, Siegfried K.: *See—*
Heuber, Klaus; and Wiedmann, Siegfried K., 4,280,198, Cl. 365-203.000.
Wilczewski, Robert H.: *See—*
Blomquist, James E.; and Wilczewski, Robert H., 4,279,518, Cl. 400-124.000.
Wilhelm Hedrich Vakuumanlagen GmbH & Co. K.G.: *See—*
Hauser, Erhard, 4,279,360, Cl. 222-1.000.
Wilkinson, Ralph A.: *See—*
Woods, Leodis V.; Stassi, Paul; and Wilkinson, Ralph A., 4,279,995, Cl. 435-38.000.
Willamette Industries, Inc.: *See—*
Jenkins, Donald E., 4,279,378, Cl. 229-39.00R.
Willem, Michel, to Societe Anonyme dite: Ceraver. Multiple-dielectric insulator. 4,280,017, Cl. 174-182.000.
William H. Rorer, Inc.: *See—*
Riley, Richard L.; Douglas, George H.; and Yelnosky, John, 4,279,928, Cl. 424-324.000.
William Underwood Company: *See—*
Jones, Dorothy L.; and Conant, Frank R., 4,279,936, Cl. 426-265.000.
Williams, Thomas E., to Texaco Inc. Method for improving the effective permeability of formations. 4,279,301, Cl. 166-250.000.
Willis, Arthur J., to BICC Limited. Communication systems for transportation undertakings. 4,280,225, Cl. 455-55.000.
Willy Rusch GmbH & Co. KG: *See—*
Rusch, Heinz, 4,279,251, Cl. 128-348.000.
Wilson, Joseph G. Downflow separator method and apparatus. 4,279,624, Cl. 55-1.000.
Wilson, Paul, Jr., to United States of America, Air Force. Radial and axial flow variable exhaust nozzle for a gas turbine engine. 4,279,382, Cl. 239-11.000.
Wilterding, Jerry L. Hole saw pilot pin with plug retrieval mechanism. 4,279,551, Cl. 408-67.000.
Wiltshire Cutlery Company Proprietary Limited: *See—*
Jackson, Dennis B., 4,279,076, Cl. 30-254.000.
Winchell, Harry S.: *See—*
Baldwin, Ronald M.; Lin, Tz-Hong; and Winchell, Harry S., 4,279,887, Cl. 424-1.500.
Windmoller & Holscher: *See—*
Achelpohl, Fritz; and Decker, Werner, 4,279,686, Cl. 156-517.000.
Wing, Steven D.; and Smith, Richard E., to National Gypsum Company. Wallboard T-square. 4,279,081, Cl. 33-479.000.
Winter, David F.: *See—*
Bussen, Michael R.; and Winter, David F., 4,279,461, Cl. 339-246.000.
Winterbottom, Peter H., to Turner & Newall Limited. Process for the manufacture of composite materials. 4,279,695, Cl. 162-146.000.
Winters, Richard D., to Great Lakes Carbon Corporation. Production of stabilized acrylic fibers. 4,279,612, Cl. 8-115.500.
Winyall, Milton E.; and Davidoff, Charles, to W. R. Grace & Co. Silica gel. 4,279,879, Cl. 423-335.000.
Wirsch, Michael J., to Exxon Production Research Company. Treating fluid applicator. 4,279,300, Cl. 166-90.000.
Wirth, Hermann O.: *See—*
Michaelis, Klaus P.; and Wirth, Hermann O., 4,279,761, Cl. 252-46.400.
Wirth Maschinen- und Bohrgerate-Fabrik GmbH: *See—*
Tibussek, Fritz, 4,279,315, Cl. 175-249.000.
Wirth, Walter, to Hergeth KG Maschinenfabrik und Apparatebau. Method of and apparatus for the production of open non-woven fabric from fibrous material. 4,279,060, Cl. 19-106.00R.
Wisconsin Alumni Research Foundation: *See—*
DeLuca, Hector F.; Schnoes, Heinrich K.; Tanaka, Yoko; and Wichmann, Joseph K., 4,279,826, Cl. 260-397.200.
Witmer, Antonius W.: *See—*
Werner, Helmut W. W.; Witmer, Antonius W.; and Knippenberg, Wilhelmus F., 4,280,049, Cl. 250-310.000.
Witte, Josef: *See—*
Overhoff, Theodor; Schulten, Rudolf; Singh, Jasbir; Sylvester, Gerd; and Witte, Josef, 4,279,697, Cl. 176-22.000.
Woinsky, Samuel G., to Occidental Research Corporation. Process and system for recovery of energy from geothermal brines and other hot water containing sources. 4,279,125, Cl. 60-641.500.
Wolf, Klaus-Ullrich: *See—*
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; Kaupmann, Wilhelm; and Heinemann, Henning, 4,279,904, Cl. 424-246.000.
Ohlendorf, Heinrich-Wilhelm; Wolf, Klaus-Ullrich; and Kaupmann, Wilhelm, 4,279,905, Cl. 424-246.000.
Wolf, Stuart A.: *See—*
Francavilla, Thomas L.; and Wolf, Stuart A., 4,279,969, Cl. 428-698.000.
Woodall, Roger E.: *See—*
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Woods, Leodis V.; Stassi, Paul; and Wilkinson, Ralph A., to McDonnell Douglas Corporation. Selective salmonella carbohydrate and medium constructed therefrom. 4,279,995, Cl. 435-38.000.
Wooldridge, Derek: *See—*
Burroughs, Reginald L.; Thompson, William J.; and Wooldridge, Derek, 4,279,663, Cl. 127-1.000.
Wormser, Alex F., to Wormser Engineering, Inc. Fluid bed combustion. 4,279,207, Cl. 110-345.000.
Wormser, Alex F.: *See—*
Perkins, Stephen P.; and Wormser, Alex F., 4,279,205, Cl. 110-245.000.
Wormser Engineering, Inc.: *See—*
Perkins, Stephen P.; and Wormser, Alex F., 4,279,205, Cl. 110-245.000.
Wormser, Alex F., 4,279,207, Cl. 110-345.000.
Woznik, Reinhard: *See—*
Blumel, Reinhard; Denker, Jurgen; Markart, Ernst; Trapp, Werner; Tutzer, Michael; and Woznik, Reinhard, 4,279,514, Cl. 356-445.000.
Wu, Edward S.; and Soulard, Roger R., to Wang Laboratories, Inc. Ribbon cartridge. 4,279,390, Cl. 242-192.000.
Wu, Frank, to Velsicol Chemical Corporation. Herbicidal N-substituted 4-imidazolin-2-ones. 4,279,637, Cl. 71-92.000.
Wuertele, James W. Corrosion detector. 4,280,124, Cl. 340-650.000.
Wunderlich, Winfried: *See—*
Hitzler, Otto; and Wunderlich, Winfried, 4,279,719, Cl. 204-159.230.
Wurmb, Rolf: *See—*
DeBeuckelaer, Gerard; Jarre, Wolfgang; Wurmb, Rolf; and Marx, Matthias, 4,279,757, Cl. 210-671.000.
Wurzburg, Otto B.; and Lenchin, Julianne M., to National Starch and Chemical Corporation. Clouding with a starch material. 4,279,940, Cl. 426-590.000.
WWG Industries, Inc.: *See—*
Norris, Alan H., 4,279,120, Cl. 57-204.000.
Wyler, John S.; and Pfuntner, Richard A., to General Electric Company. Mass rate of flow meter with electromagnetic interference compensation. 4,279,168, Cl. 73-861.350.
Wymer, Robert L.; and Prater, Perry, to Energy Synergistics, Inc. Apparatus for drying a natural gas stream. 4,279,628, Cl. 55-238.000.
Wyoming Mineral Corporation: *See—*
Smith, Richard C., 4,280,048, Cl. 250-264.000.
Xerox Corporation: *See—*
Kazan, Benjamin, 4,280,125, Cl. 340-795.000.
Rezanka, Ivan; and Lindblad, Nero R., 4,279,499, Cl. 355-15.000.
Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, 4,280,106, Cl. 331-94.50H.
Scifres, Donald R.; Ponce, Fernando A.; Connell, G. A. Neville; and Streifer, William, 4,280,107, Cl. 331-94.50H.
Scifres, Donald R.; Burnham, Robert D.; and Streifer, William, 4,280,108, Cl. 331-94.50H.
Silverberg, Morton, 4,279,496, Cl. 355-3.0BE.
Yagi, Kouichi; and Nakagawa, Yunosuke, to Kao Soap Co., Ltd. Bleaching composition. 4,279,769, Cl. 252-186.000.
Yagisawa, Takeshi: *See—*
Takekoshi, Yoshikazu; and Yagisawa, Takeshi, 4,279,163, Cl. 73-761.000.
Yajima, Seishi; Okamura, Kiyohito; Shishido, Toetsu; and Hasegawa, Yoshio, to Foundation: The Research Institute for Special Inorganic Materials, The. Process for production of crystallized glass and process for producing composite article using said crystallized glass. 4,279,654, Cl. 106-39.600.
Yakovlev, Vladimir S.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.
Yamada, Shigeru: *See—*
Wakana, Hiroshi; Yamada, Shigeru; and Sato, Akira, 4,279,966, Cl. 428-595.000.
Yamada, Yasuharu: *See—*
Shiga, Akinobu; Fukui, Yoshiharu; Hanji, Katsumi; Sasaki, Toshio; Okawa, Masahisa; Matsuura, Hideaki; and Yamada, Yasuharu, 4,279,776, Cl. 252-429.00B.

Yamafuji, Tsutomu: *See—*
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Yamaguchi, Keiki; and Sano, Shinichi, to Yokogawa Electric Works, Ltd. Signal isolator. 4,280,064, Cl. 307-149.000.

Yamakawa, Yoshio: *See—*
Nakamura, Yasuhiko; and Yamakawa, Yoshio, 4,279,630, Cl. 55-316.000.

Yamamoto, Kunio, to Sharp Kabushiki Kaisha. Steam generation in a dishwasher. 4,279,384, Cl. 239-67.000.

Yamamoto, Ryuichi; and Torisu, Masaaki, to Mitsui Toatsu Chemicals Inc. Process for the preparation of aminoaryl thiophosphates and aminoaryl phosphates. 4,279,838, Cl. 260-968.000.

Yamamoto, Samuroh. Process and apparatus for continuous cake filteration under pressure. 4,279,760, Cl. 210-784.000.

Yamamoto, Takaharu: *See—*
Fujimori, Naoji; Tobioka, Masaaki; Asai, Tsuyoshi; Yamamoto, Takaharu; and Miyake, Masaya, 4,279,651, Cl. 75-233.000.

Yamana, Toru, to Murakami Kaimeido Co., Ltd. Remote control mechanism. 4,279,473, Cl. 350-307.000.

Yamanouchi Pharmaceutical Co., Ltd.: *See—*
Oka, Yoshihiko; Ishida, Hitoshi; Morioka, Moto; Numusaki, Yoso; Yamafuji, Tsutomu; Osono, Takashi; and Umezawa, Hamao, 4,279,997, Cl. 435-80.000.

Yamashita, Masaaki. Variable speed transmission. 4,279,177, Cl. 74-675.000.

Yamashita, Shuzo; Shibatani, Kyoichiro; Takakura, Kiochi; and Imai, Kiyokazu, to Kuraray Co., Ltd. Hydrophilic-hydrophobic graft copolymers for self-reinforcing hydrogels. 4,279,795, Cl. 260-29.6RW.

Yamashita, Yukio. Automatic mold goods dropping device in an injection molding machine. 4,279,586, Cl. 425-438.000.

Yamauchi, Coro: *See—*
Fujiwara, Koichi; Yamauchi, Coro; Arita, Kishio; and Tsurumi, Shigeyuki, 4,279,649, Cl. 75-173.00A.

Yamazoe, Hiroshi: *See—*
Aoki, Masaki; Yoshida, Shigeru; Yamazoe, Hiroshi; and Nagasawa, Masahiro, 4,279,691, Cl. 156-656.000.

Yano, Hirofumi: *See—*
Makishima, Hiroshi; Toyoda, Tsunehiko; Okamura, Noriaki; Yano, Hirofumi; Mizoguchi, Akira; and Hiromori, Yasutaka, 4,279,653, Cl. 106-22.000.

Yasuda, Hiroshi: *See—*
Osakabe, Yoshio; and Yasuda, Hiroshi, 4,280,199, Cl. 365-236.000.

Yasuda, Tadahiro: *See—*
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,279,980, Cl. 430-68.000.

Yelnosky, John: *See—*
Riley, Richard L.; Douglas, George H.; and Yelnosky, John, 4,279,928, Cl. 424-324.000.

Yohpe, William E.: *See—*
Roettele, Donald L.; and Yohpe, William E., 4,280,223, Cl. 375-93.000.

Yokogawa Electric Works, Ltd.: *See—*
Yamaguchi, Keiki; and Sano, Shinichi, 4,280,064, Cl. 307-149.000.

Yokoi, Gunpei, to Nintendo Co., Ltd. Obstacle game machine. 4,279,417, Cl. 273-1.00E.

Yokomori, Mituo; and Kawakami, Tsugimi, to Tokyo Electric Co., Ltd. Electronic timer device. 4,280,063, Cl. 307-141.400.

Yokoyama, Kenji, to Nippon Gakki Seizo Kabushiki Kaisha. Frequency response characteristic adjustable circuit. 4,280,102, Cl. 330-85.000.

Yokoyama, Tohei; Asakura, Shintaro; Urayama, Kiyoshi; and Fujii, Kenji, to Kabushiki Kaisha Hosokawa Funtai Kogaku Kenkyusho. Apparatus for measuring cohesion force of particulate materials. 4,279,165, Cl. 73-826.000.

Yoneda, Ryuichi: *See—*
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

Yonekawa, Yuriko: *See—*
Takami, Toru; and Yonekawa, Yuriko, 4,279,917, Cl. 424-273.00R.

Yong, Yuen-Cjen: *See—*
Henderson, Jerald M.; and Yong, Yuen-Cjen, 4,279,336, Cl. 198-443.000.

Yonkers, Edward H., to Data Packaging Corporation. High speed printer cartridge. 4,279,522, Cl. 400-196.100.

Yordanov, Nikola S.: *See—*
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.

Yordanov, Yordan I.: *See—*
Novev, Todor V.; Ovcharov, Sava D.; Yordanov, Nikola S.; Acheva, Jivka P.; Yordanov, Yordan I.; and Mandova, Maria L., 4,279,708, Cl. 204-46.00R.

Yoshida Kogyo, K.K.: *See—*
Matsuda, Yoshio, 4,279,134, Cl. 66-195.000.

Yoshida, Shigeru: *See—*
Aoki, Masaki; Yoshida, Shigeru; Yamazoe, Hiroshi; and Nagasawa, Masahiro, 4,279,691, Cl. 156-656.000.

Yoshida, Takeshi: *See—*
Ito, Naoya; Saito, Kiichi; Yoshida, Takeshi; Aoki, Masahiro; Okubo, Masao; and Miki, Masayoshi, 4,279,648, Cl. 75-128.00C.

Yoshikawa, Ryoichi; Okajima, Kazuhiko; Nakahara, Shunichi; and Nakayama, Sumio, to Canon Kabushiki Kaisha. Camera body. 4,279,494, Cl. 354-288.000.

Yoshioka, Issei; and Kamimura, Yoichi, to Seiwa Kasei Co., Ltd. Keratin hydrolyzate useful as hair fixatives. 4,279,996, Cl. 435-69.000.

Yoshizawa, Tadao: *See—*
Ohta, Ryozo; Yoshizawa, Tadao; Sakaguchi, Masayuki; Hara, Yoshiaki; Kyomen, Junsuke; Yoneda, Ryuichi; and Enomoto, Hidekazu, 4,279,853, Cl. 264-230.000.

Yotsumoto, Toshiyuki; Ujita, Tuginobu; and Shinohara, Eisaku, to Robert Bosch GmbH. Operating lever assembly for farm tractors. 4,279,324, Cl. 180-336.000.

Young, James E.: *See—*
Gryn, Felix J.; and Young, James E., 4,279,166, Cl. 73-861.120.

Yuan, William K. C., to Entel Corporation. Message waiting system. 4,280,021, Cl. 179-84.00C.

Yueh, Yang. Method for uniformly heating a multi-level building. 4,279,381, Cl. 237-81.000.

Yusa, Hideo: *See—*
Chino, Koichi; Yusa, Hideo; Oda, Akira; Miura, Hideichi; Horiuchi, Susumu; and Takamura, Yoshiyuki, 4,279,692, Cl. 159-6.00W.

Zabotin, Viktor G.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Zaitsev, Konstantin A.: *See—*
Buryakov, Valery M.; Kolotilov, Nikolai N.; Tokhunts, Roman D.; Yakovlev, Vladimir S.; Akulov, Vladislav A.; Zabotin, Viktor G.; Levin, Viktor Y.; Lukachev, Viktor P.; Pervyshin, Alexandr N.; Zaitsev, Konstantin A.; Karakov, Vladimir D.; and Khasanov, Mubaraksha D., 4,279,405, Cl. 266-55.000.

Zeitrag, Rolf, to Siemens Aktiengesellschaft. Method of making conference call connections in a multiplex switching system. 4,280,216, Cl. 370-62.000.

Zell, Dale R.; and Morningstar, Leroy J., to AMP Incorporated. Method of terminating flat multi-conductor transmission cable. 4,279,074, Cl. 29-866.000.

Zeltner, Erich, to Von Roll AG. Container for pasteurizing sludge. 4,279,516, Cl. 366-171.000.

Zenith Radio Corporation: *See—*
Skerlos, Peter C., 4,280,140, Cl. 358-195.100.

Zerlauth, Ferdinand, to Sulzer Brothers Limited. Sealing arrangement for a joint between two stator parts of a turbomachine. 4,279,424, Cl. 277-83.000.

Zickwolf, Herbert C., Jr., to United Technologies Corporation. Detecting power loss in free turbines. 4,280,059, Cl. 290-40.00B.

Zimmer, Erich: *See—*
Ringel, Helmut; Zimmer, Erich; and Abdelmonem, Nabil, 4,279,866, Cl. 423-7.000.

Zimmer, Robert E.: *See—*
Comerford, John; and Zimmer, Robert E., 4,280,027, Cl. 200-6.00A.

Zimmermann, Franz: *See—*
Ursprung, Karl; and Zimmermann, Franz, 4,279,505, Cl. 355-77.000.

Zodrow, Rudolf: *See—*
Buchholz, Rainer; Zodrow, Rudolf; and Rosenberg, Heinz J., 4,279,687, Cl. 156-568.000.

Zucchini, Guido, to F. Lli Zucchini. Electric lines of the armor-plated type, designed especially for electric system for interiors. 4,279,456, Cl. 339-32.00R.

Zverev, Anatoly I.; Astakhov, Evgeny A.; Klimenko, Valery S.; Skadin, Vasily G.; and Timoshin, Mikhail A. Apparatus for coating by detonation waves. 4,279,383, Cl. 239-61.000.

Zwahlen, Gunther: *See—*
Laely, Andreas; Zwahlen, Gunther; and Buxbaum, Lothar, 4,279,802, Cl. 260-40.00P.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF JULY, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Bucher, Jeffry C. Remote starting system for a combustion engine. Re. 30,686, Cl. 290-38.00R.

Bullivant, Kenneth W., to K-Tron International, Inc. Digital mass flow control system. Re. 30,684, Cl. 222-55.000.

Bush, Elmer W. Crankcase emission separator and collector. Re. 30,682, Cl. 123-573.000.

Eaton Corporation: *See—*
Streeter, Kenneth R., Re. 30,683, Cl. 192-82.00T.

Excel Corporation: *See—*
Furlette, James L.; and Stadler, Donald A., Re. 30,681, Cl. 64-30.00D.

Furlette, James L.; and Stadler, Donald A., to Excel Corporation. Torque limiting coupling. Re. 30,681, Cl. 64-30.00D.

Gilmore, John F.: *See—*
Morton, Edward W.; and Gilmore, John F., Re. 30,687, Cl. 315-58.000.

K-Tron International, Inc.: *See—*
Bullivant, Kenneth W., Re. 30,684, Cl. 222-55.000.

Kress elektrik GmbH & Co., Firma: *See—*
Kress, Willy; and Seifert, Josef, Re. 30,680, Cl. 64-4.000.

Kress, Willy; and Seifert, Josef, to Kress elektrik GmbH & Co., Firma. Connecting arrangement for a machine tool. Re. 30,680, Cl. 64-4.000.

Mendenhall, Robert L. Process for recycling asphalt-aggregate compositions. Re. 30,685, Cl. 106-280.000.

Morton, Edward W.; and Gilmore, John F., to Westinghouse Electric Corp. Energy saving device for a standard fluorescent lamp system. Re. 30,687, Cl. 315-58.000.

Seifert, Josef: *See—*
Kress, Willy; and Seifert, Josef, Re. 30,680, Cl. 64-4.000.

Stadler, Donald A.: *See—*
Furlette, James L.; and Stadler, Donald A., Re. 30,681, Cl. 64-30.00D.

Streeter, Kenneth R., to Eaton Corporation. Fluid coupling device and bimetal coil adjustment for use therein. Re. 30,683, Cl. 192-82.00T.

Westinghouse Electric Corp.: *See—*
Morton, Edward W.; and Gilmore, John F., Re. 30,687, Cl. 315-58.000.

LIST OF DESIGN PATENTEES

AB Broderna Kjellstrom: *See—*
Kjellstrom, Alvar E. P., 259,942, Cl. D21-229.000.

AB Volvo: *See—*
Sandberg, Ulf A., 259,930, Cl. D12-211.000.

Aktiebolaget Bahco Verktyg: *See—*
Wahlberg, Ulf H., 259,913, Cl. D8-58.000.

Amerock Corporation: *See—*
Pittenger, Teresa R. B., 259,914, Cl. D8-318.000.
Pittenger, Teresa R. B., 259,915, Cl. D8-320.000.
Pittenger, Teresa R. B., 259,916, Cl. D8-350.000.

AMF Incorporated: *See—*
Witte, Paul A.; and Johnson, Thomas, 259,940, Cl. D21-212.000.

Bane, John H., III. Stove draft valve control plate. 259,949, 7-21-81, Cl. D23-127.000.

Bantin, Robert A.; and Kilbourn, Dean R., to BKB Industries, Inc. Hand manipulative aquatic toy. 259,938, 7-21-81, Cl. D21-59.000.

Bell, Harold G. Splash shield for recessed soap holders. 259,905, 7-21-81, Cl. D6-86.000.

Bergen Barrel & Drum Co.: *See—*
Zilbert, Seymour, 259,969, Cl. D99-51.000.

Bergkvist, Lars A. Instrument for the indication of the angular position of an object. 259,924, 7-21-81, Cl. D10-65.000.

Berman, James S.; and Stegmaier, Sigurd, to Citibank, N.A. Desk carrel. 259,908, 7-21-81, Cl. D6-181.000.

Bianchi, John E. Gun sling. 259,945, 7-21-81, Cl. D22-7.000.

Bianchi, John E.; and Nichols, Richard D. E. Combined belt and shoulder revolver holster. 259,946, 7-21-81, Cl. D22-13.000.

Bianchi, John E.; and Nichols, Richard D. E. Combined belt and shoulder automatic handgun holster. 259,947, 7-21-81, Cl. D22-13.000.

Bianchi, John E.; and Nichols, Richard D. E. Firearm magazine carrier. 259,948, 7-21-81, Cl. D22-14.000.

BKB Industries, Inc.: *See—*
Bantin, Robert A.; and Kilbourn, Dean R., 259,938, Cl. D21-59.000.

Bogorad, Beatrice. Cosmetic mirror. 259,966, 7-21-81, Cl. D28-70.000.

Bosch-Siemens Hausgerate GmbH: *See—*
Reichl, Ernst, 259,954, Cl. D24-62.000.

Bowls, Thurman: *See—*
Wotowiec, Joseph P.; and Bowls, Thurman, 259,961, Cl. D26-26.000.

Briedert, George M. Ventilator. 259,951, 7-21-81, Cl. D23-153.000.

Burris Company: *See—*
Burris, Donald J., 259,944, Cl. D22-7.000.

Burris, Donald J., to Burris Company. Riflescope mount assembly. 259,944, 7-21-81, Cl. D22-7.000.

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1.5 M 4,280,019
2 EA 4,280,020
84 C 4,280,021
99 A 4,280,022
189 D 4,280,025

CLASS 180

9.64 4,279,318
12 4,279,319
69 R 4,279,320
89.14 4,279,321
128 4,279,322
148 4,279,323
336 4,279,324

CLASS 181

211 4,279,325
228 4,279,326

CLASS 182

206 4,279,327

CLASS 187

9 R 4,279,328
25 4,279,329

CLASS 188

71.7 4,279,330
73.3 4,279,331
170 4,279,332
218 XL 4,279,333

CLASS 192

3.57 4,279,334
82 T Re.30,683
134 4,279,335

CLASS 198

443 4,279,336
472 4,279,337
525 4,279,338

CLASS 200

6 A 4,280,027
44 4,280,028
50 R 4,280,029
157 4,280,026
237 4,280,030
314 4,280,031

CLASS 202

137 4,279,702
158 4,279,703
175 4,279,704

CLASS 204

1.5 4,279,705
26 4,279,706
43 T 4,279,707
46 R 4,279,708
98 4,279,709
101 4,279,710
105 R 4,279,711
128 4,279,712
129 4,279,713
129.9 4,279,714
4,279,715
149 4,279,716
159.13 4,279,717
159.15 4,279,718
159.23 4,279,719
4,279,720
159.24 4,279,721
162 R 4,279,722
164 4,279,723
180 G 4,279,724
181 F 4,279,725
192 P 4,279,726
195 R 4,279,727
4,279,728
196 4,279,729
206 4,279,730
254 4,279,731
269 4,279,732

CLASS 206

3 4,279,339
219 4,279,340
345 4,279,341
542 4,279,342
582 4,279,343
631 4,279,344

CLASS 208

48 Q 4,279,734
48 R 4,279,733
113 4,279,735
215 4,279,736
217 4,279,737
253 4,279,738
309 4,279,739

CLASS 209

3.2 4,279,345
12 4,279,740
44 4,279,741
166 4,279,742
211 4,279,743
214 4,279,744
215 4,279,745
582 4,279,346

CLASS 210

130 4,279,746
197 4,279,747
222 4,279,748
330 4,279,749
357 4,279,750
388 4,279,751
500.2 4,279,752
605 4,279,753
608 4,279,754
661 4,279,755
667 4,279,756
671 4,279,757
700 4,279,758
709 4,279,759
784 4,279,760

CLASS 212

147 4,279,347
196 4,279,348

CLASS 215

6 4,279,349
228 4,279,350
231 4,279,351
247 4,279,352
254 4,279,353

CLASS 219

10.55 A 4,280,033
10.55 E 4,280,032
10.77 4,280,038
78.11 4,280,039
104 4,280,040
121 PT 4,280,041
4,280,042
137.31 4,280,043
462 4,280,044
540 4,280,045
544 4,280,046

CLASS 220

23.83 4,279,354
300 4,279,355
314 4,279,356
318 4,279,357
321 4,279,358

CLASS 221

70 4,279,359

CLASS 222

1 4,279,360
4,279,361
55 Re.30,684
94 4,279,362
4,279,363
162 4,279,364

CLASS 224

42.42 4,279,365
257 4,279,367
326 4,279,368

CLASS 225

3 4,279,369
67 4,279,370

CLASS 226

91 4,279,371
118 4,279,372

CLASS 229

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34 R 4,279,374
37 R 4,279,375
38 4,279,376
39 R 4,279,377
4,279,378
4,279,379

CLASS 232

35 4,279,380

CLASS 235

1 D 4,280,034
94 R 4,280,035
379 4,280,036
454 4,280,037

CLASS 237

81 4,279,381

CLASS 239

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61 4,279,383
67 4,279,384
90 4,279,385

CLASS 242

68.3 4,279,386
84.2 G 4,279,387
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156.1 4,279,389
192 4,279,390

CLASS 244

17.13 4,279,391
150 4,279,392
152 4,279,393
153 R 4,279,394

CLASS 246

182 R 4,279,395

CLASS 248

206 R 4,279,396
221.3 4,279,397
405 4,279,398

CLASS 249

2 4,279,399
106 4,279,400
139 4,279,401

CLASS 250

201 4,279,472
252 4,280,047
264 4,280,048
310 4,280,049
330 4,280,050
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381 4,280,052
432 PD 4,280,053
440 4,280,054
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554 4,280,058

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CLASS 252

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47.5 4,279,762
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174.25 4,279,766
178 4,279,767
180 4,279,768
186 4,279,769
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299.63 4,279,771
301.4 F 4,279,772
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4,279,774
4,279,775
429 B 4,279,776
439 4,279,777
4,279,778
448 4,279,779
452 4,279,780
463 4,279,781
465 4,279,782
511 4,279,783
513 4,279,784
518 4,279,785
536 4,279,786

CLASS 260

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9 4,279,788
17 R 4,279,789
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17.4 R 4,279,790
18 R 4,279,793
18 S 4,279,792
29.2 EP 4,279,794
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29.6 RW 4,279,795
33.4 R 4,279,797
4,279,798
37 N 4,279,799
39 P 4,279,800
40 P 4,279,802
4,279,803
40 R 4,279,801
45.75 B 4,279,806
4,279,807
45.8 N 4,279,808
45.9 NC 4,279,804
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123.5 4,279,810
123.7 4,279,811
163 4,279,812
173 4,279,813
205 4,279,814
244.4 4,279,815
4,279,816
4,279,817
326.27 4,279,821
326.47 4,279,822
326.5 FM 4,279,820
326.5 S 4,279,819
343.21 4,279,823
345.3 4,279,824
371 4,279,825
397.2 4,279,826
397.25 4,279,827
4,279,828
429.9 4,279,829
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453 RZ 4,279,831
464 4,279,833
4,279,834
465 D 4,279,835
500.5 H 4,279,836
505 N 4,279,837
968 4,279,838
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124 4,279,842

CLASS 264

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41 4,279,846
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63 4,279,849
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174 4,279,851
227 4,279,852
230 4,279,853
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298 4,279,855
313 4,279,856
541 4,279,857

CLASS 266

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81 4,279,406
193 4,279,407
271 4,279,408

CLASS 270

5 4,279,409
6 4,279,410
39 4,279,411

CLASS 271

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274 4,279,413

CLASS 272

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237 R 4,279,426

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439 4,279,430
508 4,279,431
605 4,279,432
4,279,433
4,279,434

CLASS 285

242 4,279,435

CLASS 290

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40 B 4,280,059
40 R 4,280,060
55 4,280,061

CLASS 292

346 4,279,436

CLASS 294

1 BB 4,279,437
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162 4,279,366

CLASS 296

39 R 4,279,439
164 4,279,440
218 4,279,441

CLASS 297

367 4,279,442

CLASS 299

1 4,279,443
2 4,279,444
34 4,279,445

CLASS 301

20 4,279,446

CLASS 303

6 C 4,279,447
4,279,448

CLASS 305

35 EB 4,279,449

CLASS 307

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141.4 4,280,063
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221 D 4,280,066
4,280,067
4,280,068
279 4,280,070
473 4,280,065
571 4,280,069

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36.1 4,279,452

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52 4,280,071
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77 4,280,073
306 4,280,074

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297 4,279,454
330 R 4,279,455

CLASS 313

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114 4,280,076
402 4,280,077

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39.51 4,280,078
58 Re.30,687
169.4 4,280,079
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CLASS 318

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341 4,280,082
565 4,280,083
696 4,280,084
803 4,280,085

CLASS 320

1 4,280,086

CLASS 322

28 4,280,087

CLASS 323

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315 4,280,090
4,280,091
354 4,280,089

CLASS 324

51 4,280,092
117 R 4,280,093
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248 4,280,095
316 4,280,096
434 4,280,097

CLASS 328

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63 4,280,099

CLASS 329

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CLASS 330

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290 4,280,103

CLASS 331

1 A 4,280,104
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4,280,107
4,280,108
94.5 N 4,280,109
94.5 P 4,280,105
107 DP 4,280,110

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202 4,280,113

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33 4,280,115

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246 4,279,461

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100 LE 4,280,128
715 4,280,129

CLASS 346

75 4,280,130

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3.6 4,279,462
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96.20 4,279,465
96.21 4,279,466
4,279,467
4,279,468
96.22 4,279,469
96.23 4,279,470
103 4,279,471
307 4,279,473
331 R 4,279,474
363 4,279,475
414 4,279,476
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CLASS 351

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159 4,279,480

CLASS 352

171 4,279,481

CLASS 353

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CLASS 354

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25 4,279,484
51 4,279,485
62 4,279,486
79 4,279,487
145 4,279,488
155 4,279,489
173 4,279,490
187 4,279,492
197 4,279,493
288 4,279,494
321 4,279,495

CLASS 355

3 BE 4,279,496
8 4,279,497
14 D 4,279,498
15 4,279,499
4,279,500
4,279,501
27 4,279,491
38 4,279,502
45 4,279,503
72 4,279,504
77 4,279,505

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39 4,279,506
225 4,279,507
237 4,279,508
246 4,279,509
319 4,279,510
328 4,279,511
335 4,279,512
387 4,279,513
445 4,279,514

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70 4,280,132

CLASS 358

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93 4,280,135
4,280,136
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150 4,280,138
165 4,280,139
195.1 4,280,140
213 4,280,141

214 4,280,142
260 4,280,143
280 4,280,144
289 4,280,145

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10 4,280,146
4,280,147
13 4,280,148
14 4,280,149
4,280,150
33 4,280,151
61 4,280,152
66 4,280,153
96.4 4,280,154
98 4,280,155
105 4,280,156
106 4,280,157
113 4,280,158
137 4,280,159

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3 4,280,160
18 4,280,161
45 4,280,162
172 4,280,163
179 4,280,164
236 4,280,165
253 4,280,166

CLASS 362

33 4,280,167
35 4,280,168
217 4,280,169
224 4,280,170
240 4,280,171
269 4,280,172
294 4,280,173

CLASS 363

24 4,280,174
127 4,280,175

CLASS 364

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4,280,177
414 4,280,178
464 4,280,179
4,280,180
4,280,181
475 4,280,182
497 4,280,183
506 4,280,184
4,280,185
518 4,280,186
552 4,280,187
566 4,280,188
734 4,280,189
770 4,280,190
807 4,280,191
900 4,280,192
4,280,193

CLASS 365

7 4,280,194
39 4,280,195
45 4,280,196
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203 4,280,198
236 4,280,199

CLASS 366

76 4,279,515
171 4,279,516
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CLASS 367

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87 4,280,202
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116 4,280,204
119 4,280,205
179 4,280,206

CLASS 368

21 4,280,207
66 4,280,208
71 4,280,209
73 4,280,210
76 4,280,211
82 4,280,212
187 4,280,213
282 4,280,214

CLASS 369

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45 4,280,215
219 4,280,024
247 4,279,423

CLASS 370

62 4,280,216
63 4,280,217

CLASS 371

6 4,280,218
27 4,280,220

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4 4,280,219
17 4,280,221
38 4,280,222
93 4,280,223
116 4,280,224

CLASS 400

124 4,279,518
4,279,519
4,279,520
4,279,521
196.1 4,279,522
279 4,279,523
564.1 4,279,524
656 4,279,525

CLASS 401

97 4,279,526
277 4,279,527

CLASS 403

57 4,279,528
246 4,279,529
267 4,279,531
337 4,279,530

CLASS 404

68 4,279,532
4,279,533
72 4,279,534

CLASS 405

15 4,279,535
31 4,279,536
61 4,279,537
66 4,279,538
76 4,279,539
115 4,279,540
119 4,279,541
169 4,279,542
195 4,279,543
202 4,279,544
211 4,279,545
225 4,279,546
258 4,279,547
283 4,279,548

CLASS 406

14 4,279,549

CLASS 408

59 4,279,550
67 4,279,551
112 4,279,552
135 4,279,553

CLASS 409

180 4,279,554

CLASS 411

487 4,279,190

CLASS 414

83 4,279,555
218 4,279,556
400 4,279,557
412 4,279,558
431 4,279,559
589 4,279,560
591 4,279,561
598 4,279,562
611 4,279,563
621 4,279,564
667 4,279,604
678 4,279,565
686 4,279,566
785 4,279,567

CLASS 415

17 4,279,568
52 4,279,569
53 T 4,279,570
89 4,279,571

CLASS 416

220 R 4,279,572
244 A 4,279,575

CLASS 417

53 4,279,573
243 4,279,574
407 4,279,576

CLASS 418

35 4,279,577
97 4,279,578

CLASS 422

25 4,279,858
61 4,279,859
63 4,279,860
67 4,279,861
72 4,279,862
102 4,279,863
179 4,279,864
187 4,279,865

CLASS 423

7 4,279,866
26 4,279,867
29 4,279,868
54 4,279,869
4,279,870
74 4,279,871
228 4,279,872
242 4,279,873
246 4,279,874
249 4,279,875
305 4,279,876
321 R 4,279,877
4,279,878
335 4,279,879
445 4,279,880
456 4,279,881
574 R 4,279,882
584 4,279,883

CLASS 424

1 4,279,884
4,279,885
4,279,886
1.5 4,279,887
49 4,279,888
57 4,279,889
69 4,279,890
73 4,279,891
85 4,279,892
89 4,279,893
122 4,279,894
127 4,279,895
180 4,279,896
211 4,279,897
217 4,279,898
229 4,279,899
241 4,279,900
4,279,901
246 4,279,818
4,279,902
4,279,903
4,279,904
4,279,905
247 4,279,906
248.51 4,279,907
248.55 4,279,908
250 4,279,909
251 4,279,910
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258 4,279,912
4,279,913
4,279,914
262 4,279,915
4,279,916
273 R 4,279,917
274 4,279,918
279 4,279,919
282 4,279,920
285 4,279,921
4,279,922
304 4,279,923
4,279,924
311 4,279,925
316 4,279,926
322 4,279,927
324 4,279,928
4,279,929
331 4,279,930

CLASS 425

6 4,279,579
72 R 4,279,580
78 4,279,581
159 4,279,582
253 4,279,583
307 4,279,584
403 4,279,585
438 4,279,586
531 4,279,587
568 4,279,588

CLASS 426

48 4,279,931
89 4,279,932
124 4,279,933
262 4,279,934
264 4,279,935
265 4,279,936
424 4,279,937
4,279,938
4,279,939
590 4,279,940
602 4,279,941

CLASS 427

14.1 4,279,942
57 4,279,943
62 4,279,944
130 4,279,945
133 4,279,946
255.2 4,279,947
305 4,279,948
356 4,279,949
393.6 4,279,950
437 4,279,951

CLASS 428

36 4,279,952
90 4,279,953
158 4,279,954
174 4,279,955
192 4,279,956
212 4,279,957
215 4,279,958
288 4,279,959
290 4,279,960
328 4,279,961
332 4,279,962
433 4,279,963
496 4,279,964
582 4,279,965
595 4,279,966
647 4,279,967
677 4,279,968
698 4,279,969

CLASS 429

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46 4,279,971
50 4,279,972
101 4,279,973
104 4,279,974
181 4,279,975
197 4,279,976
245 4,279,977
248 4,279,978
254 4,279,979

CLASS 430

68 4,279,980
73 4,279,981
170 4,279,982
228 4,279,983
270 4,279,984
280 4,279,985
4,279,986
409 4,279,987
499 4,279,988
531 4,279,989
551 4,279,990

CLASS 431

328 4,279,589
344 4,279,591
360 4,279,590

CLASS 432

105 4,279,592

CLASS 433

8 4,279,593
31 4,279,594
55 4,279,595
126 4,279,596
129 4,279,597
173 4,279,598

CLASS 434

21 4,279,599
219 4,279,600
247 4,279,601

CLASS 435

4 4,279,991
7 4,279,992
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19 4,279,994
58 4,279,995
69 4,279,996
80 4,279,997
174 4,279,998
183 4,279,999
242 4,280,000
253 4,280,001
298 4,280,002

CLASS 440

63 4,279,602
90 4,279,603

CLASS 455

55 4,280,225
345 4,280,226

CLASS 474

82 4,279,172
4,279,605
257 4,279,606

CLASS 493

167 4,279,607
247 4,279,608
276 4,279,609
411 4,279,610
418 4,279,611

CLASS 518

700 4,279,830

CLASS 521

31 4,280,003
89 4,280,004
90 4,280,005
154 4,280,006
159 4,280,007

CLASS 548

301 4,280,008

CLASS 560

205 4,280,009
4,280,010

CLASS 568

603 4,280,011
755 4,280,012

CLASSIFICATION OF DESIGNS

D2—	131	259,895		181	259,908		418	259,922	D15—	1	259,934		13	259,946		72	259,958
	440	259,896	D7—	20	259,909		423	259,918			259,935			259,947			259,959
		259,897		45	259,910	D10—	6	259,923		63	259,936		14	259,948	D26—	24	259,960
		259,898		161	259,911		65	259,924	D21—	13	259,937	D23—	42	259,950		26	259,961
		259,899		198	259,912		71	259,925		59	259,938		127	259,949		37	259,962
D3—	30	259,900	D8—	58	259,913		106	259,926		147	259,939		153	259,951		113	259,963
D6—	7	259,901		318	259,914	D12—	62	259,927		212	259,940	D24—	13	259,952	D28—	37	259,964
	37	259,902		320	259,915		98	259,928		214	259,941		38	259,953		50	259,965
	74	259,903		350	259,916		140	259,929		229	259,942		62	259,954		70	259,966
	85	259,904	D9—	311	259,919		211	259,930		241	259,943		64	259,955	D30—	13	259,967
	86	259,905		348	259,917		215	259,931	D22—	7	259,944	D25—	1	259,956		99	259,968
	97	259,906		349	259,920	D14—	33	259,932			259,945		19	259,957	D99—	51	259,969
	175	259,907		377	259,921		58	259,933									

CLASSIFICATION OF PLANTS

	76	4,752	78	4,753			

U.S. GOVERNMENT PRINTING OFFICE : 0—1981

GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

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UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

July 28, 1981

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For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

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Assistant Commissioner for Patents.

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REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

D. **254,757**, Re. S.N. 248,523, Filed Mar. 27, 1981, Cl. D. 2/400, TOOL BELT, Harvey R. Rodstein, Owner of Record: *Action Leathercraft, Inc., Commerce, Calif.*, Attorney or Agent: Paul D. Supnik, Ex. Gp.: 290

Re. 27,447, Re. S.N. 068,778, Filed Aug. 22, 1979, Cl. 29/527.7, PROCESS OF USING A LOW CARBON STEEL COMPOSITION IN A CONTINUOUS, John H. Richards, Owner of Record: *United States Steel Corp., Pittsburgh, Pa.*, Attorney or Agent: Arthur J. Greif, Ex. Gp.: 321

3,297,155, Re. S.N. 253,160, Filed Apr. 10, 1981, Cl. 242/68, TUBULAR CORES, Miles N. Gattenby, Jr., et al., Owner of Record: *Borden, Inc., New York, N.Y.*, Attorney or Agent: Robert L. Rohrback, et al., Ex. Gp.: 242

3,526,220, Re. S.N. 230,320, Filed Feb. 2, 1981, Cl. 128/25, FOOT EXERCISER, Samuel N. Small, et al., Owner of Record: *World Marketing Corp., Central Islip, N.Y.*, Attorney or Agent: Sidney G. Faber, et al., Ex. Gp.: 334

3,746,608, Re. S.N. 255,707, Filed Apr. 20, 1981, Cl. 428/169, SHAPED ARTICLE OF SYNTHETIC RESIN HAVING MECHANICALLY DISORDERED ORIENTATION, Mitsuhiro Takahashi, Owner of Record: *Weld-Loc Systems, Inc., Alliance, Ohio,* Attorney or Agent: Melvin M. Goldenberg, et al., Ex. Gp.: 164

3,764,527, Re. S.N. 254,757, Filed Apr. 16, 1981, Cl. 210/30, METHOD FOR SEPARATING OIL FROM WATER, William E. Sohl, Owner of Record: *Minnesota Mining and Manufacturing Co., St. Paul, Minn.*, Attorney or Agent: Cruzan Alexander, et al., Ex. Gp.: 176

3,875,316, Re. S.N. 165,098, Filed July 1, 1980, Cl. 426/600, PREPARATION OF ISOMERIZED HOP EXTRACTS, Anthony M. Humphrey, Owner of Record: *Bush Boake Allen Ltd., Walthamstow, England,* Attorney or Agent: Herbert Goodman, Ex. Gp.: 172

3,902,391, Re. S.N. 206,037, Filed Mar. 9, 1981, Cl. 83/788, BAND SAW APPARATUS AND DRIVE ASSEMBLY THEREFOR, Harold Urquhart Bond, Owner of Record: *Hawker Siddeley Canada Ltd., Toronto, Ontario, Canada,* Attorney or Agent: John B. Young, et al., Ex. Gp.: 323

3,913,709, Re. S.N. 209,233, Filed Nov. 19, 1980, Cl. 188/73.4, SPOT-TYPE DISC BRAKE, Jochen Burgdorf, et al., Owner of Record: *ITT Industries, Inc., New York, N.Y.*, Attorney or Agent: Walter J. Baum, et al., Ex. Gp.: 315

3,933,781, Re. S.N. 146,740, Filed May 5, 1980, Cl. 260/112.5R, PROCESS FOR THE PREPARATION OF ALPHA-L-ASPARTYL-L-PHENYLALANINE ALKYL ESTERS, Gerald L. Bachman, et al., Owner of Record: *Monsanto Co., St. Louis, Mo.*, Attorney or Agent: R. E. Wexler, et al., Ex. Gp.: 125

3,935,074, Re. S.N. 251,033, Filed Apr. 3, 1981, Cl. 435/293, ANTIBODY STERIC HINDRANCE IMMUNOASSAY WITH TWO ANTIBODIES, Kenneth Edward Rubenstein, et al., Owner of Record: *Syva Co., Palo Alto, Calif.*, Attorney or Agent: Bertram I. Rowland, Ex. Gp.: 176

3,953,335, Re. S.N. 200,590, Filed Oct. 24, 1980, Cl. 252/8.5A, MAGNESIA STABILIZED ADDITIVES FOR NON-CLAY WELLBORE FLUIDS, Jack M. Jackson, Owner of Record: *Brinadd Co., Houston, Tex.*, Attorney or Agent: Kenneth H. Johnson, Ex. Gp.: 223

3,977,727 Re. S.N. 092,016, Filed Nov. 7, 1979, Cl. 301/97, RIM WITH BEAD UNSEAT RESTRAINT, William A. Glasenapp, et al., Owner of Record: *B. F. Goodrich Co., New York, N.Y.*, Attorney or Agent: Harry F. Pepper, Jr., et al., Ex. Gp.: 311

4,057,882, Re. S.N. 094,630, Filed Nov. 15, 1979, Cl. 291/283.5, APPARATUS FOR COMPRESSING SLEEVES ONTO STRUCTURAL RODS, Geoffrey M. Bowmer, Owner of Record: *Zeitgeist A.G., Zug, Switzerland,* Attorney or Agent: A. D. Caesar, et al., Ex. Gp.: 323

4,093,405, Re. S.N. 246,654, Filed May 7, 1981, Cl. 417/343, FUEL-OPERATED DEVICE, William S. Brian, Owner of Record: *Inventor,* Attorney or Agent: Jerome Bauer, et al., Ex. Gp.: 343

4,141,051, Re. S.N. 255,407, Filed Apr. 20, 1981, Cl. 360/113, VARIABLE DYNAMIC RANGE MAGNETO-RESISTIVE HEAD, Karel E. Kuijk, et al., Owner of Record: *U.S. Philips Corp., New York, N.Y.*, Attorney or Agent: Thomas A. Briody, Ex. Gp.: 235

4,148,609, Re. S.N. 252,219, Filed Apr. 8, 1981, Cl. 23/230B, METHOD FOR MEASURING ANTI-STREPTOLYSIN CONCENTRATION IN BLOOD, Antonio Ricci, Owner of Record: *Istituto Sieroterapico & Vaccinogeno Toscano, Sclavo S. P. A., Siena, Italy,* Attorney or Agent: George B. Finnegan, et al., Ex. Gp.: 177

4,148,932, Re. S.N. 250,095, Filed Apr. 1, 1981, Cl. 427/31, ATOMIZATION IN ELECTROSTATIC COATING, Yoshinori Tada, et al., Owner of Record: *Ransburg, Japan, Ltd., Tokyo, Japan,* Attorney or Agent: Clyde F. Willian, et al., Ex. Gp.: 162

4,178,077, Re. S.N. 260,525, Filed May 4, 1981, Cl. 350/486, ELECTROSTATICALLY CONTROLLED PICTURE DISPLAY DEVICE, Ties S. Te Velde, Owner of Record: *U.S. Philips Corp., New York, N.Y.*, Attorney or Agent: Thomas A. Briody, Ex. Gp.: 257

4,179,226, Re. S.N. 253,784, Filed Apr. 13, 1981, Cl. 404/64, ELASTOMERIC EXPANSION SEAL, Guy S. Puccio, Owner of Record: *Acme Highway Products Corp., Buffalo, N.Y.*, Attorney or Agent: Conrad Christel, et al., Ex. Gp.: 354

4,190,707, Re. S.N. 224,846, Filed Jan. 13, 1981, Cl. 429/254, ALKALINE BATTERY SEPARATOR, Yoshinao Doi, et al., Owner of Record: *Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan,* Attorney or Agent: James E. Armstrong, III, et al., Ex. Gp.: 114

4,204,645, Re. S.N. 248,722, Filed Mar. 30, 1981, Cl. 239/341, GENERAL PURPOSE COMPRESSION-TYPE SPRAYER, Leo A. Hopp, Owner of Record: *Column, Inc., Van Nuys, Calif.*, Attorney or Agent: Robert Louis Finkel, Ex. Gp.: 313

4,213,698, Re. S.N. 259,596, Filed May 1, 1981, Cl. 355/77, APPARATUS AND METHOD FOR HOLDING AND PLANARIZING THIN WORKPIECES, Victor A. Firtion, et al., Owner of Record: *Bell Telephone Laboratories, Inc., Murray Hill, N.J.*, Attorney or Agent: S. E. Hollander, et al., Ex. Gp.: 211

4,229,144, Re. S.N. 226,574, Filed Jan. 19, 1981, Cl. 417/222, FEEDBACK SHAFT EXTENDING BETWEEN SWASHPLATE AND DISPLACEMENT CONTROL VALVE, John J. Kass, et al., Owner of Record: *Deere & Co., Moline, Ill.*, Attorney or Agent: H. Vincent Harsha, et al., Ex. Gp.: 343

4,231,616, Re. S.N. 259,805, Filed May 4, 1981, Cl. 297/481, COMBINED SHOULDER HARNESS AND LAP BELT RESTRAINT APPARATUS HAVING SINGLE FASTEN/RELEASE POINT AT LAP BUCKLE, Mark C. Painter, Owner of Record: *The Boeing Co., Seattle, Wash.*, Attorney or Agent: Orland M. Christensen, et al., Ex. Gp.: 355

4,235,888, Re. S.N. 260,853, Filed May 6, 1981, Cl. 424/180, PSEUDOTRISSACCHARIDES, A PROCESS FOR THEIR PRODUCTION AND THEIR USE AS MEDICAMENTS, Peter Stadler, et al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany,* Attorney or Agent: Arnold Sprung, et al., Ex. Gp.: 125

4,240,405, Re. S.N. 260,318, Filed May 4, 1981, Cl. 426/433, SOLAR WATER HEATER, Roger F. French, Owner of Record: *Inventor,* Attorney or Agent: W. R. Hulbert, Ex. Gp.: 345

4,243,863, Re. S.N. 260,306, Filed May 4, 1981, Cl. 219/69V, ELECTRICAL DISCHARGE MACHINING APPARATUS WITH SIMULTANEOUS RELATIVE ADVANCE AND CYCLIC TRANSLATIONAL MOVEMENT OF THE ELECTRODES, George Wyss, Owner of Record: *Ateliers Des Charmilles, S. A., Geneva, Switzerland,* Attorney or Agent: Claude A. Patalidis, et al., Ex. Gp.: 213

4,248,753, Re. S.N. 247,584, Filed Mar. 26, 1981, Cl. 260/29.2TN, MICHAEL ADDUCTS OF POLYMERIC MATERIALS USEFUL IN COATING APPLICATIONS, Stephen L. Buchwalter, et al., Owner of Record: *PPG Industries, Inc., Pittsburgh, Pa.,* Attorney or Agent: William J. Uhl, et al., Ex. Gp.: 142

PATENT NOTICES

Certificates of Correction for the Week of July 28, 1981

Re. 29,660	4,232,380	4,256,924	4,264,389
Re. 30,607	4,233,619	4,257,087	4,264,508
3,586,891	4,235,294	4,258,061	4,264,523
3,974,146	4,235,607	4,259,067	4,264,524
3,992,382	4,236,307	4,259,183	4,264,596
4,004,196	4,237,071	4,259,535	4,264,850
4,007,086	4,239,306	4,259,570	4,264,947
4,042,794	4,240,539	4,259,725	4,264,966
4,062,451	4,240,941	4,260,192	4,265,285
4,067,991	4,241,509	4,260,324	4,265,306
4,112,213	4,244,233	4,260,718	4,265,636
4,124,337	4,244,286	4,260,737	4,265,820
4,138,196	4,244,475	4,260,785	4,266,124
4,145,414	4,244,748	4,260,787	4,266,313
4,163,928	4,245,066	4,260,790	4,266,323
4,165,139	4,245,130	4,260,792	4,266,391
4,166,918	4,247,908	4,260,795	4,266,555
4,172,889	4,248,112	4,260,819	4,266,657
4,175,585	4,248,339	4,261,013	4,266,672
4,182,702	4,248,394	4,261,142	4,266,692
4,187,589	4,248,730	4,261,165	4,266,728
4,188,386	4,249,907	4,262,097	4,266,969
4,190,679	4,249,974	4,262,530	4,267,119
4,196,213	4,250,521	4,262,536	4,267,153
4,210,404	4,252,019	4,262,854	4,267,206
4,210,961	4,252,568	4,263,010	4,267,395
4,213,803	4,253,482	4,263,222	4,267,501
4,214,230	4,253,564	4,263,242	4,267,679
4,221,176	4,254,421	4,263,341	4,267,699
4,223,119	4,254,836	4,263,445	4,267,892
4,223,680	4,254,872	4,263,624	4,268,040
4,224,693	4,255,287	4,263,660	4,268,525
4,225,580	4,256,002	4,263,687	4,268,700
4,226,300	4,256,011	4,263,786	4,268,802
4,226,852	4,256,517	4,263,805	4,268,936
4,228,744	4,256,623	4,264,211	4,269,828

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 222
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Louisiana	Baton Rouge: Troy H. Middleton Library Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(404) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 30, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-13-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	2-15-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	7-01-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	12-28-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	1-07-80
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	3-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	8-02-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-29-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	10-16-78
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents . . . . . Numbers 3,131,397 to 3,134,980, inclusive

Plant Patents . . . . . Numbers 2,399 to 2,406, inclusive

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,688

EXTRUSION PRESS FOR INDIRECT EXTRUSION

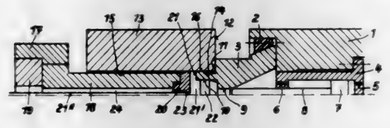
Franz J. Zilges, Moenchen-Gladbach, and Klaus Siegert, Berlin, both of Fed. Rep. of Germany, assignors to Schloemann-Siemag Aktiengesellschaft, Duesseldorf, Fed. Rep. of Germany

Original No. 4,052,877, dated Oct. 11, 1977, Ser. No. 660,936, Feb. 24, 1976. Application for reissue Nov. 24, 1978, Ser. No. 963,438

Claims priority, application Fed. Rep. of Germany, Mar. 5, 1975, 2509490

Int. Cl.[3] **B21C** *23/02, 35/04, 35/06*

U.S. Cl. 72—273.5 **4 Claims**



1. An extrusion press for indirect extrusion comprising

a counter platen

a cylinder cross-head

tie-rods connecting the counter platen and cylinder cross-head

a moving cross-head

a ram mounted on the cylinder cross-head for moving the moving cross-head

a hollow stem mounted on the counter platen and extending towards the moving cross-head

an extrusion die at the end of the hollow stem

a billet container between the moving cross-head and the counter platen, which has a billet-receiving bore and which can be moved by the moving cross-head over the die and hollow stem to perform an extrusion operation

a sealing plate for sealing one end of the said bore

a hollow cylindrical portion provided on the sealing plate for projecting into said bore, and defining a cylindrical recess with an aperture at the bottom thereof

a dummy block to be received in said cylindrical recess, *said recess being sufficiently large to receive, in addition to the dummy block, a portion of an extrusion butt-end formed in the extrusion process,* and

a piston arranged in said aperture, and actuable to push the dummy block out of the recess.

Re. 30,689

FOLDABLE BENCH FOR A PORTABLE HAND-HELD CIRCULAR SAW

Edward L. Gray, Rte. 7, Gray Bluff Trail, Chapel Hill, N.C. 25714, and Bruce E. Browning, Jr., P.O. Box 56, Carrboro, N.C. 27510

Original No. 4,068,550, dated Jan. 17, 1978, Ser. No. 723,475, Sep. 14, 1976. Application for reissue Jan. 17, 1980, Ser. No. 113,033

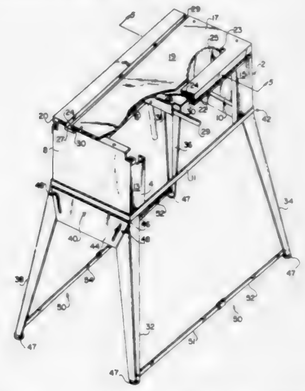
Int. Cl.[3] **B27B** *5/18*

U.S. Cl. 83—471.2 **21 Claims**

1. A foldable bench for converting a normally hand held electrically [power] *powered* circular saw having a base plate into a table saw, comprising

a. housing means for supporting a normally hand held electrically powered circular saw, said housing means including an upper surface for supporting material in a position to be cut by a normally hand held, electrically powered circular saw supported by said housing means, said housing means generally defining a parallelopiped having a first and second pair of opposed side walls, said first pair of opposed side walls having a greater horizontal dimension *than said second pair of opposed side walls;*

b. retractable support means for supporting said housing means in a position above a floor level such that the said upper surface is easily accessible by an operator, said retractable supporting means including a plurality of foldable leg members having floor engaging extremities movable from a first position wherein said foldable leg members are contained entirely within said housing means to [the] *a* second position wherein said floor engaging extremities are positioned laterally beyond the lateral extremities of said upper surface; and



c. stabilizer means for engaging the upper extremity of each leg member when in said second position in order to resist further outward lateral movement, said stabilizer means including four [clips] *fastening means* rigidly connected adjacent each of the lower lateral edges of said first opposed side walls *for releasibly holding said leg members in said second position,* whereby said foldable bench may be extremely compact when said foldable leg members are in said first position and extremely stable when said foldable leg members are in said second position.

Re. 30,690

SEAL

Carlos R. Canalizo, Dallas County, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Original No. 4,109,716, dated Aug. 29, 1978, Ser. No. 769,263, Feb. 16, 1977. Continuation of Ser. No. 597,962, Jul. 21, 1975, abandoned. Application for reissue Apr. 17, 1980, Ser. No. 141,069

Int. Cl.[3] **E21B** *33/12*

U.S. Cl. 166—191 **6 Claims**

1. Apparatus comprising:

[(a) a nipple having an interior cylindrical surface;]

[(b)] a well tool having an exterior cylindrical surface and adapted to be run in a well and adapted to be landed and sealed in [said] *a* nipple, *having an interior cylindrical surface,* so that fluid flow in the annulus between said interior cylindrical surface and said exterior cylindrical surface is blocked at the sealing location; and

[(c)] at least one annular sealing system comprising:

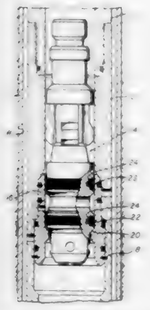
(i) said exterior cylindrical surface having an annular recess located at the site where it is desired to block the fluid flow, and said exterior cylindrical surface being

located so that it is exposed to flowing well fluids during the running of said well tool in a well, and

(ii) an annular sealing unit associated with said recess and including a portion which is exposed to flowing well fluids when said well tool is being run in a well and including

(A) ring support means received entirely within said recess,

(B) annular deformable sealing means secured to said ring support means and having a portion received within said recess and a portion projecting from said



recess for sealing with said interior cylindrical surface,

(C) said sealing means including a pair of spaced sealing members with each sealing member having an outer convex curved sealing face projecting from said recess and with said sealing means being contoured to provide a space between the sealing faces into which the sealing members may flow when deformed and with each sealing member sized so that said portion projecting from said recess provides an interference fit with said interior cylindrical surface when said well tool is landed in said nipple.

Re. 30,691

METHOD OF APPLYING A WEARING SURFACE

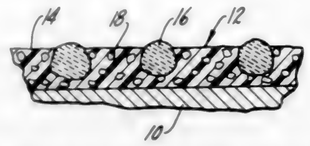
James R. Hallstrom, Brookfield; Raymond J. Hoffman, Fox Point, and Ronald L. Walling, Sussex, all of Wis.

Original No. 4,018,944, dated Apr. 19, 1977, Ser. No. 570,194, Apr. 21, 1975. Continuation of Ser. No. 414,874, Nov. 12, 1973, abandoned, which is a division of Ser. No. 238,183, Mar. 27, 1972, Pat. No. 3,876,579. Application for reissue Aug. 28, 1980, Ser. No. 182,031

Int. Cl.[3] **B32B** *35/00*; **B05D** *5/00*

U.S. Cl. 427—140 **7 Claims**

1. A method of making a surface substantially more wear resistant where the surface is subject to wear caused by impact, abrasion, erosion or corrosion, including the steps of supplying (a) an uncured curable crosslinkable thermosetting resin and (b) a curing agent for the resin, separately, in about a 2 to 1 ratio, and a thixotropic agent in an amount sufficient to prevent settling, intermixing independently in (a) and (b) both large abrasion resistant ceramic particles and much smaller coabrasion resistant filler particles of a hardness on the order of that of the material causing wear with the smaller particles dispersed in random fashion among the larger particles, mixing all the ingredients and applying the resultant mixture to the sur-



face subject to wear and allowing it to cure and firmly adhere to the surface.

Re. 30,692

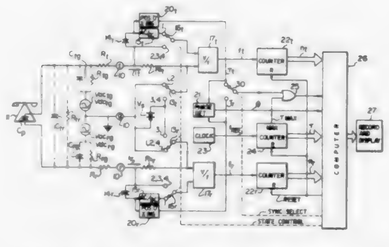
METHOD AND APPARATUS FOR MEASURING TELEPHONE LINE CHARACTERISTICS

John C. Ellson, Kanata, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Original No. 4,186,282, dated Jan. 29, 1980, Ser. No. 945,246, Sep. 25, 1978. Application for reissue Mar. 24, 1980, Ser. No. 133,224

Int. Cl.[3] **H04B** *3/46*

U.S. Cl. 179—175.3 R **5 Claims**



1. A machine method of measuring the leakage resistances, the capacitances, and the spurious voltages on a telephone line comprising the steps of:

individually measuring and recording any spurious current flowing through individual reference resistors connected from each side of the line to ground;

individually measuring and recording the transient charge and the steady state current flowing through the individual reference resistors when connected in series with first sources of d-c voltage from each side of the line to ground;

individually measuring and recording the transient charge and the steady state current flowing through the individual reference resistors when connected in series with second sources of d-c voltage from each side of the line to ground, the second sources having a different voltage ratio than the first sources; and

calculating the leakage resistances, the capacitances and the spurious voltages between each side of the line and ground, and between the two sides of the line directly from the recorded measurements.

PLANT PATENTS

GRANTED JULY 28, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,754

MINIATURE ROSE PLANT

Ernest D. Williams, 1510 Lebanon Ave., Dallas, Tex. 75208

Filed May 1, 1980, Ser. No. 145,771

Int. Cl.[3] **A01H** *5/00*

U.S. Cl. Plt.—7 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, upright, much branched habit, substantially as illustrated and described, characterized by buds and flowers of a velvety deep red color, being of a shade generally near Blood Red 820, or similar, the bud and flower resembling the variety Little Curt (miniature — not patented) in form and size; and further characterized by a plant of vigorous and compact upright growth habit, easy to propagate from cuttings or by budding, with an abundance of small to medium size glossy foliage and an abundance of flowers borne usually one to the stem.

4,755

MINIATURE ROSE PLANT

Ernest D. Williams, 1510 Lebanon Ave., Dallas, Tex. 75208

Filed May 1, 1980, Ser. No. 145,782

Int. Cl.[3] **A01H** *5/00*

U.S. Cl. Plt.—7 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, upright, much branched habit, substantially as illustrated and described, characterized by buds and flowers of a rich blend of yellow, peach pink, orange and red, the bud and flower resembling the variety Circus (U.S. Plant Pat. No. 1,382, expired) in color and resembling the variety Over the Rainbow in form and size; and further characterized by a plant of vigorous and compact growth habit, easy to propagate from cuttings or by budding, with an abundance of small to medium size glossy foliage and an abundance of flowers borne usually singly on sturdy wirey stems.

PATENTS

GRANTED JUL. 28, 1981

ERRATA

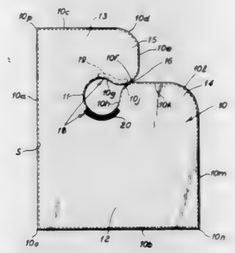
For CLASS	See PATENT NO.
434–030	4,280,285
411–542	4,280,390
411–015	4,280,391
294–141	4,280,643
369–233	4,280,705
156–073	4,280,805
260–513	4,281,177
369–139	4,281,225
260–112	4,281,233

PATENTS

GRANTED JULY 28, 1981

GENERAL AND MECHANICAL

4,280,227
CAPE PROTECTOR
Jean Brock, 411 Wilton St., Marianna, Fla. 32446
Filed Nov. 23, 1979, Ser. No. 96,934
Int. Cl.³ A41D *3/08*; A41B *13/10*
U.S. Cl. 2—88 **19 Claims**



1. A protective cape garment comprising a generally rectangular sheet-form body member made of flexible water-impervious plastic material,

first and second full edges on said body member disposed at right angles to one another,

a third edge on said body spaced from and generally parallel to one of said first and second edges,

said third edge extending about one-half of the full edge dimension of said body member, whereupon said third edge changes into an inwardly curving transition edge which, in turn, merges into a first straight portion disposed to be in spaced parallel relation to the other of said first and second edges,

said first straight edge portion merging into a first reversely curved interior edging section and forming a generally circular recess larger than the average neck dimension of a human being, said circular recess merging consecutively through a second reversely curved interior edging section and into a second straight edge portion disposed in parallel spaced relation to said one of said first and second edge portions,

said second straight edge portion terminating in an outwardly curving transition edge which, in turn, merges with a fourth edge on said body portion,

said fourth edge on said body portion spaced from and generally parallel to the other of said first and second edges,

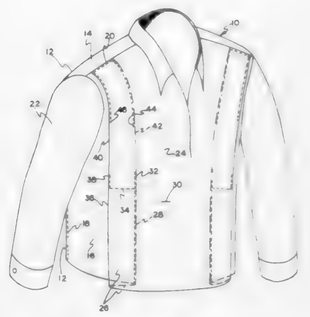
edging stitches on all of the edges of said body member to reinforce and finish the edges thereof,

and locking means on said reversely curved interior edging and on said circular recess to lock the cape garment around the neck of a person to be protected.

4,280,228
INFANT NURSING GARMENT
Donna J. Sulzmann, 1142 Ridge St., Crown Point, Ind. 46307
Filed Oct. 6, 1980, Ser. No. 194,056
Int. Cl.³ A41D *1/20*
U.S. Cl. 2—104 **18 Claims**

1. A nursing blouse comprising:

overlapping strips extending longitudinally between the arm portion and the breast portion; said strips being connected at their edges to each other forming spaced parallel seams; one of said seams being adjacent the breast portion and the other of said seams being adjacent said arm portion; said strips being connected between said spaced parallel seams forming a lateral seam thereacross; said spaced parallel seams extending upwardly from said lateral seam to the bottom of said breast portion and downwardly from the arm portion to the bottom of said arm portion providing an opening between said overlapping strips between said



upwardly and downwardly extending spaced parallel seams; and, said opening between said seams adjacent said breast portion being longitudinally shorter than said opening between said seams adjacent said arm portion.

4,280,229
MATERNITY CLOTHING GARMENT
Paul Stein, 24 Viewhill Rd., North Balwyn, Victoria, 3104, Australia
Filed Mar. 3, 1980, Ser. No. 126,961
Int. Cl.³ A41D *1/14*
U.S. Cl. 2—221 **7 Claims**



1. A maternity garment having a front and a back and including in combination,

a waist portion; and

a body portion integral with the waist portion and extending vertically downwardly from the waist portion;

the body portion having a configuration which forms the shape of the garment; and

the waist portion having a relatively vertically larger panel of elastically expansible and comformable ribbed knitted material extending circumferentially along the waist portion at the front of the garment, and a relatively vertically smaller panel of elastically expansible and comformable ribbed knitted material extending circumferentially along the waist portion at the rear of the garment;

the larger panel extending vertically downwardly further than the smaller panel, whereby the waist portion will conform to the shape of the wearer over a range of shape and size variations.

4,280,230

DISPOSABLE TRAINING PANTIES

Ruby S. LaFleur, 10490 W. Outer Dr., Detroit, Mich. 48223

Filed Jul. 25, 1979, Ser. No. 60,688
Int. Cl.³ A41B 9/04
U.S. Cl. 2—406 1 Claim



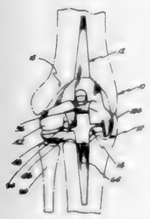
1. A training panty for babies and toddlers, comprising, in combination, a panty member including front and rear panels, an endless waistband around upper edges of said panels, and a pair of downward legs at the sides of said panels, with openings therethrough, and a crotch member between said legs; said crotch member comprising a separate paper insert that is fitted in a crotch opening at a crotch of said panty member; opposite ends of said insert being supported between each of said panels and a downward, depending flap secured to an inner side of each said panels; each of said crotch inserts comprising a control panel, and a folded-over front extension and a folded-over rear extension at opposite ends thereof, a plurality of perforated holes punched out through each said front and rear extensions, and also through opposite ends of said control panel, a loop pile fastener secured to an outward side of each said flaps, and said loop pile fastener comprising a plurality of stiff plastic bristles having hooked ends hooked through said perforated holes of said insert.

4,280,231

ELBOW PROSTHESIS

Alfred B. Swanson, 2945 Bonsell, S.E., Grand Rapids, Mich. 49506

Filed Jun. 14, 1979, Ser. No. 48,682
Int. Cl.³ A61F 1/03
U.S. Cl. 3—1.91 15 Claims



1. A total elbow prosthesis for implantation in the humerus and ulna and providing lateral stability during extension and flexion motion of the prosthesis after implantation, said prosthesis comprising:

a humeral component having a main body portion defining a plurality of generally semi-circular distally positioned portions having bearing surfaces;

an ulnar component having a main body portion defining a convex posterior surface adapted to be received within a prepared semi-lunar notch of the ulna and further defining a plurality of semi-circular grooves configured to matingly receive said distally positioned portions of said humeral component; and

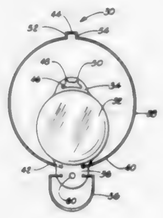
slipfit hinge means defined by and a part of said ulnar component and said humeral component for detachably and hingedly interconnecting said components together in a slipfit fashion after implantation of the prosthesis thereby alleviating the transmission of excessive stresses to the bones and loosening of the components, said ulnar component further including a capitulum member having a distal surface against which the radius bone articulates after implantation.

4,280,232

INTRAOCULAR LENS DEVICE

Robert A. Hummel, 4200 W. Memorial Rd., Suite #308, Oklahoma City, Okla. 73120

Filed Apr. 28, 1980, Ser. No. 144,683
Int. Cl.³ A61F 1/16
U.S. Cl. 3—13 17 Claims



1. An artificial intraocular lens device, comprising:

a lens having anterior and posterior surfaces formed to provide prescribed optical focal properties;

a superior haptic rim of planar form extending from an upper edge of said lens and including a fenestration therethrough;

a superior loop of resilient material having first and second ends secured adjacent the lower edge of the lens and extending circularly around said lens while having greater width than said lens; and

stirrup means formed in the mid-portion of said superior loop which may be forced into affixation within said fenestration thereby to laterally extend the opposite side lobes of said superior loop.

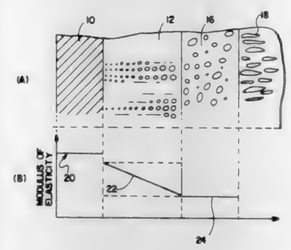
4,280,233

BONE CONNECTIVE PROSTHESIS COMPRISING A REINFORCEMENT ELEMENT CARRYING A POLYMER LAYER HAVING A VARYING MODULUS OF ELASTICITY

Simon Raab, 5872 Westbury Ave., Montreal, Quebec, Canada H3W 2W9

Filed Aug. 3, 1979, Ser. No. 63,434
Claims priority, application United Kingdom, Feb. 15, 1979, 05445/79
Int. Cl.³ A61F 1/24
U.S. Cl. 3—1.91 21 Claims

1. A prosthesis adapted to be fixedly attached to bone by means of bone cement, said prosthesis comprising a reinforcement element, at least a portion of the surface of said reinforcement element carrying a polymer layer having substantial thickness, the exterior surface of said polymer layer constituting the bone attachment surface of said prosthesis, the interior surface of said polymer layer being secured to said reinforcement element, said polymer layer having a varying modulus of elasticity such that the modulus of elasticity of portions of said layer adjacent said interior surface is essentially constant and the modulus of elasticity of portions adjacent said exterior surface is essentially constant, said modulus of elasticity of said portions adjacent said interior surface being greater than said modullus of elasticity of said portions adjacent said exterior surface, portions of said layer which are between said portions adjacent said exterior surface and said portions adjacent said



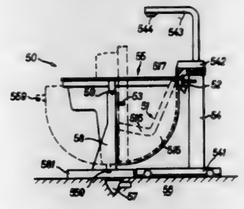
interior surface having a modulus of elasticity which is intermediate with respect to the moduli of said portions adjacent said exterior and interior surfaces and wherein the modulus of elasticity of said layer decreases in the direction of interior to exterior.

4,280,234

BATH AID

Hans Sax, Frauenfelderstrasse 81, Winterthur, Switzerland

Filed Jul. 9, 1979, Ser. No. 55,503
Claims priority, application Switzerland, Jul. 24, 1978, 7957/78
Int. Cl.³ A47K 3/022; F24H 1/00; A47K 3/08
U.S. Cl. 4—540 7 Claims



1. A bathing equipment,

comprising in combination,

a tub member pivotable about a horizontal axis between an initial and an operative position, and being adapted to be filled with a bathing liquid when in the operative position, and

a chair member having seat and backrest portions,

at least one of said members being movable relative to the other to and from a station of close contact,

said tub member, when the members are in said station of close contact, being adapted to face said chair portions and being pivotable to said operative position, receiving interiorly, in said operative position, at least a portion of said chair,

said seat and backrest portions of said chair member defining a closed chamber adapted to be filled with a fluid of a predetermined temperature, the fluid thereby being in heat exchange contact with a major portion of the body of a person seated on said chair member,

whereby said chamber may be filled with said fluid to provide comfortable warmth to the major portion of the body of a person seated on said chair member, preparatory to said chair member being moved into the tub member, whereafter said chair member may be moved into said station of close contact for subsequently bathing said person in the tub member in the operative position holding liquid, while seated on the chair member, said tub member after discharge of the liquid may subsequently be returned to its initial position, and the chair member and the person sitting thereon be moved away from said tub member,

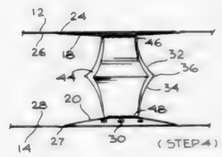
wherein said tub member has a wall portion defining an internal surface facing and matching the contour of the external rear surface of said backrest portion when said chair is received inside the tub member in said operative position thereof, and wherein said tub member has a predetermined volume for receiving said liquid, and wherein said chair member has a liquid-displacement volume of at least 30% of said predetermined volume.

4,280,235

INSERTS FOR FLUID-TYPE MATTRESSES

Emil D. Kowal, 4925 Santa Anita Ave., Temple City, Calif. 91780

Filed Feb. 26, 1980, Ser. No. 124,767
Int. Cl.³ A47C 27/08; B32B 31/00
U.S. Cl. 5—458 12 Claims



1. In a fluid-type mattress having upper and lower boundary sheets with each of said sheets being defined by inner and outer surfaces, an improved flow damping and shape-defining insert comprising:

a first flexible flange sealed at its periphery to the inner surface of the upper boundary sheet;

a second flexible flange sealed at its periphery to the inner surface of the lower boundary sheet in a location substantially opposite to the location of the first flexible flange; and

damping means extending between the first and second flexible flanges and sealed thereto;

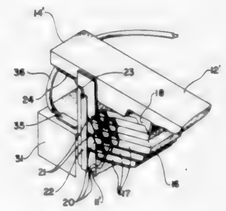
wherein the seals between the damping means and the flanges are more easily rupturable than the seals between the flanges and the mattress boundary sheets.

4,280,236

SELF-UNCAPPING HONEYCOMB AND EXTRACTOR MEANS FOR USE THEREWITH

Luther R. Herman, 306 Brooks Ave., Raleigh, N.C. 27607

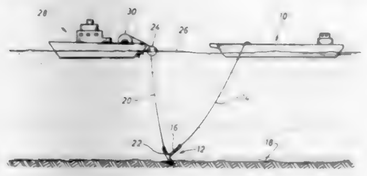
Filed Jun. 8, 1979, Ser. No. 46,952
Int. Cl.³ A01K 47/02, 59/02
U.S. Cl. 6—2 R 10 Claims



1. A beekeeping means comprising: a honeycomb frame; an artificial honeycomb having a plurality of open ended cells therein mounted within said frame; heating means disposed adjacent the open ends of said cells; and means for causing said heating means to rise in temperature whereby when said hon-

eycomb and its associated frame are placed in a bee hive, said cells will be filled with honey and sealed with beeswax by the bees therein and when said comb and frame are removed from the hive, said sealing wax can be readily removed from said cells by said heating means.

4,280,237
FLOATING BUOY
Warren A. Petrie, New Orleans, La., assignor to J. Ray McDermott & Co., Inc., New Orleans, La.
Filed Oct. 2, 1978, Ser. No. 947,356
Int. Cl.³ B63B *21/52*
U.S. Cl. 9—8 R **14 Claims**



1. A floating buoy for use in a marine environment, the buoy comprising:
- a buoyant body for maintaining the buoy afloat with a first end of the body directed upwardly to constitute its upper end during use;
- a first securing platform on the upper end of the body; and
- a first protective cap removably secured to the first securing platform to extend over the upper end of the body for providing a protective surface over that end to protect the body from contact with a marine vessel during use;
- the first protective cap being generally dome shaped to provide a convex protective surface for minimizing impact damage to a marine vessel during impact between the protective cap and such a marine vessel when the buoy is in use, and the first protective cap further extending beyond the periphery of the first securing platform to cover the platform and prevent contact between the platform and a marine vessel during use.

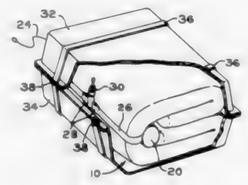
4,280,238
SINGLE-POINT MOORING BUOY
Willem J. van Heijst, Monte-Carlo, Monaco, assignor to Single Buoy Moorings, Inc., Fribourg, Switzerland
Continuation of Ser. No. 850,056, Nov. 9, 1977, abandoned, which is a continuation-in-part of Ser. No. 688,738, May 21, 1976, abandoned. This application Jul. 18, 1979, Ser. No. 58,729
Claims priority, application Netherlands, Sep. 3, 1975, 7510415; Dec. 24, 1975, 7515095
Int. Cl.³ B63B *21/52, 51/02*
U.S. Cl. 9—8 R **6 Claims**

1. Single-point mooring buoy comprising a column hingedly connected to an anchor and comprising at least one rigid column portion upstanding from the anchor and hingedly interconnected with the anchor and a buoyant body hingedly connected to the upper end of said column portion, the body being at least principally below the water level, the mass and the dimensions of each rigid column portion being such that its bending frequency is less than 6 seconds and its length is greater than the height of the buoyant body, and the mass and the dimensions of the buoyant body being such that its period of movement is greater than 16 seconds, the dimensions of each said column portion being such that its period of movement is greater than 16 seconds, said bending frequency less than 6 seconds and said periods of movement greater than 16 seconds being so different from the frequency of about 12 seconds of waves of highest energy, that the buoy undergoes little movement under wave action, whereby the loads on the buoy and



portion and the anchor remain low even when a ship is moored at the buoy.

4,280,239
SELF RIGHTING, AUTOMATICALLY INFLATABLE LIFE RAFT
Eugene W. Brown, North Canton, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio
Continuation of Ser. No. 889,590, Mar. 23, 1978, abandoned. This application Nov. 29, 1979, Ser. No. 98,562
Int. Cl.³ B63C *9/22*
U.S. Cl. 9—11 A **1 Claim**



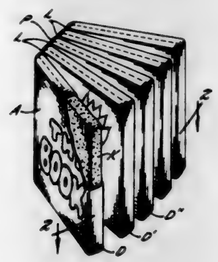
1. In combination,
- a raft container formed of separable sections,
- a life raft having circumferential inflatable side walls and a floor folded within said container,
- a source of compressed gas,
- a sleeve securing said source of compressed gas to one wall of said life raft,
- valve means coupling said inflatable side walls and said source of compressed gas,
- strap means secured to said sleeve and separably encompassing a central portion of said folded life raft around said inflatable side walls adjacent said source of compressed gas to temporarily restrict inflation around the encompassed portion, said strap means including a breakable string separable upon continued inflation of said inflatable side walls,
- and a lanyard extending from said valve means to exterior of said container whereby a yank on said lanyard will activate said valve means to inflate said raft to sequentially separate the sections of said container to free said raft therefrom, then further inflate the non-central portions of said side walls to position said raft in a self-righting orientation, then further inflate said raft to break said string to eliminate the inflation restriction and complete inflation of the raft in the proper erect orientation.

4,280,240
HANDLE FOR WATER SKI TOWLINE WITH ENGAGEMENT AND DISENGAGEMENT MEANS FOR WATER SKI SAFETY BELT
Wilhelm Neuscheler, Spitzholzstr. 113, 7032 Sindelfingen, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 5,232, Jan. 22, 1979. This application Sep. 4, 1979, Ser. No. 72,286
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838393
Int. Cl.³ A63C *5/00, 9/00, 11/00, 15/00*
U.S. Cl. 9—310 A **8 Claims**



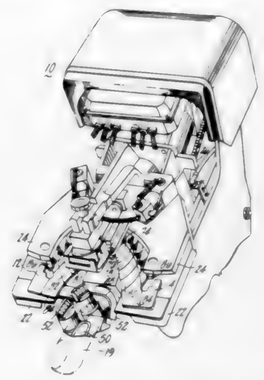
1. Handle for a water ski towline comprising two shell-like halves defining a bar-type handle that is grippable by both hands of a skier so as to be holdable in a generally horizontal orientation during skiing, an engagement and disengagement means for detachably securing a pull strap secured to a connecting strap of a safety belt for water skiers to said handle, said engagement and disengagement means being located between areas of said handle that are grippable by respective hands of the skier and having an engagement finger that is engageable in a cutout of the pull strap, and spring means for biasing said finger toward a first engagement position within said cutout.

4,280,241
CHILD'S BOOK
Deborah L. Pfaff, 150 17th Ave., San Francisco, Calif. 94121
Filed Oct. 18, 1979, Ser. No. 86,151
Int. Cl.³ B42C *19/06*; B42D *3/00*
U.S. Cl. 11—1 R **9 Claims**



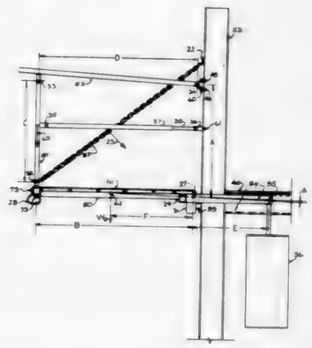
1. A book having a plurality of leaves, each leaf comprising a core of flexible foam enclosed within a pocket of conforming material, the aligned, open ends of said foam-filled pockets being juxtaposed against and hinged to a binding, said pockets which comprise said leaves being formed from a substantially continuous web of said material.

4,280,242
SEGMENTED LASTING WIPER
Andrew J. Gilbride, Swampscott, Mass., assignor to USM Corporation, Farmington, Conn.
Filed May 3, 1979, Ser. No. 35,895
Int. Cl.³ A43D *21/00*
U.S. Cl. 12—12.4 **3 Claims**



1. A wiper arrangement for a shoe lasting machine for lasting a variety of sizes and styles of shoes therewith, including:
- a frame in said machine for supporting said wiper arrangement thereon;
- said wiper arrangement comprising:
- a pair of wipers each mounted in a movable wiper carrier;
- each wiper being adjustably arrangable with respect to its carrier to define any required contour, permitting said wiper to last a variety of shoe sizes and shapes;
- each of said wipers being comprised of a plurality of arcuate segments, each segment being adjustable with respect to one another and to said carrier, to provide said contour which is defined by the distal ends of said segments.

4,280,243
BULK LOADING FACILITY HAVING A DROP WAY
Richard Durrant, 1124 Cambridge Crescent, Sarnia, Ontario, Canada N75 3Z9
Filed Aug. 6, 1979, Ser. No. 64,030
Int. Cl.³ E01D *1/00*
U.S. Cl. 14—71.1 **26 Claims**



1. Improvement in a bulk loading facility having a fixed deck having a vertical column as a part thereof and a drop way hinged to said deck so that it can be raised or lowered for loading, said improvement comprising said drop way having a

handrail assembly including a handrail and a post for said handrail, said handrail and said post hinged to each other, said post hinged to said drop way, said drop way, said handrail hinged to said column, and a four-bar mechanism consisting of said drop way, said handrail, said post and a portion of the column between the handrail and said drop way, said four-bar mechanism constructed so that the sum of the lengths of said column portion and said top rail is greater than the sum of the lengths of said drop way and said post, whereby said drop way has an over-center action during raising thereof which assists in maintaining the drop way in its raised position.

4,280,244

DIRT COLLECTING FLOOR MAT APPARATUS

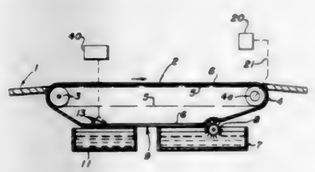
Ernst Spirig, P.O. Box 160, CH-8640 Rapperswil, Switzerland

Filed Sep. 17, 1979, Ser. No. 76,495

Claims priority, application United Kingdom, Oct. 5, 1978, 39478/78; Jul. 24, 1979, 25684/79

Int. Cl.³ A47L *23/22*

U.S. Cl. 15—97 R **12 Claims**



1. A dirt-collecting floor mat apparatus for cleaning the shoes of a pedestrian at a given location adjacent an opening contained in a floor surface, comprising

(a) a mat formed of synthetic plastic material having a high plasticizer content;

(b) means supporting said mat in a position in which a first portion of one surface thereof is in exposed relation relative to the floor opening;

(c) means for initially cleaning a second portion of said one mat surface remote from the floor opening;

(d) means for subsequently applying a tacky plasticizer material to said clean second mat portion; and

(e) means for displacing said mat to cause said second mat portion to be in exposed relation within the floor opening.

4,280,245

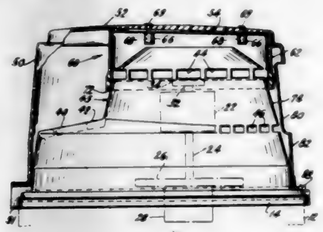
SOUND DOME FOR ELECTRIC VACUUM CLEANER

Kenneth R. Hiester, Cogan Station, Pa., assignor to Shop-Vac Corporation, Williamsport, Pa.

Filed Feb. 19, 1980, Ser. No. 122,380

Int. Cl.³ A47L *9/00*

U.S. Cl. 15—326 **9 Claims**



1. In a bypass type vacuum cleaner, including a housing, said housing having a main outlet for air transported through the vacuum cleaner by a main blower fan, an inlet for cooling air to a motor for driving the main blower fan and an outlet for the cooling air from the main blower fan motor,

a sound dome positioned over said housing and enclosing, under said sound dome, said main outlet, said cooling air inlet for the motor and said cooling air outlet; said sound dome being large enough to define a plenum under said sound dome for the air moving out of said main outlet; an outlet from said dome located away from said main housing outlet, whereby the air exiting from said main housing outlet will be redirected through said plenum to said dome outlet.

4,280,246

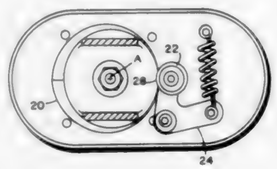
SELF-STEERING CASTER

Carl O. Christensen, Alamo, Calif., assignor to Roll-Rite Corp., Oakland, Calif.

Filed Jan. 10, 1980, Ser. No. 110,895

Int. Cl.³ B60B *33/00*

U.S. Cl. 16—35 D **8 Claims**



1. A self-steering caster, comprising:

(a) mounting bracket means;

(b) a wheel assembly including wheel means and wheel bracket means rotatably carrying said wheel means, said wheel assembly being mounted on said mounting bracket means for swiveling movement with respect thereto about a swivel axis; and

(c) steering means operatively interposed between said mounting bracket means and said wheel assembly so as to bias said wheel assembly into at least one predetermined position with respect to said mounting bracket means, said steering means including:

(i) cam surface means generally in the shape of a circle coaxial with said swivel axis whose radius increases at a generally linear rate from at least one first point on said cam surface in both directions to at least one second point on said cam surface remote from said first point; and

(ii) bias wheel means rollingly engaging said cam surface means, the surface of said bias wheel means being biased against said cam surface means;

(d) said cam surface means being associated with one of said mounting bracket and wheel assembly, and said bias wheel means being associated with the other.

4,280,247

LUGGAGE CASE HANDLE ASSEMBLY

Don N. Burzen, Groton, Mass.; David E. Workman, Evergreen, Colo.; Robert L. Bromley, Aurora, Colo.; Daniel G. Elles, Kittredge, Colo., and James E. Wilkaski, Evergreen, Colo., assignors to Samsonite Corporation, Denver, Colo.

Filed Jul. 10, 1979, Ser. No. 56,207

Int. Cl.³ A47B *95/02;* **A47J** *45/00;* **B65D** *25/28;* **E05B** *1/00*

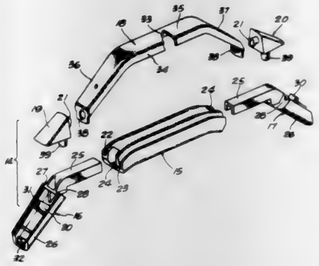
U.S. Cl. 16—112 **6 Claims**

6. A handle assembly adapted for swiveling securement to the outer wall of a luggage case, comprising:

an elongated member constructed of a material compliant to finger pressure, which member has a passageway extending longitudinally therethrough and terminating at opposite ends of the member in first and second openings respectively, and first and second longitudinal grooves on an outer surface of said member;

first and second end parts received in the respective first and second openings of the elongated member and extending outwardly from said member at the same angle and lying in the same plane, said end parts having a pair of recessed shoulders;

an elongated metal cover of generally U-shaped cross-section the side edges of which are received within the respective member grooves and end points recessed shoulders, said cover having its two end portions formed into parallel relation with each of said end portions including an opening therethrough;



means affixing said metal cover to said first and second end parts; and

first and second stanchions for securement to the outer wall surface of the luggage case, each stanchion having a stub shaft received within one of the cover end portion openings, the geometry of the stub shaft terminal ends and cover end portions being such that the shaft terminal ends can only pass through said openings for one relative angular orientation and obstructed from passage therethrough for all other angular orientations.

4,280,248

COMPRESSED-AIR PISTOL OF THE HUMANE KILLER TYPE

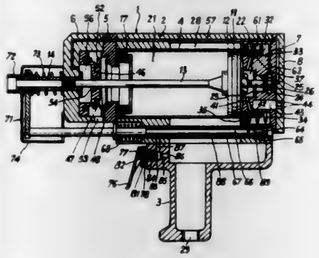
Jean-Frederic Herubel, Guebwiller, France, assignor to N. Schlumberger & Cie, Guebwiller, France

Filed Dec. 13, 1978, Ser. No. 969,091

Claims priority, application France, Dec. 16, 1977, 77 37989

Int. Cl.³ A22B *3/02*

U.S. Cl. 17—1 B **7 Claims**



1. A compressed air pistol, comprising a cylinder having a closing wall at its forward end and open at its rear end,

a piston disposed with said cylinder having a rod extending through a hole formed in the closing wall of said cylinder and movable in a forward stroke and a return stroke,

a reservoir of compressed air,

first valve means at the rear end of said cylinder operative to supply compressed air from said reservoir to said cylinder to effect the forward stroke of said piston,

said first valve means comprising:

a closed housing disposed over said cylinder to define therewith a chamber having an annular portion surrounding said cylinder and a portion extending to the rear of said cylinder,

a closure member movably disposed within the extending chamber portion of said housing in opposition to the rear end of said cylinder,

spring means biasing said closure member against the rear end of said cylinder to normally occlude said cylinder, and

control means comprising trigger means, and a reversing valve independently operable from said trigger means between at least two selected positions, said trigger means and said reversing valve cooperating so that in one position of said reversing valve compressed air is supplied to the extending chamber portion to maintain said closure member fixed in occlusion with said cylinder, and in the other position of said reversing valve said extending chamber is open to atmosphere, to permit said closure member to move against the spring bias to open said cylinder to the annular chamber portion, whereby the compressed air therein actuates said piston, in its forward stroke,

second valve means at the front end of said cylinder operative to supply compressed air from said reservoir to said cylinder to effect the return stroke of said piston, and

switch means operable in response to operation of said control means to supply compressed air from said reservoir to said second valve means to effect the return stroke of said piston and operable on completion of the return stroke of said piston to close off the supply of compressed air thereto.

4,280,249

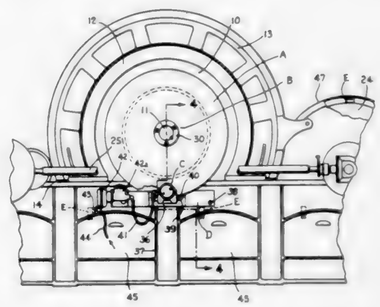
CARD DRIVE OPERATING APPARATUS AND METHOD

Jerry B. Lowe, Tr. 1, Box 58, Simpsonville, S.C. 29681

Continuation-in-part of Ser. No. 890,253, Mar. 27, 1978, Pat. No. 4,187,585. This application Mar. 15, 1979, Ser. No. 20,911

Int. Cl.³ D01G *15/36*

U.S. Cl. 19—98 **6 Claims**



1. A drive for a card having a motor for driving various carding elements including a main cylinder and other carding components, said carding elements having cover elements comprising:

electrically actuated braking mechanisms for instantaneously stopping said carding elements;

a series of elongated conductor bars;

insulating mounting means carrying said bars on respective cover elements;

fasteners carried by respective bars providing a quick disconnect coupling with an adjacent conductor bar permitting removal of a bar with removal of a respective cover;

conducting means connecting adjacent bars; and

means for actuating said braking mechanism responsive to

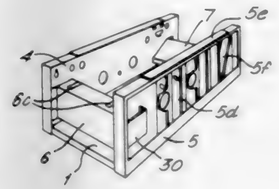
disconnecting of a quick disconnect coupling and removal of a respective bar and cover.

4,280,250

TEXTILE CARDING MACHINE FRAME CONSTRUCTION

Graham Martin, Bolton, England, assignor to Platt Saco Lowell Limited, England

Filed Jul. 26, 1979, Ser. No. 61,550
Int. Cl.³ D01G *15/32*
U.S. Cl. 19—98 **13 Claims**



1. A carding machine for textile fibres comprising a taker-in cylinder, a main cylinder and a doffing cylinder, and including a frame for supporting said cylinders and comprising two longitudinally extending frame side members laterally spaced from each other, each of the frame side members being constructed from sheet steel and having a substantially flat surface facing inwardly and an upper surface for supporting at least one of the cylinders,

the frame further comprising two sheet steel cross members of hollow cross section each of which interconnects the two frame side members and has its two ends welded to the inwardly facing flat surface of the respective frame side member.

4,280,251

FEED CHIMNEY FOR A TEXTILE MACHINE SUPPLIED WITH TEXTILE FIBER TUFTS

Guy Ludwig, Mulhouse, France, assignor to Societe Alsacienne de Constructions Mecaniques de Mulhouse, France

Filed Feb. 12, 1980, Ser. No. 120,757
Claims priority, application France, Feb. 19, 1979, 79 04105
Int. Cl.³ D01G *15/40*
U.S. Cl. 19—105 **4 Claims**



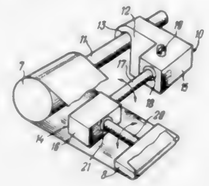
1. A feed chimney for machines designed to process fiber tufts and especially carding machines, the fiber tufts being supplied from a feed duct connected to an area for storage of tufts at atmospheric pressure, said chimney being constituted by a casing of rectangular section having a large face formed by a perforated wall, the upper end of said casing being connected to the outlet of a fan whose intake is connected to said feed duct whilst the lower end of the casing fitted with delivery rollers for the web of fibers is adapted to be connected to a machine and in particular to a carding machine, the upper portion of one wall of the casing being provided with a regulating valve which opens towards the exterior and is urged by restoring means to the closed position thereof, wherein the fan intake is connected to the feed duct by means of a tube in which is mounted a reversing valve having two positions, namely a first position in which said reversing valve establishes a connection between the fan intake and the feed duct alone and a second position in which said valve establishes a connection between said fan intake and the surrounding atmosphere alone, said reversing valve being controlled by actuating means in response to the displacements of the regulating valve or, in other words, the opening movement of the regulating valve being such as to cause changeover of the reversing valve to its second position whilst the closing movement of said regulating valve causes said reversing valve to return to the first position thereof.

4,280,252

DOUBLE-APRON DRAWING MECHANISM

Gennady N. Shlykov, Chilanzar, kvartal 19, 31, kv. 3; Vasily M. Dyachkov, Kuiljuk-4, 23-a, kv. 11; Vitaly I. Zhestkov, Chilanzar, kvartal 19, 26, kv. 41, and Valentin N. Tikhonov, ulitsa Sh.Rustaveli, 55, kv. 28, all of Tashkent, U.S.S.R.

Filed Jul. 23, 1979, Ser. No. 60,019
Int. Cl.³ D01H *5/88*
U.S. Cl. 19—255 **5 Claims**



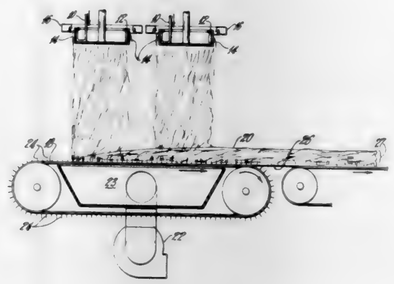
1. A double-apron drawing mechanism comprising, a feed couple for feeding a fibrous material along a longitudinal path of travel; a delivery couple for said fibrous material on said path of travel downstream of said feed couple; two driven endless aprons on said feed couple driven in synchronism and having two opposed runs defining a treatment zone in said path of travel for said fibrous material passed between said opposed runs; said feed couple comprising a pair of driven rolls one of which is a pressure roll; said delivery couple being disposed downstream from an exit end of said treatment zone at which said fibrous material exits; a fixed stationary feed guide of said feed couple spaced from one of said rolls for guiding and supporting one of said endless aprons traveling over said stationary guide, said stationary guide maintaining said one apron extended longitudinally, said stationary guide being disposed opposite a movable guide on said feed couple for guiding and supporting the other of said aprons traveling over the movable guide and maintaining said other apron extended longitudinally, said stationary guide being disposed adjacent said exit end; mounting means mounting said movable guide in the vicinity of said exit end of said treatment zone for variably adjusting a gap between said runs of the aprons, comprising a driving shaft for said pressure roll, a link mounted on said shaft comprising a guide carrier pivotally mounted for carrying said movable guide and movable variably angularly to position said movable guide in inclination relative to a plane extending parallel to said path of travel, and a pivotally mounted holder for said movable guide movable variably angularly to position the movable guide in inclination transversely of said plane.

4,280,253

METHOD FOR COLLECTING FIBROUS MATERIAL

Dennis S. Holt, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Mar. 16, 1979, Ser. No. 21,054
Int. Cl.³ D04H *5/08*
U.S. Cl. 19—296 **2 Claims**



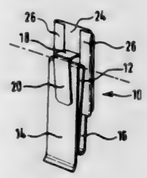
1. In a method for producing an insulation pack of fibrous mineral material of the type in which mineral fibers are formed from a plurality of spinners, the mineral fibers are directed downwardly onto a foraminous collection surface to form the insulation pack thereon, gases are drawn downwardly through said foraminous collection surface and the insulation pack to urge the mineral fibers toward said foraminous collection surface, wherein the improvement comprises: intercepting a portion of the mineral fibers during formation of the insulation pack with a plurality of elongate members which extend from said foraminous collection surface to prevent said portion of fibrous material from being drawn by the downwardly flowing gases into the lower portion of the insulation pack.

4,280,254

BELT RETENTION MEANS FOR GARMENTS

Joseph Racke, 120, Edgware Way, Edgware, Middlesex, England

Continuation of Ser. No. 908,771, May 23, 1978, abandoned. This application Dec. 19, 1979, Ser. No. 105,146
Claims priority, application United Kingdom, May 24, 1977, 21909/77; Jun. 20, 1977, 25615/77
Int. Cl.³ A44B *11/00*
U.S. Cl. 24—336 **7 Claims**



1. A belt retention clip for engaging the waistband of a garment, said clip comprising:

a base portion,

an outwardly and downwardly depending arm positioned adjacent said base portion and adapted to engage the waistband of the garment therebetween, and

an outwardly and upwardly extending arm positioned adjacent said base portion and adapted to receive the belt therebetween,

said first-mentioned arm and base portion being provided with means for retaining the clip on the garment waistband,

said outwardly and upwardly extending arm being provided with an ornamental member,

said ornamental member having inwardly turned side flange means for sliding said ornamental member on and removing said ornamental member from the outwardly and upwardly extending arm,

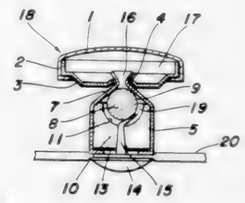
wherein the upper end of said outwardly and upwardly extending arm terminates in an inwardly extending portion and a downwardly extending abutment portion, the latter engaging said outwardly and downwardly extending arm.

4,280,255

BUTTON

Hidenosuke Ishizaki, 6-13, 6-chome, Motoyamakita-machi, Higashinada-ku, Kobe-shi, Japan

Filed Feb. 19, 1980, Ser. No. 122,185
Int. Cl.³ A44B *1/42*
U.S. Cl. 24—95 **3 Claims**



1. A button comprising:

a button face member,

a support plate having a center hole for supporting the face member,

a hollow button shank having upper and lower open ends, a constricted neck at its upper portion and a shoulder extending downward from the constricted neck, the neck having a smaller diameter than the center hole, the shoulder having a larger diameter than the center hole,

a bending guide member in the form of a ball disposed within the shank and having a bending and guiding spherical surface;

an engaging member having a center bore extending therethrough and disposed within the shank and under the bending guide member, and

a fastening member having a piercing needle,

the support plate being loosely fitted around the neck of the shank and prevented from slipping off by an enlarged top portion formed at the upper end of the neck after the support plate has been loosely fitted around the neck,

the button face member being fitted over the support plate to form a button head from the face member and the support plate, the button head being pivotably turnably supported by a shank with the enlarged top portion of the shank positioned within the space defined by the face member and the support plate,

the shank being fastenable to a fabric or like sheetlike material by the piercing needle of the fastening member.

4,280,256

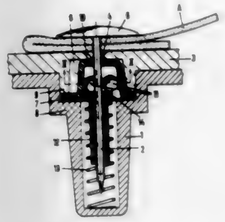
FASTENER APPARATUS

Hendrik J. de Jong, Groenlo, Netherlands, assignor to N.V. Nederlandsche Apparatenfabriek NEDAP, Groenlo, Netherlands

Filed Jan. 2, 1979, Ser. No. 343
Claims priority, application United Kingdom, Jan. 3, 1978, 55/78
Int. Cl.³ A44B *9/00*
U.S. Cl. 24—155 BR **5 Claims**

1. A fastener of the kind in which a pin can be inserted into

a closed housing between balls provided in a tapering space within said housing, the closed housing including biasing means for urging the balls into contact with an inserted pin so that the balls prevent the subsequent removal of said pin through the exercise of clamping action on said pin upon attempts to remove the pin from the housing, characterized by said housing having a chamber therein, and by the tapering space being defined by a substantially freely rotatable body housed in said chamber, said rotatable body having a tapering cavity therein defining the tapering space and a central aperture for the insertion of the pin therethrough, said tapering



cavity containing the balls, said balls being enclosed within said rotatable body and having linear contact with the wall of said tapering cavity, said chamber of said housing having a wall thereof defined by an internal shoulder of the housing, said housing being closed by a cover having a central aperture aligned with said central aperture of said freely rotatable body for the insertion of the pin and a shoulder positionably spaced from the internal shoulder of the housing, said rotatable body being cap-shaped and having an outwardly projecting flange loosely held between the internal shoulder of the housing and the shoulder of the cover so that said rotatable body is rotatable with respect to said housing and said cover.

4,280,257

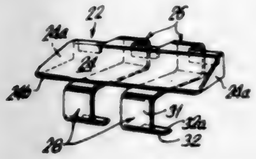
CLASP FOR ADJUSTABLE WATCH BAND

Andrew T. Kostanecki, Darien, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed May 23, 1979, Ser. No. 41,578

Int. Cl.³ A44B *5/00, 5/18*

U.S. Cl. 24—206 R **3 Claims**



1. In an adjustable wristwatch band having first and second strands each with a free end in partially overlapping relation to the other, each strand being formed of spaced transverse links abutting one another along the length of the strand,

an improved clasp for releasably connecting the overlapping strands together, said clasp comprising a decorative cover member attached to the free end of the first strand in overlapping relation to one side of the second strand, said cover member having a projecting strip member suitably bent to form a loop along one side for connection to the free end of the first strand and to form a transversely aligned hook adjacent the other side projecting toward the second strand with an intermediate portion of the strip member extending beneath the cover member from one side thereof to the other to complete the loop and hook and connect them together, the hook being adapted for insertion between abutting links of the second strand with a portion of said hook partially overlapping one of said abutting links on the other side of the second strand after insertion so that effective hooking action is provided around at least one link of the second strand.

4,280,258

CABLE SLEEVE HAVING A CLOSABLE, LONGITUDINAL SLIT

Dieter Kunze, Neuried, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 27, 1979, Ser. No. 34,127

Claims priority, application Fed. Rep. of Germany, May 9, 1978, 2820181

Int. Cl.³ B65D *63/00;* **F16L** *33/00*

U.S. Cl. 24—257 **4 Claims**



1. A cable sleeve having a closable, longitudinal slit extending therealong, said sleeve being a tubular member of shrinkable material and having a closure for said slit, said closure being a pair of overlapping edge portions of the member extending along the longitudinal slit, the outer edge portion of the pair having a bead being formed by a fold extending the length of the edge portion and forming a longitudinally extending groove opening towards the inside of the tubular member and the inner edge portion of the pair of edge portions, said inner edge portion having a longitudinally extending bead extending outwardly towards the groove and being snappable into said groove to hold the edge portions together in a sealed, overlapping relationship, and a support clamp being disposed on the bead of the outer edge portion to engage the fold adjacent the opening to hold the bead of the inner edge portion in said groove.

4,280,259

METHOD OF KNITTING A VELOUR LACE FABRIC

Rudolph G. Bazsist, 1003 McGran Blvd., Lancaster, Pa. 17601

Filed Apr. 7, 1980, Ser. No. 137,871

Int. Cl.³ D06C *23/02*

U.S. Cl. 28—160 **3 Claims**

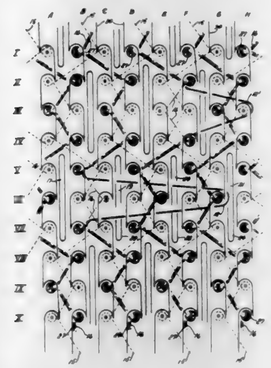
1. A method of making a knitted velour lace fabric, comprising the steps of:

(a) knitting a net ground fabric having ground threads,

(b) knitting velour threads on to the ground fabric such that each velour thread substantially follows the path of one of the ground threads except that at points along the length of the velour thread the latter is extended across a plurality of wales of the ground fabric to form an elongated loop,

(c) knitting stitches of soluble yarn on to the ground fabric to temporarily hold the velour thread loops flat against one face of the ground fabric, and

(d) thereafter treating the fabric with a liquid or vapor at a temperature and for a sufficient time to dissolve only the soluble yarn so as to free the velour thread loops to project outwardly from said face of the ground fabric, while leaving substantially all the non-looped remaining



portion of each velour thread doubled with said one of the ground threads.

4,280,260

APPARATUS FOR THREADING UP A TEXTURIZING NOZZLE

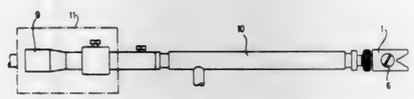
Wolfgang Martin; Hans Knopp, both of Ludwigshafen; Dieter Herlon, Frankenthal; Gerhard Conzelmann, Otterstadt; Guenter Leuchtmann, Mannheim, all of Fed. Rep. of Germany; Peter Gujer, Winterthur, Switzerland; Dieter Guldenfels, Dinhard, Switzerland, and Armin Wirz, Ossingen, Switzerland, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 29, 1979, Ser. No. 25,173

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1978, 2817478

Int. Cl.³ D02G *1/12*

U.S. Cl. 28—255 **6 Claims**



1. An apparatus for introducing at least one thread into a fluid-jet texturizing nozzle, said texturizing nozzle comprising an inlet member means of variable cross-section and a reduced pressure chamber, the texturizing nozzle together with the inlet member means being pivotably arranged and adapted to attach to said reduced pressure chamber in such a way that reduced pressure, relative to atmospheric pressure, can be set up at the inlet member means of the texturizing nozzle for drawing a cut thread end into the nozzle, said inlet member means of variable cross-section being formed by a rotatable cylindrical stopcock having a variable bore formed by a larger cylindrical bore and a smaller cylindrical bore means, said smaller cylindrical bore positioned at an angle of 20° to 90° to said larger cylindrical bore, and the web between the two bores being removed whereby the free cross-section can be altered so as to provide, as desired, a variable cross-section in the inlet member means.

4,280,261

PROCESS FOR MAKING HEATHER YARN FROM BULKED CONTINUOUS-FILAMENT YARNS

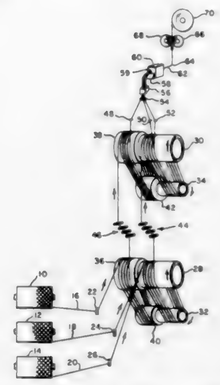
Thomas L. Nelson, Georgetown, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 969,933, Dec. 15, 1978, Pat. No. 4,222,223.

This application Mar. 3, 1980, Ser. No. 126,297

Int. Cl.³ D02G *1/16, 3/04, 3/34*

U.S. Cl. 28—271 **3 Claims**



1. An improved process for making a bulked, continuous-filament, heather-dyeable yarn which includes the steps of feeding from separate sources at least two differentially dyeable types of bulked, continuous-filament component yarns, each component yarn consisting essentially of filaments of the same dyeable type and being substantially free of yarn twist and of filament entanglement, into a trnasverse-impingement fluid-jet filament intermingling zone with at least 5% overfeed and collecting the resulting heather-dyeable combined yarn, wherein the improvement comprises differentially overfeeding a component yarn of one type, which type consists essentially of filaments that are lighter dyeing than the filaments in the other yarn types and that comprise from about 20% to about 50% of the total filaments in the component yarns, to the zone at a percent overfeed which is from about 15% to about 45% above the percent overfeed of the other component yarn types and randomly entangling filaments in said zone within and among the component yarns to provide a coherent heather-dyeable combined yarn having a mean separation distance by the lateral pull-apart test of no more than about 1.5 inches.

4,280,262

HYDRAULICALLY CONTROLLED VARIABLE DEFLECTION ROLL

Karl-Heinz Ahrweiler, Krefeld, Fed. Rep. of Germany, assignor to Eduard Küsters, Krefeld, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,475

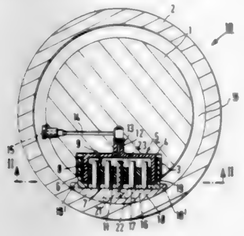
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905488

Int. Cl.³ B21B *31/32*

U.S. Cl. 29—116 AD **5 Claims**

1. A hydraulically controlled variable deflection roll comprising a rotative shell having an external work-rolling surface and a cylindrical inside, a fixed shaft extending through said inside with radial clearance permitting independent transverse bending of the shell and shaft, said shaft having at least one radial recess facing said inside, a plate spaced radially from the inside end of said recess and forming therewith a manifold space between the plate and said end, means for introducing hydraulic pressure to said space, said plate having extending therethrough a multiplicity of cylindrical holes each having a piston extending therethrough with an inner end in said space and an outer end projecting towards the shell's said inside, and

a bearing shoe having an outer surface bearing on the shell's said inside and an inner surface to which all of the pistons' said



outer ends collectively apply force when hydraulic pressure is introduced to said space by said means.

4,280,263

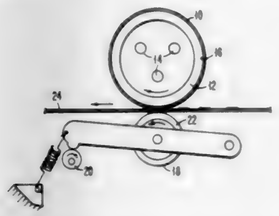
HEAT FUSER ROLL AND METHOD OF MANUFACTURE

Homer B. Dean, and Ballard T. Mahurin, both of Morgan Hill, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 861,077, Dec. 14, 1977, abandoned. This application Jan. 29, 1979, Ser. No. 7,263

Int. Cl.³ B21B *31/08*

U.S. Cl. 29—132 **12 Claims**



1. The method of manufacturing a contact heat fuser roll for fixing a resinous powder image to a substrate comprising the steps of:

forming a thin film of an uncured silicone rubber material on the peripheral surface of a nondeformable base member;

curing the silicone rubber material on said base member; and

treating the cured silicone rubber material on said base member by irradiating its surface with a uniform predetermined low level of ultra-violet radiation for a predetermined time between about two and ten hours to produce a contact heat fuser roll having a thin deformable layer of silicone rubber of predetermined softness on its peripheral surface.

12. As an article of manufacture, a fuser roll prepared in accordance with the method of claim 1.

4,280,264

METHOD FOR FABRICATING LARGE DIAMETER GEARS, GEAR-BLANKS AND THE LIKE

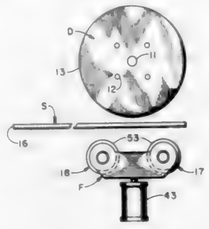
George Negrich, Sr., deceased, late of Bedford, Ohio, and by Helen Negrich, executrix, 711 Archer Rd., Bedford, Ohio 44146

Filed May 9, 1979, Ser. No. 37,921

Int. Cl.³ B21D *53/28;* **B21K** *1/30;* **B21H** *5/00*

U.S. Cl. 29—159.2 **11 Claims**

1. A method for fabricating of gear blanks, including the steps of: producing a circularly-edged gear web plate disk; supporting the circular web disk for rotation about a central axis perpendicular to its plane; advancing a strip of elongated flat rim flange stock into a position with one end adjacent the edge of the web disk; in said position the plane of the strip being perpendicular to the plane of the web disk; forming the said end of the strip by advancing a spaced pair of parallel-axed forming rolls to engage and carry it against and arcuately shape it to the edge of the web disk; securing the rim strip in its portion arcuately conformed to the web disk and proximate to the actual end edge; driving said web disk rotationally with said one end as the strip leading end to draw the remainder of the said strip beneath the forming rolls, while the forming rolls are applied to the strip to keep, and form, the strip against the



web edge; welding a substantially continuous bead between the rim strip and the web disk as the strip has thus continuously been formed to the disk periphery; and continuing the web drive for roll forming of the rim strip stock and the simultaneous welding until a trailing end edge of the strip stock is brought into juxtaposed relation with the lead end edge to complete a rim on the disk, thereby to produce a weldment gear blank.

4,280,265

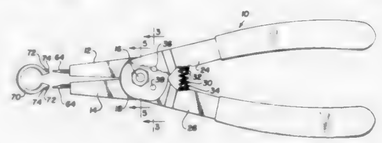
PLIERS

James W. Murphy, 1001 Skylark Dr., Denton, Tex. 76201

Filed Sep. 10, 1979, Ser. No. 73,747

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—229 **9 Claims**



1. Retaining ring pliers comprising: a pivot; first and second coplanar movable jaws arranged to rotate about said pivot; first and second handles pivotally secured to said pivot on opposed sides of said first and second jaws; and attachment means disposed on each jaw for alternately engaging said first jaw to said first handle and said second jaw to said second handle in a first position and engaging said first jaw to said second handle and said second jaws to said first handle in a second position to shift a fulcrum point of each jaw to permit changing the pliers from a position wherein said jaws move inwardly as the handles are moved inwardly to a position wherein the jaws move outwardly as the handles are moved inwardly.

4,280,266

AUTOMATIC BEAD THREADING TOY

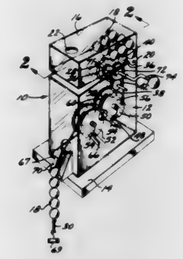
Tohru Tomita; Shinya Saitoh, both of Tokyo, and Kazuo Hirakata, Ichikawa, all of Japan, assignors to Takara Co., Ltd., Tokyo, Japan

Filed Jan. 15, 1980, Ser. No. 112,395

Claims priority, application Japan, Jan. 26, 1979, 54-7740[U]

Int. Cl.³ B25A *19/04*

U.S. Cl. 29—241 **17 Claims**



1. A toy device for threading a plurality of small objects on a thread and the like, the device comprising:

a chassis;

a container moveably mounted relative to the chassis and adapted for holding the plurality of small objects, each of the small objects having a substantially straight aperture penetrating through a portion of the small object, the container having an outlet port adapted for allowing passage under the force of gravity of only one of the small objects at a time through the port;

an elongated thin guide member mounted to the chassis and having a first and a second end, the first end of the guide member being disposed in operative relationship with the outlet port of the container, the second end of the guide member being adapted for operative connection to the thread and the like, the guide member being sufficiently thin so as to allow each of the small objects to pass from the first end of the guide member to the second end of the guide member with the guide member penetrating through the aperture of the small object;

first means mounted relative to the chassis for shaking the container, the shaking motion being of such magnitude to generate random positioning of the small objects relative to the port and the first end of the guide member, the small objects as a result of the varying random positioning capable of falling through the outlet port with the guide member being disposed in their respective aperture, whereby the toy device is capable of passing the small objects from the container onto the thread and the like.

4,280,267

APPARATUS FOR AND METHOD OF DEMOUNTING SLIDE SHOE

Erik C. Christensen, Copenhagen, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.

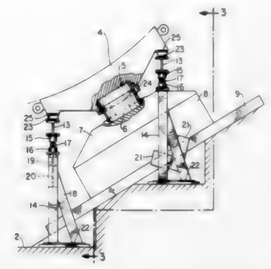
Filed May 24, 1979, Ser. No. 41,997

Claims priority, application United Kingdom, May 25, 1978, 22384/78

Int. Cl.³ B23P *19/04*

U.S. Cl. 29—426.3 **17 Claims**

1. Apparatus for removal of a supported slide shoe of a slide shoe bearing, comprising at least two track means each being positioned so as to support a respective end of the slide shoe, means for raising each track means so as to lift the slide shoe



clear of its support and antifriction means for displacing the slide shoe generally along the track means.

4,280,268

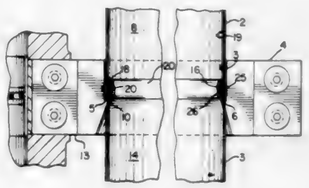
ADHESIVE APPLICATION OF TWO-PART CONTAINER

Gerald Gordon, Skokie, Ill., assignor to The Continental Group, Inc., Stamford, Conn.

Division of Ser. No. 54,780, Jul. 5, 1979. This application Jul. 18, 1980, Ser. No. 170,195

Int. Cl.³ B23P *11/02*

U.S. Cl. 29—446 **6 Claims**



1. A method of bonding a pair of container sections end to end wherein each section has a metal thin-walled cylindrical body with an open end defined by an end portion having a raw edge comprising:

applying a bead of adhesive material of predetermined width on the interior side of the edge portion of one of said sections, and

inserting the other section into said one section while applying a hoop stress to the end portion of said other section to reduce the diameter thereof to slightly less than the internal diameter of said one section,

imbedding said end portion of said other section within said bead of adhesive while maintaining said end portion of the other section in radially spaced relation to said end portion of said one section to provide clearance therefrom and thereby leaving a film of adhesive material of predetermined thickness between the external side of the edge portion of the other section and the internal side of the edge portion of the one section,

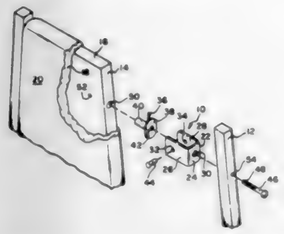
and then releasing the hoop stress on said end portion of said other section to cause excess bonding material to be squeezed out from therebetween and leaving a thin coating of said material therebetween.

4,280,269

METHOD OF SECURING AN ARTICLE TO THE EDGE OF A PANEL

Thomas O. Marini, Marlton, N.J., assignor to Suntemp Industries, Inc., Blackwood, N.J.

Filed Jan. 24, 1979, Ser. No. 6,096
Int. Cl.³ B23P 19/00
U.S. Cl. 29—526 R **1 Claim**



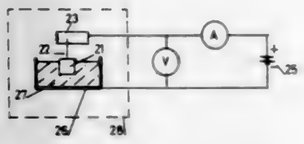
1. A method of securing an article to the edge of a panel including the steps of:
- forming an elongated first hole in the edge of said panel substantially perpendicular to said edge;
- forming a second hole through said panel inwardly of said edge, said second hole being formed in substantial axial alignment with said first hole but perpendicular thereto;
- placing a U-shaped member over said edge of said panel such that the bottom wall of said member overlies said first hole and the side walls of said member overlie said second hole;
- passing an elongated rod shaped element through apertures in the side walls of said U-shaped member and through said second hole to thereby secure said U-shaped member to said panel;
- covering said panel with padding and a sheet like material cover;
- passing an elongated bolt through an article to be secured to the edge of said panel;
- passing said bolt through an aperture in said padding and cover and in said bottom wall of said U-shaped member to engage a nut positioned between said side walls adjacent said bottom wall and in line with said first hole, and
- turning said bolt so that the end thereof threads into said nut and moves into said first hole until said article is secured to the edge of said panel.

4,280,270

PROCESS FOR THE MANUFACTURE OF TANTALUM SOLID ELECTROLYTE CAPACITORS

Balint Escher; Dominique Prince, and Jean Vasseux, all of Paris, France, assignors to Societe Lignes Telegraphics et Telephoniques, Paris, France

Filed Jan. 21, 1979, Ser. No. 50,800
Claims priority, application France, Jul. 28, 1978, 78 22363
Int. Cl.³ H01G 9/00
U.S. Cl. 29—570 **4 Claims**



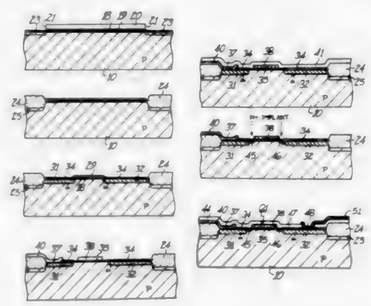
1. Process for accelerated ageing of tantalum solid electrolyte capacitors, characterized in that the capacitors mounted on a strip production unit are immersed in a bed of pulverous semiconducting material contained in a conductive receptacle connected to the negative terminal of a stabilized voltage source, of which the positive terminal is directly connected to the strip to which the anodes of the capacitors are fixed, the voltage of the said source being between 1.2 and 1.8 times the rated voltage of the capacitors, and the said mounting being maintained between 25° C. and 180° C. for a minimum period of two hours.

4,280,271

THREE LEVEL INTERCONNECT PROCESS FOR MANUFACTURE OF INTEGRATED CIRCUIT DEVICES

Perry W. Lou, Houston; James E. Ponder, Cat Spring, and Graham S. Tubbs, Houston, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 11, 1979, Ser. No. 83,702
Int. Cl.³ H01L 21/265, 21/225
U.S. Cl. 29—571 **4 Claims**



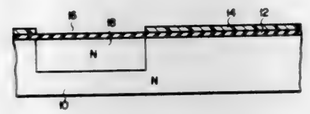
1. A method of making an insulated gate field effect transistor and a cross-over connection in an integrated circuit comprising the steps of:
- (a) selectively growing thick field oxide using an oxidation mask to provide an enclosed surface area on said face for the transistor and a defined area for the cross-over connection,
- (b) introducing N-type impurity into said defined area to produce a conductive region and into the enclosed surface area to produce source and drain regions of an N-channel transistor leaving a space between said source and drain regions to create a channel,
- (c) depositing a layer of conductive material on said face over a thin gate insulator and patterning the conductive material to provide a gate of an N-channel transistor in said enclosed surface area in the space between the source and drain regions but leaving a gap between such gate and source and drain regions, the conductive material after patterning also extending across said conductive region,
- (d) and implanting N-type impurity into the enclosed surface area, self-aligned with said gate, adjacent said source and drain regions, to bridge said gaps.

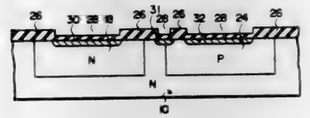
4,280,272

METHOD FOR PREPARING COMPLEMENTARY SEMICONDUCTOR DEVICE

Hideharu Egawa, Tokyo; Koji Matsuki, Yokohama, and Yasoji Suzuki, Kanagawa, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Division of Ser. No. 922,192, Jul. 5, 1978, Pat. No. 4,209,797.
This application Oct. 17, 1979, Ser. No. 85,595
Claims priority, application Japan, Jul. 4, 1977, 52-79045
Int. Cl.³ H01L 21/22, 21/265
U.S. Cl. 29—571 **1 Claim**





1. A method for manufacturing a complementary semiconductor device comprising:
- forming P- and N-type semiconductor regions in a semiconductor substrate of one conductivity type having a low impurity concentration;
- forming impurity layers by doping the same conductivity type impurity into predetermined portions of said P- and N-type semiconductor regions;
- forming gate regions to partially cover each of the impurity layers, said gate regions including polycrystalline silicon layers of the same conductivity type; and
- simultaneously forming source and drain regions in the respective P- and N-type semiconductor regions to form N- and P-channel type field effect transistors
- wherein said impurity layer is formed by doping that amount of impurity which is enough to control the threshold voltages of the N- and P-channel type transistors to a desired level.

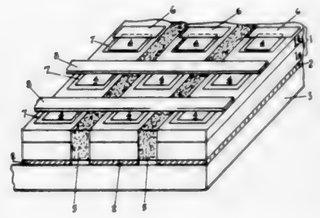
4,280,273

MANUFACTURE OF MONOLITHIC LED ARRAYS FOR ELECTROLUMINESCENT DISPLAY DEVICES

Vera M. Vincent, Hatch End, England, assignor to The General Electric Company Limited, London, England

Filed Nov. 7, 1979, Ser. No. 91,980
Claims priority, application United Kingdom, Nov. 20, 1978, 45300/78
Int. Cl.³ H01L 21/302, 21/316
U.S. Cl. 29—577 R **7 Claims**

1. A process for the manufacture of a monolithic array of light-emitting semiconductor diodes, for an electroluminescent display device, which includes the steps of providing a slice of n-type semiconductor material, forming a plurality of discrete regions of p-type semiconductor material in the said slice by diffusing p-type material into the front surface of the slice, to delineate individual diode areas, forming individual metal contacts on the surfaces of said p-type regions and connecting said contacts together in groups as required for addressing the array, forming at least one isolation channel through the n-type slice for electrically isolating portions of the array from one another, forming at least one metal contact on a surface of the n-type region of each of said mutually isolated portions, and bonding the back surface of the structure so formed to an insulating substrate, wherein
- each said isolation channel is formed from the front surface of the slice of semiconductor material through a part, being at least half, of the thickness of the slice,
- and which process includes the additional steps of
  - (a) filling each said channel with a suspension of glass particles in a liquid medium,
  - (b) removing the liquid, and
  - (c) heating the slice to a sufficiently high temperature to cause the glass particles to sinter so as to form a glass frit contained in each channel and bonded to the semiconductor material on each side of each channel,



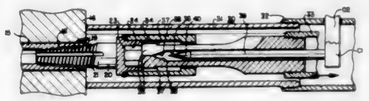
  - (d) said additional steps being carried out successively for the number of times required to fill each channel completely with said glass frit,
  - (e) and subsequently to the filling of each channel with said glass frit mechanically removing n-type material from the back of the slice until the glass frit in each channel in exposed at the back surface of the slice, so that the remaining regions of n-type material are isolated from one another by the glass frit,
- the formation of each channel and filling thereof with said glass frit being carried out before the formation of the said contacts on the p-type and n-type regions of the slice.

4,280,274

TUBE EXTRACTING APPARATUS

Burt Filer, New Hope, Pa., assignor to Sandra Lee Filer, New Hope, Pa.

Filed Jan. 31, 1980, Ser. No. 117,309
Int. Cl.³ B23P 19/00
U.S. Cl. 29—726 **9 Claims**



1. Tube extracting apparatus for extracting a tube from a tube sheet comprising
- a dart having a shank and a tapered end extending therefrom in axial alignment,
- said tapered end being provided with threads for internal engagement in a tube to be extracted, pl said tapered end having longitudinal flutes for facilitating insertion of said threaded tapered end,
- said shank opposite said tapered end having an enlarged head,
- said head opposite said shank having a socket axially aligned with said shank and being provided with internal driving surfaces for rotation of said threaded tapered end into the tube to be extracted.

4,280,275

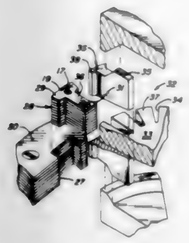
APPARATUS FOR LAMINATED CORE MANUFACTURE

Yoshiaki Mitsui, Kitakyushu, Japan, assignor to Mitsui Mfg. Co., Ltd., Kitakyushu, Japan

Division of Ser. No. 819,480, Jul. 27, 1977, Pat. No. 4,149,309. This application Apr. 16, 1979, Ser. No. 30,445

Int. Cl.³ H02K *15/08*

U.S. Cl. 29—732 2 Claims



1. Apparatus for manufacturing a dynamoelectric machine wound core from a plurality of stacks of teeth having a shank portion and a head portion, and stacked yoke laminations each having an annular array of radially inwardly opening recesses, said stacked teeth being arranged in an annular array to define an annular tooth core arrangement having a plurality of winding slots, said stacked yoke laminations defining an annular yoke core, said apparatus comprising

jig means defining a core bar and locking means removably associated with said core bar for temporarily retaining said tooth core assembly on said core bar with said stacked teeth, held accurately in annularly spaced relationship to define therebetween an annular array of winding slots in which a dynamoelectric winding may be wound to define a wound tooth core assembly constructed to be disposed within said yoke core with the head portion of said teeth of the tooth core assembly received in said yoke core recesses to define the dynamoelectric machine core, said jig means further including camming members for urging the stacked teeth radially inwardly into engagement with the core bar to provide the desired accurate annular spaced relationship for receiving said dynamoelectric winding in said tooth core assembly slots.

4,280,276

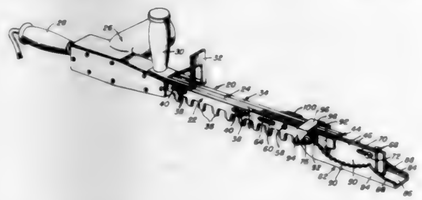
RECIPROCATING CUTTER

Robert C. Comer, Hopkins, and Thomas F. Kruzel, Minneapolis, both of Minn., assignors to The Toro Company, Minneapolis, Minn.

Filed Jan. 18, 1980, Ser. No. 113,206

Int. Cl.³ B25F *3/00*; **B27B** *11/10*

U.S. Cl. 30—144 26 Claims



1. In a reciprocating cutter, a support, a pair of parallel laterally adjacent trimmer blades, each of said trimmer blades having a proximal end, a distal end, inner and outer faces, and opposed longitudinal edges, means mounting said trimmer blades on said support for opposite reciprocating movement relative to each other, one of said longitudinal edges constituting a working edge and including shearing knives therealong, a pair of saw blades generally coplanar with and rigid with said trimmer blades for reciprocating movement therewith, each of said saw blades having a proximal end, a distal end, inner and outer faces, and opposed longitudinal edges, one of the longitudinal edges of each saw blade constituting a working edge and having saw teeth defined therealong.

4,280,277

INSCRIPTION INSTRUMENT

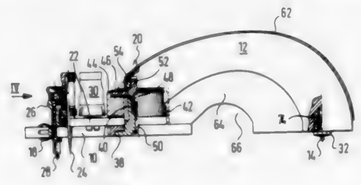
Harald Koelichen, Geretsried, and Adolf Deutsch, Königsdorf, both of Fed. Rep. of Germany, assignors to Standardgraph Filler & Fiebig GmbH, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 130,962

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1979, 2916731

Int. Cl.³ B43L *13/10*

U.S. Cl. 33—23 D 10 Claims



1. An inscription instrument, comprising:

a writing arm; a writing implement supported on the writing arm; a tracing pin supported on the writing arm and which can be inserted into a guide groove for tracing the groove; the writing implement and tracing pin being spaced apart along the writing arm;

a sensing arm extending from the writing arm, the sensing arm being fixable at a plurality of relative positions with respect to the writing arm; a clamping head located at the writing arm and at the sensing arm for clamping the sensing arm at its various positions with respect to the writing arm; a sensing pin on the sensing arm for sensing characters, or the like, defined in a stencil, or the like;

the writing arm being formed as a grippable body between the clamping head and the tracing pin; the grippable body having an upwardly, convexly curved form adapted to the ball of a user's thumb; the convexly curved form including a more steeply curved portion curving down toward the tracing pin, a more flatly curved upper and front portion curving down toward the clamping head and corresponding to the form of the ball of a user's thumb, and a boundary curved portion between the two downwardly curving portions of the curved form; a finger grip recess at the lower side of the grip body;

a guide grip located on the sensing arm, the guide grip being generally flat in shape and being upstanding from the sensing arm and being rotatable on the sensing arm about an axis generally perpendicular to the direction of extension of the sensing arm.

4,280,278

APPARATUS FOR INDICATING INSIDE DIMENSIONS

Lars Ö Forsman, Lindögatan 1, S-253 72 Helsingborg, Sweden

Filed Jul. 10, 1979, Ser. No. 118,801

Int. Cl.³ G01B *5/12*

U.S. Cl. 33—178 R 9 Claims

1. An apparatus for indicating dimensions of an object to be measured, comprising:

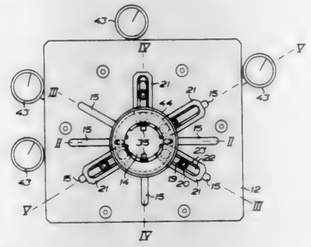
(a) a base plate;

(b) a supporting plate for supporting the object to be measured and positioned above said base plate;

(c) a plurality of slotted guides on said supporting plate and extending radially from its center;

(d) a least one pair of aligned rails mounted on said base plate and displaceable with respect to each other and being positioned in alignment with at least one of said slotted guides;

(e) a plurality of measuring arms mounted on said rails and



extending through said slotted guides at preselected locations therealong;

(f) support means mounted on said support plate for securing said object to be measured; and

(g) indicating means for indicating the dimensions to be measured, the indicating means being operatively connected to said at least one pair of rails, so that when said measuring arms are positioned in predetermined relationship to said object to be measured, said indicating means will indicate the dimension to be measured.

4,280,279

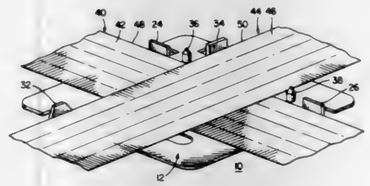
ALIGNMENT TOOL

Michael A. Grundfest, Forest Hills, N.Y., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Aug. 30, 1979, Ser. No. 71,274

Int. Cl.³ G01B *3/00*

U.S. Cl. 33—180 R 10 Claims



1. An alignment tool for aligning selected conductors of a first multiconductor flat cable with selected conductors of an overlapping second multiconductor flat cable comprising: a base plate having a cable contact surface; first stop means projecting from said surface of said base plate to engage a first edge of a first multiconductor flat cable and align same with respect to said base plate; second stop means projecting from said surface of said base plate to engage a first edge of an overlapping second multiconductor flat cable; and guide means on said surface defining mutually intersecting paths for said first and second cables, each such paths extending beyond the point of intersection and being congruent with one of said first and second stop means to align selected conductors of said overlapping second flat cable in a fixed angular orientation with selected conductors of said first flat cable in a fixed angular orientation.

4,280,280

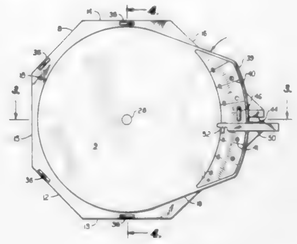
RADIUS PLATE STRUCTURE

Leonard F. Eck, and Lyle Horgen, both of McPherson, Kans., assignors to Kansas Jack, Inc., McPherson, Kans.

Filed Sep. 21, 1979, Ser. No. 77,647

Int. Cl.³ G01B *5/28*

U.S. Cl. 33—203.12 5 Claims



1. A radius plate structure for use in aligning a vehicle wheel positioned thereon and comprising:

(a) a bottom plate member having a front portion;

(b) an upper plate member having front and rear portions and positioned in overlying relation to said bottom plate member;

(c) connecting means extending between said bottom plate member and said upper plate member and including an elongate slot in one of said bottom and upper plate members and an axial pin extending from the other of said bottom and upper plate members permitting full rotational movement while limiting translational movement to only from front and rear of said upper plate member relative to said bottom plate member;

(d) bearing means situated between said bottom plate member and said upper plate member and permitting smooth rotational and translational movement of said upper plate member on said bottom plate member; and

(e) rotation stopping means including a pin member detachably engaged with one of a plurality of apertures extending through one of said bottom and upper plate members and an elongate opening in the other of said bottom and upper plate members and colinearly aligned with said elongate slot, said aperatures corresponding to a plurality of selected radii of said upper plate member from said axial pin; said rotation stopping means selectively preventing rotational movement at a selected amount of rotation of said upper plate member relative to said bottom plate member and permitting only front to rear translational movement at said selected amount of rotation.

4,280,281

REMOTELY ADJUSTABLE SIGHTING DEVICE FOR TRACTORS

B. Lynn Gerber, 6286 E. Catalina Dr., Scottsdale, Ariz. 85251

Filed Dec. 3, 1979, Ser. No. 99,526

Int. Cl.³ G01C *15/00*

U.S. Cl. 33—264 12 Claims



1. A sighting apparatus attachable to a tractor to enable the driver of the tractor to precisely align the tractor with swaths or furrows previously cut in a field by a towed farming implement, said sighting apparatus comprising in combination:

a. a first extension arm for extending outwardly a variable

distance from a first point of the tractor on which said sighting apparatus is attached to the tractor, said first extension arm having first and second ends;

b. mounting means attached to the first end of said extension arm for attaching said extension arm to said first point of the tractor;

c. first sighting means connected to the second end of said first extension arm for effecting visual checking of alignment of the tractor with an edge of said previously cut swath or furrow to determine whether said first sighting means lies along a straight line between an eye of the driver and the edge of the previously cut swath or furrow, said first sighting means including a sighting blade pivotably connected to the second end of said first extension arm, said sighting blade having a blade edge for simultaneous alignment with both the eye of the driver and two substantially spaced points on the edge of said previously cut swath or furrow;

d. first control means coupled to said first extension arm for controlling a variable distance through which said first extension arm extends from said first point, a portion of said first control means being located sufficiently close to a driver's seat of the tractor to enable the driver to operate said first control means while the driver is in a normal driving position; and

e. second control means coupled to said first sighting means for effecting pivoting of said sighting blade to precisely align two spaced points on said blade edge with the eye of the driver and respective ones of both of said substantially spaced points on the edge of said previously cut swath or furrow.

4,280,282

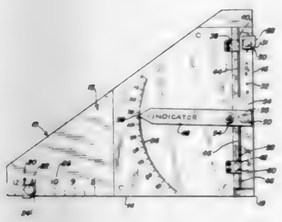
TEMPLATE FOR STAIRWAY CONSTRUCTION AND THE LIKE

Patrick Wright, Albuquerque, N. Mex., assignor to PAJ Corporation, N. Mex.

Continuation-in-part of Ser. No. 951,347, Oct. 16, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 88,960

Int. Cl.³ B43L *13/00*

U.S. Cl. 33—427 **5 Claims**



1. A template for measuring and scribing tread and riser lines for the construction of a stairway, which comprises: a plate member defining first and second straight edges defining a square corner, first movable stop means carried by said plate member on said first edge, and second movable stop means carried by said plate member on said second edge, said second edge being defined by a separate portion of said plate member carried by said plate member and movable along a path of travel parallel to said second edge; and fulcrum arm means pivotally attached to both said separate portion and the rest of the plate member, whereby pivoting of said fulcrum arm means moves said separate portion and second stop means to predetermined positions along said path of travel, whereby the distances between the respective stop means along the straight edges from said square corner may be adjusted, and the resulting adjusted template may be used to scribe a tread and riser lines of predetermined length.

4,280,283

METHOD AND DEVICE FOR THE OPERATION OF A HOT GAS GENERATOR WITHIN A DRYER

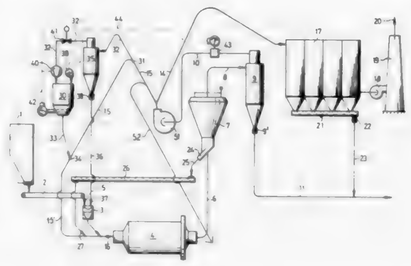
Jakob Ansen; Helmut Duill, both of Cologne, and Heinz Fasbender, Krefeld, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,479

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852164

Int. Cl.³ F26B *3/10*

U.S. Cl. 34—10 **6 Claims**



1. A method of operating a grinding dryer installation for pulverizing and drying solid particles, said installation comprising a mill element, a solids separator, and a dryer system including a circulation blower, a gas circulation system for conducting system gas in combination with said solid particles to be dried and recycling a return gas flow, and a hot gas generator, said method comprising:

mixing raw solid particles with system gas,

introducing system gas mixed with solid particles into said milling element,

passing said mixture from said mill element into said solids separator,

removing system gas from said solids separator as return gas flow,

branching off a part of said return gas flow from a main return gas flow,

passing said partial gas flow into said hot gas generator to serve as secondary air flow therein,

introducing hot gases from said hot gas generator into said main return gas flow to form system gas,

conducting said partial gas flow through a further solids separator means prior to being introduced into said hot gas generator, and

conducting separated solids from said further solids separator means into mixture with system gas prior to its introduction into said mill element.

4,280,284

CLOSED CONDITIONING SYSTEM FOR PEELER LOGS

Elmer F. Guthrie, Bellevue, and Lennart A. Lundberg, Seattle, both of Wash., assignors to A. H. Lundberg Associates, Inc., Mercer Island, Wash.

Filed May 5, 1980, Ser. No. 146,444

Int. Cl.³ F26B *19/00*

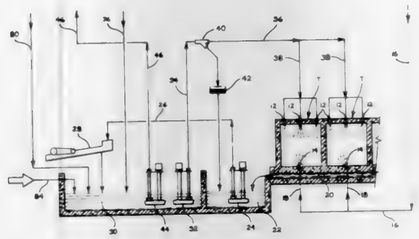
U.S. Cl. 34—60 **8 Claims**

1. In a closed water and steam conditioning system for peeler log conditioning tunnels including a steam source, the improvements comprising:

(a) an evaporator means having heat exchange and vapor head portions,

(b) supply and return lines for connecting said steam source to the heat exchange portion of said evaporator so that steam supplied to said evaporator is returned to said steam source as clean condensate,

(c) sump means for receiving dirty condensate from said conditioning tunnels, said sump means including first pump means connected to and for directing dirty condensate to said conditioning tunnels for spraying onto peeler logs in said tunnels, and also having second pump means connected to and for cycling dirty condensate to said evaporator where it is vaporized to steam by heat in said heat exchange portion and directed to the vapor head portion,



(d) steam line means in said conditioning tunnels interconnected with the vapor head portion of said evaporator for introducing them into said tunnels,

(e) means for directing dirty condensate from said tunnels to said sump means, and

(f) chemical storage and pumping means for directing preselected and controlled amounts of chemical to said sump means for maintaining a desired pH reading in said sump means.

4,280,285

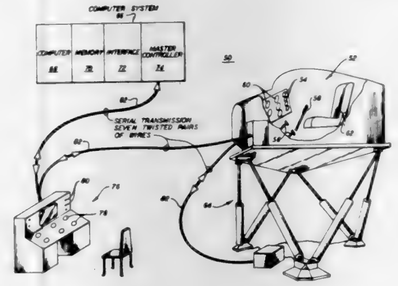
SIMULATOR COMPLEX DATA TRANSMISSION SYSTEM HAVING SELF-TESTING CAPABILITIES

Robert N. Hass, Binghamton, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed May 9, 1977, Ser. No. 795,301

Int. Cl.³ G09B *9/08*

U.S. Cl. 434—30 **10 Claims**



1. A computer controlled data transmission system for use with a simulator complex which serially transmits digital information originally occuring in one of many forms, including discrete form, digital form and analog form, between data transmission circuitry and a multiplicity of widely spaced peripheral units, said system comprising: a controlling computer for monitoring input information in the form of digital data indicative of the operation of widely spaced peripheral units and for providing output information to control said operation, said output information including digital data for controlling the operation of said peripheral units, addressing digital data for identifying the peripheral unit to be controlled, and synchronizing digital data, said output information being determined in response to said input data and in accordance with an operational program contained in said computer; reformatting means connected between said controlling computer and said data transmission circuitry for transmitting parallel digital data in both directions between said controlling computer and data transmission circuitry, for reformatting as necessary data transmitted from said controlling computer to said data transmission circuitry, and for reformatting as necessary data transmitted from said data transmission circuitry to said controlling computer to a form acceptable to said controlling computer; data transmission circuitry comprising, master control circuitry connected between said reformatting means and peripheral control circuitry, said master control circuitry comprising, a buffer memory for temporary storage of information transmitted in both directions between said computer and said peripheral control circuitry, a storage memory for storing information relative to the format of information transmitted to and received from said peripheral controlled circuitry, means for converting parallel digital data from said computer means to serial digital data suitable for transmission to said peripheral control circuitry, means for converting serial digital data received from said peripheral control circuitry to parallel digital data for transmission to said controlling computer, and means for controlling the retrieval of information from and storage of information by said buffer and storage memories; peripheral control circuitry connected between said master control circuitry and said peripheral units, said peripheral control circuitry comprising means for determining which serial information transmitted from said master control circuitry is to be received by one of said widely spaced peripheral units, means for converting and conditioning serial information received from said master control circuitry to an electrical command signal in the form necessary for use by said peripheral units and means for converting and conditioning electrical information signals of various format received from said peripheral units to serial digital form for transmission to said master control circuitry, said electrical information signals containing information about the operation of said peripheral units; a primary communication path connecting said master control circuitry to said peripheral control circuitry and for carrying information in serial digital format wherein said master control circuitry includes the improvement comprising:

first circuitry for continuously monitoring the accuracy of data transmission between said controlling computer and for determining that such accurately transmitted data is received by the appropriate using peripheral unit; and

second circuitry for automatically testing on a cyclic basis the performance of the computer comprising said master control circuitry and said peripheral control circuitry.

4,280,286

SKI BOOT

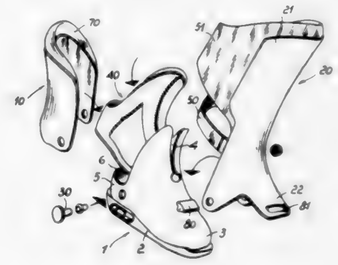
Mariano Sartor, Montebelluna, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed Nov. 2, 1979, Ser. No. 90,816

Claims priority, application Italy, Nov. 15, 1978, 29813 1 A/78

Int. Cl.³ A43B *5/04, 21/00*

U.S. Cl. 36—118 **4 Claims**



1. A ski boot comprising in combination:

(a) a foot portion comprising a substantially rigid shell made

of plastics material; said shell having a toe portion and a heel portion;

(b) a leg portion comprising a rear raised upper and a front raised vamp, said raised upper and raised vamp being made of substantially rigid plastics material, at least said raised vamp having a length dimension with respect to said shell such as to terminate substantially proximate to the skier's knee;

(c) wings integral with said raised vamp laterally thereto for at least in part engaging the skier's leg laterally;

(d) means for pivotally connecting said raised upper and said raised vamp with said shell about a common axis extending substantially perpendicularly to a longitudinal centerline of said shell and lying substantially at the region of the skier's malleolus;

(e) means for engaging said raised upper with said raised vamp to firmly surround the skier's leg;

(f) means on said raised vamp for encircling the skier's leg rear and holding said raised vamp in engagement with the skier's leg at an upper region near to the skier's knee;

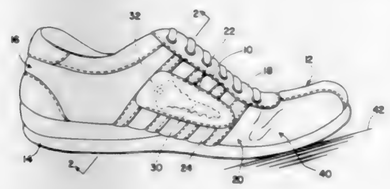
(g) means for allowing limited pivotal movement of said raised vamp about said axis.

4,280,287

POCKET FOR AN ATHLETIC SHOE

Jerry Gulbransen, 804 Mandana Blvd., Oakland, Calif. 94610

Filed May 21, 1979, Ser. No. 41,062
Int. Cl.³ A43B *23/00, 5/00*
U.S. Cl. 36—136 **6 Claims**



1. A pocket for an athletic shoe comprising:

a. a flat sheet of material including fastening means for removably fastening said entire flat sheet of material to the outer side of an athletic shoe rearward of the normal walking crease of the upper shoe, to form a compartment having an opening located between two sides, one side positioned above the other side, said fastening means comprising hook and pile closure mating elements fastened to the upper of the athletic shoe and generally about the perimeter of the flat sheet of material;

b. a closure flap connected to said flat sheet of material, said closure flap including closure means for sealing said opening of said compartment.

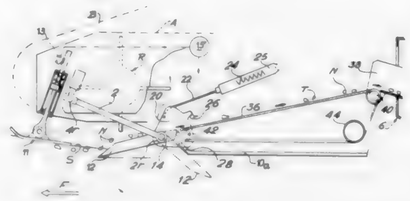
4,280,288

MODULAR DRAGING UNIT FOR COLLECTING SOLID BODIES ON AN UNDERWATER BED

Yves-Paul Corfa, Nantes; Paul Marchal, Gif-sur-Yvette; Victor Roussel, Maintenon, and Jean Vertut, Issy les Moulineaux, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Continuation-in-part of Ser. No. 945,105, Sep. 25, 1978, abandoned. This application Jun. 9, 1980, Ser. No. 157,846
Int. Cl.³ E21C *45/00*; E02F *9/00*
U.S. Cl. 37—54 **15 Claims**

1. A modular dragging unit for collecting solid bodies on an underwater bed, said dragging unit comprising a plurality of collecting structures for individually collecting said solid bodies, said structures being applied against said underwater bed and located side by side at a front edge of said dragging unit, a storage structure for storing said bodies as they are collected, said structure being applied against said underwater bed, means for displacing said collecting and storage structures along said bed in a given direction, said means being connected to the storage structure, a plurality of means for collecting said bodies along said given direction, each said means being rigidly fixed to one of said collecting structures, and a plurality of means for transferring said bodies as they are collected from each collecting means into said storage structure along said given direction, each said transferring means being rigidly fixed to one of said collecting structures, wherein coupling means are provided between each collecting structure and the



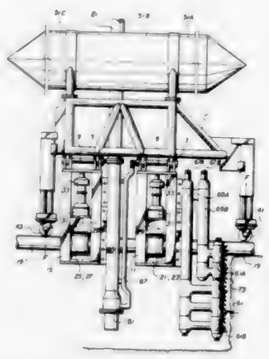
storage structure, said coupling means permitting an independent relative movement of each collecting structure with respect to the storage structure and maintaining each collecting structure in a predetermined distance and orientation with respect to said underwater bed at the time of collection of said bodies whatever the position of said storage structure relative to said bed and whatever the variations in profile of the underwater bed, each coupling means between one of said collecting structures and the storage structure comprising at least one link-arm connected to each structure to provide at least two degrees of freedom between said structures.

4,280,289

UNDERWATER TRENCHING MACHINE FOR BURYING PIPELINE AND THE LIKE

Christian C. Bassompierre-Sewrin, Embrun, France, assignor to Martech International, Inc., Houston, Tex.

Filed Sep. 27, 1970, Ser. No. 79,358
Int. Cl.³ F16L *1/00*; E02F *5/02*
U.S. Cl. 37—63 **7 Claims**



1. In a trenching apparatus for excavating a path in the floor of a body of water for receiving therein a pipeline or the like comprising:

a fore roller means and aft roller means simultaneously or individually adapted for traction engaging contact with the pipeline,

power means coupled to each said roller means for driving the trenching apparatus along said pipeline until an obstacle thereon is countered by said fore roller means,

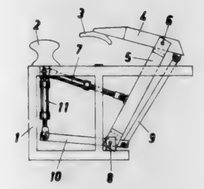
remote control means for selectively withdrawing either of said fore or aft roller means from the surface of the pipeline so that the aft roller means drives the trenching apparatus when the fore roller means is withdrawn and the fore roller means drives the trenching apparatus when the aft roller means is withdrawn to thereby enable the trenching apparatus to move over pipeline obstacles without being removed therefrom.

4,280,290

GARMENT PRESSING MACHINE

Ake Andersson, Skolvägen 15, Aplared, Sweden 510 53

Filed Dec. 28, 1979, Ser. No. 107,875
Claims priority, application Sweden, Jan. 9, 1979, 7900171
Int. Cl.³ D06F *71/08*
U.S. Cl. 38—31 **1 Claim**



1. A garment and like pressing machine of the kind comprising a frame, a stationary buck supported on the frame and a pressing head moveably supported relative to the buck, means being arranged for moving the head forwardly in vertical registry over the buck and rearwardly away therefrom and further means being arranged for moving the head vertically into and out of pressing contact with the buck, said head being mounted at one end of a double-armed lever, which is pivoted to the upper end of a column, which at its lower end is pivoted to the frame and which is actuated by a first power-operated jack, at the opposite end of said lever the upper end of a link being pivoted, the lower end of which being pivoted to one end of a second double-armed lever, which is pivoted to the frame about the same axle as the column, and a second power-operated jack being arranged for acting upon the opposite end of the second lever remote from the link for applying pressing pressure to the head.

4,280,291

TWO-SIDED PORTABLE SCOREBOARD

Alan D. Maynes, 9619 S. 3100 East, Sandy, Utah 84070

Filed Nov. 15, 1979, Ser. No. 94,740
Int. Cl.³ G09F *9/00*
U.S. Cl. 40—495 **12 Claims**

1. A two-sided scoreboard comprising:

a front plate;

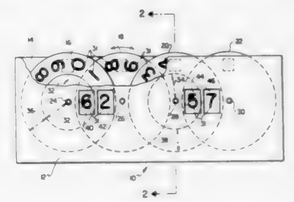
a rear plate coupled to said front plate;

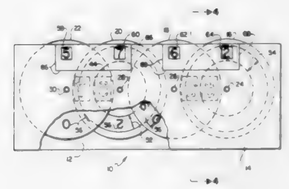
at least two pairs of disks axially mounted at their centers between said front and rear plates, each pair of said disks having a set of scoring symbols selectively placed around the front and rear periphery of each disk, the front sets of said scoring symbols being of a uniform size that is sufficiently large so as to be legibly visible to a person having normal vision who is positioned at least 30 feet away from the front side of said scoreboard, each of said pairs of disks comprising:

a front disk having a radius r of at least five inches, including a transparent center section having a radius approximately equal to r/2, positioned adjacent to said front plate, and

a rear disk having a radius approximately equal to r, positioned adjacent to said rear plate and partially overlapping said front disk such that the center of said second disk is close to the circumferential edge of said front disk;

respective front windows in said front plate for each of said pairs of disks through which a pair of desired scoring symbols may be viewed in a desired sequence, a first symbol in either front window sequence belonging to the front set of scoring symbols placed around the respective rear disk and being viewed through said transparent center section of the respective front disk and through the respective window, and a second symbol in this front window sequence belonging to the front set of scoring symbols placed around said respective front disk and being viewed directly through said respective window, the spacing between said first and second symbols as viewed through said window being no more than the





average width of the symbols belonging to said front set of symbols; and

respective pairs of spaced apart rear windows in said rear plate through each pair of which an equivalent pair of desired scoring symbols may be viewed in the proper sequence and orientation as is viewed through the corresponding front windows, a first symbol in this rear window sequence belonging to the rear set of scoring symbols placed around the respective rear disk and being viewed from the rear side of said scoreboard directly through a left rear window of said respective pair, and a second symbol in this rear window sequence belonging to the rear set of scoring symbols placed around the respective front disk and being viewed from the rear side of said scoreboard directly through a right rear window of said respective pair.

4,280,292

TORSO-AND DISPLAY-SUPPORTABLE PUPPET

Isaac A. Hills, Brooklyn, N.Y., assignor to Animal Toys Plus, Inc., Brooklyn, N.Y.

Filed Aug. 14, 1980, Ser. No. 177,920
Int. Cl.³ G09F *1/08*; A63H *3/14*
U.S. Cl. 40—538 **13 Claims**

1. A puppet supportable on a manipulator's torso, comprising:

(a) a puppet figure having a puppet head and a puppet body connected to the puppet head, said puppet figure bounding an interior cavity which is located within the puppet head and body, and which is dimensioned to permit free insertion of the manipulator's hand and at least a major portion of the manipulator's forearm therein, said puppet

figure also having a pair of soft, upper puppet limbs connected to and extending from the puppet body for a distance sufficient for extending behind the manipulator's neck region when the puppet is positioned in embracing relation generally adjacent the manipulator's chest, and further having a pair of soft, lower puppet limbs connected to and extending from the puppet body for a distance sufficient for extending behind the manipulator's waist region when the puppet is positioned in embracing relation generally adjacent the manipulator's chest; and



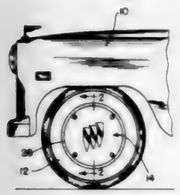
(b) torso-supporting means on the puppet figure, for supporting the same on the manipulator's torso, said torso-supporting means including neck-supporting means for securing the upper portion limbs around the manipulator's neck region, and waist-supporting means for securing the lower puppet limbs around the manipulator's waist region, whereby the torso-supported puppet is manipulatable by both the manipulator's hand and forearm while mounted in embracing relation on the manipulator's torso.

4,280,293

STATIONARY DISPLAY MEMBER FOR A ROTATING HUB CAP

Eugene N. Kovalenko, 461 Peralta, Long Beach, Calif. 90803, and John G. Bowen, 11521 Heathcliff Dr., Santa Ana, Calif. 92705

Filed Dec. 26, 1979, Ser. No. 106,703
Int. Cl.³ G09F *21/04*
U.S. Cl. 40—587 **8 Claims**



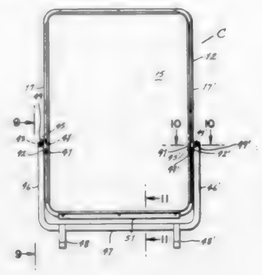
1. A non-rotating assembly for a rotatable member comprising: a disc-like member forming an internal chamber for receiving a flowable material; bearing means mounting the disc-like member on the rotatable member in coaxial relationship with the axis of rotation thereof to permit the disc-like member to be freely rotatable about the axis of rotation; a quantity of flowable material received in the chamber to act as a counterweight so as to prevent the disc-like member from rotating as the rotatable member rotates; and damping means mounted in the chamber coacting with the flowable material therein to prevent any tendency for the member to oscillate about the axis of rotation of the rotatable member.

4,280,294

UNIVERSAL SIGN

Keith S. Eckberg, II, St. Louis County, Mo., assignor to Stout Industries, Inc., St. Louis, Mo.

Filed Apr. 30, 1980, Ser. No. 145,030
Int. Cl.³ G09F *15/00*
U.S. Cl. 40—606 **17 Claims**



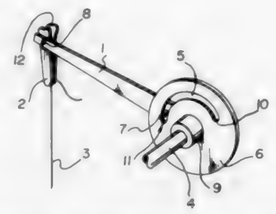
1. A sign of universal mounting character for carrying a display, said sign comprising a display sheet, a frame having a plurality of components defining top and bottom and side portions of said frame, said components being joined together at joints at the sides of said frame, means associated with said joints for mounting said frame in a first display configuration, means respectively associated with said top and bottom portions for mounting said frame in a second display configuration, and means for securing said sheet to said frame.

4,280,295

JIG-O-MATIC

Philip Hoeving, 613 Elgin St., N.E., and Michael Litovich, 29 Ash Dr., both of Weyburn, Saskatchewan, Canada

Filed Jan. 25, 1980, Ser. No. 115,512
Claims priority, application Canada, Oct. 30, 1979, 338706
Int. Cl.³ A01K *87/00*
U.S. Cl. 43—19.2 **1 Claim**



1. Apparatus for providing movement to a fishing line comprising a shaft having first and second ends adapted to be attached at said first end to a motor for rotation thereby, a plate fixed to said shaft at said second end and adapted to rotate about the axis of said shaft, an arm pivotally attached to said plate for pivotal movement about the axis of the shaft in a plane parallel to the plane of said plate, said plate including arm engaging means thereon to engage said arm to provide limits to the pivotal movement of said arm relative to said plate, said arm including a clip fastening means pivotally mounted thereon for holding a fishing line, whereby as the plate is rotated said arm engaging means will initially cause the arm to rotate at the same rotational speed as the plate causing relatively slow upward movement of the fishing line following which the arm is allowed to drop under the influence of gravity to thereby cause said fishing line to sink rapidly, said arm engaging means comprising a pair of spaced perpendicularly extending pins mounted on said plate adapted to engage said arm to limit pivotal movement thereof relative to said plate.

4,280,296

TANDEM FISHHOOK

Donald C. Volenec, 5042 Frederick St., Omaha, Nebr. 68106

Filed Mar. 19, 1979, Ser. No. 21,431
Int. Cl.³ A01K *83/00*
U.S. Cl. 43—44.81 **5 Claims**



1. A tandem fish hook assembly comprising a forward hook and a rearward hook, said hooks each having two opposite sides connected by a curved portion with a convex side and a center, one of said sides having a barbed end having a forward-pointing tip, the other of said sides of each of said hooks defining an elongated shank extending in a direction opposite to the convex side of said curved portion, said shanks being alongside each other, means rigidly interconnecting said shanks, said curved portions both extending upwardly from said shanks at the same time, and at said same time the centers of said curved portions being disposed on opposite sides of a reference plane extending along said shanks and substantially through a center of the area in which said shanks are disposed, said forward-pointing tip of said forward hook being disposed a substantial distance forwardly of said forward-pointing tip of said rearward hook, said means rigidly interconnecting said shanks comprising a weighting member of substantially greater weight in proportion to its forward-to-rearward dimension than the combined weight of said two shanks along an equal forward-to-rearward dimension along the two of said shanks, the forward ends of said hook shanks terminating in aligned eyes inside said weighting member, a wire extending through said aligned eyes, and said wire having an eye thereon external of said weighting member.

4,280,297

DOLL WITH WATER ACTIVATED SHOWER CAP

Allison W. Katzman, Chicago; Harry Disko, S. Barrington, and Eugene Jaworski, Park Ridge, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Dec. 3, 1979, Ser. No. 99,311
Int. Cl.³ A63H *3/06*
U.S. Cl. 46—41 **20 Claims**



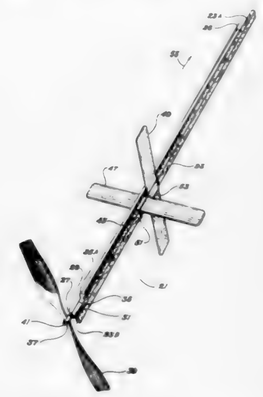
1. A doll having a hollow body and a head,
a cap element secured on top of said head for limited movement toward and away from said head,
a liquid reservoir in said hollow body having a flexible wall,
a conduit for said liquid extending from said reservoir and passing through said head with an outlet adjacent said cap element for directing a stream of liquid through space external to said doll to impinge against said cap element to move the same away from said head when said flexible wall is compressed inwardly.

4,280,298

TOY MODEL FLYING MACHINE

Walter P. B. Kulzer, 7309 Coronet Ave., Fort Worth, Tex. 76118

Filed Oct. 22, 1979, Ser. No. 87,095
Int. Cl.³ A63H *27/00*
U.S. Cl. 46—78 **5 Claims**



1. A model airplane, comprising:
a substantially straight elongated body having a first end and a second opposite end,
two thin elongated fins adapted to be removably attached to said body at positions intermediate said first and second ends such that they form a cross with their thin planes being about 90 degrees apart and with their lengths being generally perpendicular to the length of said body,
a propeller mounted for rotation at said first end, and
elastic means coupled to said propeller and to said body at a position between said two fins and said second end of said body,
said elastic means being capable of rotating said propeller for causing said model airplane to fly,
said two fins being adapted to be removably attached to said body such that one fin is located its full width closer to said first end of said body than said other fin.

4,280,299

WHISTLE

Toshio Oka, Osaka, Japan, assignor to Zenzaburo Kawanishi, Osaka, Japan

Filed Nov. 8, 1979, Ser. No. 92,495
Claims priority, application Japan, May 10, 1979, 54-62776[U]
Int. Cl.³ A63H *5/00*
U.S. Cl. 46—179 **1 Claim**

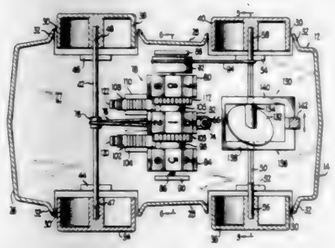
1. A whistle, comprising:
a body having a plurality of separate axially extending cavities each respectively having different depths and having an opening opening out of the top of said body and further having an aperture midway of their length; and
a mouthpiece having at least one hole extending generally axially out of one end of said mouthpiece, the other end of said hole having a size covering the top of said body for communicating with said openings in the top of said body, said mouthpiece being fitted in air tight engagement on said body, said mouthpiece having a protuberance therein projecting toward the top of said body and engaging the top of said body when said mouthpiece is fitted on said body, said protuberance extending in the circumferential

direction of said mouthpiece a distance sufficient to cover only one of said openings and less than the distance between said openings, whereby said mouthpiece can be positioned on said body with said protuberance covering



none of said openings or covering one of said openings so that air blown into said mouthpiece will produce one of four sounds from flowing through all three of said cavities or through only two of them at a time.

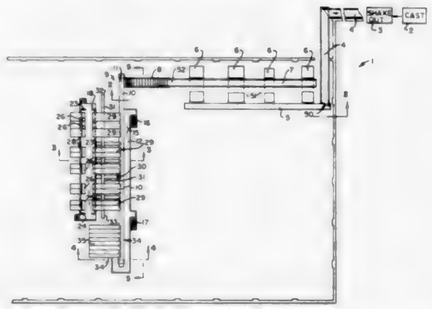
4,280,300
TOY VEHICLE
Ralph J. Kulesza, Chicago; Harry Disko, South Barrington, and James G. Thibault, Chicago, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 8, 1980, Ser. No. 119,808
Int. Cl.³ A63H *11/10*
U.S. Cl. 46—204 **11 Claims**



1. A toy vehicle such as an automobile or the like, comprising:
a vehicle frame;
a plurality of wheels rotatably mounted on said frame to allow said vehicle to travel over a surface; and
an automatically flashing turn signal device including a plate member slidably mounted on said body, indicia on said plate member indicating a signal, and means for repeatedly moving said plate to a signaling position including a disc coupled to at least one of said wheels and mounted at an angle to a longitudinal axis of said body and a spring biasing said plate member to a nonsignaling position.

4,280,301
MATERIAL HANDLING SYSTEM AND METHOD
Donald E. Herzog, and Larry Thomas, both of St. Louis, Mo., assignors to St. Louis Conveyor Company, Inc., St. Louis, Mo.
Continuation of Ser. No. 879,471, Feb. 21, 1978, abandoned. This application Nov. 26, 1979, Ser. No. 97,059
Int. Cl.³ B26B *1/00*
U.S. Cl. 51—5 R **11 Claims**

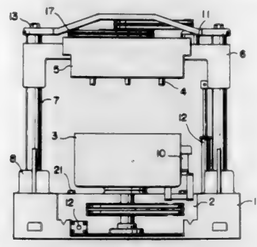
1. A material handling system for gray iron foundries providing generally continuous work flow, comprising:
means for conveying and accumulating material at an elevated temperature along a single plane reference, said conveying and accumulating means permitting the material to cool to a temperature suitable for material handling by humans;
means for transferring said material to a first work station along said single plane reference;
means for conveying said material from said first work station to a first location elevated with respect to said single plane reference but environmentally a part thereof;
a second work station enclosure including a totally enclosed finishing room providing an area segregated from said first work station, and environmentally separate therefrom, said second work station having a plurality of inlets and a plurality of outlets operatively associated with the totally enclosed finishing room, said inlet and outlet plurality corresponding to a plurality of personnel work stations within said totally enclosed finishing room so that work on said material may be conducted within said finishing room, such work being conducted in the environmentally separate area provided by said finishing room,



said inlets being arranged at an elevated location approximately equal to said elevated first location, and said outlets being at a lower elevation than said first elevated location;
means for conveying said material from said elevated first location and for connecting said elevated first location with said second work station enclosure including means for gravity feeding material from said last mentioned conveying means to said work station enclosure at said plurality of inlets;
means for gravity feeding material from said second work station enclosure at said plurality of outlets; and
means at the end of said conveying and connecting means for collecting and accumulating any material not passing through said second work station enclosure wherein work enters said material handling system at said conveying and accumulating material means and leaves said material handling system at one of said second work station enclosure gravity feeding means and said last mentioned collecting and accumulating means.

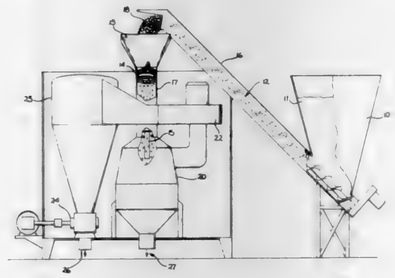
4,280,302
GRINDING METHOD AND APPARATUS
Ietatsu Ohno, 1-2, 1-chome, Kasuya, Setagaya-ku, Tokyo, Japan
Filed Nov. 6, 1978, Ser. No. 957,673
Int. Cl.³ B24B *31/08*
U.S. Cl. 51—7 **6 Claims**

1. A grinding method comprising in combination, filling a tank rotatable about a central axis with grinding materials, extending a plurality of rotatable spindle shafts into said tank displaced from said central axis and rotatable about axes parallel to the central axis, rotating work products to be ground on said spindle shafts and entered in said tank to contact said grinding materials, sealing the tank with a lid sealed thereon by a packing seal and adapted to rotate with the tank and thereby prevent loss of said grinding materials therein when subjected to flow patterns caused by rotation of the work products and high grinding pressures attained by centrifugal force afforded by the rotatable tank, and relatively rotating the work product



on the spindle shafts and the grinding materials by rotating the tank and its sealed lid to achieve a grinding pressure within the tank bearing upon the work product as a result of flow of the grinding materials about the work product within the sealed tank.

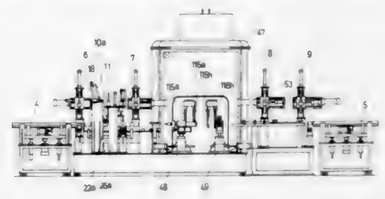
4,280,303
PLASTIC PELLET CLEANING APPARATUS AND METHOD FOR OPTICAL LENSE MOLDING
Hermann Weber, 5506 Beckford Ave., Tarzana, Calif. 91356
Filed May 1, 1980, Ser. No. 145,821
Int. Cl.³ B24B *31/00*
U.S. Cl. 51—163.1 **11 Claims**



1. An apparatus for preparing plastic pellets for optical lense molding comprising:
(a) mechanical action means for imparting mechanical action to said plastic pellets to dislodge burrs on said pellets;
(b) ionization means for removing static charge from said plastic pellets coupled to receive said plastic pellets from said mechanical action means;
(c) air separating means for removing said burrs from said plastic pellets coupled to receive said plastic pellets from said ionization means;
whereby said plastic pellets are provided which are substantially free of said burrs.

4,280,304
DEBURRING METHOD FOR WORKPIECES
Hisamine Kobayashi, Nagoya, Japan, assignor to Kabushiki Kaisha Shikishima Tipton, Nagoya, Japan
Filed Dec. 22, 1978, Ser. No. 972,487
Claims priority, application Japan, Jan. 25, 1978, 53-7723
Int. Cl.³ B24B *1/00*
U.S. Cl. 51—315 **4 Claims**

1. A method for deburring workpieces by the combined operations of finishing by rotary tools and gyro-finishing, said method comprising:
providing an intermittently driven carrying means, at least one deburring apparatus having rotary tools and positioned adjacent said carrying means, and a gyro-finishing apparatus located downstream of said deburring apparatus with respect to the direction of movement of said carrying means;
positioning a plurality of workpieces on said carrying means at locations spaced at regular intervals along said direction;
intermittently operating said carrying means to alternately move distances or pitches equal to said regular intervals during movement periods of time and to be stationary during stationary periods of time, and to thereby intermittently move said workpieces in said direction; and
during such intermittent movement successively subjecting each said workpiece to successive operations comprising:
during a stationary period of time transferring a selected said workpiece at a deburring inlet position from the respective said location thereof at said carrying means to said deburring apparatus;
at said deburring apparatus, during a stationary period of time, subjecting said selected workpiece to a deburring



operation by rotating and reciprocating said rotary tools on surfaces of said selected workpiece to be deburred, to thus form a semi-finished workpiece;
returning said semi-finished workpiece to the original respective location thereof with respect to the remainder of said workpieces which has moved forward at least one pitch in said direction, while moving a succeeding said workpiece to said deburring inlet position;
during a stationary period of time transferring said semi-finished workpiece from said original respective location to said gyro-finishing apparatus at an inlet thereof, while transferring a succeeding workpiece from the original respective location thereof to said deburring apparatus;
chucking said semi-finished workpiece in a rotary spindle of said gyro-finishing apparatus, and during stationary periods of time subjecting the thus chucked workpiece to a gyro-finishing operation by rotating said chucked workpiece while being submerged in abrasive media of said gyro-finishing apparatus, to thus form a finished workpiece; and
returning said finished workpiece from said gyro-finishing apparatus back to said carrying means, while transferring a succeeding semi-finished workpiece to said gyro-finishing apparatus at said inlet thereof.

4,280,305
ROOF FLASHINGS FOR USE WITH SOLAR COLLECTOR
Duane D. Logsdon, Fullerton, Calif., assignor to The Logsdon Foundation, Stanton, Calif.
Continuation-in-part of Ser. No. 42,216, May 24, 1979, which is a continuation-in-part of Ser. No. 883,420, Mar. 6, 1978, Pat. No. 4,160,347. This application Oct. 29, 1979, Ser. No. 89,614
Int. Cl.³ E04D *1/36*
U.S. Cl. 52—58 **10 Claims**

1. A roof flashing structure used to form a seal between a

roof and at least one tube or wire extending through the roof, the flashing structure of the type including a generally flat plate formed of a rigid material and having a centralized opening and an upstanding tapered housing integrally formed with said flat plate from said rigid material and extending upwardly from said flat plate about said centralized opening such that the centralized opening in the plate forms the lowermost opening in the housing which comprises:

a resilient elastomeric sealing means having a generally flat circular top member, said flat circular top member including an upper surface and a lower surface, a first interlocking means located on and projecting from the periphery of said top member;

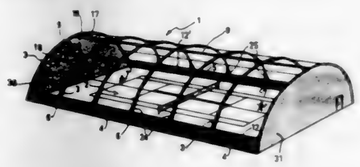
said top member including a plurality of generally circular aperture means extending upwardly from the lower surface of said top member and culminating in an upstanding boss integrally formed with and extending upwardly from



the upper surface of said top member, said upstanding bosses sealing the upper ends of said aperture means, each of said aperture means including a plurality of sealing flanges located one above the other along the length of said aperture means between said lower surface and said sealed end of said aperture means and extending circularly around said aperture means and projecting radially toward the center of said aperture means, at least the upper portion of each of said bosses capable of being severed from said top member unsealing said aperture means, said flanges each being independently capable of engaging with and forming a seal with one of said tube or said wire passed through said unsealed aperture means;

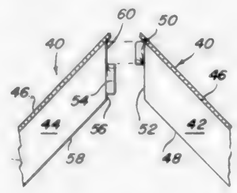
the uppermost periphery of said housing including a second interlocking means, said first interlocking means capable of locking with said second interlocking means locking and maintaining said elastomeric sealing means in the uppermost periphery of said housing.

4,280,306
CONVERTIBLE ENCLOSURE FOR BUILDINGS AND AREAS
Vojin Milinic, 43 rue Charles Floquet, 92500 Rueil Malmaison, France
Filed Jun. 4, 1979, Ser. No. 44,925
Int. Cl.³ E04B *1/12*
U.S. Cl. 52—63 **4 Claims**



1. A convertible enclosure for buildings and areas, particularly sports areas, comprising a series of identical, parallel arched supporting beams having a ridge line, two closure elements between two supporting beams being able to be extended simultaneously along these supporting beams to extend respectively from two rows of bases of the corresponding supporting beams up to the ridge line of the supporting beams, each of said closure elements comprising a series of purlins arranged to slide on said two supporting beams, parallel to the ridge line thereof, and a canvas fixed to said purlins, of which the width is equal to the gap between the two supporting beams and the length is equal to half that of the supporting beams, these purlins thus being connected together in two's by a portion of this canvas, and means for extending said closure elements comprising a winch, a shaft mounted to rotate adjacent the ridge line of the supporting beams, a flexible cable fixed and wound, by its two ends, on the winch and said shaft, respectively, to drive said shaft in rotation, and two series of other flexible cables fixed and wound, by one of their ends, on said shaft and fixed, by the other of their ends, on a purlin at one of the ends of the two rows of closure elements, respectively, all of said other cables being wound on said shaft in the same direction.

4,280,307
PRE-ENGINEERED CONSTRUCTION SYSTEM UTILIZING PREFABRICATED MEMBERS
Alphonso Griffin, 2625 Hemple St., Chesapeake, Va. 23324
Filed Mar. 14, 1979, Ser. No. 20,338
Int. Cl.³ E04B *7/00*
U.S. Cl. 52—90 **7 Claims**



5. A building structure having a plurality of prefabricated panels assembled and erected in a preselected floor arrangement to form a structure wherein said plurality of assembled panels may be disassembled and reassembled to accommodate and expansion or reduction in the size of configuration arrangement of the building structure without disrupting or destroying the structural integrity of the structure the combination, comprising:

a. a roof having a preselected length and width and having at least two roof panel sections connected to one another to form an apex of said roof structure and held in fixed position by means of upper and lower ridge connector plates which are connected respectively to a plurality of rafter elements of said roof panels to thereby form means of mechanically locking said panels at their adjoining edges regions in fixed interlocking relationship, each of said rafter elements extending the full length of said roof panels and being substantially paralled to one another, each of said rafters having an end remote from said roof apex with a cut-out near a lower end thereof having a pre-engineered and pre-designed configuration to which a key board and a roof panel connector plate is fixedly connected to each rafter at said cut-out to thereby link said rafters together along said preselected width of each of said roof panels to thereby form means for mechanically interconnecting said roof panels to one another section of said building structure;

b. a ceiling having at least two ceiling panel sections connected to one another along one dimension by mechanical means to form a main ceiling structure therefor, a lock board connector and a ceiling band joist connector being fixedly connected along each paralled perimeter edge of said panels along one dimension thereof and perpendicular to one another along an upper ceiling joist edge of said one dimension, said cut-out of said rafter and said key board of said roof form a slot into which said lock board connector may be fitted in interconnecting fixed relationship with said rafters and said roof panel connector plate when positioned in flush alignment with said ceiling band joist connector to thereby complete an interlocking arrangement between said roof and ceiling sections;

c. a plurality of wall panel sections having horizontal and vertical edges, two of said wall panel sections being connected with one another along their respective vertical edges to form a corner connection, said vertical edge of one of said wall panel sections consists of a vertical bracing stud member connected to a framing stud member in a perpendicular spaced relationship to form a first portion of an interlocking means of a corner connection, said vertical edge of said second wall panel section consists of a vertical framing stud member connected to one surface to a half stud member and on another adjacent perpendicular surface a second half stud member and a strip of structural filler material connected to said second half stud and said framing stud to thereby form an arrangement for receiving said first portion of an interconnecting means of a corner connection to thereby complete said connection;

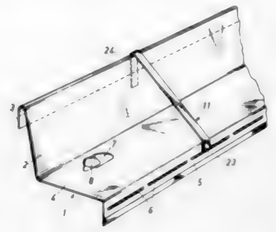
d. a floor having at least two floor panel sections each having a width and length and an adjoining edge region there between extending the full length of one dimension thereof, said adjoining edges each have a full panel girder member connected to a plurality of substantially parallel joist members along another dimension of said panel, each of said panel girder members and at least two of said joist members having a joist bracing connector plate connected there between to provide mechanical strength at their junction and to provide additional means for interconnecting said floor sections with vertical wall panel sections, a positioning plate, connected to said full panel girder member and extending the full length thereof, each of said positioning plates is connected in an upper of lower position with respect to one another to thereby form an interconnecting arrangement therebetween when placed in fitted spaced relationship to one another to further form at least one structural beam member for support of said walls, ceiling and roof; and

e. a foundation for said building structure for supporting said floor panels which are set on said foundation at preselected locations thereof resting on said structural beam members formed by said floor panels at said adjoining edge regions to thereby provide support for said wall panels connected to said floor along preselected portions of said horizontal edges of said wall panels, said roof and ceiling for said building structure being connected to the horizontal edges of said wall panels remote from said horizontal edges of said wall panels connected to said floor to provide vertical support for said interconnected roof and ceiling panels to complete the erection and assembly of said building structure.

4,280,308
LINTEL
Lennart Svensson, Tallbacken 2, Kungsbacka, Fed. Rep. of Germany 43400
Filed Sep. 6, 1979, Ser. No. 72,636
Claims priority, application France, Sep. 8, 1978, 78 25836
Int. Cl.³ E04B *1/00*; E04C *2/08*
U.S. Cl. 52—98 **7 Claims**

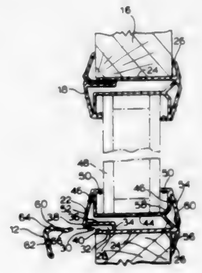
1. A lintel for supporting one or more courses of brick or the like at the walling of arches over wall openings, brick facades and the like, and of the type comprising a relatively thin sheet metal profile which is bent to form at least one shank constituting the most load carrying part of the lintel,

each shank being provided with a material weakening comprising a series of slots, perforations, one or several grooves, or a combination thereof extending in the longitudinal direction of the shank and forming a fracture indication when the shank is bent along said material weakening for the purpose of folding back or breaking off the outer portion of said shank when the brickwork has become self-supporting,



said material weakening being so designed that the carrying capacity of the lintel in the plane of the shank is only insignificantly reduced thereby.

4,280,309
WINDOW FRAME ASSEMBLY
Alfred G. Huelsekopf, R.R. No. 1, Newmarket ,Ontario, Canada
Continuation of Ser. No. 957,922, Nov. 6, 1978, abandoned. This application Dec. 6, 1979, Ser. No. 100,831
Int. Cl.³ E06B *1/04*; E04C *2/38*
U.S. Cl. 52—212 **2 Claims**



1. A window frame assembly for use in a rectangular window opening which extends from one side of a body such as a door, a wall or the like to the other side thereof comprising:

(a) a preassembled rectangular shaped frame which includes a header member, side rail members and a sill member which are secured to one another and sealed in an end-to-end relationship and arranged and proportioned to fit within a rectangular window opening, each frame member comprising,

(i) a composite transverse wall proportioned to extend between the sides of said body, said composite transverse wall comprising first and second wall panels which extend transversely and are interconnected at first and second side edges of said composite transverse wall to form a substantially rigid structure having a chamber formed inwardly thereof,

(ii) a first flange projecting outwardly from said first wall panel at said first side edge thereof for engagement with said one side of said body to prevent direct removal of said first frame from said opening through said other side,

(iii) window mounting means on said second wall panel extending inwardly therefrom, said window mounting means being adapted to retain at least one window unit within said first frame, and

(iv) a first locking channel formed in said second wall panel, said first locking channel extending longitudinally of and opening at said second side edge of said second wall panel to be engageable from said other side of said body in use, and

(b) a locking rail for each of said members comprising a longitudinally extending second flange and a longitudinally extending locking tongue arranged in an L-shaped configuration, said locking tongue being adapted to be insertable within said locking channel to dispose said second flange opposite said first flange for engagement with said other side of said body to clamp said body between said first and second flanges,

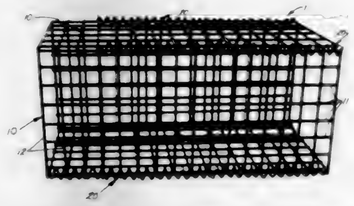
(c) interlocking means on said locking tongue and in said locking channel for releasably securing said locking tongue within said locking channel in use.

4,280,310

HINGED REINFORCEMENT ASSEMBLY AND METHOD

Wilbur E. Tolliver, 364 Hamilton Dr., Holland, Mich. 49423

Filed May 23, 1979, Ser. No. 41,935
Int. Cl.³ E04H *12/18*
U.S. Cl. 52—646 **7 Claims**



1. A welded wire concrete reinforcement assembly comprising: four generally flat sheets of wire reinforcement, each comprising a plurality of generally parallel longitudinal wire strands joined to a plurality of generally parallel transverse strands oriented transversely with respect to said longitudinal strands; hinge means joining said generally flat sheets at their edges; said assembly having a flat, folded configuration for shipping and storage, and an erected configuration wherein said sheets are disposed in a generally rectangular relationship; said hinge means comprising a helical wire coiled about the adjacent edge longitudinal wires in said adjacent sheets of welded wire fabric, and wherein said helical wire is constructed of a material which is sufficiently stiff that it is twisted onto said adjacent longitudinal wires during assembly of said sheets without uncoiling, and is sufficiently bendable that in said erected configuration it is in a crimped condition at various points along its length to hold said reinforcement assembly in its erected condition.

4,280,311

METHOD AND APPARATUS FOR FASTENING A SHEET OF MATERIAL TO A SUPPORT

Donald F. Lockard, Littleton, Colo., assignor to Johns-Manville Corporation, Denver, Colo.

Filed Nov. 8, 1978, Ser. No. 958,772
Int. Cl.³ E04D *1/00, 3/36*
U.S. Cl. 52—748 **4 Claims**

1. A method of fastening sheet material to a support comprising:

positioning a surface of a length of sheet material against a support;

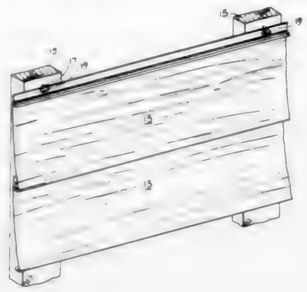
cutting an elongated slot in said sheet material adjacent an edge of said length of sheet material while said surface of said length of sheet material is positioned against said support;

securing a fastener to said support by moving a first portion of said fastener into said support for frictional engagement with said support;

positioning a second portion of said fastener so that it extends through said slot;

controlling the dimensions of said slot so that said slot is larger than said second portion of said fastener that lies therein to permit movement of said length of sheet material relative to said fastener; and

providing a fastening portion on said fastener by forming an initially straight third portion of said fastener into a loop



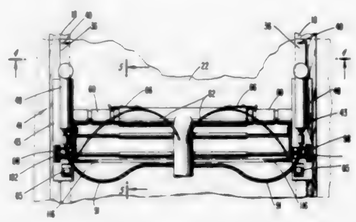
that extends over said edge of said length of material, and moving an end of said third portion into contiguous relationship with said support so as to limit movement of said sheet material away from said support.

4,280,312

APPARATUS FOR INSTALLING STRIPS OF MATERIAL TO SUPPORT ELEMENTS OF A BUILDING

Charles Otts, Box 358, DeQueen, Ark. 71832

Filed Feb. 7, 1980, Ser. No. 119,398
Int. Cl.³ E04D *15/00*
U.S. Cl. 52—749 **20 Claims**



1. Apparatus for securing a strip of material between spaced support members of a building, comprising:

a control head including

runner means for traveling along said support members to align said control head relative to said support members,

means for guidingly receiving opposite edges of said strip of material and permitting movement of said control head relative to said strip of material while positioning said edges adjacent said support members,

securing means for securing said edges to said support members as said control head travels therealong; and

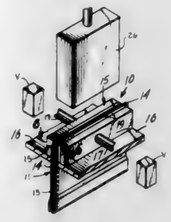
a handle connected at one end to said control head and operable to be held at the opposite end by an operator to manually displace said control head along said support members while said strip of material is being secured thereto.

4,280,313

PACKAGING APPARATUS

Walter I. Akkala, and Thomas M. Gorshe, both of Neenah, Wis., assignors to American Can Company, Greenwich, Conn.

Filed Oct. 3, 1979, Ser. No. 81,528
Int. Cl.³ B65B *43/30;* **B31B** *11/00*
U.S. Cl. 53—175 **10 Claims**



1. In means for handling a flattened pouch having opposed planar walls joined along side portions thereof to define an opening for receiving material to be packed, the combination comprising:

a pair of opposed vacuum box means mounted for movement toward and away from one another;

improved means disposed on each said vacuum box means for opening said flattened pouch, said improved means comprising a series of superimposed, paired, mutually spaced vacuum ports in fluid communication with one another, the outer pair of said vacuum ports being adapted to frictionally engage a wall portion of said flattened pouch and being in flexibly closed position prior to introduction of a vacuum of said vacuum box means;

means for moving said vacuum box means toward one another into position engaging the walls of the flattened pouch in the region of its opening;

means for introducing a vacuum through said vacuum ports upon engagement of said pouch walls by said vacuum box means to effect flexing and opening of said outer vacuum port, and to draw portions of said pouch walls through said port and into a cavity defined by the underlying vacuum ports thereby initiating formation of creases in said pouch walls; and

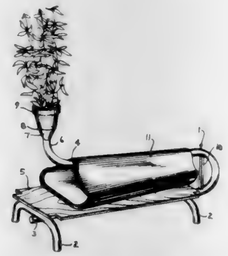
means for moving said vacuum box means apart to urge said pouch walls apart to define said pouch opening.

4,280,314

DEVICE FOR PACKAGING ELONGATED ARTICLES

Matthew A. Stuck, Menasha, Wis., assignor to Moderl Mfg. Co., Inc., Menasha, Wis.

Filed Sep. 7, 1979, Ser. No. 73,536
Int. Cl.³ B65B *67/02, 67/04*
U.S. Cl. 53—241 **4 Claims**



1. A device for packaging plants in protective bags, comprosing a tubular frame including a first generally horizontal section having a forward end, said frame also including a generally vertical section connected to the forward end of said horizontal section, a plant support mounted on the upper extremity of the vertical section and located at a level above the horizontal section, said support adapted to support a plant to be packaged, a bag support platform disposed beneath and generally parallel to said horizontal section, said platform extending laterally to either side of a vertical plane passing through said horizontal section and extending forwardly beyond the forward end of said horizontal section, and a plurality of nested open-ended bags disposed around said horizontal section and freely resting on said supporting surface, said bags being individually drawn upward around said vertical section and around said plant supported on the support to thereby package the plant.

4,280,315

BULK LOADER

D. Lewis Von Hapsburg, 138 Alta St., Arcadia, Calif. 91006

Filed Jul. 27, 1979, Ser. No. 61,362
Int. Cl.³ B65B *67/04, 67/12*
U.S. Cl. 53—473 **11 Claims**



1. The apparatus for facilitating loading of bulk materials into a flexible container having an opening, comprising a solid, one-piece shell-like structure having:

a longitudinal axis;

an upper end;

a lower end, said upper end having a cross-sectional area greater than that of said lower end; and

a gripping rim proximate to said upper end, said gripping rim extending around the entire outer circumference of said shell-like structure, said rim being substantially wider, as measured longitudinally along the shell-like structure, than its thickness, as measured radially from said longitudinal axis;

said shell-like structure provided, on its outer surface, with a plurality of longitudinal grooves, said grooves extending toward said upper end from a point in proximity to said lower end.

4,280,316

BRIDLE BIT SUGAR CUBE HOLDER

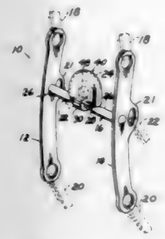
John D. Taylor, R.R. 3 Box 16, Perryton, Tex. 79070

Filed Dec. 17, 1979, Ser. No. 104,591
Int. Cl.³ B68B *1/06*
U.S. Cl. 54—8 **1 Claim**

1. In combination with a bridle bit having a rigid mouthpiece characterized by axially aligned normally horizontal opposing end portions and an inverted substantially U-shaped curb medially its length having a forward surface and a rearward surface and having a roller journalled for rotation about the axis of a pin horizontally bridging the spacing between the mouthpiece opposing end portions, the improvement comprising:

a hood overlying and secured to the inverted U-shaped curb of said mouthpiece and having a depending wall edge lying in a plane tangent with the upper limit of said roller for defining a downwardly open article receiving chamber within the U-shaped curb above said roller,

the wall of said hood having a square opening, communicating with the chamber, dimensioned for close passage



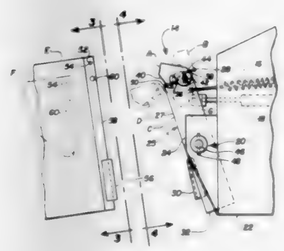
of a sugar cube, or the like, and characterized by being orientated to define a diamond shape.

4,280,317

ADJUSTABLE COUPLING APPARATUS

Curtis H. Lindblom, and Joe E. Shriver, both of New Holland, Pa., assignors to Sperry Corporation, New Holland, Pa.

Filed Apr. 16, 1980, Ser. No. 140,898
Int. Cl.³ A01D *35/12*
U.S. Cl. 56—15.6 **2 Claims**



1. In combination with a motorized harvesting vehicle and a removable harvesting attachment, an adjustable coupling apparatus comprising:

(a) a support connected to a frame portion of the vehicle;

(b) a coupling arm pivotally mounted on the support;

(c) a first end of the arm defining a receptacle formed therein;

(d) a latch connected to the first end of the arm adjacent the receptacle, the latch being movable between latching and unlatching positions relative to the receptacle and having an inclined surface;

(e) means connected to the attachment for engaging the receptacle and the inclined surface portion of the latch;

(f) means connected to the vehicle for moving the arm between pivotal positions for varying the position of the receptacle relative to the support and relative to the means for engaging the receptacle;

(g) a first pad connected to the coupling arm, said pad being adjacent a second end of the arm opposite the first end; and

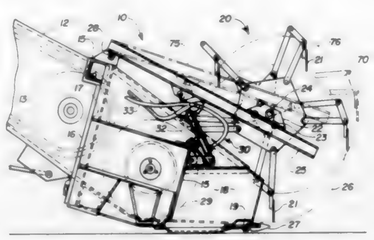
(h) means connected to the attachment for engaging the first pad, said means including a second pad spaced from the means for engaging the receptacle.

4,280,318

INFINITE REEL ADJUSTMENT MECHANISM

Earl E. Koch, Mohnton, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Apr. 2, 1980, Ser. No. 136,656
Int. Cl.³ A01D *57/04*
U.S. Cl. 56—221 **9 Claims**



1. In a crop harvesting header disposed on a mobile crop harvesting machine for movement over the ground to harvest standing crop material having a frame adapted for connection to said mobile crop harvesting machine; a generally upright rear wall; first and second spaced apart side walls extending forwardly from said rear wall; a transversely disposed cutterbar positioned substantially completely between said side walls forwardly of said rear wall, said cutterbar being operable to sever standing crop material; first and second spaced apart longitudinally disposed reel arms pivotally affixed to said frame adjacent, respectively, said first and second side walls, each said reel arm having a forward end spaced from said reel arm pivot; a reel rotatably mounted between said forward ends of said first and second reel arms, said reel being positioned generally above said cutterbar to engage standing crop material, pull it rearwardly over said cutterbar and convey severed crop material towards said rear wall; a lift means pivotally affixed to each said reel arm between said forward end and said reel arm pivot for selectively rotating said reel arms about said reel arm pivots to effect a raising or lowering of said reel relative to said cutterbar, said lift means being operable within a finite range between a maximum reel height and a minimum reel height, said lift means being adjustably mounted on said frame to selectively vary said minimum reel height relative to said cutterbar; and drive means for operatively powering said reel, said cutterbar and said lift means, an improved adjustable mounting for said lift means on said frame comprising:

a link means pivotally interconnecting said frame at a first link pivot and said lift means at a second link pivot;

a draw bolt anchored to said frame and pivotally connected to said link means remotely of said first link pivot, said draw bolt including actuating means cooperable therewith to rotate said link means about said first link pivot, such that upon manipulation of said actuating means, said lift means is selectively vertically positionable relative to said frame to vary the position of said minimum reel height relative to said cutterbar, said actuating means being operable to infinitely adjust the rotated position of said link means within limits imposed by said draw bolt, said draw bolt being positioned between said frame and said link means such that forces imposed on said draw bolt by the operation of said lift means are tension forces; and

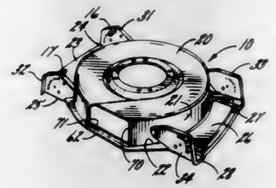
a clamping means interconnecting said link means and said frame to lock said link means into a preselected position against said frame such that forces imposed on said draw bolt and said first link pivot during operation of said mobile crop harvesting machine are reduced by at least partially spreading such forces through said clamping means to said frame.

4,280,319

DECK CONSTRUCTION FOR ROTARY MOWER

Joseph E. Scanland, Savannah, Ga., assignor to Roper Corporation, Kankakee, Ill.

Continuation-in-part of Ser. No. 918,960, Jun. 26, 1978, Pat. No. 4,172,351. This application Jul. 16, 1979, Ser. No. 57,804
Int. Cl.³ A01D *67/00, 55/18*
U.S. Cl. 56—255 **9 Claims**



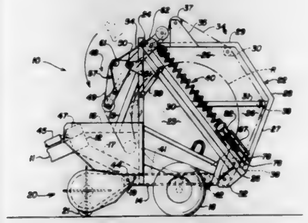
1. A rotary mower deck comprising in combination a shallow cylindrical blade housing, the housing having a vertical sidewall with a lower edge, horizontal front and rear aprons extending fore and aft from the lower edge of the housing to define respective leading and trailing edges extending transversely of the deck, the aprons having lateral edges, upwardly bent wheel supporting plates on the respective lateral edges of the aprons and extending vertically at right angles thereto, the blade housing, aprons and wheel supporting plates being all integrally formed of the same sheet of metal, the wheel supporting plates associated with at least the rear apron each having a cantilevered tip portion having a lower edge which is free of the adjacent apron, the tip portion being sufficiently long as to overlap the sidewall of the housing and engaging such side wall at a region which is spaced substantially upwardly from the lower edge of the housing, the tip portion of each associated wheel supporting plate being secured at its remote end in integral metal-to-metal contact to the sidewall of the housing whereby such wheel supporting plate in addition to its wheel-supporting function forms a downwardly angled integral brace between the sidewall and the adjacent apron.

4,280,320

TENSIONING APPARATUS

Edward T. Eggers, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Aug. 25, 1978, Ser. No. 936,964
Int. Cl.³ A01D *39/00*
U.S. Cl. 56—341 **9 Claims**



1. An improved tensioning apparatus for a bale forming means of a crop roll forming machine having a mobile frame, a pickup, a crop material conveying means, a bale forming means, and a bale forming region defined generally by the bale forming means and the frame, the improvement comprising:

spring means having a first end and an opposing second end, the spring means being extensibly affixed to mounting means at the first end and connected to the bale forming means at the second end, the spring means further having easily adjustable tension adjustment means comprising at least a first means and a second means, the first means being intermediate of the bale forming means and the second end of the spring means so that a resistive force is generated to the extension of the spring means in direct relationship to the adustments made to the adjustment means, the resistive force being transmitted to the bale forming means at the second end thereby providing an adjustably increasing tension to the bale forming means and correspondingly adjustably increasing the force exerted upon the crop material being formed into a bale in the bale forming region;

the spring means further comprising at least a first spring and a second spring, the first spring being connected to the second spring and the second adjustment means and via the first adjustment means to the bale forming means so that the resistive force and the resulting tension exerted upon the bale forming means is generated substantially by the first spring until the bale expands to a predetermined size where the resistive force and resulting tension are generated jointly by the first spring and the second spring;

the first and second springs being concentrically mounted coil springs operably affixed to the adjustment means at the first end on each side of the frame mounted so that the second spring is slidably movable within the first spring until the bale expands to the predetermined size; and

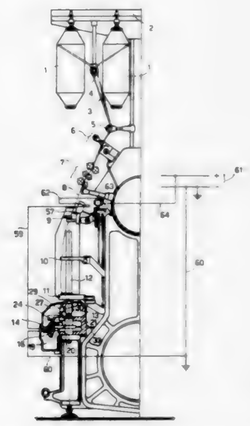
an adjustment pin and an elongate cable having a first end connectable to the first spring and the second spring, and a second end connectable to the bale forming means defining a path therebetween, the adjustment pin being insertable into predetermined positions in the frame adjacent the second end to vary the tension exerted upon the initial crop material being formed into a bale in the bale forming region when the cable is carried thereagainst, thereby altering the path of the cable between the first end and the second end.

4,280,321

SAFETY SPINDLE-STOPPING DEVICE FOR A SPINNING FRAME

Angelo Marzoli, Palazzolo Sull'Oglio, Italy, assignor to F.lli Marzoli & C. S.p.A., Italy

Filed Apr. 12, 1979, Ser. No. 29,513
Claims priority, application Italy, Apr. 24, 1978, 22684 A/78
Int. Cl.³ D01H *13/16*
U.S. Cl. 57—81 **2 Claims**



1. Spinning frame apparatus comprising a drawing section and a spindle in which sliver is passed from said drawing section to said spindle, a turnable support member upon which

said spindle is mounted eccentrically, a tangential belt connected for driving said spindle in rotation, the apparatus further including means for trapping the sliver positioned upstream of said drawing section, a thread feeler positioned downstream of said drawing section, a brake, and means for turning said support member to disengage said spindle from said tangential belt and to cause it to engage said brake, an electric circuit including an electric switch with said thread feeler forming a part of said electric switch, a warning light connected to said electric switch, and control means for actuating said means for turning said support member, said support member connected to said trapping means to actuate said trapping means upon turning of said support member to disengage said spindle from said tangential belt.

4,280,322

TEXTILE YARN PROCESSING MACHINE WITH YARN BREAK MONITORING MECHANISM

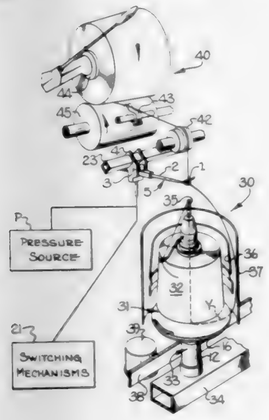
Siegfried Inger, Krefeld, Fed. Rep. of Germany, assignor to Palitex Project Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Jul. 27, 1979, Ser. No. 61,390

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832930

Int. Cl.³ D01H *13/16, 1/10*

U.S. Cl. 57—81 **20 Claims**



1. In a textile yarn processing machine, such as a two-for-one twister or the like, having respective yarn processing stations, the combination therewith of an improved yarn monitoring system for stopping the operation of the yarn processing station in response to the absence of a yarn running therethrough, as for example, upon the occurrence of a yarn breakage, and constructed to avoid inadvertent and undesirable stopping of the yarn processing station upon restarting while the yarn processing station is returning to a normal operating condition, said yarn monitoring mechanism comprising

a yarn sensor constructed and mounted so as to be held in an operative setting by yarn tension when the yarn is running in normal operating condition and to be released in the event of the release of such yarn tension;

a switching mechanism for stopping the operation of the yarn processing station;

means pneumatically connecting said yarn sensor to said switching mechanism for pneumatically actuating said switching mechanism upon the release of said yarn sensor from said operative setting including a pressure line connected to a pressure source and a pressure outlet at a terminal end of said pressure line and cooperating with said yarn sensor so that said outlet is blocked by said yarn sensor when said yarn sensor is in one of its operative or released settings and said outlet is open when said yarn sensor is in the other of its operative or released settings; and

time delay means actuable upon restarting of the yarn processing station for permitting a further actuation of said switching mechanism only after a predetermined period of time has elapsed, said time delay means including means interrupting the pneumatic connection of said yarn sensor to said switching mechanism, and a pressure reservoir having a restricted bleed opening for allowing the pressure level therein to slowly drop over a predetermined period of time and being connected to said means for interrupting the pneumatic connection of said yarn sensor to said switching mechanism for maintaining the pneumatic connection interrupted until the pressure in said pressure reservoir has dropped to a predetermined level.

4,280,323

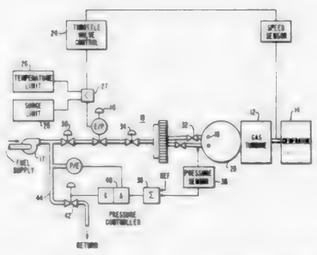
GAS TURBINE FUEL CONTROL HAVING FUEL VISCOSITY COMPENSATION TO PROVIDE IMPROVED IGNITION RELIABILITY

Chester A. Jersey, Wallingford, and Roy W. Kiscaden, Morton, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 25, 1978, Ser. No. 909,421

Int. Cl.³ F02C *9/26*

U.S. Cl. 60—39.14 R **2 Claims**



1. A fuel control for improving ignition reliability in a gas turbine having substantially fixed orifice nozzles comprising means for controlling the position of a throttle valve which varies the fuel flow to the turbine to control turbine speed or load over a relatively wide range, a fuel pump operative to supply fuel to the throttle valve at an elevated pump discharging pressure, a bypass valve for diverting fuel from the throttle valve, means located proximate to said nozzles and downstream from all valves in the fuel flow path for generating a signal representative of actual nozzle fuel pressure at least during the ignition period, means for generating a pump discharge pressure reference as a function of a nozzle pressure reference and the actual nozzle fuel pressure during ignition and means for generating a control output for said bypass valve during ignition in response to the actual pump discharge pressure and the pump discharge pressure reference substantially to hold the nozzle fuel pressure at the desired value even over relatively wide ambient temperature changes and corresponding fuel viscosity variations.

4,280,324

FUEL DISTRIBUTION DEVICE

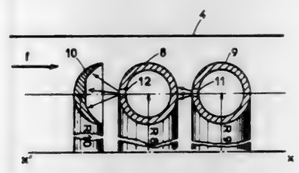
Jean-Claude M. Arliguie; Marc F. B. Buisson, both of Le Mee sur Seine, and Jacques E. J. Caruel, Dammarie les Lys, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Sep. 21, 1978, Ser. No. 944,616

Claims priority, application France, Sep. 27, 1977, 77 28981

Int. Cl.³ F02K *3/10*

U.S. Cl. 60—261 **13 Claims**



1. Fuel distribution device in a channel for high velocity gas flow in the afterburner duct of a gas turbine engine, comprising: two toric injection manifolds within and coaxial with the channel, located in two planes perpendicular to the axis of said channel, the ratio of the median radii of each manifold and of the channel as measured in the same transverse plane being constant, said manifolds being pierced by small diameter orifices uniformly distributed for the introduction of liquid fuel into the gas flow, and wherein: the orifices in the manifold located downstream with respect to the direction of the flow of the gases are arranged in the upstream face of said manifold in a circular row coaxial with it, the axis of each of the orifices being contained in an axial plane of the channel and said manifolds being in sufficiently close proximity that liquid fuel emitted by said orifices would impinge on the upstream manifold and be atomized thereby into the gas stream in said channel, and the axis of the orifices in said downstream manifold intercept the torus located upstream without intersecting the portion of the axis common to both manifolds located between the transverse planes containing said manifolds, said channel being substantially free of obstructions radially inwardly and outwardly of said manifolds.

4,280,325

UNIDIRECTIONAL ENERGY CONVERTER

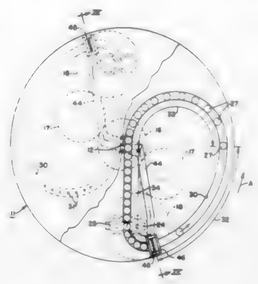
Sherwood L. Fawcett, Columbus, and James N. Anno, Cincinnati, both of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Continuation-in-part of Ser. No. 2,411, Jan. 11, 1979, abandoned, which is a continuation-in-part of Ser. No. 872,848, Jan. 27, 1978, abandoned. This application Jul. 24, 1980, Ser. No. 171,806

Int. Cl.³ F03G *7/00*

U.S. Cl. 60—370 **40 Claims**

1. Apparatus for converting a first form of energy into a second form of energy comprising a platform, support means for carrying said platform for rotation about a central axis, at least one continuous, closed-loop passageway carried by the platform in a plane extending perpendicular to said central axis, a plurality of freely-movable pistons contained within the passageway, at least one region in the passageway in which the pistons must move inwardly against centrifugal force as said platform rotates, at least one other region in the passageway where said pistons are moved outwardly under the influence of centrifugal force, means for imparting a force to successive ones of the pistons to propel them against centrifugal force in said one region, means for converting the energy of pistons moving outwardly under the influence of centrifugal force in



said other region into rotational energy, and means coupling said rotational energy to said platform to rotate the same.

4,280,326

GENERATORS OF IMPULSES

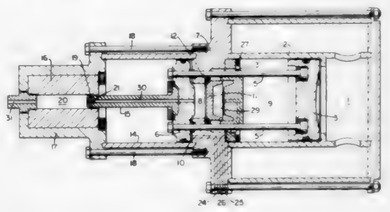
Keith Moodie, Calver, near Sheffield, England, assignor to Health and Safety Executive, London, England

Continuation of Ser. No. 833,315, Sep. 14, 1977, abandoned. This application Nov. 13, 1979, Ser. No. 93,473

Claims priority, application United Kingdom, Sep. 21, 1976, 39137/76

Int. Cl.³ B60T *13/00*

U.S. Cl. 60—547 R **9 Claims**



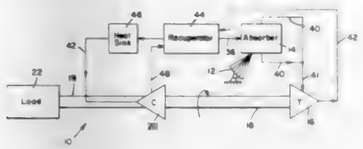
1. A fluid pressure intensifier apparatus operative to generate very high pressure impulses of short duration for use in mining, tunnelling, rock breaking and like operations, comprising a stepped piston assembly having a large piston and a small piston mechanically linked to one another and reciprocable between forward and rearward positions with the large piston being located in a large cylinder and having a large rearward face in communication with a reservoir for compressed fluid, and with the small piston being located in a small cylinder having fluid inlet and outlet passages, said small piston having a small forward face for delivering the pulses of high pressure fluid through said outlet passage, the stepped piston assembly having an auxiliary piston located between the large piston and the small piston which auxiliary piston is mechanically linked to the large piston and which is reciprocable in an auxiliary cylinder, the large cylinder and the auxiliary cylinder having a common end wall, and a valve in said common end wall for controlling the flow of fluid from the volume enclosed by the large cylinder forward of the large piston into the volume enclosed by the auxiliary cylinder rearward of the auxiliary piston.

4,280,327

SOLAR POWERED TURBINE SYSTEM

Robin Mackay, Rancho Palos Verdes, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Apr. 30, 1979, Ser. No. 34,325
Int. Cl.³ F03G *7/02*
U.S. Cl. 60—641 AC **62 Claims**



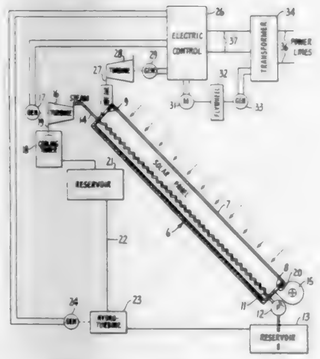
1. A turbine system comprising a turbine and a compressor mounted on a common rotatable shaft; means for transferring solar radiant heat energy to a working fluid substantially at atmospheric pressure; means for coupling the heated working fluid to said turbine for expansion to a subatmospheric pressure; and means for coupling the expanded working fluid to said compressor for recompression substantially to atmospheric pressure and for resupply to said transfer means for reheating.

4,280,328

UTILIZATION OF SOLAR ENERGY

Claude J. Falconer, 19349 Riverside Dr., Sonoma, Calif. 95476

Filed Sep. 28, 1979, Ser. No. 79,956
Int. Cl.³ F03G *7/02*
U.S. Cl. 60—641 A **1 Claim**



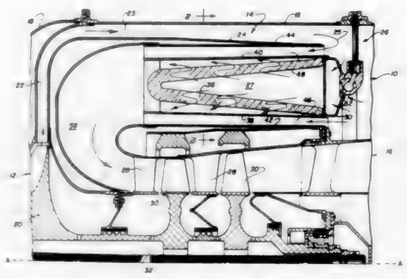
1. A solar energy device comprising a casing inclined at an angle to the horizontal and having an open front to receive solar energy, the casing having an air inlet at its lower end and an air outlet at its upper end, a series of energy receiving tubular conduits arranged horizontally in the casing and extending from the bottom to the top of the casing, means for supplying water to an inlet to the conduit for heating by solar engery, an outlet at the top of the casing for release of steam created by the heating of the water in the conduits, and a turbine for utilizing the steam and a turbine for utilizing the heated air released through the casing outlet.

4,280,329

RADIANT SURFACE COMBUSTOR

Ray A. Rackley, Phoenix, Ariz., and David V. Carpenter, Mendocino, Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Jun. 16, 1978, Ser. No. 916,161
Int. Cl.³ F02G *3/00*
U.S. Cl. 60—754 **29 Claims**



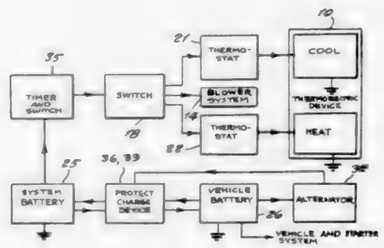
1. A radiant surface combustor for supplying heat energy to the working fluid of a heat engine, comprising a porous combustor element; means for supplying fuel and air to one side of said combustor element for passage therethrough and combustion at the other side thereof to produce primarily radiant heat energy; and wall means forming a flow path adjacent said combustor element for passage of the fluid to be heated, said wall means including an extended heat transfer surface member in close proximity with said other side of said combustor element for absorbing the generated heat energy, and an additional extended heat transfer surface member within said flow path in physical contact with the wall means and in heat exchange relation with the working fluid for transferring the absorbed heat energy to the working fluid.

4,280,330

VEHICLE HEATING AND COOLING SYSTEM

Verdell Harris, 455 Carlton Ave., Brooklyn, N.Y. 11238, and Richard L. Miller, Dix Hills, N.Y., assignors to Verdell Harris, Brooklyn, N.Y.

Continuation-in-part of Ser. No. 834,677, Sep. 19, 1977, abandoned. This application Jul. 23, 1979, Ser. No. 59,971
Int. Cl.³ F25B *21/02*; **B60H** *3/04*
U.S. Cl. 62—3 **4 Claims**



1. A vehicle heating and cooling system for use with an automotive vehicle having a first battery and an alternator for charging the battery, comprising: a thermo-electric heat pump; a second battery electrically connected to said heat pump for operating said heat pump; switch means for controlling the flow of current to said heat pump from said second battery, said switch means controlling the mode of operation of said heat pump so that said system acts in a first mode of heating the compartment of an automotive vehicle and in a second mode

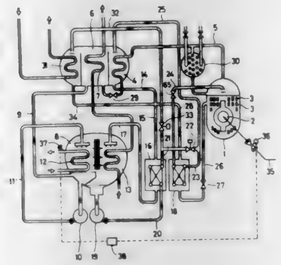
of cooling the compartment; means for controlling the temperature of the air in said compartment, said means for controlling the temperature comprising a first thermostat operative when said system is in said first mode of operation, and a second thermostat electrically parallel with said first thermostat and operative when said system is in said second mode of operation; a fan for distributing the air in said compartment, said fan being connected in parallel with said second battery for operation thereby; first means for connecting the positive terminal of said second battery to the positive terminal of said first battery of said automotive vehicle, said first means for connecting comprising a first switch which is in the normally open position when the engine of the automotive vehicle is not running, and in a closed position when the engine of the automotive vehicle is running, so that said second battery may be periodically charged by the alternator of the automotive vehicle; and second means for connecting the positive terminal of said second battery to the positive terminal of said first battery, said second connecting means comprising a second switch, said second switch being normally open, and a relay connected in parallel with said second battery for closing said second switch when activated, whereby said second battery may be used in order to start the engine of the automotive vehicle when the first battery is low or inoperative.

4,280,331

SINGLE EFFECT AND DOUBLE EFFECT ABSORPTION REFRIGERATING SYSTEM

Kazuhiro Yoshii, and Norikazu Kubota, both of Gunma, Japan, assignors to Sanyo Electric Co., Ltd. and Tokyo Sanyo Electric Co., Ltd., both of Osaka, Japan

Filed Nov. 2, 1979, Ser. No. 90,751
Claims priority, application Japan, Nov. 7, 1978, 53-138103
Int. Cl.³ F25B *15/00, 27/00*
U.S. Cl. 62—148 **9 Claims**



1. In a double effect absorption refrigerating system which includes a high temperature generator heated by a high temperature heat source, a first low temperature generator heated by refrigerant vapor separated from a dilute solution in said high temperature generator, a condenser, an evaporator, an absorber producing a dilute solution, a first heat exchanger and a second heat exchanger interconnected in an air-tight manner through refrigerant lines, dilute solution lines and dense solution lines, the improvement comprising:

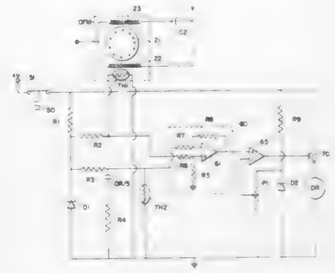
a combination single effect and double effect absorption refrigerating system comprising a second low temperature generator which is connected between one of said dilute solution lines and one of said dense solution lines; a low temperature heat source to heat said second low temperature generator, means for delivering said dilute solution directly from said one dilute solution line into said second low temperature generator when a single effect-double effect combined operation is performed; and means for controlling the supply of a solution and a fuel to said high temperature generator in response to the heating capacity of said second low temperature generator.

4,280,332

DEFROST CONTROL MONITORING FAN MOTOR TEMPERATURE RISE

Asadulla R. Khan, Ballwin, and Otto H. Boning, St. Louis, both of Mo., assignors to Intertherm Inc., St. Louis, Mo.

Filed Jul. 30, 1979, Ser. No. 61,707
Int. Cl.³ F25D *21/06*; **G08B** *21/00*
U.S. Cl. 62—156 **3 Claims**



1. A heat pump system defrosting control of the type which causes reversal of refrigerant flow and de-energizes the outdoor coil fan electric motor upon initiation of defrosting, comprising

a first temperature sensor mounted to the outdoor coil fan electric motor and sensing the fan motor temperature,

a second temperature sensor so mounted as to sense the outdoor ambient air temperature,

means, responsive to the first and second temperature sensors, to measure the difference in the temperatures sensed by the two sensors, whereby the difference represents the temperature rise of the fan motor,

means to compare such measured temperature difference to a selected abnormal fan motor temperature rise,

switch means, responsive to the comparison, to initiate such defrosting and so de-energize the outdoor coil fan motor when the temperature difference exceeds the said selected abnormal temperature rise, and

means, controlling defrosting, to sense the outdoor coil temperature and permit initiation of such defrosting if a pre-selected low coil temperature has been reached and to terminate defrosting when a pre-selected high coil temperature has been reached.

4,280,333

PASSIVE ENVIRONMENTAL TEMPERATURE CONTROL SYSTEM

John M. Corliss, and George H. Stickford, both of Columbus, Ohio, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 16, 1979, Ser. No. 21,292
Int. Cl.³ F25D *23/12*; **F28D** *15/00*; **F24J** *3/02*
U.S. Cl. 62—259.1 **3 Claims**

1. Apparatus for cooling a room comprising:

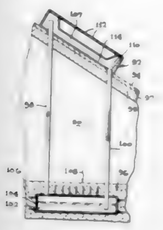
a heat dissiptating device located outside said room, and having a passage with a first end and a lower second end;

a fluid container insulated from the outdoor environment, lying below said heat dissipating device, thermally coupled to the room, and containing liquid at the bottom portion and vapor at the top portion; and

first and second pipes connecting said heat dissipating device to said container;

said frist pipe extending from the top portion of said container to the first end of said passage of said heat dissipat-

ing device to carry vapor upwardly thereto, and said second pipe extending the second end of said passage of



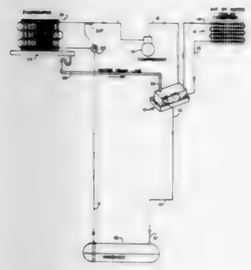
said heat dissipating device to the container to carry liquid downwardly thereto.

4,280,334

WATER CONDENSATE RECOVERY DEVICE

Ness R. Lakdawala, 119 de Touraine St., St. Lambert, Quebec, Canada

Filed Jun. 26, 1979, Ser. No. 52,253
Int. Cl.³ F25B *47/00*
U.S. Cl. 62—277 **6 Claims**



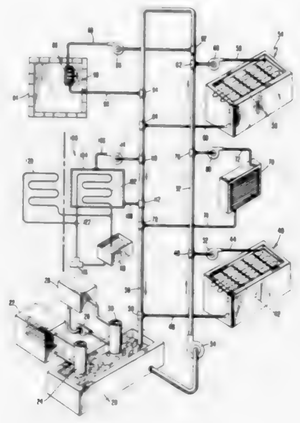
1. A water condensate recovery device for use in a refrigeration system, said device comprising a condensate housing for receiving condensate water therein; said housing having side walls, a bottom wall and a top wall; a compressor heat transfer conduit disposed parallel and adjacent said bottom wall for contact with said condensate water and through which refrigerant fluid from a compressor flows for cooling therein by said condensate water, said compressor heat transfer conduit also being connected to an input line of a refrigerant cooling condensor, said condensor having an output line connected to a refrigerant fluid conduit disposed parallel to said bottom wall of said housing for contact with said condensate water of said condensate housing to provide cooling of said refrigerant fluid from said condenser, and aperture means in said condensate housing to permit escape of vapour caused by evaporation of the condensate water therein during heat transfer between said refrigerant fluid in said compressor heat transfer conduit and said refrigerant fluid conduit, said condensate cooling in said housing further permitting simultaneous reduction of the discharge pressure of said compressor.

4,280,335

ICEBANK REFRIGERATING AND COOLING SYSTEMS FOR SUPERMARKETS

Arthur Perez, Buchanan, and Fayez F. Abraham, Niles, both of Mich., assignors to Tyler Refrigeration Corporation, Niles, Mich.

Filed Jun. 12, 1979, Ser. No. 47,870
Int. Cl.³ F25B *25/00*
U.S. Cl. 62—332 **10 Claims**



1. An icebank refrigerating and air conditioning system for use in a commercial establishment having a display area containing a plurality of refrigerated storage and display cases for storing and displaying produce, said establishment having a forced air circulating system for circulating air into and through the display area by means of ducts, said icebank refrigerating and air conditioning system comprising the combination of:

means for producing a supply of ice;

an icebank storage tank for storing said ice;

means, including a main conduit, for circulating cold water from said icebank storage tank to said display area and said forced air circulating system and for returning said water to said icebank storage tank;

display case heat exchange means associated with said produce display cases for cooling said cases;

means, including first branch conduit means and first pump means, for selectively coupling said heat exchange means to said main conduit means for selectively circulating cold water from said icebank storage tank through said display case heat exchange means and for returning said water to said storage tank downstream of said display case heat exchange means;

circulation system heat exchange means associated with said forced air circulating system for cooling ambient air flowing through said ducts into said display area; and

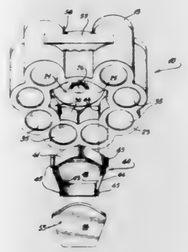
means, including further branch conduit means and further pump means, for selectively coupling said circulation system heat exchange means to said main conduit means for circulating cold water from said icebank storage tank through said circulation system heat exchange means and for returning said water to said storage tank downstream of said circulation system heat exchange means.

4,280,336

PORTABLE COOLER WITH FOOD RECEPTACLE

Frank Taylor, LaSalle, Canada, assignor to Holbro A.G., Zug, Switzerland

Filed Mar. 13, 1980, Ser. No. 129,755
Int. Cl.³ F25D *3/08, 3/10*
U.S. Cl. 62—457 **13 Claims**



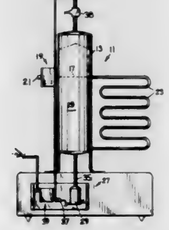
1. A cooler comprising a first section and a second section, a plurality of spaced compartments arranged about a central chamber within said first section, each said compartment being in communication with said chamber, an access passage in said second section, means for mounting said second section on said first section, a pillar concentric with a central axis in said central chamber, a coolant container, an aperture in said coolant container, said coolant container being receivable in said central chamber with said pillar extending in said aperture, said first section having a central cavity in a bottom wall thereof to define a food receiving opening in its outer bottom surface.

4,280,337

LOW-SIDE OIL-SEPARATION AND RE-USE SYSTEM FOR AMMONIA-REFRIGERATION APPARATUS

Georg T. Kemp, 614 E. Locust St., Chatham, Ill. 62629

Filed Jan. 4, 1980, Ser. No. 109,671
Int. Cl.³ F25B *43/02*
U.S. Cl. 62—470 **10 Claims**



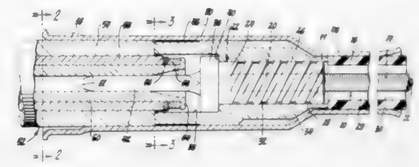
1. In an ammonia-type refrigeration system having, in conventional assemblage, a compressor, a condensor, a surge means, and an evaporator, the improvement comprising: an oil-separation tank having upper and lower zones connected to the bottom of said surge means, a first conduit for draining settled-out oil from the bottom of said surge means into said oil-separation tank, a second conduit for conducting oil from the lower zone of said oil-separation tank to the suction intake of said compressor, a valve for controlling the flow of oil through said second conduit, and an adjustable timer-unit constructed and arranged to open said valve at the beginning of each ON portion of each ON-OFF compressor cycle and to close said valve at the end of a preselected time period after the start of each compressor-ON operation.

4,280,338

ROTATABLE FLEXIBLE DRIVE SHAFT WITH NOISE ABATEMENT

Gilbert E. Shannon, Lapeer, and David F. Friesorger, Flint, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 29, 1979, Ser. No. 98,552
Int. Cl.³ F16C *1/02*
U.S. Cl. 64—2 R **3 Claims**



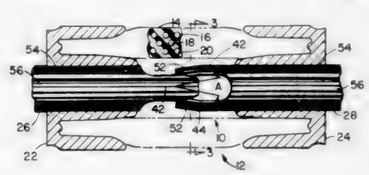
1. A drive for vehicle instrumentation having a rotatable input comprising a flexible and rotatable drive shaft, said drive shaft having outer wire means helically wound with a predetermined lead, a rotatable connector member secured to an end portion of said drive shaft to provide a drive connection to said input of the instrumentation, a flexible casing for said drive shaft extending generally coaxially therewith, said drive shaft being spaced radially inwardly from the inner walls of said casing to provide a lubricant receiving space therebetween, a quantity of lubricating grease disposed within said lubricant space, said drive shaft being adapted to be rotatably driven within said casing in the direction of the lead of said outer wire means so that said drive shaft will pump a portion of said grease in said lubricant space toward said output member to a collection station adjacent to the end of said station whereby grease collected therein will cushion contact of said drive shaft with the inner wall of said casing for minimizing noises otherwise resulting from such contact.

4,280,339

TORQUE TRANSFER DEVICE FOR FLEXIBLE SHAFT COUPLINGS

Robert E. Stuemky, Elizabeth, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed Apr. 27, 1979, Ser. No. 34,069
Int. Cl.³ F16D *3/18*
U.S. Cl. 64—9 R **10 Claims**



1. A torque transfer device for tubular, yielding element flexible shaft couplings comprising:

a first shaft portion having an external diameter, an axis and a forked end defining two opposed teeth that each have tooth flanks oriented with the first shaft axis and extending through narrowed portions to a tooth tip; and

a second shaft portion having an external diameter, an axis and a forked end defining two opposed teeth that each have tooth flanks oriented with the second shaft axis and extending through narrowed portions to a tooth tip, the first and second shaft portions nominally substantially coaxially aligned with each other and the teeth interfitted with each other in meshing fashion, the teeth dimensioned to nominally provide a positive clearance between adjacent flanks and corners so that tooth flanks do not nor-

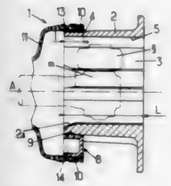
mally come into contact with each other when the shafts are angularly misaligned with each other at a predetermined conical angle having an apex that generally intersects the axis of the first and second shaft portions juxtaposed the interfitted teeth and the teeth also dimensioned so that flanks of the interfitting teeth contact each other to transfer torque when the clearance is taken up at predetermined torque overloads.

4,280,340

UNIVERSAL JOINT, NOTABLY FOR AUTOMOBILE VEHICLE TRANSMISSIONS

Jean A. Gogue, Limours, France, assignor to Societe Anonyme Automobiles Citroen and Automobiles Peugeot, both of, France

Filed Sep. 17, 1979, Ser. No. 76,219
Claims priority, application France, Oct. 27, 1978, 78 30553
Int. Cl.³ F16D *3/30*
U.S. Cl. 64—21 **10 Claims**



1. A universal joint for a transmission, comprising:
(a) a substantially bowl-shaped drive element coupled to a drive shaft for transferring torque to a driven shaft, said element having an open end, a length L with respect to its axis of rotation, and at least two ball races for receiving rollers borne by a hub connected fast to said driven shaft, said drive element further having an outer surface substantially parallel with its inner surface so that the outer surface of the drive element includes concave areas angularly situated between the ball-races;
(b) a sealing sheath having an open end circumferentially mounted around the open end of the bowl of said drive element, and
(c) an insert circumferentially mounted around the open end of the bowl of the drive element for mounting said open end of said sealing sheath around said drive element, said insert having a length of less than L along its axis of rotation, and an inner surface which is complementary to the outer surface of said drive element for filling said concave areas of said outer surface of said drive element, and an outer surface which is entirely convex for sealingly engaging said open end of said sealing sheath.

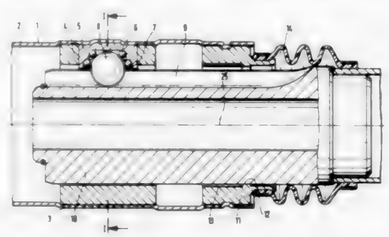
4,280,341

TELESCOPIC DRIVE SHAFT

Werner Krude, Neunkirchen, Fed. Rep. of Germany, assignor to Uni-Cardan AG, Lohmar, Fed. Rep. of Germany

Filed Jan. 23, 1979, Ser. No. 5,707
Claims priority, application Fed. Rep. of Germany, Feb. 4, 1978, 2804778
Int. Cl.³ F16D *3/06*
U.S. Cl. 64—23 **5 Claims**

1. Telescopic drive shaft comprising an axially extending tubular shaped outer shaft member, an axially extending inner shaft member located within said outer shaft member with the axes of said inner and outer shaft members disposed in substantially parallel relation, rolling bodies located within said outer shaft member and extending between said outer shaft member and inner shaft member for effecting axially sliding movement of said inner shaft member relative to said outer shaft member and for effecting torque transmission between said inner and outer shaft members, said rolling members being mounted in at least one support member secured to one of said inner and outer shaft members and movably supported in grooves formed in the other one of said inner and outer shaft members, wherein the improvement comprises that said at least one support member has at least one recess formed therein for each said rolling body and at least three guide balls located in each said recess for supporting said rolling body associated therewith, said outer shaft member includes a first ring concentric with said inner shaft member with the radially inner surface of



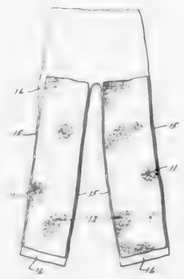
said ring spaced closely outwardly from the outer surface of said inner shaft member, said first ring having bores formed therein spaced axially apart around the inner circumference of said ring, said at least one support member comprises one said support member secured in each bore in said ring, each said support member having two concentric recesses formed therein for each said rolling body with at least three said guide balls in each said recess, and said recesses in each said support member being located in spaced planes extending parallel to one another and to the axes of said inner shaft member.

4,280,342

PROTECTIVE PAD OR GARMENT FOR THE HUMAN BODY OR PARTS THEREOF

Kjell Eng, Mullsjö, and Anders G. Bengtsson, Borås, both of Sweden, assignors to AB Aiser, Borås, Sweden

Continuation of Ser. No. 841,887, Oct. 13, 1977, abandoned.
This application Feb. 21, 1979, Ser. No. 13,445
Claims priority, application Sweden, Oct. 14, 1976, 7611393
Int. Cl.³ A41B *9/02*; D04B *7/04*
U.S. Cl. 66—177 **8 Claims**



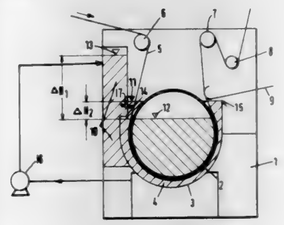
1. In combination with a garment having trouser legs for covering the legs of a person operating a saw or the like, a protective pad attached to one of said trouser legs to be in protective relationship to an associated leg of said person covered by said trouser leg, said protective pad comprising a double-knit warp fabric of synthetic material having two layers of fabric being joined together by connecting threads, said connecting threads being sufficient in number and said layers being spaced a sufficient distance apart that said connecting threads will fill the gaps between the teeth of a saw severing the outermost of said layers and slow down the cutting action of the saw to permit said person to protect said leg before being cut.

4,280,343

APPARATUS FOR THE CONTINUOUS WET TREATMENT OF LIQUID-PERMEABLE TEXTILE MATERIAL OR THE LIKE

Hans Fleissner, Riehen, Switzerland, assignor to Vepa AG, Riehen, Switzerland

Filed Jan. 28, 1980, Ser. No. 116,209
Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903125
Int. Cl.³ D06B *5/08*
U.S. Cl. 68—158 **5 Claims**



1. An apparatus for the continuous wet treament of liquid-permeable textile material or the like which comprises a container provided with a container wall and filled with a treatment liquid, a sieve drum rotatably mounted in said container, the drum being at least partially immersed in the liquid, and being partially covered by the textile material on the outside peripheral surface thereof, a treatment chamber being formed between said sieve drum and the container wall, a distributor duct open over the length of the sieve drum, a pump means for supplying liquid to said distributor duct, the liquid being fed to said treatment chamber from the outside via the distributor duct, means for ensuring that the liquid is discharged from within the sieve drum, whereby a hydraulic pressure head effecting the throughflow is produced between the inside and the outside of the sieve drum, and said distributor duct including a liquid discharge slot for feeding the liquid to the outside of the sieve drum with increased energy over the peripheral surface covered by the textile material and by the liquid transversely across the operating width, thereby feeding the liquid uniformly across the operating width of the sieve drum; said liquid discharge slot having a constant cross-sectional area, being oriented towards the sieve drum and being formed transversely across the operating width and in the proximity of the sieve drum, and said liquid being fed to said slot under uniform pressure across the length of the slot with the distributor duct extending above the liquid discharge slot and receiving a liquid volume that produces a hydraulic pressure head.

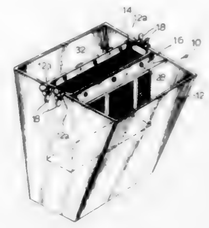
4,280,344

DEVICE FOR RINSING AND CLEANING A DRAG CLOTH

John D. O'Connor, 1817 Robin Hood, Sarasota, Fla. 33581

Filed Oct. 22, 1979, Ser. No. 87,578
Int. Cl.³ D06F *1/12*
U.S. Cl. 68—213 **3 Claims**

1. A device useful for cleaning and removing excess cleaning liquid from a drag cloth comprising:
a receptacle for holding a drag cloth cleaning liquid, said receptacle having side walls and a lip at the top of said side walls forming a top opening;
a rigid frame, said frame having a top portion that includes a plurality of rigid members forming an elongated rectangle that extends substantially across said receptacle top opening lip, said frame including side and lower members which extend substantially downward from the upper frame members, the length of said side frame members being such to extend substantially to the middle portion vertically of said receptacle;
a screen coupled to the side and lower members of said frame;



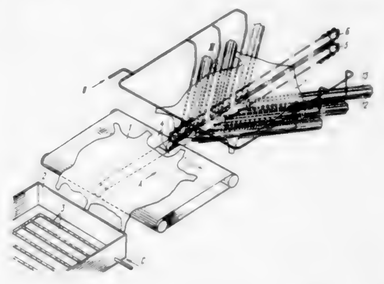
means for removably attaching said frame to the top opening lip of said receptacle; and
a drag cloth receiving trough connected to the upper members of said frame along one side of said frame.

4,280,345

APPARATUS FOR CLEANSING CATTLE HIDES

Natan M. Gimelfarb, ulitsa Pervomaiskaya, 67, kv. 67; Fedor T. Lugovnev, ulitsa Mayakovskogo, 40, kv. 18, and Nikolai E. Misjura, pereulok Treugolny, 13„ all of Mogilev, U.S.S.R.

Division of Ser. No. 855,981, Nov. 30, 1977, Pat. No. 4,202,664.
This application Sep. 11, 1979, Ser. No. 74,803
Int. Cl.³ C14C *1/00*; C14B *1/06*
U.S. Cl. 69—32 **3 Claims**



1. An apparatus for carrying out the method for cleansing cattle hides, comprising: a tank for washing the hides with scouring water; a means for feeding scouring water to said hides; a pair of belt transporters mounted after said tank, situated parallel to each other and effecting the transfer of a hide emerging from the tank; a drive for said conveyers; a pair of chain conveyers for grasping a hide and clamping it in position along its axis with its hair covering downwards, and situated one above the other; a drive of said chain conveyers; one of said chain conveyors entering the clearing between said belt conveyors; several pairs of shafts with carding teeth, arranged on either side of said chain conveyors at an angle to the longitudinal axis of the apparatus, sufficient for the maximum teeth coverage of the hide surface being treated; each tooth of said shafts being situated at an acute angle to the tangent to the shaft's surface in a direction opposite to its rotation; a hold-down member mounted above each of said pairs of shafts along the shaft's longitudinal axis for keeping the hide at an equal distance from the teeth and set movably towards and from the teeth, enabling adjustment of the clearance therebetween in accordance with the thickness of the hide being processed; a pair of rolls with ribs mounted after the last pair of said plurality of toothed shafts, said ribs being arranged on the surface

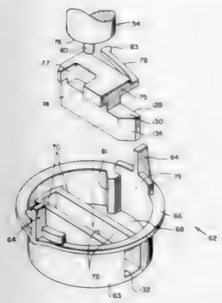
and along the generatrix of said rolls and coming in contact with the hide for the removal of surface moisture therefrom and a water spraying means mounted between said pair of shafts and rolls.

4,280,346

TORQUE OVERRIDE THREADED LOCKING CAP

John H. Evans, Connersville, Ind., assignor to Stant Inc., Connersville, Ind.

Filed May 21, 1979, Ser. No. 40,561
Int. Cl.³ B65D *51/16, 55/14*
U.S. Cl. 70—165 **19 Claims**



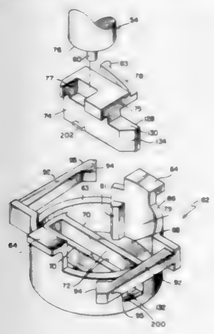
1. In a locking cap for a fuel tank threaded filler neck, the cap including a gasket subject to damage due to overtightening of the cap on the neck, a lock for controlling cap removal, a shell providing a hand grip, a threaded closure for engaging the filler neck to close it, and first and second engaging means providing a torque limited connection between the shell and the closure in a direction to advance the cap into the filler neck to protect the gasket, lock actuated bolt means and cooperating additional engaging means for selectively coupling the shell directly to the closure for cap removal, the bolt means being connected to the shell for rotation therewith, and the additional engaging means being provided on the closure.

4,280,347

TORQUE OVERRIDE THREADED LOCKING CAP

John H. Evans, Connersville, Ind., assignor to Stant Inc., Connersville, Ind.

Continuation-in-part of Ser. No. 40,561, May 21, 1979. This application Dec. 7, 1979, Ser. No. 101,154
Int. Cl.³ B65D *51/16, 55/14*
U.S. Cl. 70—165 **17 Claims**



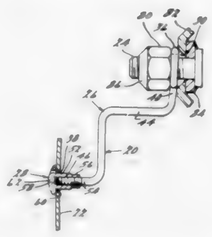
1. A locking cap for a threaded filler neck comprising in combination a threaded closure member for engaging and closing the neck, a key-actuable lock, a shell providing a hand grip and including means for retaining said lock, an annular race disposed for rotation between the shell and closure, the race including first engaging means and the closure including second engaging means for engaging the first engaging means to provide a driving connection between the closure and race which is positive in the cap-removal direction and torque-limited in the cap-advancing direction, the race further including third engaging means, the shell including a hub mounted for rotation with the shell hand grip portion and providing fourth engaging means for engaging the third engaging means to provide a driving connection between the third and fourth engaging means which is positive in the cap-advancing direction and torque-limited in the cap removal direction, bolt means mounted for rotation with the shell, and fifth engaging means on the closure, the bolt means being actuable by key actuation of the lock for movement into engagement with the fifth engaging means to couple the bolt means and shell directly to the closure to permit removal of the cap from the filler neck.

4,280,348

AUTOMOTIVE VEHICLE WHEEL COVER LOCKING MEANS

Richard E. Teston, 28335 Gratiot, Roseville, Mich. 48066

Filed Nov. 19, 1979, Ser. No. 95,213
Int. Cl.³ F16B *41/00;* **B60B** *7/06*
U.S. Cl. 70—166 **2 Claims**



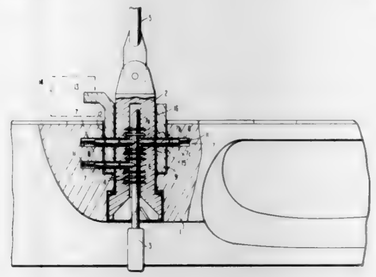
1. An automotive vehicle wheel cover locking means comprising, in combination, a lock stem including a single annular base portion of split ring configuration and defining an opening adapted to receive a conventional wheel lug stud, said lock stem also including an integral tang portion projecting radially outwardly from said base portion and an integral leg portion extending in a direction generally perpendicular to said base portion and terminating in an externally threaded shank portion, and a lock nut having a tubular body portion defining an internally threaded blind bore adapted to receive and threadably engage said shank portion of said lock stem, said lock nut also including an integral head portion having an inner surface adapted to abut the outer surface of a wheel cover and a convex outer surface blending smoothly with said inner surface at the periphery of said head portion, said head portion defining a plurality of axially extending passageways intersecting said convex surface in a predetermined pattern.

4,280,349

ROTARY CYLINDER LOCK, ESPECIALLY FOR AUTOMOTIVE VEHICLES

Christian Grabner, Geghingen; Theodor Reinhard, Böblingen; Rolf Krügener, and Hermann W. Kurth, both of Sindelfingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 40,738
Claims priority, application Fed. Rep. of Germany, May 20, 1978, 2822098
Int. Cl.³ E05B *31/00*
U.S. Cl. 70—358 **10 Claims**



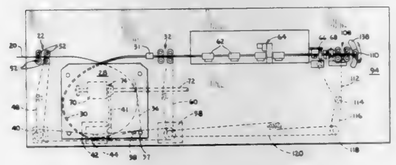
1. A rotary cylinder lock arrangement for a motor vehicle equipped with a safety means for at least one of providing an alarm and for interrupting at least one function vital to an operation of the motor vehicle, the arrangement comprising a lock cylinder means rotatably mounted in a casing, tumbler means arranged in the lock cylinder means, and at least one first key means for controlling a positioning of the tumbler means and for rotating the lock cylinder means into open and closed positions, characterized in that additional locking means are operatively connected with the lock cylinder means and the safety means, and at least one second key means adapted to be inserted into the lock cylinder means is provided for controlling both a positioning of the tumbler means and for controlling a positioning of the additional locking means such that an insertion and rotation of only the second key means results in an actuation of the safety means so as to prevent unauthorized use of the motor vehicle.

4,280,350

WIRE BENDING SYSTEM

James F. King, Winston-Salem, and Gilbert L. Horton, Kernersville, both of N.C., assignors to Consolidated Foods Corporation, Winston-Salem, N.C.

Filed Dec. 10, 1979, Ser. No. 101,727
Int. Cl.³ B21D *7/14, 7/08*
U.S. Cl. 72—7 **10 Claims**



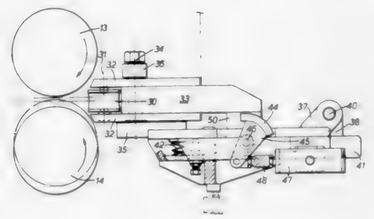
10. The method of sequentially forming wire frames from a length of wire of rectangular cross-section into generally semicircular configurations with the longer dimension of the rectangular cross-section extending radially with respect to the curvature of the support frames comprising the steps of; selectively advancing a length of wire along a prescribed path, sensing the advancing end portion of the wire, severing the forward portion of the wire to a prescribed length in response to sensing of the wire end, feeding the severed wire segment along a predetermined path, detecting the advancing end portion of the severed wire segment, and deforming the advancing wire segment in a prescribed, controlled manner in response to bend data control signals related to a preselected curvature, to incrementally deform the segment to a generally semi-circular configuration.

4,280,351

TAPER ROLLING OF METAL

Alexander I. Wilson, Sheffield, England, assignor to Hille Engineering Company Limited, Sheffield, England

Filed May 25, 1979, Ser. No. 42,578
Claims priority, application United Kingdom, May 26, 1978, 23632/78
Int. Cl.³ B21B *37/08, 1/42*
U.S. Cl. 72—21 **10 Claims**



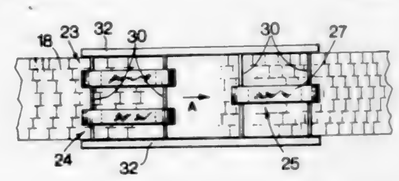
1. In a method of taper-rolling metal elements comprising the steps of
(a) rolling a metal blank in a series of passes between a pair of work rolls;
(b) while the blank is being rolled, controlling the separation of the work rolls in accordance with the linear movement of the blank; and
(c) rolling the edges of the blank with auxiliary edging rolls during at least one of the passes to reduce the lateral spread caused by the work rolls; the improvement comprising
(d) supporting each of the work rolls by at least one support roll whereby said work diameter may have a relatively small diameter, and
(e) driving each said work or a support roll thereof to urge said blank between said rolls in each pass.

4,280,352

APPARATUS FOR FORMING CORRUGATED SHEET MATERIAL

Timothy A. T. Cowell, Canley, England, assignor to Covrad Limited, Canley, England

Filed Aug. 9, 1979, Ser. No. 65,252
Claims priority, application United Kingdom, Aug. 15, 1978, 33425/78
Int. Cl.³ B21D *13/04, 13/10*
U.S. Cl. 72—186 **7 Claims**



1. Apparatus for forming corrugated sheet material compris-

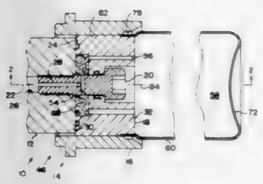
ing corrugation-forming means whereby corrugated material of unitary structure is formed and moved in a longitudinal direction, the material having a plurality of interconnected corrugated strips each with crests and intervening flanks, the corrugations in adjacent strips are displaced from one another in the longitudinal direction of the strips to give a chevron formation of the strips, and the crests in each strip are spaced apart from one another; and closing up means for reducing the spacing between the crests; the closing up means including at least a first pair of rollers spaced apart transversely of the direction of travel of the corrugated material between the rollers, and a second pair of rollers located centrally relative to the first pair of rollers, the first and second pairs of rollers being rotatable at different speeds, the higher speed rollers being upstream of the lower speed rollers with respect to the direction of travel of the corrugated material, and the rollers of each pair of being engageable with opposite sides of the corrugated material so that the speeds of the pairs of rollers control the rate of feed of the corrugated material between the rollers.

4,280,353

MACHINE WITH PNEUMATIC STRIPPING

Kelly J. Murphy, Boulder, Colo., assignor to Ball Corporation, Muncie, Ind.

Filed Jun. 25, 1979, Ser. No. 51,574
Int. Cl.³ B21D *45/00*
U.S. Cl. 72—345 **8 Claims**



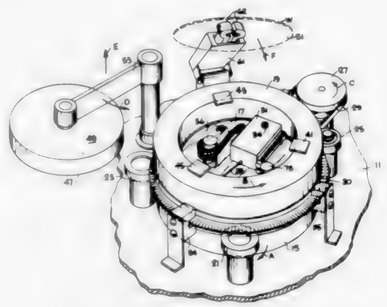
1. In a machine of the type which includes mandrel means, comprising a shaft portion having both an elongated longitudinal axis and a first end that is substantially orthogonal to said longitudinal axis and comprising a head portion that is secured to said shaft portion with a second end of said head portion juxtaposed against said first end and a third end of said head portion distal from said juxtaposed ends, for insertion of said third end into a bottomed recess of an article of manufacture, and stripping means, comprising compressed air for stripping said article from said head portion, the improvement in which said stripping means comprises: an expansion chamber comprising a recess in one of said portions that extends longitudinally inward from the respective one of said juxtaposed ends; first passageway means, having a first minimum flow path area, for supplying said compressed air to said expansion chamber; and second passageway means, comprising a hole that communicates with said third end, and having a second minimum flow path area, for receiving compressed air from said expansion chamber, and for delivering said compressed air into said bottomed recess of said article, said second passageway means having a first volume and said expansion chamber having a second volume, said second volume being twice as large as said first volume.

4,280,354

ACOUSTIC METHOD AND APPARATUS FOR MEASURING SURFACES OF WAFERS AND SIMILAR ARTICLES

William R. Wheeler, Saratoga, and George J. Kren, Los Altos, both of Calif., assignors to Tencor Instruments, Mountain View, Calif.

Filed Feb. 12, 1980, Ser. No. 120,932
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—1 DV **16 Claims**



1. A method of measurement of surfaces comprising,
providing a flat reference surface,
moving a distance measuring transducer across the flat reference surface on a known path while simultaneously measuring with said transducer the relative perpendicular reference distance between the transducer and a calibration surface of known topography spaced apart from the flat reference surface by a fixed amount,
replacing the calibration surface with a test surface of unknown topography but similar in topography to said calibration surface,
moving the distance transducer across the flat reference surface in the same known path as previously while simultaneously measuring with said transducer the relative perpendicular unknown distance between the transducer and the surface of unknown topography,
comparing the relative perpendicular reference distance to the perpendicular unknown distance over the path taken by the transducer, whereby deviations in the relative perpendicular unknown distance from the relative perpendicular reference distance represent deviations in topography in the test surface relative to the calibration surface.

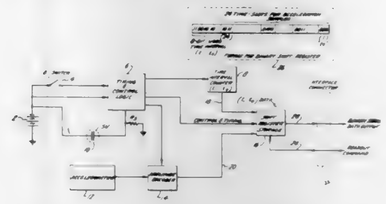
4,280,355

FUZE DATA QUANTIZING SYSTEM

William Donnally, Boonton, and Chester L. Smith, Lake Hopatcong, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 19, 1980, Ser. No. 122,639
Int. Cl.³ G01M *19/00*
U.S. Cl. 73—5 **5 Claims**

2. A fuze impact data-encoding system for sampling and recording a deceleration profile of a projectile at a plurality of discrete time intervals and for measuring and recording a time difference between initial impact time t_0 and a fuze detonation time t_1 of a fuze of said projectile, comprising:
(a) a power source to energize said system;
(b) a g-switch electrically coupled to power source, said switch being momentarily closed to initiate an operating sequence during first motion of said projectile's fuze time t_0;
(c) a timing and control logic unit connected in combination with a time interval counter which is coupled in series with said g-switch to indicate a time difference t_1-t_0;
(d) accelerometer means for providing a voltage output proportional to a deceleration magnitude experienced in a fuze of said projectile;



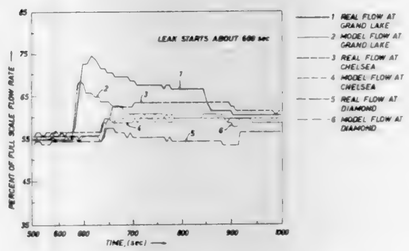
(e) an amplitude encoder electrically connected to the output of said accelerometer, said amplitude encoder generating a binary number representing the highest threshold exceeded during a particular sample time;
(f) a shift-register electrically coupled to an output of said amplitude encoder, said shift register storing information in serially form; and
(g) interface connector coupled to said shift-register to transform a stored information in said shift register to a ground station read-out unit.

4,280,356

PIPELINE LEAK DETECTION

Thomas L. Stewart, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jul. 13, 1979, Ser. No. 57,248
Int. Cl.³ G01M *3/28*
U.S. Cl. 73—40.5 R **7 Claims**



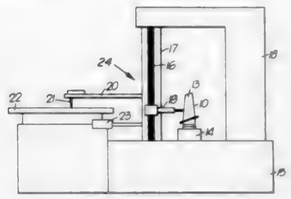
1. A process for detecting leaks in a pipeline when the flow is in a transient or steady condition comprising receiving information concerning real pressures and real flows at the inlet and outlet ends of the pipeline, predicting pressures and flows at various locations in the pipeline, comparing real pressures and real flows at the various locations in the pipeline with the predicted pressures and flows at such locations, and denoting a leak in the pipeline when upstream of the leak real pressure decreases and real flow increases with respect to the predicted pressure and flow and downstream of the leak real pressure decreases and real flow decreases with respect to the predicted pressure and flow.

4,280,357

INSPECTION OF ELECTRICALLY NON-CONDUCTIVE WORKPIECES

Philip Savage, Littleover, England, assignor to Rolls-Royce Limited, London, England

Filed Oct. 10, 1979, Ser. No. 83,513
Claims priority, application United Kingdom, Nov. 16, 1978, 44830/78
Int. Cl.³ G01N *19/08*
U.S. Cl. 73—104 **6 Claims**



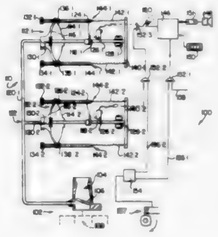
1. A method for dimensionally inspecting a wax workpiece, comprising the steps of:
coating at least a portion of that workpiece with an electrically conductive material by vapor deposition, and
subsequently inspecting the thus coated workpiece with inspection apparatus adapted for the non-contacting dimensional inspection of electrically conductive workpieces, said inspection apparatus being provided with probe means adapted to establish electrically a non-contacting positional relationship with said electrically conductive coating on said workpiece.

4,280,358

MONITORING THE OPERATION OF AN INTERNAL COMBUSTION ENGINE

Henning M. Henderson, Springs, South Africa, assignor to Kiloking (Proprietary) Limited, South Africa

Filed Oct. 19, 1979, Ser. No. 86,569
Claims priority, application South Africa, Oct. 19, 1978, 78/5898
Int. Cl.³ G01L *23/24*
U.S. Cl. 73—115 **9 Claims**



1. A method of monitoring the operation of an internal combustion engine having inlet ducting for admitting air or a fuel/air mixture into the engine, which method comprises
sensing the degree of vacuum in the inlet ducting and providing a vacuum signal when said vacuum falls below a predetermined vacuum level;
sensing the rotational speed of the engine and providing a first speed signal when said rotational speed exceeds a first predetermined speed value and a second speed signal when said rotational speed exceeds a second predetermined speed value greater than the first predetermined speed value;
gating the vacuum signal and the second speed signal to provide an enabling signal when either said vacuum signal

or said second speed signal, or both said vacuum signal and said second speed signal are present; and

issuing a warning signal and/or making a recording under operational conditions of the engine in which both the first speed signal and the enabling signal are present.

4,280,359

ROTARY CAM DRIVE FOR IMPACT TOOL

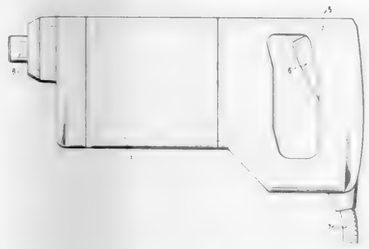
Wolfgang Schmid, Plattenhardt; Karl Wanner, Echterdingen; Jörg Fälchle, Bempflinge; Manfred Bleicher, and Frank Müller, both of Leinfelden, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 810,959, Jun. 29, 1977, abandoned, which is a continuation-in-part of Ser. No. 615,904, Sep. 23, 1975, abandoned. This application Oct. 12, 1978, Ser. No. 950,585

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1974, 2449191

Int. Cl.³ B25D *11/10*

U.S. Cl. 73—123 **21 Claims**



1. A power-driven hammer drill, comprising a housing; a tool chuck on said housing and adapted to hold an elongated tool; means for impacting said tool chuck in direction lengthwise of the tool, including a member reciprocable in said direction; and drive means for said impacting means, comprising a rotatable shaft mounted for rotation about an axis paralleling said direction, a drum coaxially mounted on said shaft for rotation with the same and having a circumferential surface formed with a circumferentially complete cam track, and transmitting means guided by said cam track and operatively connected with said member for transmitting reciprocatory motion to the same in response to rotation of said drum with said shaft; means for supporting said rotatable shaft at two locations spaced from one another in an axial direction by a predetermined distance; and means for driving said rotatable shaft in rotation and including a driving shaft having a first toothed section, and a second toothed section provided on said drum and engageable with said first toothed section of said driving shaft, said second toothed section of said drum being located between said two locations within said distance so as not to extend axially beyond the latter.

4,280,360

FLUID MEASURING DEVICE

Hiroshi Kobayashi, Yokosuka; Toru Kita, Yokohama, and Takeshi Fujishiro, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

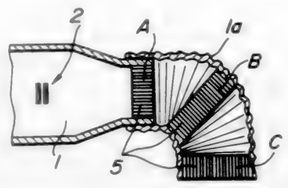
Filed Aug. 27, 1979, Ser. No. 70,258

Claims priority, application Japan, Aug. 25, 1978, 53-103625; Mar. 15, 1979, 54-29385

Int. Cl.³ G01F *15/00*

U.S. Cl. 73—198 **15 Claims**

1. A fluid measuring device comprising measuring means for measuring any one of quantity of flow and flow rate in a tubular passage for a fluid to be measured, and flow rectifiers arranged upstream and downstream of said measuring means, wherein said direction of the fluid flow is changed downstream of the measuring means and the flow rectifier is arranged



immediately upstream of the location where the direction is changed.

4,280,361

DEVICE FOR DETECTING THE DEFROSTING OF FROZEN PRODUCTS

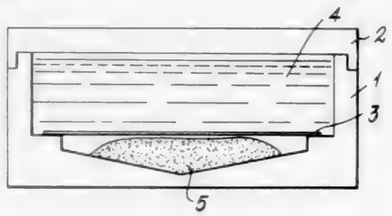
Franco Sala, Via Milani 3/A, Milan, Italy, assignor to Franco Sala, Milan, Italy

Filed Nov. 8, 1979, Ser. No. 92,616

Claims priority, application Italy, Jun. 8, 1979, 23388 A/79; Jul. 4, 1979, 24091 A/79

Int. Cl.³ G01K *11/12*

U.S. Cl. 73—356 **12 Claims**



1. A device for detecting the defrosting of frozen products, which comprises a rigid container, on the inside of which there are two solutions, one at least aqueous and saline and another one at least colored, separated by a septum breakable at the moment of freezing, said container being wholly filled with one of the solutions in one portion with respect to said septum.

4,280,362

PEAK READING BOTTOM HOLE PRESSURE INSTRUMENT

James W. Haag, Marrero, La., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,678

Int. Cl.³ G01L *7/16*

U.S. Cl. 73—709 **2 Claims**

1. Peak reading bottom hole pressure instrument, comprising in combination

a cylindrical body member having attachment means at one end for lowering it into a borehole,

a concentric cylindrical element inside said body member, adapted for longitudinal movement therein,

said element having a hollow interior open at one end to form part of a chamber to hold gas under pressure at one end of said body member,

a low friction seal between the inside of said body member and the outside of said concentric cylindrical element,

check valve means for charging said one end of said body member with said gas under pressure,

a ratchet for restricting said longitudinal movement toward said one end of said body member to compress said gas and to hold a maximum of said compression,

an open end at the other end of said body member having a screen thereacross to hold out solids,

a scale marked on the outside of said body member,

a position mark on said cylindrical element located for moving adjacent to said scale, and



a removable panel on said body member adjacent to said scale and over the path of movement of said position mark in order to read the maximum pressure after removal of said instrument from the hole.

4,280,363

SYSTEM FOR MEASUREMENT OF FORCE WITH DIRECTIONALLY ORIENTATED STRAIN GAUGES

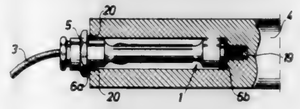
Kurt E. Johansson, Timmermansgatan 12, S-981 00 Kiruna, Sweden

Filed Aug. 22, 1979, Ser. No. 68,513

Claims priority, application Sweden, Aug. 29, 1978, 7809077

Int. Cl.³ G01L *1/22*

U.S. Cl. 73—768 **15 Claims**



1. In a gauge device for indication of a load on an object by detecting bending stresses of said object, comprising:

a shaft (1) fixable at both ends,

at least one gauge unit (2) disposed on an outer surface of the shaft (1);

electrical connection lines (3) coupled to the at least one gauge unit (2) and running out through the end of the shaft;

the improvement wherein:

the shaft (1) is releasably insertable in a hole in an object which is subjected to a load, said hole having a bottom and side walls which are subjected to a load to cause bending movements of said side walls, a clearance being provided between the portion of the shaft intermediate its ends and the side walls of the hole, the end of the shaft inserted first into the hole being the inner end and the opposite end being the outer end; and

fixing means is provided at the inner and outer ends (16, 17, respectively) of the shaft to releasably fix said inner and outer shaft ends both axially and radially relative to the walls of the hole, said fixing means at the inner end of the shaft comprising threads (16) which are arranged to engage with threads provided in the bottom of the hole, said fixing means at the outer end of the shaft including means fixedly coupling the outer end of the shaft to the walls of the hole so that the shaft, like a part unseparated from the walls of the hole, accompanies said walls in their bending movements, which are due to a load on the walls of the hole.

4,280,364

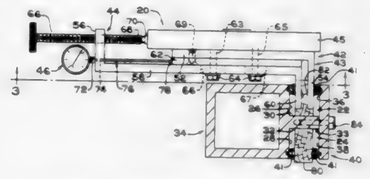
DEVICE FOR AND METHOD OF MEASURING GLAZING RABBET LOADS

William B. Macurdy, Sarver, and Albert E. Thompson, Jr., New Kensington, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 27, 1979, Ser. No. 79,297

Int. Cl.³ G01N *3/08*

U.S. Cl. 73—818 **18 Claims**



1. A method of determining compressive stress applied by opposed walls having a predetermined spacing comprising the steps of:

mounting between the walls a pair of spacers each having substantially the same width as the predetermined spacing of the opposed walls with adjacent ends of the spacers spaced from one another to provide a measuring position;

mounting a pair of moveable members each having an engaging surface in the measuring position;

moving the members away from each other to move their engaging surface a distance apart approximately equal to the spacing of the opposed walls; and

measuring the compressive force acting on the moveable members.

4,280,365

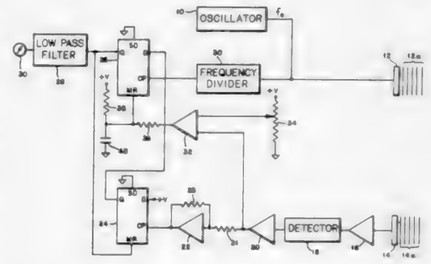
ULTRASONIC DOPPLER FLOWMETER WITH CORRECTION FOR VIBRATORY SIGNALS AT ZERO-FLOW CONDITIONS

James G. Connery, Ambler; Louis D. DiNapoli, Colmar, and Giancarlo Punis, Chalfont, all of Pa., assignors to Leeds & Northrup Company, North Wales, Pa.

Filed Oct. 10, 1979, Ser. No. 83,490

Int. Cl.³ G01F *1/66*

U.S. Cl. 73—861.25 **7 Claims**



1. An ultrasonic Doppler flowmeter for measuring the flow of a liquid containing reflectors comprising:

transmitting means for producing in said liquid a wave of

ultrasonic vibrations having a component along the axis of said flow;

receiving means for receiving reflected ultrasonic energy from said reflectors in said liquid and producing an electrical output signal having a frequency component related to the rate of motion of said reflectors;

converting means for converting said electrical output signal having said frequency component into a first electrical signal having a magnitude varying in accordance with said frequency component;

indicating means responsive to said magnitude of said first electrical signal for indicating the rate of motion of said reflectors;

discriminating means connected to said receiving means for discriminating between said electrical output signal produced by said receiving means from said reflectors moving in a vibratory mode and said electrical output signal produced by said receiving means from said reflectors moving in a flow mode and producing a second electrical signal having a first characteristic when said reflectors are moving predominately in a vibratory mode and a second characteristic when said reflectors are moving in a flow mode; and

means for producing an indication of zero motion on said indicating means when said second electrical signal has said first characteristic.

4,280,366

GAS DRIVEN GYROSCOPE

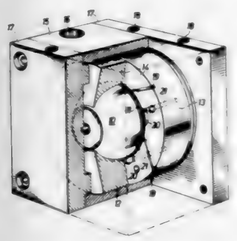
Per Aberg, Döbelnsgatan 1, 111 40 Stockholm, Sweden

Continuation of Ser. No. 729,137, Oct. 4, 1976, abandoned. This application Dec. 22, 1978, Ser. No. 974,654

Claims priority, application Sweden, Nov. 28, 1975, 7513458

Int. Cl.[3] **G01C** *19/12, 19/20*

U.S. Cl. 74—5.7 **7 Claims**



1. A gas driven and gas lubricated gyroscope, especially for low pressure and vacuum operation, which comprises a bearing housing, and a rotor (**10**) of substantially spherical shape in said housing, said rotor having a series of turbine blade grooves (**11**) extending around the rotor along an equatorial part of the rotor, and two bearing surfaces of spherical curvature extending from the part of the rotor with the turbine blade grooves on each side of the rotor essentially to each pole of the rotor, said bearing surfaces of spherical curvature extending over the major portion of the rotor surface, said bearing housing having a bearing cavity with an internal bearing surface mating with the bearing surfaces of said rotor and extending over the major portion of the rotor surface with substantially the same extent as the bearing surfaces of the rotor, said bearing housing consisting of two bearing half parts (**12, 13**) which are joined along mating equatorial plane surfaces (**14**) coplanar with the equatorial part of the rotor, said bearing housing being provided with at least two driving gas channels (**19**) for blowing a driving gas against said turbine blade grooves on the rotor, said driving gas channels consisting of straight grooves provided in the equatorial plane surface (**14**) of at least one of the bearing half parts (**12,13**) extending essentially from the outer periphery of the equatorial surface to the inner periphery of said surface, in a substantially tangential direction with respect to the rotor, said bearing half parts also having spaces (**20**) for discharging the driving gas from the turbine blade grooves, and outlets (**21**) extending from said spaces outside of the bearing housing for discharge of the driving as from said spaces, said spaces consisting of pockets extending outwardly from the periphery of the bearing cavity in the equatorial plane surface of at least one of said bearing half parts, the number of said pockets being equal to the number of said inlet chanels (**19**) with one of said pockets arranged between each two of said inlet channels,

said driving gas channels (**19**), turbine blade grooves (**11**) and outlet pockets (**21**) being arranged within a narrow annular zone proximate to the equatorial plane,

said rotor and said bearing housing being constituted of materials having similar temperature expansion coefficients, the mating bearing surfaces of said rotor and said bearing housing having a spherical surface size accuracy of at least about 0.001 mm.

4,280,367

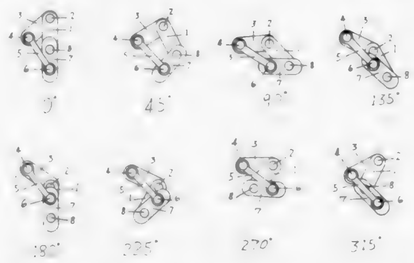
GEARLESS QUADROPHASOR

Jerry L. Burnett, 11323 Sageland, Houston, Tex. 77089

Filed Jul. 2, 1979, Ser. No. 54,576

Int. Cl.[3] **F16H** *21/18, 21/34*

U.S. Cl. 74—42 **4 Claims**



1. I claim the invention of a link and pivot mechanism for providing an oscillating output relative to a continuous rotary input comprising:

a. a first link (**1**) having one end pivotally connected to one end of a second link (**3**) at a first pivot (**2**), said first and second links (**1,3**) being of equal length,

b. a throw arm (**7**) rotating about an axis (**6**) and being of a length shorter than the length of said first and second links (**1,3**), said first link (**1**) having an opposite end pivotally connected to an opposite end of said throw arm (**7**) at a second pivot (**8**),

c. a third link (**5**) having one end pivotally connected to an opposite end of said second link (**3**) at a third pivot (**4**) and also being pivotally connected to said throw arm (**7**) at said axis (**6**), the length of said third link (**5**) being greater than the length of said first and second links (**1,3**),

d. the lengths of the links (**1,3,5**) and throw arm (**7**) being proportioned such that the sum of the square of the length of said first link (**1**) plus the square of the length of said second link (**3**) equals the sum of the square of the length of said throw arm (**7**) plus the square of the length of said third link (**5**),

e. said first pivot (**2**) and said axis (**6**) being connected together by an imaginary line, said throw arm (**7**) defining with said imaginary line a rotation angle as said throw arm (**7**) rotates about said axis (**6**), said third link (**5**) defining with said imaginary line a displacement angle which varies as said throw arm (**7**) rotates,

whereby said rotation angle and said displacement angle exhibit the following properties:

1. the value of the displacement angle is a minimum at rotation angles of 0 degrees and 180 degrees, and a maximum at 90 degrees and 270 degrees,

2. for each complete revolution of the throw arm (**7**) the displacement angle goes through two minimum values of equal magnitude and two maximum values of equal magnitude,

3. the displacement angle is always increasing for rotation angles from 0 degrees to 90 degrees, and always decreasing for rotation angles from 90 degrees to 180 degrees,

4. the displacement angle for any rotation angle between 0 degrees to 180 degrees is the same as the displacement angle for a subsequent rotation angle 180 degrees greater than the first rotation angle, and

5. the displacement angle for any rotation angle between 0 degrees and 90 degrees is a 90 degree complement of the resulting displacement angle at a subsequent rotation angle 90 degrees greater than the first rotation angle.

4,280,368

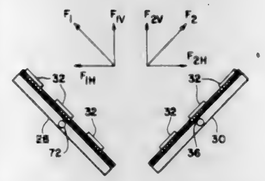
DEVICES FOR PRODUCING VIBRATORY FORCES

Howard M. Woltering, Rte. 2, Box 454, Foster, Ky. 41043

Filed Oct. 29, 1979, Ser. No. 89,605

Int. Cl.[3] **B06B** *1/16;* **B65G** *27/20*

U.S. Cl. 74—61 **8 Claims**



1. A device for producing vibratory forces of variable intensity, said device comprising

a structural frame,

a pair of plates pivotally mounted on said frame,

eccentric weight means mounted on each of said plates for movement in a closed path of travel,

means for synchronously moving both of said weight means between extreme outward positions and extreme inward positions, and

means for pivoting said plates between positions in which they are aligned with each other and the vibratory forces produced by the moving eccentric weight means are nullified and positions wherein the plates are parallel and the vibratory forces produced by the moving weight means are at a maximum.

4,280,369

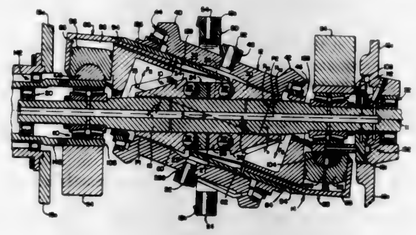
BALL/RAMP SYSTEM FOR TORQUE TRANSMISSION

Harvey N. Pouliot, Birmingham, Mich., assignor to Vadetec Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 926,823, Jul. 21, 1978, abandoned. This application Jan. 22, 1979, Ser. No. 5,605

Int. Cl.[3] **F16H** *15/16, 13/00*

U.S. Cl. 74—191 **15 Claims**



1. In an infinitely variable torque transmission having a body supported by axially spaced bearings and including a shaft concentric with the axis defined by said bearings, a pair of axially spaced traction elements concentric with said shaft and positioned between said bearings, both of said traction elements being independently rotatable and axially translatable relative to said shaft and having traction surfaces of revolution concentric with said axis, said traction surfaces being in rolling frictional engagement at two points of contact with another pair of traction surfaces under normal force loading developed by axial and radial force components on said traction elements and said shaft, the relative magnitude of said axial and radial force components being dependent on the geometrical configuration of said traction surfaces at the points of rolling friction contact, torque transmitting means between said traction elements and said shaft comprising:

axially shiftable collar means on said shaft between said traction elements, said collar means being rotatably coupled with said shaft and having oppositely facing ends;

at least two equiangularly spaced roller elements between each end of said collar means and each of said traction elements; and

a pair of complementing ramp formations engaging each of said roller elements and operative to develop said axial force component upon relative rotation between said collar means and said traction elements;

said ramp formations having a ramp inclination related to the geometric configuration of said traction surfaces in a manner to develop a normal force between said contacting traction surfaces porportional to torque transmitted between said traction elements and said shaft through said roller elements irrespective of the location of said contact points on said traction surfaces.

4,280,370

CLUTCH ASSEMBLY FOR GEAR-TYPE TRANSMISSION SYSTEM

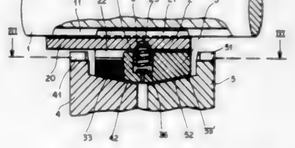
Friedrich Schreiner, Kehlen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,065

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 2909123

Int. Cl.[3] **F16D** *11/00;* **F16H** *3/38*

U.S. Cl. 74—339 **6 Claims**



1. In a gear transmission for selectively coupling a first shaft with a second shaft having a sliding gear nonrotatably mounted thereon, said first shaft being coupled with an unshiftable gear which is offset from the axis of said second shaft and has teeth engageable by external teeth of said sliding gear upon axial shifting thereof from a disengaged position into an engaged position,

the combination therewith of a control ring coaxially surrounding said sliding gear, indexing means releasably coupling said ring and said sliding gear for joint axial displacement, said ring being further provided with an internal projection coacting with certain of said external teeth for enabling at most a limited relative rotation of said sliding gear and said ring, and operating means for shifting said sliding gear from said position of disengagement to said engaged position, said ring and said unshiftable gear being formed with confronting tapered peripheral sur-

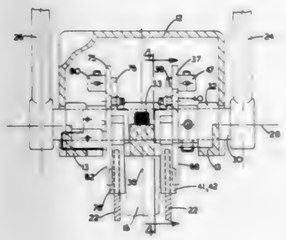
faces contacting each other upon a shifting of said sliding gear into an intermediate position for setting said ring and said sliding gear in rotation prior to meshing of said external teeth with the teeth of said unshiftable gear.

4,280,371

CONTROL LEVER ASSEMBLY

Jacob Kobelt, 6110 Oak St., Vancouver, B. C., Canada V6M 2W2

Filed Feb. 5, 1979, Ser. No. 9,695
Int. Cl.³ G05G *11/00*
U.S. Cl. 74—480 B **12 Claims**



1. A control lever assembly for a cable operated apparatus in which the lever assembly is connected to an end of a cable extending from the apparatus, the control lever assembly having a lever journalled for swinging about an axis of rotation and being characterized by:

(a) a rotatable member cooperating with the lever to rotate about the axis of rotation as the lever is swung thereabouts and a support member securable to the rotatable member so as to rotate therewith and to provide a clearance between the members, at least one of the members having a recess,

(b) a cable fitting fitted in the clearance between the members and adapted for securing to the end of the cable,

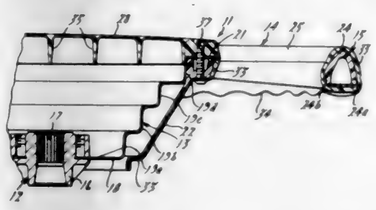
(c) journalling means cooperating with the cable fitting, with the recess of the one member, and with the remaining member to journal the fitting between the members.

4,280,372

STEERING WHEEL ASSEMBLY

Warren A. Van Wicklin, Jr., Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jul. 16, 1979, Ser. No. 57,940
Int. Cl.³ B62D *1/04*
U.S. Cl. 74—552 **9 Claims**



1. A steering wheel assembly having a hub, an energy absorbing sleeve supported on the hub, and a steering wheel armature supported on the sleeve, wherein the improvement comprises:

the energy absorbing sleeve when observed in the plan view having at its top end a substantially rectangular configuration,

the aramture having a thin wall central portion forming a housing for the energy absorbing sleeve,

the upper end of the housing comprising a substantially rectangular annulus the opening of which is complementary to the rectangular configuration of the energy absorbing sleeve,

an annular rim core,

and a plurality of spokes extending from the armature central portion to the rim core,

the armature central portion, the spokes and the rim core being integrally molded of plastics,

and fastening means securing the energy absorbing sleeve and the armature to each other at the upper end of the sleeve,

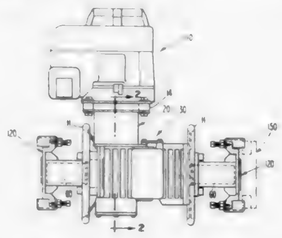
the energy absorbing sleeve having a peripheral rectangular flange overlying the rectangular annulus of the armature at the upper end of the housing to inhibit displacement of the armature axially upward from the energy absorbing sleeve in the event of failure of the fastening means.

4,280,373

PORTABLE DRIVE UNIT FOR VALVE ACTUATOR

Walter J. Denkowski, Rustburg, and Daniel S. Warsing, Lynchburg, both of Va., assignors to Philadelphia Gear Corporation, King of Prussia, Pa.

Filed Nov. 21, 1979, Ser. No. 96,505
Int. Cl.³ F16K *31/12, 31/44*
U.S. Cl. 74—625 **18 Claims**



1. A portable drive unit for a valve actuator having a handwheel input shaft, said drive unit comprising:

a. a source of torque power;

b. a clutch;

c. a gear reducer having input means and an output shaft;

d. an annular adapter comprising;

d-1 an annular clamp device adapted to be secured to one of said gear reducer and valve actuator, said clamp device including a pair of pivotal clamp members;

d-2 an annular clamp receiver adapted to be secured to the other of said valve actuator and gear reducer, said receiver including a pair of ears for receiving said pivotal clamp members;

e. a flexible coupling insertable within the axial bores of said annular clamp device and annular clamp receiver, said coupling adapted to be connected at one end to the handwheel input shaft of said valve actuator and to be connected at the other end to the output shaft of said gear reducer; and

f. means, including said clutch, for connecting said source of torque power to said input means of said gear reducer;

g. said flexible coupling comprising:

g-1 a resilient sleeve having an axial bore of rectangular cross section;

g-2 first and second drive blocks, one at each end of said resilient sleeve;

g-3 each of said drive blocks having a generally rectangular cross section corresponding to that of the axial bore of said sleeve;

g-4 each of said drive blocks being received within said sleeve bore;

g-5 said drive blocks having bores of circular cross section and diameters corresponding to those of the handwheel input shaft and of the output shaft of said gear reducer; and

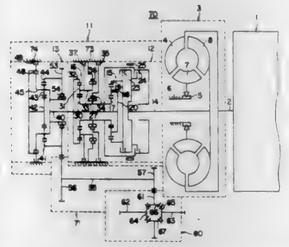
h. means for securing said drive blocks to said input and output shafts.

4,280,374

TRANSMISSION FOR USE IN MOTOR VEHICLE

Seitoku Kubo; Koujiro Kuramochi, and Tatsuo Kyushima, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Mar. 27, 1979, Ser. No. 24,259
Claims priority, application Japan, May 11, 1978, 53-56116
Int. Cl.³ F16H *37/08, 47/00*
U.S. Cl. 74—695 **4 Claims**



1. In a motor vehicle transmission for transmitting power between the engine and wheel axles of said vehicle, the transmission including:

(1) a fluid-type torque converter;

(2) an auxiliary speed change-gear assembly including an underdrive and an overdrive each comprising at least one planetary gear unit, the underdrive planetary gear unit being coaxial with and driven by the torque converter, said underdrive being disposed between said overdrive and said torque converter, and said overdrive planetary gear unit being coaxial with said torque converter and said underdrive unit and having an input element and an output element;

(3) an intermediate shaft coaxial with said torque converter and said planetary units, said intermediate shaft extending through said speed change gear assembly and drivingly interconnecting said underdrive planetary unit with the input element of said overdrive planetary unit;

(4) an output gear disposed between said underdrive and overdrive and being coaxial with said intermediate shaft, said output gear being drivingly fixed to the output element of said overdrive planetary unit;

(5) a transmission gear unit including a counter shaft having a drive gear secured to one end thereof drivingly meshed with said output gear, and a driven gear secured to the other end thereof;

(6) a final reduction gear assembly drivingly connected to said driven gear and to said wheel axles for transmitting power from said transmission gear unit to said wheel axles, said wheel axles being substantially parallel to said intermediate shaft; and

(7) a casing for enclosing said speed change-gear assembly;

the improvement comprising:

(a) a radially extending flange integral with said intermediate shaft forming a part of the input element of said overdrive planetary unit;

(b) a first thrust bearing disposed axially between said overdrive and said underdrive and disposed radially between said intermediate shaft and said casing for rotatably supporting and receiving reaction force from said intermediate shaft;

(c) second and third thrust bearings axially adjacent each other and axially disposed between said flange and said first thrust bearing and radially disposed between said intermediate shaft and said output gear for rotatably supporting said output gear and for receiving thrust from said intermediate shaft, said flange and said output gear, the inner race of said second thrust bearing axially abutting said flange and the inner race of said third thrust bearing axially abutting the inner race of said first thrust bearing; and

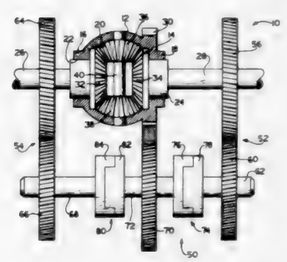
(d) an axially adjustable nut threadably engaged in an opening in said casing, said nut being coaxial with said intermediate shaft and said opening circumscribing the end of said intermediate shaft remote from said torque converter, axial adjustment of said nut permitting application of a predetermined axial force to preload said thrust bearings and axially position said intermediate shaft.

4,280,375

CONTROLLED DIFFERENTIAL

Edward J. Goscenski, Jr., Battle Creek, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Aug. 2, 1979, Ser. No. 63,012
Int. Cl.³ F16H *1/44, 1/40*
U.S. Cl. 74—711 **11 Claims**



1. A differential assembly comprising a case, input means associated with said case for directing input torque thereto to effect rotation of the case, pinion means associated with said case, a pair of side gears meshing with said pinion means, a first output driven by one of said side gears, a second output driven by the other of said side gears, first torque transmitting means associated with said first output, rotating at a speed dependent upon the speed of said first output, and adapted to transmit torque to said first output, second torque transmitting means associated with said second output, rotating at a speed dependent upon the speed of said second output, and adapted to transmit torque to said second output, third torque transmitting means associated with said case, rotating at a speed dependent upon the speed of said case, and adapted to transmit torque from said case, first clutch means responsive to said speed of said input means varying from said speed of said first output by a predetermined value to interconnect said first and third torque transmitting means to enable said third torque transmitting means to supply additional torque to said first output and prevent said speed of said input means from varying from said speed of said first output by more than said predetermined value, and second clutch means responsive to said speed of said input means varying from said speed of said second output by a predetermined value to interconnect said second and third torque transmitting means to enable said third torque transmitting means to supply additional torque to said second output and prevent said speed of said input means from varying from said speed of said second output by more than said predetermined value, said first clutch means being a bidirectional one way clutch which is operable to enable said third torque transmitting means to drive said first torque transmitting means when the speed of said input in a first direction exceeds the rotational speed of said first output by said predetermined

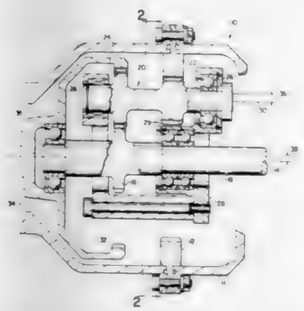
value and when the rotational speed of said input means in a second direction opposite said first direction exceeds the rotational speed of said first output by said predetermined value, said second clutch means being a bidirectional one way clutch which is operable to enable said input means to drive said second torque transmitting means when the rotational speed of said input means in a first direction exceeds the rotational speed of said second output by a predetermined value and when the rotational speed of said input means in a second direction opposite said first direction exceeds the rotational speed of said second output by said predetermined value.

4,280,376

PLANETARY GEAR SYSTEM AND GEARS THEREFORE

George Rosen, West Hartford, Conn., assignor to Energistics, Inc., Bloomfield, Conn.

Filed May 17, 1979, Ser. No. 39,770
Int. Cl.³ F16H *3/44, 55/08*
U.S. Cl. 74—788 **13 Claims**



1. In a planetary gear system having a first ring gear, a pair of planet gears, means supporting said planet gears for coaxial rotation in unison and for rotation about the axis of said first ring gear with one of said planet gears in intermeshing engagement with said first ring gear, a sun gear journaled for coaxial rotation relative to said first ring gear and in intermeshing engagement with the other of said planet gears, and a second ring gear journaled for coaxial rotation relative to said first ring gear and in intermeshing engagement with said other planet gear, said first ring gear and said one planet gear forming one set of gears, said sun gear, said other planet gear and said second ring gear forming another set of gears, the improvement wherein each gear in at least one of the sets is engaged with another of the gears in said one set along a line of action in accordance with the equation:

$$Y = -(\chi_p \tan\phi_o + \chi_p{}^3 b)$$

wherein:

ϕ_o is the pressure angle;

y is one rectangular coordinate of a point on said line of action;

χ_p is the other rectangular coordinate of said point;

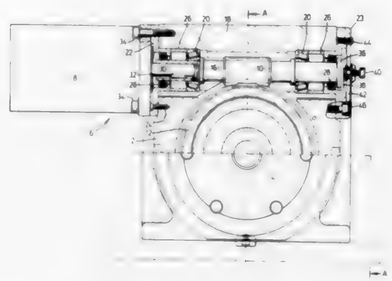
and b has a value other than zero.

4,280,377

INDEXING DEVICE

Gordon Richards, Bristol, England, assignor to Bristol Tool & Gauge Company Limited, Bristol, England

Filed Jun. 15, 1979, Ser. No. 49,186
Claims priority, application United Kingdom, May 1, 1979, 15120/79
Int. Cl.³ B23B *29/24*
U.S. Cl. 74—813 R **8 Claims**



1. An indexing device comprising:

a housing;

a face plate mounted on the housing for rotation about a face plate axis;

a worm wheel in the housing and secured to the face plate and having a rotational axis coaxial with the axis of the face plate;

a drive unit comprising a motor and a worm which is drivable in rotation about

a worm axis by the motor and which meshes with the worm wheel; and adjustment means for adjusting the distance between the worm axis and the worm wheel axis;

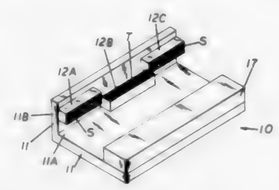
the drive unit being adapted to be fitted to the housing in driving engagement with the face plate in at least two mutually angularly offset positions.

4,280,378

SKI SHARPENER

Abraham I. Levine, 28 Wilson Ave., Rowayton, Conn. 06853

Filed Dec. 31, 1979, Ser. No. 108,657
Int. Cl.³ B21K *17/00;* **B23D** *67/12*
U.S. Cl. 76—83 **6 Claims**



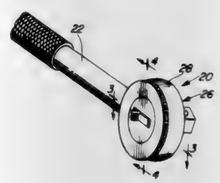
1. A ski edge sharpener comprising a base member and file means mounted on said base member, said file means including a plurality of file sections staggered along said base member whereby said sections have complementary filing surface adapted to effect the simultaneous filing of the vertical and horizontal surfaces of a ski edge, said base member comprises a base portion and a connected side portion, said portions being disposed normal to one another and at least one file section being connected to said base portion in space relationship to said side portion, and at least one file section being connected to said side portion in spaced relationship to said base portion whereby the spacing of said file sections is such that the respective filing surfaces of said files engage the vertical and horizontal surfaces of a ski edge.

4,280,379

REVERSIBLE RATCHET DRIVE

Kirk K. Chow, Farmers Branch, Dallas, Tex. 75234

Filed Jan. 11, 1980, Ser. No. 111,471
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—62 **9 Claims**



1. A reversible ratchet drive comprising

a handle-carried tool head including a driving ring,

a core having a generally cylindrical rotational body sleeved within and concentric with said ring,

a tool-element-engaging shank extending axially downwardly from said core,

said driving ring having a cylindrical inner surface,

an uninterrupted series of axially extending ratchet teeth formed in an evenly and circumferentially spaced around said inner surface of said ring and projecting radially inwardly thereof,

said body of said core having a transverse recess formed therein and extending radially inwardly of and from an encircling bounding periphery of said core,

a double-ended reversible pawl pivotally secured in said recess,

said pawl having ratchet teeth at each of its opposed ends, said ratchet teeth facing radially outwardly and presented toward said ratchet teeth of said driving ring for mating therewith,

rod means carried axially in said core and pivotally supporting said pawl in said recess for arcuate displacement of opposed toothed ends of said pawl radially inwardly and outwardly in said transverse recess in sequence, for selectively presenting either of said opposed toothed ends to said driving ring,

said ratchet teeth of said pawl being complementary with said teeth of said driving ring for selective independent ratcheting and driving engagement therewith, reversibly to impart rotative clockwise and counterclockwise torque-transmitting motion to said core upon rotation of said driving ring,

said pawl having a camming surface for application of pawl shifting pressure thereto,

said core being formed with slot means extending axially into said core from an upper surface thereof and intersecting said transverse recess formed therein,

said pawl actuating means for selectively pivotally shifting said pawl to each of a pair of opposed limiting positions correlated with reversible intercoupling ratcheting and driving engagement of each toothed end of said pawl with complementary mating teeth of said driving ring,

said pawl actuating means including shaft means projecting generally axially into said core through said slot means formed therein,

said shaft means reaching, at a lower end portion thereof, into a spatial zone adjacent said transverse recess,

finger-pressure-responsive means for manually pivoting said pawl,

said finger-pressure-responsive means including a finger contact portion projecting above a top surface of said core,

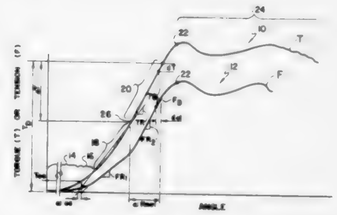
said finger contact portion being responsive to pressure applied thereagainst along a force vector having a component directed axially into said core and operative to effect a shift of said pawl alternately between first and second opposed limiting positions and reversibly and ratchetly to intercouple a toothed end of said pawl drivingly with mating said ratchet teeth of said driving ring.

4,280,380

TENSION CONTROL OF FASTENERS

Siavash Eshghy, Pittsburgh, Pa., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Division of Ser. No. 912,151, Jun. 2, 1978, Pat. No. 4,179,786, which is a continuation-in-part of Ser. No. 712,554, Aug. 9, 1976, abandoned, and Ser. No. 766,429, Feb. 7, 1977, Pat. No. 4,106,570. This application Apr. 19, 1979, Ser. No. 31,364
Int. Cl.³ B23P *19/06;* **B25B** *23/14;* **F16B** *31/02*
U.S. Cl. 81—470 **9 Claims**



1. Apparatus for tightening a threaded fastener at least partially into a region of increasing fastener stress where the torque curve exhibited by the fastener is expected to be linear, comprising

means for applying torque to the threaded fastener;

means for stopping the torque applying means in the region of fastener stress; and

means operative after the termination of tigthening and prior to resumption of operation of the torque applying means for monitoring the fastener including

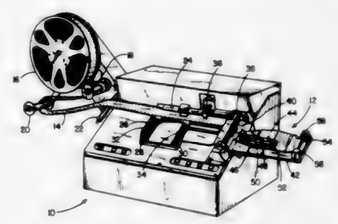
means for checking the curvature of the torque curve.

4,280,381

FILM TRAY ASSEMBLY FOR PHOTOGRAPHIC FILM CUTTER

Armer J. Willenbring, Edina; Warren J. Osby, and James W. Gausman, both of Minneapolis, all of MN, assignors to Pako Corporation, Minneapolis, Minn.

Filed Apr. 2, 1979, Ser. No. 25,754
Int. Cl.³ B65H *3/02;* **B26D** *7/00;* **G03D** *15/04*
U.S. Cl. 83—86 **10 Claims**



1. For use with a photographic strip cutter having knife means for cutting segments from a strip of photographic material, a device for stacking the segments comprising:

a tray having first and second ends, front and rear sides, and a first surface upon which the segments are stacked, the first end being positioned in a plane generally below and proximate the knife means;

an arm having first and second ends and front and rear sides and a first inclined surface which slopes from the first end of the arm toward the tray to deflect segments toward the tray and the arm being positioned in generally overlying position with respect to the tray to receive and hold the segments between the arm and the tray;

connecting means for connecting the arm and tray proximate their second ends and for limiting movement of the arm in directions transverse and parallel to the path of the segments as they are stacked between the arm and the tray, while permitting movement of the arm away from the tray; and

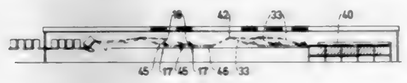
guide means for providing a guiding surface generally parallel to a path of the segments for guiding a front edge of the segments as they are stacked between the arm and the tray, the guide means being positioned with respect to the arm and the tray such that at least a portion of both top and bottom sides of a rear edge of the stacked segments is exposed to permit removal of the stacked segments from the rear sides of the tray and arm.

4,280,382

SAW ARRANGEMENT HAVING PLURAL OPERATOR STATIONS

Hans Hellgren, and Erland Marklund, both of Skelleftea, Sweden, assignors to Renholmens Mekaniska Verkstad AB, Byske, Sweden

Continuation-in-part of Ser. No. 889,527, Mar. 23, 1978, abandoned, which is a continuation of Ser. No. 717,264, Aug. 24, 1976, abandoned. This application May 10, 1979, Ser. No. 37,885
Claims priority, application Sweden, Aug. 27, 1975, 7509516
Int. Cl.³ B26D *7/06*
U.S. Cl. 83—106 **6 Claims**



1. An apparatus for trimming boards comprising

a first end cutting station for cutting off boards at a first end;

a second end trimming station for trimming boards at a second end to desired lengths;

conveying means defining a conveying path for moving boards in a direction transverse to the longitudinal axes of the boards sequentially to said first end cutting station and then to said second end trimming station and from said second station to a sorting conveyor of a sorting device;

said second end trimming station consisting of a plurality of separate trimming places arranged one after the other in said conveying direction, each one of said trimming places including a trimming saw means for trimming the boards at said second end to the desired lengths, an inclined storage zone for storing a supply of boards, and a collecting conveyor for conveying boards in a conveying path from said storage zone to the trimming saw means;

said conveying means including an aft conveyor extending below said collecting conveyor for conveying trimmed boards from said trimming places to the sorter conveyor; and

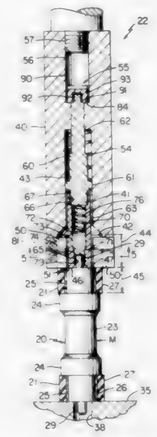
a distributor device arranged in an elevated section of the conveying means, which section extends from the first trimming place to the last trimming place of said second end trimming station, for distributing boards arriving at the second end trimming station to said separate trimming places in response to the amount of boards stored in the respective storage zones in the second end trimming station.

4,280,383

TEXTILE COT REMOVER

James S. Bryan, Clyde; Mayo B. Tell, Asheville; Alvin R. Brooks, Jr., Waynesville, and Ivan Gaster, Hazelwood, all of N.C., assignors to Dayco Corporation, Dayton, Ohio

Filed Feb. 25, 1980, Ser. No. 124,509
Int. Cl.³ B26D *3/00*
U.S. Cl. 83—140 **11 Claims**



1. In a tool for cutting a textile cot from an associated mandrel, said tool having a cot cutting blade, the improvement comprising, a housing having an axial passage therethrough including an enlargement defining one end thereof, a mandrel-engaging assembly supported for reciprocating axial movements within said passage through a distance at least equal to the axial length of a cot to be cut by said tool, said assembly having a mandrel-engaging outer surface, means fastening said cutting blade to said housing, said cutting blade having cutting edge means disposed within said enlargement, urging means yieldingly urging said assembly at least said distance along said passage into said enlargement, stop means limiting the extent of movement of said assembly as induced by said urging means, and means for attaching said housing on one of a cooperating pair of machine components which are relatively movable toward and away from each other, said tool being adapted to be attached on said one component with said attaching means and a mandrel with a cot to be cut supported on said other component with said cot aligned to be received within said enlargement, said components being adapted to be relatively moved toward each other causing said outer surface of said assembly to engage said mandrel and causing said housing to override said urging means and telescope around said assembly enabling said cutting edge means to be moved axially along said cot thereby cutting same, said urging means serving to eject said cot and mandrel from within said enlargement once said components are relatively moved away from each other.

4,280,384

APPARATUS FOR CUTTING STRIPS OF MATERIAL OF VARYING LENGTHS

Volker Schmidt, Rte. 7, Lexington, Ky. 40502

Filed Feb. 23, 1979, Ser. No. 14,296
Int. Cl.³ B26D *7/06*
U.S. Cl. 83—234 **17 Claims**

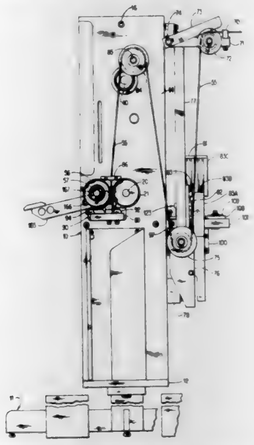
1. An apparatus for cutting a strip of material into segments including:

a single drive means;

feed means to intermittently feed a selected length of the strip of material past a cutting position during each activation of said feed means;

first means to cause said single drive means to activate said feed means during a portion of each cycle of said single drive means;

cutting means to cut the fed material at the cutting position while said feed means is inactive;



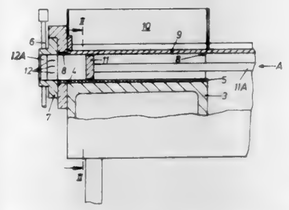
and enabling means to enable said single drive means to activate said cutting means while said feed means is inactive to cut the fed material at the cutting position only after a selected number, greater than one, of the selected length of the strip of material has been intermittently fed past the cutting position by said feed means during more than one activation of said feed means.

4,280,385

APPARATUS FOR CUTTING FOODSTUFFS OR THE LIKE

Arnold Kienzl, Heidenheim, Fed. Rep. of Germany, assignor to Holac-Maschinenbau GmbH, Heidenheim, Fed. Rep. of Germany

Filed Jan. 5, 1979, Ser. No. 1,389
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1978, 7804766[U]
Int. Cl.³ B26D *1/02, 7/06*
U.S. Cl. 83—404.3 **7 Claims**



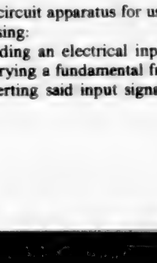
1. In a comminuting apparatus, particularly for slicing and/or dicing foodstuffs, wherein the commodities to be comminuted are fed into and are advanced lengthwise along a predetermined path into the range of mobile comminuting elements, the combination of a support having a chamber; and an elongated open-ended trough consisting of stainless steel and removably installed in said chamber, said trough defining said path and having a substantially U-shaped cross-sectional outline with two upstanding side panels, a bottom panel between said side panels, an open top for admission of commodities to be comminuted, and webs connecting said side panels and extending transversely of said path adjacent to the ends of said trough and remote from said bottom panel.

4,280,386

PAPERBOARD SLITTING APPARATUS

William F. Ward, Sr., Hampstead, Md., assignor to The Ward Machinery Company, Cockeysville, Md.

Filed Dec. 26, 1979, Ser. No. 106,541
Int. Cl.³ B23D *19/06;* **B26D** *1/24*
U.S. Cl. 83—500 **6 Claims**



1. Rotary slitting apparatus for slitting paperboard material comprising in combination:

an annular head member including a reduced diameter shoulder portion adjacent one side face thereof forming a first annular side face extending at a small angle of from between 3 degrees and 7 degrees from a line extending radially perpendicular from a central axis of said head member towards a larger diameter surface thereon;

a thin annular slitting blade member adjacent said first annular side face and including an inner annular surface surrounding said reduced diameter shoulder portion and having a plurality of circumferentially spaced notches extending radially part way from said inner annular surface toward an outer annular surface, said outer annular surface extending at an angle of from between 5 degrees and 40 degrees from a plane perpendicular to side faces thereof forming an acute angle cutting edge with one of said side faces; and

an annular clamp member including an inner annular surface surrounding said reduced diameter shoulder portion and having a second annular side face, adjacent said blade member, extending radially at an angle from a central axis of said head member so as to correspond to said small angle of said first annular side face for clamping said blade member at an angle against said first annular side face on said head member,

said head member further including an annular relief formed in said first annular side face opposite to the termination of said notches in said slitting blade member, and

said clamp member further including an annular relief formed in said second annular side face opposite to the termination of said notches in said slitting blade member.

4,280,387

FREQUENCY FOLLOWING CIRCUIT

Robert A. Moog, Leicester, N.C., assignor to Norlin Music, Inc., Deerfield, Ill.

Filed Feb. 26, 1979, Ser. No. 14,940
Int. Cl.³ G10H *1/00;* **H04M** *1/00;* **G01R** *23/02*
U.S. Cl. 84—1.01 **17 Claims**

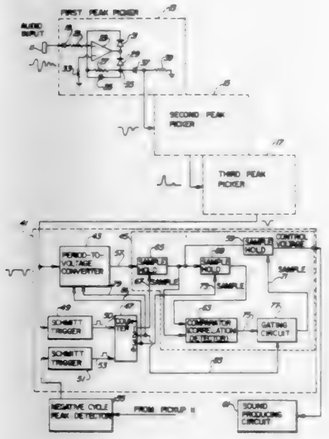
1. An electrical circuit apparatus for use in electronic music generation comprising:

means for providing an electrical input signal of complex waveform carrying a fundamental frequency component;

means for converting said input signal to a signal bearing

successive indications of the occurrence of a periodic reference point of the fundamental frequency component of said input signal;

period-to-voltage converter means responsive to said indications of the converted input signal, for repeatedly generating an analog voltage level, each said analog voltage level having a magnitude representative of the period between successive reference points; and



output means for producing a signal output having a signal level magnitude determined by a said analog voltage level, said output means making a determination of the relative difference of the signal level magnitudes of successive analog voltage levels generated by said period-to-voltage converter means, and said output means updating said signal output in response to said determination.

4,280,388

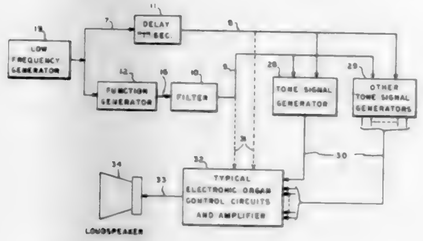
APPARATUS AND METHOD FOR GENERATING CHORUS AND CELESTE TONES

J. Paul White, 1985 Foster Rd., Hatfield, Pa. 19440

Filed May 29, 1979, Ser. No. 43,111

Int. Cl.³ G10H *1/02*

U.S. Cl. 84—1.24 **9 Claims**



1. In an electronic musical instrument, apparatus for generating a chorus tone, comprising;

means to generate a low frequency signal,

delay means responsive to the said low frequency signal and operable to produce a first modulating signal by imparting a frequency-independent time delay to said low frequency signal,

a tandem means also responsive to said low frequency signal comprising a function generator feeding a non-minimum phase shift bandpass filter to produce a second modulating signal,

a tone signal generator,

means responsive to said first and second respectively modulating signals to modulate the amplitude and phase of the tone signal produced by said tone signal generator, and

means operable to render the amplitude and phase modulated tonesignal audible.

4,280,389

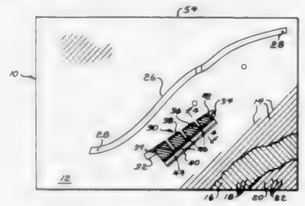
PIANO SOUNDBOARD

George S. Klaiber, Tonawanda, N.Y.; Stanley A. Grajek, De Kalb, Ill., and Robert S. Hill, Holly Springs, Miss., assignors to The Wurlitzer Company, DeKalb, Ill.

Division of Ser. No. 969,722, Dec. 15, 1978. This application Feb. 1, 1980, Ser. No. 117,574

Int. Cl.³ G10C *3/04*

U.S. Cl. 84—212 **6 Claims**



1. A piano soundboard construction comprising three plies of wood bonded together, the front and back ply being of approximately equal thickness and the center ply being of greater thickness than the thickness of the front or back ply, and a bass bridge comprising a runner secured to said front ply, an apron on said runner substantially parallel to the plane of the front ply and cantilevered from said runner, and a cap on said apron opposite to said runner, at least a part of said bass bridge having a plurality of spaced-apart transverse slots therethrough.

4,280,390

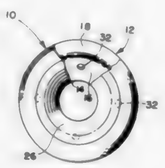
SEALING ELEMENT

Myles N. Murray, Chagrin Falls, Ohio, assignor to Industrial Electronic Rubber Co., Twinsburg, Ohio

Filed May 4, 1979, Ser. No. 36,022

Int. Cl.³ F16B *43/00, 39/24*

U.S. Cl. 411—542 **8 Claims**



1. A washer for use with a fastener having a head and shank, the shank of which is to be received in a bore of an article being secured by the fastener, said washer comprising a substantially rigid annular upset disc of an overall V-shape cross-section having radially inner and outer sidewalls that terminate at their distal ends substantially at a common plane normal to the axis of said disc, said distal ends defining the article opposing surface of said disc, a first annular elastomeric member positioned between and substantially contained against radial expansion by said sidewalls, and a second annular elastomeric member positioned interiorly of and substantially contained against radial outward expansion by said radially inner sidewall, said first and second members protruding axially slightly beyond said disc in opposite axial directions for effecting engagement with the head and face, respectively, when said fastener is received in said bore and drawn against said washer, and said radially inner sidewall throughout the extent thereof being substantially inclined to the axis of said disc, whereby said radially inner sidewall resists axial movement of said second member upon tightening of the fastener thereagainst.

4,280,391

ARRANGEMENT FOR ANCHORING A MOUNTING ELEMENT IN A SUPPORT STRUCTURE AND MOUNTING AN OBJECT ON THE SAME

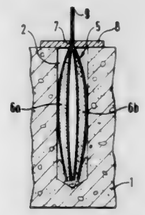
Artur Fischer, Weinhalde 34, D-7244 Waldachtal 3, Tumlingen, Fed. Rep. of Germany, and Klaus Fischer, Waldachtal, Fed. Rep. of Germany, assignors to Artur Fischer, Waldachtal, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 74,407

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1978, 2845107; Nov. 29, 1978, 2851558

Int. Cl.³ F16B *37/04;* **B65D** *79/00;* **E21D** *21/02*

U.S. Cl. 411—15 **20 Claims**



1. An arrangement for mounting an object to a support structure having a mounting hole and an outer face, comprising

a mounting element arranged to be inserted into and anchored in a mounting hole of a support structure and to support an object;

a flexible container accommodating an adhesive substance and arranged to be inserted into a mounting hole of a support structure prior to said mounting element for emptying into the mounting hole and to be subsequently withdrawn from the mounting hole, said flexible container having an inlet and inlet closure means separable from the remainder portion of said flexible container before insertion of the latter into the mounting hole so as to open said flexible container; and

means for emptying said flexible container in the mounting hole, said emptying means including a disc member arranged to abut against an outer face of the support structure so as to close the mounting hole and having a peripherally closed slot whose dimension corresponds to the thickness of said flexible container in emptied and folded conditions, so that when said disc abuts against the outer face of the support structure and said flexible container filled by the adhesive substance is pulled out from the mounting hole through said slot of said disc member, the mounting hole is sealed by said disc member and the adhesive substance accommodated in said flexible container is squeezed out from the latter into the mounting hole, so as to anchor said mounting element after its insertion in the mounting hole.

4,280,392

CARTRIDGE FEED APPARATUS FOR AN AUTOMATIC FIRING WEAPON

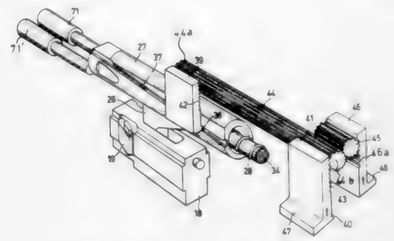
Ernst Hürlemann, Zurich, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland

Filed Sep. 4, 1979, Ser. No. 72,101

Claims priority, application Switzerland, Sep. 12, 1978, 9532/78

Int. Cl.³ F41D *10/08*

U.S. Cl. 89—33 SF **7 Claims**



1. A cartridge infeed apparatus for an automatic firing weapon, comprising:

two oppositely situated ammunition guide means for the selective infeed of two different ammunition belts to an ammunition infeed location;

a feed device capable of being driven by the breechblock of the firing weapon;

said feed device having a spring sleeve operatively connected with the breechblock;

said spring sleeve having a groove which is inclined with respect to the lengthwise axis of the firing weapon;

said feed device further including: a respective slide for each ammunition belt; feed pawl means with which each slide is operatively connected for moving both of the ammunition belts;

one of said slides being actuated by engagement with said groove and defining a first slide;

an additional slide defining a second slide and actuatable by engagement with said groove;

both of said first and second slides which can engage with said groove being arranged such that upon return movement of the spring sleeve initially the first slide and then the second slide comes into engagement with said groove;

the remaining one of said slides defining a third slide;

a first transmission element for transmitting the movement of the first slide to the second slide; and

a second transmission element for transmitting the movement of the second slide to the third slide.

4,280,393

LIGHT WEIGHT ARMORED VEHICLE

Jean Giraud, Versailles, and Richard Laigneau, Saint-Maur-des-Fosses, both of France, assignors to Creusot-Loire, Paris, France

Filed Apr. 9, 1979, Ser. No. 28,509

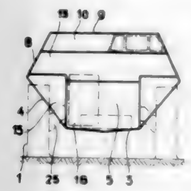
Claims priority, application France, Apr. 14, 1978, 78 11017; Apr. 6, 1979, 79 08734

Int. Cl.³ F41H *7/04*

U.S. Cl. 89—36 H **8 Claims**

1. An armored vehicle comprising a body having an outer profile, rolling members supporting said body, motor means, transmission means for transmitting drive from said motor means to said rolling members, said body comprising a main central cell having a volume reduced to that for containing occupants and at least selected vital elements of said motor means and transmission means, said main central cell comprising relatively thick highly armored plates and which include a floor of said central cell having a slight dihedron, and an exte-

rior protection extending from said main cell to complete the outer profile of said body, said exterior protection comprising



relatively thin armored plate, said exterior protection extending from said central cell at least at the front and rear thereof.

4,280,394

MARINE FIRING WEAPON

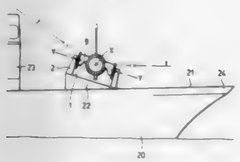
Emil Singeaberger, Ennetbürgen, and Heinz Wilhelm, Lucerne, both of Switzerland, assignors to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zürich, Switzerland

Filed Oct. 30, 1978, Ser. No. 956,221

Claims priority, application Switzerland, Nov. 4, 1977, 13432/77

Int. Cl.³ F41F *23/00*

U.S. Cl. 89—37 A **5 Claims**



1. A marine weapon system comprising:

means defining a first alignment axis which does not extend into the zenith;

means defining a second alignment axis which is arranged essentially at right angles to the first alignment axis;

support means mounted to be rotatable about the first alignment axis;

firing weapon means rotatably mounted at said support means for rotatable movement about said second alignment axis;

said first alignment axis being inclined with respect to the horizon such that it does not extend into a target region of the firing weapon means;

two support members for mounting said support means defining an inclined support;

said inclined support defined by said support means being arranged between said two support members and rotatably mounted at said two support members;

a substantially horizontal platform at which there are arranged said two support members; and

both of the support members arranged at said substantially horizontal platform being of different length.

4,280,395

HYDRAULIC BRAKE BOOSTER

Arthur R. Shaw, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 23, 1979, Ser. No. 68,895

Int. Cl.³ F15B *13/14, 13/10*

U.S. Cl. 91—47 **2 Claims**

1. A hydraulic power brake booster comprising:

a housing having a bore therein;

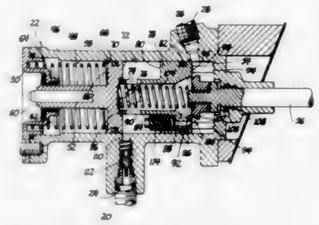
a power wall having a booster output member, said power wall being reciprocably received in said housing bore;

a valve piston reciprocably received in said housing bore and defining a power pressure chamber in combination with said power wall and a part of said housing, said valve piston also defining an exhaust chamber on the opposite side thereof from said power pressure chamber in combination with another part of said housing;

an input member extending through said exhaust chamber in axial alignment with said valve piston and said power piston;

a control valve defined by an annular valve seat on said valve piston and a movable valve element on said input member and including a passage in said valve piston passing through said annular valve seat, said passage providing fluid communication between said power and exhaust chambers as controlled by said control valve;

a hydraulic fluid inlet in said housing for delivering hydraulic fluid to said power chamber upstream of said control



valve and having a check valve therein for preventing fluid flow from said power chamber through said inlet, and a hydraulic fluid outlet in said housing for receiving hydraulic fluid from said exhaust chamber downstream of said control valve;

said booster being power actuated by movement of said input member to restrict hydraulic fluid flow through said control valve and cause power pressure to increase in said power pressure chamber, said power pressure moving said power wall and holding said valve piston against movement in the same direction as said power wall to require a small amount of input member movement to control said booster throughout its power range;

said booster being subject to manual push-through operation by movement of said input member which is sufficient to engage said movable valve element with said annular valve seat and thereafter move said valve piston and said power wall concurrently to move said output member as said input member is moved.

4,280,396

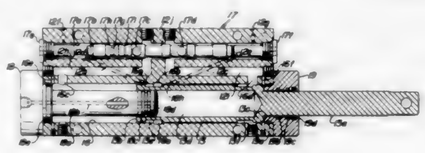
HYDRAULIC OSCILLATOR

Kenneth W. Zeuner, Newtown, and Alonzo B. Jarman, Wrightstown, both of Pa., assignors to Control Concepts, Inc., Newtown, Pa.

Filed May 18, 1978, Ser. No. 907,139

Int. Cl.³ F01L *25/06, 31/08*

U.S. Cl. 91—320 **14 Claims**



1. A hydraulic oscillator comprising a piston reciprocating

between first and second positions in a cylinder having first and second opposed ends,

reversing pilot valve means operable in response to the application of pilot fluid flow for controlling flow of fluid to said first and second cylinder ends, first and second pilot passages for controlling the reversing operation of said pilot valve means,

said cylinder having pilot channel means including a single circumferential pilot pressure groove formed on a cylinder wall for flow of said pilot fluid, and

said piston having (1) first coupling means for fluidly coupling said single pilot groove and said first pilot passage as said piston approaches said second position and (2) second coupling means free of fluid communication with said first coupling means for fluidly coupling said single pilot groove and second pilot passage as said piston approaches said first position thereby to alternately reverse said pilot valve means to reverse the fluid flow to said first and second cylinder ends for producing the reciprocation of said piston.

4,280,397

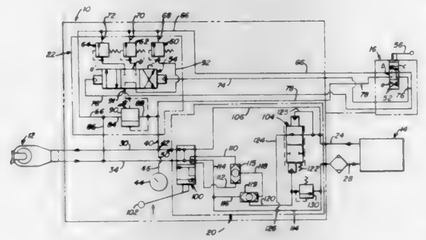
HYDRAULIC FLUID CONTROL APPARATUS

John E. Peveto, Houston, Tex., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Apr. 27, 1978, Ser. No. 900,545

Int. Cl.³ F15B *13/042*

U.S. Cl. 91—452 **2 Claims**



1. Power tong apparatus comprising

hydraulic fluid control apparatus and a drill string power tong with said hydraulic fluid control apparatus having

hydraulic fluid entry means for receiving hydraulic fluid,

hydraulic fluid discharge means for supplying pressurized hydraulic fluid,

said hydraulic fluid discharge means includes means for supplying said pressurized hydraulic fluid to said power tong and hydraulic fluid return means for receiving pressurized fluid returning from said power tong to said hydraulic fluid control apparatus,

velocity control means cooperating with said hydraulic fluid entry means for establishing a desired predetermined velocity for the hydraulic fluid,

pressure control means cooperating with said hydraulic fluid discharge means for selectively limiting the exit pressure of said hydraulic fluid through said discharge means to predetermined levels,

said pressure control means including valve means adapted to divert pressurized fluid from said hydraulic fluid discharge means when the pressure thereof exceeds one of two or more predetermined levels,

said valve means includes at least two valves adapted to be set at different said predetermined pressure levels,

valve control means for selectively setting the position of said valve means to establish a said predetermined pressure level in said hydraulic fluid discharge means, and

said valve control means includes a three-position valve.

4,280,398

RAPID RELEASE MECHANISM FOR A SPRING-LOADED BRAKE CYLINDER

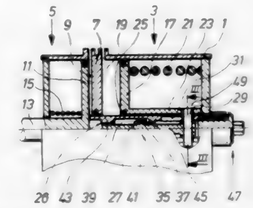
Albert Kerscher, Eching, and Walter Furtner, Rosenheim, both of Fed. Rep. of Germany, assignors to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed Dec. 29, 1978, Ser. No. 974,230

Claims priority, application Fed. Rep. of Germany, Jan. 5, 1978, 2800449

Int. Cl.³ F01B *9/00*

U.S. Cl. 92—29 **5 Claims**



1. In a spring-loaded brake cylinder, a cylinder having a spring-loaded piston therein movable between release and braking positions, piston rod means relatively movable with respect to said piston, a piston rod head adapted to be connected to a brake linkage and actuatable by said piston rod means, a releasable coupling operatively connecting said piston and said piston rod means, and means in parallel with said releasable coupling for damping relative movement between said piston and said piston rod means resulting when said releasable coupling is released, wherein said damping means comprises a chamber defined by portions of said piston and said piston rod means and filled with fluid, and a fluid displaceable member on one of said piston and said piston rod means to moderate any impact force between said piston and said piston rod means as a result of the relative movement therebetween.

4,280,399

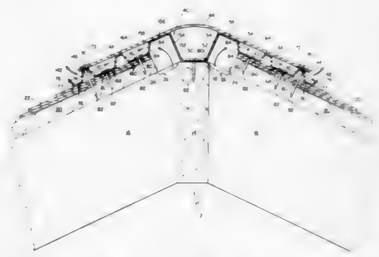
ROOF RIDGE VENTILATOR

Joseph M. Cunning, Cohasset, Mass., assignor to Bird & Son, Inc., East Walpole, Mass.

Filed May 29, 1980, Ser. No. 154,386

Int. Cl.³ F24F *7/02*

U.S. Cl. 98—42 A **3 Claims**



1. For use with a building roof ridge having a ridge pole supported on each side by rafters extending to said ridge pole spaced therealong and sloping downwardly therefrom, with sheathing and roof shingles supported by said rafters and having their inner longitudinal edges spaced from said ridge pole to provide a building roof vent extending longitudinally along at least one side of said ridge pole,

a flexible, one-piece, roof ridge ventilator adapted for mounting transversely across said roof ridge with its outer longitudinal edges spaced transversely outwardly from said ridge pole for supporting thereon a longitudinally and

transversely extending cap shingle with its longitudinally extending outer edges spaced above and transversely overlapping said roof shingles on both sides of said ridge pole for ventilation of said building through said roof vent said roof ridge ventilator having

a plurality of longitudinally extending peaks and valleys with side walls extending therebetween, including a central valley adapted for mounting on said ridge pole, for centering said ridge ventilator sheet transversely across said roof ridge with side peaks and valleys extending from said ridge pole for a substantial distance to the outer longitudinal edges of said ventilator for overlapping said sheathing and shingles on both sides of said ridge pole

said central valley and said side valleys having nail apertures therein for securing said ridge ventilator onto said ridge pole and said sheathing and shingles and the outermost of said side peaks having nail apertures therein adapted to receive nails for securing said cap shingle to said ridge ventilator, and

said side walls having a plurality of venting perforations therein for venting of air therethrough from said roof vent to the exterior of said roof.

4,280,400

FUME CUPBOARDS

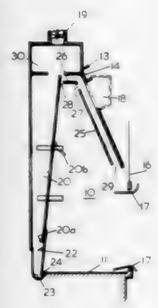
Archibald L. Longworth, Mirador, Woodbrook Rd., Alderley Edge, Cheshire, England

Filed May 25, 1979, Ser. No. 42,666

Claims priority, application United Kingdom, May 30, 1978, 24508/78

Int. Cl.³ F23J *11/00*

U.S. Cl. 98—115 LH **11 Claims**



5. A fume cupboard comprising a ventilated enclosure having an access opening having a top edge, a cowling located over said edge and spaced therefrom so that an air-flow channel is defined between the cowling and the edge through which air-flow channel air may be drawn during use of the cupboard, from the exterior to the interior of the enclosure, said cowling having a portion which extends through said opening into the enclosure in a plane parallel to the base of the fume cupboard, and said cowling being shaped so that there is a streamlined air flow over the cowling into the enclosure when the cupboard is in use, and wherein said opening is closable by a sash window and said cowling is provided along the bottom edge of the sash window.

6. A fume cupboard comprising a working enclosure with a rear wall, side walls, a ceiling, a floor and an access opening, a back baffle located in front of the rear wall and having its side and lower edges defining air-exit slots with the interior of the enclosure, a front baffle located rearwardly of the front wall, said front baffle having side edges defining air exit slots with the side walls of the enclosure, an upper edge providing an upper air slot, and a lower edge defining, with said front wall, a lower air slot above the access opening.

4,280,401

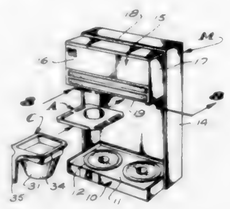
BREW RAIL ADAPTER

Robert K. Cleland, 11051 Via El Mercado, Los Alamitos, Calif. 90720

Filed Nov. 13, 1979, Ser. No. 93,385

Int. Cl.³ A47J *31/10*

U.S. Cl. 99—295 **7 Claims**



1. A brew cone adapter engageable with a bottom surface of a water dispensing head of a coffee brewing machine to underlie a water discharge opening in that head and engageable with and between a pair of elongate laterally spaced parallel horizontal brew rails carried by the head below said surface and to slidably receive and support the upper rim flange of an upwardly opening cup-like brew cone, the lateral extent of which is less than the lateral space between said brew rails; said adapter includes a thin, flat, horizontal substantially rectangular plate with substantially flat, upper and lower surfaces, front and rear ends and laterally spaced parallel opposite side edge portions to overlie the brew rails of a related coffee brewing machine, a pair of elongate laterally spaced parallel brew cone rails spaced laterally inwardly of said side edge portions and depending from the lower surface of the plate to slidably engage below and to support the rim flange of a related brew cone, and a center opening in the plate to register with the water discharge opening of a related brew machine and to occur above the open top of a related brew cone.

4,280,402

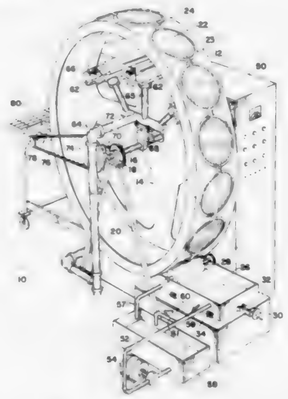
CREPE COOKING MACHINE

Garnet I. Featherstone, 12 Mark Dr., San Rafael, Calif. 94903

Filed Aug. 20, 1979, Ser. No. 67,602

Int. Cl.³ A47J *37/10*; **A21B** *1/42*

U.S. Cl. 99—355 **13 Claims**



1. A crepe cooking machine comprising:

a generally cylindrical, metallic drum;

a row of generally circular, metallic cooking pads around the circumference of said drum;

a source of heat within said drum adjacent the interior surface thereof;

a container for batter adjacent said drum;

a transfer roller rotatable in said container;

a base;

a support platform movable on said base toward and away from said drum;

biasing means urging said platform towards said drum; and

cam follower means on said platform engaging the outer surface of said drum to maintain a constant spacing therefrom;

said batter container being supported on said platform.

4,280,403

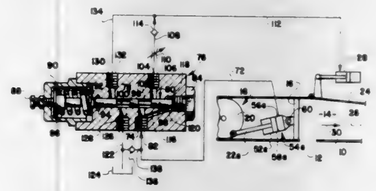
BALE DENSITY CONTROL SYSTEM

Loren L. Alderson, Nickerson, Kans., assignor to The Cessna Aircraft Company, Wichita, Kans.

Filed Aug. 13, 1979, Ser. No. 66,218

Int. Cl.³ B30B *15/26*

U.S. Cl. 100—43 **1 Claim**



1. A bale density control system on a conventional reciprocating plunger-type baler with a squeeze cylinder to control the size of the discharge orifice, the baler being driven by a pitman rod and crankshaft, the system adjusts the squeeze cylinder of the baler to maintain bale density regardless of changing conditions in the material being baled, the improvement comprising:

a linear hydraulic cylinder means positioned between the crankshaft and the plunger with the piston rod of the cylinder means comprising an extension of and being the pitman rod and the cylinder means being hydraulically connected to the squeeze cylinder, said cylinder means being attached so that any load on the pitman rod is transmitted to the cylinder means causing the cylinder means to pump oil to the squeeze cylinder during the entire compaction stroke of the plunger thereby effecting a lost motion between the crankshaft and plunger;

a fluid supply means connected to said cylinder means for replenishing fluid in the cylinder means during the return stroke of the plunger and a check valve positioned between the supply and cylinder means to prevent flow to the supply means; and

a pilot operated valve means located between the cylinder means and squeeze cylinder which passes flow from the cylinder means to the squeeze cylinder at pressures below a prearranged level while blocking flow from the cylinder means to the squeeze cylinder at said prearranged level and dumping fluid in the squeeze cylinder to drain when the pressure in the linear cylinder means exceeds said prearranged level.

4,280,404

PRINTER HAVING VARIABLE HAMMER RELEASE DRIVE

Gordon B. Barrus, El Segundo, and Jerry Matula, Westminster, both of Calif., assignors to Printronix, Inc., Irvine, Calif.

Filed Oct. 3, 1979, Ser. No. 81,559

Int. Cl.³ B41J *7/92*

U.S. Cl. 101—93.03 **8 Claims**

1. A hammer bank arrangement for use in a dot matrix printer comprising the combination of a reciprocable hammer bank disposed along a printing line position and having a plurality of hammers, each of which includes a dot printing element for imprinting a dot when the hammer is actuated, a separate driving arrangement associated with each hammer for actuating the associated hammer when driven, means for periodically providing data denoting individual hammers to be actuated substantially simultaneously and means responsive to the data for driving the driving arrangement associated with



each hammer to be actuated as denoted by the data, means responsive to each providing of data denoting individual hammers to be actuated substantially simultaneously for determining the number of hammers to be actuated, and the means for driving including means responsive to the means for determining the number of hammers to be actuated for varying the duration of driving of each driving arrangement associated with each hammer to be actuated in substantially direct proportion to the number of hammers to be actuated.

4,280,405

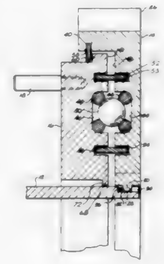
ASSEMBLY FOR SUPPORTING PRINTING SCREEN

Johann Dreml, Franklin, N.C., assignor to Peterzimmer America, Inc., Spartanburg, S.C.

Filed Sep. 27, 1979, Ser. No. 79,594

Int. Cl.³ B41F *15/38*

U.S. Cl. 101—127.1 **3 Claims**



1. An assembly for supporting cylindrical screens used in printing fabrics and the like, cylindrical couplings extending out opposed ends of said screens, said assembly comprising:

a cylindrical screen supporting ring;

means for connecting said cylindrical coupling carried on an end of said screen to said cylindrical screen supporting ring;

a cylindrical tension ring carried in axial alignment with said cylindrical supporting ring with said tension ring and said supporting ring having inner walls nesting together;

a cylindrically extending cavity provided in said inner walls of said tension ring and said supporting ring;

bearing means carried in said cavity for permitting said screen supporting ring to rotate relative to said tension ring and forming a separation between said supporting ring and said tension ring;

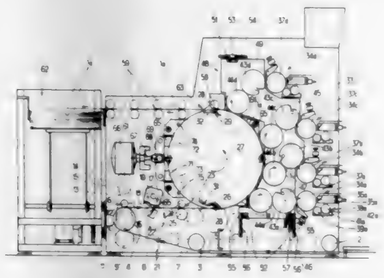
seal means carried on opposite sides of said bearing means,
an outwardly projecting flange carried on a peripherial edge of said tension ring adjacent said separation, and
an arcuate surface provided on an opposite side of said flange from said gap for directing contaminants away from said separation.

4,280,406

ROTARY PRINTING MACHINE

Louis G. Corse, Chaumont-sur-Tharonne, France, assignor to Machines Chambon, Orleans, France

Filed Mar. 5, 1979, Ser. No. 17,467
Claims priority, application France, Mar. 10, 1978, 78 07032
Int. Cl.³ B41F *5/18, 5/22, 13/36, 13/40*
U.S. Cl. 101—177 **8 Claims**



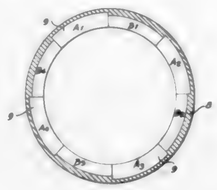
1. A rotary printing machine for multi-color printing continuously fed sheets, comprising:
a frame on which a plurality of printing units are mounted on one another, ensuring respectively the printing of the different colors;
each said printing unit comprising an inking unit and a plurality of ink transfer rollers having horizontal axes transverse to said frame, said ink rollers being tangential to one another and including an inking roller receiving a film of ink, a plate cylinder, a blanket cylinder for contact with the sheets, said inking units and the inking rolls being mounted on said frame in determined positions, and said plate cylinders and the blanket cylinders of the various printing units being mounted to rotate together on a first support frame movable horizontally and transversely with respect to the frame, so as to be able to be completely withdrawn from the frame;
means for rotating all of the cylinders of each of the said printing units;
means for continuously feeding a web of material to be printed and for introducing it into the printing machine;
means for regulating the linear speed of the web as a function of the format desired for the sheets;
a rotary device for cutting the web;
means for rotating said rotary cutting device at constant speed so as to cut from the web successive sheets of adjustable constant format;
a drum provided at its periphery with regularly distributed grippers, normally closed by springs, the opening of said grippers being controlled by fixed ramps on said frame, said grippers being adapted to grip the front edge of each sheet separated by said rotary cutting device, wherein said drum forms a single large diameter impression cylinder in contact, at different points of its periphery, with the blanket cylinders of said different printing units, said drum being mounted to rotate about a horizontal axis transverse to said frame on a second support frame, said second support frame being mounted for horizontal and longitudinal sliding movement with respect to said frame; and,
means for sliding the said second support frame towards and away from the blanket cylinders of the said plurality of printing units.

4,280,407

EXPLOSIVE PACKAGE ASSEMBLY

John R. Allen, Dollard Des Ormeaux; Louis-Georges Desrochers, Beloeil, and Alain Loyer, Otterburn Park, all of Canada, assignors to C-I-L Inc., Montreal, Canada

Filed May 21, 1979, Ser. No. 40,776
Int. Cl.³ F42B *1/02*
U.S. Cl. 102—320 **6 Claims**



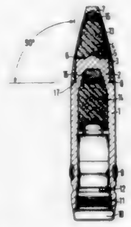
1. A metal welding explosive charge in the form of a package adapted for placement against the inner curved surface of a hollow metal cylinder comprising:
(a) a generally flexible, hollow, substantially flat, elongated, box-like container having in one dimension parallel side edges of unequal length and in a second dimension non-parallel side edges of equal length, the container thus describing a trapezoidal shape in plan with parallel side edges and non-parallel end edges, and
(b) a deformable explosive composition contained therein, the said container being fittable in abutting end contact with a like container along a non-parallel side edge, the said abutted container forming a continuous, length-adjusted closed ring assembly of packages against a curved metal surface to be explosively welded.

4,280,408

PROJECTILE

Adolf Weber, Neunkirchen; Siegfried Rhau, Nuremberg, and Utz-Udo Ahlers, Diepersdorf, all of Fed. Rep. of Germany, assignors to Diehl GmbH & Co., Fed. Rep. of Germany

Filed May 24, 1979, Ser. No. 42,248
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824703
Int. Cl.³ F42B *11/14*
U.S. Cl. 102—501 **9 Claims**



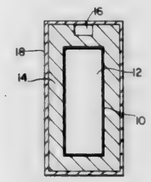
1. An antiaircraft projectile having a ballistic projectile hood (7) and a first pyrotechnic composition (13) with a primer charge (15) arranged below said hood, a penetrating member (1) which is open at its base and having two gripping edges (6, 17) at the outer circumference of cylindrical sections (1, 2) a base detonator (12) for a second pyrotechnic composition (14) arranged in said penetrating member (1), and an insert (16) located in the head portion of said penetrating member (1) formed of metallic zirconium.

4,280,409

MOLTEN METAL-LIQUID EXPLOSIVE DEVICE

Alexander G. Rozner, Potomac, and Horace H. Helms, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 9, 1979, Ser. No. 28,478
Int. Cl.³ F42B *1/00*
U.S. Cl. 102—364 **17 Claims**



1. A molten metal-liquid explosive device comprising:
(1) a metal liner composed of a metal selected from the group consisting of aluminum, magnesium, copper, and brass, the liner enclosing a chamber;
(2) water contained in the chamber;
(3) pyrotechnic material surrounding the outside of the liner, the pyrotechnic material comprising a mixture of powders of
(a) nickel,
(b) metal oxide, and
(c) an aluminum containing component selected from the group consisting of (i) aluminum and (ii) a mixture of from 50 to less than 100 weight percent of aluminum and from more than zero to 50 weight percent of a metal selected from the group consisting of magnesium, zirconium, bismuth, beryllium, boron, tantalum, copper, silver, niobium, tungsten, molybdenum, and mixtures thereof,
wherein the pyrotechnic material is present in an amount sufficient to melt the metal liner; and
(4) means for igniting the pyrotechnic material.

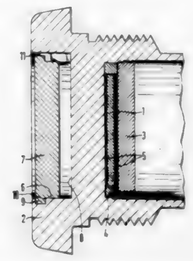
10. An molten metal-liquid explosive device which operates while submerged in a liquid comprising:
(1) a metal liner composed of a metal selected from the group consisting of aluminum, magnesium, copper, and brass, the liner enclosing an empty chamber;
(2) a pyrotechnic material surrounding the outside of the liner, the pyrotechnic material comprising a mixture of powders of
(a) nickel,
(b) metal oxide, and
(c) an aluminum containing component selected from the group consisting of (i) aluminum and (ii) a mixture of from 50 to less than 100 weight percent of aluminum and from more than zero to 50 weight percent of a metal selected from the group consisting of magnesium, zirconium, bismuth, beryllium, boron, tantalum, copper, silver, niobium, and mixtures thereof,
wherein the pyrotechnic material is present in an amount sufficient to melt the liner; and
(3) means for igniting the pyrotechnic material;
(4) a protective casing surrounding the metal liner, pyrotechnic material, and ignition means; and
(5) means to allow the liquid to flow into the chamber when the explosive device is submerged in the liquid.

4,280,410

ELECTRICAL PROJECTILE DETONATOR

Peter Weidner, Breitenbrunn, Fed. Rep. of Germany, assignor to Diehl GmbH & Co., Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 85,463
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847548
Int. Cl.³ F42C *11/02*
U.S. Cl. 102—210 **8 Claims**



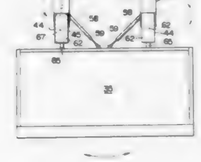
1. In an electrical projectile detonator, particularly a base detonator; a piezoceramic cell forming a current generator; and a pyrotechnic charge providing a gas pressure for generating a voltage in said cell; the improvement comprising: means for retaining said piezoceramic cell in contact with the interior of the projectile base; and a rupture plate being arranged exteriorly of the projectile base at a spacing from said cell, said rupture plate being subjected to the gas pressure of the projectile propellent charge so as to disintegrate and generate a shockwave in said projectile base for exciting said piezoceramic cell.

4,280,411

AERIAL CAR SUSPENSION

Shinji Katayose, Tokyo; Yukiyoshi Sasabe, Yokohama; Yoshiaki Yokota, Yokohama; Junsuke Kuroki, Yokohama, and Shuuji Torii, Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Jan. 11, 1980, Ser. No. 111,257
Claims priority, application Japan, Jan. 25, 1979, 547734
Int. Cl.³ B61B *3/06, 7/06;* **B61C** *13/06*
U.S. Cl. 104—112 **16 Claims**



1. An aerial transport system having an aerial track defining a way along which a carriage travels, the carriage being suspended from said aerial track by a suspending member which includes at least one beam connected with a wheel supporting frame in a pivotal position about a vertical axis to the wheel supporting frame and said beam connected with a hanger supporting the carriage in a pivotal position about a substantially horizontal axis,
wherein the improvement comprises:
joining means interposed between a lower end of said hanger

and said carriage and having both vertical and horizontal axes,

whereby said wheel supporting frame, beam, hanger and carriage are respectively universally pivotable in the yaw direction and the pitch direction with respect to each of the elements connected thereto.

4. An aerial transport system including an aerial track defining a way along which a carriage travels, the carriage being suspended from said aerial track to rotate in the yaw and pitch directions with respect to the track,

wherein a structure for suspending the carriage from the track comprises:

a plurality of beams located in spaced apart relationship with respect to one another, each of said beams having vertical axes on both ends thereof and a horizontal axis on the transversely central portion thereof;

a pair of wheel supporting frames having one end rotatably supporting a wheel engagable with said track and rotating therealong, and the other end rotatably connected with both ends of each beam, said frame being rotatable in the yaw direction about said vertical axis of said beam; and

a hanger having one end connected with said beam and being rotatable about said horizontal axis of said beam and the other end provided with joining means which has both vertical and horizontal axes and through which said other end is connected with said carriage so that said carriage is universally rotatable in yaw and pitch directions about said vertical and horizontal axes of said joining means.

10. In an aerial transport system having an aerial track such as a cableway and a carriage travelling along the track, a structure for suspending the carriage from the track including a beam, both ends of which are pivotally connected to a plurality of frame supporting wheels, said frames being rotatable in a yaw direction about yaw axes with respect to said beam, and a hanger, the upper end of which is connected to said beam in a pivotable position in a pitch direction about a pitch axis with respect to said beam,

the improvement comprising, in combination:

a plurality of separated beams being positioned apart from one another and linked to respective opposing ends by link members in alignment;

a pair of frames respectively connected to both ends of each of said beams in a pivotal position with respect to said beams about respective yaw axes;

one wheel being mounted on each of said frames; and

joining means provided on the lower end of said hanger and having yaw and pitch axes so that said joining means connects said carriage to said hanger in a universally pivotable position in the yaw and pitch directions.

4,280,412

INDEPENDENT SUSPENSION SYSTEM FOR ATTRACTION TYPE MAGNETICALLY FLOATED TRAVELLING BODY

Kiyoshi Mihirogi, Odawara, Japan, assignor to Japan Air Lines Co., Ltd., Tokyo, Japan

Filed Aug. 22, 1979, Ser. No. 68,957

Claims priority, application Japan, Aug. 24, 1978, 53-103296

Int. Cl.³ B61B *13/08*

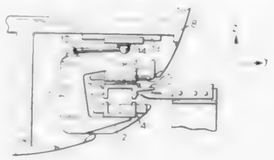
U.S. Cl. 104—281 **5 Claims**

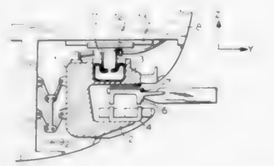
1. In an attraction type magnetically floated travelling vehicle of the type including a travelling body adapted to move along a pair of rails, a plurality of modules suspendedly mounted on said body at positions to confront said rails, each said module having elecromagnet means for floating said modules and said body with respect to said rails, motive means on each said module for moving said modules and said body along said rails, and suspension means for connecting each of said modules to said body, the improvement wherein said suspension means includes, for each said module:

first and second buffer devices connected to said module at front and rear ends thereof, respectively, each said buffer device including a lower end immovably attached to an upper part of said module and an upper end;

first mounting members attached to an undersurface of said body for movement therealong in opposite directions laterally of the longitudinal direction of movement of said body along said rails, said upper end of each said buffer device being fixed to a respective said first mounting member, such that said buffer devices and said module are movable relative to said body in said opposite lateral directions;

first and second thrust links, each said thrust link having first and second ends, said first ends of said first and second





thrust links being pivotally connected to said upper part of said module adjacent said front and rear ends thereof, respectively, said first and second thrust links extending from said pivoted first ends thereof substantially symmetrically toward a central portion of said module; and

a second mounting member attached to said undersurface of said body for movement therealong in said opposite lateral directions, said second ends of said first and second thrust links being pivotally connected to said second mounting member, such that said thrust links and said module are movable relative to said body in said opposite lateral directions and in opposite vertical directions.

4,280,413

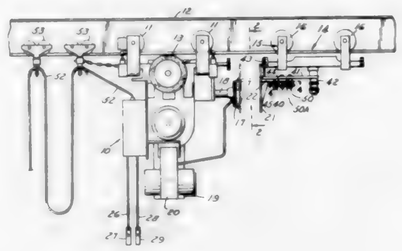
CONVEYOR SYSTEM

Douglas M. Kerr; Thomas L. Crandall, and Daniel J. Scalf, all of Fairfield, Iowa, assignors to Acco Industries Inc., Trumbull, Conn.

Filed May 21, 1979, Ser. No. 40,541

Int. Cl.³ B61B *3/02;* **B61G** *5/00, 7/12*

U.S. Cl. 105—150 **9 Claims**



1. A conveyor system comprising

a motor power unit,

a load carrier,

a track along which said motor power unit and load carrier can move,

a vacuum pad mounted on said motor power unit and extending rearwardly,

a vacuum power unit on said motor power unit for applying vacuum to said vacuum pad,

and a plate extending forwardly of said load carrier and adapted to be engaged by said vacuum pad whereby when said vacuum pad engages said plate and is activated, a coupling is provided between said motor power unit and said load carrier so that the motor power unit will move said load carrier along said track,

said vacuum pad having its axis extending longitudinally of said motor power unit and said plate comprising a flat surface at a substantially right angle to the axis of said load carrier,

means for mounting said plate for limited pivotal movement about a vertical axis relative to said load carrier,

said last-mentioned means comprising a bracket, on which said plate is mounted, pivoted about a vertical axis on said load carrier, and means normally yieldingly urging said plate to a position where its plate is at a right angle to the axis of the load carrier,

said last-mentioned means comprising a pair of pivot bars pivoted on the same axis as said bracket and relative to said bracket, spring means yieldingly urging one end of said pivot bars toward one another, each said pivot bar having means thereon engaging said bracket under the action of said spring means, and means on said load carrier limiting the movement of the other ends of said pivot bars toward one another.

4,280,414

ANTI-VANDALISM, SECTIONALIZED PANEL, OUTSIDE METAL GUARD FOR WINDSHIELD

Roger S. Allshouse, Plainfield, and Donald C. Marek, Hickory Hills, both of Ill.

Filed Nov. 2, 1979, Ser. No. 90,773

Int. Cl.³ F41H *5/00;* **E06B** *3/30*

U.S. Cl. 109—49.5 **14 Claims**



1. Windowframe structure (24) having, at least at the top and the opposite adjoining sides (26) of the frame opening, a generally U-shaped, outwardly projecting cowl (20);

a sectionalized panel (18) of imperforate metal closing off the outer end of the cowl; and

a plurality of pairs of J-hooks (30) secured to said opposite sides of the frame opening and to the adjacent portions of the U-shaped cowl, said hooks having hook portions projecting outwardly beyond the cowl and suspending sections of said panel hooked thereon so that they are outwardly offset from the frame opening, and in sectionalized contiguously overlapped relation to mutually form an uninterrupted imperforate window guard.

4,280,415

METHOD AND APPARATUS FOR DRYING AND PROCESSING MOISTURE-CONTAINING SOLIDS

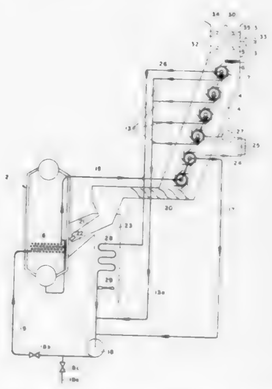
Joseph M. Wirguin, 40 King George St., Jerusalem, and Avraham Melamed, 31 Haoranim St., Kfar Shmaryahu, both of Israel

Filed Jan. 23, 1979, Ser. No. 5,835

Claims priority, application Israel, Jan. 23, 1978, 53871

Int. Cl.³ F23G *5/04*

U.S. Cl. 110—224 **25 Claims**



1. An energetically cross-linked process for the drying and thermal processing of moisture containing solids comprising the steps of:

(a) heating the moisture containing solids to a temperature below that of the decomposition of any organic component thereof so as substantially to dry the solids by evaporating out the moisture content thereof;

(b) condensing the vapours from step (a) at least partially in indirect heat exchange with the moisture containing solids and thereby transferring part of the enthalpy of these vapours to the moisture containing solids so as to contribute to the heating of step (a);

(c) upgrading the enthalpy of the condensate formed in step (b) by utilisation of the heat generated or released in the energetically cross-linked processing stage;

(d) utilising at least part of this upgraded enthalpy for completing the heating in step (a) and utilising any residual upgraded enthalpy in the energetically cross-linked processing stage; and

(e) carrying out the thermal processing of the solids dried in step (a).

4,280,416

ROTARY VALVE FOR A REGENERATIVE THERMAL REACTOR

Philip Edgerton, 408 Swedesford Rd., Gwynedd Valley, Pa. 19437

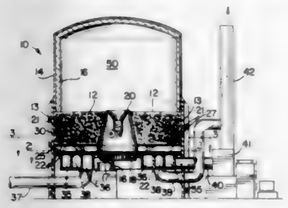
Filed Jan. 17, 1980, Ser. No. 112,724

Int. Cl.³ F28D *17/00;* **F23G** *7/06*

U.S. Cl. 110—254 **9 Claims**

8. A thermal regenerative pollution control apparatus having a plurality of adjacent heat exchange chambers mounted adjacent a purification chamber, an inlet conduit and an exhaust conduit, and a valve for controlling the flow of pollution,

said valve comprising a stationary plate, a rotating plate and a drive means, said stationary plate having a plurality of inlet and exhaust ports formed therein to provide for communication of selected ones of said heat exchange chambers with said inlet conduit through an associated inlet port and with said exhaust conduits through an associated exhaust port, said rotating plate having an inlet opening for communication of a first heat exchange chamber with said inlet conduit through the associated inlet port and an exhaust opening for communication of a



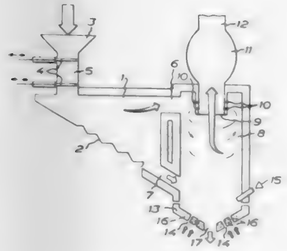
second heat exchange chamber with said exhaust conduit through the associated exhaust port, said first heat exchange chamber being nonadjacent to said second heat exchange chambers, whereby when said rotating plate is rotated by said drive means it acts to automatically control the flow of pollutant gases into said purification chamber from said first heat exchange chamber for preheating of said gases and into said second heat exchange chamber for cooling of the effluent gases prior to transfer into the atmosphere.

4,280,417

INCINERATION PLANT

Sven Alexandersson, Risskov, Denmark, assignor to Bruun & Sörensen AB, Sweden

Filed Nov. 28, 1979, Ser. No. 98,178
Int. Cl.³ F23G *7/00*
U.S. Cl. 110—346 **12 Claims**



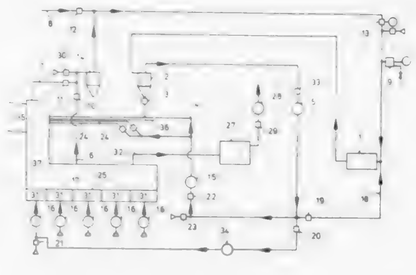
1. A process for combustion of combustion material of heterogeneous nature, using a first chamber for burnout and degassing of the combustion material and a second chamber, communicating with the first chamber, for final combustion and melting of the residual products from the first chamber, characterized by the following steps:—continuously keeping the first chamber (1) closed during operation and also during introduction of combustion material thereinto and supplying to said chamber a controlled amount of combustion air so adjusted that a pyrolitic process will take place therein during which gas is discharged from the combustion material which burns together; transferring incompletely burnt gases expelled from the combustion material, together with gas-borne particles and the like, from the first chamber (1) to the second chamber (8), through a per se known first passage (6) situated in the upper part and opening essentially tangentially into the second chamber, and transferring the burnt-together, partly melted-together remainder of the combustion material from the first to the second chamber, through a second passage (7) situated in the lower part, while the gases which, under the influence of the position of the first passage produce a circulatory motion, in addition to burnout of carried particles and the like, during the combustion in the second chamber cause heating to melting temperature of the material present in the lower part of the chamber (8); and, if required, supplying additional heat to said lower part in order to reach the temperature required for maintaining a melt; and, while the melt is being stirred in the lower part of the chamber, supplying air or oxygen to the melt in order to effect decarbonization of it.

4,280,418

METHOD OF COMBINING IN-THE-MILL DRYING AND FIRING OF COAL WITH ENHANCED HEAT RECOVERY

Helmut Erhard, Mason City, Iowa, assignor to Heidelberger Zement Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,631
Int. Cl.³ F23D *1/00*
U.S. Cl. 110—347 **12 Claims**



1. A method for using solid fuel to heat a kiln which discharges heated materials to a cooler, comprising:
- pulverizing the fuel in a mill;
- pneumatically conveying the pulverized fuel to a separator for separating fuel particles from fuel-dust-laden air;
- pneumatically conveying the separated fuel particles to the kiln for burning; and
- conveying at least a portion of the fuel-dust-laden air to the cooler.

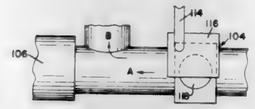
9. A method for using coal to heat a kiln which discharges heated clinkers to a grate in a clinker cooler, comprising:
- pulverizing the coal in a coal mill;
- pneumatically conveying the pulverized coal to a cyclone;
- separating coal particles from coal-dust-laden air in the cyclone;
- splitting the coal-dust-laden air leaving the cyclone into at least first and second streams;
- using the first stream of coal-dust-laden air as primary air to blow the separated coal particles to the kiln for burning;
- injecting the second stream of coal-dust-laden air into the clinker cooler beneath the grate thereof to burn the suspended coal dust;
- using the heated air obtained from the previous step as secondary air for burning the separated coal particles; and
- conveying the combustion gasses from the burned coal particles to the coal mill to dry the coal therein.

4,280,419

PNEUMATIC SYSTEM FOR CONVEYING GRANULAR MATERIAL

Raymond C. Fischer, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Mar. 21, 1977, Ser. No. 779,394
Int. Cl.³ A01C *7/06*; B65G *53/40*
U.S. Cl. 111—80 **6 Claims**



1. In combination with a seed planter including a mobile frame, seed planting assemblies movable between a planting position and a transport position, and a source of air under pressure, an improved apparatus for applying granular chemicals onto the ground, comprising:
- an enclosed hopper on the frame for holding the granular material to be applied, said hopper having an air inlet opening defined therein;
- primary conduit means for directing air under pressure from said source to said air inlet opening in said hopper;
- a material conveyor tube mounted within said hopper and having an inlet end disposed in spaced communication with said air inlet opening, whereby air under pressure can flow from said air inlet opening into and through said conveyor tube;
- at least one material delivery tube connected to said conveyor tube for directing material therefrom out of the hopper for ground application;
- means for adjusting the space between said tube inlet end and said hopper air inlet opening whereby the rate of entry of material into said conveyor tube may be varied;
- a discharge assistant disposed in the space between said inlet end and said air inlet opening for directing an auxiliary flow of air into said space to assist the movement of material into said conveyor tube;
- auxiliary conduit means for directing air under pressure from said source to said discharge assistant;
- means for opening and closing said primary conduit means in response to movement of said seed planting assemblies to said planting position and said transport position respectively; and
- means for varying the air flow of said discharge assistant in response to varying the space between said tube inlet end and said air inlet opening.

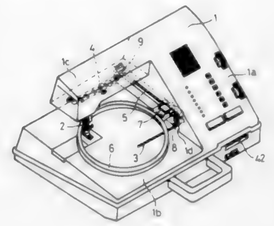
4,280,420

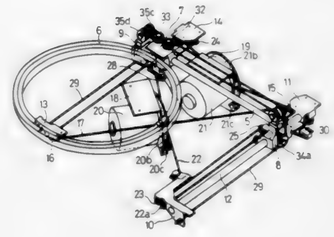
AUTOMATIC EMBROIDERY SEWING MACHINE

Kouji Nishida, Anjyo; Osamu Miyake, Toyota; Taneichi Kawai, Anjyo, and Shigemitsu Hamajima, Oobu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Apr. 10, 1980, Ser. No. 139,040
Claims priority, application Japan, Apr. 23, 1979, 54-50080; Apr. 23, 1979, 54-54447[U]; Apr. 28, 1979, 54-57126[U]
Int. Cl.³ D05C *9/06*
U.S. Cl. 112—103 **6 Claims**

1. In an automatic embroidery sewing machine including an X-axis drive system, a Y-axis drive system, and a support member coupled with both of these drive systems and supporting an embroidery frame; the improvement which comprises
- at least one slit opening formed in the upper surface of a bed of the sewing machine to extend in a lateral direction,
- at least one X-axis guide member disposed below the bed and extending in the lateral direction,
- a carrier extending through the slit opening and coupled with the X-axis guide member in a slidable manner at a point below the bed,
- a Y-axis guide member having its part fixedly connected with the head of the carrier which is exposed above the bed,
- and an embroidery frame support member coupled with the Y-axis guide member in a slidable manner,





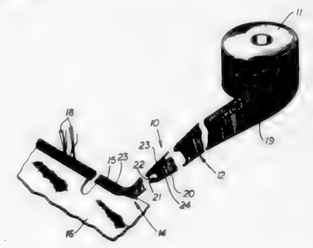
each of the X- and Y-axis drive system including a motor, a plurality of rollers and a wire, the wire of the X-axis drive system being coupled with the carrier, the wire of the Y-axis drive system being coupled with the support member through the carrier.

4,280,421

OPEN EDGE FOLDER

Elvin C. Price, 696 Camp Perrin Rd., Lawrenceville, Ga. 30245

Filed Sep. 14, 1979, Ser. No. 75,804
Int. Cl.³ D05B *35/06*
U.S. Cl. 112—147 **4 Claims**



1. A folder for guiding a web of binding material from a flat configuration into a folded configuration as the web moves through the folder from its inlet end to its outlet end toward a sewing machine or the like comprising an elongated guide plate assembly normally extending in a horizontal attitude and including a guide plate and a cover plate in juxtaposed overlying vertical attitude closed together along their bottom edges and open at their inlet ends and their outlet ends and continu-

ously open along their top edges from the inlet ends to the outlet ends and defining a passage therebetween from the inlet end to the outlet end for a web of material, said guide plate and said cover plate at their inlet ends being substantially flat and oriented in a substantially upright attitude and forming a substantially flat passageway therebetween and merging toward the other end thereof into a folded configuration to progressively form the passageway into a folded shape with a lower fold having one edge adjacent the closed bottom edge of the guide plates, an intermediate fold, and an upper fold having one edge at the open top edges of the guide plate and cover plate, said guide plate terminating at an obtuse angle with respect to the passage between said guide plate and said cover plate and forming an outlet opening between the lower fold and the upper fold of the passageway, whereby binding material moves through the passageway and merges into a folded configuration and is everted as it moves about the obtuse angle and through the outlet opening, and if the binding material is wider than the height of the folder the upper edge of the binding material projects through the open top edge of said guide plate and cover plate.

4,280,422

GUIDE DEVICE FOR SEWING MACHINES

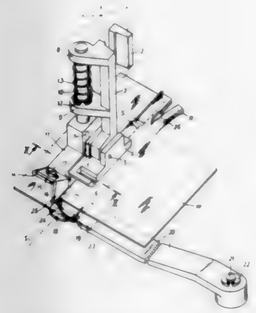
Arno Jung, Fischbach, Fed. Rep. of Germany, assignor to Pfaff Industriemaschinen GmbH, Fed. Rep. of Germany

Filed Sep. 19, 1980, Ser. No. 188,941

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1979, 2940552

Int. Cl.[3] **D05B** *35/00*

U.S. Cl. 112—147 **10 Claims**



1. A guide device for a sewing machine, having a needle for sewing a stitch line in a sewing direction and a presser bar, for sewing together fabric plies of unequal thickness, comprising, a main sole part, with a stitch hole for the passage of the needle, connected to the presser bar, an auxiliary sole part connected to the presser bar having a first fold plate positioned upstream of the stitch hole in the sewing direction, the first fold plate having a guide edge extending laterally beyond the stitch line on one side thereof, and a second fold plate connected to the sewing machine and spaced at least one fabric thickness above the first fold plate, the second fold plate having a guide edge extending laterally beyond the stitch line on an opposite side thereof; the first and second fold plates forming a guide channel therebetween for forming an S-shape fold and for guiding the S-shape fold toward the needle.

4,280,423

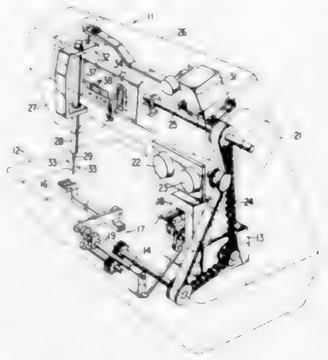
DISPLAY ARRANGEMENT FOR GIVING A VISIBLE PATTERN CORRESPONDING TO ONE OR MORE STITCH PARAMETERS IN A SEWING MACHINE

Michael Goncharko, Union City, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Aug. 18, 1980, Ser. No. 179,384

Int. Cl.[3] **D05B** *3/02, 79/00*

U.S. Cl. 112—158 E **9 Claims**



1. In a sewing machine having stitch forming instrumentalities positionally controlled over a predetermined range between stitches to produce a pattern of feed and bight controlled stitches, means for storing pattern stitch information, means operating in timed relation with said sewing machine for recovering selected pattern stitch information from said storing means, separate actuating means responsive to said pattern stitch information for influencing the feed and bight motions respectively to produce a pattern of stitches corresponding to the selected pattern stitch information, controllable alteration means effective to alter the operation of at least one of said feed and bight actuating means to an amount of motion proportional to that dictated by said pattern stitch information, and a control member settable by an operator for controlling said alteration means, the improvement comprising:

a display device including a plurality of light emitting elements positioned in a regular array;

means coupled to said control member for providing a display signal related to the amount of alteration effected by said alteration means; and

decoder means responsive to said display signal for controlling the energization of said plurality of light emitting elements to produce a visible non-numerical light pattern in said display device that is positionally related to the setting of said control member.

4,280,424

HOUSEHOLD TYPE SEWING MACHINE HAVING MICROPROCESSOR CONTROL

Gianfranco Carbonato, Turin, and Nereo Bianchi, Pavia, both of Italy, assignors to Necchi S.p.A., Pavia, Italy

Filed Dec. 26, 1978, Ser. No. 973,386

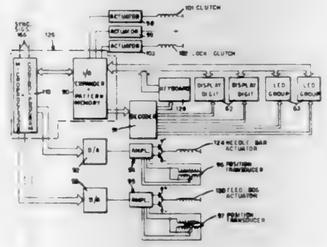
Claims priority, application Italy, Feb. 21, 1978, 42904 A/78

Int. Cl.[3] **D05B** *3/02*

U.S. Cl. 112—158 E **39 Claims**

1. In a household type sewing machine having a bed, a standard rising from said bed, a horizontal arm overhanging said bed, said arm ending with a head, a needle bar means disposed in said head for enabling transverse oscillation thereof relative to the direction of fabric feed in said sewing machine, feed means for adjusting the length and direction of said fabric feed, actuator means for adjusting the transverse position of said needle bar means and the positional displacement of said feed means in response to control signals provided thereto and

first static memory means for retrievably storing a first plurality of different predetermined stitch patterns each having associated retrievably stored bight and feed data corresponding to predetermined positional coordinates of said needle bar and feed means for defining associated stitch position coordinates for the stitches comprising said stitch patterns; the improvement comprising microcomputer integrated circuit means operatively connected to said static memory means and to said actuator means for selectively processing said stored stitch pattern data from said static memory means and providing output control signals to said actuator means based on said selectively processed stitch pattern data for controllably adjusting at least the transverse position of said needle bar means, said microcomputer processing means comprising means capable of selectively controllably functionally operating on said stored stitch pattern data in response to input control signals for controllably redefining said stored stitch pattern data for selectively creating output control signals for said actuator means different from the output control signals corresponding to any one of said stored stitch patterns whereby at least the transverse position of said needle bar means may be selectively



varied to redefine a stitch pattern arrangement different from any one of said stored stitch patterns; and keyboard means operatively connected to said microcomputer means for providing said input control signals to said microcomputer processing means for initiating the selection of at least one stored stitch pattern and the functional operation to be performed on said associated selected stored stitch pattern data for controllably adjusting at least the transverse position of said needle bar means for selectively providing a final stitch pattern arrangement from said plurality of stored stitch patterns, said keyboard means comprising a first common key selector having a plurality of modes for initiating selection of at least any one of a plurality of said stored stitch patterns in a first mode and for varying the positional coordinate data associated with said one selected stored stitch pattern in a second mode for providing said input control signals for enabling said selecting and redefining of said stored stitch pattern for providing said different stitch pattern arrangement whereby said sewing machine is capable of providing stitch pattern arrangements corresponding to said stored stitch patterns per se as well as to selectably creatable variations thereof.

4,280,425

METHOD AND APPARATUS FOR ELECTRO-PNEUMATIC CONTROL OF A STITCHING MACHINE

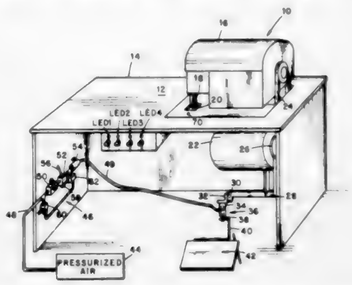
Gene F. Croyle, Knoxville, Tenn., assignor to PCE Corporation, Knoxville, Tenn.

Filed Jul. 9, 1979, Ser. No. 56,008

Int. Cl.[3] **D05B** *69/00, 19/00*

U.S. Cl. 112—272 **6 Claims**

1. A control system for a stitching machine having means associated therewith for activating and deactivating the stitching mechanism thereof and comprising piston-cylinder means operatively associated with said means for activating and deactivating said stitching mechanism, a source of pressurized fluid, conduit means connecting said source of pressurized fluid to said piston-cylinder means, an electrically operated valve means interposed in said conduit means at a location between said source and said piston-cylinder means, electrical circuitry means suitable to provide an electrical signal to said valve means to selectively control the flow of pressurized fluid to said piston-cylinder means, said circuitry including detector means disposed in the path of a workpiece entering said stitching mechanism and providing an electrical signal that is representative, total timer means, overrun timer means operable within the time envelope of said total timer means, and gating means providing for the selective activation of said total timer means, said valve means, and said overrun timer means in response to said signal developed by said detector means.



4,280,426

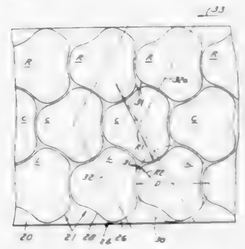
METHOD OF MANUFACTURING WHEEL DISCS

Larry G. Swan, Fairport, N.Y., assignor to Motor Wheel Corporation, Lansing, Mich.

Filed Feb. 26, 1979, Ser. No. 15,449

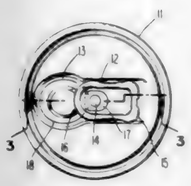
Int. Cl.[3] **B21D** *53/26*

U.S. Cl. 113—116 D **3 Claims**



1. A method of forming blanks for three-spoke wheel discs of the type having a periphery defined by three co-cylindrical first portions adapted for attachment to a wheel rim and three second portions alternating with said first portions and adapted to be spaced radially inwardly from the wheel rim, said method comprising the steps of advancing a continuous length of strip stock stepwise in the direction of its length and simultaneously punching at each incremental step three disc blanks having centers lying in a V-shaped pattern pointing lengthwise of said strip stock, each of said disc blanks having an outline defined by an alternating series of three concave edge portions and three convex edge portions with said convex edge portions lying substantially in a circle centered on the associated disc blank and said concave edge portions extending inwardly from said circle, each said concave edge portion having a radius of curvature centered on a line extending between the centers of adjacent blanks, and with convex edge portions of each disc blank outline being nested within concave edge portions of each adjacent disc blank outline both in the same V-shaped pattern and in the immediately preceding and subsequent V-shaped patterns such that wastage of stock material defined by interstices between disc blanks is minimized.

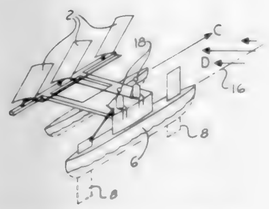
4,280,427
EASY OPEN CAN END
Vinson S. Potts, Cherry Hill, N.J., assignor to Crown Cork & Seal Company, Inc., Philadelphia, Pa.
Division of Ser. No. 7,186, Jan. 29, 1979, Pat. No. 4,184,607.
This application Aug. 17, 1979, Ser. No. 67,315
Int. Cl.[3] B21D 51/44
U.S. Cl. 113—121 C 8 Claims



1. Method of forming a can end comprising an end plate and a tab riveted to said end plate wherein said end plate is of aluminum and said tab is stamped from a substantially planar steel blank coated with a metal chosen to be preferentially corroded with respect to the steel, wherein the improvement comprises protecting the edges of the stamped tab by at least partially coating them with a layer of said preferentially corrodible metal, said layer being formed on said edges during said stamping

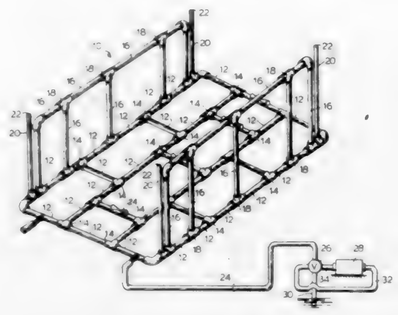
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4,280,428
NON-HEELING SAILBOAT
John Werner, Jr., 11455 Tampa Ave., #167, Northridge, Calif. 91326
Filed Aug. 7, 1978, Ser. No. 931,368
Int. Cl.[3] B63B 35/00; B63H 9/00
U.S. Cl. 114—39 7 Claims



1. A non-heeling sailing vessel comprising:
a payload bearing first displacement hull having a pair of longitudinally spaced control surfaces rigidly mounted thereto in fixed alignment and extending downwardly therefrom into the water;
a rigid support structure rigidly fixed to said hull and extending laterally thereof; and
at least one upstanding sail rigidly mounted to said support structure, said sail being spaced laterally of and inclined toward said control surfaces for generation of a resultant force directed away from said control surfaces and upwardly in response to the wind and,
a second displacement hull mounted to said support structure intermediate said first displacement hull and said sail.

4,280,429
FLOATING BOAT STORAGE DRY DOCK
Edward R. Wells, 755 Hummingbird Way, No. 2, North Palm Beach, Fla. 33408
Filed Feb. 22, 1979, Ser. No. 14,209
Int. Cl.[3] B63C 1/02
U.S. Cl. 114—45 2 Claims

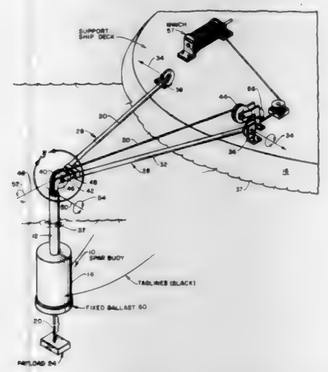


1. A floating dry dock for storing a small vessel out of water comprising:
a base, said base formed in a flat plane, said base including a plurality of cylindrical conduits of substantially the same diameter joined together to form a substantially rectangular base periphery, said conduits being in fluid communication with each other, said base including at least two intermediately disposed conduits joining opposite sides and in the plane of said base peripheral conduits, said intermediate conduits being in fluid communication with said peripheral conduits;
a boat hull supporting means connected to at least one of said intermediate conduits for engaging a boat hull and supporting a boat in an upright position on said base;
a first vertical array of conduits connected at one end to one side of said base forming a first side railing, said first vertical conduit array being sealed and having air for buoyancy;
a second vertical array of conduits, each connected at one end to the opposite side of said base across from said first railing, the second vertical conduit array forming a second side railing, said first and second vertical conduit arrays being substantially parallel;
means in fluid communication with said base for filling or emptying said base with water; and
a venting means in fluid communication with said base for allowing venting of said base for the filling emptying of water therefrom.

4,280,430
LINKED-SPAR MOTION-COMPENSATED LIFTING SYSTEM
Jeffrey V. Wilson, and William D. Briggs, both of Camarillo, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jan. 26, 1979, Ser. No. 6,825
Int. Cl.[3] B63C 7/00
U.S. Cl. 114—51 17 Claims

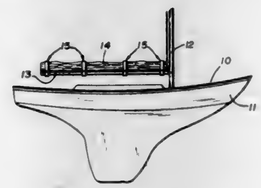
1. A lifting system for operating a lifting cable over the side of a floating platform in which the pitch and roll of the platform and the motion of the water's surface are decoupled from the lifting cable, said lifting system comprising:
a spar buoy having an upper section with a relatively small cross-sectional area and a base section of a relatively large cross-sectional area, said spar buoy having longitudinal channel for permitting passage of the lifting cable through the spar buoy;

rigid frame means having an outboard and and an inboard end, the inboard end of said frame being hinged on a first axis fixed relative to the deck of the platform to allow the frame to rotate relative to the platform;
yoke means having a first end rotatably coupled to the outboard end of said frame means to allow said yoke means to rotate about a second axis normal to the first axis, said yoke means having a second end pivotably coupled to the top of said upper section to allow said spar buoy to pivot about an axis normal to the second axis and parallel to the first axis;
first sheave means mounted on said yoke means, said first sheave means being free to rotate on its axle and positioned above said spar buoy so that a lifting cable passing over said first sheave will fall through said longitudinal channel;



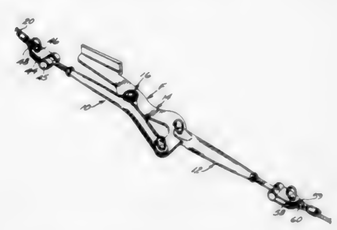
second sheave means mounted on said platform, said second sheave means being free to rotate on its axle and having the same diameter as said first sheave means, said second sheave means disposed in substantial alignment with said first sheave means for the passage of the lifting cable therebetween and having its center of rotation on said first axis so that the distance between the centers of rotation of said first sheave means and said second sheave means remain fixed as said frame mean: rotates about the first axis;
means disposed for letting out and taking in the lifting cable, the lifting cable extending from said means for letting out or taking in over said second and first sheave means and through said longitudinal channel for connection to a payload.

4,280,431
DEVICE FOR SUPPORTING AND STORING THE MAINSAIL OF A SAILBOAT ON THE BOOM THEREOF
Morris B. Sofen, 2602 Carlyle, Kalamazoo, Mich. 49008
Filed Mar. 22, 1979, Ser. No. 22,699
Int. Cl.[3] B63H 9/04
U.S. Cl. 114—105 6 Claims



1. A device for supporting and storing the mainsail in folded condition on the boom of a sailboat, said device comprising a body portion having integral clamping means for affixing said device to said boom, said clamping means comprising an integral pair of converging jaws spaced-apart a distance smaller than the thickness of said boom and arranged to be spread apart when pressed onto said boom and to retract sufficiently around said boom when in position to securely affix said device to said boom, a pair of arms integral with and extending from said body portion, said arms being flexible upwardly and adapted to be wrapped around said folded sail, and fastening means at the ends of said arms for fastening the ends of said arms together and around said folded sail and securing said sail to said boom.

4,280,432
QUICK-RELEASE FITTING FOR A SAILBOAT STAY
Thomas F. Dessel, 2015 Studebaker Rd., Long Beach, Calif. 90815
Filed Apr. 30, 1979, Ser. No. 34,687
Int. Cl.[3] B63H 9/04
U.S. Cl. 114—109 6 Claims



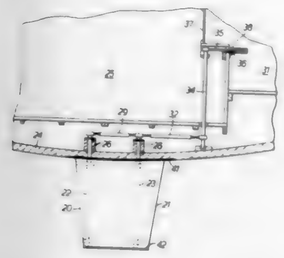
1. A quick-release fitting for tensioning and untensioning a sailboat stay or the like, that extends between the hull and a mast of the boat, said quick-release fitting comprising:
an upper barrel member having its upper end affixed to the lower end of the sailboat stay, the upper part of the upper barrel normally extending vertically and the lower part thereof extending downwardly and forwardly, and with the rear portion of the lower part having bifurcations formed with a pair of transversely aligned release pin-receiving bores;
a straight lower barrel having its lower end anchored relative to the hull of the sailboat, said lower barrel normally being vertically aligned with the upper part of said upper barrel;
a release lever having a forwardly off-set lower portion, the rear end of which merges into a vertically extending portion, the upper of the vertically extending portion merging into an upwardly and rearwardly extending portion with the lower front part of the latter being formed with a release pin-receiving bore that is normally aligned with the release pin-receiving bores of the upper barrel;
a first pivot pin connecting the front end of the off-set portion of said release lever and the lower end of the upper barrel;
a second pivot pin connecting the rear end of the release lever off-set portion and the upper end of the lower barrel; and
a readily disengagable quick-release pin normally extended through the aligned release pin-receiving bores to retain the parts of the fitting in their normal position wherein said stay is maintained tensioned, with removal of the quick-release pin from said aligned bores permitting the release lever to be pivoted to a rearwardly extending position wherein the off-set portion of said release lever is longitudinally aligned with the upper and lower barrels to thereby increase the distance between the upper and lower ends of the barrels and untension the sailboat stay.

4,280,433

UNDERWATER APPENDAGES FOR VESSELS

Cecil F. Haddock, Mt. Maurice, Clyde Park, Burua, via Gladstone, Queensland, Australia 4860

Continuation-in-part of Ser. No. 778,008, Mar. 16, 1977, abandoned. This application Nov. 17, 1978, Ser. No. 961,650
Claims priority, application Australia, Mar. 19, 1976, PC5270; Jun. 7, 1976, PC6193; Oct. 13, 1978, PD6367 3
Int. Cl.³ B63B *3/38*
U.S. Cl. 114—140 **6 Claims**



1. A fin assembly of the type having mounting means connectible to the underside of a vessel and a support structure fixed to and extending outwardly from said mounting means for supporting a foil shaped outer casing in a position such that the incidence plane of the foil in symmetrical shape is substantially parallel to the fore and aft axis of the vessel and the sides of the casing are spaced from said support structure, and wherein the casing is formed of flexible material whereby the respective opposite sides of said casing may move towards or away from said support structure to alter shape to an asymmetrical foil, characterised in that said casing is supported between normally freely pivotable fore and aft pivot assemblies connected pivotably about outwardly extending pivot axles disposed substantially parallel to said incidence plane and adjacent the respective leading and trailing edges of said support structure and wherein said aft pivot assembly is pivoted adjacent its leading edge to permit its trailing edge to be displaced laterally either side of its normally symmetrical position, whereby the incidence plane of the asymmetrical foil may be disposed at a positive angle of attack with respect to the said fore and aft axis of the vessel thus increasing the lift/drag ratio of said asymmetrically disposed casing, and torque transferring means comprising a first pivot lever operatively fixed to said fore pivot assembly, an oppositely arranged second pivot lever fixed to said aft pivot assembly and a transfer linkage interconnecting said levers such as to cause the fore and aft pivot assemblies to pivot oppositely to one another, whereby said casing articulates automatically to a respective asymmetrical attitude due to water pressure against a respective side of said casing, the respective sides of the trailing portions of said fore and aft pivot assemblies abutting said support structure when said casing is disposed in a respective said asymmetrical attitude.

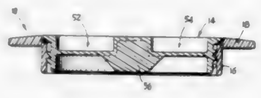
4,280,434

COVER PLATE CONSTRUCTION FOR BOAT DECKS

Frank S. Beckerer, Jr., 40 Dock Rd., Milford, Conn. 06460

Continuation-in-part of Ser. No. 909,396, May 25, 1978, Pat. No. 4,246,859. This application Sep. 6, 1979, Ser. No. 72,884
Int. Cl.³ B63B *19/00*
U.S. Cl. 114—174 **12 Claims**

1. A threaded access cover plate construction for the deck of a boat, comprising in combination:
(a) a deck fitting,
(b) a screw closure receivable in the deck fitting,
(c) said fitting and screw closure having cooperable, mating buttress-type threads adapted to engage one another when the closure is screwed into the fitting,
(d) means defining a rim on the fitting,
(e) means defining a centering shoulder on said closure, cooperable with said rim,
(f) said cooperable buttress-type threads being dimensioned to provide excessive slop and looseness of enabling lateral shifting of the closure with respect to the fitting, whereby the centering shoulder of the closure can precisely seat into the rim of the fitting when the closure is screwed into the latter, and
(g) mounting means on the fitting, engageable with the boat deck, for securing the fitting thereto in sealing relation therewith,



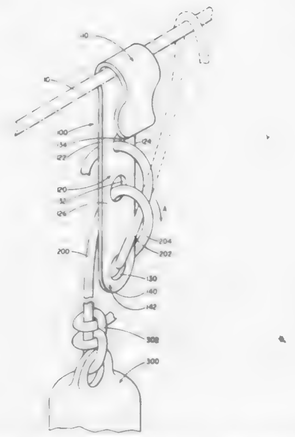
(h) said rim being constituted as an upstanding annular skirt of deformable material, defining with other outer portions of the fitting, a substantially annular groove such that portions of the skirt can be shifted radially outward and into the groove by an extent, due to their engagement by the centering shoulder of the closure,
(i) said radially outward shifting of the skirt into the groove enabling improved seating of the centering shoulder on the annular skirt, thereby giving rise to an effective seal between the two parts.

4,280,435

ONE PIECE ANCHOR FOR ADJUSTABLY TETHERING A ROPE SUSPENDED BOAT FENDER

Donald W. Loomis, 1118 Sanger St., Philadelphia, Pa. 19124

Filed Aug. 11, 1978, Ser. No. 932,790
Int. Cl.³ B63B *59/02*; **F16G** *11/00*
U.S. Cl. 114—219 **2 Claims**



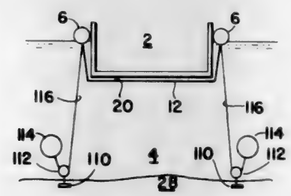
1. A method for adjustably tethering a rope suspended boat fender comprising the steps of:
A. providing a rope anchor comprising:
i. anchoring means for attaching said anchor to a portion of said boat; and
ii. a strap portion extending away from said anchoring means and terminating in a rounded free end having at least first and second spaced apart eyelet means defined therein for receiving rope threaded therethrough, said strap portion having longitudinal edges extending from said free end and said second eyelet means being disposed adjacent to and being surrounded at least in part by said rounded end,
B. threading the free end of a rope attached to said boat fender first into said first of said eyelet means from a first side of said strap portion;
C. threading said rope around a first of said longitudinal edges of said strap portion and into said second eyelet means from said first side of said strap portion, whereby said rope is in a retardedly moveable position for permitting adjustment of the boat fender with respect to the rope anchor; and
D. selectively sliding the portion of said rope disposed between said eyelet means from engagement with said first of said longitudinal edges, around said rounded end into engagement with a second of said longitudinal edges to selectively retain said rope with respect to said rope anchor, whereby said rope is in a retained position, said rope being moveable back into said retardedly moveable position from said retained position by applying tension on the free end of said rope which is substantially parallel to and directed away from the end of said strap portion, whereby said rope may be caused to slide out of engagement with said second longitudinal edge, around said rounded end, and into engagement with said first longitudinal edge.

4,280,436

BOAT HULL ANTI-FOULING SHROUD

Robert Jackson, 89 Woodward Island, Clearwater, Fla. 33515

Division of Ser. No. 883,414, Mar. 6, 1978, Pat. No. 4,215,644. This application Jun. 6, 1980, Ser. No. 157,229
Int. Cl.³ B63B *59/00*
U.S. Cl. 114—222 **1 Claim**



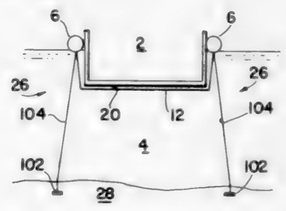
1. A selectively floatable protective shroud for a boat hull floating in a body of water, comprising:
an inflatable, elongated toroidal bladder with an inner opening larger than the circumference of the hull of said boat at its waterline, having an inflation nozzle, located in said body of water;
a continuous, flexible, water impervious shroud having a circumferential edge mounted about the circumference of said torodial bladder, for protecting said hull when deployed about said boat;
a gas pump connected to said inflation nozzle of said bladder, for controllably inflating said bladder to selectively float said shroud from a submerged position beneath said boat to a deployed position enveloping the hull of said boat;
a water drain nozzle mounted on said flexible shroud for evacuating sea water from the region between said flexible shroud and said boat hull;
a water pump connected to said water nozzle for controllably pumping out said sea water from said region;
a guide member mounted to the sea bed floor and connected to said bladder, for guiding said shroud from said submerged position beneath said boat into said deployed position enveloping the hull of said boat;
said guide member further comprising:
a pair of anchors mounted to the sea bed floor on opposite sides of said boat;
a pair of pulleys, respectively mounted to each of said anchors;
a pair of buoys respectively connected to one of a pair of guy wires which respectively pass through one of said pair of pulleys, each said guy wire being connected to said bladder;
said bladder having its motion constrained by said guy wires, pulleys, anchors and buoys to remain in substantially the vertical direction in transferring said shroud between said floating and said submerged positions.

4,280,437

BOAT HULL ANTI-FOULING SHROUD

Robert Jackson, 89 Woodward Island, Clearwater, Fla. 33515

Division of Ser. No. 883,414, Mar. 6, 1978, Pat. No. 4,215,644. This application Jun. 6, 1980, Ser. No. 157,231
Int. Cl.³ B63B *59/00*
U.S. Cl. 114—222 **1 Claim**



1. A selectively floatable protective shroud for a boat hull floating in a body of water, comprising:
an inflatable, elongated toroidal bladder with an inner opening larger than the circumference of the hull of said boat at its waterline, having an inflation nozzle, located in said body of water;
a continuous, flexible, water impervious shroud having a circumferential edge mounted about the circumference of said toroidal bladder, for protecting said hull when deployed about said boat;
a gas pump connected to said inflation nozzle of said bladder, for controllably inflating said bladder to selectively float said shroud from a submerged position beneath said boat to a deployed position enveloping the hull of said boat;
a water drain nozzle mounted on said flexible shroud for evacuating sea water from the region between said flexible shroud and said boat hull;
a water pump connected to said water nozzle for controllably pumping out said sea water from said region;
a guide member mounted to the sea bed floor and connected to said bladder, for guiding said shroud from said submerged position beneath said boat into said deployed position enveloping the hull of said boat;
said guide member further comprising:
a pair of anchors mounted to the sea bed floor on opposite sides of said boat;
a pair of elastic members, respectively mounted to each of said anchors and connected to said bladder;
said bladder having its motion constrained by said anchors and elastic members to remain in substantially the vertical direction in transferring said shroud between said floating and submerged positions.

4,280,438

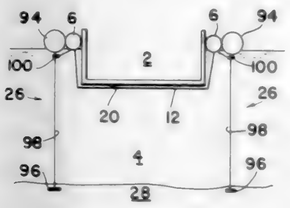
BOAT HULL ANTI-FOULING SHROUD

Robert Jackson, 89 Woodward Island, Clearwater, Fla. 33515

Division of Ser. No. 883,414, Mar. 6, 1978, Pat. No. 4,215,644. This application Jun. 6, 1980, Ser. No. 157,232

Int. Cl.³ B63B *59/00*

U.S. Cl. 114—222 **1 Claim**



1. A selectively floatable protective shroud for a boat hull floating in a body of water, comprising:

an inflatable, elongated toroidal bladder with an inner opening larger than the circumference of the hull of said boat at its waterline, having an inflation nozzle, located in said body of water;

a continuous, flexible, water impervious shroud having a circumferential edge mounted about the circumference of said toroidal bladder, for protecting said hull when deployed about said boat;

a gas pump connected to said inflation nozzle of said bladder, for controllably inflating said bladder to selectively float said shroud from a submerged position beneath said boat to a deployed position enveloping the hull of said boat;

a water drain nozzle mounted on said flexible shroud for evacuating sea water from the region between said flexible shroud and said boat hull;

a water pump connected to said water nozzle for controllably pumping out said sea water from said region;

a guide member mounted to the sea bed floor and connected to said bladder, for guiding said shroud from said submerged position beneath said boat into said deployed position enveloping the hull of said boat;

said guide member further comprising:

a pair of buoys anchored to the sea bed floor by guy wires on opposite sides of the boat;

a pair of ring members, respectively mounted in sliding engagement with each of said guy wires and connected to said bladder;

said bladder having its motion constrained by said guy wires and ring members to remain in substantially the vertical direction in transferring said shroud between said floating and submerged positions.

4,280,439

BOAT HULL ANTI-FOULING SHROUD

Robert Jackson, 89 Woodward Island, Clearwater, Fla. 33515

Division of Ser. No. 883,414, Mar. 6, 1978, Pat. No. 4,215,644. This application Jun. 6, 1980, Ser. No. 157,233

Int. Cl.³ B63B *59/00*

U.S. Cl. 114—222 **2 Claims**

1. A selectively floatable protective shroud for a boat hull floating in a body of water, comprising:

an inflatable, elongated toroidal bladder with an inner opening larger than the circumference of the hull of said boat at its waterline, having an inflation nozzle, located in said body of water;

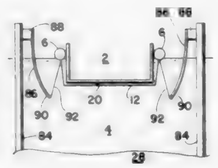
a continuous, flexible, water impervious shroud having a circumferential edge mounted about the circumference of said toroidal bladder, for protecting said hull when deployed about said boat;

a gas pump connected to said inflation nozzle of said bladder, for controllably inflating said bladder to selectively float said shroud from a submerged position beneath said boat to a deployed position enveloping the hull of said boat;

a water drain nozzle mounted on said flexible shroud for evacuating sea water from the region between said flexible shroud and said boat hull;

a water pump connected to said water nozzle for controllably pumping out said sea water from said region;

a guide member mounted to the sea bed floor and connected to said bladder, for guiding said shroud from said submerged position beneath said boat into said deployed position enveloping the hull of said boat;



said guide member further comprising:

a pair of pilings mounted to the sea bed floor on opposite sides of said boat;

a pair of flexible rods, each respectively vertically mounted at its upper end to one of said pilings, with its respective lower end connected to said bladder;

said bladder exerting a buoyant force on said lower end of each said rod when undergoing said inflation, bending said rods toward each other and upwardly toward the surface of the water, said bending motion of said rods guiding said shroud into juxtaposition with said boat floating between said pilings.

4,280,440

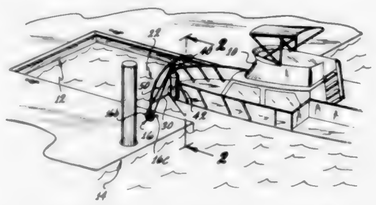
BOAT MOORING APPARATUS

James I. Barton, 7505 Caminito Avola, La Jolla, Calif. 92037

Filed Mar. 5, 1979, Ser. No. 17,435

Int. Cl.³ B63B *21/00*

U.S. Cl. 114—230 **14 Claims**



1. In combination for use at a dock to provide for a mooring of a boat to the dock during the movement of the boat into a slip in the dock,

a resilient member normally extending upwardly when in an unconstrained configuration,

means for providing for a pivotal movement of the resilient member, such providing means including a member extending from the dock into the slip for engagement by the movement of the boat into the dock to provide the pivotal movement of the providing means,

means including bumper means and a first cord attached at one end to the dock and at the other end to the bumper means,

means provided on the resilient member at an intermediate position along the length of the resilient member for detachably retaining the bumper member and for providing

a bent configuration of the resilient member with the bumper member attached to the resilient member,

the first cord having properties of being adaptable in shape to provide for the disposition of the bumper means over the water between the hull of the boat and the dock when the bumper means is detached from the resilient member,

a second cord having properties of being adaptable in shape and attached to the dock at a first end and being attachable to the boat at the second end,

means provided on the resilient member for detachably retaining the cord at the second end of the cord, and

the resilient member returning to its normally upwardly extending configuration when the first and second cords are detached.

4,280,441

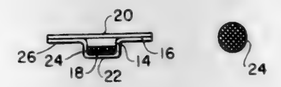
TEMPERATURE INDICATOR

Gerald W. McNeely, Arden, N.C., assignor to Akzona Incorporated, Asheville, N.C.

Filed Jul. 6, 1979, Ser. No. 55,241

Int. Cl.³ G01K *11/06, 11/18, 13/00*

U.S. Cl. 116—219 **12 Claims**



1. A reversible steam trap temperature indicator, comprising:

(a) a substrate having an embossed well therein;

(b) a substantially transparent cover over said well, the bottom of said well being a detectable color;

(c) a porous or fibrous carrier received in said well, said carrier voids impregnated with a chemical which is solid below a predetermined temperature and liquid above said predetermined temperature, said carrier adapted to refract light to maintain an opaque cover over the painted bottom of said indicator at least when said chemical is solid;

(d) a substantial amount of said chemical remaining in said carrier in both liquid and solid phases, and the color of the bottom of said well being visible when said chemical is in its liquid phase and substantially invisible when it is in its solid phase.

4,280,442

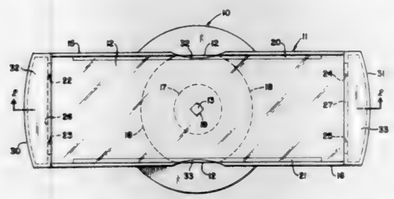
APPARATUS FOR PRODUCING MONOCELLULAR LAYERS OF CELL-CONTAINING BIOLOGICAL FLUID

Leighton C. Johnson, Edwardsburg, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Feb. 19, 1980, Ser. No. 122,121

Int. Cl.³ B05C *11/12*

U.S. Cl. 118—52 **19 Claims**



1. Apparatus for generation of a monocellular layer of a cell-containing biological fluid sample applied to a surface of a microscope slide or the like, said apparatus comprising an elongated channel-shaped holder having opposing vertical sidewalls, a horizontal bottom wall and open opposite end portions, a motor having a vertical drive shaft connected to said holder for spinning the latter in a horizontal plane, said holder being provided with shoulder means therein adjacent said side and bottom walls adapted for placement of a slide thereon in an operative position wherein it is in spaced parallel relation to said bottom wall, with the longitudinal edge portions of said slide respectively contiguous to the inner surfaces of said sidewalls.

4,280,443

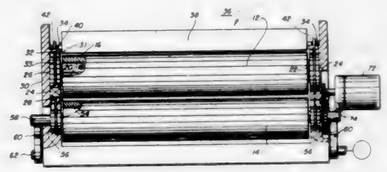
ROLL FUSER LOADING SYSTEM

Gregory V. Bogoshian, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 4, 1979, Ser. No. 100,165

Int. Cl.³ G03G *13/20;* **B05C** *11/00*

U.S. Cl. 118—60 **6 Claims**



1. Roll fuser apparatus comprising:

first and second roll members;

wick means for applying release agent material to one of said roll members through contact therewith;

means for supporting said wick means out of contact with said one of said roll members;

means for supporting said roll members in a spaced apart relationship and in a manner that they are free to move;

means for effecting pressure engagement of said roll members and simultaneous displacement thereof in one direction whereby said one of said roll members is moved into contact with said wick means and displacement of said roll members in the opposite direction whereby said one of said roll members is moved out of contact with said wick means; and said roll members are disengaged.

4,280,444

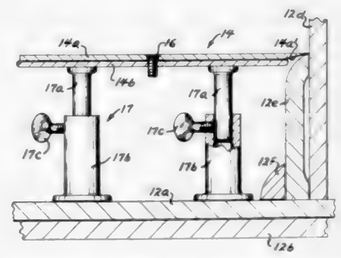
PROTECTIVE SHIELD FOR A BASEBOARD OR THE LIKE

Terry L. Jones, 827 E. 19th St., Owensboro, Ky. 42301

Filed Jul. 27, 1979, Ser. No. 61,429

Int. Cl.³ B05C *21/00*

U.S. Cl. 118—504 **2 Claims**


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of said baseboard, where said vertically adjustable legs are defined by a first part movable with respect to a second part and tightening means selectively securing said first and said second parts and said plate assembly at a preselected height of said baseboard, and where said plate assembly includes a detachable plate having a flat leading edge portion undercut to define a line of demarkation with the upper edge of said baseboard in an overlying shielding relationship and abutting said upstanding wall.

4,280,445

METHODS OF AND/OR APPARATUS FOR MILKING ANIMALS

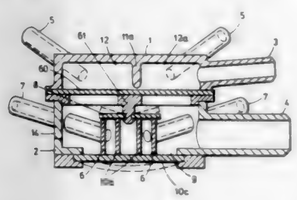
Evan M. Phillips, Hamilton, New Zealand, assignor to AHI Operations Limited, Auckland, New Zealand

Filed Jun. 4, 1979, Ser. No. 45,315

Claims priority, application New Zealand, Jun. 2, 1978, 187464; Jan. 29, 1979, 189498

Int. Cl.³ A01J *5/04, 5/12*

U.S. Cl. 119—14.02 **17 Claims**



1. A method of milking animals comprising the steps of applying a milking vacuum to the interior of each of at least one set of teat cups, applying a pulsating pressure to the pulsation cavity of each said teat cup, maintaining said milking vacuum and said pulsating pressure separate from each other and controlling said pulsating pressure so that the minimum pulsating pressure is no less than the milking vacuum by causing a pressure sensitive member to be exposed on one surface thereof to said pulsating pressure and on an opposite surface thereof to said milking vacuum and controlling the positional variations of the pressure sensitive member relative to a valve seat engaging the pulsating pressure surface of the pressure sensitive member to control the minimum pulsating pressure to be not less than the pressure of said milking vacuum.

4,280,446

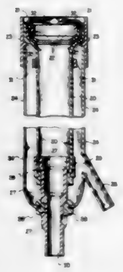
INFLATION FOR TEAT CUP ASSEMBLY

Daniel O. Noorlander, 508 W. 630 South, Orem, Utah 84057

Filed May 7, 1979, Ser. No. 36,562

Int. Cl.³ A01J *5/04*

U.S. Cl. 119—14.49 **14 Claims**



1. An inflation for use in a teat cup assembly for automatic milking machines employing a vacuum milk line and a vacuum pulsator, said inflation comprising:

an elongate, tubular, body-forming member made of a resilient, flexible, elastomeric material having a generally triangular cross-sectional shape, with the upper and lower ends of said body-forming member being adapted, respectively, to receive the teat of a cow and to be attached to the vacuum milk line of an automatic milking machine;

an expansion ring having an outer circumference substantially greater than the cross-sectional circumference of the body-forming member, said expansion ring being positioned at the upper end of said body-forming member, with the upper end portion of said body-forming member being expanded outwardly from the longitudinal axis of said body-forming member and over the outer circumference of said ring, whereby the upper end portion of said body-forming member is held in an enlarged circular configuration around said ring; and

a diaphragm having a central opening therein, said diaphragm being formed from a tubular, mouth-forming member made of a resilient, flexible, elastomeric material, said tubular, mouth-forming member having a generally round cross-sectional shape with a circumference smaller than the cross-sectional circumference of the unexpanded portion of said body-forming member, one end of said tubular, mouth-forming member being expanded to at least about the inner circumference of said expansion ring and being joined to the upper end of said body-forming member, with the other end of said tubular, mouth-forming member being deflected inwardly substantially transverse to the longitudinal axis of said body-forming member to form said diaphragm, and with the open other end of said tubular, mouth-forming member forming said central opening in said diaphragm, said central opening being adjacent to the enlarged upper end of said body-forming member and substantially coaxial with the longitudinal axis of said body-forming member.

4,280,447

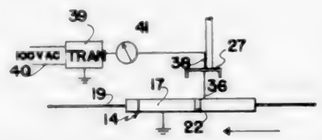
ANIMAL FACILITY EQUIPMENT

Frank R. Laurenz, Eagle Butte, S. Dak., assignor to Agricultural Research & Development Inc., Eagle Butte, S. Dak.

Filed Feb. 22, 1980, Ser. No. 123,839

Int. Cl.³ A01K *1/00;* **B65G** *25/08*

U.S. Cl. 119—28 **20 Claims**



1. In an animal facility having a moving facility such as a manure scraper assembly, moving along an alleyway having at least one partition across the alleyway, said moving facility passing under the partition and having a longitudinally extending, elongated, electrically conducting member extending forwardly and rearwardly thereof; and a source of electrical energy; the improvement comprising means to electrify the moving facility only as the elongated member passes under the partition, said means including a mounting support securable to said partition, current carrying means engaging the elongated member of the moving facility as it passes under the partition, means mounting said current carrying means to said mounting support and electrically insulated therefrom and means operatively connecting said current carrying means to the source of electrical energy.

4,280,448

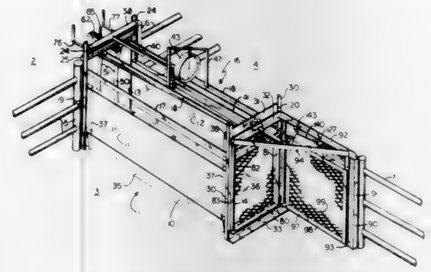
LIVESTOCK SORTING DEVICE

Jerry L. Ostermann, P.O. Box 188, Sylvan Grove, Kans. 67481

Filed Feb. 22, 1980, Ser. No. 123,751

Int. Cl.³ A01K *29/00*

U.S. Cl. 119—155 **5 Claims**



1. An apparatus for sorting animals comprising:

(a) a chute having sides adapted for enclosing an animal and having an entrance end and an exit end; said exit end being adapted for communicating with first and second animal segregation areas;

(b) weighing means associated with said chute for determining weight of an animal enclosed in said chute;

(c) a first gate being pivotally connected to said chute near one side of said chute exit end; said first gate having a first operative position wherein said first gate is generally parallel to said exit end, a second operative position wherein said first gate is at an acute angle with respect to said exit end, and a third position wherein said first gate is generally perpendicular to said exit end;

(d) a second gate being pivotally connected to said chute at a location spaced outwardly from an opposite side of said chute exit end; said second gate having a first operative position generally perpendicular to said chute exit end and having a second operative position wherein said second gate is generally aligned with said first gate while said first gate is in said second operative position thereof; and

(e) mechanical means for selectively moving said first and second gates through the operative positions thereof;

(f) whereby when said first gate is in said first position thereof, said chute enclosed animal is prevented from egressing from said chute exit end; when said first gate is in said second position thereof and said second gate is in said second position thereof, said chute enclosed animal is free to egress from said chute into said first animal segregation area; and when said first gate is in said third position thereof and said second gate is in said first position thereof, said chute enclosed animal is free to egress from said chute into said second animal segregation area.

4,280,449

STEAM GENERATOR FOR A SOLAR POWER PLANT

Konrad Künstle, Röttenbach; Kurt Reiter, and Christian Koch, both of Erlangen, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

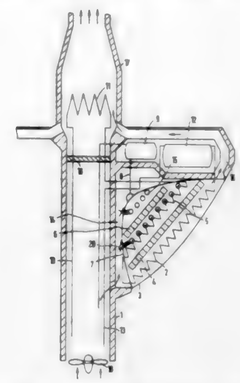
Filed Aug. 8, 1979, Ser. No. 64,754

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1978, 2835702

Int. Cl.³ B09B *3/00*

U.S. Cl. 122—4 R **2 Claims**

1. Steam generator for a solar power plant, with an evaporator heating surface having a front side exposable to focused sun rays and a rear side adjacent a chamber, and burner means for supplying at least part of the heat required by the steam generator, said burner means comprising a sintered-block slab operating as a reformed-gas generator, a burner plate disposed downstream of said sintered-block slab in flow direction of the gas, said burner plate being disposed immediately adjacent said rear side of said evaporator heating surface, and an air-permeable



further heating surface for the steam generator disposed between said sintered-block slab and said burner plate.

4,280,450

LIQUID HEATING APPARATUS

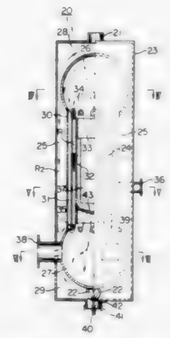
Noboru Maruyama, No. 26-14, Shirasagi 2-chome, Nakano-ku, Tokyo, Japan

Filed Oct. 26, 1979, Ser. No. 88,487

Claims priority, application Japan, May 15, 1979, 54-59399

Int. Cl.³ F22B *5/00*

U.S. Cl. 122—17 **5 Claims**



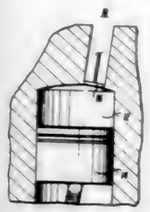
1. A liquid heating apparatus comprising a cylindrical outer shell provided with an outlet and an inlet, in which an inner shell consisting of a cylindrical body whose upper and lower portions are respectively provided with an enlarged flue chamber having a cross-sectional area remarkably larger than that of said cylindrical body is installed within said outer shell by leaving a space between the two shells so as to form a water jacket therebetween, a fire chamber is formed by closing said cylindrical body at above said lower enlarged flue chamber, an insert hole for burner which penetrates said inner and outer shells and opens into said fire chamber is provided, a rising heated gas chamber communicating with said fire chamber as well as upper enlarged flue chamber is formed above the fire chamber, a falling heated gas space is formed by intercommunicating said upper and lower enlarged flue chambers by means of plural smoke pipes penetrating the water jacket formed in between said outer and inner shells, and a flue outlet is provided for said lower enlarged flue chamber.

4,280,451

HIGH COMPRESSION VACUUM CYCLE ENGINE

Edward J. Moore, 930 Wrenwood Rd., Florence, S.C. 29501

Filed Apr. 23, 1980, Ser. No. 143,153
Int. Cl.³ F01L *1/04, 1/08*
U.S. Cl. 123—90.6 **9 Claims**



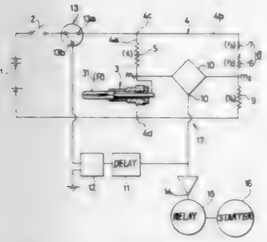
1. A spark ignition four cycle internal combustion engine having intake, compression, expansion and exhaust strokes, using said compression stroke to compress a charge with a compression ratio in the range from 9:1 to 25:1, said engine having an intake valve in communication with a cylinder and a piston reciprocally movable within said cylinder, wherein the compression stroke is always started with the charge under less than atmospheric pressure, said engine using said expansion stroke after combustion of said charge, said combusted charge being under greater than atmospheric pressure at the end of said expansion stroke at substantially full torque, said engine having said exhaust stroke of said combusted charge after said expansion stroke, said combusted charge being under greater than atmospheric pressure upon the start of said exhausting stroke at substantially full torque, wherein having the charge under less than atmospheric pressure is obtained by closing the intake valve before the piston reaches bottom dead center.

4,280,452

ENGINE START ENHANCEMENT DEVICE

Hideo Kawamura, Yamato, and Takahiko Itou, Tokyo, both of Japan, assignors to Isuzu Motors Ltd., Tokyo, Japan

Filed Sep. 13, 1979, Ser. No. 74,948
Claims priority, application Japan, Sep. 19, 1978, 53/114879
Int. Cl.³ F02N *17/00;* **F02P** *19/02*
U.S. Cl. 123—179 BG **5 Claims**



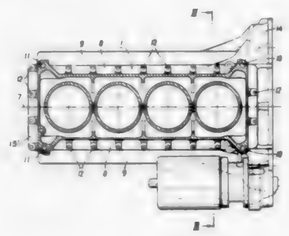
1. In an engine start enhancement device adapted to be connected to a power supply through a key switch, the improvement comprising a first resistor having resistance r_1 and having a positive temperature coefficient and a heat generating element of a glow plug having a resistance R connected in series, a second resistor having a predetermined constant resistance r_2 and a third resistor having a resistance r_3 which varies according to the temperature variation of resistance of said first resistor and having a positive temperature coefficient and a fourth resistor having a predetermined constant resistance r_4 connected in series with end terminals of the series combination connected to end terminal of the series combination of said first resistor and said heat generating element to form a bridge circuit, and a comparator connected to middle points of said bridge circuit, said comparator producing an output signal when $(r_2+r_3)/r_1 \geqq r_4/R$, and means for disconnecting the power supply from said bridge circuit is response to said output signal from said comparator.

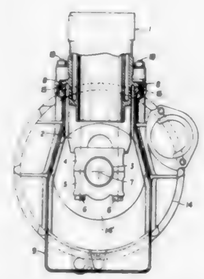
4,280,453

MULTICYLINDER INTERNAL COMBUSTION ENGINE

Hans List, 126, Heinrichstrasse, Graz, Austria; Othmar Skatsche, and Josef Greier, both of Graz, Austria, assignors to Hans List, Graz, Austria

Continuation of Ser. No. 717,895, Aug. 26, 1976, abandoned. This application Jan. 23, 1979, Ser. No. 5,703
Claims priority, application Austria, Sep. 4, 1975, 6850/75
Int. Cl.³ F02F *7/00*
U.S. Cl. 123—195 R **8 Claims**





1. In a multicylinder internal combustion engine which includes a cylinder block, a crankcase positioned generally below the cylinder block, and a crankshaft extending through the crankcase and rotatable about a central axis; said cylinder block having a generally box-like shape and including integral main bearing means extending downwardly into said crankcase to support the crankshaft; and said crankcase having openings at opposite sides thereof through which the crankshaft extends; the improvements wherein

said cylinder block includes a connection flange which extends outwardly along substantially all the sides of said cylinder block, said connection flange having a continuous surface which faces said crankcase,

said crankcase includes a generally rectangular upper portion means which encompasses the portions of said cylinder block below the connection flange, a counter flange which extends outwardly along substantially all the sides of said upper portion means which is fixedly connected to all of said continuous surface of said connection flange of said cylinder block, and as an integral portion thereof a flywheel housing extending away from one side thereof, and

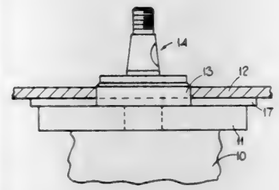
said crankshaft includes at the end thereof which extends into said flywheel housing a flywheel, the radius of said flywheel being less than the distance between the connection flange of said cylinder block and said central rotational axis of said crankshaft.

4,280,454

ENGINE INSTALLATIONS

Robert T. J. Skinner, High Wycombe, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jun. 29, 1979, Ser. No. 53,237
Claims priority, application United Kingdom, Jul. 18, 1978, 30196/78
Int. Cl.³ F02F *7/00*
U.S. Cl. 123—195 A **4 Claims**



1. An engine installation including an engine casing, an engine ancillary including a shaft driven in use, in timed relationship with the engine by driving means within the engine casing and means mounting the ancillary on the casing, said means comprising a mounting flange on the engine ancillary, said mounting flange having formed therein an arcuate aperture spaced from the axis of rotation of the shaft, a mounting plate for location against the said flange, a circular aperture formed in the mounting plate at a position to register with said arcuate aperture, securing means for securing the mounting flange and the mounting plate to the engine casing, said securing means including a cylindrical element passing through said apertures, and means for fastening said plate to said flange once the ancillary has been correctly positioned on the engine casing whereby the ancillary and the plate can be detached from the casing and reassembled thereto, the aperture in the plate ensuring that the ancillary and plate are reassembled to the casing in the correct position.

4,280,455

INTERNAL COMBUSTION ENGINE

Hiroshi Yamaguchi, Ohmiya; Hiroaki Kaneko, Ageo, and Toshihiro Nagano, Tokyo, all of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1979, Ser. No. 4,133
Claims priority, application Japan, Jan. 30, 1978, 53/9008; Jan. 30, 1978, 53/9009; Jan. 30, 1978, 53/9010; Jan. 30, 1978, 53/9813[U]
Int. Cl.³ F01M *1/00*
U.S. Cl. 123—196 M **10 Claims**

1. An internal combustion engine comprising

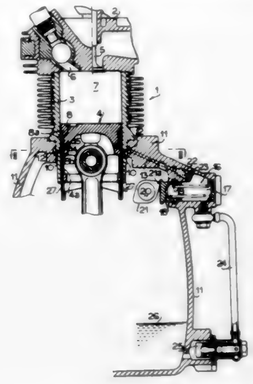
a cylinder comprising a hollow wall member having a periphery defining a chamber having a center,

a piston reciprocatingly disposed in the periphery of said wall member of said cylinder in said chamber operatively between a top dead center and a bottom dead center of the piston and defining space between said piston and said wall member,

piston rings disposed on a periphery of said piston,

said wall member being formed with at least a pair of oil ports, said oil ports communicating symmetrically with said peripheries of said wall member and of said piston and being symmetrically arranged relative to said center of said chamber, said oil ports communicating with said space between said wall member and said piston and being positioned to open onto a portion of said piston below a lowermost of said piston rings when said piston is at the bottom dead center and positioned to open onto a lower end portion of the piston skirt when said piston is at the top dead center,

means for supplying, during the reciprocation of said piston including during the top dead center and the bottom dead center of the piston, a portion of lubricating oil for the internal combustion engine under pressure to and through said oil ports to said space, said means including conduit



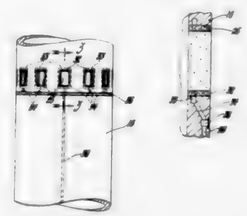
means for communicating said oil ports with a portion of said means for supplying a portion of the lubricating oil.

4,280,456

ENGINE WITH INTAKE PORTED CYLINDERS AND POROUS PORT LINERS FOR OIL CONTROL

Edward D. Klomp, Mt. Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 26, 1979, Ser. No. 88,299
Int. Cl.³ F01M *11/08*
U.S. Cl. 123—196 R **1 Claim**



1. The combination of an engine having oil lubricated cylinders and pistons controlling inlet ports in the cylinders, a crankcase below the cylinders to which used lubricating oil is returned for storage and reuse, and the improvement comprising

porous liners in said cylinder inlet ports to receive lubricating oil delivered to the ports such as by movement of the pistons within their respective cylinders,

collector means in the port walls adjacent the porous liners to receive oil draining therefrom, and

return passage defining means connecting the collector means with the engine crankcase to return to the crankcase oil received in the collector means from the port liners,

whereby the loss of lubricating oil through movement from the inlet ports into the engine combustion chambers and exhaust system is limited.

4,280,457

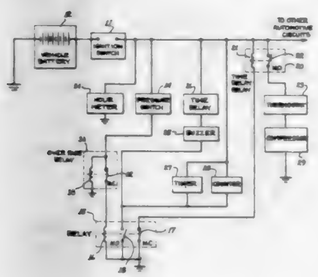
SYSTEM FOR MONITORING AND IMPROVING MOTOR VEHICLE OPERATING EFFICIENCY

Steven R. Bloxham, P.O. Box 2821, Scottsdale, Ariz. 85252

Continuation-in-part of Ser. No. 889,194, Mar. 23, 1978, abandoned. This application Apr. 13, 1979, Ser. No. 29,638

Int. Cl.³ F02B 77/00; F25B 27/00

U.S. Cl. 123—198 R **7 Claims**



1. Apparatus for improving motor vehicle fuel efficiency by reducing the accessory load on the engine during periods of reduced operating efficiency, said apparatus, comprising:

(a) means for monitoring engine operating conditions and providing an output signal indicative of engine operating efficiency below a threshold level;

(b) time delay means responsive to the output signal of said monitoring means, said time delay means having first and second states and first and second pre-determined delay intervals, said time delay means being activated to the second state by the application of said output signal to the time delay means for at least as long as said first delay interval, said second delay interval occurring upon the terminating of said output signal whereby the time delay means remains in the second state for at least as long as the second interval;

(c) means for coupling the time delay means to the accessory being controlled, said accessory being disabled from operation when said time delay means is in the second state; and

(d) override means coupled to the time delay means for limiting the duration of the disabling of the accessory to a third predetermined delay interval.

5. Apparatus for improving motor vehicle operating efficiency by controlling the operation of vehicle accessories wherein said apparatus is connected to the vehicle electrical circuit and responsive to engine manifold pressure, said apparatus comprising:

(a) switch means having first and second states and responsive to changes in engine manifold pressure, said switch means being in the first state when the manifold vacuum pressure is less than a threshold level;

(b) time delay relay means having a first control element coupled to said switch means and the vehicle electrical circuit and a first switch element coupled to the accessory being controlled, said first switch element having a delayed response to the activation and deactivation of said first control element, said first control element being activated when the switch means enters the first state whereby the first switch element responds to disable the accessory;

(c) override delay means responsive to a change in state by the switch means to the first state for overriding the disabling of the accessory by the first switch element after a predetermined interval whereby said accessory resumes operation independently of the state of said switch means.

4,280,458

ANTIKNOCK COMPONENT

Thomas E. Kiovsky, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Sep. 2, 1980, Ser. No. 183,539

Int. Cl.³ F02B 47/00

U.S. Cl. 123—198 A **15 Claims**

1. A motor fuel composition comprising a mixture of hydrocarbons in the gasoline boiling range containing an octane-improving amount of an antiknock material selected from the group consisting of ortho-azidophenol and alkyl derivatives of ortho-azidophenol.

4,280,459

COMBUSTION CHAMBER OF AN INTERNAL COMBUSTION ENGINE

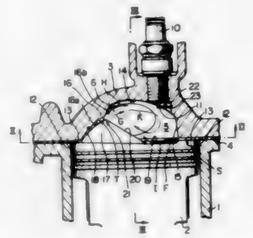
Kiyoshi Nakanishi, Susono; Kazuhiko Ito, Toyota; Takeshi Okumura, Susono; Isamu Iezuka, and Masao Yasukawa, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 15, 1979, Ser. No. 39,181

Claims priority, application Japan, Jul. 20, 1978, 53/87661

Int. Cl.³ F02B 23/08

U.S. Cl. 123—307 **9 Claims**



1. An internal combustion engine comprising: a cylinder block having a cylinder bore therein; a cylinder head mounted on said cylinder block and having an inner wall; a first raised portion having on its lower end a flat bottom face and being formed on the periphery of the inner wall of said cylinder head so as to project downwards; a piston reciprocally movable in said cylinder bore and having a top face which has a flat peripheral portion approachable to said flat bottom face so as to create a first squish area therebetween at the end of the compression stroke for spouting out a first squish flow along the top face of said piston, the inner wall of said cylinder head and the top face of said piston defining a combustion chamber therebetween; an intake valve movably mounted on said cylinder head for leading a combustible mixture into said combustion chamber; an exhaust valve movably mounted on said cylinder head for discharging exhaust gas into the atmosphere; a second raised portion formed on the top face of said piston at a position opposite to said first raised portion with respect to an axis of said piston and having a rear face and a front face exposed to said combustion chamber, said rear face being approachable to the inner wall of said cylinder head so as to create a second squish area therebetween at the end of the compression stroke for spouting out a second squish flow which moves forward in the upper interior of said combustion chamber in the direction opposite to the spouting direction of said first squish flow, said first and second squish flows cooperating with each other to create a strong swirl motion rotating about a horizontal axis in said combustion chamber, and; a spark plug having a spark gap located in said combustion chamber, wherein the improvement comprises: a third raised portion formed on the inner wall of said cylinder head above said second raised portion and having a bottom wall which cooperates with said rear face of said second raised portion for creating said second squish area therebetween, said third raised portion having a steeply inclined side wall which extends upwards from a ridge of said second raised portion, and; a depression formed in a central portion of the top face of said piston and having a substantially vertically extending peripheral wall which extends downwards from an inner end of the flat bottom face of said first raised portion, said peripheral wall of said depression being aligned with said inner wall of said cylinder block along substantially the entire length of said inner wall opposite to said third raised portion, said peripheral wall of said depression being sinuous.

4,280,460

AUTOMATIC REGULATOR OF THE IDLING IN AN INTERNAL-COMBUSTION ENGINE

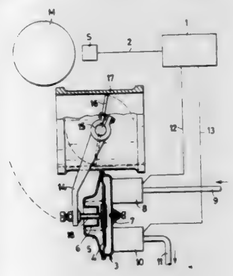
Aldo Bassi, Milan; Dario Radaelli, Legnano, and Edoardo Rogora, Milan, all of Italy, assignors to Alfa Romeo S.p.A., Milan, Italy

Filed Dec. 11, 1978, Ser. No. 968,421

Claims priority, application Italy, Dec. 22, 1977, 31150 A/77

Int. Cl.³ F02D 11/08

U.S. Cl. 123—382 **2 Claims**



1. An automatic regulator of the idling rpm of an internal combustion engine equipped with at least one throttling butterfly for throttling the feeding of a fluid stream for the engine, said butterfly being actuated as a function of the position of the accelerator pedal, said regulator being characterized in that it comprises a volume provided with a movable wall, first and second electrically controlled normally closed valve means for causing the delivery of a pressurized fluid into said volume and, respectively, the outflow of such fluid from said volume with displacements of said movable wall corresponding to said supply and outflow of the pressurized fluid, said throttling valve having integrally formed therewith abutment means capable of engaging with said movable wall when the accelerator pedal is released so as to define the position of minimum opening of the butterfly and therefore the throttling of the engine in its idling operation, said regulator further comprising sensing means for sensing engine rpm and being connected to processing means of an electronic circuit for comparing an engine rpm signal coming from said sensing means with a reference signal corresponding to a preselected rpm value lower than a threshold value, said electronic circuit being operable to deliver first electric control signals to said first valve means for supplying pressurized fluid into said volume in order to increase the engine rpm in idling condition when the engine rpm is lower than said preselected value and being operable to deliver second electric control signals to said second valve means for outflow of pressurized fluid from said volume in order to decrease the engine rpm in idling condition when the engine rpm is higher than said preselected value and lower than said threshold value.

4,280,461

CONTACTLESS IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES

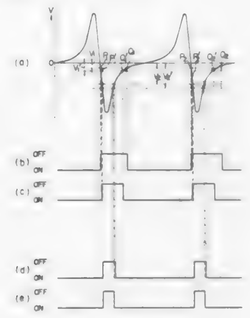
Ryoichi Okuda, Kariya; Tomoatsu Makino, Okazaki, and Katsuteru Miwa, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 9, 1979, Ser. No. 82,755

Claims priority, application Japan, Oct. 13, 1978, 53-126327

Int. Cl.³ F02P 5/04

U.S. Cl. 123—418 **4 Claims**



1. A contactless ignition system for internal combustion engines comprising:

an alternator operated in synchronism with rotation of an engine to generate an AC output;

a bias-up circuit disposed to generate a DC output which increases nonlinearly in accordance with the number of revolutions of said engine in such a manner that the change of said DC output is small when said rotational speed is low but increases with an increase in said rotational speed; and

a voltage comparison circuit disposed to receive a bias changing in accordance with the DC output of said bias-up circuit and respond to said bias and the AC output of said alternator to generate a rectangular wave output for determining making and breaking of a primary current in an ignition coil,

wherein said voltage comparison circuit applies to said bias-up circuit a signal corresponding to the AC output of said alternator and having the same frequency therewith, and wherein said bias-up circuit comprises a circuit responsive to said signal having the same frequency as the frequency of said AC output to generate an output of a magnitude proportional to the speed of said engine, and a function circuit response to said output proportional to engine speed to generate said DC output whose change is small when the speed of said engine is low but increases with an increase in engine speed.

4,280,462

ELECTRONICALLY CONTROLLED CARBURETOR FOR INTERNAL COMBUSTION ENGINE

Hiroshi Kuroiwa, Hitachi, and Yoshihige Oyama, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 10, 1979, Ser. No. 56,237

Claims priority, application Japan, Aug. 11, 1978, 53-97243

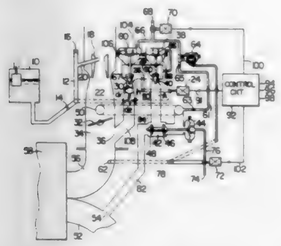
Int. Cl.³ F02M 23/04

U.S. Cl. 123—437 **29 Claims**

1. An electronically-controlled carburetor for an internal combustion engine, comprising:

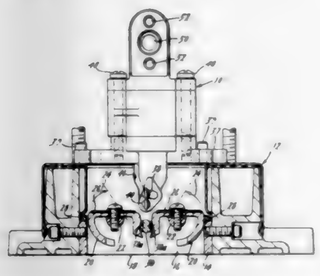
an air horn connected between an external air cleaner and an intake manifold of the engine and having a venturi section provided upstream of an internal fluid path of the air path and a throttle valve provided downstream of the same fluid path;

a float chamber for containing a liquid fuel;
a main fuel path having a main nozzle opened to said venturi section, for introducing a main liquid fuel supplied from said float chamber into said air horn through said main nozzle;
a constant pressure chamber;
first means for maintaining the internal pressure of said constant pressure chamber at a predetermined value lower than the atmospheric pressure;
a control fuel path for introducing a control liquid fuel supplied from said float chamber, into said constant pressure chamber;



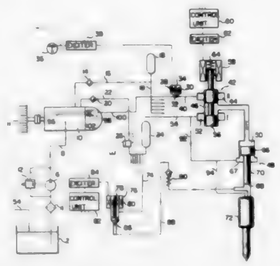
second means for controlling the amount of said control liquid fuel that passes through said control fuel path;
third means for introducing the control liquid fuel introduced into said constant pressure chamber, into said air horn in the neighborhood of said throttle valve; and
electronic control circuit means for generating a first electrical control signal and applying said first electrical control signal to said second means so that the amount of said control liquid fuel passing through said control fuel path is controlled in a manner so that the air-fuel ratio of the fuel supplied to the engine is adjusted in accordance with the running conditions of the engine.

4,280,463
FUEL SPRAY BAR FOR INTERNAL COMBUSTION ENGINE
Kenneth A. Graham, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Oct. 9, 1979, Ser. No. 83,086
Int. Cl.³ F02M *29/00*
U.S. Cl. 123—445 **1 Claim**



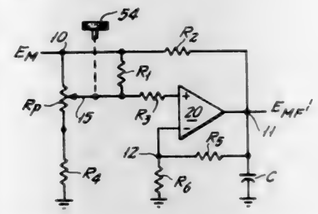
1. In an internal combustion engine having structure defining an induction passage and a spray bar unit for spraying fuel into the induction passage wherein the spray bar unit comprises a body, a pair of spray tubes projecting from the body into the induction passage, said spray tubes each comprising a plurality of spray orifices spaced along the length and on the downstream side thereof for spraying fuel in a direction generally downstream of the induction passage, means for supplying fuel via said body through the spray tubes for spraying via said orifices into the induction passage and a dispersion element disposed in said passage transverse to the direction of flow through said induction passage downstream of said spray tubes having a concave dispersion surface facing upstream of the passage and wherein one of said tubes is disposed spaced upstream of the induction passage from the dispersion element and arranged so that its orifices cause fuel sprayed therefrom to impinge upon the upstream concave surface of the dispersion element, the improvement characterized in that the other spray tube is disposed slightly spaced upstream of the induction passage relative to the one tube and arranged so that its orifices spray fuel to impinge upon the upstream surface of the wall of said one tube, said other tube being spaced upstream of said one tube a distance which is less than the distance by which said one tube is spaced upstream of said dispersion member, said other tube spraying fuel onto said one tube only during conditions requiring increased engine power.

4,280,464
FUEL INJECTION CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE
Seikichi Kanai; Kunihiko Komiyama, and Koichi Togashi, all of Oyama, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan
Filed May 30, 1979, Ser. No. 43,628
Claims priority, application Japan, May 29, 1978, 53/63384
Int. Cl.³ F02M *51/00, 37/04*
U.S. Cl. 123—447 **3 Claims**



1. A fuel injection control system for an internal combustion engine, comprising:
injection pump means connected to the engine and driven thereby, said injection pump means including delivery control means for controlling the delivery of fuel therefrom and connected to a source of fuel supply;
first accumulator means connected to said injection pump means for receiving an output therefrom;
solenoid-operated spool valve means connected to said first accumulator means;
fuel injection valve means having a piston and a plunger formed therein and also having a piston chamber and a plunger chamber defined therein, the piston chamber being connected to said spool valve means;
fuel injection nozzle means connected to said fuel injection valve means;
shut-off valve means provided between said first accumulator means and said spool valve means and adapted to close when the engine is not in operation and open when the engine is in operation;
second accumulator means connected to said injection pump means for receiving an output therefrom;
solenoid-operated metering valve means connected to said second accumulator means for metering the amount of fuel injected through said fuel injection nozzle means, said metering valve means being connected to the plunger chamber of said fuel injection valve means; and
control means connected to both solenoids of said spool valve means and said metering valve means for controlling the operation thereof wherein said delivery control means is connected to said first accumulator means and is operated by the pressure of fluid from said first accumulator means.

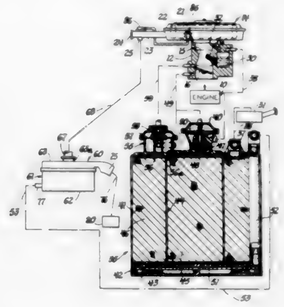
4,280,465
THROTTLE CONTROL FOR AN ELECTRONIC FUEL-INJECTION CONTROL CIRCUIT
Richard E. Staerzl, Fond du Lac, Wis., assignor to Brunswick Corporation, Skokie, Ill.
Filed Jul. 16, 1980, Ser. No. 169,365
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—494 **8 Claims**



1. In an electronic fuel-injection control circuit for an internal-combustion engine, wherein the output of a voltage source is variably tapped by a potentiometer to derive a throttle-controlling voltage for controlled generation of an injector-operating pulse of duration reflecting instantaneous amplitude of the throttle-controlling voltage, the improvement wherein the potentiometer is part of a network having (a) input-connection means having a signal pole adapted for source-voltage connection and (b) output-connection means having a signal pole for delivery of throttle-controlling voltage, a first resistor and the full resistance of said potentiometer series-connected across said input-connection means with one end of the potentiometer resistance connected to the signal pole of said input-connection means, voltage-dividing resistor means having an intermediate tap and connected across said output-connection means, a second resistor interconnecting said signal poles, said second resistor being of very much lower resistance than either of the tap-defined fractions of said voltage dividing means, said potentiometer having a throttle-control wiper arm selectively movable to variably tap a fraction of the source voltage, comparator means having an output connection to the signal pole of said output-connection means and having two input connections adapted for differential response to separate voltages to be compared, one of said input connections being connected to said arm and the other of said input connections being connected to said tap, whereby the voltage-dividing placement of said tap may provide a predetermined modification of the curve of output-connection voltage change in respect of source voltage as a function of wiper-arm displacement.

4,280,466
EVAPORATIVE EMISSION CONTROL DEVICE
Leslie K. Walters, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 26, 1979, Ser. No. 23,597
Int. Cl.³ F02M *25/08, 33/02*
U.S. Cl. 123—520 **2 Claims**

1. In an engine having a fuel supply system including a fuel tank, a main canister containing a main body of fuel vapor storage material, a vent line means for delivering fuel vapor from the fuel supply system to the storage material, a throttle valve controlled induction passage means for delivering air to the engine, the induction passage means including a heat stove for heating air and having an air inlet located in heat exchange relationship to the exhaust manifold of the engine and an air outlet for supplying engine heated air, as controlled by a snorkel damper mechanism, into the induction passage means upstream of the throttle valve, a canister air vent line to the canister, and a purge means from the canister for delivering fuel vapor stored in the storage material therein to the induction passage downstream of the throttle valve, the improvement comprising:
a fuel vapor secondary canister containing a secondary bed of fuel vapor storage material therein; said secondary canister defining an air flow path therethrough and being connected at one end to the air outlet of the air heat stove and having its other end connected in flow communication as controlled by the snorkel damper mechanism with

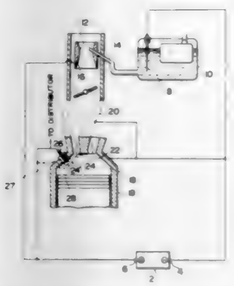


the induction passage means upstream of the throttle valve; said secondary bed of vapor storage material being positioned in said flow path between opposite ends thereof; and a port means in said secondary canister opening at one end into said secondary bed on the downstream side thereof in terms of heated air flow through said air path and connected at its opposite end to the canister vent line, whereby any flow of fuel vapor from the main canister will be stored in said secondary bed of fuel vapor storage material in said secondary canister so that during engine operation heated air flowing through said secondary canister will rapidly purge all fuel vapor therefrom.

4,280,467
AIR-FUEL MIXTURE RATIO CONTROL USING ELECTROSTATIC FORCE
Hiroyuki Maruoka, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Division of Ser. No. 784,722, Apr. 5, 1977, Pat. No. 4,183,337.
This application Jul. 26, 1979, Ser. No. 61,029
Claims priority, application Japan, Apr. 6, 1976, 51-37729; Apr. 6, 1976, 51-37730; May 6, 1976, 51-50935; Jun. 28, 1976, 51-75584
Int. Cl.³ F02B *51/00;* F02M *27/00*
U.S. Cl. 123—536 **10 Claims**

1. Arrangement for use with an internal combustion engine, comprising in combination:
means for producing first and second electrostatic charges of opposite polarities;
means for forming a combustible air-fuel mixture;
a first electrode connected to said electrostatic charging means for imparting said first charge to a liquid fuel introduced into said combustible air-fuel mixture forming means;
a plurality of combustion chambers, each combustion chamber including a spark plug disposed therein for igniting the air-fuel mixture admitted thereinto; and
a plurality of second electrodes, one each being provided within each of said combustion chambers and being con-

nected to said electrostatic charging means for receiving said second charge from the electrostatic charging means;



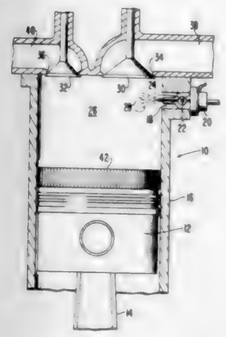
whereby the air-fuel mixture is made rich in each combustion chamber in the vicinity of said second electrode.

4,280,468

REGENERATIVE RECIPROCATING OPEN CYCLE INTERNAL COMBUSTION ENGINE

Mitchell W. Millman, 5699 Venado Ct., San Jose, Calif. 95123

Filed Feb. 11, 1980, Ser. No. 120,210
Int. Cl.³ F02M *31/08*
U.S. Cl. 123—546 **18 Claims**



1. In an internal combustion engine having an exhaust stroke, an intake stroke, and a compression stroke: means defining a cylinder having an air intake port and an exhaust gas port; a piston moveable in the cylinder; reciprocal intake and exhaust valves moveable into and out of closing relationship with the intake and exhaust ports, respectively, whereby exhaust gases can exit from the cylinder during the exhaust stroke, intake air can enter the cylinder during the intake stroke, and compression of the air can occur during the compression stroke; a porous, heat retaining regenerator member between the piston and said valves; and means shiftably mounted in the cylinder for placing the regenerator in the path of the exhaust gases during the exhaust stroke and in the path of the intake air during the compression stroke, whereby the exhaust gases will heat the regenerator member during the exhaust stroke and the regenerator member will heat the compression air during the compression stroke.

12. In a method of operating an internal combustion engine having a cylinder, a moveable piston in the cylinder, and intake and exhaust valves comprising: providing a heat storage and exchange region in the cylinder with said region being shiftably mounted in the cylinder for movement relative to the piston; directing the exhaust gases in the cylinder in one direction through said region during the exhaust cycle of the engine and when the region is at a first position in the cylinder to cause the storage of heat in the region; drawing fresh combustion air into the cylinder when the region is at a second position in the cylinder; passing the fresh air in the opposite direction through said region in heat exchange relationship to the heat energy stored thereby to heat the fresh air as the region moves from said second position to said first position; injecting a combustible fuel into the cylinder between the piston and the region in mixing relationship to the preheated combustion air; and igniting the fuel-air mixture.

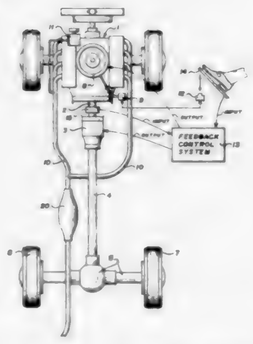
18. In a method of operating an internal combustion engine having a cylinder, a moveable piston in the cylinder, and intake and exhaust valves comprising: providing a heat storage and exchange region in the cylinder; gating the exhaust gases from a first part of the cylinder, through the region and into a second part of the cylinder to cause storage of the heat energy from the exhaust gases in the region during the exhaust cycle of the engine; drawing fresh combustion air into the cylinder; compressing the air in said second part; gating the compressed air in said second part and causing the compressed air to pass through said region and into said first part to heat the air during the intake cycle of the engine; injecting a combustible fuel into the cylinder in mixing relationship to the preheated combustion air; and igniting the fuel-air mixture.

4,280,469

POWERTRAIN AND APPARATUS USING A CONTINUOUSLY VARIABLE RATIO TRANSMISSION TO IMPROVE FUEL ECONOMY

David P. Ganoung, 4406 Chicksaw Rd., Memphis, Tenn. 38117

Continuation-in-part of Ser. No. 767,060, Feb. 7, 1977. This application Mar. 14, 1979, Ser. No. 20,916
Int. Cl.³ F02B *33/00*
U.S. Cl. 123—568 **23 Claims**



1. Apparatus for improving the operating efficiency of a homogeneous charge, spark ignition internal combustion engine, comprising:

a continuously variable ratio transmission having a relatively wide range of ratios, having a power input shaft coupled to a power output shaft of the engine and having a power output shaft,

operator control means for providing an unthrottled flow of intake charge to the engine for combustion and for concurrently providing ratio selection throughout a sufficiently wide operating ratio range of said transmission to facilitate regulation of the torque delivered to a load by said transmission output shaft to a desired value which varies widely while the speed of said transmission output shaft remains constant,

and fuel metering means for controlling the composition of said unthrottled flow of intake charge admitted to the engine for combustion, said fuel metering means providing as a first constituent of said intake charge a substantially stoichiometric air-fuel mixture and providing a second diluting constituent of said intake charge comprising

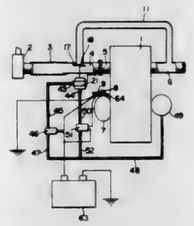
recirculated exhaust gas and being in a proportion to said first constituent inclusively between that proportion which substantially minimizes the brake specific fuel consumption of the engine and that proportion which produces incipient combustion miss of the engine, said two inclusive boundary proportions being defined for existing operating conditions of the engine including the existing speed of said engine power output shaft, the existing density of said stoichiometric air-fuel mixture and the existing composition of said second intake charge constituent.

4,280,470

THREE-STEP EXHAUST GAS RECIRCULATION CONTROL SYSTEM

Tatehito Ueda, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Japan

Filed Dec. 11, 1979, Ser. No. 102,450
Claims priority, application Japan, Aug. 15, 1979, 54-104303
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—569 **7 Claims**



1. In a diesel engine, comprising an exhaust system, an inlet system, and an exhaust gas recirculation system;

an exhaust gas recirculation control system, comprising:

an exhaust gas recirculation control valve, which controls the amount of exhaust gas recirculated from the exhaust system to the inlet system through the exhaust gas recirculation system; and

a means for actuating the exhaust gas recirculation control valve, which positions the exhaust gas recirculation control valve selectively and steppedly at one of three states, that are: a first state in which it provides substantially zero exhaust gas recirculation ratio, a second state in which it provides a medium exhaust gas recirculation ratio, and a third state in which it provides a maximum exhaust gas recirculation ratio, according to the load on the engine.

4,280,471

CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

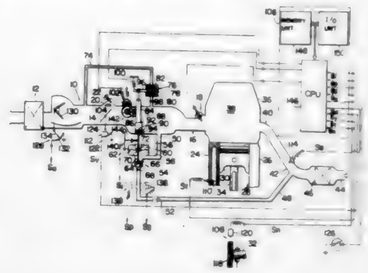
Kenji Masaki, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 4, 1980, Ser. No. 109,482
Claims priority, application Japan, Jan. 22, 1979, 54-6414
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—571 **10 Claims**

1. In an internal combustion engine including an air-fuel mixture supply system having a throttle valve incorporated therein, an exhaust system, an exhaust gas recirculation passageway for recirculating exhaust gases from the exhaust system to the mixture supply system at controlled rates, and an intake air bypass passageway for allowing air to be admitted at controlled rates into the mixture supply system downstream of the throttle valve when the throttle valve is in a minimum-open angular position thereof, a control system comprising, in combination;

valve means operative to control the flow rate of the exhaust gases to be recirculated through said exhaust gas recirculation passageway and the flow rate of air to be passed through said intake air bypass passageway,

an electric motor operatively connected to said valve means for actuating the valve means in response to electric signals supplied to the motor, and



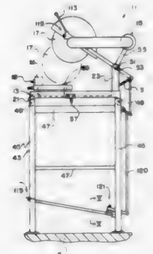
a control circuit responsive to variable parameters related to prescribed operational conditions of the engine for operating said motor on the basis of said parameters.

4,280,472

MASONRY SAW

Clarence D. Cochran, Blytheville, Ark., assignor to John Cochran, Tunica, Miss.

Filed Nov. 19, 1979, Ser. No. 95,670
Int. Cl.³ B28D *1/04*
U.S. Cl. 125—13 R **4 Claims**



1. A masonry saw for placement on a plank member of a scaffold, said saw comprising:

(a) a base means having a bed, having an upwardly extending member attached to said bed, and having a plurality of downwardly extending foot members attached to said bed; said foot members being arranged so as to fit on opposite sides of the plank member of the scaffold to substantially firmly attach said base means to the plank member;

(b) a motor means attached to said upwardly extending member of said base means, said motor means including a rotating shaft;

(c) a masonry saw blade attached to said shaft of said motor means for rotating above said bed of said base means;

(d) a carriage means slidably mounted on said bed of said base means for supporting a piece of masonry to be cut and for moving the piece of masonry into said saw blade, said saw blade being movable between raised and lowered positions above said carriage means, said carriage means including first and second support portions, said second support portion being pivotally attached to said first support portion to allow said second support portion to be pivoted relative to the longitudinal axis of said carriage means, said carriage means including cinch means for

locking a piece of masonry to be cut to said second support portion, said cinch means including first and second flange members positioned above said first support portion, said second flange member being movable towards said first flange member to lock a piece of masonry to be cut to said second support portion;

(e) miter means for being attached to said carriage means and for positioning the piece of masonry to be cut at a specific angle relative to said saw blade, said miter means including a pivot member for being pivotally attached to said carriage means about a substantially vertical axis aligned with the plane of said saw blade, said miter means including first and second arm members fixedly attached to said pivot member for engaging portions of the piece of masonry to be cut; said first and second arm members being positioned on opposite sides of said pivot member and on opposite sides of the plane of said saw blade for supporting the piece of masonry to be cut on both sides of said saw blades, said carriage means having a plurality of apertures spaced about said pivot member of said miter means, said miter means including a peg member attached to said second arm member for being positioned in one of said apertures in said carriage means;

(f) handle means for moving said saw blade between said raised and lowered positions; and

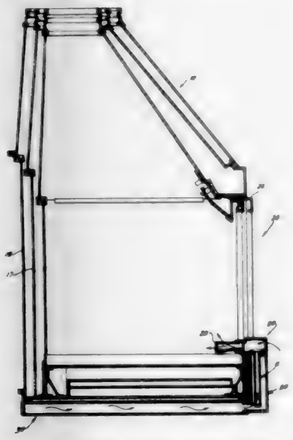
(g) pressure limit means for limiting the amount of pressure applied to said saw blade when said saw blade is moved to said lowered position by said handle means; said pressure limit means including a spring means located between said saw blade and said handle means.

4,280,473

FIREPLACE HAVING OUTSIDE AIR SUPPLY

Rodney A. Hempel, Huntington, Ind., assignor to American Standard Inc., New York, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,416
Int. Cl.³ F24B 1//18; F24H 3/00
U.S. Cl. 126—120 **8 Claims**



1. An outside air supply system and combustion chamber closure assembly including a frame for removably mounting in surrounding relation with the vertical walls, top wall and hearth forming the combustion chamber opening and at least one door operably mounted thereto;

air passage means formed in the frame at hearth level for introduction of air into the combustion chamber;

an outside air system including an outside air duct which is coupled to a chamber defining an air plenum formed below the hearth of the fireplace and an air cap assembly extending across the combustion chamber opening in fluid communication with said air passage means formed in said frame and said chamber defining the air plenum formed below the hearth;

said air cap assembly including an air discharge housing having a top wall, opposed side walls and a vertical louvered wall coupled to said top wall;

damper means, operably mounted in the air cap assembly and being adjustable between an outside air mode position and a room air mode position so that when said at least one door is closed, only outside air or room air will be introduced into the combustion chamber at hearth level whereby said air supply is sufficient for fuel combustion while providing an excess of air which flows upwardly between the burning fuel and the closure assembly; and

said damper means being pivotally mounted in said housing to cover the louvered vertical wall of said air cap housing when in said outside air mode position and to cover the air plenum when in said room air mode position.

5. A prefabricated fireplace assembly for mounting in a structure comprising:

a combustion chamber having an open front and a hearth;

a closure assembly including a frame surrounding the combustion chamber opening and at least one door operably mounted thereto;

air passage means formed in the frame at hearth level for introduction of air into the combustion chamber;

an outside air system including an outside air duct which is coupled to a chamber defining an air plenum formed below the hearth of the fireplace and air cap assembly extending across the combustion chamber opening and is in fluid communication with said air passage means formed in said frame and said chamber defining the air plenum formed below the hearth;

said air cap assembly including an air discharge housing having a top wall, opposed side walls and a vertical louvered wall coupled to said top wall;

damper means, operably mounted in the air cap assembly, and being adjustable between an outside air mode position or a room air mode position so that when said at least one door is closed, only outside air or room air will be introduced into the combustion chamber at hearth level whereby said air supply is sufficient for fuel combustion while providing an excess of air which flows upwardly between the burning fuel and the closure assembly to maintain safe fireplace temperatures and to protect said at least one door from damage by radiant heat generated by the burning fuel; and

said damper means being pivotally mounted in said housing to cover the louvered vertical wall of said air cap housing when in said outside air mode position and to cover the air plenum when in said room air mode position.

4,280,474

HEAT HUGGER

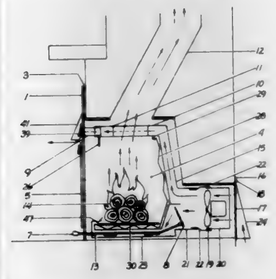
Harvey L. Ruegg, Sr., 9020 S. Hosmer, D-54, Tacoma, Wash. 98444

Continuation-in-part of Ser. No. 82,700, Oct. 9, 1979. This application Jul. 21, 1980, Ser. No. 170,694
Int. Cl.³ F24B 7/00
U.S. Cl. 126—121 **10 Claims**

1. In a fireplace combustion chamber having an adjustable forced air heating insert forming a heat exchanger means, a telescoping dual intake chamber with an outside source of ambient air, a cover for the front of the existing fireplace combustion chamber having a forced air outlet in an upper portion thereof an sleeve means for telescopically connecting said air outlet to said heat exchanger means, a means to control the amount and velocity of outside air entering the combustion chamber and the amount of outside air entering the heat exchanger, and means for guarding the front cover and the heat exchanger means from flame damage comprising:

(a) a heat exchanger having a hollow rectangular air chamber extending in a continuous fashion from a position adjacent the forced-air outlet on the cover across the top of the combustion chamber and down its rear face communicating into a top section of a duel intake chamber which communicates with an outside source of ambient air through a lower portion of the rear wall of the fireplace combustion chamber, said top portion of the heat exchanger having a cylindrical channel therein of less diameter than the width of the heat exchanger, perpendicular to and through its height at the center of the portion spanning the top of the fireplace combustion chamber, open at both its ends with its side impervious to air to define a channel through which exhaust gas from the combustion chamber pass to the chimney flue of the existing fireplace, said heat exchanger has an external removable means associated with the combustion chamber side of the heat exchanger for the protection thereof;

(b) an airtight cover for the front of the existing fireplace combustion chamber having a means for attachment to the frontal surface of the existing fireplace so that air cannot pass from the interior of the structure into the combustion chamber of the existing fireplace, said cover is equipped with self-closing means for access to the combustion chamber, for insertion of fuel materials, a lever extending through said cover and connected to an air flow control means which is operatively associated with said dual intake chamber to control the rate of burn within the combustion chamber, said sleeve which communicates with the forced air outlet extending rearward along the



top of the combustion chamber and is of such outside dimension as to fit telescopingly inside the portion of said heat exchanger extending across the top of the combustion chamber so that the effective length of this top portion of the heat exchanger is variable by inserting or retracting this sleeve, a means for blocking the passage of air through said outlet is connected to said cover andjacent said forced air outlet, and means to guard the frontal cover from flame damage is connected to that portion of the heat exchanger extending across the top of the combustion chamber;

(c) said dual intake chamber has a telescoping portion which inserted between the exterior wall of the existing fireplace and the lower rear surface of the combustion chamber and is covered on the exterior wall of the fireplace by a louvered screen and rain hood which is secured by suitable means to the exterior wall, a variable speed intake fan is located in the telescoping portion of the dual intake chamber for introducing outside ambient air into the heat exchanger means and for introducing air for combustion into a combustion chamber intake channel means, said combustion chamber intake channel means is comprised of an air chamber which is located adjacent the bottom of the combustion chamber and which extends across the full width thereof, said combustion chamber intake channel communicates at the rear side thereof with the dual intake chamber, the front side of said combustion chamber intake channel introduces the air for combustion into the combustion chamber and has means associated therewith to direct the flow of air down and back across the bottom of the combustion chamber while precluding blowback of a flame into said combustion chamber intake channel, said flow control means comprises a butterfly damper which is located between said intake fan and the rear side of said combustion chamber intake channel and which is of such a size as to be capable of closing off the combustion chamber intake channel completely

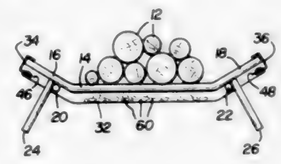
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4,280,475

SCREEN FOR FIREPLACE GRATE

Peter W. Truran, 6092 Meyers, Brighton, Mich. 48116

Filed Jan. 14, 1980, Ser. No. 111,490
Int. Cl.³ F23H 13/00
U.S. Cl. 126—164 **5 Claims**



1. In combination with a fireplace grate of the type for supporting logs to be burned a first distance above the floor of a fireplace, said grate including a plurality of spaced apart log support members, each log support member having first and second ends, the improvement comprising a screen, and means for attaching said screen to said grate a second distance below said grate, said second distance being less than said first distance, so that when logs are burned on said grate, the hot coals which result from burning said logs fall from said grate and rest on and are supported by said screen; said second distance being sufficiently small so that hot coals aid in completely burning logs on the grate and aid in igniting unburned logs placed on said grate; and said first distance exceeds said second distance by a sufficient amount so that air can flow upwardly through said screen to maintain said hot coals burning; said screen attaching means including a pair of opposed spaced apart C-shaped channels, each of said channels including an upstanding base and spaced apart parallel upper and lower legs, said lower leg being provided with an elongated slot which extends substantially the full length of the channel to receive said screen, the first channel of said pair of channels being frictionally retained on the first ends of said plurality of log support members and the second channel of said pair of channels being frictionally retained on the second ends of said plurality of log support members.

4,280,476

STOVE HAVING AUXILIARY DAMPER OPERABLY CONNECTED TO ACCESS DOOR

James E. Webb, Rte. #1, Box 460, Wingate, N.C. 28174

Filed Dec. 31, 1979, Ser. No. 108,560
Int. Cl.³ F23L 3/00
U.S. Cl. 126—286 **14 Claims**

1. In a stove having a combustion chamber including a lower zone for burning combustibles therein, an access opening for inserting combustibles therethrough into the combustion chamber, and at least one access door for normally closing the access opening, the combination therewith of

means defining a smoke passage extending along an upper portion of the stove above the zone for burning combustibles in the combustion chamber and having a rear portion adapted to communicate with a chimney for exhausting the products of combustion from the combustion chamber,

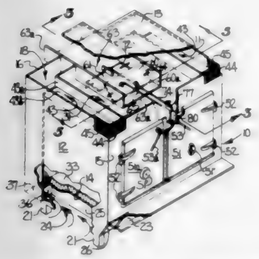
said smoke passage having a main opening and an auxiliary

opening therein for communication with the interior of the combustion chamber,

regulator damper means associated with said smoke passage for normally adjustably restricting the flow of the products of combustion from the combustion chamber through said main opening and said smoke passage to the chimney,

auxiliary damper means normally closing said auxiliary opening,

said main opening being located adjacent the stove access door so that heated air and products of combustion normally flow in a generally sinuous path toward the access door and then upwardly and away from the access door and into said main opening,



said auxiliary opening being located substantially further away from the access door and more closely adjacent the rear portion of the smoke passage than said main opening, and

means operably associated with said auxiliary damper means and the stove access door for effecting movement of said auxiliary damper means from the normally closed position to the opened position prior to the access door being opened for redirecting the products of combustion through said auxiliary opening and thus further away from the access door so as to thereby prevent the escapement of smoke through the access opening when the access door is opened.

4,280,477

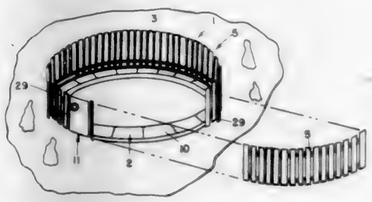
COMBINATION FENCE AND SOLAR HEATER FOR SWIMMING POOLS

David L. Divine, 10244 Blue Water Hwy., Lowell, Mich. 49331

Filed Jan. 24, 1980, Ser. No. 114,808

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—416 **11 Claims**



1. A combination fence and solar heater for swimming pools, comprising:

a fence shaped for extending about the periphery of a swimming pool area and restricting ingress and egress therefrom;

said fence comprising a plurality of interconnected pickets, and having heat exchanger means formed in at least a portion thereof; said heat exchanger means comprising a number of said pickets preselected in accordance with the climate in which said combination fence and solar heater is installed, and being arranged in said fence to face the direction of predominant sunlight; said preselected pickets having an exterior surface, a water carrying passageway extending therethrough with an inlet and an outlet communicating with the water in the swimming pool, and means for absorbing heat energy from sunlight impinging on the exterior surface of said selected pickets and conducting said heat to said water carrying passageway;

means for flowing the water in said swimming pool through said preselected pickets during daylight hours, whereby solar energy absorbed by the exposed exterior surface portion of the preselected pickets is transferred to the water flowing therethrough, thereby simultaneously heating the water in the swimming pool, and providing a protective safety barrier about the swimming pool.

4,280,478

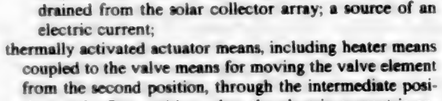
FREEZE PROTECTION APPARATUS FOR SOLAR COLLECTORS

Eugene F. Duval, 432B W. Meadow Dr., Palo Alto, Calif. 94306; David P. Bagshaw, 922 Lathrop Pl., Stanford, Calif. 94305; Michael A. Kast, 15 Bishop La., Menlo Park, Calif. 94025; Gilbert M. Masters, 1450 Mills Ct., and Harry T. Whitehouse, 15 Bishop La., both of Menlo Park, Calif. 94025

Filed Nov. 13, 1978, Ser. No. 960,399

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—420 **9 Claims**



1. In a system for warming a fluid by solar energy, the system including a solar collector array having an input conduit for receiving the fluid and an output conduit for discharging the fluid, a reservoir having an output line for supplying the fluid to be warmed and an input line for receiving fluid warmed by the solar collector array, and means for circulating the fluid from the reservoir, through the solar collector array, and back to the reservoir, freeze protection apparatus for draining the fluid from the solar collector array when the fluid within the array drops to a predetermined temperature, the apparatus comprising:

valve means interconnecting the reservoir input and output lines to the input and output conduits of the solar collector array, the valve means including a drain port and a valve element that is movable between:

(a) a first position for establishing mutually exclusive fluid communication between the reservoir output line and the input conduit and the output conduit and the reservoir input line, respectively,

(b) an intermediate position for establishing fluid communication between the reservoir output line and the input and output conduits simultaneously, and

(c) a second position for terminating fluid communication between the reservoir output line and the input and output conduits and for communicating the input and output conduits to the drain port, whereby fluid is drained from the solar collector array; a source of an electric current;

thermally activated actuator means, including heater means coupled to the valve means for moving the valve element from the second position, through the intermediate position to the first position when the electric current is applied to said heater means and to move the valve member from the first position to the second position when the electric current is removed therefrom; and

sensor means communicating the electric current to the actuator means for monitoring the temperature of the fluid contained in the solar collector array, the sensing means being operable to interrupt communication of the electric current to the actuator when the termperature being monitored reaches said predetermined temperature.

4,280,479

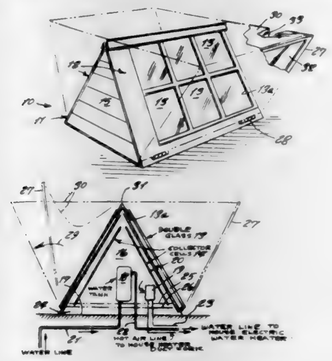
SOLAR HEAT COLLECTOR

Arie B. Sykes, Jr., Rte. 2, Box 170, Boonville, N.C. 27011

Filed Jan. 7, 1980, Ser. No. 109,867

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—426 **1 Claim**



1. A solar heat collector, comprising, in combination, an A-frame type, enclosing structure having inclined opposite side frames fitted with double glass panels, collector cells behind said panels, and a water tank and wristatic fan inside said structure, for supplying hot water and hot air to a house; a quantity of rip rap rock under said collector cells being covered by sheets of sheet metal and sawdust, for insulation of an interior enclosure of said structure; and a pivotable exterior frame, fitted with a transparent sheet, being hinged to a lower edge of each said side frame, each said exterior frame being a same size and same shape as said side frames, and a tent-like, flexible, transparent sheeting supported upon said structure and exterior frames, said sheeting extending between an apex of said A-frame type structure and the upper edge of each said exterior frames, said sheeting being in a taut position when said exterior frames are outwardly pivoted and in inclined position, so as to form an insulating space between each of said side frames and said exterior frame; and a triangular, flexible, transparent sheet between a side edge of each said side frames and said exterior frame, closing opposite side ends of said space.

4,280,480

SOLAR HEATING PLANT

Sulpicio B. Raposo, P.O. Box 888, Frankfort, Ky. 40602

Filed Mar. 17, 1980, Ser. No. 130,837

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—429 **11 Claims**

1. A solar plant, comprising of:

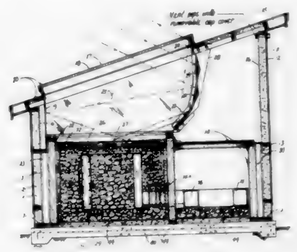
a. multiple reflectors composed of fixed and adjustable highly reflective panels so arranged to catch low and high angle rays of sunlight, wherein the fixed reflectors are placed vertically on the top cover of a primary compartment along the border of the compartment's three sides, the adjustable reflectors suspended from the rafters of a shed, whereby each individual reflecting panel is positioned at a convenient angle with the vertical plane to catch and pitch sun rays at various angles;

b. a primary compartment to house the air heating assembly, including piled rocks or bricks, a solar heat collector and tubing coils for water heating, and having means to likewise confine hot air for transfer of heat energy to an air heating assembly and a coil of water conduit;

c. a secondary compartment for storing some of the escaped heat from the primary compartment, said heat used to preheat an air stream flowing through an air return duct and water passing through a tubing coil housed in said compartment;

d. a solar heat collector concealed in the primary compartment positioned on top of piled rocks or bricks having a double layer of looped conduit, the said loop starting from the letter "S" shape and spaces between looped tubing filled with aluminum or copper grits;

e. an air heating assembly encased in piled rocks or bricks in the primary compartment, wherein the said assembly



draws heat from piled rocks or bricks and confined hot air within said compartment and transfers retained heat to an air stream flowing through the said assembly;

f. a looped water conduit coiled in the secondary compartment and around the inner peripheral wall of the primary compartment, wherein the said water conduit draws heat through contact with piled rocks or bricks and hot air confined in said compartment; and

g. a relatively air tight shed to house and protect the elements of the solar plant from influence of chill temperature, the said shed provided with skylight, single entrance with air tight shutter and short vent pipes with removable cap cover through the back or front wall of said shed for releasing excessive hot air within said shed during summer time.

4,280,481

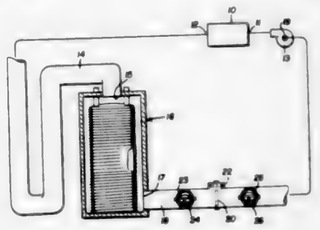
FORCED-AIR HEAT EXCHANGE SYSTEM

Joseph E. Fodor, 712 Shore Dr., Boynton Beach, Fla. 33435

Filed Mar. 31, 1980, Ser. No. 135,493

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—429 **5 Claims**



1. In a forced air heat exchange system having:

a heater having an air inlet and an air outlet;

blower means operatively connected to circulate air through said heater between said air inlet and said air outlet;

heat exchanger having an air inlet operatively connected to said air outlet of the heater to receive heated air therefrom, said heat exchanger having an air outlet;

and air recirculation duct means operatively connected between the air outlet of said heat exchanger and the air inlet of said heater;

the improvement which comprises:

a recirculation damper operatively connected in said duct means to control the air flow therethrough;

temperature differential sensing means operatively connected to said recirculation damper to control its position in accordance with the temperature difference between air inside said duct means and ambient air outside said duct means;

a normally-closed first draft regulator operatively arranged between the exterior and the interior of said duct means at the air inlet side of said recirculation damper and operable to open automatically when said recirculation damper closes, whereby to vent the interior of said air recirculation duct means at the air inlet side of said recirculation damper to the outside of said air recirculation duct means;

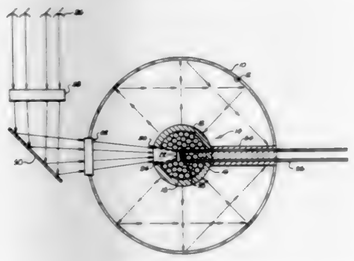
and a normally-closed second draft regulator operatively arranged between the exterior and the interior of said air recirculation duct means at the air outlet side of said recirculation damper and operable to open automatically when said recirculation damper closes, whereby to admit ambient air from the outside of said air recirculation duct means into said air recirculation duct means at the air outlet side of said recirculation damper.

4,280,482

METHOD AND APPARATUS FOR COLLECTING, INTENSIFYING AND STORING SOLAR ENERGY

Jack E. Nilsson, Sr., Easley, S.C., assignor to Seige Corporation, Greenville, S.C.

Filed Jul. 16, 1979, Ser. No. 57,733
Int. Cl.³ F24J 3/02
U.S. Cl. 126—430 **9 Claims**



1. An apparatus for collecting, intensifying and storing solar energy comprising:

a hollow spherical vessel having an interior wall;

a window provided in said wall of said vessel for allowing concentrated rays from the sun to enter into the interior of said vessel;

a solar collector centrally carried in said spherical vessel, said solar collector having;

(i) a spherically shaped wall,

(ii) a substantially black collector surface for absorbing thermal energy from said concentrated rays, and

(iii) a heat absorbing means carried in said container for absorbing and storing thermal energy from said collector surface, and for causing radiant energy to be emitted, said heat absorbing means being a material which goes from a solid state to a liquid state upon absorbing thermal energy from said heat collector surface,

a polished reflective surface carried on an interior wall of said spherical vessel for reflecting said radiant energy emitted by said heat absorbing means back to said spherically shaped wall of said solar collector.

9. A method of collecting, intensifying and storing solar energy comprising:

concentrating and directing rays from the sun through a window of a sealed spherical vessel;

absorbing thermal energy from said rays with a collector;

accumulating and storing said thermal energy absorbed by said collector with a heat absorbing member centrally located in said spherical vessel causing said heat absorbing member to emit radiant energy and causing said heat absorbing member to change from a solid state to a liquid state as it absorbs thermal energy;

reflecting said radiant energy emitted by said heat absorbing member with a reflective surface carried on an interior wall of said spherical vessel back to said heat absorbing member; and

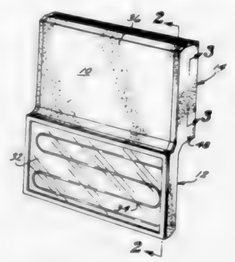
externally removing thermal energy from said heat absorbing member with a heat transfer means from said spherical vessel providing a source of thermal power.

4,280,483

SOLAR HEATER

I. Lawrence Schaffer, 134 Covina Ave., Long Beach, Calif. 90803

Filed Sep. 11, 1980, Ser. No. 186,341
Int. Cl.³ F24J 3/02
U.S. Cl. 126—433 **10 Claims**



1. A solar heater comprising:

collector and evaporator means including a collector for exposure to the sun to collect solar heat, and further including a tubular evaporator in heat exchange relation to said collector and having liquid refrigerant therein adapted to be vaporized upon receipt of solar heat from said collector; and

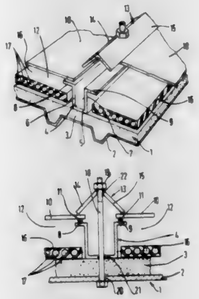
condensor and storage means located above said collector and evaporator means and including a tubular condensor in fluid communication with said evaporator for receiving vapor refrigerant rising naturally from said evaporator upon being heated by said solar heat, said condensor and storage means further including solid phase change material within which said condensor is embedded in heat exchange relation, said material being adapted to liquify at a predetermined working temperature upon receipt of heat from said condensor whereby said heat may be released to a surrounding environment colder than said working temperature during a phase change of said material from a liquid to a solid state, and whereby the cooled, liquid refrigerant is enabled to flow by gravity into said evaporator, said liquid refrigerant in said evaporator obstructing continued circulation of refrigerant through said condensor and said evaporator in the absence of collection of solar heat by said collector thereby to reduce heat loss through said evaporator during the night.

4,280,484

SOLAR ROOFS

Federico Mancosu, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Oct. 3, 1979, Ser. No. 81,457
Claims priority, application Italy, Oct. 4, 1978, 28392 A/78
Int. Cl.³ F24J 3/02; F28F 7/00; E04B 1/62
U.S. Cl. 126—450 **6 Claims**



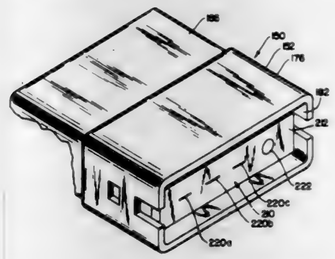
6. A solar roof for a building comprising from adjacent to the building upwardly a rigid sheet which covers the said building, an insulating foam resin pad disposed face to face on the rigid sheet, laterally spaced elastomeric plates disposed on the said foam resin pad face to face, a conduit means embedded in said plates for flow of fluid therethrough, means for flowing a fluid through said fluid conduit means, laterally spaced support members having a base disposed on the said foam resin pad between said spaced elastomeric plates, laterally spaced walls upstanding from the said base and fixed thereto, said upstanding walls terminating above said base in ends having outwardly extending flanges which lie in a plane substantially parallel to the plane of the said base, light transparent sheets disposed along one edge thereon on said flanges and disposed above the said insulating pad with an air space between said transparent sheet and said insulating pad, a peak member above said light transparent sheets and covering the space therebetween, and means for securing the said peak member to the said rigid sheet with the foam resin pad therebetween, whereby the said laterally spaced support members can deform without imparting localized stresses to said light transparent sheets.

4,280,485

COMPRESSION DEVICE WITH SIMULATOR

Edward J. Arkans, Schaumburg, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Apr. 11, 1980, Ser. No. 139,321
Int. Cl.³ A61H 1/00
U.S. Cl. 128—24 R **7 Claims**



1. A device for normally applying compressive pressures with a pair of sleeves against a patient's limbs from a source of pressurized fluid, comprising:

first and second elongated pressure sleeves for enclosing a length of the patient's limbs having chamber means;

means for intermittently inflating and deflating the chamber means; and

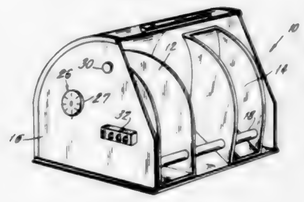
means for simulating operation of said second sleeve when only said first sleeve is in use or to simulate operation of said first sleeve when only said second sleeve is in use, with the simulating means being connected to the inflating means.

4,280,486

FOOT EXERCISER

Steven R. Hofstein, North Brunswick, N.J., assignor to World Medical Marketing Corporation, New York, N.Y.

Filed Oct. 29, 1979, Ser. No. 85,330
The portion of the term of this patent subsequent to Jul. 7, 1998, has been disclaimed.
Int. Cl.³ A61H 1/02
U.S. Cl. 128—25 B **26 Claims**



1. A foot exercising device, comprising:

a pair of foot pedals; and

motor means for reciprocating said foot pedals in a first direction, said motor means including slip means enabling said foot pedals to be reciprocated independently of said motor means, said motor means including a motor, said motor means reciprocating said pedals in said first direction and at a frequency which is determined by the speed of said motor, said slip means permitting said pedals to be reciprocated in said first direction and at a rate which is faster than the rate determined by the speed of said motor.

4,280,487

PULSATING INFLATABLE-DEFLATABLE PAD ASSEMBLY AND METHOD

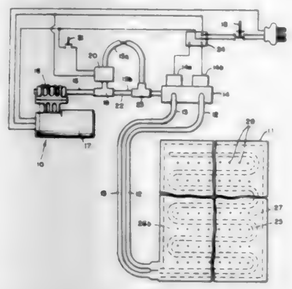
Barry N. Jackson, De Pere, Wis., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Jul. 5, 1979, Ser. No. 54,837
Int. Cl.³ A61H 1/00
U.S. Cl. 128—33 **23 Claims**

1. A pad assembly for supporting a bedridden patient to reduce the development of decubitus uclers, said assembly including a pad having two sets of interlaced inflatable-deflatable air chambers and having a multiplicity of perforations in its top surface to permit the escape of air from said chambers for deflation thereof, a porous air-permeable liquid-absorbent cover sheet upon said pad, and inflating means for cyclically and alternately inflating each of said air chambers while the other of said chambers is deflating because of the escape of air through the perforations thereof, wherein the improvement comprises:

pulsing means provided by said inflating means for pulsing the air flowing essentially unidirectionally to said pad at a frequency within the range of about 15 to 65 pulses per

second to produce a rapidly pulsing discharge of puffs of air from said perforations and into said cover sheet for



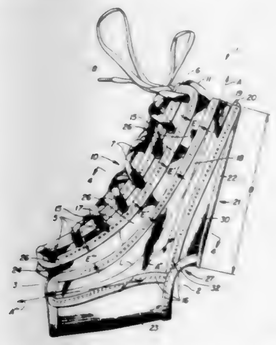
promoting the evaporation of moisture absorbed by said sheet.

4,280,488

ANKLE SUPPORT WITH ELASTIC PANEL

Robert D. Polsky, Berkeley, and Alexis G. Daneman, Danville, both of Calif., assignors to Orthopedic Technology, Inc., San Leandro, Calif.

Filed Nov. 2, 1979, Ser. No. 90,801
Int. Cl.³ A61F 3/00
U.S. Cl. 128—80 H **7 Claims**



1. In a semi-rigid ankle support having a largely sock-like shape, said support having a back, a front, and two side portions, the improvement which comprises two elastic panels extending substantially the length of said support, one of said panels being included in each side portion of said support, each panel including substantially overlapping sections of elastic material, each section being aligned so that the direction of elastic stretch of said section is substantially normal to the axis of the leg or foot located adjacent said section of elastic material.

4,280,489

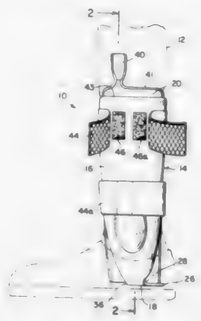
ANKLE BRACE

Glean W. Johnson, Jr., 10 Friar Tuck Cir., Summit, N.J. 07901

Continuation of Ser. No. 894,087, Apr. 6, 1978, abandoned. This application Apr. 21, 1980, Ser. No. 141,925
Int. Cl.³ A61F 3/00
U.S. Cl. 128—80 H **8 Claims**

1. Orthopedic apparatus for use in connection with the lower extremity and for immobilizing the ankle against inversion or eversion while permitting planto flexion and dorsiflexion thereof comprising: a base portion and a pair of spaced-apart sidewall portions attached to opposed side regions of said base portion and extending upwardly therefrom to form a generally U-shaped stirrup member adapted to be fitted about the lower extremity with the heel of the lower extremity resting on the base portion and the upstanding sidewall portions confronting corresponding opposed side portions of the lower extremity, each of said sidewall portions extending longitudinally above the ankle of the lower extremity and having a predetermined lateral extent such that the corresponding opposed longitudinally extending side edges of said sidewall portions are spaced far enough apart from each other to define a pair of openings disposed opposite the front and back portions of the lower extremity respectively when said stirrup member is fitted about the lower extremity as aforesaid,

each of said sidewall portions being attached to its corresponding base portion side region by means of a flexural hinge so as to facilitate flexure of each sidewall portion toward and away from each other and toward and away



from corresponding confronting side portions of the lower extremity, and

a pair of flexible support members, each one of said flexible support members being substantially coextensively disposed in a juxtaposed manner with respect to the inwardly facing surface of a corresponding one of said sidewall portions so as to engage a corresponding confronting portion of the side of said lower extremity when said sidewall portions are flexed toward each other, at least one of said flexible support members comprising an inflatable bladder, and

fastening means for maintaining said sidewall portions and said support members in engagement with corresponding confronting side portions of the lower extremity when said stirrup member is fitted about said lower extremity as aforesaid.

4,280,490

UNIVERSAL SPLINT

James L. Santy, Box 783, 1362 Woodside Ave., Park City, Utah 84060

Filed Nov. 29, 1979, Ser. No. 98,672
Int. Cl.³ A61F 5/04
U.S. Cl. 128—88 **11 Claims**

1. A universal splint comprising,

a backboard that includes strap means for securing it across a person's back;

an extremity support arranged for attachment to said backboard that consists of,

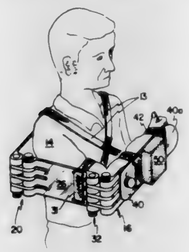
an upper arm board;

a forearm board;

first pivot coupling means that includes a pivot and connects said upper arm board to said backboard and is arranged to travel across said backboard to provide for positioning said extremity support to extend from either backboard side and provides a capability for locking said extremity upper arm board with respect to said backboard;

second pivot coupling means that includes a pivot and connects between said upper arm and forearm boards for providing full circle rotation capability of the one board across the other and provides for locking of the one board with respect to the other;

hinge means for arrangement with each said first and second pivot coupling means for providing a full circle rotation capability of said upper arm board towards said backboard and of said upper arm board towards said forearm board wherein the axis of said rotation is at a normal angle to the axis of rotation of each said pivot, and includes locking means for prohibiting hinge operation, at least one of which locking means includes;



fingers that extend, respectively, from a pivot coupling means and an end of said upper arm board;

tab means for interdigitating with said fingers;

holes formed appropriately through said fingers and tab means for providing, when properly aligned, a passage therethrough;

pin means for installation in the passage formed through said aligned fingers and tab means;

means for clamping the interdigitated fingers and the tab means together; and

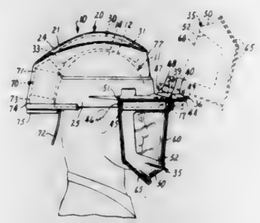
means for fastening said extremity support to a person's extremity.

4,280,491

POWERED AIR RESPIRATOR

Richard C. Berg, Bloomington, and Emil J. Kvall, North St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 7, 1980, Ser. No. 127,953
Int. Cl.³ A61F 9/06
U.S. Cl. 128—201.24 **6 Claims**



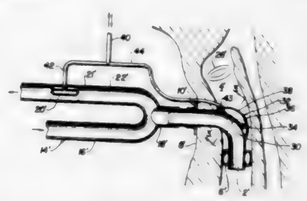
1. A powered air respirator providing hardhat, respiratory, eye and face protection comprising a hardhat, a shell member secured to said hardhat and spaced therefrom to form a generally dome shaped passageway therebetween, a face shield assembly attached to and depending from the front of said shell member having a peripheral edge which extends down the sides of the user's face from a point just slightly below the temples and across the bottom of the chin, a transparent face shield in said face shield assembly, face sealing means on the peripheral edge of said face shield assembly and terminating adjacent each temple of the user, to seal against a user's face from temple to temple, the terminal ends of said face sealing means being spaced from said shell member to define air exists from each side of said face shield assembly adjacent the temples of the user, and means for providing filtered air through said dome shaped passageway in a stream over the user's face and through said air exits above the user's temples.

4,280,492

TRACHEOSTOMY TUBE

Phillip B. Latham, 111 Conn Ter., Lexington, Ky. 40508

Filed Oct. 5, 1979, Ser. No. 82,327
Int. Cl.³ A61M 16/00, 25/00
U.S. Cl. 128—207.15 **8 Claims**



1. An apparatus for allowing a person with a tracheostomy to speak while being ventilated comprising,

a curved tracheostomy tube for insertion into the trachea beneath the larynx, said tube having first and second open ends and also having an orifice in its tubular wall in a position which resides inside the trachea when the tube is inserted with the first open end extending to the outside of the throat,

valve means associated with said orifice for selectively providing and preventing egress from it,

ventilator apparatus including cycling means for periodically feeding oxygen under positive pressure into said first open end of said tracheostomy tube and for periodically allowing exhalation of breath, and

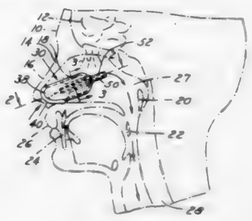
means responsive to the cycling of said ventilator apparatus for controlling said valve means for preventing egress from said orifice when said oxygen is fed under positive pressure and for providing egress from said orifice when said exhalation occurs, whereby exhaled breath enters the trachea and rises therein past the larynx to allow speech.

4,280,493

NOSE SHIELD

Edward L. Council, 4161 McClellan, Detroit, Mich. 48214

Filed Jan. 30, 1980, Ser. No. 85,390
Int. Cl.³ A61M 15/08
U.S. Cl. 128—207.18 **7 Claims**



1. A nose shield including nasal insert means adapted to be located in and to sealingly conform to the lining of the nostril of the nose, effective to prevent air containing oxygen required

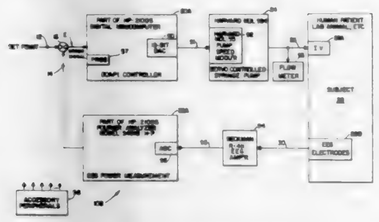
for a person to breathe from entering the nasal passages of the nose and further effective to direct such air to a person's air passage leading from the nostril to the back of the mouth and to the throat for breathing purposes thus by-passing the nasal passages, said nasal insert means comprising a unitary, thin wall, generally bowl shaped body made from a flexible plastic material and having a longitudinal axis, opened at one end and closed at the other end, with the closed end being of dome shape and adapted to conform to and contact the lining of the nostril adjacent the air passage, with the side wall of the body being of generally cylindrical configuration and located adjacent said open end of said body, said side wall of the body adapted to engage the lining of the nostril and with the open end of the body turned outwardly from within the nostril, a relatively small opening provided in the closed dome shape end of said body through which air entering the nostril is directed towards the air passage, mouth and throat for breathing purposes, said axis extending through said opening, an air delivery tube made from a flexible plastic material mounted in said opening and secured to said closed end of said body for delivering air to the person's air passage and throat, said air delivery tube having first and second tubular sections, said first section extending rearwardly of said closed dome shape end away from said body and adapted to be received in said air passage and said second section extending forwardly of said closed dome shape end and terminating inside of said body, said air delivery tube at the end thereof terminating within said body adapted to receive air entering the nostril and directing and delivering same therethrough to the other end thereof adapted to be located in the air passage.

4,280,494

SYSTEM FOR AUTOMATIC FEEDBACK-CONTROLLED ADMINISTRATION OF DRUGS

Robert J. Cosgrove, Jr., 5009 Juiata Dr., Birmingham, Ala. 35210, and Victor F. Smolen, 227 Timbercrest Rd., West Lafayette, Ind. 47905

Filed Jun. 26, 1979, Ser. No. 52,242
Int. Cl.³ A61M 5/00
U.S. Cl. 128—213 R **11 Claims**



1. Automatic feedback controlled apparatus for administering drugs to a subject to achieve a desired level of anesthesia, comprising:

(a) means for sensing the subject's EEG signal and for producing a response signal corresponding to said EEG signal;

(b) means for administering said drugs to the subject responsive to an actuating signal;

(c) preset means for establishing an order signal corresponding to the desired level of anesthesia;

(d) digital means connected to said sensing means, said means for administering and to said response signal producing means for identifying the drug/subject system model between said drug and said subject and for producing controller signals corresponding to said identified relationship; and

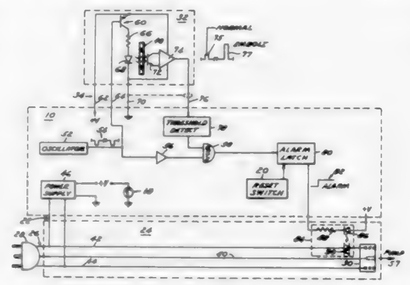
(e) a digital control loop connected to said means for sensing, means for administering, preset means and said digital means, for processing a difference signal, formed between said response signal and said order signal by a comparator, into a proportional component and an integral component of said difference signal to comprise said actuating signal, and further having means for establishing the ratio of proportional and integral components by said controller signals.

4,280,495

AIR EMBOLI DETECTION

Seymour R. Lampert, Ann Arbor, Mich., assignor to Sarns, Inc., Ann Arbor, Mich.

Filed Nov. 24, 1978, Ser. No. 963,311
Int. Cl.³ A61M 5/14
U.S. Cl. 128—214 E **4 Claims**



1. In apparatus for use in cardiopulmonary bypass surgery or the like and including a blood pump, means coupled to said pump for providing an extracorporeal blood flow path and sensor means disposed adjacent said path for detecting emboli in said path and coupled to said pump for deactivating said pump upon detection of any said emboli, said sensor means comprising a light source and light detection means disposed adjacent to said path and alarm means responsive to light incident upon said detection means from said source for indicating emboli in said path and deactivating said pump, the improvement wherein said sensor means further comprises electrical power supply means for energizing said source only at preselected periodic intervals with said source being otherwise de-energized and gate means electrically connected to said detection means, said power supply means and said alarm means for monitoring said detection means and enabling operation of said alarm means responsive to said detection means only at preselected times corresponding to said preselected periodic intervals.

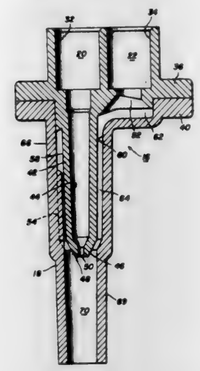
4,280,496

PHLEBOTOMY NEEDLE ASSEMBLY

Armand R. Van Baelen, Rolling Meadows, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Feb. 16, 1979, Ser. No. 12,825
Int. Cl.³ A61M 5/00
U.S. Cl. 128—214 R **11 Claims**

1. In a phlebotomy needle assembly through which whole blood is drawn through a cannula and mixed with an anticoagulant, and including a cannula extending from a hub; a blood-anticoagulant mixing device including an upper portion comprising an anticoagulant solution inlet for coupling to a source of anticoagulant and a blood-anticoagulant mixture outlet for coupling to outlet tubing, and an elongated member extending downwardly from said anticoagulant inlet said elongated member defining a bore that is coaxial with said anticoagulant inlet; a lower portion comprising a housing for surrounding said elongated member and a blood inlet for coupling to said hub, said inlet extending downwardly from said housing; said upper portion and said lower portion being initially separable; said mixture outlet being offset with respect to said inlets; said blood inlet defining a mixing chamber whereby the anticoagulant solution fed into the anticoagulant inlet enters directly into the mixing chamber to mix with the whole blood, said mixing chamber comprising the volume defined by said blood inlet and located below said elongated member; a passage defined by said mixing device and communicating with said mixing chamber and said mixing outlet for providing an outlet flow



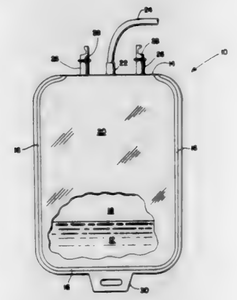
path through said mixing device for the blood-anticoagulant mixture; and a radially extending flange extending from said upper portion and a radially extending flange extending from said lower portion, and means connecting the bottom of said upper flange portion to the top of said lower flange portion.

4,280,497

CONTAINER FOR PLATELET STORAGE

Willis L. Warner, and Edward J. Nelson, both of San Rafael, Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Oct. 9, 1979, Ser. No. 83,136
Int. Cl.³ A61J 1/00
U.S. Cl. 128—272 **5 Claims**



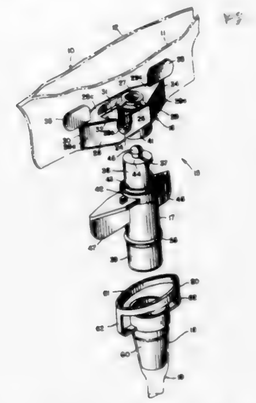
1. A flexible container having a concentrate of viable platelets stored therein which is suitable for intravenous administration wherein the container comprises plasticized polyvinyl chloride containing about 30 to about 50 percent by weight of tri 2-ethylhexyl trimellitate and about 3–5 percent by weight of a heat stabilization system, the platelets being at an acceptable level of viability for up to about five days storage at about 22° C.

4,280,498

VALVED DRAIN ASSEMBLY FOR UROSTOMY POUCH

Marvin E. Jensen, Niles, Ill., assignor to Hollister Incorporated, Chicago, Ill.

Filed Oct. 22, 1979, Ser. No. 86,832
Int. Cl.³ A61F 5/44
U.S. Cl. 128—283 **41 Claims**



1. A drain assembly for a urostomy pouch comprising a body member having walls defining a generally cylindrical discharge chamber having a side opening and an end opening; said body member being adapted to be mounted within a urostomy pouch with said side opening communicating with the interior of such pouch and said end opening directed externally thereof; a passage-providing tubular valve member having a generally cylindrical sleeve portion coaxial with said chamber and rotatably received within said chamber through said end opening for rotation about the common axis of said sleeve portion and chamber; said sleeve portion having an open-ended tubular stem projecting beyond said body member; said sleeve portion having a lateral port registrable with said side opening of said body member when said valve member is rotated into an open position and being out-of-register with said side opening when said valve member is rotated into a closed position; said sleeve portion also having an end wall closing the passage of said valve member at the end of said sleeve portion remote from said stem; locking means securing said body and valve members against axial displacement; and a drainage tube equipped at one end with coupling means for releasably engaging said stem.

4,280,499

ORYOTHERAPY APPARATUS

Angelo Sguazzi, Turin, Italy, assignor to Dario Bracco, Turin, Italy

Filed Jun. 7, 1979, Ser. No. 46,292
Claims priority, application Italy, Jun. 23, 1978, 68479 A/78
Int. Cl.³ A61B 17/38
U.S. Cl. 128—303.1 **1 Claim**

1. Cryotherapy apparatus comprising:

a tubular handle having an axial pipe defining therewith an annular passage,

a tubular probe extending from the handle and closed at its end remote therefrom, the said probe containing an axial capillary tube communicating at one end with the said axial pipe of the handle and terminating at its opposite end close to the closed end of the probe, the said capillary tube and tubular probe together defining a chamber surrounding the free end of the capillary tube and an annular passage communicating the chamber with the annular passage of the handle,

a supply pipe for supplying pressurised refrigerant having an

evporation temperature less than the ambient temperature to said axial pipe of the handle in order to effect cooling of the probe by expansion and evaporation of the refrigerant as it passes from said capillary tube into said surrounding chamber of the probe, the expanded refrigerant being discharged through said annular passages,

an electromagnetically-operable pressure reducing valve connected into the refrigerant supply pipe and including a movable valve closure member arranged to give unrestricted or restricted flow of refrigerant through the valve in dependence on the state of energisation of an electromangetic winding of the valve,

a temperature sensor arranged to sense the temperature of the handle and to output a signal indicative of that temperature,

a first electrical heating element arranged, when energized to warm refrigerant entering the pressure reducing valve,

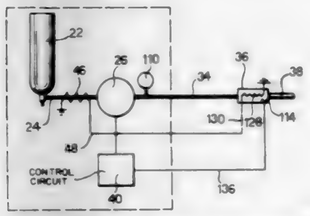
a second electrical heating element located within the handle, and

an electronic control circuit responsive to the temperature sensor output signal indicating that the handle temperature has fallen below a predetermined threshold value, to energise the first and second heating elements and to change the state of energisation of the electromagnetic winding of the valve to that in which flow through the pressure reducing valve is restricted;

said pressure reducing valve comprising:

a tubular body provided with an inlet union for connection to the refrigerant supply pipe,

an electromagnet housed in the tubular body adjacent the



inlet union and comprising said winding controlled by the electronic control circuit and a hollow magnetic core axially slidable within the winding,

a rod movable in response to movement of the magnetic core and carrying at one end the valve closure member, said closure member being arranged to cooperate with a valve seat provided in the inlet union,

an outlet union for refrigerant provided on the side of the tubular body downstream of the electromagnet, and

manually operable control means arranged to vary the position of the valve closure member with respect to said valve seat in a continuous manner between positions corresponding to complete opening and complete closure of the pressure reducing valve;

said manually operable control means comprising:

a sleeve axially slidable but non-rotatably mounted within the tubular body downstream of the electromagnet, the said sleeve being provided with a peripheral axial groove communicating with the said outlet union and the end face of the said sleeve remote from the electromagnet being helically contoured,

a hollow, cylindrical element threadedly engaging within the sleeve, the end of the said cylindrical element facing towards the electromagnetic projecting outside the sleeve so that it can abut against the magnetic core of the said electromagnet,

a rod member slidably mounted in an axial opening made in the said end of the hollow cylindrical element facing the electromagnet, one end of the rod member extending into the interior of the magnetic core coaxially with the rod mounting the valve closure member and the opposite end of the rod member being provided with an enlargement located within the internal cavity of the said hollow cylindrical element, resilient means for urging said enlargement of said rod against the said end of the hollow cylindrical element provided with the axial opening mounting the rod member,

a rotatably mounted shaft extending through the end of the tubular body opposite to the inlet union, the end of the shaft outside the tubular body being provided with a control knob, and

a pin located in a radial hole made in the shaft adjacent its inner end, the said pin having one end projecting from the radial hole to engage the helically contoured end of the sleeve so that the rotation of the shaft by means of the control knob is effective to cause axial movement of the sleeve and of the magnetic core resulting in movement of the valve closure member between completely open and completely closed positions, the said one end of the rod member being arranged to abut against the rod carrying the closure member when the latter is in said completely closed position.

4,280,500

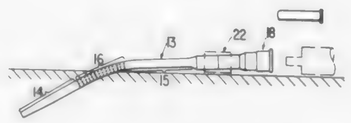
TUBULAR FLEXIBLE MEDICAL INSTRUMENT

Kazuaki Ono, 1-8, 5-chome, Koganei-shi, Tokyo, Japan 186

Filed Mar. 31, 1978, Ser. No. 892,121

Int. Cl.³ A61M *25/00*

U.S. Cl. 128—348 **4 Claims**



1. A tubular flexible medical instrument for insertion into a body cavity comprising: a sintered polytetrafluoroethylene tube of solid and porous portions; said solid and porous portions alternating along the length of said tube, said porous portions having a microstructure of nodes interconnected by fibrils.

4,280,501

INFLATABLE CATHETER MEANS AND METHOD

John W. Foderick, Box 246, Chisholm, Minn. 55719

Filed Jun. 13, 1979, Ser. No. 48,001

Int. Cl.³ A61M *25/00*

U.S. Cl. 128—349 B **9 Claims**



1. An improved inflatable catheter structure, comprising in combination, a primary catheter tube having an insertion end and an external connector end, inflatable retention collar means near the insertion end coupled by a secondary inflation

tube integral with the primary catheter tube and branching off into a resiliently deformable feed tube portion at a position near the external connector end, such feed tube portion having integrally connected to the external end thereof inflation means for selectively transferring fluid along the secondary inflation tube and into said retention collar means to inflate it, and clamping means positioned between said inflating means and the primary catheter tube adjacent said primary catheter tube having an aperture defined therein surrounding said feed tube portion which thereby retains said clamping means in a movable position to place said aperture into two opposing operational positions opening and closing said feed tube portion to the passage of fluid therethrough, thereby closing the feed tube portion when in use for severing the inflatable retention collar means from the catheter structure while retaining inflation and opening the feed tube portion for deflation after use.

4,280,502

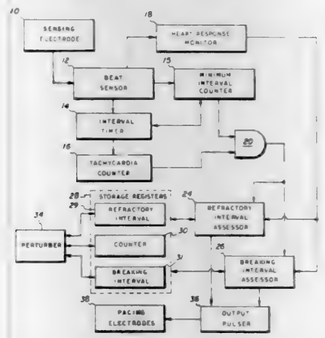
TACHYCARDIA ARRESTER

Ross G. Baker, Jr., Lake Jackson, and Richard Van Calfee, Houston, both of Tex., assignors to Intermedics, Inc., Freeport, Tex.

Filed Aug. 8, 1979, Ser. No. 64,553

Int. Cl.³ A61N *1/36*

U.S. Cl. 128—419 PG **35 Claims**



1. A method for controlling tachycardia, comprising the steps of:

detecting a tachycardia;

iniitiating a tachycardia arrest routine when said tachycardia is detected; wherein said routine includes

generating a first stimulating pulse initiated by a first tachycardia beat within a first trial interval;

monitoring a cardiac response to said first stimulating pulse;

increasing or decreasing said first trial interval as a function of said cardiac response to form a second trial interval;

generating a second stimulating pulse within said second trial interval following a second tachycardiac beat; and

continuing to derive successive trial intervals and to generate a simulating pulse within each of said trial intervals until said tachycardia is arrested.

4,280,503

BIPOLAR ELECTRODE INSERTION APPARATUS

Bernard Ackerman, Metuchen, N.J., assignor to Electro-Catheter Corporation, Rahway, N.J.

Filed Feb. 19, 1980, Ser. No. 122,568

Int. Cl.³ A61N *1/00*

U.S. Cl. 128—419 P **23 Claims**

1. A bipolar electrode insertion apparatus comprising a syringe means capable of injecting a fluid placed therein into the body through an outlet end thereof, a hollow needle, said needle having an inlet end and an outlet end for insertion into the body, a chamber disposed in flow through communication between said syringe outlet end and said needle inlet end, said placed fluid being selectively injectable into said chamber inlet end through said syringe outlet end and therefrom through said needle into the body with said needle inserted in position therein, said chamber further comprising an entrance port for a flexible bipolar electrode means, said bipolar electrode means entrance port being in flow through communication with said



needle inlet end for selective insertion of said bipolar electrode means through said chamber entrance port into said needle and therefrom through said needle into the body with said needle inserted in position therein, seal means disposed at said chamber inlet end for selectively isolating said syringe from said chamber, said chamber and needle providing a common conduit into the body for said selectively injectable fluid and said selectively insertable bipolar electrode means.

4,280,504

DEVICE FOR TREATMENT WITH INTERFERENCE CURRENTS

Hans Rodler, Graz-Neuhart, Austria, assignor to Firma Somartec S.A., Geneva, Switzerland

Filed Jan. 16, 1979, Ser. No. 3,961

Int. Cl.³ A61N *1/36*

U.S. Cl. 128—420 A **4 Claims**



1. In a device for providing electromedical treatment by causing a plurality of signals to be applied by electrode means to a body, said signals being of relatively different frequencies to interfere with one another in the body to be treated, including first means for generating a first relatively high frequency output signal in the form of a pulse train and second means, coupled to said first means and providing an output to said electrode means, for dividing said relatively high frequency output signal into a plurality of relatively lower frequency signals that differ in frequency by a controllable difference frequency, the improvement comprising means for controllably varying the division of said relatively high frequency output signal to one of said relatively lower frequency signals, including means for selectively deleting one of the pulses in

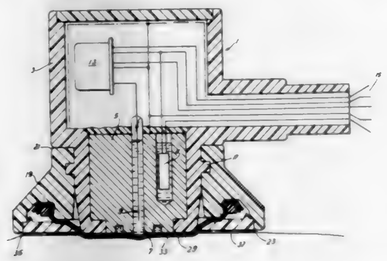
said pulse train to produce a lower frequency pulse train corresponding to one of said lower frequency signals.

4,280,505

FIXATION RING FOR TRANSCUTANEOUS GAS SENSOR PROBE

Carmelo Dali, Chesire, and David R. Rich, E. Hartford, both of Conn., assignors to Novametrix Medical Systems, Inc., Wallingford, Conn.

Filed Jun. 20, 1979, Ser. No. 50,200
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—635 **15 Claims**



1. A transcutaneous gas sensor probe comprising first and second electrodes one of which is an anode and the other of which is a cathode adapted to contact an ion solution,

a selectively permeable seal including a membrane for maintaining said solution in engagement with said electrodes and permitting said gas to permeate into said solution,

a housing in which said electrodes are mounted having a grasping end and a body end,

a fixation ring having a bore therethrough, a probe end and a body end, being removably attached to said housing and on which said seal is mounted including means for positively mounting said selectively permeable seal thereon

cooperative interlocking means on said housing and on said fixation ring for positively attaching said fixation ring to said housing with said seal in engagement with said electrodes and in sealing relationship with said bore so that only matter to which said membrane is permeable can pass through said bore when said fixation ring is attached to said housing, said cooperative means preventing inadvertent relative axial movement between said electrodes and said fixation ring.

4,280,506

DIGITAL WATCH/INFRARED PLETHYSMOGRAPH HAVING A REMOVABLE PULSE SENSOR UNIT FOR USE WITH A FINGER CUFF EXTENSION

Rudolf F. Zurcher, Newport Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

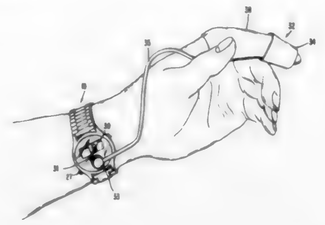
Filed May 16, 1979, Ser. No. 39,532
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—690 **17 Claims**

1. An infrared plethysmograph having a remote pulse sensing feature, comprising:

pulse sensing electronics having a digital display and a receptacle for alternatively receiving either a pulse sensor unit or a remote sensing cable;

a pulse sensor unit detachably mountable to said receptacle;

a remote pulse sensing cable having a connector at a first end for mounting onto said receptacle, said cable having a receptacle at the second end for receiving said pulse sensing unit; and



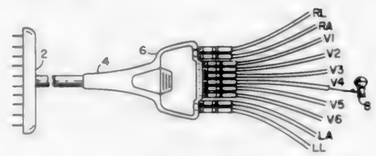
a cuff attached to said second end for securing said pulse sensing unit to a skin surface for sensing a pulse.

4,280,507

PATIENT CABLE WITH DISTRIBUTED RESISTANCE PROTECTION IN CONDUCTORS

Neil A. Rosenberg, Littleton, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 27, 1979, Ser. No. 52,364
Int. Cl.³ A61B *5/04*
U.S. Cl. 128—696 **1 Claim**



1. A yoke and trunk cable for coupling the inputs of an EKG machine to the separate leads from electrodes attached to a patient in such manner as to protect the inputs from current resulting from high voltage pulses that appear on the leads when a defibrillator pulse is applied to the patient, comprising

a trunk cable comprised of an outer protective sheath containing a conductive shield, a plurality of leads within said conductive shield, each lead having a conductor of an electrically conductive carbon loaded polymer coated with insulating material, the lengths of said leads of carbon loaded polymer being such as to provide an electrical resistance to protect an EKG machine connected to one end of said conductor from a defibrillator pulse applied to the other end,

a yoke having a plurality of pairs of connectors, one connector of each pair for receiving a pin connected to a conductor, the other connector of each pair for receiving a pin connected to a shield,

means for respectively connecting each of said connectors for receiving a conductor to one of said electrically conductive carbon loaded polymer conductors in said trunk cable, and

means for connecting said connectors for receiving a pin connected to a shield to said conductive shield in said trunk cable.

4,280,508

METHOD FOR POSITIONING A FLUID WITHDRAWING MEANS BY DETECTING LOCAL TEMPERATURE

M. Ismail Barrada, 45 E. Pleasant Lake Rd., North Oaks, Minn. 55110

Filed Dec. 27, 1979, Ser. No. 107,542
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—736 **6 Claims**



1. A method for withdrawing a sample of enclosed fluid from an internal organ of a living mammal which encloses said fluid, said method comprising the steps of:

(a) subcutaneously penetrating into an outer wall of said internal organ with the distal end of a cannula means such that said distal end is in contact with said outer wall;

(b) measuring the temperature of said outer wall at said distal end with a temperature-sensing probe inserted into said cannula means;

(c) penetrating further into said organ while retaining said temperature-sensing probe in its inserted position within said cannula means and continuing to measure the temperature surrounding the distal end of said cannula means;

(d) stopping any further penetration when the temperature measurement obtained according to said step (c) increases by at least about 0.1° C.;

(e) removing said temperature-sensing probe from said cannula means; and

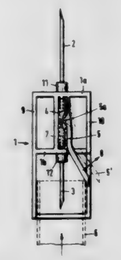
(f) withdrawing said sample of fluid from said internal organ through said cannula means.

4,280,509

VALVED BLOOD SAMPLING DEVICE

Jürgen Bethkenhagen, Heideweg 15, 5223 Nümbrecht, and Dieter Kolpe, Rosenfeldstrasse 1, 5276 Wiehl 1, both of Fed. Rep. of Germany

Filed Nov. 2, 1978, Ser. No. 956,925
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1977, 2750454
Int. Cl.³ A61B *5/14*
U.S. Cl. 128—766 **2 Claims**



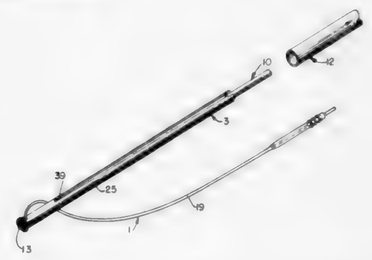
1. A device for the extraction of blood with a controllable flow, comprising a housing, an injection cannulae having a first end disposed within said housing, said injection cannulae having a pointed end extending from said housing, a discharge cannulae disposed inside said housing, a flexible tube connecting said discharge cannulae with the first end of said injection cannulae, and a resilient lever disposed in said housing and biased to squeeze closed said flexible tube when in its normal position but capable of releasing said tube upon being tilted away from its normal position, wherein said lever is so positioned that it is forced from its normal position by a tubular container when the tubular container is pushed into said housing.

4,280,510

SUTURELESS MYOCARDIAL LEAD INTRODUCER

Edward G. O'Neill, St. Paul, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Feb. 8, 1979, Ser. No. 10,465
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—784 **7 Claims**



1. A body implantable lead and lead insertion assembly for use in attaching an electrode of said body implantable lead to body tissue, said lead including a flexible insulated electrical conductor extending between said electrode and a connector adapted to be connected to a medical device, said insertion assembly comprising:

(a) tubular rod means having first means at the distal end thereof for holding a portion of said lead adjacent said electrode in a position for attachment of said electrode to body tissue;

(b) cylindrical tube means defining a lumen; and

(c) slot means configured for loosely receiving an insulated portion of said insulated conductor for releasably containing said conductor along the length of said assembly during attachment of said electrode to body tissue and for releasing said conductor upon relative axial movement of said tubular means and said rod means, said lumen being configured for loosely receiving said tubular rod means and retaining said insulated portion within slot means during attachment of said electrode to body tissue and thereafter for permitting the ready withdrawal of said tubular rod means from said lumen whereby said insulated portion may be readily withdrawn from said slot means.

4,280,511

RING ELECTRODE FOR PACING LEAD AND PROCESS OF MAKING SAME

Edward G. O'Neill, St. Paul, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Feb. 25, 1980, Ser. No. 124,156
Int. Cl.³ A61N *1/04*
U.S. Cl. 128—784 **6 Claims**

1. Body implantable lead comprising:

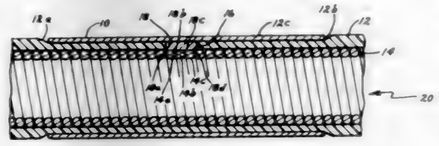
a coiled conductor having proximal and distal ends;

an electrical connector coupled to said proximal end of said coiled conductor;

a sheath of body compatible material having proximal and

distal ends covering said coiled conductor having a hole slit intermediate said proximal and distal ends;

means located within said hole means frictionally engaging said coiled conductor for electrically conducting to and from said coiled conductor; and



an electrode covering said hole and said conducting means frictionally attached to said sheath and said conducting means.

4,280,512

CARDIAC PACEMAKER ELECTRODE FOR TRANSVENOUS APPLICATION

Dieter E. Karr, Berlin, Fed. Rep. of Germany, and Scott B. Shanks, Lake Oswego, Oreg., assignors to Biotronik Mess- und Therapiegeräte G.m.b.H. & Co., Berlin, Fed. Rep. of Germany

Filed Sep. 26, 1979, Ser. No. 79,215

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1978, 2843096

Int. Cl.³ A61N *1/04*

U.S. Cl. 128—785 **8 Claims**



1. In a cardiac pacemaker electrode for transvenous insertion including a helical lead, a wire spring arrangement in electrical contact with the lead and including wire ends for fastening the electrode in the heart, a hollow cylinder, a piston to which the wire spring arrangement is connected so that the wire ends project from one end of the piston and which is displaceably mounted in the cylinder for movement, by means of a guide wire extending through the lead, between a retraction position in which the wire ends are retracted fully into the cylinder and an extension position in which the wire ends project out of the hollow cylinder and spread apart for fastening into heart tissue, and at least one contact element which is electrically conductively connected with the wire spring arrangement and is constructed so that it resiliently contacts a region which is in permanent electrical connection with the lead, the improvement wherein the outer lateral face of said piston tapers inwardly in the direction of the end thereof from which said wire ends project and the interior wall of said cylinder presents a correspondingly tapered surface located to sealingly contact said tapered lateral face of said piston when said piston is in its extension position for sealing the interior of said hollow cylinder against body fluids, the contact between said contact element and said region is independent of external forces exerted on said spring ends, and said contact element is disposed at a location at the interior of said hollow cylinder which is sealed against body fluids.

4,280,513

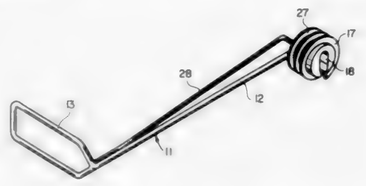
TOOL AND METHOD FOR ATTACHING ELECTRODE TO BODY TISSUE

Richard S. Gilbert, 1144 Sonoma Ave., Ste. 111, and Douglas W. Cardozo, 1111 Sonoma Ave., Ste. 302, both of Santa Rosa, Calif. 95405

Filed Jan. 7, 1980, Ser. No. 110,204

Int. Cl.³ A61N *1/04*

U.S. Cl. 128—785 **17 Claims**



1. In a tool for attaching an electrode to body tissue, said electrode having a body with a screw-like helical conductor and a flexible electrical lead extending therefrom: an elongated handle, a driving head rotatively mounted on the handle with means for engaging the body of the electrode and holding the same in a fixed position with the helical conductor extending along the axis of rotation, and means for receiving at least one wrapping of the electrical lead about the driving head in such manner that pulling on the lead imparts a rotation to the driving head for screwing the conductor into the body tissue.

4,280,514

ENDOCARDIAL PACEMAKER ELECTRODE

David C. MacGregor, 81 Wimbleton Rd., Islington, Ontario, Canada

Continuation-in-part of Ser. No. 824,296, Aug. 15, 1977, which is a continuation-in-part of Ser. No. 683,382, May 5, 1976, Pat. No. 4,101,984. This application Jul. 23, 1979, Ser. No. 59,786

Int. Cl.³ A61N *1/04*

U.S. Cl. 128—786 **14 Claims**



1. An endocardial heart pacemaker electrode for endocardial atrial and ventricular pacing constructed of electroconductive metal inert to blood and consisting of a dense rigid metal substrate and a rigid porous metal coating adhered to at least a major portion of said substrate,

said electrode having a regular geometrical shape, a maximum transverse dimension of about 0.5 to about 3 mm and a minimum longitudinal dimension of at least about 0.25 mm,

said porous coating including a plurality of metal particles bonded together at their points of contact with each other and with said substrate to form a network of interconnected pores substantially uniformly distributed throughout the coating,

said porous coating having a porosity of about 10 to about 50% by volume and a thickness of less than about 500 microns, said metal particles having a particle size selected from the group consisting of less than 100 mesh.

4,280,515

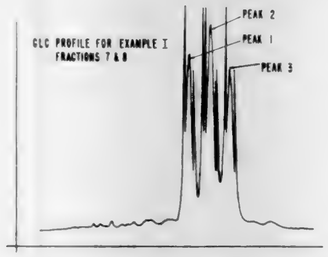
USE OF A MIXTURE OF ISOMERS OF CARYOPHYLLENE ALCOHOL OR DIHYDRO CARYOPHYLLENE ALCOHOL IN AUGMENTING OR ENHANCING THE AROMA OR TASTE OF SMOKING TOBACCO, SMOKING TOBACCO ARTICLES AND/OR SMOKING TOBACCO FLAVORS

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J.; Jacob Kiwala, Brooklyn, N.Y., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 947,186, Sep. 29, 1978, Pat. No. 4,229,599. This application Dec. 21, 1979, Ser. No. 106,154

Int. Cl.³ A24B *15/30*

U.S. Cl. 131—276 **3 Claims**



1. A smoking tobacco composition consisting essentially of smoking tobacco and intimately admixed therewith an organoleptic property augmenting or enhancing quantity of a product produced according to a process for rearranging caryophyllene oxide or dihydrocaryophyllene oxide the process comprising the steps of (i) intimately admixing aluminum isopropylate, toluene and a caryophyllene derivative selected from the group consisting of caryophyllene oxide and dihydro caryophyllene oxide in order to form a mixture; (ii) heating the resulting mixture at a temperature of from 100° C. up to 150° C. for a period of time from about one up to about five hours; and (iii) recovering the rearranged caryophyllene oxide or dihydro caryophyllene oxide, a mixture of alcohols, from the reaction mass; the concentration of aluminum isopropylate catalyst in the reaction mass varying from about 0.025 molar to to about 0.75 molar; and the concentration of caryophyllene oxide or dihydro caryophyllene oxide in the reaction mass varying from about 0.25 molar up to about 1.00 molar.

4,280,516

METHOD AND APPARATUS FOR PRODUCING A CONTINUOUS FILLER OF TOBACCO OR THE LIKE

Joachim Reuland, Neu Börnsen, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

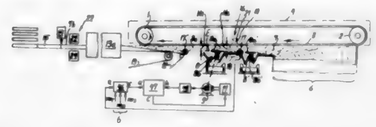
Filed Jul. 27, 1979, Ser. No. 61,352

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833118

Int. Cl.³ A24C *5/14*, *5/39*

U.S. Cl. 131—84 C **42 Claims**

1. A method of producing an elongated filler which consists of fibers, especially tobacco shreds, comprising the steps of continuously forming from the fibers an elongated stream which contains a surplus of fibers and advancing the stream lengthwise; equalizing the advancing stream by removing the surplus of fibers therefrom; generating a first signal which denotes the height of the equalized stream: densifying and wrapping the equalized stream to convert the stream into the filler; generating a second signal in dependence on the mass flow of the equalized stream; correcting the second signal in accordance with a function which is indicative of a desired



hardness of the filler and represents a predetermined relationship between said first and second signals; generating a control signal in dependence on the corrected second signal; and regulating said equalizing step in dependence on said control signal so as to maintain the hardness of the filler at a constant value.

4,280,517

BRUSH ATTACHMENT TO HAIR DRESSER

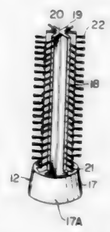
Sinji Ihara, Hikone, Japan, assignor to Matsushita Electric Works, Ltd., Osaka, Japan

Continuation of Ser. No. 769,711, Feb. 17, 1977, abandoned, which is a division of Ser. No. 602,907, Aug. 7, 1975. This application Mar. 26, 1979, Ser. No. 23,775

Claims priority, application Japan, Aug. 16, 1974, 49-94508

Int. Cl.³ A45D *20/00*

U.S. Cl. 132—9 **2 Claims**



1. A brush attachment to a hair dresser which includes air blowing means, air heating means and an air stream blowoff port at one end of said dresser, said attachment comprising a brush body having a base and a plurality of axially extending, circumferentially spaced ribs projecting from said base, said ribs defining therebetween a plurality of axial air guiding channels, and a plurality of rows of brushes having root portions planted in said ribs such that each of said rows extends in the axial direction of said brush body for holding hair wound around the brush body, said brushes having radially extended tip portions, said brush body being removably attachable to said one end of said hair dresser, said base of said attachment including surface means tapering in a direction away from said brushes, and a cover formed of a thermally conductive material and having a plurality of brush-receiving slits extending in the axial direction of said cover, an inner end of said cover being removably attachable to said base, said slits being open at said inner end of said cover to define therebetween a plurality of resilient arc-shaped segments which are resiliently expandable during longitudinal sliding movement of said segments along said tapering surface means to connect said cover to said base, said cover being dimensioned such that upon being inserted over said brush body, the periphery of the cover is positioned between said planted root portions and said tip portions of the brushes while allowing the brushes to extend from the cover through said slits, and a space communicating between said air stream blowoff port of the hair dresser and said root portions of said brushes, said slits dividing said cover into a plurality of segments of thermally conductive material

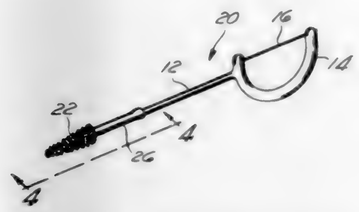
overlying respective ones of said channels so that the segments are heated by air from said channels and conduct such heat to hair wound around said segments.

4,280,518

TOOTH CLEANING IMPLEMENT

Susan M. Gambaro, 4811 Densmore St., Encino, Calif. 91436

Filed Apr. 9, 1979, Ser. No. 28,130
Int. Cl.³ A61C *15/00*
U.S. Cl. 132—93 **2 Claims**



1. An implement to facilitate the cleaning of teeth comprising:

an elongated member having a fore end and an aft end, said elongated member having a first longitudinal center axis, a strand of stretched taut dental floss being connected to said fore end, said fore end taking the form of a bifurcated member having a pair of spaced-apart leg members, said dental floss to be stretched between and attached to said leg members, said dental floss being parallel to said first longitudinal center axis;

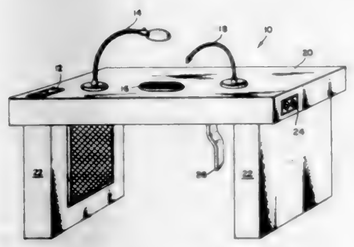
a brush-like member attached to said aft end, said brush-like member having a cross-sectional size greater than the cross-sectional size of said elongated member, said brush-like member being tapered in its longitudinal direction so that the outermost end of said brush-like member essentially comes to a point, said brush-like member being attached to a resilient sleeve, said aft end of said elongated member to be inserted within said sleeve and said sleeve deforming about said elongated member thereby tightly securing said elongated member to said brush-like member, said brush-like member having a second longitudinal center axis, said second longitudinal center axis coinciding with said first longitudinal center axis.

4,280,519

ENVIRONMENTAL MANICURE SYSTEM

Virginia J. Chapman, 5556 Peacock La., Riverside, Calif. 92505

Filed Apr. 14, 1980, Ser. No. 139,898
Int. Cl.³ A45D *29/18*
U.S. Cl. 132—73.5 **8 Claims**



1. An environmental manicure table comprising:

support means;

table top means maintained by said support means;

exhaust means included in said table top means for exhausting offensive materials from the vicinity of said table top means;

misting means included in said table top means for rendering some of said offensive materials into a form more readily exhaustible by said exhaust means;

misting control means for operating said misting means;

illuminating means for enhancing visibility on said table top means;

electrical convenience outlet means for supplying electrical power to auxiliary devices as may be required;

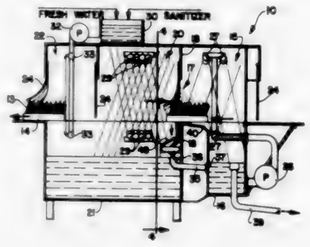
and control panel means for governing the operation of said exhaust means, said misting means, said illuminating means, and said electrical convenience outlet means.

4,280,520

WAREWASHING MACHINE SPLASHOVER RETURN SYSTEM

Louis F. Fraula, Troy; William H. McMahon, Ludlow Falls, and Thomas B. Heckman, Troy, all of Ohio, assignors to Hobart Corporation, Troy, Ohio

Filed Sep. 12, 1979, Ser. No. 74,650
Int. Cl.³ B08B *3/02*
U.S. Cl. 134—60 **7 Claims**



1. In a warewashing machine having first and second adjacent compartments, means including a transfer opening connecting the compartments for moving food ware sequentially therethrough, a tank for each compartment for holding liquid for that compartment, spray means for each compartment for spraying liquid from its respective tank onto the food ware therein, and means for returning liquid which falls to the bottom of each compartment to its respective tank, the improvement comprising:

a. liquid collection means positioned in one of said compartments immediately adjacent said transfer opening for capturing liquid entering said one compartment through said opening from the other compartment, said liquid collection means comprising means defining a pan having a shielded slot opened toward said transfer opening for capturing liquid directed thereto from said other compartment through said transfer opening while substantially shielded from the spray means of said one compartment for rejecting liquid directed thereto from the spray means in said one compartment, and

b. liquid return means for returning the captured liquid to said other compartment.

4,280,521

HUB ASSEMBLY FOR COLLAPSIBLE STRUCTURES

Theodore R. Zeigler, 205 S. Columbus St., Alexandria, Va. 22314

Filed Jun. 19, 1979, Ser. No. 49,904
Int. Cl.³ A45F *1/16;* **A45B** *19/00*
U.S. Cl. 135—4 R **4 Claims**

1. A hub assembly for collapsible structures comprising, in combination:

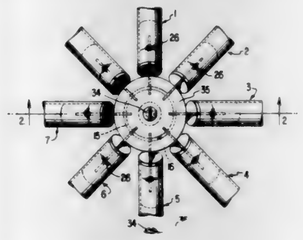
a first circular disc-like hub body having a plurality of radially inwardly extending slots therein and having a circular recess on one face thereof which intersects all of said slots in outwardly spaced relation to the inner ends thereof;

an interrupted retaining ring received in said recess;

a second hub body similar to said first hub body and joined in face-to-face relation therewith so that the recesses and slots of said first and second hub bodies are in registry;

a plurality of blade member, each having an apertured inner end receiving said retaining ring and projecting outwardly therefrom through an associated slot to terminate in an anchor end portion outside of said hub bodies;

a plurality of cylindrical plug members, one for each blade member and each having a longitudinally extending slot receiving the anchor end portion of an associated blade member, each such slot extending from one end of its plug member and terminating short of the opposite end thereof; and



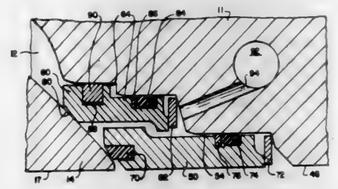
a plurality of tubular elements, one for each plug member, each tubular element receiving an associated plug member and having at least one deformed portion lockingly engaging both said plug member and the associated anchor end portion, each plug member being snugly received in its associated tubular member and each plug member terminating at said one end thereof in an end flange which is seated against the end of its associated tubular member, the anchor end portion of each blade member being of a width substantially equal to the diameter of said opposite end of the plug member and having notches intermediate its ends, each anchor end portion also having opposite side shoulders seated against said end of its associated tubular element, each plug member being formed of deformable material and each tubular member being deformed inwardly in register with said notches to deform the plug member and force the material of the tubular member locally into said notches.

4,280,522

FIRE SEAL FOR VALVES

Michael Pechuyo, Chicago, Ill., and Herman H. Fowler, Kearney, Nebr., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Apr. 14, 1980, Ser. No. 140,027
Int. Cl.³ F16K *13/04*
U.S. Cl. 137—72 **11 Claims**



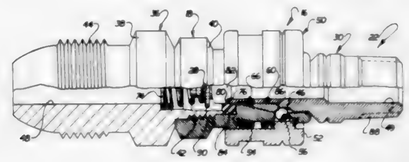
1. In a valve, a housing having fluid passages, a closure member movable between a closed position where fluid communication between said passages is interrupted and an open position where said passages are connected, a first seat ring within said housing surrounding one of said passages, resilient annular seal means between said first seat ring and the interior of said housing to prevent the passage of fluid therebetween, annular seal means between said first seat and said closure member to prevent the passage of fluid therebetween, a second seat ring of fire resistant material within said housing adjacent said first seat ring and having an annular sealing surface in engagement with said closure member, and fire resistant sealing means between said second seat ring and the interior of said body.

4,280,523

THERMAL RESPONSIVE COUPLING

James F. Norton, Berea, Ohio, assignor to The Hansen Manufacturing Company, Cleveland, Ohio

Filed Jun. 22, 1979, Ser. No. 50,952
Int. Cl.³ F16K *13/04*
U.S. Cl. 137—74 **10 Claims**



1. A fluid coupling for use in connecting a pair of conduits in fluid communication with each other and for subsequently interrupting the fluid communication between the conduits upon heating of the coupling, said coupling including a plug body, a collar circumscribing and movably mounted on said plug body, socket means for receiving at least a portion of said plug body and holding said plug body against movement relative to said socket means while the conduits are connected in fluid communication, said socket means including means for engaging said collar to hold said plug body against movement relative to said socket means, and temperature responsive means for releasing said plug body for movement relative to said socket means when said temperature responsive means is heated to a predetermined temperature, said temperature responsive means including means for holding said plug body and collar against relative movement while the temperature of said temperature responsive means is below the predetermined temperature and for releasing said plug body for movement relative to said socket means and collar upon heating of said temperature responsive means to the predetermined temperature.

4,280,524

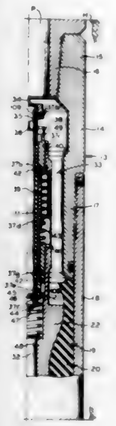
APPARATUS AND METHOD FOR CLOSING A FAILED OPEN FLUID PRESSURE ACTUATED RELIEF VALVE

Herbert W. Beimgraben, Houston, Tex., assignor to Baker International Corporation, Orange, Calif.

Filed Mar. 23, 1979, Ser. No. 23,200
Int. Cl.³ E21B *3/12, 41/00*
U.S. Cl. 137—268 **11 Claims**

1. In a valve apparatus having a hollow mandrel and having an inlet opening for fluid under pressure, an outlet opening connected to a fluid flow path, fluid pressure sensitive means responsive to fluid pressure below a first predetermined value for blocking the inlet opening and responsive to the fluid pressure at the first predetermined value for exposing the inlet opening to the fluid under pressure to establish fluid flow through the valve, and means for blocking fluid flow through

the valve, the blocking means comprising: a screen connected to said mandrel positioned between the inlet means and the



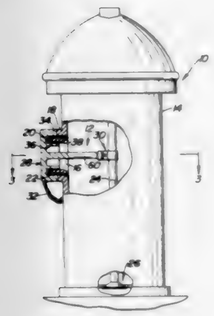
fluid flow path for normally passing the fluid therethrough; and means for plugging said screen to block fluid flow.

4,280,525

TAMPERPROOF CAP ASSEMBLY FOR HYDRANT

Francis R. Byrnes, Philadelphia, Pa., assignor to Center Compression Lock Company, Inc., Philadelphia, Pa.

Filed Apr. 18, 1979, Ser. No. 31,272
Int. Cl.³ E03B 9/06
U.S. Cl. 137—296 **11 Claims**



11. A tamperproof cap assembly for a hydrant having a housing provided with an outlet port and a nozzle surrounding said outlet port and a valve stem rod displaceable from a first position within the hydrant housing, comprising:

a cap adapted to be displaceably mounted on said hydrant nozzle;

said cap having a member which extends substantially laterally within said hydrant housing towards said valve stem rod;

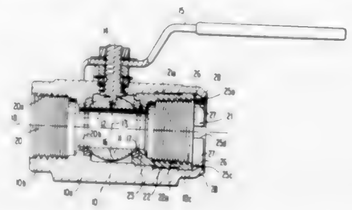
resilient locking means secured to said valve stem rod for slideably engaging said cap member within said hydrant housing to lock said cap in position on said hydrant when said valve stem rod is in said first position and said cap is displaceably mounted on said hydrant nozzle and for slideably releasing said cap member to permit displacement of said cap when said valve stem rod is displaced from said first position.

4,280,526

LOCKABLE END PLUG FOR VALVE HOUSINGS

Ricardo Gonzalez, Holden, Mass., assignor to Worcester Controls Corp., West Boylston, Mass.

Filed Apr. 15, 1980, Ser. No. 140,532
Int. Cl.³ F16K 43/00
U.S. Cl. 137—315 **15 Claims**



1. A valve comprising a housing having a movable valve element therein for controlling the flow of a fluid through such housing, said housing having an internally threaded first hollow cylindrical member defining a fluid flow passageway which extends between the interior and exterior of said housing, an externally threaded second hollow cylindrical member in thread engagement with the internal threads of said first hollow cylindrical member, said second hollow cylindrical member also being internally threaded for thread engagement with an externally threaded pipeline to effect fluid flow communication between the pipeline and the interior of said valve housing, one of said first and second hollow cylindrical members having at least two recessed notches in its periphery, said notches being disposed in angularly spaced relation to one another about the central axis of said one cylindrical member, and the other of said first and second hollow cylindrical members having at least two integral locking tabs which are respectively complementary in shape to the shapes of said recessed notches, said locking tabs being angularly spaced from one another about the central axis of said other cylindrical member and being bent from the material of said other member into engagement with the walls of respective ones of said recessed notches to prevent relative rotation between said first and second hollow cylindrical members, whereby said pipeline may be rotationally manipulated relative to said second hollow cylindrical member without effecting concurrent relative rotation between said first and second hollow cylindrical members, said cylindrical members being adapted to be disassembled from one another after removal of said locking tabs from said notches, whereafter, following reassembly of said cylindrical members, said cylindrical members may be relocked to one another by bending at least one new locking tab into at least one of said notches from a portion of said other cylindrical member that is located between the original removed locking tabs.

4,280,527

FLUID CONTROL VALVE AND SUPPORT ASSEMBLY

James F. Pease, 5805 Folkestone Dr., Dayton, Ohio 45459

Continuation-in-part of Ser. No. 025,869, Apr. 2, 1979, which is a continuation-in-part of Ser. No. 818,433, Jul. 25, 1977, Pat. No. 4,149,554. This application Feb. 11, 1980, Ser. No. 120,554
Int. Cl.³ F16K 51/00
U.S. Cl. 137—343 **19 Claims**

1. In a valve assembly including a valve body of molded plastics material, said valve body having an inlet portion defining an inlet and an outlet portion defining an outlet, means supported by said valve body for controlling the flow of fluid from said inlet to said outlet, said inlet portion including a plurality of parallel spaced holes disposed generally around said inlet, a metal fitting including a threaded tubular portion projecting from an outwardly projecting integral flange portion disposed adjacent said inlet portion of said valve body, means forming a fluid-tight seal between said flange portion and said inlet portion, a sheet metal bracket having an aperture aligned with said tubular portion of said fitting and a plurality of holes aligned with said holes within said inlet portion of said valve body, and a plurality of threaded fasteners extending within said holes for securing said bracket to said valve body with said flange portion of said fitting disposed therebetween, the improvement wherein said fitting comprises a drawn sheet metal fitting, said sheet metal fitting having means defining at least one recess extending inwardly from the periphery of said flange portion, said recess forming an outwardly projecting ear portion having a thickness less than the thickness of said flange portion, said aperture within said support bracket being of sufficient size to receive said flange portion of said fitting, said support bracket including means forming at least one ear projecting inwardly into said aperture, and said ear on said bracket overlying said ear portion on said fitting and projecting into said recess within said flange portion of said fitting.

8. In a valve assembly including a valve body of molded plastics material, said valve body having an inlet portion defining an inlet and an outlet portion defining an outlet, means supported by said valve body for controlling the flow of fluid



from said inlet to said outlet, said inlet portion including a plurality of parallel spaced holes disposed generally around said inlet, a metal fitting including a threaded tubular portion projecting from an outwardly projecting integral flange portion disposed adjacent said inlet portion of said valve body, means forming a fluid-tight seal between said flange portion and said inlet portion, a sheet metal bracket having an aperture aligned with said tubular portion of said fitting and a plurality of holes aligned with said holes within said inlet portion of said valve body, and a plurality of threaded fasteners extending within said holes for securing said bracket to said valve body with said flange portion of said fitting disposed therebetween, the improvement wherein said fitting comprises a drawn sheet metal fitting, said sheet metal fitting having means defining at least one peripheral recess extending inwardly from the periphery of said flange portion and forming an outwardly projecting ear having a thickness less than the thickness of said flange portion, said aperture within said support bracket being of sufficient size to receive said flange portion of said fitting, said support bracket including means defining at least one recess extending outwardly from said aperture, and said ear on said flange portion of said fitting projecting outwardly into said recess within said bracket.

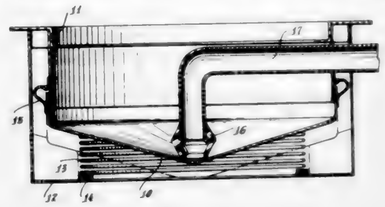
4,280,528

WASTE WATER CONVEYANCE APPARATUS

Sigvard V. Soderstrom, Hagersten, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Apr. 9, 1980, Ser. No. 138,504
Claims priority, application Sweden, Apr. 11, 1979, 7903212
Int. Cl.³ F16K 21/00
U.S. Cl. 137—408 **8 Claims**

1. A vacuum-operated waste water system having a casing and a two-part collecting container to which waste water flows directly from an inlet into the interior of said container, one of said parts of said container being fixed while the other of said parts is movable, a flexible bellows connecting said parts of the collecting container, a biasing means for said container which is not in contact with said incoming waste water, a discharge conduit in which vacuum prevails extending through the wall of said casing and the wall of said fixed part of the collecting container said discharge conduit being positioned above said flexible bellows, said free end of said conduit being normally sealed against a wall of said container until a



predetermined amount of waste water is received in said container wherein said container under the influence of the weight of the waste water is movable in a generally vertical direction against said biasing means, and said free end of said conduit becoming uncovered during the vertical movement of said container thereby permitting the waste water in the container to be drawn by vacuum through said discharge conduit.

4,280,529

VENTED FUEL TANK CAP

Giancarlo Silvestri, Via Mazzini 82/6, 40138 Bologna, Italy

Filed Mar. 1, 1979, Ser. No. 16,500
Int. Cl.³ F16K 17/196
U.S. Cl. 137—493.3 **2 Claims**

1. A vented fuel tank cap for a motor vehicle, comprising a body occupying only part of the cross-sectional area of the cap and having a venting passage therethrough which is stepped to form a first abutment surface between a first portion of the passage and a second portion of the passage of enlarged cross-section, said first portion being positioned upstream of said second portion when fuel vapour is vented to atmosphere through the passage in use of the fuel tank cap, said second portion having a restricted opening at its end remoted from said first portion to form a second abutment surface, and a valve body having an annular sealing surface engaging said first abutment surface under the action of a first relatively strong helical spring extending co-axially of the valve body and extending between said second abutment surface and an annular third abutment on the valve body to resist pressure exerted from inside the fuel tank, the valve body having a substantially cylindrical axial bore restricted, at the end remote from said sealing surface, by a ball loosely accommodated in said bore, and a second helical spring weaker than said first

helical spring and acting between the ball and an annular fourth abutment surface on the valve body at the end thereof adjacent said sealing surface to resist atmospheric pressure exerted by ambient air on said tank cap, the peripheral wall of said valve body being formed by two coaxial cylindrical portions of different diameters which produce said third abutment surface, of annular form, where they meet, said sealing surface being arranged at the end of the portion having the larger diameter and being formed of a rounded surface of an annular gasket of elastomeric material of non-circular cross-section, the end of the valve body adjacent said sealing surface having an enlarged opening which opens into said axial bore and into which is inserted an insert having a central opening defining in part the axial bore of the valve body, the said central opening being stepped to form said fourth abutment surface, a portion of the insert having a peripheral outer surface complementary to the inner surface of the said enlarged opening but of slightly greater diameter, the insert and/or the part of the valve body into which the insert is inserted, being made of resilient material so that the insert can be inserted into the said enlarged opening by spring action.

4,280,530

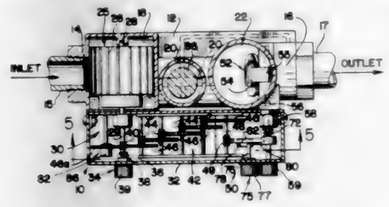
WATER-FLOW-CONTROL DEVICE

Kon H. Yi, 22941 Aspan St., El Toro, Calif. 92630

Filed Jan. 7, 1980, Ser. No. 109,809

Int. Cl.³ F16K *31/48*

U.S. Cl. 137—624.11 **4 Claims**



1. A water-control device adapted for use in water systems wherein the volume of water flow and the timing of the flow is required, said device comprising:
- a housing having an inlet port and an outlet port;
- an inlet chamber communicating with said inlet port;
- an outlet chamber communicating with said outlet port;
- an interconnecting flow passage interposed between said inlet chamber and said outlet chamber;
- means for controlling the volume of water passing between said inlet chamber and said outlet chamber;
- drive means within said inlet chamber operated by the water flow through said inlet port;
- a gear-train system operably connected to the drive means;
- a valve means operably mounted within said outlet chamber;
- a valve-timing means operably interposed between said valve means and said gear-train system, wherein said valve-timing means comprises a gear member adapted to be disengageable from said gear-train system for setting the length of time between an opened or closed position of the valve means;

and wherein said valve means comprises:
- a valve seat interposed between said outlet chamber and said outlet port;
- a valve member hingedly mounted within said outlet chamber;
- a shaft connected to said valve member and extending outwardly from said housing, said timing means being affixed to said valve shaft so as to rotate therewith; and
- a spring biasing means mounted to said shaft to bias said valve member and said timing means in counter-clockwise rotation;

means for releasing water pressure against said valve means when in a closed position, said release means being positioned in said interconnecting flow passage;
- a diverter passage adapted to selectively communicate between said interconnecting passage and the downstream side of said valve means;

said gear member of said timing means being formed in a crescent shape, and being flexibly attached to said valve shaft by a flexible arm member and a flexible leaf spring; and wherein means is provided for releasing said crescent-shaped gear member from engagement with a gear of said gear-train system, whereby said valve member can be returned to a closed position.

4,280,531

METHOD AND APPARATUS FOR HYDRAULICALLY CONTROLLING SUBSEA WELL EQUIPMENT

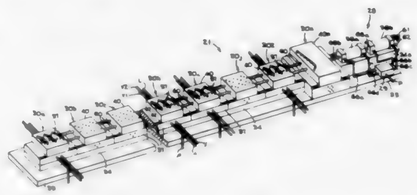
Lionel J. Milberger, and Albert R. Tucker, both of Spring, Tex., assignors to FMC Corporation, San Jose, Calif.

Division of Ser. No. 23,933, Mar. 26, 1979, which is a division of Ser. No. 873,323, Jan. 30, 1978, Pat. No. 4,185,541. This application May 13, 1980, Ser. No. 149,408

Claims priority, application United Kingdom, Feb. 26, 1977, 8216/77

Int. Cl.³ F15B *18/00*

U.S. Cl. 137—624.11 **17 Claims**



1. A fluid control valve comprising:
- a valve block having a plurality of inlet/outlet ports, a plurality of internal valve ports and a plurality of passageways interconnecting each of said internal valve ports with a corresponding one of said inlet/outlet ports;
- a jumper block having a plurality of jumper ports, a plurality of internal block ports, and a plurality of passageways interconnecting each of said internal ports with a corresponding one of said jumper ports;
- a plurality of programmable jumper lines;
- means for connecting the ends of each of said jumper lines to a selected pair of said jumper ports to selectively interconnect said passageways in said jumper block; and
- means for mounting said jumper block in sliding contact with said valve block to interconnect said internal valve ports with corresponding ones of said internal block ports.

4,280,532

CONTROL UNIT AND METHOD OF MAKING THE SAME

Harley V. Bible, Maryville, and William T. Moon, Jr., Knoxville, both of Tenn., assignors to Robertshaw Controls Company, Richmond, Va.

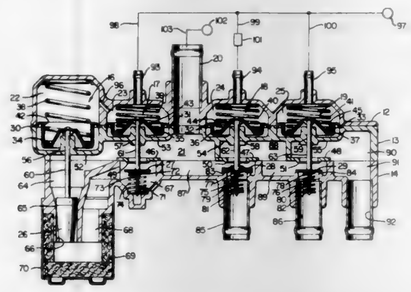
Division of Ser. No. 906,490, May 17, 1978, Pat. No. 4,223,701. This application Mar. 10, 1980, Ser. No. 128,628

The portion of the term of this patent subsequent to Sep. 23, 1997, has been disclaimed.

Int. Cl.³ F16K *27/02*

U.S. Cl. 137—882 **10 Claims**

1. In a control means having a plurality of pneumatically operated valve constructions for controlling the fluid flow from a first fluid source in relation to the condition of a second fluid source that is adapted to be interconnected to said pneumatically operated valve constructions, each valve construction having a flexible diaphragm means interconnected to a valve member by an actuator stem, the improvement comprising a self-contained housing structure carrying said valve constructions therein in substantially a circular array thereof and having a centrally arranged inlet substantially concentric to said circular array and being adapted to be interconnected to said first fluid source, said housing structure comprising two outboard housing sections and an intermediate housing section secured together in stacked relation, each said diaphragm means being held between said intermediate housing section and one of said outboard housing sections, each said valve member being disposed in the other of said outboard housing



sections, said intermediate housing section having a chamber therein interconnected to said inlet and leading to certain of said valve constructions, said other housing section having a plurality of valve seats respectively controlled by said valve members and having a plurality of outlets respectively associated with said valve seats, at least one of said valve constructions having its said actuator stem passing through its respective valve seat whereby said valve seat of said one valve construction is intermediate said valve member thereof and said diaphragm means thereof, said valve member of said one valve construction being movable on its respective actuator stem.

4,280,533

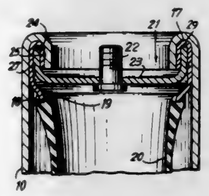
LOW PRESSURE, LOW COST ACCUMULATOR

A. A. Jacobellis, Woodland Hills, Calif., assignor to Greer Hydraulics, Incorporated, Chatsworth, Calif.

Filed Nov. 13, 1979, Ser. No. 93,041

Int. Cl.³ F16L *55/04*

U.S. Cl. 138—30 **4 Claims**



1. An accumulator device comprising a generally cylindrical pressure vessel including a closed end and an open end, an oil port formed in said closed end, a bladder subassembly mounted in said vessel, said bladder subassembly including an axially elongated cylindrical mounting skirt member having a bladder fixedly secured to one end thereof, a cap including an end wall disposed within said skirt and a cylindrical side wall extending away from said one end, said side wall being weldingly connected to said skirt along a first annular weld line spaced from said one end of said skirt, said weld line defining a seal between said side wall of said cap and said skirt, a gas charging port formed in said end wall of said cap, a second annular weld line connection formed between said skirt and said vessel at a position intermediate said first weld line and said open end of said vessel, said second weld line connection defining a seal between said skirt and said vessel whereby said bladder divides said vessel into two chambers communicating, respectively, with said oil and said gas ports and said bladder and cap are dependably secured to said vessel.

4,280,534

PLASTICS PIPES HAVING WALLS WITH LENGTHWISE EXTENDING CHANNELS

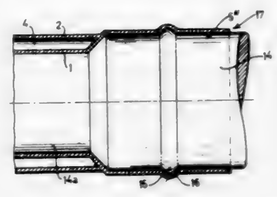
Jan P. van Dongeren, Bergentheim, Netherlands, assignor to Wavin B.V., Zwolle, Netherlands

Continuation of Ser. No. 728,117, Sep. 30, 1976, abandoned. This application May 9, 1978, Ser. No. 904,218

Claims priority, application Netherlands, Oct. 3, 1975, 7511693

Int. Cl.³ F16L *9/12, 9/18*

U.S. Cl. 138—109 **2 Claims**



1. A plastic pipe comprising:

an inner wall and an outer wall, said walls being interconnected by connecting partitions forming substantially rounded channels extending substantially entirely lengthwise of said pipe, at least one end of said pipe having a conical channel closing wall formed by a diverging straight-line conical portion of said inner wall directed toward and integrally formed with the outer wall adjacent said pipe end and generally cylindrical socket means, being integrally formed with said walls and extending for a distance beyond said pipe end, for receiving internally therein a mating end of another pipe, said inner and outer walls, and said partitions all being integrally formed together in one piece from plastic material.

4,280,535

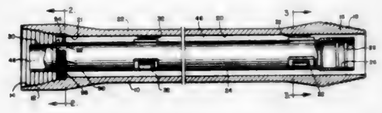
INNER TUBE ASSEMBLY FOR DUAL CONDUIT DRILL PIPE

Clyde A. Willis, Wichita Falls, Tex., assignor to Walker-Neer Mfg. Co., Inc., Wichita Falls, Tex.

Continuation of Ser. No. 872,335, Jan. 25, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 79,228

Int. Cl.³ F16L *9/18*

U.S. Cl. 138—112 **34 Claims**



1. In a dual conduit drill pipe section adapted for connection to a drill bit, said drill pipe section including an outer tube, an inner tube disposed within the outer tube, and means for securing the inner tube to the outer tube, the improvement comprising:
- a plurality of base members secured to the inner tube in a spaced relationship;
- a plurality of bearing members, each bearing member se-

cured to one of the plurality of base members and disposed between the inner tube and the outer tube, each bearing member defining a bearing surface having a hardness less than that of the outer tube and is positioned to contact the outer tube to provide low friction contact between the inner and outer tubes and thereby to reduce the friction associated with the movement of the inner tube with respect to the outer tube.

4,280,536

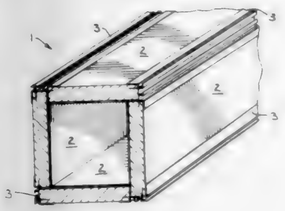
CONNECTING DEVICE FOR INSULATED DUCT WORK

Erich Gnant, 745 Janacek Dr., Waukesha, Wis. 53186

Continuation-in-part of Ser. No. 927,861, Aug. 23, 1978, abandoned. This application May 9, 1979, Ser. No. 37,416

Int. Cl.³ F16L *59/02*

U.S. Cl. 138—149 **1 Claim**



1. An insulating duct comprising:

a first sheet of fibrous insulating material having a first substantially smooth end surface;

a second sheet of fibrous insulating material and having a second substantially smooth end surface; and

a connector engaging said first and second sheets and joining said first and second sheets at a substantially right angle, said connector comprising:

a base extending substantially the entire length of insulating material;

a first sheet engaging means integrally connected to said base and comprising:

a first guide flange disposed in engagement with the outer surface of said first sheet; and

a first penetrating flange parallel to and spaced from said first guide flange and having a sharpened edge embedded within the first end surface of said first sheet, said first penetrating flange extending substantially the entire length of said base; and

a second sheet engaging means connected to said base and comprising;

a second guide flange disposed in engagement with the outer surface of said second sheet; and

a second penetrating flange parallel to and spaced from said second guide flange and having a sharpened edge embedded within the second end surface of said second sheet, said second penetrating flange extending substantially the entire length of said base.

4,280,537

APPARATUS FOR GRIPPING A RUNNING WEFT THREAD ON TRAVELLING-WAVE LOOMS

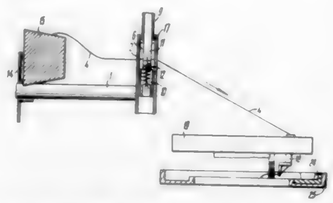
Eduard A. Onikov, ulitsa Pushcherova, 5 korpus 2, kv. 106; Alexandr L. Galperin, ulitsa Moldogulovoi, 10, korpus 3, kv. 166; Albert S. Serebryannikov, ulitsa Krasikova, 11, kv. 63; Alexandr A. Zabotin, Belyaevo-Bogorodskoe, kvartal 45, korpus 26, kv. 87, all of Moscow, and Evgeny D. Loschilin, Domodedovo, Kashirskoe shosse, 36, kv. 87, Moskovskaya oblast, all of U.S.S.R.

Filed Aug. 29, 1979, Ser. No. 70,790

Int. Cl.³ D03D *47/35*

U.S. Cl. 139—436 **5 Claims**

1. An apparatus for gripping a running weft thread on a travelling-wave loom, comprising; a rotatable disk, a tire arranged on the periphery of said disk; a gripping block partially embracing said tire and forming, together with said tire, an element for braking a weft thread as said weft thread is biased to the gripping block by said rotatable disk, said tire being



fabricated from a material with a coefficient of friction against the thread exceeding that of the material of the gripping block; and means for adjusting the angle of lap of the gripping block and tire to enable changing of the thread gripping time.

4,280,538

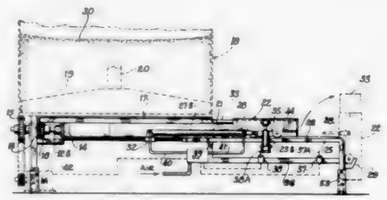
INSULATION PACKAGING MACHINE

Dale P. Hazelbaker, 9030 Carroll Way #6, San Diego, Calif. 92121

Filed Jun. 22, 1979, Ser. No. 50,986

Int. Cl.³ B65B *1/12*

U.S. Cl. 141—73 **3 Claims**



1. A machine for packaging loose-fill material into bags, comprising a trough adapted to receive fill material from a storage tank, said trough enclosing dual overlapping counter rotating helical motor driven augers, a portion of said trough being closed on four sides and having an open outlet end such as a bag may be placed over said portion such that as fill material is transported by the augers into the enclosed portion of the trough the bag will be filled and forced off the trough by the transported volume of fill material, and including a pair of guide rails and a roller carriage free to move along said rails, said roller carriage supporting a can adapted to fit over the bag and enclosed portion of the trough, carriage and can being movable from a position in which the bottom of said can is adjacent said open outlet to a position free of said trough as it is filled and forced off the trough by the transported volume of fill material.

4,280,539

TREE PROCESSING APPARATUS

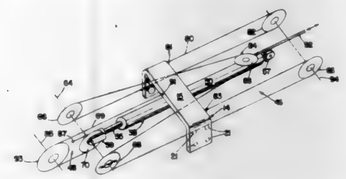
Paul H. Whitcomb, Woodstock, Canada, assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 17, 1980, Ser. No. 112,769

Int. Cl.³ B27L *1/00*

U.S. Cl. 144—2 Z **4 Claims**

1. In apparatus for harvesting trees comprising an elongated hollow boom assembly, a processing head movable along said boom assembly and operable to delimb trees positioned adjacent said boom and substantially parallel thereto, and actuator means including linearly movable means within said boom assembly operable to move said processing head along said boom assembly, the improvement wherein said boom assembly comprises a first upper channel member oriented with its legs extending downward, a second lower channel member oriented with its legs extending upward, and third and fourth



channel members received between said first and second channel members with their legs extending inwardly toward one another and attached to the legs of said first and second channel members to define a substantially cruciform section.

4,280,540

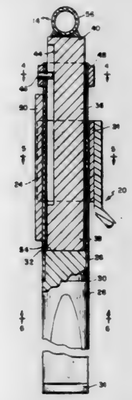
LOG SPLITTER

G. B. Kirby Meacham, 47 Black Rock Rd., Cohasset, Mass. 02025

Filed Jan. 31, 1979, Ser. No. 7,954

Int. Cl.³ B27L *7/00*

U.S. Cl. 144—193 C **14 Claims**



1. A log splitter comprising in combination a wedge having an upper part comprising a driving head and a lower part comprising a tapered blade, a support supporting the wedge with its driving head uppermost for vertical reciprocal movement, a hammer bar, guide means extending upwardly from the driving head of the wedge within which the hammer bar is supported in vertical alignment with the driving head for movement therein relative to the driving head on the one hand to be raised away from the driving head and on the other hand to be impelled into engagement with the driving head and means comprising handlebars fixed to the upper end of the hammer bar at opposite sides thereof for lifting the hammer bar away from the driving head and impelling it into engagement with the driving head.

4,280,541

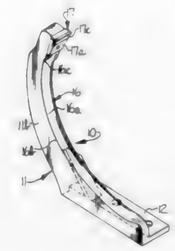
DEBARKING TOOL FOR LOG DEBARKING MACHINES

Marion W. Reimler, Charlotte; James L. Reimler, Matthews, both of N.C., and John S. Reimler, St. Simons Island, Ga., assignors to Reimler Associates, Inc., Indian Trail, N.C.

Filed Jan. 10, 1980, Ser. No. 110,914

Int. Cl.³ B27L *1/00*

U.S. Cl. 144—208 E **10 Claims**



8. A debarking tool for a debarking machine of the type having a rotatable ring rotor through which logs are longitudinally fed forwardly during debarking thereof, said tool comprising

an elongate arcuate body of generally rectangular cross-section having a rear side surface and also having opposing ends and an arcuate concave inner surface extending between said opposing ends and adapted to face generally inwardly toward the rotational axis of the ring rotor,

mounting means on one end of said arcuate body and adapted for rotatably supporting the debarking tool on the ring rotor on an axis radially outwardly of and extending generally parallel to the rotational axis of the ring rotor, the other end of said body being a free end,

a cutter member mounted on said free end of said arcuate body and having a cutting edge thereon adapted for engaging a log for debarking the same,

an elongate substantially sharp rear climbing edge extending between said opposing ends of said arcuate body for at least a substantial portion of the distance therebetween, said climbing edge also projecting rearwardly from said rear side surface of said body and along said arcuate concave inner surface of said body for defining a substantially sharp log engaging climbing edge thereon for engagement by successive logs being fed forwardly for quickly deflecting the debarking tool substantially out of the path of the logs during rotation of the tool with the ring rotor and thereby serving to protectively shield the debarking tool from impact blows by the leading ends of the successive logs, and

said climbing edge having one end terminating closely adjacent said cutter member and defining a terminal corner portion projecting rearwardly of said cutter member for protectively shielding said cutter member from wear and impact by the leading ends of successive logs and preventing the leading ends of the logs from engaging the cutter member.

4,280,542

CUTTERHEAD FOR A PORTABLE POWER PLANER

Lorenzo E. Alessio, Cairoli, and Giuseppe Caneo, Lorentuis, both of Italy, assignors to Black & Decker Inc., Newark, Del.

Filed Oct. 3, 1979, Ser. No. 73,767

Claims priority, application Italy, Sep. 8, 1978, 27473 A/78

Int. Cl.³ B27C *1/02*; **B27G** *13/04*

U.S. Cl. 144—230 **14 Claims**

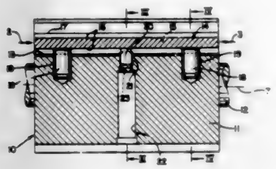
1. A cutterhead for a portable power planer comprising:

a cylindrical body having a substantially cylindrical surface and defining a longitudinal axis;

seat means formed in said body and extending in a direction

parallel to said axis so as to define a longitudinal aperture in said surface likewise parallel to said axis;

a cutting member defining a longitudinal axis and having two channels formed therein, said channels being oppositely disposed and defined by releived portions in the outer periphery of said cutting member, said channels extending parallel to said longitudinal axis, said cutting member having outer surfaces between said channels and being releasably insertable in said seat means, one of said



channels defining at least two cutting edges and the other of said channels angularly positioning said cutting member to selectively cause one of said cutting edges to project beyond said cylindrical surface; and

angular positioning means projecting into said seat means and engaging in said other channel for angularly fixing said cutting member so that the selected cutting edge penetrates said aperture at a predetermined angle of elevation with respect to said surface.

4,280,543

PNEUMATIC TIRES

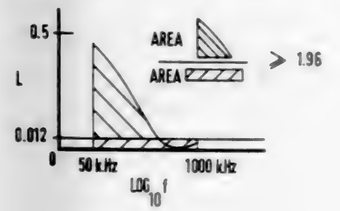
Robert Bond, Lichfield, and Arthur R. Williams, Birmingham, both of England, assignors to Dunlop Limited, London, England

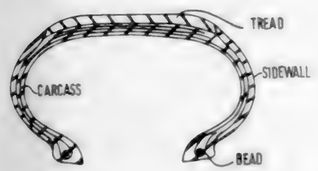
Filed Mar. 8, 1977, Ser. No. 775,472

Claims priority, application United Kingdom, Mar. 12, 1976, 9935/76; Jul. 23, 1976, 30745/76

Int. Cl.³ B60C *1/00*; **C08L** *7/00, 9/00*

U.S. Cl. 152—209 R **2 Claims**





1. A pneumatic tire having a tread, sidewalls and beads for seating on a rigid wheel rim; at least part of the tread of said tire comprising a cured compound having a loss factor less than or equal to 0.35 when deformed cyclically in the frequency range 1.5–150 Hz at a temperature of 24° C. and under a strain of 1%, whilst when deformed cyclically in the frequency range 50 kHz–1000 kHz at a temperature of 100° C. and deformation levels of 10 to 100×10^{-3} mm and taking a graph of loss factor against $\log_{10}$ of the frequency, the area of the graph between these frequency limits above the line loss factor=0.012 divided by the total area below the line loss factor=0.012 is greater than or equal to 1.96.

2. A pneumatic tire having a tread composition cured at 135° C. for 50 minutes comprising 50 parts natural rubber, 50 parts polyisobutylene, 0.5 parts N-cyclohexyl-2-benzthiazyl sulphenamide, 1.0 parts stearic acid, 5.0 parts zinc oxide, 5.0 parts mineral oil, 0.08 parts N-isopropyl-N'-phenyl-paraphenylene diamine, 0.85 parts 50/50 condensation product of acetone and diphenylamine/carbon black, 12.5 parts N110 carbon black, 37.5 parts N660 carbon black, and 2.5 parts sulphur.

4,280,544

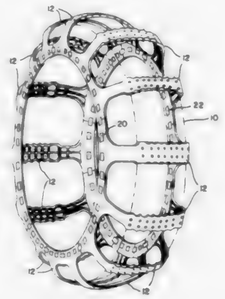
TIRE TRACTION DEVICE

Fred C. White, Renton, Wash., assignor to B R International, Tempe, Ariz.

Filed Mar. 14, 1980, Ser. No. 130,583

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—221 **7 Claims**



1. A device for increasing the traction of a tire on a road surface, comprising:

a plurality of traction members having generally planar inner and outer surfaces, a plurality of spacedly arranged suction cavities formed in the inner surface and a plurality of spacedly arranged recesses formed in the outer surface of each traction member, and a plurality of apertures, one extending between each of said suction cavities and said recesses in the road engaging outer surface of each of said traction members, said apertures having a smaller diameter than the diameter of said recesses; and

fastening means for releasably securing said traction members to said tire at circumferentially spaced locations along the periphery thereof with the inner surfaces of said traction members abutting the periphery of said tire such that as said tire rolls along said road surface, said traction members sequentially contact said road surface with said tire sealing said suction cavities and said road surface sealing said apertures to create and maintain a suction within said suction cavities which is broken as said traction member lifts away from said road surface.

4,280,545

WIRE ROPE TRACTION DEVICE FOR TIRES

Rene J. Martinelli, Tigard, Oreg., assignor to Buras Bros., Portland, Oreg.

Filed Jan. 15, 1979, Ser. No. 3,273

Int. Cl.³ B60C *27/00*

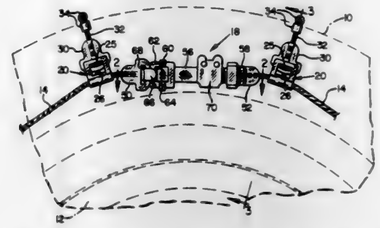
U.S. Cl. 152—222 **22 Claims**

1. In a traction device for attachment to a tire mounted on a wheel, including a pair of lateral cables for positioning circumferentially about the sidewall of said tire and a plurality of cross cables extending over the sole of said tire between said

lateral cables, a plurality of joints between said lateral cables and said cross cables, each such joint comprising:

a lateral cable securing member attached to a said lateral cable, said securing member being substantially flat for positioning against the sidewall of said tire,

and a cross cable end connector member joined to an end of a said cross cable, said connector member also being



substantially flat for positioning against the sidewall of said tire,

one of said members having a tongue and the other member having an aperture in a flat side thereof through which said tongue extends to provide an articulated connection,

wherein said one member forms a substantially closed loop comprising first and second flat sides extending to said tongue.

4,280,546

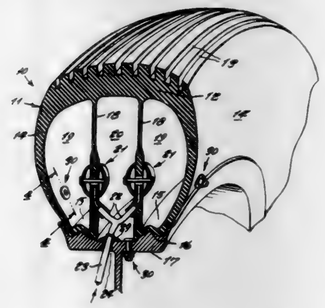
MULTI-ANNULAR CHAMBER, TUBELESS SAFETY TIRE

Victor S. Mistretta, 4703 Eleventh Ave., Brooklyn, N.Y. 11219

Continuation of Ser. No. 928,444, Jul. 27, 1978, abandoned. This application Feb. 21, 1980, Ser. No. 123,212

Int. Cl.³ B60C *11/14*

U.S. Cl. 152—330 RF **2 Claims**



1. A super-safety inflatable, tubeless tire for automotive vehicles comprising in combination, a circular casing of resilient material, and being fitted around an outer periphery of a wheel, said casing being of generally U-shaped cross sectional configuration by including an outer peripheral facing and opposite side walls, grooved treads around an outer side of said facing, a closed air chamber adjacent an inner side of each said side walls respectively defined and enclosed by means of said side walls, a portion of said outer peripheral facing, a pair of spaced apart parallel radial partitions extending from said outer facing and axially directed inner walls inwardly extending from a radially inward edge of each said side wall to a respective one of said partitions, each said inner wall being around an outer periphery of said wheel, the space between said partitions being closed by said wheel outer periphery so as to form an intermediate air chamber, all three said air chambers extending circularly around said wheel; an inner intake valve mounted on each of said partitions, each said air intake valve communicating with both said air chambers on each side of said partition, both said air intake valves being connected to branch lines of a common tubing which extends outwardly of said tire interior for attachment at its outer end to an air pump whereby all of said chambers can be simultaneously filled through a common input.

4,280,547

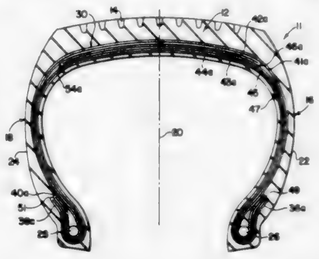
TIRE HAVING A FOLDED FABRIC REINFORCEMENT MEMBER AND A METHOD OF BUILDING SAME

Herbert O. Gilmore, Negley, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, OhioIO

Filed Jan. 9, 1980, Ser. No. 110,530

Int. Cl.³ B60C *9/04, 9/18*; **B29H** *17/20*

U.S. Cl. 152—354 R **25 Claims**



1. A tire for a vehicle comprising a first and a second bead, a crown portion extending circumferentially of the tire, the mid-circumferential plane of the tire dividing the tire into a first side and a second side, a first sidewall and a second sidewall on said first and second sides respectively extending from said crown portion in a direction toward the rotational axis of the tire to said first and second beads respectively and a single folded fabric reinforcement member extending circumferentially of the tire to provide a plurality of reinforcing layers; a first one of said reinforcing layers for reinforcing the sidewalls and crown portion extending from said first bead to said second bead in a path uninterrupted by folds where said reinforcement member is redirected into overlapping relation with said first reinforcing layer to provide a second one of said reinforcing layers; said second reinforcing layer extending from said second bead into said first side of the tire to provide reinforcement for the crown portion of the tire.

4,280,548

FURNITURE SUCH AS CHAIRS AND COUCHES

Manfred Brokmann, Silcherstr.5; Kurt Sanders, Friedrichstr.29; Dieter Sanders, Haneschweg 2, and Hermann Westhoff, Augustenburgerstr. 85a, all of Osnabrück, Fed. Rep. of Germany

Filed Sep. 7, 1978, Ser. No. 940,503

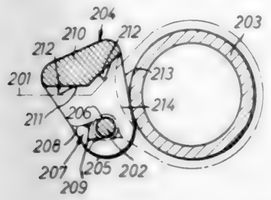
Claims priority, application Fed. Rep. of Germany, Sep. 23, 1977, 2742842; Dec. 9, 1977, 2754872; May 8, 1978, 2820012

Int. Cl.³ A47H *13/00*

U.S. Cl. 160—383 **16 Claims**

1. A filament strip support for furniture intended to be sat, lain or reclined on, comprising an array of filaments which extends in one longitudinal direction, thereby to form a filament strip support construction, attachment means for securing said filaments at their free ends to a frame of a piece of furniture, each of said filaments being in the form of a flat strip, and each of said filaments being connectable to a part of said frame by passing an end of said strip around said frame part to form a frame encircling loop, and securing said end to the strip itself by means of a securing member adapted to grasp said strip and constituting one of said attachment means, said secur-

ing member is in the form of a clasp to be placed astride the said strip, said attachment means further includes a separate



transverse locking member, said clasp having a pair of arms for holding the ends of said locking member, the latter being secured to the end of said strip.

4,280,549

APPARATUS AND PROCESS FOR DIE-CASTING

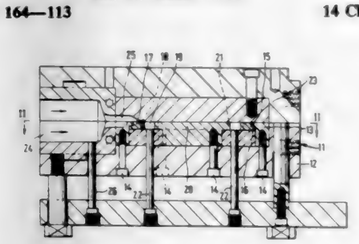
Stephen Gibbs, Nielston, Scotland, assignor to Keystone International, Inc., Houston, Tex.

Filed Apr. 6, 1979, Ser. No. 27,886

Claims priority, application United Kingdom, Apr. 8, 1978, 13876/78

Int. Cl.³ B22D *17/22*

U.S. Cl. 164—113 **14 Claims**



1. Die-casting apparatus comprising a fixed die member and a movable die member rotatable relative to said fixed die member which together define a circular casting cavity having a substantially helical formation on at least one radial periphery and expulsion means disposed to move into and through said cavity for ejecting a formed casting having said helical formation thereon from the cavity in a direction substantially parallel to the cavity axis, expulsion of said casting resulting in relative rotational movement between the fixed die member and movable die member.

9. A process for die-casting comprising bringing a fixed die member and a movable die member rotatable relative to said fixed die member together to define a circular casting cavity having a substantially helical formation on at least one radial periphery;

injecting a molding material into said cavity thereby forming a casting having said helical formation thereon; and

moving an expulsion means into and through said cavity for expelling the casting from the die in a direction substantially parallel to the cavity axis whereby expulsion of the casting from the die results in relative rotational movement between the fixed die member and movable die member.

4,280,550

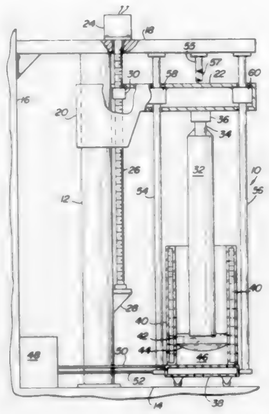
ELECTROSLAG REMELTING FURNACE WITH IMPROVED POWER CONNECTION

Raymond J. Roberts, West Berlin, N.J., assignor to Consarc Corporation, Rancocas, N.J.

Filed Feb. 11, 1980, Ser. No. 120,226

Int. Cl.³ B22D *23/06, 27/02;* **H05B** *3/60*

U.S. Cl. 164—252 **8 Claims**



1. A power connection for an electroslag remelting furnace, said electroslag remelting furnace comprising a crucible supported upon an electrically conductive base,

a vertically adjustable electrode support means for supporting one or more electrodes within said crucible for forming an ingot therein,

a plurality of individual rigid conductors spaced around the periphery of the crucible and base, and extending vertically from said base to said electrode support means,

said individual conductors defining a vertical coaxial configuration for eliminating the effects of magnetic fields upon an ingot being formed within the crucible,

and power conductors for connecting a source of electrical power to said furnace,

said electrode support means including contact means for maintaining it in continuous electrical contact with said individual conductors regardless of its vertical position relative to the base whereby electrical power may be conducted from said individual conductors to one or more electrodes supported by said electrode support means,

one of said power conductors being connected to said base and the other of said power conductors being connected to individual conductors at a position adjacent to said base,

whereby an electric circuit may be defined by said power conductor connected to said individual conductors, said electrode support, the one or more electrodes supported thereon, a slag and molten metal pool contained within said crucible, any ingot formed within said crucible, said base, and the one of said power conductors which is connected to said base.

4,280,551

CENTRIFUGAL CASTING APPARATUS FOR DENTISTRY

Isao Ohara, 24-4, Midorigaoka 4-chome, Toyonaka, Osaka, Japan

Filed Aug. 9, 1979, Ser. No. 65,102

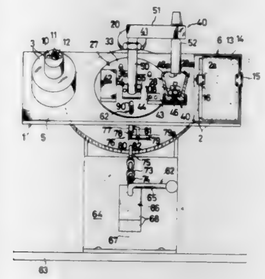
Claims priority, application Japan, Aug. 11, 1978, 53-98470

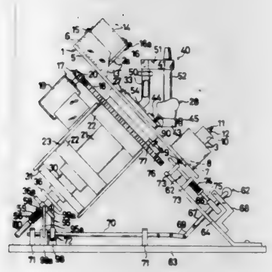
Int. Cl.³ B22D *13/06, 13/10*

U.S. Cl. 164—287 **8 Claims**

1. A centrifugal casting apparatus for dentistry comprising: a

rotatable platform means provided with a major surface and adapted for rotation about an axis normal to said major surface defining the center of rotation of said platform means, said platform means being provided with a cutout portion defining a through hole at the center of rotation; a mold mounted on said major surface radially spaced from said center of rotation; a driving mechanism associated with said platform means for rotating said platform means; a rotating member having an upper surface and an axis of rotation normal to said upper surface and coincident with said axis defining said center of





rotation; a crucible mounted on said upper surface and radially displaced from said center of rotation; rotation transmitting means attached to said rotating member and associated with said drive mechanism via said through hole at the center of rotation to transmit rotation of said platform means to said rotating member; means associated with said rotation transmitting means for engaging said rotating member with said rotation transmitting means to impart the rotation of said rotating member after commencement of rotation of said platform means; and means associated with said crucible for melting metal charged into said crucible.

4,280,552

DRIVING ROLL STAND FOR A CONTINUOUS CASTING PLANT

Franz Bayer; Hermann Schubert, both of Linz, and Franz Kagerhuber, Traun, all of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Jun. 19, 1979, Ser. No. 49,909

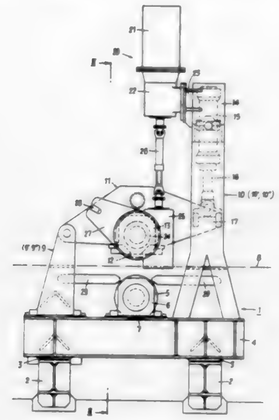
Claims priority, application Austria, Jun. 23, 1978, 4578/78

Int. Cl.³ B22D *11/128*

U.S. Cl. 164—448 **3 Claims**

1. In a driving roll stand to be used in a continuous casting plant, for example a multi-stand continuous casting plant with strand guideways for billets, of the type including a lower roll and an upper roll arranged one above the other, a rotary drive for driving at least one of said rolls, a base, a support mounted on said base and supporting said lower roll, a lever hinged to said support and supporting said upper roll, and an adjustment drive for pivotably moving said lever, the improvement which is characterized in that,

said support includes an upper part rising above said lever in terms of height,



one end of said adjustment drive is hinged to said upper part of said support and the other end is hinged to said lever, said adjustment drive being a single device and means mounting said device centrally above the axis of said strand guideway, and

said rotary drive is mounted at said upper part of said support.

4,280,553

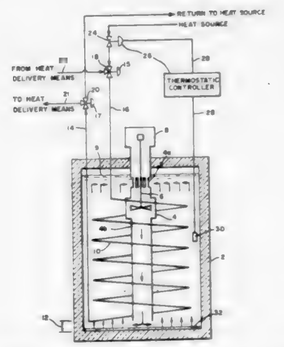
SYSTEM AND PROCESS FOR STORING ENERGY

Samuel L. Bean, Jamesville; James W. Swaine, Jr., Manlius, and Paul R. Crawford, Freeville, all of N.Y., assignors to Allied Chemical Corporation, Morris Township Morris County, N.J.

Filed Mar. 16, 1979, Ser. No. 21,282

Int. Cl.³ F28D *21/00*

U.S. Cl. 165—1 **7 Claims**



1. In a process for storing and releasing heat wherein heat is absorbed by a solid hydrated salt stored in a bulk container thereby causing said solid salt to become molten, and thereafter said molten salt is allowed to solidify and heat released from said salt in the solidification step is recovered, the improvement which comprises terminating the input of said heat into said solid salt prior to the complete conversion of said solid salt to the molten state to prevent formation of an undesired lower

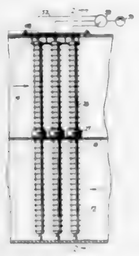
energy solid hydrated salt and thereby to maintain heat storage capacity of said salt substantially unchanged, and internally circulating said mixture of said molten salt and said solid salt within said container during the solidification step thereby preventing stratification and supercooling.

4,280,554

HEAT TUBE

Richard F. Stockman, Friendship, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,347
Int. Cl.³ F28D *15/00*
U.S. Cl. 165—11 R **6 Claims**



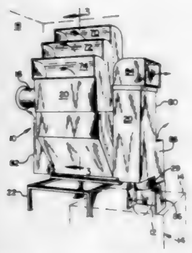
1. Heat exchange apparatus for the transfer of heat from a hot fluid to a cold fluid including a housing having outer walls enclosing a compartment, an apertured partition plate extending between opposite sides of said housing to divide the compartment into hot and cold fluid passageways, heat pipes extending through each aperture of said partition and substantially across the hot and cold fluid passageways, a volatile liquid contained in said heat pipes, means detachably mounting said heat pipes in the apertures of said partition plate comprising a collar fixed to the partition plate around each aperture therein, a locking collar fixed to each heat pipe adapted to matingly receive the fixed collar on the partition plate to preclude fluid flow therebetween, and means for identifying a heat pipe that fails to effectively transmit heat from the hot to the cold fluid passageways.

4,280,555

HEAT EXCHANGER FOR EXHAUST OUTLET OF A ROOM HEATING UNIT

Leo Cieslak, 1263 Church, NE., Salem, Oreg. 97301

Filed Jun. 25, 1979, Ser. No. 51,404
Int. Cl.³ F24H *9/02*; **F24B** *7/00*
U.S. Cl. 165—47 **13 Claims**



1. A heat exchanger for coupling the exhaust outlet of a heating unit to a chimney and extracting heat from the exhaust gases flowing therethrough, comprising:

conduit means for coupling the exhaust outlet to the chimney including a plurality of vertically spaced rows of horizontally extending tubes and end cap means for coupling adjacent ends of the tubes to form an upwardly progressing serpentine path for the exhaust gases; and

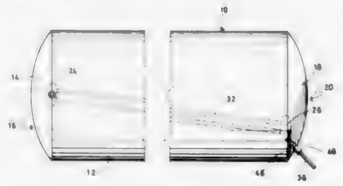
shroud means for directing air past the conduit means including means for separately housing a plurality of vertically spaced clusters of the tubes so that air will flow by convection generally horizontally past the tubes, the shroud means further including means for separately housing the end cap means so that air will flow by convection past the end cap means.

4,280,556

HEAT EXCHANGER-TANK ASSEMBLY FOR HOT WATER HEATING SYSTEM

George H. Cooper, Bridgton, Me., assignor to Suntime, Inc., Belfast, Me.

Filed Jan. 22, 1980, Ser. No. 114,385
Int. Cl.³ F28F *9/00*
U.S. Cl. 165—76 **5 Claims**



1. In a heat exchanger-tank assembly comprising a tank having an elongated body portion, a pair of end caps assembled thereto to close both ends of said body and a preassembled heat exchanger mounted therein, said heat exchanger comprising an inlet manifold at one end thereof, an outlet manifold at the other end thereof and a series of heat exchanger tubes in sealed relation to said manifolds so as to place them in communication with each other, said tubes sloping downwardly to permit drainage by gravity of fluid therethrough, the improvement comprising

a drain tube connected to the lowest point of said outlet manifold

means providing an opening in the outlet end of said tank for said drain tube so located as to receive said tube when said preassembled heat exchanger is bodily inserted through the opposite end of said body portion prior to being closed by the inlet-end end cap

an inlet tube connected to and extending laterally from said inlet manifold and

cooperating means on the inlet-end end cap and adjacent portion of said body portion defining an opening for said inlet tube after heat exchanger assembly has been inserted in said body portion and said end cap has been assembled to said body portion.

4,280,557

SONIC APPARATUS FOR CLEANING WELLS, PIPE STRUCTURES AND THE LIKE

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

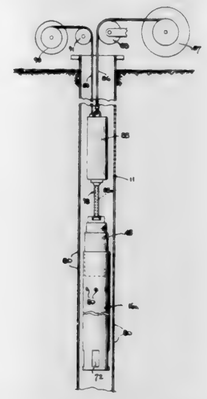
Filed Nov. 13, 1979, Ser. No. 93,505
Int. Cl.³ E21B *37/00, 43/25*
U.S. Cl. 166—177 **8 Claims**

1. Apparatus for cleaning an extended number of apertured portions of the lower regions of an oil well casing sunk in the ground, said casing having a liquid therein comprising

a sonic oscillator,

a stem member in the form of an elongated elastic tube which runs along said extended number of apertured portions, said oscillator being attatched to the top end of said stem member in the region of the apertured portions to be cleaned, said stem member being located within said casing closely spaced to the inner walls thereof for limited freedom of motion generally normal to the longitudinal axis of said casing, and

means for driving said oscillator in a rotary vibrational mode having quadrature related vibrational force vectors generally normal to the longitudinal axis of said casing and said stem member, said vibrational force components being transferred to said stem member, a portion of the liquid



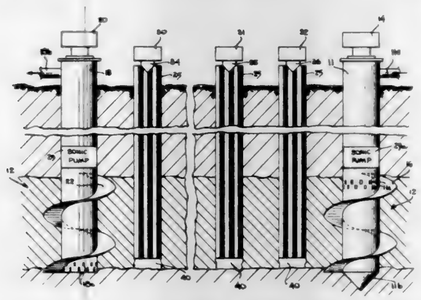
being in the space between said stem member and casing, the vibrational energy in the stem member causing successive pressure and vacuum regions for form in the liquid with a cyclical force pattern which rotates around the inside wall of the casing and dislodges foreign matter from the apertured portions and sweeps away said foreign matter.

4,280,558

SONIC TECHNIQUE AND SYSTEM FOR FACILITATING THE EXTRACTION OF MINERAL MATERIAL

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Nov. 23, 1979, Ser. No. 96,755
Int. Cl.³ E21B *43/25, 43/30*
U.S. Cl. 166—245 **12 Claims**



1. A sonic method for facilitating the extraction of mineral from an earthen formation comprising the steps of

driving a first casing into said formation,

driving a second casing into said formation spaced from said first casing by a predetermined distance,

driving a plurality of piling members into said formation between said casings, said pilings being arranged in a predetermined linear array running in a line from one of said casing to the other and having a predetermined spacing between each other and the casings,

pumping water into one of said casings whereby the water passes from the bottom portion of the casing into the formation,

pumping effluent out of said formation through the other of said casings,

while water is being pumped into one of said casings and effluent out the other, sonically vibrating said casings and said piling members at a frequency such as to set up resonant standing wave vibration of said casings and said piling members,

the sonic energy loosening the mineral from the earthen material along the path defined by the piling members and the casings such that the mineral can be drawn into the other of said casings,

after it appears that all of the effluent has been pumped from the formation, withdrawing the piling members from the formation and reinstalling them in a different array between the two casings and then sonically driving said piling members and said casings and pumping water in and effluent out as before.

11. A system for facilitating the extraction of mineral from a mineral bearing formation, said system including first and second casings driven into said formation in spaced relationship from each other, water being pumped through one of said casings into said formation and effluent being pumped out of the other of said casings, the improvement being means for facilitating the extraction of water-mineral effluent from said formation comprising

a plurality of piling members in the form of corrugated sheets driven into said formation between said casings and arranged in a predetermined array and with a predetermined spacing and

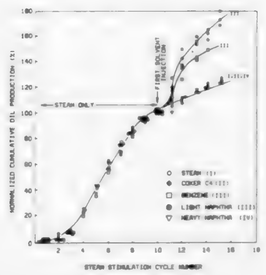
means for sonically driving both of said casings and said piling members at a resonant standing wave frequency.

4,280,559

METHOD FOR PRODUCING HEAVY CRUDE

Donald A. Best, Calgary, Canada, assignor to Exxon Production Research Company, Houston, Tex.

Filed Oct. 29, 1979, Ser. No. 88,905
Int. Cl.³ E21B *43/24*
U.S. Cl. 166—303 **17 Claims**



1. A process for recovering viscous oil from a subterranean deposit of a known temperature penetrated by a well which comprises cyclically injecting steam of a known temperature into and producing fluids from said deposit via said well until a steam chamber of substantial fluid mobility is established in said deposit adjacent to said well, said steam chamber having a residual viscous oil saturation therein, injecting a hydrocarbon solvent into said steam chamber prior to a subsequent steam stimulation cycle sufficient to reduce said residual viscous oil saturation upon conducting said subsequent steam stimulation cycle, said hydrocarbon solvent having a low concentration of low molecular weight paraffinic hydrocarbons and boiling for the most part less than said known steam temperature and for the most part greater than said known deposit temperature, and conducting said subsequent steam stimulation cycle to recover viscous oil from said deposit.

4,280,560

POTASSIUM HYDROXIDE CLAY STABILIZATION PROCESS

R. D. Sydansk, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed Jun. 30, 1980, Ser. No. 164,621
Int. Cl.³ E21B 43/22
U.S. Cl. 166—305 R 14 Claims

1. A process for stabilizing clays present in a water-sensitive, subterranean sandstone formation, the sandstone formation containing fine particles which interact with aqueous solutions having ionic makeup distinct from connate water to reduce permeability of the formation and fluid flow therethrough, the sandstone formation being penetrated by a well bore in fluid communication therewith, the process comprising:

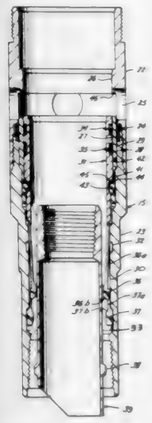
injecting into said subterranean sandstone formation via said well bore an aqueous solution having potassium hydroxide dissolved therein, said potassium hydroxide existing in said aqueous solution as potassium ions and hydroxide ions, said hydroxide ions interacting with said sandstone formation in the presence of said potassium ions to effectively render said fine particles relatively insensitive to said aqueous solutions having a distinct ionic makeup, and said potassium hydroxide being dissolved in said aqueous solution in a quantity sufficient to effectively render said fine particles relatively insensitive to said aqueous solutions having a distinct ionic makeup for a substantial period of time.

4,280,561

VALVE

John V. Fredd, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Jul. 2, 1979, Ser. No. 53,782
Int. Cl.³ E21B 43/12
U.S. Cl. 166—332 5 Claims



1. A valve comprising,

a body having a valve seat,

a valve member cooperable with said seat and movable in both directions between open and closed positions to control flow through said valve seat,

spaced internal grooves in the body with their adjacent walls converging outwardly of the groove,

land means in the body intermediate said grooves,

spaced dog means carried by the valve member and resiliently biased to alternately engage one of said spaced grooves and land means and position the valve member alternately in open or closed positions,

said dog means when engaged with said groove expanding to a first selected diameter and when engaged with said land means contracting to a selected lesser second diameter,

an actuator having a circumferential actuator flange thereon having a radial outer dimension between said first and second selected diameters,

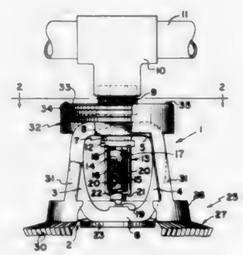
said spaced dog means having confronting shoulders engageable by said flange on said actuator member when a dog is in engagement with said land means to shift the valve member with reciprocation of the actuator member, each of said dog means releasing said actuator member flange as a dog means enters its cooperating groove permitting the actuator flange to move beyond the dog means while the other of said dog means remains retracted for engagement by said actuator member flange when reciprocated in the opposite direction.

4,280,562

DISTRIBUTOR FOR FIRE PROTECTION SPRINKLER HEAD

Hermann R. Glinecke, Pennington, N.J., assignor to Globe Fire Equipment Company, Standish, Mich.

Filed Nov. 14, 1979, Ser. No. 94,106
Int. Cl.³ A62C 37/12
U.S. Cl. 169—39 14 Claims



1. In a fire protection sprinkler head construction having a frame through a part of which extends a liquid passage, a removable seal for said passage, heat sensitive means normally reacting between said frame and said seal for holding the latter in passage-sealing position but being collapsible in response to a predetermined increase in its temperature to release said seal and permit liquid to flow in a stream through said passage, and a deflector mounted in a position to be engaged by said stream for deflecting said liquid radially and substantially perpendicularly outwardly of said stream, the improvement comprising annular distributing means mounted on said frame independently of said deflector in spaced, encircling relation about said deflector and in a position to intercept liquid deflected by said deflector; and diverting means carried by said distributing means at its periphery and in the path of deflected liquid for diverting such liquid circumferentially of said distributing means.

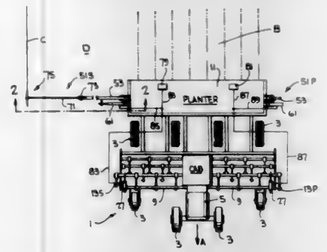
4,280,563

AUXILIARY SHOVELS FOR AGRICULTURAL IMPLEMENT

Arthur F. Crow, Jr., Milford, Ill.

Filed Dec. 4, 1979, Ser. No. 100,033
Int. Cl.³ A01B 25/00
U.S. Cl. 172—126 11 Claims

1. An agricultural implement adapted to dig and cultivate the ground and plant seeds therein including, in combination, a mobile agricultural implement adapted to traverse the ground, said implement being provided with series of shovels for digging and cultivating the ground, an auxiliary shovel provided at each side of the implement and substantially in line with a series of shovels, each auxiliary shovel being operatively mounted on the implement and movable into down operative position engaging and digging the ground and to raised inoperative position removed from engagement with the ground, and a ground marker provided at each side of the implement, each of said ground markers being movably to and from operative ground engaging and marking position, means operatively connecting each auxiliary shovel to the ground marker which



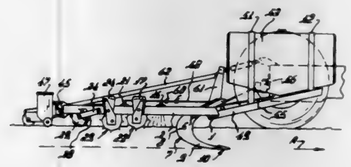
is on the same side of the implement and operable to move that auxiliary shovel into inoperative position when that ground marker is in inoperative position and to move that auxiliary shovel into operative ground engaging position when that ground marker is in operative ground engaging position, and the operation of said means being controlled by the operator of the implement.

4,280,564

EARTHWORKING MACHINE

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Filed Aug. 8, 1978, Ser. No. 931,996
Claims priority, application Netherlands, Aug. 15, 1977, 7708955
Int. Cl.³ A01B 29/04
U.S. Cl. 172—151 6 Claims



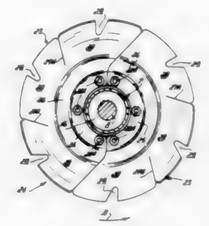
1. An agricultural machine comprising a frame and a pair of elongated soil working rollers rotatably mounted on said frame one behind the other with respect to the direction of travel of the machine, each roller being rotatable about corresponding horizontal shaft means that defines its axis of rotation and said rollers being interconnected to said frame by respective adjusting means that displaces the roller and its axis of rotation in directions substantially at right angles to said axis of rotation, said adjusting means comprising a pivotable arm member having a lower portion that carries said shaft means, the arm members of the two rollers being pivotable on respective pivot axes located at about the same height as one another, the lower arm portion that carries the shaft means of the leading roller being shorter than the lower arm portion that carries the shaft means of the trailing roller, an upper portion of each arm member comprising setting means that fixes that arm member in any one of a plurality of positions about said pivot axis, the pivot axis of each arm member being located between said shaft means and said setting means, and said rollers being independently displaceable in both vertical and horizontal directions about their respective pivot axes.

4,280,565

SOIL WORKING MACHINE

Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland

Filed Jul. 5, 1979, Ser. No. 55,013
Claims priority, application Netherlands, Jul. 5, 1978, 7807270; Jul. 5, 1978, 7807271
Int. Cl.³ A01B 7/00, 9/00, 33/02, 33/10
U.S. Cl. 172—548 10 Claims



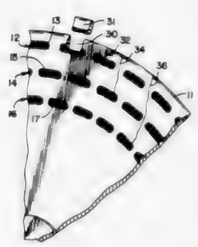
1. A soil cultivating machine comprising a frame and rotatable cultivating means journalled on said frame, said cultivating means comprising a plurality of cultivating members mounted on substantially horizontal shaft means that extends transverse to the direction of machine travel, said cultivating members each comprising semicircular working elements that form a substantially closed circle when viewed from the side and said elements being separated from one another, at least in part.

4,280,566

AGRICULTURAL DISK HAVING NON-DIRECTIONAL FRACTURE PROPERTIES

Dale H. Breen, Naperville, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Apr. 16, 1979, Ser. No. 30,194
Int. Cl.³ A01B 23/06
U.S. Cl. 172—604 8 Claims



1. In an agricultural disk made from a straight rolled steel and hardened to a predetermined base hardness level, means for providing non-directional fracture characteristics to the hardened disk, comprising:

a plurality of concentric rows of circumferentially uniformly spaced-apart crack arrester means, the concentric rows arranged progressively radially spaced-apart and radially spaced inwardly from the periphery of the disk, the crack arrester means in each succeeding concentric row arranged in diametrical alignment with each circumferential space between the crack arrester means in each preceeding concentric row, the diametrically aligned and diametrically spaced-apart arrangements of crack arrester means and spaces between the succession of concentric rows of crack arrester means ensuring that in the event of a radial crack developing at the periphery of the disk that the

radial crack cannot propagate through the circumferential and radial spaces between any two crack arrester means of each preceeding concentric row any further than to the ultimate radially inwardly concentric row without encountering at least one of the crack arrester means in the ultimate radially inwardly concentric row and be arrested by that crack arrester means; and

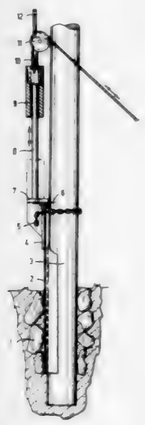
wherein at least three concentric rows of crack arrester means are provided spaced radially inwardly of the periphery of the disk.

4,280,567

DEVICE FOR DRIVING ROOT SUPPORTS OF POLES INTO THE GROUND

Seppo Ijäs, Ulvila, Finland, assignor to Oy Easio Miettinen AB, Porvoo, Finland

Filed Jun. 15, 1979, Ser. No. 49,051
Claims priority, application Finland, Jun. 28, 1978, 782050
Int. Cl.³ E04H *12/34*
U.S. Cl. 173—129 **2 Claims**



1. A device for driving root supports of poles into the ground, said device comprising a weight producing the impact force, a guide for guiding the movements of the weight, and means for producing movement of the weight back and forth, said means comprising at least one pulley fastened to the guide and a rope passing over the pulley and, at one end, fastened to the weight, the lower portion of the guide being provided with means for detachable mounting of the device onto the root support characterized in that the mounting means comprise a connecting part and two parallel projections placed on one side of this connecting part, the distance between said projections being approximately equal to the thickness of the reinforcing root support and said projections being positioned so that, when the device is mounted on the root support, said projections are placed on different sides of the root support so as to secure the guide in a position substantially parallel to the root support and that the rope for lifting the weight has been arranged as running over the pulley so that the rope leaves the pulley in the direction of the pole.

4,280,568

SIDEWALL SAMPLING APPARATUS

William A. McPhee, and Junius L. Speights, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 1, 1980, Ser. No. 117,751
Int. Cl.³ E21B *25/04, 25/10*
U.S. Cl. 175—4 **3 Claims**

1. A formation core-taking apparatus for obtaining samples of formations traversed by a borehole, comprising:

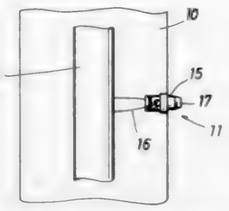
an elongated gun body member for traversing said borehole;

an open-ended tubular core-taking member having a formation penetrating forward end and a truncated circular cross-section rearward end;

a groove traversing partially about the outside circumference of said rearward end of said core-taking member;

a base member having a rearward end carried on said gun body member said base member having an enlarged diameter annular area frontal section;

a circular cross-section internal cavity within the frontal section of said base member for receiving said rearward end of said core-taking member;



means to detachably secure said core-taking member within said base member said means having a roll pin member partially within said internal cavity thereby partially truncating said cavity;

said roll pin member slidably fitting into said groove when said core-taking member is twisted in said base member; and

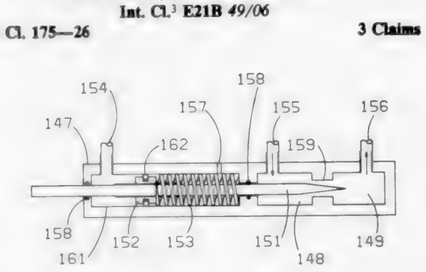
an explosive charge for propelling said base member and said core barrel from said gun body member into said formation.

4,280,569

FLUID FLOW RESTRICTOR VALVE FOR A DRILL HOLE CORING TOOL

Houston B. Mount, II, Tulsa, Okla., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jun. 25, 1979, Ser. No. 51,486
Int. Cl.³ E21B *49/06*
U.S. Cl. 175—26 **3 Claims**



3. In a method of drilling into the sidewall of a drill hole penetrating a subterranean formation which comprises positioning at a selected location in the drill hole an apparatus for drilling into the sidewall of a drillhole, wherein said apparatus comprises a support member, a shoe means mounted to said support member for movement toward and away from the sidewall of a drill hole, a hydraulic motor means mounted to said support member for movement toward and away from the sidewall of the drill hole, and a drill bit means connected to the rotor of said hydraulic motor for drilling a hole, and activating said shoe means for wedging said apparatus to said selected locations to said drill hole, followed by activating said hydraulic motor means for rotating said drilling bit and moving said drilling bit means into drilling engagement with the sidewall of a drill hole, followed by retracting said drilling bit means and then said shoe means and removing said apparatus and further

comprising hydraulic drive means for moving the hydraulic motor means toward the sidewall of a drill hole, wherein the improvement comprises;

flowing fluid from said hydraulic drive means through a fluid flow restrictor valve connected in said hydraulic drive means for controlling the movement of said hydraulic motor toward the sidewall of a drill hole, wherein said valve comprises an orifice means in said valve for the flow of fluid therethrough and an orifice restricting means connected in said valve for movement toward and away from said orifice means for restricting the flow of fluid through said orifice means, wherein said orifice restricting means comprises a housing having a first and second axially aligned cylinders separated by an annular shoulder, a piston in said first cylinder movable between a first position and a second position with the second position being closer to said annular shoulder, a spring urging said piston away from said annular shoulder, an orifice in said second cylinder, a slender pointed rod connected to said piston and extending through said annular shoulder in sealing relationship, a bleed port in the wall of said first cylinder between said piston and said annular shoulder, and an inlet on one side of said orifice and an outlet on the other side wherein said fluid for activating said hydraulic drive means for advancing said bit in connected through said inlet and said outlet; and

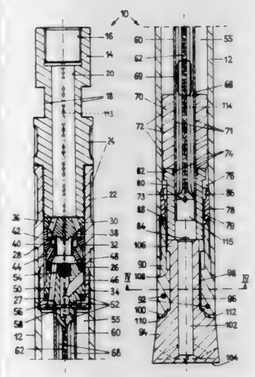
connecting fluid from said hydraulic motor means to the interior of said first cylinder on the side of said piston opposite said annular shoulder.

4,280,570

DRILL HAMMER

Hans-Philipp Walter, Corneliastrasse 23, D-7107 Bad Wimpfen, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,948
Claims priority, application Fed. Rep. of Germany, Apr. 18, 1978, 2816737
Int. Cl.³ E21B *4/14*
U.S. Cl. 175—92 **9 Claims**



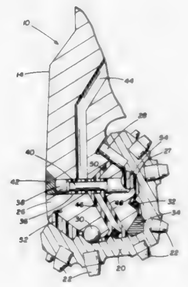
1. In a drill hammer adapted for connection to a compressed air source, including a top section which has a central passageway and is connected to a cage means which in turn is connected to an outer tube, said cage means supporting a control unit that contains passageways, an axially movable valve and a central spindle tube, said outer tube guiding a main ram as well as an intermediate ram for reciprocating sliding movement along said central spindle tube, said intermediate ram being interposed between said main ram and the upper end of a steel drill member, said outer tube further having at its lower end a radially divided retainer, the inner profile of which is shaped to match the outer profile of said upper end of said steel drill member for transmitting rotary power, said steel drill member being adapted to reciprocate under the force of said intermediate ram and under pressure from said compressed air source and further said drill member comprising a shaft with a main axial bore and a crown, the improvement wherein said cage means has an outer fluted profile for engagement by a tool having a matching inner profile, said control unit comprising three portions of which the lowermost portion is connected to said spindle tube by an inset means that is integral with said lowermost portion which is, via a ring pad, supported by a reentering collar located at the lower end of said cage means.

4,280,571

ROCK BIT

Dennis D. Fuller, Duncanville, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jan. 24, 1980, Ser. No. 114,919
Int. Cl.³ E21B *10/22*
U.S. Cl. 175—337 **10 Claims**



1. An improved bearing lubrication and seal system for a rock bit including a bit body arranged to be connected in a drill string, an axle portion on said body, a cutting member journaled on said axle portion, a bearing cavity between said axle portion and said cutting member, bearing means disposed in said bearing cavity for supporting the load of the cutting member on said axle portion and pressurized fluid passage means interiorly of said axle means and terminating at said bearing cavity for transmitting bearing conditioning fluid to said bearing means; wherein said improved system comprises:

a lubricant containing plastic material interposed in said cavity and between and in contact with said bearing means and at least partially filling said bearing cavity to continuously lubricate said bearings and blocking said fluid passage means from the transmission of said pressurized fluid through said cavity;

said material having the characteristic of being flexible under bit operating conditions whereby during use of said rock bit said material is gradually expelled from between said cavity and from said bearing means downstream of said bearing means to continuously seal the downstream portion of said cavity while being extruded and whereby expulsion of said material places said cavity in fluid communication with pressure bearing conditioning fluid through said passage means for further conditioning said bearings.

4,280,572

CHISEL FOR A PERCUSSIVE TOOL

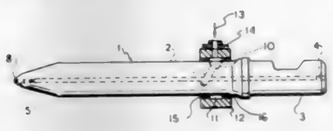
Leo Schmid, and Heinrich Kotyza, both of Salzgitter, Fed. Rep. of Germany, assignors to Salzgitter Maschinen und Anlagen Aktiengesellschaft, Salzgitter, Fed. Rep. of Germany

Filed Mar. 8, 1979, Ser. No. 18,671

Claims priority, application Fed. Rep. of Germany, Mar. 11, 1978, 2810606

Int. Cl.³ E21B 10/36

U.S. Cl. 175—417 18 Claims



1. A chisel for a percussive tool, particularly for percussive mining of rock, comprising a body portion having a working region; and at least one nozzle mounted in a chamber of said body portion and operative for forming a high-speed flow of a high-pressure fluid, particularly of a high-pressure liquid, and directing said fluid toward said working region, wherein said body portion has a head section and a shaft section connectable with one another, said chamber being arranged in said head section, and having at least one nozzle hole formed in said head section and communicating with said chamber and with said working region, and said at least one nozzle being arranged for directing the flow of fluid into said at least one nozzle hole.

4,280,573

ROCK-BREAKING TOOL FOR PERCUSSIVE-ACTION MACHINES

Boris V. Sudnishnikov, Krasny prospekt, 56, kv. 59; Veniamin V. Kamensky, ulitsa Derzhavina, 19, kv. 78; Eduard P. Varnello, ulitsa Dzerzhinskogo, 3, kv. 19; Sergei K. Tupitsyn, ulitsa Zorge, 123, kv. 31, and Konstantin K. Tupitsyn, Krasny prospekt, 51, korpus 3, kv. 25, all of Novosibirsk, U.S.S.R.

Filed Jun. 13, 1979, Ser. No. 48,252

Int. Cl.³ E21B 10/48

U.S. Cl. 175—418 10 Claims



1. A rock breaking tool for use with a self-propelled percussive action boring machine comprising a casing having a rear end portion for attachment to the machine and a hollow forward end portion terminating in a continuous annular cutting edge, said forward end portion including a first internal frusto-conical surface defining said cutting edge, a second internal frusto-conical surface extending rearwardly and inwardly from said first frusto conical surface, said second surface defining an internal rock-collecting chamber and at least one duct in said forward end portion connecting said chamber with the exterior of the casing, said duct having an opening in said second surface and said duct extending outwardly and rearwardly from said opening.

4,280,574

BALANCE WITH SELECTABLE MULTIPLE READING SCALES

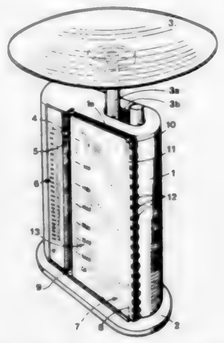
Paul Terraillon, Le Mont Gousse, Monnetier-Mornex, France

Filed Oct. 26, 1979, Ser. No. 88,525

Claims priority, application Switzerland, Nov. 9, 1978, 11535/78

Int. Cl.³ G01G 23/22, 3/08

U.S. Cl. 177—41 6 Claims



1. In a balance having a material-receiving pan and an indicator movable along a predetermined path in response to the weight of material placed on said pan, the improvement comprising:

a seat which includes a base portion and a wall portion for supporting a notebook and having an open side through which the notebook may be slidably inserted and removed, a notebook having a plurality of pages, said notebook being insertable into and removable from said seat, said notebook having an edge thereof extending along and adjacent to said predetermined path when the notebook is inserted in said seat, each of said plurality of pages having different indicia thereon along the edge thereof adjacent said path, said pages comprising a set of pages, binding means for binding said set of pages together to form a notebook, said binding means being larger than the seat so that only the notebook edge having said indicia can be inserted into the seat to abut the end wall of the seat thereby properly aligning the notebook together with the base portion and wall portion of the seat, and said binding means being such that any selected page may be positioned outermost of the set with its indicia along said path whereby the notebook may be inserted, aligned and removed without attaching or securing the notebook to the seat.

4,280,575

APPARATUS FOR CUTTING AND METERING SLABS OR BALES OF UNVULCANIZED RUBBER

Gaetano di Rosa, Turin, Italy, assignor to Fata European Group S.p.A., Pianezza, Italy

Filed Jul. 31, 1979, Ser. No. 62,391

Claims priority, application Italy, Aug. 1, 1978, 68833 A/78

The portion of the term of this patent subsequent to Jan. 30, 1996, has been disclaimed.

Int. Cl.³ G01G 13/02

U.S. Cl. 177—123 5 Claims

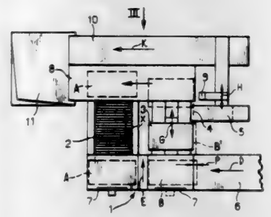
1. Apparatus for cutting and metering slabs or bales of unvulcanised rubber to be fed to a rubber mixing machine, said apparatus comprising in combination:

a cutting machine,

a first bale carrier in the form of a single conveyor belt for carrying whole bales of unvulcanised rubber in a predetermined direction of conveyance,

a second bale carrier for removing whole bales from said conveyor belt and being in the form of a carriage movable to and fro in a direction perpendicular to said predetermined direction in order to feed a said bale to said cutting machine, said carriage also having means for effecting displacement of said bale in equal steps transversely with respect to the cutting machine to enable the cutting of successive slices from said bale,

a first output conveyor positioned downsream of said conveyor belt and arranged to receive whole bales therefrom,



a second output conveyor positioned downstream of the cutting machine and arranged to receive said slices, and

a weighing station arranged to receive rubber off both said output conveyors, the weighing station including an automatic weighing machine controlling the operation of said second output conveyor.

4,280,576

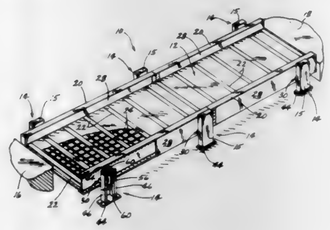
LOW PROFILE TENSION MOUNTED LOAD CELL INDUSTRIAL SCALE

James L. Smith, Jr., 316 W. 12th St., Grand Island, Nebr. 68801

Filed Jul. 9, 1979, Ser. No. 55,886

Int. Cl.³ G01G 19/02

U.S. Cl. 177—126 3 Claims



1. An industrial scale comprising:

a platform for supporting an object to be weighed, said platform including a pair of horizontally disposed parallel beams and a plurality of transverse beams attached to and interconnecting said parallel beams;

a plurality of pairs of retractable clevis structures, each pair of said clevis structures being attached to the opposite ends of one of said transverse beams and extending through the webs of said parallel beams, each of said clevis structures including a cylindrical chamber attached to said transverse beam intermediate the flanges thereof, said chamber having an open end terminating in the vertical plan defined by the outer edges of the flanges of said parallel beam, and an elongated support bar disposed in mating relationship within said chamber, said support bar including a clevis disposed at the outer end thereof, said support bar being moveable between a first retracted position wherein said clevis is disposed within said chamber and a second extended position wherein said clevis is disposed outwardly of the cylindrical chamber and the outer edges of the flanges of said parallel beam;

a plurality of ground engaging platform mounting brackets disposed outwardly from the longitudinal edges of said parallel beams, including:

a ground engaging support base;

a pair of horizontally spaced parallel channel columns extending upwardly from said base normal thereto;

a top channel beam having a central opening formed therein, said top channel beam being attached to and interconnecting said parallel channel columns; and

a pair of parallel elongated support bars attached to the top of said top channel beam at the longitudinal sides thereof and disposed on opposite sides of said central opening, said support bars having semi-circular recesses formed in the upper surface thereof adjacent to said central opening; and,

a plurality of tension mounted load cells attached at the upper end to said platform mounting bracket and attached at the lower end to said clevis when said support bar is in said second extended position, consisting of:

an upper connector including an eye member having an opening and a threaded shaft extending normal to the axis of said opening, said threaded shaft being threadably connected to the upper end of said load cell and extending through and below said central opening in said top channel beam, said eye member opening having a pin of circular cross-section received within and extending beyond both sides of said upper connection, said pin having outer ends contacting and supported by the semi-circular recesses of said support bars, whereby said load cell depends directly downward from the central opening in said top channel beam of said platform mounting brackets; and

a lower connector including an eye member having an opening and a threaded shaft extending normal to the axis of said opening, said threaded shaft being threadably connected to the lower end of said load cell, said eye member opening having a pin received within and extending beyond both sides of said lower connector, said pin having outer ends received within counter opposing openings in said clevis, whereby the entire weight of the platform and object to be weighed is applied to the load cell in tension.

4,280,577

TEMPERATURE-PROTECTED WEIGHING APPARATUS WITH BEARING ENCLOSURE

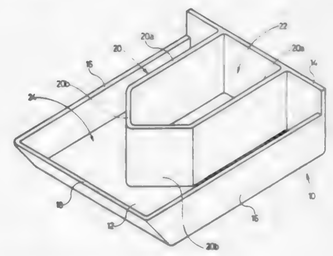
Peter Kunz, Gossau, Switzerland, assignor to Mettler Instrumente AG, Greifensee, Switzerland

Filed May 21, 1980, Ser. No. 151,981

Claims priority, application Switzerland, Aug. 28, 1979, 7783/79

Int. Cl.³ G01G 21/02, 7/00

U.S. Cl. 177—179 6 Claims



1. Weighing apparatus of the electromagnetic load compensation type, comprising

(a) a housing (10);

(b) permanent magnet means (26) connected with said housing;

(c) load receiving means (46) connected for vertical move-

ment relative to said housing, said load receiving means including a hollow coupling member (**40**) containing a vertical chamber (**40***a*);

(d) electromagnetic load compensation means including a compensation coil (**36**);

(e) means connecting said coil for movement relative to said permanent magnet means in response to vertical displacement of said load receiver means relative to said housing, said connecting means including

(1) a transmission lever (**34**) pivotally connected with said housing for movement about a horizontal pivot axis (**32**), said compensation coil being carried by said transmission lever, said transmission lever including a portion (**34***a*) which extends through a wall opening contained in said coupling member; and

(2) resilient bearing means (**38**) arranged vertically within said chamber for connecting said transmission lever portion with said coupling member.

4,280,578

MOTORIZED WALKER FOR THE DISABLED

Jack E. Perkins, Salt Lake City, Utah, assignor to Margaret P. Roberts, Sandy, Utah, a part interest

Filed Feb. 21, 1979, Ser. No. 13,782
Int. Cl.[3] **B62D** *11/04*
U.S. Cl. 180—6.5 **6 Claims**



1. A walker device for the disabled, comprising a pair of sideframes, each of said side frames including front and rear supporting legs, a caster wheel secured to one of said legs, a fixed wheel secured to the other of said legs, means interconnecting said front and rear legs, and handle members mounted on said leg-interconnecting means; means interconnecting said side frames in spaced parallel relationship, whereby a disabled person may walk in the space between said sideframes while being supported by holding said handle members; electrically powered means including independent electric motors for driving said fixed wheels, respectively, to provide powered forward mobility for the device; and independent motor control means associated with the respective handle members for actuation by the respective hands of the disabled person, said power means being adapted to drive the walker device at a speed of substantially only from about 50 to about 80 feet per minute.

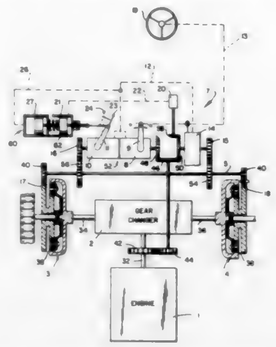
4,280,579

CONTROL FOR TRACKED VEHICLE STEERING MECHANISM

Franz X. Zaunberger, Augsburg, and Artur Kugler, Neusass, both of Fed. Rep. of Germany, assignors to Zahnraderfabrik Renk Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 17, 1980, Ser. No. 112,910
Claims priority, application Fed. Rep. of Germany, Jan. 19, 1979, 2901958
Int. Cl.[3] **B62D** *11/10*
U.S. Cl. 180—6.44 **13 Claims**

1. In a tracked vehicle transmission having planetary gear sets for engagement with chain treads and a steering mechanism including a neutral shaft in engagement with the planetary gear sets, a hydrostatic drive unit comprising a hydrostatic pump and means regulating the hydrostatic pump as a function of a steering direction control, the hydrostatic drive unit further including an oil motor having an absorption control, the oil motor being in driving engagement with the neutral shaft, the improvement comprising an automatic torque control



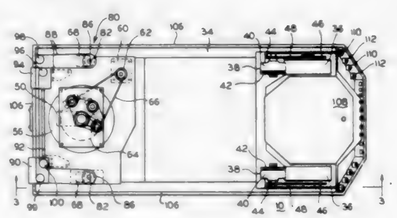
device, the control device including drive speed indicating means and means for adjusting the oil motor absorption control, the adjusting means being interconnected to the speed indicating means, the adjusting means including means for varying the absorption control as a function of the indicated drive speed.

4,280,580

PROXIMITY DETECTOR SYSTEM FOR A MEDICAL DIAGNOSTIC DEVICE

Dennis J. Wojcik, Waukesha, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Nov. 3, 1978, Ser. No. 957,531
Int. Cl.[3] **B60T** *7/12*
U.S. Cl. 180—169 **12 Claims**



1. A method for detecting an obstacle to the immediate front of a mobile medical diagnostic device having a front portion comprising the steps of:

generating transmission signals,

in response to said transmission signals, transmitting ultrasonic sound waves from transducers located behind the device front portion to and in advance of the front portion of the device and generating range window signals which correspond both to time intervals at which said sound waves would be reflected from an obstacle at a preselected distance in front of the device and to a predetermined time period corresponding to the distance from the transducers to the device front portion,

receiving any waves that are reflected back to the transducers and converting said reflected waves to reflected signals, and

processing said reflected signals and said range window signals to determine whether an obstacle is within said preselected distance from the front of the device.

2. An obstacle detector system for a mobile medical diagnostic device having a front portion, comprising:

means for generating transmission signals,

means responsive to said transmission signals for transmitting ultrasonic waves from transducers located behind the device front portion to and in advance of the front portion of the device,

means for generating range window signals in response to said transmission signals, said range window signals corresponding both to time intervals at which said sound waves would be reflected from an obstacle at a predetermined distance in front of the device and to a predetermined time interval at which said sound waves would be reflected back to the transducers from the front portion of the device,

means for receiving any waves which are reflected back to the device, and

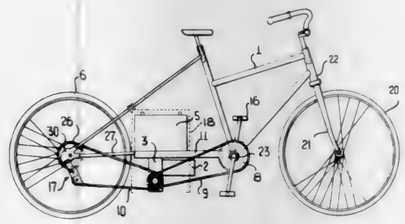
circuitry means for analyzing the reflected waves and, with the use of the range window signals, determining if an obstacle is to the immediate front of the device.

4,280,581

MOTOR AND PEDAL DRIVEN BICYCLES

Lawrence A. Rudwick, 3200 Glenwood Pl., Falls Church, Va. 22041

Filed May 12, 1978, Ser. No. 905,531
Int. Cl.[3] **B60K** *1/00;* **B62K** *11/04;* **B62M** *7/06*
U.S. Cl. 180—207 **13 Claims**



1. An electrically powered bicycle having a frame member including a generally conventional arrangement and dimensioning of a head tube, a front fork depending downward from the head tube, a bottom bracket for rotatably supporting a chain wheel with pedals coupled to the chain wheel, a seat support and frame members extending at least between the bottom bracket and the seat support and the bottom bracket and the head tube,

a generally horizontal chain stay,

a rear wheel,

means for rotably supporting said rear wheel from said chain stay,

an elongated generally horizontal frame member extending between said bottom bracket and said chain stay,

a battery,

means for supporting said battery on said elongated frame member,

an electric motor,

means for supporting said electric motor on said elongated frame member,

a drive shaft,

a first sprocket disposed about said drive shaft,

means for driving said drive shaft from said electric motor,

means for driving said rear wheel from said first sprocket, and

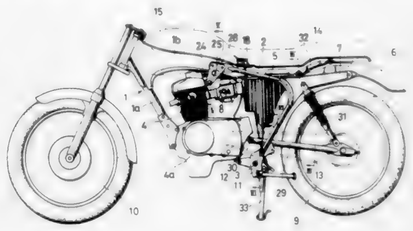
means for driving said first sprocket only from said drive shaft, only from said pedals and concurrently from both said drive shaft and said pedals.

4,280,582

VEHICLE FRAME ARRANGEMENT IN MOTORIZED TWO-WHEELED VEHICLE

Mikihiro Kouyama, and Katsunori Funabashi, both of Kawagoe, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 844,263, Oct. 21, 1977. This application Jun. 22, 1979, Ser. No. 51,518
Claims priority, application Japan, Nov. 1, 1976, 51-145788; Nov. 4, 1976, 51-147217
Int. Cl.[3] **B60H** *3/06*
U.S. Cl. 180—219 **1 Claim**



1. In a motorized two-wheeled vehicle, the combination including:

a main frame providing a support for an internal combustion engine of said vehicle;

shaft means rigidly secured to said main frame at a lower portion thereof and which extends outwardly of said main frame in both lateral directions;

a pair of subsidiary tubes respectively rigidly attached at one of their ends to opposite sides of the main frame member at an upper portion thereof, and which extend outwardly of the main frame and then rearwardly of the main frame and then in a downward direction, the other of the ends of the subsidiary tubes being rigidly attached to said shaft means at positions spaced outwardly of said main frame;

an air cleaner casing positioned between the rearwardly extending portions of the subsidiary tubes and rigidly attached thereto, said casing having an opening in an upper side thereof;

a cover detachably attached to the outer periphery of said casing and which is defined by an upper half portion and a lower half portion formed as a unit, the upper half portion having an air intake opening on its upper surface in communication with atmosphere, and the lower half portion having an air cleaner element detachably carried on the bottom surface thereof; and

a rear fender integral with said casing and having a front wall constituted by a rear wall of said casing.

4,280,583

AUTOMATIC DIFFERENTIAL CONTROL APPARATUS

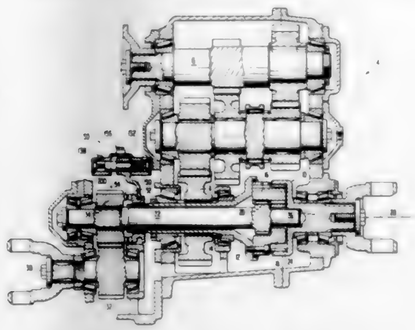
Robert W. Stieg, Bethlehem, Pa., assignor to Mack Trucks, Inc., Allentown, Pa.

Filed Nov. 24, 1978, Ser. No. 963,284
Int. Cl.[3] **B60K** *17/34*
U.S. Cl. 180—250 **25 Claims**

1. In a multiple-drive axle vehicle having a power train with center differential drive means disposed between front and rear axles, separate front and rear fluid braking conduits, a source of fluid pressure connected to said braking conduits, and a bidirectional, three-position clutch having a first engaged position for locking out differential action between front and rear axles, intermediate overrun position adapted for "fast front" axle operation in one rotational direction plus locking out differential spinout in the opposite relative rotational direction, and completely disengaged position for eliminating excessive power transmission between front and rear axles during vehicle braking, the improvement which comprises:

a bidirectional fluid motor mounted adjacent and operatively connected to said three-position clutch;

means responsive to front-axle braking of said vehicle for applying a fluid pressure in a first direction to said fluid motor to transfer the clutch to the completely disengaged position at a predetermined deceleration to permit free center differential operation during high deceleration braking;



said fluid motor being inoperative in said first direction upon loss of normal front-axle braking to provide emergency front axle braking through the drive train;

manual switch means for selectively applying fluid pressure in a second direction to move the bidirectional fluid motor opposite the first direction, thereby moving the clutch into the first engaged position; and

spring means for returning the fluid motor to an intermediate position and return the clutch to the overrun position when no fluid pressure is applied to said fluid motor.

4,280,584

EMERGENCY LOCKING RETRACTOR

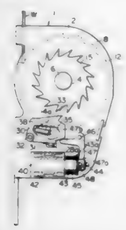
Yoshihiro Makishima, Yokohama, Japan, assignor to NSK-Warner K.K., Tokyo, Japan

Filed Jul. 9, 1979, Ser. No. 55,957

Claims priority, application Japan, Jul. 10, 1978, 53-93920[U]

Int. Cl.³ A62B *35/00*

U.S. Cl. 180—268 **7 Claims**



1. An emergency locking retractor for use in a vehicle comprising a webbing take-up shaft biased in a webbing take-up direction, a lock member having an engaging position with respect to said shaft for preventing rotation of the shaft in a webbing draw-out direction and a disengaged position allowing rotation of the shaft in the webbing draw-out direction, a speed-change sensing member, a first drive member connected between said sensing member and said lock member for moving said lock member between said positions responsive to speed-change induced changes in the condition of said sensing member, a second drive member associated with said lock member for moving said lock member from the disengaged position to the engaging position independently of said first drive member and switch-actuated electrical means for operating said second drive member.

4,280,585

MULTI-SOUND SPEAKER SYSTEM

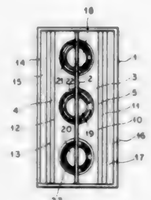
Motoyoshi Nakanishi, 4-11-13 Honcho, Funabashi-shi 273, Japan

Filed Feb. 28, 1980, Ser. No. 125,452

Claims priority, application Japan, Aug. 27, 1979, 54-108118

Int. Cl.³ H05K *5/00*

U.S. Cl. 181—147 **2 Claims**



1. A multiple sound-opening speaker enclosure (1), consisting of left-side sound pressure guide board (4) with sound pressure guiding surfaces (12) and (13), and right-side sound pressure guide board (5) with sound pressure guiding surfaces (10) and (11), fixed to left and right edges of baffle board (3); with a plurality of speaker-units mounted centrally thereto and electrically connected to receive an input signal, a left-right sound pressure dividing board (2) fixed between baffle board (3) and the interior back surface of the enclosure; with suitable air-tightening material (18), (19), (20) interposed between the dividing board and speaker-units, to completely divide the back sound pressure from the speakers to the left and right sides of the enclosure, the left and right side sound pressure guide boards (4) and (5) being appropriately spaced from the respective interior of the enclosure (1) so that, in conjunction with reflecting corner pieces (6), (7), (8), (9), the emitted back pressure from each side of the speaker-units is directed toward the left and right front sound openings, sound volume and tone adjusting boards (15) and (17) are adjustably mounted on the left and right sides of the enclosure by hinges (14) and (16) to enable adjusting of the front directed back sound pressure to effectively combine with the sound radiated from the front side of the speaker-units to provide excellent sound reproduction in an efficient manner.

4,280,586

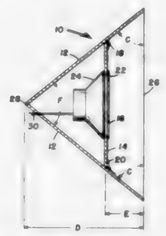
SPEAKER ENCLOSURE

Ted W. Petersen, 2565 Offutt Rd., Woodstock, Md. 21163

Continuation of Ser. No. 904,280, May 9, 1978, abandoned. This application Feb. 1, 1980, Ser. No. 117,423

Int. Cl.³ H05K *5/00*

U.S. Cl. 181—150 **3 Claims**



1. In a sound system, a speaker enclosure comprising:

a hollow pyramidal shell, said hollow pyramidal shell being formed by four face members, each said face member being triangular in configuration, each said face member having equal length bases, and each having equal length sides, said face members being so arranged so that the base of said pyramidal shell is a square and the apex of each said triangular face member meet at the common apex of said hollow pyramidal shell; and

a mounting panel, said mounting panel being within said hollow pyramidal shell, at least one speaker affixed on said mounting panel, said mounting panel being suitably connected to the interior faces of said hollow pyramidal shell, said hollow pyramidal shell and said mounting panel enclosing said speaker, said mounting panel being affixed within said hollow pyramidal shell at a distance from the base of said hollow pyramidal shell equal to one-third the vertical height of said hollow pyramidal shell.

4,280,587

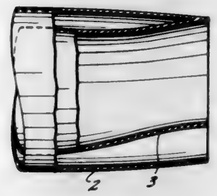
NOISE-SUPPRESSING JET ENGINE NOZZLES AND METHOD

Waman V. Bhat, Redmond, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 8, 1979, Ser. No. 37,381

Int. Cl.³ F02K *1/34*

U.S. Cl. 181—213 **29 Claims**



28. The method of reducing the noise perceived at a desired location speed from a jet engine including a discharge nozzle having a generally planar discharge end without any substantial turbulence-promoting fore-and-aft extending notch which comprises promoting substantially more rapid mixing of the portion of the discharge gas flow of such engine at its side generally remote from such desired location than at its side closer to such desired location.

4,280,588

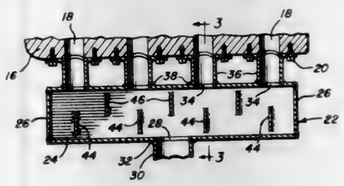
ANTI-POLLUTION MANIFOLD FOR I.C.E.

John V. Veldhuizen, 25975 SW. 182nd Ave., Homestead, Fla. 33030

Filed Sep. 26, 1979, Ser. No. 79,308

Int. Cl.³ F01N *7/10*

U.S. Cl. 181—240 **8 Claims**



1. A combined anti-pollution exhaust manifold and primary muffler for a multi-exhaust port equipped internal combustion engine, said manifold including an elongated hollow body closed at its opposite ends and constructed of high heat resistant metal, said manifold including a single exhaust gas outlet opening outwardly of one side of said body centrally intermediate its opposite ends and in a direction extending along a path substantially normal to and intersecting the longitudinal center axis of said body, a plurality of straight, short, tubular exhaust gas inlet stubs opening outwardly of the side of said body opposite said one side and spaced therealong from said closed ends and on opposite sides of a transverse plane centered relative to said outlet, said stubs including outer inlet end mounting flange portions supported therefrom similarly inclined generally 20° relative to a plane generally normal to said stubs, the effective length of said stubs being generally equal to the width thereof, and exhaust gas pressure pulse bisecting partial transverse baffles in said body spaced from said one side and said opposite side and at least generally aligned with the ends of said stubs opening into said body, said baffles each being generally plate-like in configuration and disposed generally normal to the longitudinal extent of said body.

4,280,589

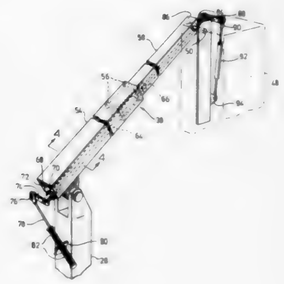
ELEVATING DEVICE

John A. Merrick, P.O. Box 569, Limassol, Cyprus, Canada

Filed Jan. 31, 1980, Ser. No. 117,155

Int. Cl.³ B66F *11/04*

U.S. Cl. 182—2 **9 Claims**



1. An elevating device comprising

base means;

a telescoping arm means pivotally connected at one end to the said base means and having a man-carrying platform pivotally pendulously suspended at the other end so as to remain in a vertical attitude under the action of gravity, during movement thereof;

motor means operatively connected between the base means and the telescoping arm means to elevate and lower the platform relative to the base means;

second motor means operatively connected between the telescoping parts of the telescoping arm means to extend and contact it for corresponding movement of the platform;

a telescoping torque transmitting shaft disposed alongside the telescoping arm means and telescopable therewith;

a first link means connecting one end of the telescoping shaft and the base means for rotation of the shaft through an angle corresponding to the pivoting of the second arm means relative to the base means; and

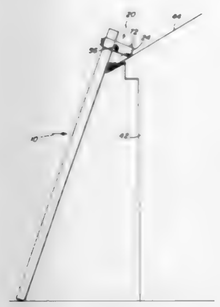
a second link means connecting the other end of the telescoping shaft and the platform and movable by said rotation of the shaft to maintain the platform in its said vertical attitude.

4,280,590

STABILIZING ATTACHMENT FOR LADDERS

Louis M. Polizzi, West Palm Beach, Fla., assignor to Polizzi Enterprises, West Palm Beach, Fla.

Filed May 29, 1980, Ser. No. 154,279
Int. Cl.³ E06C 7/48
U.S. Cl. 182—214 **10 Claims**



1. A stabilizing attachment for a ladder having first and second side rails of substantially rectangular cross-section joined at intervals by rungs, wherein first respective sides of said rails face outwardly away from each other, second respective sides of said rails face inwardly toward each other, third respective sides of said rails face to a first side of said ladder, and fourth respective sides of said rails face to a second side of said ladder, said attachment comprising first and second elongated brackets intended, when fitted respectively to said first and second side rails, to engage the roof of a structure against which the ladder leans for preventing displacement of the ladder along the edge of the roof, each of said brackets being substantially the mirror image of the other, each bracket having an elongated portion terminating at one end in a generally U-shaped clamp extending to one side of said elongated portion, said clamp being contoured to fit around the third side of one of said rails and to overlap in part the second side of said one rail when said elongated portion lies against the first side of said one rail with its other end extending away from said second side of said ladder, adjustable means fitted to said elongated portion of each bracket near said other end thereof, for engaging said fourth side of the rail to which said bracket is attached, and resilient means connected between said elongated portions in the region of said other ends extending away from said second side of said ladder and pulling said extending portions toward each other when said brackets are fitted to said side rails for holding said clamps tightly against said respective second sides of said rails, said brackets being slidable along said rails when fitted to said rails for adjusting the position of said attachment along said ladder.

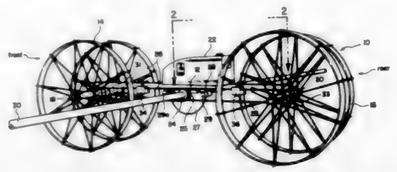
4,280,591

WHEEL LINE CHAIN LUBRICATOR

Ross G. Newcomb, Rte. 5, Rupert, Id. 83350

Filed Jun. 29, 1979, Ser. No. 53,354
Int. Cl.³ F16N 7/24; B05B 3/00
U.S. Cl. 184—17 **10 Claims**

1. An apparatus for lubricating a continuous chain comprising a reservoir for holding a preselected amount of a lubricating fluid, said reservoir having a front wall, a rear wall, a bottom wall and two side walls, a stationary axle carried within said reservoir and fixed to said sidewalls at a centrally located point, a sprocket wheel loosely carried on said axle to permit rotation and slidable lateral movement thereon, said sprocket wheel having teeth and means on said teeth for carrying a lubricating quantity of a lubricating fluid upward from said



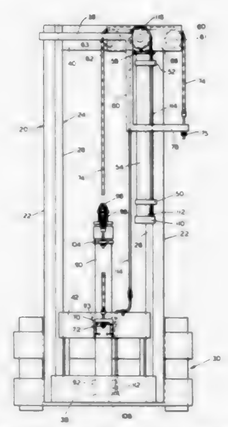
reservoir during rotation for deposit on a continuous chain passing thereover.

4,280,592

FULL FREE-LIFT UPRIGHT FOR LIFT TRUCK

Richard J. Bartow, Athens, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Continuation-in-part of Ser. No. 202,099, Oct. 30, 1980, which is a continuation of Ser. No. 17,779, Mar. 8, 1979, abandoned, which is a continuation-in-part of Ser. No. 842,765, Oct. 17, 1977, abandoned. This application Apr. 9, 1979, Ser. No. 28,614
Int. Cl.³ B66B 9/20
U.S. Cl. 187—9 E **10 Claims**



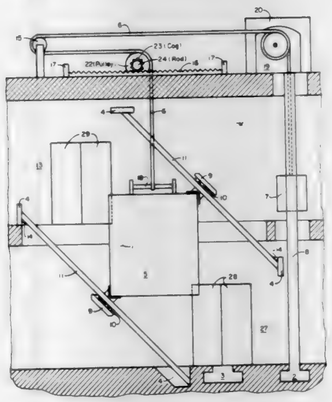
1. In an upright structure for lift trucks and the like having a fixed upright section including transversely spaced vertical rails, a sole telescopic upright section including transversely spaced vertical rails mounted for elevation on said fixed section and elevatable load carrier means mounted for elevation on said telescopic section, the improvement comprising a sole asymmetric lift cylinder assembly mounted in the upright structure which is operatively connected to said telescopic upright section, elongated flexible lifting means operatively connected to said cylinder assembly, to an element fixed in relation to said fixed upright section and to said telescopic section and having a fixed end means thereof secured to said fixed element a substantial distance outwardly of one side only of the cylinder assembly in a direction which includes a lateral component and having the other end means thereof secured to said telescopic section, said cylinder assembly together with said flexible lifting means being adapted to elevate said telescopic section relative to said fixed section, the lift cylinder being located a substantial distance toward one lateral side of the upright structure such that it projects at least partially into the area of interference by an adjacent vertical rail with the visibility of the operator from his normal line of sight through said adjacent vertical rail, said normal line of sight being defined when the operator is located in a predetermined designed position and attitude for normal operation of the lift truck, and a second cylinder assembly for elevating said load carrier means on said telescopic section independently of the elevation of said telescopic section on said fixed section by said asymmetric cylinder assembly, the operative connection of said asymmetric cylinder assembly to said telescopic section in relation to said fixed and other end means being such that at least approximately balanced lifting force moments act on the upright structure in a transverse plane of the upright at least when a load is carried centrally thereof.

4,280,593

DIAGONAL ELEVATOR

W. Michael Moore, 1135 Duncanwood Dr., Nashville, Tenn. 37204

Filed Jan. 24, 1980, Ser. No. 115,012
Int. Cl.³ B66B 9/06
U.S. Cl. 187—12 **7 Claims**



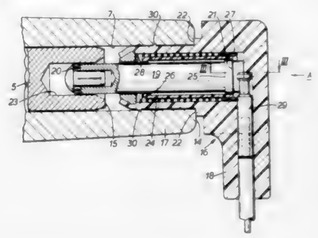
1. An elevator apparatus comprising:
(a) a building structure including at least first and second stations spaced from each other vertically and horizontally,
(b) an elevator car,
(c) inclined guide means extending generally between said first and second stations,
(d) follower means on said elevator car and cooperative with said guide means for guiding the movement of said car between said first and second stations,
(e) a cable member,
(f) means connecting one portion of said cable member to said car,
(g) windlass means for winding and unwinding another portion of said cable member,
(h) track means on said structure extending a distance commensurate with the horizontal spacing of said first and second stations,
(i) traveling pulley means including a pulley engaging said cable member between said connecting means and said windlass means, and rotary traction means cooperative with said track means for causing said traveling pulley means to move along said track means as said cable is wound and unwound, so that said elevator car travels in a diagonal path along said inclined guide means between said first and second stations.

4,280,594

BRAKE WEAR INDICATOR

Heinz W. Baum, Saarbrucken-Dudweiler, Fed. Rep. of Germany, assignor to Lucas Industries Limited, Birmingham, England

Filed Jul. 17, 1979, Ser. No. 58,387
Int. Cl.³ F16D 66/02
U.S. Cl. 188—1 A **7 Claims**



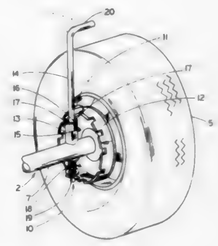
7. A brake wear indicator for indicating the limit of permissible wear of a brake friction lining which is coupled to a first member of a brake mechanism which moves relative to a second member of the brake mechanism as the friction lining wears, the first and second members being members which are not dis-assembled when the friction lining is replaced during service, the indicator having first and second parts and comprising:
a stop defining a first predetermined relative position of the first and second parts with respect to each other;
an indicator device operable to indicate a predetermined amount of movement of the first part relative to the second part from the said first relative position;
means for coupling the first part to the first member; and
means for coupling the second part to the second member, the coupling means being operative during assembly of the brake mechanism to effect said couplings with the first and second parts in their first predetermined relative position with respect to each other, regardless of variations in the relative positions of the first and second members due to manufacturing tolerances.

4,280,595

POSITIVE BRAKE FOR A VEHICLE WHEEL

Rayford W. Timms, St. Louis, and Raymond C. Waidmann, Cedar Hill, both of Mo., assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Dec. 26, 1979, Ser. No. 106,465
Int. Cl.³ B60T 1/06
U.S. Cl. 188—31 **8 Claims**



1. A braking arrangement for a vehicle wheel rotatably mounted on the axle of a wheeled vehicle, comprising:
receiver means affixed to the vehicle wheel;
stationary mounting means spaced from said receiver means along the axis of the wheel affixed to one side of the axle;

an operating shaft extending through the axle carried by said mounting means, said mounting means accommodating movement of said shaft along and rotationally about its axis attendant to shifting the brake between respective braking and non-braking positions;

lug means on said shaft extending from the periphery thereof perpendicularly to the axis of the shaft and being engageable with said receiver means to arrest rotation of the wheel upon rotational and axial movement of the shaft into the braking position and disengageable with said receiver means upon rotational and axial movement of the shaft into the non-braking position;

biasing means mounted on the side of the axle opposite said mounting means urging said shaft toward the braking position; and

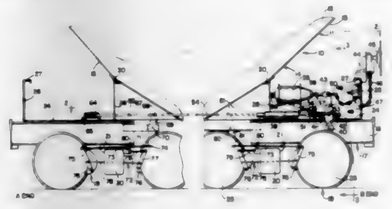
retaining means releasably securing said shaft in the respective braking and non-braking positions.

4,280,596

AIR BRAKE ARRANGEMENT FOR CENTER SILL-LESS HOPPER CARS

Roy W. Miller, Highland, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Oct. 1, 1979, Ser. No. 80,843
Int. Cl.³ B61H *13/00*
U.S. Cl. 188—52 **16 Claims**



1. A car body mounted brake rigging for a railway hopper car having a body with hoppers and side sills extending longitudinally in laterally spaced flanking relation to the hoppers,

said hopper having sloping ends and side sheets for discharging material downwardly unobstructedly between said side sills,

an underframe supporting said body including horizontally spaced stub sills disposed at opposite ends of said hoppers,

horizontal support means on each of said stub sills

wheel trucks including truck bolsters supporting said body,

the improvement of the car body mounted brake rigging arrangement unobstructive of the discharge ends of the hoppers, comprising

a brake actuating cylinder supported by one of said support means at one end of said car beneath the sloping end sheet of one of said hoppers,

means on said one support means for actuating said brake actuating cylinder,

a first horizontal floating lever movably mounted on said one support means and including means connected to said actuating cylinder and movable thereby,

said first horizontal lever having opposite ends disposed laterally outwardly on opposite sides of said cylinder,

first and second actuating rods pivotally connected to opposite ends of said first horizontal lever,

said first rod overlying one of said side sills and extending longitudinally, toward the other end of said car alongside said hoppers,

a second horizontal lever pivotally supported on the support means on the other end of said car,

means pivotally connecting one end of said second lever to said first actuating rod, and disposed immediately adjacent said one side sill,

a first vertical lever pivotally supported on said car adjacent one side sill,

a third rod pivotally connected to said second horizontal lever and to said first vertical lever,

a second vertical lever pivotally supported on said car laterally inwardly with respect to said first vertical lever,

pivotal means connecting said second vertical lever to said second rod,

an end brake beam and brake shoe arrangement for each wheel truck supported thereon, and

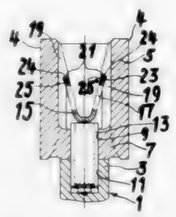
a first brake lever connecting rod connected to each of said vertical levers and to said end brake beam and brake shoe arrangement.

4,280,597

BRAKE DISC FOR RAILWAY VEHICLES

Mathias Schörwerth, Geretsried, Fed. Rep. of Germany, assignor to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed Mar. 13, 1978, Ser. No. 885,820
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1977, 2711728
Int. Cl.³ F16D *65/12*
U.S. Cl. 188—218 XL **8 Claims**



1. In a brake disk adapted to be mounted on the axle of a railway vehicle, the combination of a hub, a friction disk annular element mounted concentrically on said hub, a radially extending cylindrical connecting element having an outer end interconnecting said hub and annular element so as to avoid hindering displacement of the annular element in the radial direction due to thermal expansion, means for maintaining said connecting element in interconnecting relationship between said hub and annular element, said maintaining means comprising a removable resilient retaining member immovably positioned between and engaging said connecting element outer end and a stop surface portion of said annular element disposed radially outwardly of said connecting element outer end and directed toward said end, said retaining member being U-shaped and having a bight portion engaging said end and having a pair of substantially straight spring arms extending in the radial direction from said bight portion and engaging said stop surface such that said retaining member can axially resist between said connecting element outer end and said stop surface portion outwardly directed forces so as to prevent radially outward displacement of the connecting element, said retaining member being under an initial tension so as to exert a radially inwardly directed force on said connecting element.

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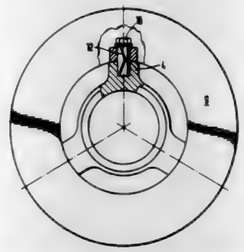
BRAKE DISK

Hans Pöllinger, Munich, Fed. Rep. of Germany, assignor to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 19, 1979, Ser. No. 49,918
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1979, 2905385
Int. Cl.³ F16D *65/12*
U.S. Cl. 188—218 XL **7 Claims**

1. A brake disk for vehicles comprising a hub, a brake disk annular element mounted on said hub, at least three radially

extending and circumferentially disposed adaptor sleeves seated in radially opposed bores in said hub and annular element, each of said sleeves having one end portion in the hub bore and another end portion in the annular elements bore, means including a bolt passing axially through a said sleeve for positioning axially said sleeves within said bores, and a conical member within one of said end portions of a said sleeve and



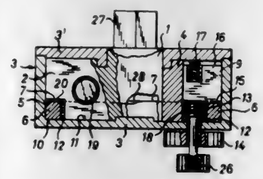
engagable by said positioning means such that tightening of said positioning means radially expands said one end portion of said sleeve against the wall surface of its respective bore to fix said one end portion within its bore so that radial expansion is compensated by the relative shifting of the other end portion of the sleeve with respect to one of the hub or annular member of the brake disk.

4,280,599

BRAKE APPARATUS, ESPECIALLY FOR DOOR CLOSERS

Rosalia Bardfeld, Vienna, Austria, assignor to Anstalt fuer Schliesstechnik, Vaduz, Liechtenstein

Filed Aug. 1, 1979, Ser. No. 62,565
Claims priority, application Switzerland, Aug. 10, 1978, 8505/78
Int. Cl.³ F16F *9/14*
U.S. Cl. 188—310 **6 Claims**



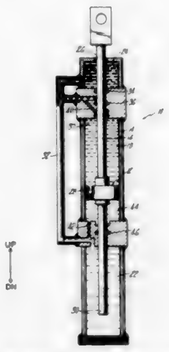
1. A brake apparatus, comprising substantially closed housing means, shaft means rotatable in said housing means, a brake medium in said housing means, brake wing means including a cut-out portion, said brake wing means being operatively secured to said shaft means for rotation with said shaft means in said housing means, fixed wall means dividing a space inside said housing means, brake action control ring means including cam surface means operatively located in said housing means for cooperation with said cut-out portion of said brake wing means whereby a gap is formed between the brake wing means and said cam surface means of said control ring means, said gap having a cross-sectional area which varies in its size depending on the position of said brake wing means relative to said cam surface means of said control ring means, thereby controlling the passage of said brake medium through said gap, said control ring means being arranged concentrically relative to said shaft means, and means operatively connected to said control ring means for turning said control ring means in said housing means comprising gear means as part of said control ring means, gear pinion means arranged for meshing cooperation with said gear means, and drive means operatively connected to said gear pinion means, said drive means extending through said housing means, whereby said control ring means are adjustable from outside said housing means.

4,280,600

SELF-REFILLING HYDRAULIC ACTUATOR

John K. Salmon, South Windsor, and Dwight Beazley, Newington, both of Conn., assignors to Otis Elevator Company, Hartford, Conn.

Filed Jul. 2, 1979, Ser. No. 54,100
Int. Cl.³ F16F *9/20*
U.S. Cl. 188—312 **1 Claim**



1. A hydraulic cylinder characterized by:

a piston;

a piston rod attached to said piston;

a fluid fillable cylinder having a first fluid supply reservoir at one end and a second fluid supply reservoir which is vented to ambient and located above said first reservoir, at a second, opposite end of the cylinder; said reservoirs being in fluid connection with each other, and said piston being slidably disposed in said cylinder, dividing it into two fluid fillable chambers; one of said chambers being in fluid connection with said second reservoir and the other of said chambers being in fluid connection with the first of said reservoirs; and said piston rod extending into said first reservoir for displacing fluid therefrom into the other of said reservoirs, as the piston moves towards said one end.

4,280,601

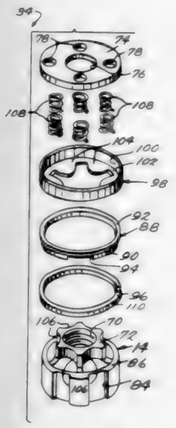
SHOCK ABSORBER WITH IMPROVED PISTON COMPRESSION VALVE MECHANISM

William G. Patriquin, Mississauga, Canada, assignor to Gabriel of Canada Limited, Toronto, Canada

Filed Jun. 21, 1979, Ser. No. 52,128
Int. Cl.³ F16F *9/34*
U.S. Cl. 188—316 **9 Claims**

1. In a hydraulic shock absorber adapted to be connected between the sprung and unsprung masses of a vehicle including a tubular member defining a cylindrical chamber, a piston slidably mounted within said cylindrical chamber, a piston rod extending from one side of said piston outwardly from one end of said tubular member, closure means on said one end of said tubular member closing the adjacent end of said tubular member and slidably sealingly engaging said piston rod, end closure means on the opposite end of said tubular member, connecting means for connecting said shock absorber operatively between said masses, hydraulic fluid filling rebound and compression spaces within said cylindrical chamber on the piston rod side of said piston and on the opposite side thereof respectively, said piston having passage means therethrough, rebound valve means disposed in cooperating relation with said passage means to control flow of fluid from said rebound space to said

compression space, a compression valve mechanism carried by said piston for controlling flow of fluid from said compression space to said rebound space peripherally across said piston, and means to accommodate the flow of hydraulic fluid resulting from piston rod displacement, the improvement which comprises said compression valve mechanism including an upwardly facing annular valve seat on said piston, said piston having an annular portion disposed inwardly of said annular valve seat and extending thereabove, said piston rod having a lower end portion of reduced diameter defining a downwardly facing shoulder, a washer member engaging said shoulder, said piston annular portion threadedly engaging the exterior periphery of the lower end portion of said piston rod and maintaining said washer member in engagement with said piston rod shoulder, the exterior periphery of said piston annular



portion including a series of equally annularly spaced radially outwardly facing arcuate surfaces, a series of equally annularly spaced coil springs mounted with their upper ends engaging said washer member and their inner exterior peripheries adjacent a corresponding series of equally spaced arcuate surfaces, a lower spring support including an outer cylindrical peripheral wall disposed in surrounding relation to the outer exterior peripheries of said series of coil springs, an inwardly projecting flange and a series of radially inwardly projecting portions extending toward and corresponding to said arcuate surfaces, an equal annularly spaced series of which are in supported relation to the lower ends of said series of coil springs and an annular seal and carrier assembly between the lower surface of said spring support flange and said upwardly facing valve seat sealingly engaging the interior periphery of said inner tubular member.

4,280,602

STRUT SUSPENSION REPAIR STRUCTURE

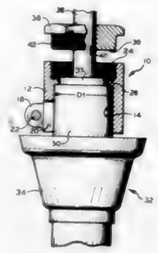
Kenneth D. Kloster, Maumee, Ohio, assignor to Alvey, Inc., St. Louis, Mo.

Filed Oct. 22, 1979, Ser. No. 86,786

Int. Cl.³ F16F *9/54*

U.S. Cl. 188—322 **3 Claims**

1. In combination with a cylinder means, a retaining means for retaining a shock absorber therein including a cylinder member having an outer wall and being open at one end, a shock absorber located within said cylinder member with a piston rod slidably extending through said open end, said retaining means including a device attached to said cylinder at said one end and engaging said shock absorber for retaining said shock absorber within the cylinder, said device including a hollow main body having an inner annular wall of a predetermined diameter positioned over said cylinder a top wall attached to one end of said main body and including an aperture receiving said piston rod clamp means for selectively varying the diameter of at least a portion of the inner annular wall of said hollow main body to provide tight frictional engagement



with the outer wall of the cylinder, a first threaded section formed on the one end of said main body, and a second threaded section on said top wall for threaded engagement with said first threaded section on said main body.

4,280,603

BRAKE APPLYING DEVICE

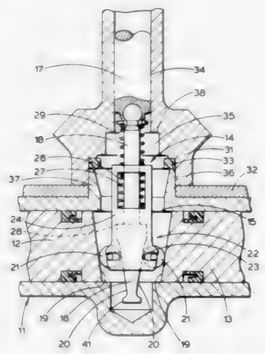
Randhir Kanwar, Leamington Spa, England, assignor to Automotive Products Limited, Warwickshire, England

Filed Aug. 22, 1979, Ser. No. 68,537

Claims priority, application United Kingdom, Sep. 2, 1978, 35422/78

Int. Cl.³ F16D *65/22*

U.S. Cl. 188—343 **3 Claims**



1. A brake applying device for an internal shoe drum brake and comprising:

a hydraulic wheel cylinder having a housing with a hydraulic chamber defined therein;

at least one piston located in the wheel cylinder and which can be urged outwardly of the cylinder by hydraulic pressure so as to apply the brakes;

a wedge assembly housed in said chamber and which is movable transversely of the cylinder and which is operable against the piston so as to urge the piston outwardly to apply the brakes, said wedge assembly having;

a wedge;

rollers which act between the wedge and counter surfaces parallel to surfaces on the wedge, at least one of said counter surfaces being on the piston;

a cage which houses the rollers and which is mounted for relative movement along the wedge;

a pair of springs acting in opposition on the cage to determine the unloaded datum position of the cage on the wedge;

wherein an abutment in the chamber reacts back on the housing so that on retraction of the wedge to release the brakes the cage encounters said abutment and is held thereby in position relative to the housing to compress one of said springs while the wedge continues its retraction.

4,280,604

SERVO-ARRANGEMENT WITH AN ELECTRIC GEAR SHIFT DISPOSITION FOR THE HAND, RESPECTIVELY AUTOMATIC CONTROL OF A GEAR CHANGE, BY ELIMINATION OF THE CLUTCH PEDAL

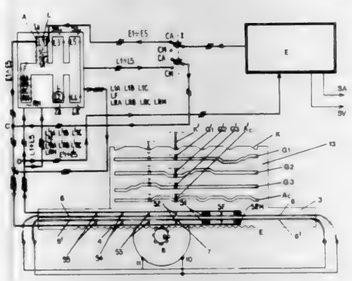
Rocco Lambicco, Via Napoli, 84, Sora (Frosinone), Italy

Filed May 9, 1979, Ser. No. 37,329

Claims priority, application Italy, Aug. 17, 1978, 50767 A/78

Int. Cl.³ B60K *41/28*

U.S. Cl. 192—0.08 **16 Claims**



1. A servo-arrangement for automatically controlling a transmission including a transmission control selector having a manual override control to provide for automatic or manual selection control, said transmission having at least a gear changing clutch mechanism, three movable gear wheels forming part of said gear changing clutch mechanism and accelerator control rods, said servo-arrangement comprising:

a rod unit including a rod formed from resistant material and having a rectangular cross-section, said rod unit including on a lower side of said rod a toothed section and on an upper side thereof a rectangular plate, said rectuangular section of said rod having a longitudinal axis parallel to the longitudinal axis of said rod, and the length of said rectangular section being nearly the same length as said rod;

two electrode units extending longitudinally along said rod, said electrode units being coupled to said rod but insulated therefrom, each of said electrode units having a longitudinal slit to divide said electrode units into a pair of electrodes for each said electrode unit on each side of said slit;

the upper edge of said rectangular plate having a surface with a contoured configuration of a predetermined shape, and said plate having four longitudinally extending grooves substantially parallel to the upper edge of said plate, each of said grooves also having a surface with a contoured configuration of a predetermined shape, and said upper surface with contoured configuration being the relative control for said gear changing clutch mechanism, three of said grooves with the contoured configuration surface being the relative control for said movable gear wheels, and the fourth of said four grooves being the relative control for said accelerator rods;

a plurality of sliding bars each having roller means at one end adapted to ride on one of said surfaces of contoured configuration, one of said sliding bars having its said other end connected to said gear changing clutch mechanism bar and being operatively associated through its said roller means with the upper surface of said rectangular plate, three others of said plurality of bars each having its said other end thereof respectively connected with one of said movable gear wheels with its said associated roller means adapted to ride in its respective first, second or third groove, and a fourth other bar having its said other end connected with said accelerator rods and its said one end with its said associated roller means adapted to ride in said fourth groove on its said contoured surface configuration;

an electromotor having a pair of terminals connected to said electrode units and to provide for a polarity reversal for each said pair of electrodes such that the polarity of each said electrode of each said electrode unit is the opposite on opposite sides of said slit, said electromotor including a reduction gear wheel in contact with said toothed section of said rod; and

a plurality of electrical contacts fixed relative to said rod, said contacts being placed along one side of said electrode units and being electrically connected therewith and with said controls from said manual control and said automatic control to provide for each one of the gear shift operations of said transmission so that the controls act on said sliding bars and not directly on the items being controlled to change speeds or to change direction from forward motion to reverse motion and vice-versa.

4,280,605

AUTOMATICALLY LOCKING BRAKE ASSEMBLY

George Papadopoulos, Rua Visonte De Piraza, 284 Apt. 701, Ipanama, Rio De Janeiro, Brazil

Filed Aug. 2, 1979, Ser. No. 63,161

Int. Cl.³ B60K *41/20*

U.S. Cl. 192—8 R **14 Claims**

1. A brake assembly comprising:

axial core;

wedge means carried by said core and fixed against rotation relative to said core means but movable axially with respect to said core means;

cam means defining a pair of substantially identical cam surfaces axially carried on either side of said wedge means, said cam surfaces being rotatable relative to said core means and to one another;

means for rotating said cam surfaces between a first angularly aligned position where the axial distance between the facing cam plate surfaces is substantially the same at all angular positions, and a second position out of angular alignment, said axial distance in the aligned position being greater than the axial length of said wedge means to permit relative rotation between said cam surfaces and said core means, said axial distance in the unaligned position being less than the axial length of said wedge means to wedge said wedge means between said cam surfaces whereby rotation of said cam surfaces relative to said core means is prevented.

4,280,606

TORQUE LIMITING DEVICE

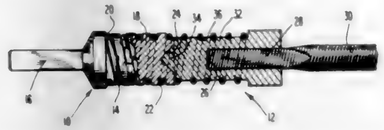
Kenneth W. J. Taylor, Bletchley, England, assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed May 25, 1979, Ser. No. 42,641

Claims priority, application United Kingdom, May 8, 1979, 15776/79

Int. Cl.³ F16D *7/02*

U.S. Cl. 192—56 C **4 Claims**



1. A torque limiting device for use with a driving member and a member to be driven thereby, said device comprising

a first coupling member in engagement with said driven member,

a second coupling member in engagement with said driving member,

spring means tightly interengaging said coupling members for urging contact therebetween such that rotation of said second coupling member produces a similar rotation to said first coupling member,

said spring means being so arranged about said coupling members and adapted for use therewith that rotation of said driven member upon increased loading thereof produces an increase in diameter of said spring means to thereby effect disengagement thereof from said second coupling member, said first coupling member including

a male square at one end thereof for engaging said driven member,

a plug at other end of said first coupling member, said plug terminating in a shoulder disposed intermediate said male square and plug, and

a deep helical groove provided around said plug; and wherein said second coupling member includes

a non-circular orifice for receiving a mating part of rotatable means for rotating said second coupling member,

a plug portion, said plug portion disposed in opposed face-to-face relationship with said plug of said first coupling member,

a shallow helical groove provided around said plug portion; and wherein

said spring means is a compression spring seated within said grooves of said plug and plug portion, one end of said spring abutting said shoulder of said first coupling member.

4,280,607

CLUTCH THROW-OUT BEARING PLATE

Tommy J. Blaylock, 2448 NW. 3, Oklahoma City, Okla. 73107

Continuation-in-part of Ser. No. 870,158, Jan. 17, 1978, Pat. No. 4,213,522, and a continuation-in-part of Ser. No. 925,066, Jul. 17, 1976, Pat. No. 4,181,207. This application Nov. 26, 1979, Ser. No. 97,252

Int. Cl.³ F16D *13/71, 23/14*

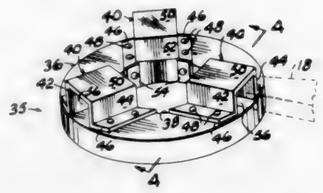
U.S. Cl. 192—98 **1 Claim**

1. In a vehicle clutch assembly having a flywheel and a clutch pressure plate movable toward and away from the flywheel by a plurality of radially inwardly projecting clutch release fingers, a transmission input shaft connecting the clutch pressure plate with a transmission and having a clutch throw-out bearing coaxially mounted on the shaft and movable toward and away from the inwardly directed end portions of said clutch release fingers, the improvement comprising:

a cylindrical centrally bored bearing plate loosely surrounding said input shaft and diametrically substantially equal with respect to said throw-out bearing and interposed between said throw-out bearing and the inwardly directed end portions of said clutch release fingers; and,

socket forming means secured to the surface of said bearing plate opposite said throw-out bearing in circumferentially spaced relation for forming radially open sockets nesting the inwardly directed end portions of said clutch release fingers,

said socket forming means including a plurality of housings,



each said housing consisting of parallel radially disposed side walls, normal to the plane of the bearing plate, transversely joined by a top wall and an end wall adjacent the bore of the bearing plate, whereby said end walls, by contact with the adjacent end surface of the respective clutch release finger, substantially coaxially supports the pressure plate with respect to the throw-out bearing.

4,280,608

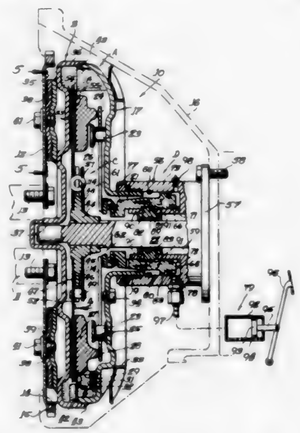
SELF-CONTAINED BELLEVILLE SPRING-TYPE WET CLUTCH

Edward F. LaBuda, Sterling Heights, and Ting M. Wang, Warren, both of Mich., assignors to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 860,347, Dec. 14, 1977, abandoned. This application Mar. 22, 1979, Ser. No. 22,902

Int. Cl.³ F16D *13/72*

U.S. Cl. 192—113 B **30 Claims**



1. A self-contained wet clutch assembly adapted to be mounted on a transmission input shaft, comprising a front cover assembly, a rear cover assembly, a clutch plate assembly, and a concentric slave cylinder assembly, said front cover assembly including a front cover having an outer peripheral flange, said rear cover assembly including a rear cover having outer and inner peripheral flanges extending in opposite directions, said outer peripheral flanges of the front and rear covers conformably telescoping and seal welded together, said clutch plate assembly being located within the sealed front and rear covers and operatively connected onto said transmission shaft, said slave cylinder assembly rigidly mounted on a transmission housing receiving said transmission input shaft and including a bearing and an oil seal receiving the inner flange of the rear cover to provide a completely sealed assembly.

4,280,609

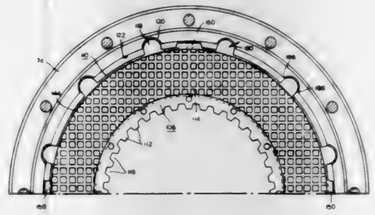
WET DISC BRAKE OR CLUTCH WITH CURVED STATOR DISC TABS

Phillip D. Cruise, Granger, Ind., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Sep. 7, 1979, Ser. No. 73,338

Int. Cl.³ F16D *13/74*

U.S. Cl. 192—113 B **5 Claims**



1. A multiple disc brake or clutch having an axis and comprising:

an outer housing member with an inner coaxial cylindrical surface;

a plurality of axially extending grooves in said cylindrical surface, each of said grooves including a pair of spaced apart margins and having a curved shape between said margins;

a disc pack located in said housing including a plurality of rotor discs arranged for reversible rotation about said axis and interleaved with a plurality of stator discs;

said stator discs each having a plurality of tabs around the periphery extending into said grooves respectively, each of said tabs having a curved outer surface;

a predetermined clearance provided between each tab and its respective groove, said clearance permitting reciprocal movement of said tabs in said grooves as a result of reversals in rotation of said rotor discs;

means for circulating cooling liquid through said disc pack; and

each of said tabs contacting one of said margins when said rotor discs are rotating in a first direction to form a chamber between converging outer surfaces of said respective tabs and grooves for trapping foreign matter found in the cooling liquid, said chamber having an opening between the other margin of each of said grooves and said respective tab where the cooling liquid enters and having a tip defined by the contact between said tab and one margin contact where as a result of centrifugal force said foreign matter accumulates and becomes compacted.

4,280,610

ADJUSTABLE SQUEEZE POINT SAFETY DEVICE

Craig L. Meacham, Richardson, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 27, 1979, Ser. No. 69,648

Int. Cl.³ B30B *15/22*

U.S. Cl. 192—132 **1 Claim**

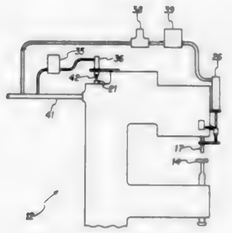
1. A saftey accessory for modifying a machine of the type in which closing a main switch actuates a firing solenoid, causing a main drive to move a ram against a workpiece with a high force, the accessory comprising:

a piston attachable to said machine and having a rod extending parallel to the direction of the motion of said ram, said rod having first and second portions of first and second thicknesses, respectively;

a crosspiece for rigidly fastening said rod to same ram;

means, including a closing solenoid, for activating the piston to move said crosspiece and thereby said ram to a position near the workpiece with a low force capable of being opposed by contact with a part of a human body;

a secondary switch mountable with an actuating arm disposed so that the arm first contacts said first portion of the rod, maintaining the secondary switch open, then the arm becomes in contact with the second rod portion, closing



the switch, when the ram moves within a preselected distance of the workpiece, said secondary switch being connectable in a series arrangement with said firing solenoid, and said series arrangement being connectable in a parallel configuration with said closing solenoid, and said parallel configuration being connectable in series with said main switch and a source of electrical power,

whereby when the accessory is operative, the main switch can be closed, activating the closing solenoid to move the ram at said low force to a position near the workpiece, whereupon said secondary switch becomes closed, unless the ram is opposed by an obstruction such as a body portion thicker than said preselected distance, the closing of the secondary switch activating said firing solenoid and moving the ram at said high force against the workpiece.

4,280,611

CIGARETTE CONVEYOR SYSTEMS

Desmond W. Molins; Dennis Hinchcliffe; Frank Heybourn, and Raymond G. Coyte, all of Deptford, England, assignors to Molins Limited, London, England

Continuation-in-part of Ser. No. 633,714, Nov. 20, 1975, abandoned. This application Dec. 28, 1977, Ser. No. 865,212

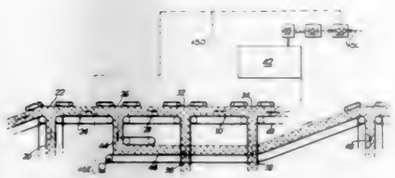
Claims priority, application United Kingdom, Nov. 27, 1974, 51321/74

Int. Cl.³ B65G *1/00*

U.S. Cl. 198—347 **13 Claims**

1. A cigarette making system comprising a number of units each including at least one cigarette making machine, at least one cigarette packing machine, and at least one cigarette reservoir interconnected so that a continuous multi-layer stack of cigarettes is supplied from said making machine to said packing machine and/or said reservoir and from said reservoir to said packing machine within each unit; and conveyor means including transfer conveyor sections which link all of said units in a closed loop path for conveyance of cigarettes as a continuous

multi-layer stack between a cigarette making machine or reservoir in one unit and a cigarette packing machine or reservoir in



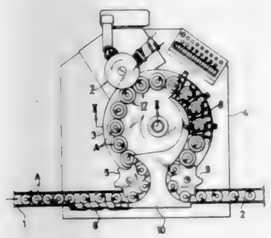
another unit to control the quantity of cigarettes available in each unit.

4,280,612

POSITIONING DEVICE FOR BOTTLES HAVING PROTRUDED OR INDENTED SPOTS

Yasuaki Nagano, Kanazawa, Japan, assignor to Shibuya Kogyo Company, Ltd., Kanazawa, Japan

Filed Jun. 27, 1979, Ser. No. 52,493
Int. Cl.³ B65G 47/24
U.S. Cl. 198—379 **8 Claims**



1. In a positioning device for use with a bottle having a positioning spot on the bottom thereof, said positioning device being adapted for positioning the bottle at a predetermined angular position, the combination comprising:

a transfer table;

mounting means mounted on said transfer table;

a supporting table supported on said mounting means for vertical movement between a first elevated position and a second depressed position, said supporting table having a central opening therethrough and being adapted to support the bottle;

means for preventing rotation of said supporting table relative to said mounting means;

an engaging member disposed in said central opening of said supporting table, means supporting said engaging member for rotation and for vertical upward movement relative to said supporting table, said engaging member having engaging means thereon adapted to extend above the upper surface of said supporting table when said supporting table is in said second depressed position for engaging the positioning spot of the bottle disposed on said supporting table for effecting rotation of the bottle when said engaging member is rotated;

first resilient means cooperable with said supporting table for urging said supporting table toward said first position;

second resilient means cooperable with said engaging member for urging said engaging member upwardly with respect to said mounting means and said supporting table when said supporting table is moved to said second depressed position;

means spaced above said supporting table and cooperable with the top of the bottle disposed on said supporting table for moving the bottle, said supporting table and said engaging member downwardly against the urging of said first and second resilient means so that said engaging means becomes positioned above the upper surface of said supporting table; and

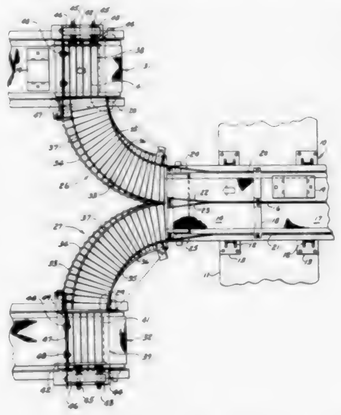
drive means cooperable with said engaging member for effecting rotation of said engaging member relative to said mounting means and said supporting table so that said engaging means is moved into engagement with said positioning spot.

4,280,613

TIE PLATE CONVEYING AND ORIENTATING SYSTEM

John K. Stewart, Lexington, S.C., assignor to Canron Corp., West Columbia, S.C.

Filed Oct. 12, 1979, Ser. No. 84,303
Int. Cl.³ B65G 47/24
U.S. Cl. 198—406 **7 Claims**



1. For use with a railway track renewal or construction machine adapted to run along said railway track, apparatus for conveying and orientating tie plates for delivery to a mechanism for positioning and laying the tie plates on ties, comprising, in combination: a first longitudinally directed power driven conveyor for serially delivering tie plates from a storage area towards said mechanism, with the rail engaging side of the plates facing upward and the field end of the plates facing forward; a second longitudinally directed power driven conveyor longitudinally and vertically spaced downstream of said first conveyor; a curved conveyor at least partially spanning said longitudinal and vertical spacing arranged to receive tie plates from an end of the first power conveyor and to deliver said plates transverse to said second conveyor; and an intermediate conveyor overlying the inlet end of said second power driven conveyor in line with the exit end of said curved conveyor said intermediate conveyor spanning a portion of the vertical distance between said first and second driven conveyor between said curved conveyor and said second driven conveyor, whereby said tie plates are delivered from said first longitudinally directed power driven conveyor to said cured conveyor onto said intermediate conveyor to said second longitudinally directed power driven conveyor with the field side of said plates facing outwardly.

4,280,614

SYSTEM FOR OFFLOADING ARTICLES FROM A CONVEYOR BELT

James L. Balch; James E. Anderson, and Boleslaus J. Sadeski, all of Madison, Wis., assignors to Oscar Mayer & Company, Inc., Madison, Wis.

Continuation of Ser. No. 848,478, Nov. 4, 1977, which is a continuation of Ser. No. 639,420, Feb. 10, 1975, which is a division of Ser. No. 447,354, Mar. 1, 1974, Pat. No. 3,934,705.
This application Mar. 7, 1979, Ser. No. 18,151
Int. Cl.³ B65G 47/26
U.S. Cl. 198—425 **5 Claims**



1. A product grouping system for dividing a finite number of items having a predetermined serial spacing along a continuously moving unidirectionally driven conveyor into first and second serially spaced groups of first and second predetermined numbers of items, respectively, having said predetermined spacing on said conveyor, said system comprising, in combination:

product detector means fixedly positioned at a reference point along said conveyor for producing an output signal upor the passage of each of said items at said reference point on said conveyor;

product retardation means fixedly positioned relative to said direction of conveyor movement and responsive to an appied control effect for lifting said second predetermined number of items clear of said conveyor immediately preceding said reference point while maintaining said predetermined spacing between said items; and

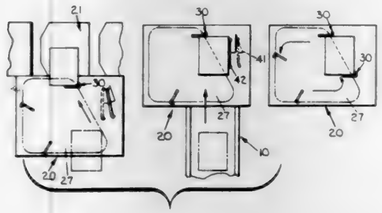
control means reponsive to said detector output signal for actuating said product retardation means for a predetermined period of time following the passage of said first predetermined number of items at said reference point to cause said items immediately ahead of said reference point to be separated from said items immediately behind said reference point by the motion of said conveyor to form said first and second groups of items having said predetermined spacing between items.

4,280,615

BUNDLE ENTRY DEVICE

Paul D. Siniscal, Hollis; David L. Hebert, Amherst, and J. Paige Benzing, Milford, all of N.H., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed Jan. 10, 1980, Ser. No. 111,491
Int. Cl.³ B65G 43/08
U.S. Cl. 198—470 **4 Claims**



1. An apparatus for receiving bundles of newspapers from a first conveyor system and for discharging them onto a second conveyor system which is travelling in a direction substantially normal to the direction of the first conveyor, said apparatus comprising:

(a) a supporting structure including a bundle receiving surface located between the first and second conveyors;

(b) bundle engaging paddles operably connected to driving means including a driven endless member to which said paddles are connected, said paddles being connected to said driven endless member at spaced locations such that the back surface of the paddle which is closest to the second conveyor serves as a stop for a bundle arriving on said receiving surface; and

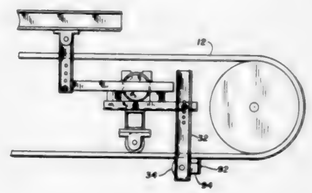
(c) side guide means which moves to adjust the lateral position of each successive bundle received on said receiving surface so that it can be transferred to the second conveyor by said paddle next following said paddle which acted as a stop for a bundle received in the receiving surface.

4,280,616

VIBRATORY BELT CLEANER WITH AUXILIARY VIBRATORY RESONANCE

Theodore S. Wadensten, P.O. Box 8, Stilson Rd., Wyoming, R.I. 02898

Filed Mar. 8, 1979, Ser. No. 18,589
Int. Cl.³ B65G 45/00
U.S. Cl. 198—499 **24 Claims**



1. A vibratory belt cleaning apparatus for an endless conveyor belt as carried by a conveyor support frame, said apparatus disposed immediately adjacent a discharge pulley to remove attracted particles from the carrying surface of said belt as the belt is vibrated and moved on its return portion of movement, said belt cleaning apparatus including:

(a) a support frame for the conveyor belt and pulley;

(b) a first pair of forwardly extending arm members;

(c) securing means for pivotally retaining said first pair of forwardly extending arm members to a selected and adjustably determined position on said support frame; said first pair of forwardly extending arm members carried by and below said securing means;

(d) a second pair of forwardly extending arms disposed below and substantially parallel to said first pair of forwardly extending arms, this second pair of arms extending toward the discharge pulley;

(e) vibration isolators interposed between said first and second pair of forwardly extending arms, these isolators arranged so as to inhibit vibration transmittal to said support frame;

(f) a variable speed and force vibrator carried on and by a support member secured to the second pair of forwardly extending arm members;

(g) a shaft carried at each end by bearing means secured to the support member and attached to the second pair of extending arms at a point which is intermediate their length, this shaft adapted to accept and support a first free turning roller carried on and by this shaft, this first free turning roller vibrated by the force vibrator and with this first free turning roller disposed to engage the inside surface and under extent of the conveyor belt at a determined position away and downstream from the discharge pulley;

(h) means cooperatively associated with and depending from said second pair of forwardly extending arms and provid-

ing a second vibrated additional cleaning means for said return extent of belt, this second vibrated additional cleaning means adapted to engage the outer surface of the returning belt;

(i) means for adjustably positioning the first freely turning roller so that the engagement with the inside of the conveyor belt and the vibratory actuation is at a maximum resonance and at said position the first pair of forwardly extending arms are permamently secured, and

(j) means for adjustably positioning said second vibrated additional cleaning means so that vibratory actuation with the outside of the returning belt is made with a light engagement therewith, this second vibratory actuation adjustably positioned to determine a maximum resonance and at said position securing said second vibrated additional cleaning means.

4,280,617

CONVEYOR BELT

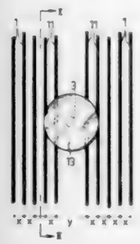
Helmut Zintarra, Hanover, and Olaf Klüpfel, Ahlen-Vorhelm, both of Fed. Rep. of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jun. 7, 1979, Ser. No. 46,504

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1978, 2825609

Int. Cl.³ B65G *15/44, 15/34*

U.S. Cl. 198—699 **5 Claims**



1. A conveyor belt, which conveyor belt comprises in combination:

a belt body of elastomeric material, said belt body including at least two groups of continuous reinforcing strands embedded in and extending longitudinally with respect to said belt body, said reinforcing strands being pretensioned and being spaced from and parallel to one another, each group of reinforcing strands being spaced apart a predetermined distance from the adjacent group of reinforcing strands to provide a zone in the belt body free of reinforcing strands, those reinforcing strands of each group positioned adjacent to said zone having a greater elasticity than the reinforcing strands not adjacent said zone, and

means for securing attachments to the belt body, said securing means passing through said zones and extending only over the reinforcing strands of greater elasticity whereby the reinforcing strands of greater elasticity deform relative to the other strands to accomodate the shape of the securing means.

4,280,618

DEVICE FOR HANDLING MEAT LOGS AND OTHER ARTICLES

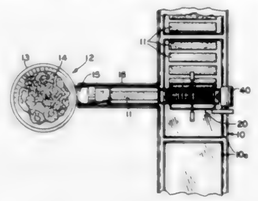
James H. Jensen, Eau Claire, Wis., assignor to Armour and Company, Phoenix, Ariz.

Continuation of Ser. No. 825,908, Aug. 19, 1977, abandoned. This application May 31, 1979, Ser. No. 44,183

Int. Cl.³ B65G *13/12*

U.S. Cl. 198—782 **4 Claims**

1. A device for handling meat log or like article comprising a main conveyor on which the article may be supported for removal in a forward direction from the device, a frame, a pair of jaws supported by said frame and above said main conveyor, each of said jaws having a series of spaced rollers, said rollers having their tops in a horizontal plane to provide a platform on which said article may be supported, means for driving said rollers on each of said jaws about their axes whereby to propel articles on said platform above and transversely of said main conveyor, and means for moving said jaws apart horizontally while maintaining the tops of said rollers in the same plane to



permit said article to drop between the jaws onto said conveyor, said jaws being slidable along a horizontal path in said frame, said jaw moving means being effective to slide said jaws along said path, a pair of rods mounted for rotation in said frame, motor drive means for driving one of said rods in rotary movement and means for connecting said one rod and said rollers in drive relationship whereby rotation of said one rod drives said rollers.

4,280,619

MOVING BELT CONVEYOR MECHANISM

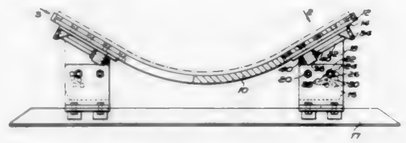
Christopher J. Ward, Barnby Dunn, Near Doncaster, and Septimus Hughes, South Shields, both of England, assignors to Conveyor Improvements (Doncaster) Limited, Doncaster, England

Filed Dec. 3, 1979, Ser. No. 99,979

Claims priority, application United Kingdom, Dec. 19, 1978, 49139/78

Int. Cl.³ B65G *15/08, 15/60*

U.S. Cl. 198—823 **7 Claims**



1. A moving belt conveyor mechanism comprising an endless load-carrying belt and means for supporting the belt in the region of a loading point and for causing the belt to trough, said means for supporting being constituted by a troughing mat extending completely across the conveyor and providing a trough section on which the load-carrying belt can slide to cause the belt to trough; bearers disposed on opposite sides of the conveyor mechanism, marginal portions of the troughing mat being secured to said bearers; adjustment means whereby the bearers are angularly adjustable to suit the degree of troughing required, said adjustment means being constituted by angularly adjustable mounting brackets on which the bearers are slidably mounted, screw means being provided for adjusting positions of the bearers on the mounting brackets in a direction transverse to the direction of movement of the load-carrying belt so that a height adjustment of the troughing mat can accompany an angular adjustment of the bearers.

4,280,620

LATERALLY FLEXIBLE CONVEYOR BELT

Charles F. Baker, Jr., Akron, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Mar. 15, 1979, Ser. No. 20,697

Int. Cl.³ B65G *15/08*

U.S. Cl. 198—825 **5 Claims**



5. In a conveyor belt for carrying bulk material in a path including both straight and transversely curved positions, said conveyor belt being constructed of elastomeric material including a central portion of a rectangular cross sectional configuration and corrugated edge portions extending outwardly from said central portion and further including, embedded in said elastomeric material, longitudinally inextensible reinforcing cables and layers of reinforcing cords extending from edge to edge, the improvement including said belt being molded in and untroughed orientation with longitudinal hinge lines adjacent the lines where the corrugated edge portions meet the central portion, said hinge lines being formed by the layers being spaced from and parallel to each other and to the surfaces of the belt at all points except along the hinge lines where they are positioned closer together than at all other areas.

4,280,621

LAMINAR CHILD RESISTANT PACKAGE

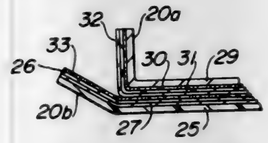
John F. Tonrey, 22 Half Turn Rd., Levittown, Pa. 19056

Continuation-in-part of Ser. No. 920,471, Jun. 29, 1978, Pat. No. 4,196,809. This application Sep. 17, 1979, Ser. No. 76,239

The portion of the term of this patent subsequent to Jan. 8, 1997, has been disclaimed.

Int. Cl.³ B65D *73/00, 83/04*

U.S. Cl. 206—534 **8 Claims**



1. In a laminar child resistant package comprising a foldable blister layer, a foldable auxiliary layer of substantial thickness and in facing relation with said blister layer, releasable adhesive means securing said layers together in facing relation throughout an entire area, and fold indicia associated with said layers indicating folding of said layers across said area and toward said auxiliary layer, to extend the blister layer about the fold of the auxiliary layer and place said adhesive means in shear, said adhesive means being sufficiently weak to release in shear upon the folding of said layers toward said auxiliary layer causing the layers to separate apart.

4,280,622

TAPERED INSERT

Bennie C. Nelson, Jr., Romeoville, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Dec. 12, 1979, Ser. No. 102,741

Int. Cl.³ B65D *5/50, 81/00, 85/30*

U.S. Cl. 206—592 **2 Claims**

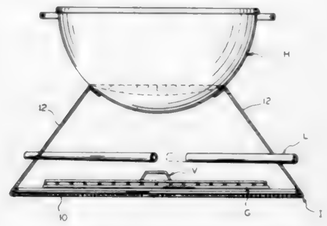
1. A tapered packing insert, for holding an article within an outer container, formed a unitary blank of foldable paperboard and comprising:

(a) a generally rectangular bottom wall;

(b) pairs of opposed side walls foldably joined at their lower edges to and extending upwardly and inwardly from adjacent side edges of said bottom wall;

(c) integral corner locking means interconnecting ends of adjacent side walls, including:

(i) a pair of generally triangular first corner flanges foldably joined at their upper edges to end edges of respective side walls and extending downwardly therefrom toward said bottom wall in face-to-face relation with each other;



(ii) a pair of generally triangular second corner flanges foldably joined at corresponding side edges to lower edges of respective first corner flanges and extending outwardly therefrom toward related side walls in face-to-face relation with said bottom wall;

(iii) at least one locking tab foldably joined to one of said first flanges and received within a complementary slot in the other of said first corner flanges.

4,280,623

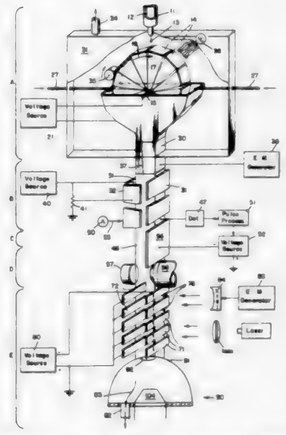
METHOD AND APPARATUS FOR CONTROLLING, ORIENTING AND ANALYZING BIOLOGICAL CELLS IN LIQUID SUSPENSION

Gildardo S. Legorreta, 3121 Parana, Providencia, Guadalajara, Jal., Mexico

Filed Feb. 4, 1980, Ser. No. 118,340

Int. Cl.³ B07C *5/342*

U.S. Cl. 209—3.1 **44 Claims**



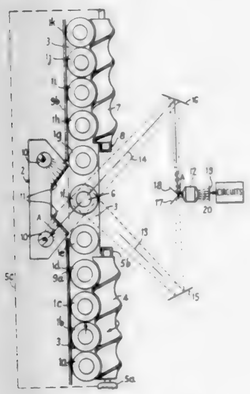
1. Apparatus for orienting, spacing and analyzing cells including:

(a) means for electrically charging cells to a predetermined polarity;

(b) means for separating cells from a cluster of cells, and for flattening the separated cells;

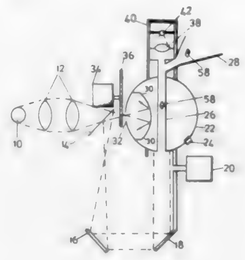
(c) means for suspending the separated and charged cells in a first dielectric liquid;
(d) means for forcing the liquid downwardly; and
(e) means for establishing an electric field to repel the charged cells.

4,280,624
BOTTLE INSPECTION APPARATUS
Geoffrey E. Ford, Bedford, England, assignor to TI Fords Limited, Bedford, England
Filed Oct. 2, 1978, Ser. No. 947,547
Claims priority, application United Kingdom, Oct. 13, 1977, 42553/77
Int. Cl.³ B07C 5/342
U.S. Cl. 209—524 **7 Claims**



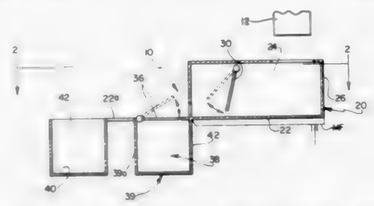
1. Apparatus for inspecting the side walls of transparent or translucent bottles for the detection of dirt or foreign bodies therein while the bottles are being conveyed to bottle filling apparatus, comprising a conveyor for moving the bottles to be inspected, supported only by their bases resting on the conveyor, through an inspection station, means for driving said conveyor continuously at a selected linear speed, means for delivering successive bottles to said conveyor in spaced apart relation and at a speed of movement equal to the linear speed of the conveyor, means for diffusely illuminating the side walls of a bottle as it moves through the inspection station, means for projecting, while a bottle is so illuminated, a plurality of images of the side walls of the bottle, as viewed from at least two different directions in plan, on to at least one integrated circuit device comprising an array of photo-diodes arranged in a plurality of rows with a plurality of diodes in each row in combination with array scanner means cyclically to scan the array and interrogate each diode in turn, along each row in turn, to provide a video signal comprising a sequence of electrical signals corresponding to the light energy each diode has received, means synchronised with said array scanner means to generate gating pulses of the desired length for each row, and means for feeding said video signal to electric circuit means including means for differentiating said video signal and gate means controlled by said gating pulses for gating-out unwanted signals outside the limits of the images of the side walls of the bottle to be inspected whereby to generate differentiated signal pulses representative of dirt or foreign bodies in the bottle, said electric circuit means also including means for inverting the differentiated signal pulses of one polarity so that all signal pulses are of the same polarity.

4,280,625
SHADE DETERMINATION
Jacobus H. Grobbelaar, 18 Truro St., Alberton, Transvaal; Richard N. Colson, 23 Harry van Wyk Ave., Kempton Park, Transvaal; Charlie M. Levitt, 40 Craighall Rd., Victory Park, Transvaal, and Samuel Chatterley, 1 Riethaan St., Florida Lake, Transvaal, all of South Africa
Filed Mar. 21, 1979, Ser. No. 22,514
Claims priority, application South Africa, Apr. 3, 1978, 78/1879; Apr. 3, 1978, 78/1880
Int. Cl.³ B07C 5/342
U.S. Cl. 209—582 **15 Claims**



1. Apparatus for determining the shade of a particle which comprises:
(a) means for providing a reference level of illumination;
(b) means for illuminating the particle, in which the relative intensities of the reference level of illumination and of the particle illumination varying; and
(c) means for comparing the intensity of light from at least the particle to the intensity of the reference level to obtain a measure of the shade of the particle, said comparison means includes detector means which is being responsive to the intensity of the illuminated background and in which the particle illuminating means comprises a light source and an integrating sphere, an aperture being formed through a wall of the sphere to admit light from the source into the sphere, the sphere being located in front of the background and including an inlet and an outlet which permit the passage of the particle through the sphere and the transmission of light from the given area of the background to the detector means.

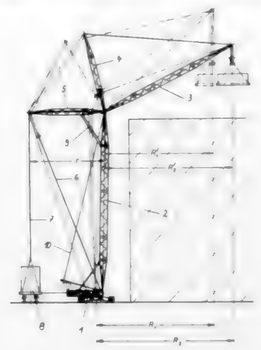
4,280,626
PRODUCT SEPARATION AND GRANULATION SYSTEM
Robert D. Batting, Barrington, R.I.; Donald G. Chabot, Sharon, Mass., and Donald R. Poland, East Greenwich, R.I., assignors to Leesona Corporation, Warwick, R.I.
Filed Oct. 5, 1979, Ser. No. 82,065
Int. Cl.³ B07B 13/04
U.S. Cl. 209—658 **7 Claims**



1. A system for the separation of injection molded plastic products including parts and sprue and runner assemblies formed simultaneously therewith wherein said parts are separate from but intermixed with said sprue and runner assemblies, said parts having a relatively small height dimension and said sprue and runner assemblies having a relatively large web-like co-planar base portion and exhibiting at least one relatively large height dimension which is disposed generally normal to said base portion, comprising a supporting surface for receiving the molded products of a single injection molding cycle including said parts and said sprue and runner assembly therefor, means for conveying said products along said supporting surface, a first barrier disposed in spaced relation above said surface and movable between a first position spaced from said supporting surface at a distance greater than the relatively small height dimension of said parts and less than the relatively large height dimension of said sprue and runner assembly such that said parts are permitted to pass beneath the first barrier to the downstream side thereof while retaining said sprue and runner assembly on the upstream side thereof and a second position disposed at a height above said supporting surface greater than the relatively large height dimension of said sprue and runner assembly such that said assemblies may pass therebeneath to the downstream side thereof, a second barrier disposed downstream of said first barrier and movable between a first position wherein said second barrier forms a portion of said supporting surface and a second position elevated therefrom whereby products conveyed along said supporting surface upstream thereof will be deflected downwardly thereof, granulation means operatively associated with said second barrier and having at least a portion thereof disposed therebeneath, a parts receiving means disposed at the downstream terminus of said supporting surface and positioned therebeneath, and means responsive to each molding cycle of said injection molding machine for initially sequentially maintaining said first and second barriers in the first positions thereof such that parts from said molding machine on said supporting surface upstream of said first barrier will be conveyed initially beneath said first barrier and thereafter over said second barrier to said parts receiving means and thereafter for shifting the position of said first and second barrers to their second alternate positions whereby the sprue and runner assembly of said parts initially located upstream of said first barrier will pass therebeneath and be diverted by said second barrier into said granulation means thereby affecting a sequential separation of said parts and sprue and runner assemblies including the temporary storage of said parts and the granulation of said assemblies.

4,280,627
HEAVY-DUTY CRANE WITH COUNTERWEIGHT
Rudolf Becker, Ehingen, Fed. Rep. of Germany, assignor to Liebherr-Werk Ehingen GmbH, Ehingen, Fed. Rep. of Germany
Filed Jan. 5, 1979, Ser. No. 1,074
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839665
Int. Cl.³ B66C 23/72
U.S. Cl. 212—198 **6 Claims**

1. A goliath crane comprising a rotatable upper carriage, a heavy-duty jib supported by the upper carriage, a telescopic counter-jib hinged to an upper tip of said heavy-duty jib, a counterweight, a cable attaching the counterweight to the counter-jib for counterbalancing purposes, means for interconnecting the upper carriage and counterweight so that the counterweight is movable towards and away from the upper carriage in conjunction with telescopic movement of said counter-jib, the counterweight being swivellable by turning of the upper carriage, a needle jib hinged to the tip of the heavy-duty jib, means disposed between the counter-jib and needle jib for guying the needle jib from the counter-jib, the counter-jib overhanging the upper carriage so far that the counterweight secured to it by the cable is diposed beyond the confines of the upper carriage of the crane, the counterweight being spaced from the upper carriage and being supported by the cable in



such manner that the counterweight exerts no force on the upper carriage when the crane is unloaded.

4,280,628
ANTI-TWO BLOCK SYSTEM
John B. Goss, 7627 Beach Cove La., and William D. Morrow, 10206 Amblewood, both of Houston, Tex. 77072
Continuation-in-part of Ser. No. 892,018, Mar. 31, 1978, Pat. No. 4,184,600. This application May 14, 1979, Ser. No. 38,814
Int. Cl.³ B66C 15/00
U.S. Cl. 212—266 **9 Claims**



1. An anti-two block system adapted to be used with a crane, the crane having a boom with a boom tip, the boom tip having sheaves mounted on a sheave carrier therewith, the crane adapted to lift loads with a hydraulically actuated hoist line extending over the sheaves and having a travelling member affixed therewith, comprising:
a frame member pivotally mounted with the sheave carrier adjacent the sheaves for unencumbered rotation about the sheave carrier as the boom tip moves during lifting operations; and,
engaging means mounted with said frame member adjacent the boom tip for engaging the travelling member when the travelling member moves to a fixed distance within close proximity to the boom tip during lifting operations of the travelling member with the crane, said engaging means including an engaging member mounted with said frame

member for engaging the travelling member at said fixed distance and preventing further movement of the travelling member towards the boom tip.

4,280,629

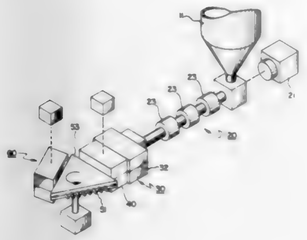
CONTAINER FOR NAIL POLISH OR THE LIKE

Bobby L. Slaughter, Wildwood Estates, Tenn., assignor to Anchor Brush Company, Inc., Aurora, Ill.

Continuation of Ser. No. 1,820, Jan. 8, 1979, abandoned. This application May 9, 1980, Ser. No. 148,100

Int. Cl.³ B65D *1/02, 23/00;* **B29C** *17/07*

U.S. Cl. 215—1 C **10 Claims**



1. A method of making a transparent, colorless, strong-solvent-resistant bottle comprising the following steps:

(a) providing a mixture of particles of transparent as-reacted low molecular weight polyacrylonitrile resin having a natural yellow cast and a sufficient quantity of a dye material, compatible with said resin and having a complementary color which when dispersed throughout said resin in a given ratio will cancel the color of the resin, to provide said given ratio,

(b) feeding the resin-dye mixture into a feeding end of a heated reciprocating screw injection unit and dispersing said dye material uniformly throughout the resin to form a colorless plastic, by intermittent rotation of the screw, as the resin-dye mixture is fed from the feeding end to a barrel nozzle,

(c) determining by experimentation a temperature profile for the screw injection unit and a barrel nozzle temperature, to match actual dimensions and surface finishes of the particular screw injection unit, said profile being selected to be the minimum time-temperature product which is sufficiently above the plastic point temperature for the resin used to avoid frictional heating hot spots due to shear concentration, said profile having a temperature rising from the feeding end to the barrel nozzle,

(d) maintaining the temperature of the screw injection unit at said experimentally determined temperature profile along the length of the unit, within a tolerance of approximately ±3° C.,

(e) without any further cooling and reheating cycle injecting said colorless plastic a parison mold,

(f) venting any gases released from the resin in the parison mold,

(g) transferring the parison to a blowing mold while maintaining the colorless material in a plastic state, and

(h) forming the colorless plastic into a bottle in the blowing mold.

4,280,630

CONTAINER WITH HANDLE

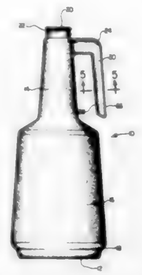
Robert X. Hafele, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Sep. 14, 1979, Ser. No. 75,590

Int. Cl.³ B65D *1/02*

U.S. Cl. 215—100 A **10 Claims**

1. In a hollow thermoplastic container, blow molded from an injection molded preform, said container being closed at one end and terminating at the other end in an open mouth, the improvement comprising: said container having a blow molded neck portion and additionally having an injection



molded handle integral with said container, said handle being attached at only one point to said container at said blow molded neck portion and being formed contemporaneously with the formation of said preform.

4,280,631

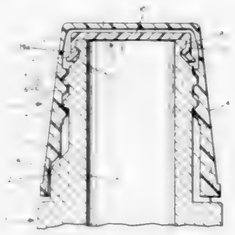
SAFETY CLOSURE AND CONTAINER WITH SNAP CAP LINER

Richard D. Lohrman, Mundelein, Ill., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 10, 1980, Ser. No. 128,423

Int. Cl.³ A61J *1/00;* **B65D** *55/02, 85/56*

U.S. Cl. 215—204 **8 Claims**



1. An improved child resistant safety closure adapted for threadable attachment on a container having a generally cylindrical hollow dispensing end including an externally threaded neck portion, an annular rim defining a dispensing opening, an annular groove adjacent said dispensing opening, and locking means on said container to lock said closure on said dispensing end when said closure is threadably rotated to a fully closed position on said neck portion, said closure comprising: an outer closure having a top panel and an annular skirt portion depending therefrom, said annular skirt including threads on the interior surface thereof adapted to engage the threads of the neck portion of said container and means to releasably engage said container locking means, an inner sealing closure having a top panel section, a depending annular skirt section depending from the periphery of said inner closure panel section, means on said inner closure skirt to snugly engage said annular groove to effect a seal of the container, and means on said outer closure for retaining said inner sealing closure within said outer closure, said last mentioned means permitting a limited axial movement of said outer closure, in either direction without interferring with the sealing engagement of said inner sealing closure and the cotainer annular rim.

4,280,632

BOTTLE CAP

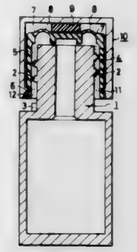
Yukitomo Yuhara, 5-29-10, Tachibana, Sumida-ku, Tokyo, Japan

Filed Dec. 4, 1979, Ser. No. 100,123

Claims priority, application Japan, Sep. 17, 1979, 54-126877[U]

Int. Cl.³ B65D *41/04*

U.S. Cl. 215—331 **4 Claims**



1. A cap for closing a bottle shaped container comprising:

an inner lid **(4)** having a ring groove **(6)**;

an outer lid **(10)** encompassing the inner lid and having a lateral rib **(11)** received in the ring groove;

said inner lid comprising a sealing plate **(7)** forming the top thereof and having a central portion connected to a side peripheral portion by a flexible hinged structure **(8)** so that the central portion is movable with respect to the peripheral portion; and

cushion material **(9, 13)** disposed between the central portion of the inner lid and the outer lid for urging the central portion into contact with the container.

4,280,633

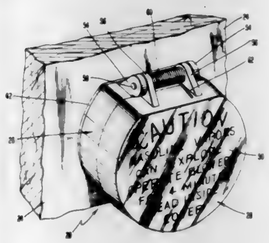
SAFETY WARNING DEVICE FOR IGNITION SWITCH

Stephan A. Boros, Box 61, Graad Rivers, Ky. 42045

Filed Dec. 12, 1978, Ser. No. 968,721

Int. Cl.³ H02G *3/14*

U.S. Cl. 220—241 **3 Claims**



1. A safety warning device for an ignition switch mounted on a control panel, comprising:

a cup-shaped base member having a flat base portion adapted to be secured to the control panel on which the ignition switch is mounted, said base portion having an enlarged opening formed therein to receive the ignition switch and an upstanding peripheral rim raised substantially above said ignition switch to protect said switch, said peripheral rim of said base member includes an outer lip portion adapted to fit inside and engage said edge portion of said cover member to protect the ignition switch against contamination;

a cup-shaped cover member having a flat cover portion and an edge portion adapted to engage said peripheral rim of said base portion, said outer lip portion and said edge portion are oppositely tapered around the periphery to mate and to enhance the sealing function;

hinge means pivotally connecting said base and cover members together to allow said cover member to be pivoted from a closed position with its edge portion engaging said peripheral rim of said base member to an open position allowing access to the ignition switch;

means for normally holding said cover member in its closed position to preclude access to the ignition switch and provide protection against contamination, said holding means comprises a constantly operable bias spring for normally urging said cover member toward its closed position; and

warning means provided on said cover member for display when said cover member is in its closed position, said warning means is formed on the outside and inside faces of said cover member to be selectively displayed with said cover member in its closed or open position.

4,280,634

DEVICE FOR THE REPEATED OPENING AND CLOSING OF AN APERTURE IN A COVER OF A CONTAINER

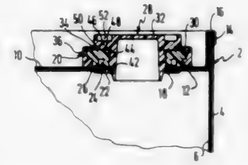
Alfred Wiesenberger, Wiesbaden-Sonnenberg; Lutz Mager; Erich Kolb, both of Nieder-Olm, and Karl Kreim, Fränkisch-Crumbach, all of Fed. Rep. of Germany, assignors to Firma Peter Eckes and Adam Heldmann Kunststoffverarbeitung, both of Fränkisch-Crumbach, Fed. Rep. of Germany

Filed Nov. 8, 1979, Ser. No. 92,540

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849755

Int. Cl.³ B65D *53/00*

U.S. Cl. 220—270 **9 Claims**



1. Device for the repeated opening and closing of an aperture in a container comprising a cover for the container having an outer surface and an inner surface with an aperture therethrough, said cover comprising a plurality of layers including a layer of metal and a layer of plastics material in contact with and covering said metal layer with said layer of plastics material forming the inner surface of said cover, a pouring member having a pouring opening therethrough inserted through the aperture in said cover and having a first portion extending inwardly of the inner surface of said cover and a second portion extending outwardly from the outer surface of said cover, the inner portion of said pouring member having a flange located inwardly of said layer of plastics material and extending outwardly from the aperture in said cover over and in contact with said layer of plastics material, said flange being tightly adhered to said layer of plastics material, said second portion of said pouring member having an outwardly projecting bulge spaced outwardly from and extending over the outer surface of said cover, and a closing member for said pouring member fitted over the outer portion of said pouring member and tightly surrounding said bulge.

4,280,635

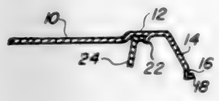
VASE COVER

Richard W. Murphy, 17846 San Clemente St., Fountain Valley, Calif. 92708

Continuation-in-part of Ser. No. 928,723, Jul. 27, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 64,118

Int. Cl.[3] **B65D** *43/10*

U.S. Cl. 220—306 **2 Claims**



1. A cover for a vase comprising:
a flat recessed surface;
a flat raised surface ajoining the periphery of said recessed surface;
sloped edges from said raised surface 15° to 45°;
a circumferential edge 90° to said flat top surface and adjoining said sloped edge; and
a plurality of angular flanges arranged in a circle on the underside of said flat raised surface that interface with a lip bulb on a vase snapping into place and firmly attaching said lip to said vase.

4,280,636

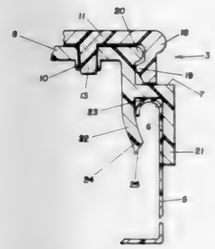
CONTAINER COVER LOCKING ASSEMBLY

Duane H. Lewis, Claysville, Pa., assignor to Continental Plastics, Inc., Washington, Pa.

Filed Apr. 21, 1980, Ser. No. 141,953

Int. Cl.[3] **B65D** *39/00*

U.S. Cl. 220—307 **7 Claims**



1. A locking assembly for a container cover used with a container body of the type having a cover seat formed from the inwardly curved upper edges of the container body's side panels, comprising:
a base member;
a continuous peripheral skirt depending downwardly from said base member;
a ridge depending downwardly from said base member, said ridge being spaced inwardly from and parallel with said skirt and forming together with said skirt and the portion of said base member between said skirt and said ridge a mounting channel which engages said container mounting seat; and
several tapered locking lips depending from said ridge and curving outwardly toward yet terminating short of said skirt for urging said container cover down against said mounting channel.

4,280,637

CONSTANT FEED DEVICE

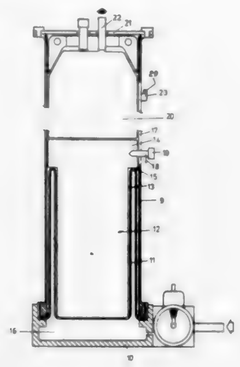
Susann I. C. Runciman, 6 Birkdale Crescent, Mount Osmond, South Australia, Australia, assignor to Susann I. C. Runciman, Mount Osmond and John R. Thompson, Skye, both of, Australia

Filed Sep. 12, 1979, Ser. No. 75,319

Claims priority, application Australia, Sep. 15, 1978, PD5969; Nov. 17, 1978, PD6819

Int. Cl.[3] **B67D** *5/32*

U.S. Cl. 222—39 **7 Claims**



1. Apparatus for the administration of parenteral fluids, said apparatus comprising
a container adapted to support a pliant bag containing a liquid to be administered,
pressure applying means to apply a said bag including an outlet means, pressure to said bag to force the liquid therefrom,
said pressure applying means being a rigid piston having a head and elongate body portion of lesser diameter than said head,
a flexible diaphragm connected to said container to form an enclosed pressure area on one side of said piston to roll on said elongate body portion of said piston, with said pliant bag situated on the other side of said piston, and
adjustable pressure regulating means to admit fluid pressure to said enclosed pressure area.

4,280,638

FLUID DISPENSING APPARATUS

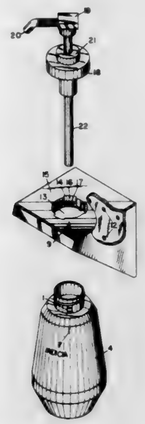
Neil W. Keihm, Newark, Del., assignor to ICI Americas Inc., Wilmington, Del.

Filed Oct. 22, 1979, Ser. No. 87,234

Int. Cl.[3] **B67D** *47/34*

U.S. Cl. 222—180 **4 Claims**

1. An apparatus for dispensing a fluid comprising (a) a container having a globe portion, a neck portion the top part of which is externally threaded, and three lugs spaced around the neck portion below said threaded neck portion and above the globe portion so that two lugs are closer to each other than to the third lug, (b) a rack having anchoring means for attachment to an upright surface and three lug receiving means to interlock with the three lugs on the container and (c) a pump assembly having a delivery end, a pump portion and a dip tube connected with and through an internally threaded cap, so as to provide for insertion of the dip tube into the lower portion of the globe, threaded engagement of the cap with the threaded portion of the container and interlocking of the three lugs on the container with the three lug receiving means on the rack to form a unitary structure.



4,280,639

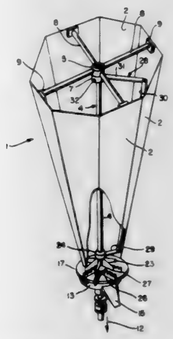
DISPENSER FOR GRANULAR OR POWDERED PRODUCT WITH CRENELLATED DISPENSING BLADE

Gerard Lemaitre, La Creuse de Saint-Eanne, 79800 La Mothe Saint Heray, France

Filed Jun. 18, 1979, Ser. No. 49,293

Int. Cl.[3] **G01F** *11/10*

U.S. Cl. 222—217 **7 Claims**



1. A volumetric drum dispenser for the distribution of a granular and/or powdered product, particularly a caking product such as powdered milk, comprising a rotary star-shaped distributor comprising a cylindrical hub on which are mounted a plurality of radial blades which, upon rotation of the hub about its longitudinal axis, move between two parallel walls at right-angles to the said axis, i.e. an upstream wall and a downstream wall, each of said walls having at least one cut-out, referred to as an inlet on the upstream wall and an outlet on the downstream wall, and arranged in such a way that no outlet is even partially opposite an inlet, the outlet being furthermore open over a sector of a circle substantially equal to the sector comprised between an adjacent pair of the radial blades of the distributor, the upstream wall having on its inner face a plurality of projecting studs which are disposed in line with the outlet, and each of said blades which adjoins the said face carrying the studs having a plurality of crenellations radially along the blades so that the crenellations match the projecting studs of the upstream wall.

4,280,640

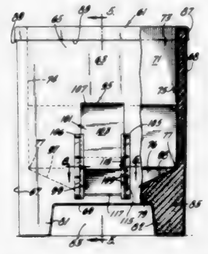
INTEGRAL DOUBLE-WALL CONTAINER

Pasquale C. Daloisio, New Hope, Pa., assignor to Pennsylvania Pacific Corporation, Warminster, Pa.

Filed Jun. 22, 1978, Ser. No. 918,067

Int. Cl.[3] **B65D** *5/72*

U.S. Cl. 222—561 **3 Claims**



1. An integral double-wall container comprising
an outer shell including a front and a rear wall connected by a pair of sidewalls and a bottom panel connecting the bottoms of all walls,
an inner shell including a front and a rear wall connected by a pair of sidewalls and a bottom panel connecting the bottoms of all walls,
with the inner bottom panel being smooth and flat and without depressions that might retain contents of the container and make cleaning difficult,
and a connection between the inner bottom panel and the inner walls being smooth and continuous and integral and without welds and without openings that would permit passage of contents into a false bottom space between said inner and outer shells,
said container being made of a synthetic plastic,
said rear inner wall being shorter than said front inner wall,
said bottom inner panel sloping downwardly to the bottom of said front inner wall,
and dispensing means at the bottom of said front walls for dispensing the contents from the container as it flows downwardly over the smooth inner bottom panel,
whereby said container forms an integral one-piece double-wall hopper bin for liquid and for powdered material such as abrasives and the like,
a discharge opening molded in the outer and inner front walls,
closure means positioned over the discharge opening for opening and closing the discharge opening to dispense the contents of the hopper bin when desired,
a slide gate,
a pair of slide tracks mounted one on each side of the discharge opening with the slide gate slidable therein,
handle and stop means on said gate for grasping the gate to raise and lower it and for acting as a stop when the gate is closed,
said handle and stop means including a flange extending outwardly from the top of said gate for grasping as a handle and for abutting the top of said slide tracks to act as a stop.

4,280,641

CLOTH SNAG REPAIR TOOL

Dan P. Eacret, Spokane, Wash., assignor to David P. Roberts, Spokane, Wash., a part interest

Filed Sep. 10, 1979, Ser. No. 73,998
Int. Cl.³ D04B *3/00*
U.S. Cl. 223—1 **11 Claims**



1. A cloth snag repair hand tool for removing a snag of cloth fibers projecting from one side of a cloth at a snag location, comprising:

an elongated, substantially straight, rigid shaft extending from a forward extremity to a knobless rear extremity capable of passing entirely through the cloth at the snag location;

said shaft having a maximum diameter along its length of between 0.635 mm and 1.65 mm;

said shaft having a cloth penetration surface section means beginning at the forward extremity and extending toward the rear extremity in which the cloth penetration surface section has an effectively low frictional surface characteristic for easily inserting the shaft into the cloth at the snag location without substantially disturbing the snag; and

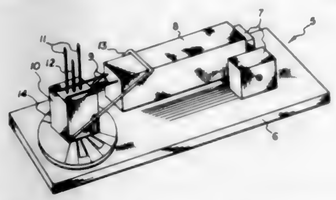
said shaft having a barbless frictional surface section means intermediate the cloth penetration surface section means and the rear extremity in which the frictional surface section means has an effectively high frictional surface characteristic for engaging and frictionally drawing the snag from the one cloth side through the cloth without damaging the cloth fibers when the shaft is passed completely through the cloth, entering on the one side at the snag location and exiting from an opposite side of the cloth.

4,280,642

APPARATUS FOR MAKING A BOW

Cam Mele, 12120 Rte. 30, North Huntingdon, Pa. 15642

Filed Dec. 6, 1979, Ser. No. 100,950
Int. Cl.³ A41H *43/00*
U.S. Cl. 223—46 **8 Claims**



1. An apparatus for the production of a decorative product comprising

(a) a base,

(b) a support member mounted to said base,

(c) an arm pivotably mounted to said support member adapted for reciprocation, said arm including securing means located at the end opposite from said pivotably mounted end,

(d) workplate mounted to said base including upwardly projecting guide means and centering means which define a work surface therebetween, said guide means and centering means adapted to engagingly receive material for said decorative product and said workplate positioned to receive thereon said securing means of said arm, and

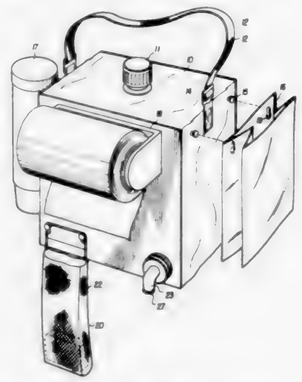
(e) means for biasing said arm such that said securing means is biased against said workplate.

4,280,643

CAMPING CLEAN-UP EQUIPMENT CENTER

Sam Cordova, and Stella Cordova, both of 13345 Gridley St., Sylmar, Calif. 91342

Filed Oct. 19, 1979, Ser. No. 86,310
Int. Cl.³ A45F *3/16;* **A47K** *3/23*
U.S. Cl. 294—141 **6 Claims**



1. Portable camping clean-up center comprising:

(a) an essentially square container for water,

(b) said container comprised of a plurality of wall panels,

(c) mounting pegs disposed on at least some of said wall panels,

(d) said mounting pegs securing a disposable trash bag, a cylindrical holder for a plurality of disposable cups, a rack for removably retaining a roll of disposable towels, and a mesh bag for disposably holding soap to respective ones of said panels,

(e) a faucet for dispensing water from said container, and

(f) a shower head for dispensing a showerof water from said container, said shower head being mounted on a lower horizontal one of said wall panels.

4,280,644

PROTECTIVE GUN SLING

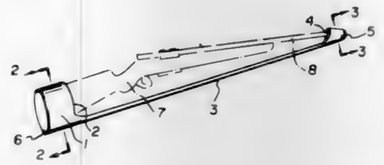
Frank A. Shindelka, 24 Glenbrook Blvd., Sherwood Park, Alberta, Canada T8A 2Z2

Filed Jun. 3, 1980, Ser. No. 156,073
Claims priority, application Canada, Nov. 28, 1979, 340939
Int. Cl.³ F41C *33/00*
U.S. Cl. 224—149 **1 Claim**

1. A gun sling comprised of a single integrally molded element of flexible material, said element comprising:

(a) a front end portion having an aperture extending partway therethrough of a size adapted to receive and fit over the muzzle of a firearm;

(b) a second end portion having an aperture extending partway therethrough of a size adapted to receive and fit over at least part of the butt of a firearm; and



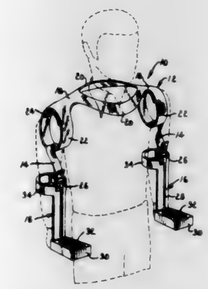
(c) strap means interconnecting each said end portion so as to maintain, when in use, said end portions in elastic engagement with said firearm.

4,280,645

HARNESS FOR LIFTING HEAVY OBJECTS

Dennis D. Goodden, 11525 NW. 76th St., Parkville, Mo. 64152

Filed Jan. 31, 1980, Ser. No. 117,112
Int. Cl.³ A45F *3/14*
U.S. Cl. 224—259 **5 Claims**



1. A device for assisting a person in carrying heavy objects which avoids direct loading of the wrist area, said device comprising:

means for placement over the shoulders of the person;

plural strap means for depending from said over the shoulder means, said strap means being in general alignment with the arms of the person;

a rigid generally L-shaped support coupled with each of said strap means,

each of said supports being characterized by a generally vertical leg of a length substantially spanning the distance between the hand and the elbow and another leg comprising an enclosure having an opening for receiving at least a portion of the hand; and

a sleeve integral with each of said supports and adapted to receive and enclose the arm in the vicinity of the elbow.

4,280,646

TAPE TRANSPORT CAPSTAN

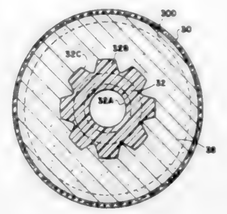
Ivo T. Plachy, San Mateo, Calif., assignor to Telex Computer Products, Inc., Tulsa, Okla.

Filed May 31, 1979, Ser. No. 44,100
Int. Cl.³ B65H *17/20*
U.S. Cl. 226—190 **15 Claims**

1. A capstan for use in a tape transport system adapted for mounting on a rotatable shaft comprising:

a hub adapted to be rotated about its axis;

a tubular outer rim supported coaxially about said hub, and



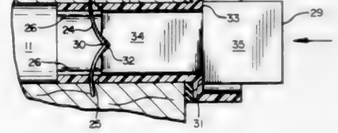
a unitary body portion of homogeneous foam plastic between the full external circumference of said hub and the full internal circumference of said rim.

4,280,647

SLIT VALVE VENTILATOR AND METHOD OF ATTACHING SAME

Gösta Nilsson, Gemla, Sweden, assignor to AB Gemla Plast, Sweden

Continuation-in-part of Ser. No. 924,652, Jul. 14, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 111,891
Int. Cl.³ B25C *7/00*
U.S. Cl. 227—147 **3 Claims**



1. In combination, a generally solid body having a slot-like duct disposed therein;

a frame having opposed parallel top and bottom walls, said frame being insertable in said duct, said frame having an exterior collar fitting around the entrance to said duct, said frame having at least one slot in each opposed top and bottom walls thereof;

at least one generally V-shaped fastener having a pair of angularly disposed legs meeting at an apex, said legs being disposed one in each of said slots in said opposed top and bottom walls of said frame, said apex being disposed toward said entrance to said duct; and

a punch-like installing tool having an enlarged head and a punching portion centrally disposed thereon, said tool being inserted in said frame with said punching portion in engagement with the apex of said fastener, said head being adapted to contact said exterior collar of said frame and bottom thereupon, said center portion extending no further inwardly of said frame than the location of said slots in said walls of said frame when said head bottoms on said collar,

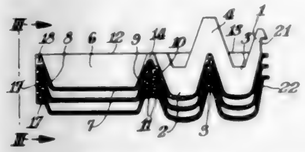
whereby striking said head of said tool spreads the legs of said fastener and drives them through said slots into the walls of said duct, said apex of said fastener being driven within said frame to a point which is not forward of said slots.

4,280,648

MOLDED PAPER PULP CONTAINER

Leon Boursier, Paris, France, assignor to Keyes Fibre Company, Waterville, Me.

Filed Nov. 13, 1979, Ser. No. 93,313
Claims priority, application France, Nov. 16, 1978, 78 32355
Int. Cl.³ B65D *21/02, 1/36*
U.S. Cl. 229—2.5 EC **5 Claims**



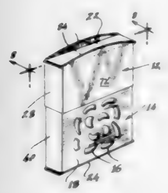
1. A molded pulp container comprising a pocketed bottom section mutually hinged to a flat bottom cover section, both said sections comprising tapered walls bordering on said hinge, the external surfaces of said tapered walls bordering on said hinge having projecting abutting elements which cooperate together to limit inverted folding around said hinge.

4,280,649

AIR FRESHENER CARTON

James Montealegre, W. St. Paul, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Dec. 28, 1979, Ser. No. 108,023
Int. Cl.³ B65D *13/04;* **A61L** *9/04*
U.S. Cl. 229—11 **3 Claims**



1. A carton for dispensing an active material to the atmosphere comprising:

a first, imperforate sleeve having a pair of opposed major panels connected by a pair of opposed side wall panels forming an outer carton unit, said first sleeve being open at opposite longitudinal ends, and

a second sleeve forming an inner carton unit having a pair of opposed major panels parallel to the major panels of said first sleeve and connected by a pair of opposed side wall panels,

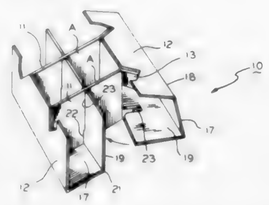
said opposed major panels including a plurality of openings and approximately half of the opposed major panels thereof, said second sleeve being generally of the same cross-sectional shape as said first imperforate sleeve and being received within said first sleeve and slidable therein between a first position defined by abutment of said first sleeve with a projecting sealed closure on one longitudinal end of said second sleeve whereby said openings in said second sleeve are exposed and a second position defined by abutment of said first sleeve with a projecting sealed closure on an opposite end of said second sleeve whereby said openings on said second sleeve are covered.

4,280,650

PARTITION STRUCTURE

Jeffrey M. Gardner, Wheaton; Ronald R. Sensenbrenner, St. Charles, and Bennie C. Nelson, Jr., Romeoville, all of Ill., assignors to Container Corporation of America, Chicago, Ill.

Filed Nov. 13, 1979, Ser. No. 93,044
Int. Cl.³ B65D *5/20, 5/42, 5/48*
U.S. Cl. 229—15 **2 Claims**



1. A partition structure for forming six compartments for separation and support of individual articles, said structure being formed from a cut and scored blank of paperboard or the like and comprising:

(a) a pair of laterally spaced opposed transversely extending partition elements in the erected position thereof;

(b) a vertical panel connected along inclined fold lines of gusset members to each end of said partition elements and foldable against the ends thereof;

(c) a bottom panel foldable with respect to each said vertical panel and foldable against the bottom of said partition elements when erected:

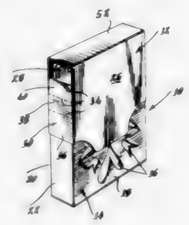
(d) a pair of inner vertical panel elements, each said inner vertical panel element foldable with respect to each said bottom panel to be engageable with said transversely extending partition elements and disposed in face-to-face relation to form a double-ply central portion to provide a number of compartments defined by said transverse partition elements and said inner vertical panel elements.

4,280,651

AIR FRESHENER CARTON

James Montealegre, West St. Paul, and Daniel P. Dutcher, Woodbury, both of Minn., assignors to Champion International Corporation, Stamford, Conn.

Filed Dec. 31, 1979, Ser. No. 108,848
Int. Cl.³ B65D *5/38, 5/36;* **A61L** *9/04*
U.S. Cl. 229—20 **4 Claims**



1. A carton comprising:

a first imperforate outer sleeve forming an outer carton unit having a pair of opposed major panels connected by a pair of opposed foldable side wall panels,

a second sleeve forming an inner carton unit having a pair of opposed major panels parallel to the major panels of the first sleeve and connected by a pair of opposed side wall panels,

said second sleeve being nested within said first sleeve and being slidable relative thereto,

said second sleeve being closed by top and bottom closure walls at opposite ends and having a plurality of openings in at least one major panel thereof, and

flexible means connecting said opposed side wall panels of said outer carton unit to the top closure wall of said inner carton unit for preventing said inner and outer carton units from being disassembled while permitting them to slide relative to each.

4,280,652

COVER FOR CONTAINERS

Werner Schmidt, Hamburg, Fed. Rep. of Germany, assignor to Maschinenfabrik Rissen GmbH, Hamburg and 4P Nicolaus Kempten GmbH, Kempten, both of, Fed. Rep. of Germany

Filed Jun. 19, 1980, Ser. No. 162,038
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1980, 2924538
Int. Cl.³ B65D *5/64, 43/00*
U.S. Cl. 229—43 **9 Claims**



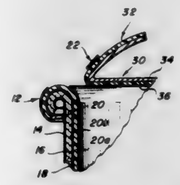
1. As an article of manufacture, a container cover made of stiffened deformable substantially flat material, particularly of cardboard, comprising an annular rim and a plate having a depending flange connected thereto and having a lower edge, said rim including an upper portion, an intermediate portion and a lowermost portion, said depending flange being adjacent to said intermediate portion, said lowermost portion being folded around said lower edge of said depending flange to overlap a part thereof and pressed to said flange to form a downwardly extended lower rim of substantially high rigidity insertable into the container.

4,280,653

COMPOSITE CONTAINER INCLUDING A PEELABLE MEMBRANE CLOSURE MEMBER, AND METHOD

Thomas C. Elias, Ballwin, Mo., assignor to Boise Cascade Corporation, Boise, Id.

Filed Oct. 1, 1979, Ser. No. 80,557
Int. Cl.³ B65D *5/64*
U.S. Cl. 229—43 **6 Claims**



1. A composite container including peelable membrane closure means, comprising

(a) a vertically arranged tubular composite body member including

(1) a fibrous body wall layer; and

(2) an inner liner layer completely lining the inner surface of said body wall layer;

(3) the upper end of said body member being reversely outwardly curled, whereby the inner liner layer extends around the upper extremity of said reversely curled upper body end;

(b) a horizontal generally circular membrane patch top member extending across said reversely curled upper body end; and

(c) means including a coextruded film laminate bonding said patch top member with said reversely curled upper body end, said coextruded film laminate including

(1) a first layer bonded to said inner liner layer at at least the reversely curled upper end of said body member; and

(2) a second layer bonded to at least that portion of the lower surface of said patch top member that is opposite said reversely curled body end portion;

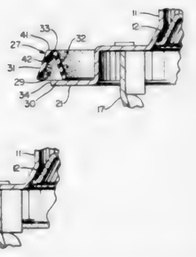
(3) said first and second layers being bonded to each other with a bond having a coefficient of adhesion that is greater than 3 pounds/square inch but less than the coefficients of adhesion between said layers and said patch top and body members, respectively, whereby upon progressive separation of one edge portion of said patch top member from said reversely curled body one end, one portion of one of said laminate layers is initially torn through itself and the remaining portion of the said one laminate layer is subsequently progressively peeled from the interface surface of the other laminate layer.

4,280,654

THERMOSTAT CONSTRUCTION WITH AN ANNULAR SEALING MEMBER

Boyd P. Sliger, Concord, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 941,543, Sep. 12, 1978, Pat. No. 4,206,873.
This application Jan. 28, 1980, Ser. No. 116,293
The portion of the term of this patent subsequent to Jun. 10, 1997, has been disclaimed.
Int. Cl.³ G05D *23/12*
U.S. Cl. 236—34.5 **12 Claims**



1. In the combination of a thermostat construction having an annular flange secured between an engine block and a water outlet housing, said flange having an annular sealing member with a generally U-shaped cross-sectional configuration disposed about the peripheral end of said flange and with said peripheral end being received in the bight of said U-shape to seal said flange to said block and to said housing, the improvement wherein said annular sealing member initially had its said bight facing at an angle to its said bight in its assembled condition with said flange, said annular sealing member having been assembled to said peripheral end of said flange by having said bight thereof turned from its said initial facing direction to face and receive said peripheral end of said flange therein.

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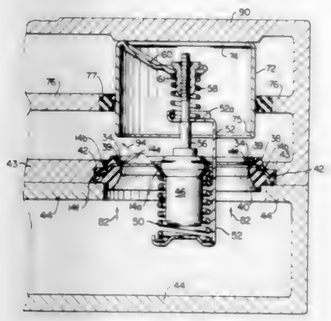
AUTOMOTIVE THERMOSTATIC VALVE

Wayne R. Duprez, Waltham, and Backman Wong, Wayland, both of Mass., assignors to Standard-Thomson Corporation, Waltham, Mass.

Continuation of Ser. No. 4,149, Jan. 17, 1979, abandoned. This application May 22, 1980, Ser. No. 152,381

Int. Cl.³ F01P *7/02*

U.S. Cl. 236—34.5 **6 Claims**



1. An automotive thermostatic fluid control valve adapted for use in an engine coolant system, comprising a stationary valve member including a sheet metal member having an inner portion integrally connected to an outer annular portion by angularly arranged spoke portions defining coolant flow passages therebetween, said outer annular portion of said sheet metal member including a generally cylindrical reinforcing portion, a body of elastomeric material covering said outer annular portion of said sheet metal member and bonded to said cylindrical portion, said body of elastomeric material including a seat portion forming an annular valve seat, a movable valve member engageable with said annular valve seat, a thermally responsive actuator supported by said inner portion of said sheet metal member, means connecting the thermally responsive actuator to said movable valve member for moving said movable valve member axially relative to said annular valve seat in response to changes in temperature of the coolant, said generally cylindrical portion of said sheet metal member reinforcing said body of elastomeric material and supporting portions thereof for clamping the stationary valve member between components of the engine coolant system without the use of a gasket, and said outer annular portion of said sheet metal member having a support portion adjacent said seat portion of the body of elastomeric material and forming a support for said seat portion of said body of elastomeric material.

4,280,656

CHIMNEY HEAT ECONOMIZER

Mervin D. Swanson, 1625 13th Ave. NW., Puyallup, Wash. 98371

Filed May 4, 1979, Ser. No. 36,228

Int. Cl.³ F24B *7/00*

U.S. Cl. 237—55 **21 Claims**

1. An improved, modular chimney heat economizer of the type adapted to replace at least a portion of a chimney in a building and of the type comprising:

a plurality of flue tubes adapted to receive therethrough hot combustion gases;

spaced apart upper and lower tube sheets between which are secured said plurality of flue tubes, the ends of said plurality of flue tubes penetrating said upper and lower tube sheets to provide fluid communication therethrough;

an inner sheet metal casing connected between said tube sheets and encircling said plurality of flue tubes; and

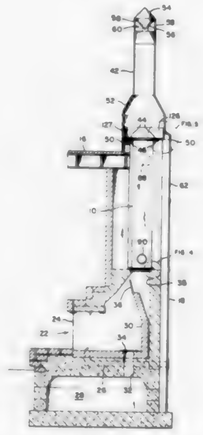
an inlet and outlet in said inner casing in fluid communication with the interior of said inner casing;

wherein the improvement comprises:

a layer of nonflammable insulation at least partially covering the exterior of said inner casing;

an outer sheet metal casing connected between said tube sheets, said outer casing having an inlet and an outlet and encircling both said inner casing and said layer of insulation;

an inlet and an outlet duct connected respectively between the inlets and outlets of said inner and outer casings to provide fluid communication between the exterior of said



economizer and the interior of said inner casing, wherein said inner and outer casings and said insulation significantly increase the fire safety of said economizer and said inner and outer casings are supported by said flue tubes through said upper and lower tube sheets; and

wherein the ends of said flue tubes are welded to said tube sheets and said economizer comprises inner and outer expansion joint means in said inner and outer casings, respectively, to prevent warping of said economizer and to prevent cracking of said welds which might otherwise cause leakage of flue gases from said economizer during the repeated thermal expansion and contraction of said economizer during usage thereof.

4,280,657

CONCRETE RAILROAD TRACK

James L. Ramer, Rte. 1, Box 155, Sullivan, Mo. 63080

Division of Ser. No. 795,480, May 10, 1977, Pat. No. 4,141,499. This application Feb. 26, 1979, Ser. No. 15,261

Int. Cl.³ E01B *9/38*

U.S. Cl. 238—267 **3 Claims**

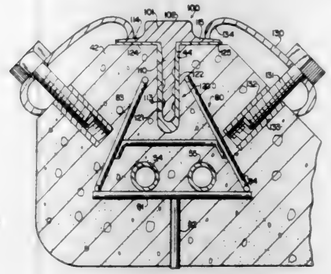
1. In combination:

a concrete rail bed having an upwardly facing slot;

a rail, comprising a rail head having a substantially horizontal upper wheel-supporting surface and a pair of substantially vertical side surfaces joined to said upper surface, a grooved stem extending from said rail heads remote from said upper surface and having a median plane substantially perpendicular to said rail head upper surface, and a pair of flanges extending laterally outwardly on either side of said rail, said stem of said rail extending into said slot; and

an elastomeric insert of U-shape cross section extending longitudinally in said slot between said stem and the walls

of said slot and engaging said stem and said slot walls, whereby said grooved stem and said elastomeric insert



interact to cause an increase in the forces retaining said rail in said slot.

4,280,658

LIQUID FILTER AND MASS TRANSFER MEANS

John E. Ehrrich, Wayland, Mass., assignor to Ercon Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 738,631, Nov. 3, 1976. This application Sep. 14, 1978, Ser. No. 942,376

Int. Cl.³ B01D *13/00, 39/00*

U.S. Cl. 239—6 **9 Claims**



1. A process for supplying filtered liquid to a situs requiring said liquid, said process comprising the steps of simultaneously filtering said liquid through capillary action provided by a thin membrane having nominal pore sizes between 0.05 and 10 microns and wherein said capillary actions draws water through a tube from a reservoir situated beneath said situs requiring liquid, and wherein said process comprises the additional step of transferring said liquid from said membrane to a wick-type distributor of substantially greater surface area than the membrane surface area, and thence to said situs.

4,280,659

FUEL INJECTOR

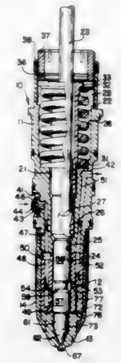
Stephen L. Gaal; Gary L. Gant; George L. Muntean; Neville H. Reiners, and Michael H. Shea, all of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Jul. 23, 1979, Ser. No. 59,543

Int. Cl.³ B05B *9/00*

U.S. Cl. 239—124 **10 Claims**

1. In a fuel injector for an internal combustion engine, the improvement of a generally cylindrical barrel having a longitudinal axis, said barrel having an axially extending plunger bore formed therethrough, a fuel supply passage and a drain passage formed in said barrel, said supply and drain passages extending generally axially and being radially spaced from said bore, said supply passage extending from one end of said barrel to a barrel location that is spaced from the other end, a generally radially extending feed hole at said barrel location and connecting said supply passage with said bore, a first generally radially extending scavenging hole in said barrel and connecting said supply passage with said bore at a barrel location that is between said one end and said feed hole, a second generally radially extending scavenging hole in said barrel generally adjacent said first scavenging hole and connected with said



bore, and said drain passage extending from said end and connecting with said second scavenging hole.

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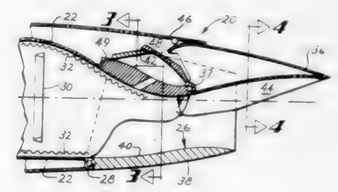
VECTORABLE NOZZLE

William H. Wooten, Jr., Evendale, and Donald W. Speir, Cincinnati, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Aug. 17, 1979, Ser. No. 67,507

Int. Cl.³ B64C *15/04*

U.S. Cl. 239—265.35 **6 Claims**



1. An improved nonaxisymmetric exhaust nozzle for vectoring exhaust gas flow of a gas turbine engine comprising:

an upper wall partially defining an exhaust stream flowpath;

a first articulated exhaust stream deflector means forming a downstream portion of the upper wall;

said deflector means comprising a variable position thrust vectoring flap that pivots about an upstream fixed duct portion at a position along the fixed duct of generally lesser internal flowpath area and is adapted to deflect and turn the exhaust stream to selected angles relative to engine axial direction; and

a lower wall substantially opposed to the upper wall and further defining the exhaust stream flowpath;

a second articulated exhaust stream deflector means forming a downstream portion of the lower wall;

said second deflector means comprising a variable position control flap operatively connected to a fixed duct portion and cooperating with the deflector means to form a variable position throat therebetween wherein said throat is disposed downstream of the exhaust gas turning when the vectoring flap is in a deflecting mode, wherein the improvement comprises:

an improved control flap having a lower surface defining the exhaust stream flowpath,

an upper surface exposed to a pressurized cavity for the purpose of allowing pressure forces on said upper surface to offset pressure forces from the exhaust stream on the

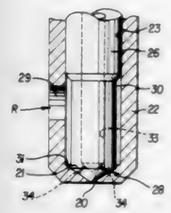
lower surface thereby forming a pressure vessel within said control flap.

4,280,661

INTERMITTENT INJECTION TYPE FUEL INJECTION VALVE

Yasusi Tanasawa; Akinori Saito, and Kiyomi Kawamura, all of Nagoya, Japan, assignors to Kabushiki Kaisha Toyoto Chuo Kenkyusho, Aichi, Japan

Filed Sep. 12, 1979, Ser. No. 75,163
Claims priority, application Japan, Sep. 22, 1978, 53/116931
Int. Cl.³ F02M *51/06*
U.S. Cl. 239—409 **13 Claims**



1. An intermittent injection type fuel injection valve comprising:
- a nozzle body comprising a hollow cylindrical member and having a valve seat and an injection port with a predetermined diameter at one end thereof;
- valve means comprising a movable member having a center bore coaxially extended therethrough and having a valve seat at one end, interposed within said nozzle body and intermittently reciprocated therein;
- a compressed air supply passage communicating with a compressed air supply source and having an air opening provided on or near at least one of said valve seat of said nozzle body and movable member, and
- a compressed fuel supply passage communicating with a compressed fuel supply source through said center bore of said movable member and having at least one fuel opening provided on said valve seat of said movable member;
- said valve means intermittently controlling on-off communication of said air and fuel openings of said compressed air and fuel openings of said compressed air and fuel supply passages;
- said fuel opening of said compressed fuel supply passage being positioned closer to said injection port than said air opening of said compressed air supply passage;
- whereby the compressed fuel is supplied to the flow of the compressed air between said valve seats of said nozzle body and said movable member, and the mixture of the compressed fuel and air is injected from said injection port.

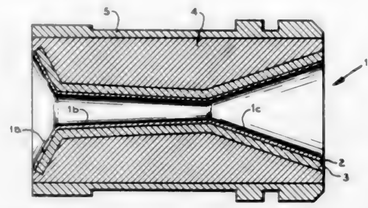
4,280,662

EROSION RESISTANT JET PUMP AND METHOD OF MAKING SAME

John W. Erickson, Huntington Beach, and Harold L. Petrie, Sierra Madre, both of Calif., assignors to Kobe, Inc., Commerce, Calif.

Filed Nov. 16, 1979, Ser. No. 95,763
Int. Cl.³ B05B *15/00*
U.S. Cl. 239—591 **8 Claims**

1. The method of making a Venturi chamber for a jet pump having a high erosion and stress resistant internal surface comprising the steps of: machining a graphite mass to produce an internal surface conforming in contour to the desired Venturi chamber but being a few thousandths of an inch larger in all internal dimensions; heating the graphite mass and depositing by the chemical vapor deposition technique a coating of a predetermined thickness on all said internal surfaces, said coating comprising an erosion resistant material produced by chemical reaction of vaporized chemical elements on the hot internal surface of the graphite mass; cooling the coated graphite mass; removing all of said graphite mass except for a substrate adjacent the coating; inserting the coating and substrate



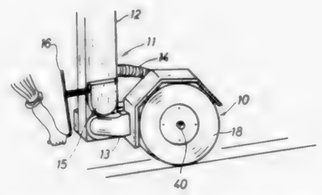
in a cylindrical mold cavity and filling the cavity with a low melting malleable material to produce a cylindrical body having a surface coated Venturi chamber supported therein; and heat shrinking an annulus of high tensile strength material around said cylindrical body to generate a compressive stress in said coating.

4,280,663

SCATTERING APPARATUS

Alfred Thomsen, Vejenvej, Denmark, assignor to A/S Alfred Thomsen, Vejenvej, Denmark

Filed Jul. 9, 1979, Ser. No. 56,105
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 2830056
Int. Cl.³ E01C *19/20*; E01H *10/00*
U.S. Cl. 239—685 **12 Claims**



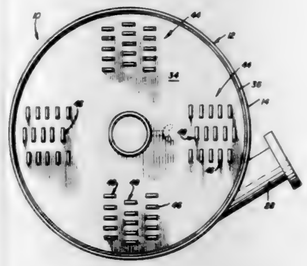
1. In combination with a ground-supported vehicle adapted to be moved along the surface of the ground, apparatus for spreading material comprising a container for the material to by spread mounted on the vehicle; at least one spreading disc rotatable about a vertical axis for receiving material to be spread and for spreading the received material onto the ground; an adjustable speed motor system having a rotary input and having a rotary output drivingly connected to the spreading disc; a material dosing device for discharging material from the container and conveying it to the spreading disc; a driving wheel mounted on the vehicle in a manner to be lowered into driving contact with the ground; a mechanical power transfer device having a rotatable input driven by rotation of the driving wheel, at least one first rotatable output drivingly connected to the dosing device and a second rotatable output drivingly connected to the input of the adjustable speed motor system.

4,280,664

SOLIDS REDUCING AND MIXING DEVICE

Jerald A. Jackson, 2204 Cherry Ridge, Pine Bluff, Ark. 71603, and John W. Holcomb, P.O. Box 116, Star City, Ark. 71667

Filed Apr. 30, 1979, Ser. No. 34,923
Int. Cl.³ B02C *19/06*
U.S. Cl. 241—39 **8 Claims**



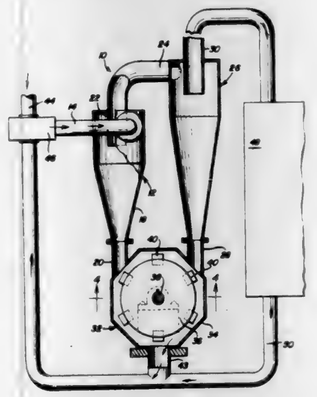
1. A solids reducing and mixing apparatus comprising in combination:
- a housing defining a generally cylindrical reducing chamber therein;
- an inlet tangentially attached to said housing for introducing a solids and fluid mixture into said chamber;
- stationary impactors arranged in clusters within said cylindrical chamber, a plurality of said clusters being disposed in spaced relation about an outer peripheral portion of said reducing chamber; and
- an outlet tube disposed centrally of said reducing chamber and extending axially out of said housing for providing an exit for a combined solids and fluid mixture, wherein a radially inner portion of said reducing chamber surrounding said outlet tube is free from obstruction.

4,280,665

SOLIDS ELIMINATOR

Clyde O. Adams, III, P.O. Box 387, and James F. Fitch, Jr., P.O. Box 363, both of Ashford, Ala. 36312

Filed Apr. 24, 1979, Ser. No. 34,909
Int. Cl.³ B02C *23/10, 23/14, 23/18*
U.S. Cl. 241—62 **4 Claims**



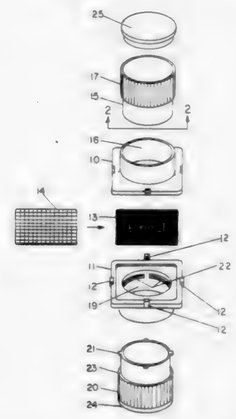
1. A solid eliminator for effecting elimination of solid particles from a solid and liquid combination and pulverizing the solid particles comprising, in combination:
- a first cyclone separator having an inlet connected to a source of dry fertilizer ingredients and liquid and receiving the mixed liquid and solid particles, a first outlet for discharging denser materials from the separator and a second outlet for discharging less dense materials from the separator;
- a second cyclone separator having an inlet connected to the second outlet of said first cyclone separator and a first outlet for discharging denser material and a second outlet for discharging less dense material;
- an impactor means having a pair of inlets connected respectively to the first outlet of said first cyclone separator and said first outlet of said second cyclone separator for pulverizing the material entering the impactor means, said impactor means including a plurality of paddles attached to a common shaft and a motor attached to said shaft for rotating said shaft together with said paddles at a high rate of speed for pulverizing material received thereinto; and an outlet means for discharging said pulverized material, said outlet means of said impactor means being connected to the inlet of said first cyclone separator; and
- a return line connected from said second outlet of said second cyclone separator to said outlet means of said impactor means for remixing the less dense material with the pulverized material.

4,280,666

HAND HELD GRANULATOR

Robert H. Jones, 4107 Riverside Dr., Apt C, Coral Springs, Fla. 33065

Filed Nov. 13, 1979, Ser. No. 93,545
Int. Cl.³ A47J *42/14*
U.S. Cl. 241—169.1 **10 Claims**



1. A hand-held hand-operated granulator for grinding condiments such as peppercorns and foliage greens which comprises:
- a. a first central flange having one generally planar surface and opposite thereto a tubular chamber,
- b. a second central flange having one generally planar surface complementary to said planar surface of the first central flange having fastening means to sealingly engage said central flanges about their outermost edges forming a shaped chamber therebetween and having a tubular chamber opposite to the planar surface,
- c. a grinding screen for placement in said shaped chamber formed by said central flanges,
- d. a first cylindrical container for sliding circular movement within the tubular chamber of the first central flange,
- e. a bottom for the first container having means to grip said condiments and hold them against the grinding screen such that grinding takes place when said first cylindrical

container is twisted by the hands with respect to the central flanges,

f. a cap removably attached to the first cylindrical container,

g. a second cylindrical container having one closed end and locking means at the opposite open end for locked insertion in the tubular chamber of the second central flange.

4,280,667

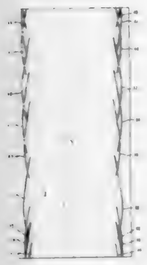
WINDING METHOD AND APPARATUS AND PRODUCT THEREFROM

Richard L. Akers, Cadjoe Summerland Key, Fla., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 18, 1979, Ser. No. 86,264

Int. Cl.³ B65H *54/28, 55/04*

U.S. Cl. 242—43 R **11 Claims**



1. A cylindrical-bodied yarn package wound on a bobbin in layers of helical coils having helix angles formed by successive strokes, each of said coils having curved reversals connected by helical portions, there being a repeating program comprising a series of at least three of said curved reversals, said program appearing at intervals throughout the package as quasi-ribbon conditions wherein said curved reversals in the series are separated circumferentially by a finite distance from each other such that substantially all yarn crossings occurring in the curved reversals of one series intersect at angles greater than the angles at yarn crossings occurring in the helical portions, at least 50% of said reversals having substantially equal outer half-stroke lengths and a minority of said reversals having any other single reduced half-stroke length.

8. In a yarn winding apparatus for winding generally cylindrical cross-wound yarn in reciprocating strokes, said apparatus including a first traverse device having a reciprocable yarn guide for guiding the yarn over the midrange of the strokes and a second traverse device embodying a rotatable driven cylindrical roller having a plurality of grooves for guiding the yarn at respective ends of the strokes to impart stroke reversal to the yarn guided therein, said grooves having successive helical, reversal curve and helical portions in the surface of the roller, the improvement of which comprises: at least 50% of said reversal curve portions having substantially equal outer half-stroke lengths and a minority of said reversal curve portions having any other single reduced half-stroke length.

4,280,668

THREAD-STORAGE AND DELIVERY DEVICE FOR TEXTILE MACHINES

Fred B. Lindström, Junkoping, Sweden, assignor to Aktiebolaget IRO, Ulricehamn, Sweden

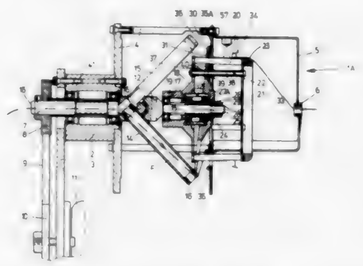
Filed Oct. 3, 1979, Ser. No. 81,583

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843548

Int. Cl.³ B65H *51/20*

U.S. Cl. 242—47.12 **17 Claims**

1. In a thread-storage and delivery device for textile machines, comprising a stationary base member, a shaft defining a first axis and rotatably mounted relative to the base member for driving a thread-feed mechanism which includes a feed element for tangentially winding the arriving thread onto the jacket of a storage drum which is supported rotatably on the shaft, from which drum said thread is unwound over the drum rim which does not face the thread-feed side, a thread advancing member which is positively coupled with the storage drum for advancing the thread windings thereon, said advancing member being rotatably supported on the shaft about a second axis which is inclined with respect to the first axis and effects advancement of the thread windings by an outer section which projects beyond the drum jacket and which carries out an axial pivotal wobbling movement during rotation of the shaft about said first axis, and a holding mechanism including cooperating braking and counterbraking elements for securing the storage drum against rotation about the shaft, the improvement wherein one of the braking and the counterbraking elements is provided on a stationary ring-like flange which is structurally connected to the base member and surrounds the storage-drum jacket in radially spaced relation and with an axial spacing relative to the discharge end of the feed element, the other of



the braking and the counterbraking elements being provided on the outer section of the thread advancing member, the braking and counterbraking elements engaging one another during rotation of the feed element and during wobbling of the advancing member only at a rotating instantaneous point of engagement (P) which is offset relative to the feed element in the circumferential direction of the drum, the instantaneous point of engagement (P) between the advancing member and the flange being contained in a first plane which is perpendicular to the second axis and intersects said second axis at a point (X) which is radially spaced from the first axis, the instantaneous point of engagement (P) also being contained in a second plane which is perpendicular to said first axis, and said instantaneous point of engagement (P) further being contained in a third plane which bisects the angle between said first and second planes and also contains therein the point of intersection (S) of said first and second axes.

4,280,669

AUTOMATIC WEB REWINDER FOR TENSIONED WEB

Dale D. Leanna, Little Suamico; Allen R. Jorgensen, Abrams; Gerald W. Terp, Green Bay; John LaHaye, Green Bay, and Kenneth L. Nehring, Green Bay, all of Wis., assignors to Magna-Graphics Corporation, Oconto Falls, Wis.

Filed Jan. 21, 1980, Ser. No. 113,465

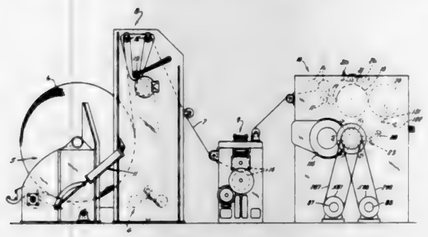
Int. Cl.³ B65H *19/20, 35/04*

U.S. Cl. 242—56 A **33 Claims**

1. Web rewinding apparatus of the type comprising a plurality of mandrels which are movable in succession along a defined path and each of which can support a tubular core for web winding rotation, a bed roll which rotates in one direction about a fixed axis adjacent to said path and around which a web has wrapping engagement as it moves towards a core on one of said mandrels to be wound thereonto, a cutoff roll adjacent to said bed roll and constrained to rotate oppositely to the bed roll in synchronism therewith, a knife carried by one of said rolls and cooperable with reaction means on the other roll for cutting through the web to terminate winding thereof around one of said mandrels and produce a free leading portion

on the web that can be attached to a new core on the next successive mandrel for winding thereonto, pins carried by the bed roll upon which said leading portion is impaled substantially simultaneously with cutting through the web, and transfer pad means carried by the bed roll for substantially radial extending and retracting motion whereby said leading portion of the web is disengaged from said pins and forced into engagement with said new core, said web rewinding apparatus being characterized by:

A. said knife being carried by said cutoff roll for extending



and retracting movement relative thereto and being receivable, when extended, in an opening in said bed roll;

B. said pins being fixed on the bed roll, in said opening therein; and

C. substantially blunt web impalement pusher means carried by said cutoff roll for extending and retracting movement relative thereto substantially in unison with said knife, whereby said leading portion of the web is forced radially inwardly relative to the bed roll and into impalement upon said pins at substantially the same time that the web is cut through by the knife.

4,280,670

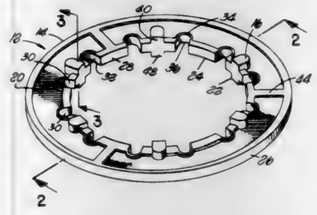
WINDING CORE FOR MAGNETIC TAPE ADAPTED FOR STACKING

S. Allen Schor, Rancho Palos Verdes, Calif., assignor to Elmar Plastics, Inc., Carson, Calif.

Continuation of Ser. No. 24,850, Mar. 28, 1979, Pat. No. 4,201,353. This application Apr. 15, 1980, Ser. No. 140,514

Int. Cl.³ B65H *75/18*

U.S. Cl. 242—68.5 **8 Claims**



1. A winding core for magnetic tape, adapted for stacking between like first and second sandwiching cores, comprising:

a substantially annular body having first and second substantially annular body surfaces, an outer circumferential body surface for winding the tape therearound, a discontinuous inner circumferential body surface and a set of recess surfaces extending between said annular body surfaces and between portions of said discontinuous inner circumferential body surface, said recess surfaces defining a set of recesses for the core;

a set of projections rising from said first annular body surface, each for mating with a recess of the set of recesses of the first sandwiching core;

each of said set of recesses of the core being adapted for mating with a projection of the set of projections rising from the first annular body surface of the second sandwiching core.

4,280,671

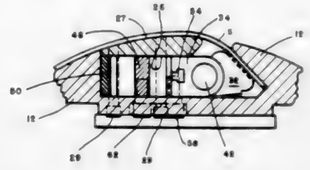
GRIPPER MECHANISM FOR TENSION REEL MANDREL AND THE LIKE

Paul W. Miller, Warren, and Norman H. Fobes, Cortland, both of Ohio, assignors to Wean United, Inc., Pittsburgh, Pa.

Filed May 27, 1980, Ser. No. 153,648

Int. Cl.³ B21C *47/06;* **B65H** *75/18*

U.S. Cl. 242—78.3 **14 Claims**



1. In combination with a rotatable reel for coiling in a side-by-side fashion a number of bands formed from rolled metal strip in which one or more of said bands may have different cross sectional thicknesses as compared with other of said bands being coiled,

a gripper mechanism for gripping said bands to said reel,

said reel including a container means having an opening,

said gripper mechanism adapted to be received in said opening in a manner to form a gripping slot for the ends of said bands with another cooperative member,

said cooperative member forming a holding surface for the gripping of said bands,

said gripping mechanism comprising a plurality of displaceable gripper bar means,

means received in said opening to move said gripper bar means as a uitary assembly into and out of a gripping position relative to said cooperative member,

each said gripper bar means being constructed and supported so as to be capable of independent movement relative to other of said gripper bar means under the pull of one or more bands gripped thereby to cause an increase in the gripping pressure on said one or more bands by said independent movement.

4,280,672

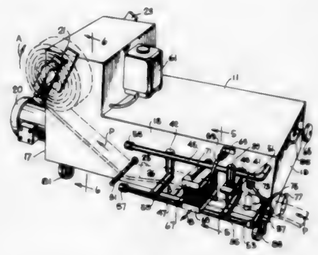
COMPACT FIRE HOSE WASHER AND WINDER

Frank Santos, and Larry E. Santos, both of 2717 Coventry Dr., San Jose, Calif. 95127

Filed Apr. 7, 1980, Ser. No. 138,193

Int. Cl.³ B65H *75/38*

U.S. Cl. 242—86 **16 Claims**

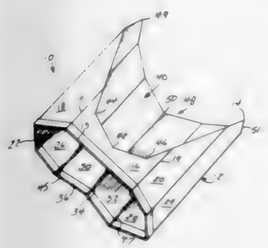


1. A compact fire hose washer and winder comprising,

a frame having two first and second sides between first and second opposite ends,

a first driven reel mounted at a first end on the first side of the frame, said first reel having means for engaging an end of a hose,
a plurality of first hose guides mounted on the first side of the frame between the first and second ends for defining a first hose path between said first reel, at the first end of the frame, and the second end of the frame,
soapy fluid dispensing means disposed along the first hose path near the second end of the frame,
rinse water dispensing means disposed along the first hose path, at least part of said rinse water dispensing means disposed between said soapy fluid dispensing means and said first driven reel,
moving brush means for scrubbing said hose, said brush means disposed along the first hose path between the soapy fluid dispensing means and the first driven reel,
power means mounted on said frame for driving said driven reel and for energizing said brush means,
a second driven reel mounted at one of the ends on the second side of the frame, said second reel having means for engaging an end of a hose, said second driven reel connected to said power means for driving power, and
a plurality of second hose guides mounted on the second side of the frame between the frame ends for defining a second hose path between opposite ends of the frame.

4,280,673
GLIDER
Jeffrey A. Brzack, 140 Maumee Trail, Lake Orion, Mich. 48035
Filed Jun. 13, 1979, Ser. No. 48,610
Int. Cl.³ B64C *31/02, 39/08*; A63H *33/28*
U.S. Cl. 244—13 **7 Claims**



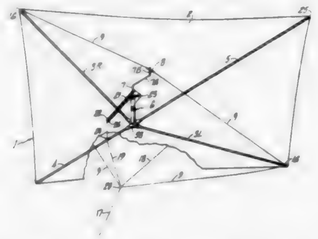
1. A glider including a body formed from a multi-sided tube open at it's ends with a leading edge at a forward end and a trailing edge comprising:
a top wall of planar configuration;
a pair of opposed upper side walls of planar configuration, integral with the top wall, extending downward and outward a predetermined distance;
a pair of opposed vertical side walls of planar configuration integral with the upper side walls;
a pair of opposed lower side walls of planar configuration, integral with the vertical side walls, extending downward and inward to a point inward of a vertical extension of the top wall and upper side wall intersection;
a bottom wall extending between the lower ends of said lower side walls and integral therewith, the bottom wall including a pair of upward extending planar sections meeting at a center thereof forming a ridge;
an upper cut-out of symetrical configuration with a forward most point beginning at a center of the top wall spaced in from the leading edge, extending rearward and outward along a first pair of opposed straight lines to a point vertically above and inward of the intersection of the bottom wall and the opposed lower side walls, then extending along a second pair of opposed straight lines more rearward and less outward terminating at the center of the vertical side walls at the trailing edge; and
a lower cut-out of shallow "V" shaped symetrical configuration with the point of the "V" beginning at said ridge spaced toward the leading edge with respect to a line joining the trailing edge termination points of the upper cut-out, and extending in a straight line to the points of trailing edge termination.

4,280,674
BALLOON WITH DEFLATION PORT
Edward L. Crosby, Jr., West Melbourne, Fla., assignor to RCA Corporation, New York, N.Y.
Filed Aug. 30, 1979, Ser. No. 71,390
Int. Cl.³ B64B *1/62*
U.S. Cl. 244—99 **9 Claims**



1. A balloon, comprising:
an envelope of flexible material and a deflation opening in the envelope,
a rigid frame permanently fastened to the edge of the opening in the envelope,
a ring of flexible sheet material having its peripheral edge removably clamped to said rigid frame, and having a central opening,
a disc of flexible sheet material larger than said central opening and fastened by an adhesive to the outside of the ring all around said central opening in the ring,
a deflation tape fastened to said disc near the edge of the upper half thereof, and having a central free end to be pulled from the exterior of the balloon for peeling the adhesive-held disc off from the outside of the ring to thereby uncover the central opening in the ring and deflate the balloon, and
segments of flexible material fastened by adhesive to bridge an edge of an overlap joint between said ring and said disc.

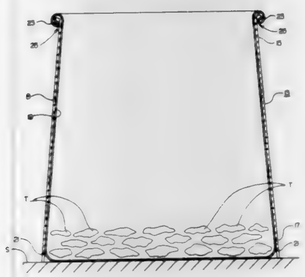
4,280,675
CONTROLLABLE KITE
Lynn M. Davis, 1354 NW. 4th St., Boca Raton, Fla. 33432, and James V. Theis, Jr., 5151 Washington Rd., Del Ray Beach, Fla. 33445
Continuation of Ser. No. 908,653, May 23, 1978, abandoned.
This application Feb. 11, 1980, Ser. No. 120,445
Int. Cl.³ B64C *31/06*
U.S. Cl. 244—155 A **10 Claims**



1. A controllable kite; a control cord for controlling the kite from a location below; attachment means on said kite having an attachment location for connecting one end of said control cord thereto; said control cord being attached to said location; control means for moving the attachment means to which said control cord is attached to at least two different positions along a substantially lateral line permitting a change in attitude of the kite; means also connecting said control cord to said control means for maintaining the attachment means in one position or actuating the control means to move the attachment means to another position; said control means having a housing rigidly fixed to said kite, said housing having a member movable between different positions; said movable member being connected to said attachment means for moving it; said movable member being a shaft mounted for axial movement and stepped arcuate movement; biasing means for moving said movable member in one axial direction; said movable member being pulled in the other axial direction by said control cord; said means also connecting said control cord to said control means including a mechanical advantage means connected between said control cord and said movable member; cam means mounted on said housing and said movable member to provide for stepped arcuate movement of said movable member as it is moved axially for repositioning said attachment means.

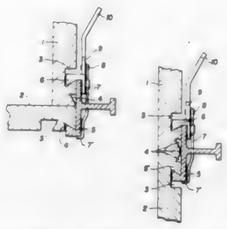
9. A controllable kite comprising a frame, said frame having a keel member and a cross member fixed thereto, flight control means including an attachment point below said keel member and cross member for a control line, means for shifting the attachment point to a plurality of lateral locations relative to the cross member to change kite attitude during flight, a tail streamer removably connected to said kite, removable pin means connecting said tail streamer to said flight control means wherein removal of said pin means in flight will render said kite unstable.

4,280,676
DEVICE FOR HOLDING FLEXIBLE BAGS
William M. Betts, 3217 Canyon St., Memphis, Tenn. 38134
Filed Aug. 1, 1977, Ser. No. 820,751
Int. Cl.³ B65B *67/04*
U.S. Cl. 248—97 **8 Claims**



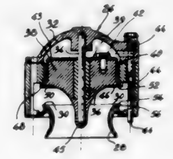
1. A device for holding a flexible, nonselfsupporting bag in an opened position to allow said bag to be filled, said device comprising: a one-piece body member including a continuous side wall member and having a normally upwardly directed end and a normally downwardly directed end, said body member having a cavity extending completely therethrough from said normally upwardly directed end to said normally downwardly directed end for receiving said bag, said side wall having one or more apertures therethrough adjacent and conterminous with said normally downwardly directed end for allowing escapage of air from within said cavity when said bag is inserted into said cavity, said side wall being solid except for said one or more apertures, said cavity constantly increasing in cross-sectional area as it extends from said normally upwardly directed end to said normally downwardly directed end for allowing said device to be easily lifted over said bag after said bag has been filled.

4,280,677
SHUTTERING
Moshe Shahar, 34 Semadar St., Ramath Gan, Israel
Filed May 3, 1979, Ser. No. 35,551
Int. Cl.³ E04G *11/10, 17/02*
U.S. Cl. 249—43 **7 Claims**



1. A set of elements for construction of shutterings in which concrete or like structures can be cast, the set comprising at least two panels each of which is provided adjacent at least one edge thereof with two parallel grooves in a major face thereof; at least one rail means for connecting said at least two panels, said rail means having profiled portions which can be fitted into either of the said grooves in either of said at least two panels to position said two panels in either a co-planar or angular relative position to one another; and means provided on said rail means for forcibly urging said panels toward one another whenever said profiled portions of the rail means are engagingly inserted in any of said grooves in said two panels.

4,280,678
BLEED VALVE
Ivor J. Roberts, St. Lambert, Canada, assignor to Pratt & Whitney Aircraft of Canada, Limited, Longueuil, Canada
Filed Nov. 29, 1978, Ser. No. 964,485
Int. Cl.³ F16K *31/126*
U.S. Cl. 251—61.2 **2 Claims**



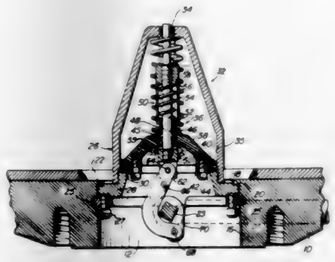
1. A bleed valve to be located at an intermediate portion of a compressor in a gas turbine engine, the bleed valve comprising: a port; an annular valve seat surrounding the port, the valve seat having a radial surface terminating in an outer peripheral circular rim; a sliding piston having two opposed working surfaces, one working surface including a flat radial surface and adapted to close on said valve seat, and the other working surface being flat and being in a chamber in which air under pressure is fed from a second flow path by way of a port opening into said chamber; means for preventing the piston from chattering just prior to closing of the piston on the valve seat, said preventing means including a peripheral inner cylindrical surface on said flat radial surface of said piston, said piston inner peripheral surface having a diameter corresponding to the outer circular rim of the valve seat, the axial component of said piston inner peripheral surface being chosen such as to cut off the bleeding of air just prior to the flat radial surface of the piston closing on the valve seat.

4,280,679

DUALLY-OPERATED TANK CAR BOTTOM UNLOADING VALVE

Harry N. Shaw, Hendersonville, N.C., assignor to The Protectoseal Co., Bensenville, Ill.

Filed Aug. 17, 1979, Ser. No. 67,475
Int. Cl.³ F16K *31/52*
U.S. Cl. 251—144 **9 Claims**



7. An actuator for a normally-closed poppet valve having an inlet guide bushing therefor and a seat ring installed in a large bore in a mounting flange and operating from outside the seat ring of the same comprising:

(a) a small bore in the mounting flange intersecting the large bore at right angles;

(b) a pair of trunions mounted on the outside of said seat ring;

(c) an actuating stem rotationally mounted in the trunions and extending through and out the small bore in the mounting flange having a coupling means on the outstanding end;

(d) a handle operationally mounted on the other end of said coupling means and extending at right angles thereto;

(e) an arm fixedly mounted at one end to the stem between said trunions;

(f) a pin operationally mounted at the other end of said arm and extending at right angles thereto;

(g) a link operationally connected at one end thereof to said arm pin;

(h) a union ring operationally pinned to the other end of said link;

(i) a guide rod fixedly connected at one end to said union ring and slidingly connected through the poppet of said valve and the inlet guide bushing of the same having a working clearance between said poppet and the union ring; and

(j) a compliance means mounted between the poppet and said guide rod.

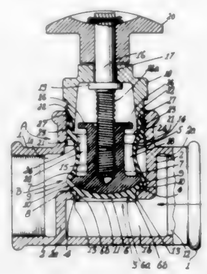
4,280,680

FLUID VALVES

Barrett M. M. Payne, Sandton, South Africa, assignor to Carel W. P. Niemand, Johannesburg, South Africa, a part interest

Filed Aug. 1, 1978, Ser. No. 930,059
Claims priority, application South Africa, Aug. 16, 1977, 77/4944; Aug. 26, 1977, 77/5185; Sep. 16, 1977, 77/5571
Int. Cl.³ F16K *7/16, 41/10*
U.S. Cl. 251—175 **24 Claims**

1. A valve, comprising: a fluid port; a valve seat round the port; and closure means movable towards and away from the seat, the closure means including a sealing surface engageable with the seat and a protrusion of resilient material which extends from the sealing surface towards the seat, the protrusion being from the sealing surface towards the seat, the protrusion being operative to create a flow of fluid of increased velocity between the seat and the sealing surface prior to the latter engaging the seat upon movement of the closure means towards the seat and the protrusion further being adapted for at least part thereof to be urged automatically into sealing engagement with the surround of the port by fluid pressure in the valve when the sealing surface engages the seat, the closure means further including a resilient diaphragm which is adapted to isolate operating means for the closure means from fluid



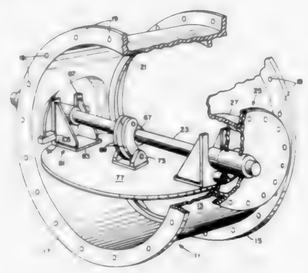
flowing through the valve and which is adapted to be anchored in an outer peripheral zone thereof to a casing for the valve, the diaphragm being provided at its outer peripheral zone with a screw thread engageable with a screw thread on at least one of two parts between which the outer peripheral zone of the diaphragm is adapted to be trapped.

4,280,681

CENTER LINK DISC VALVE

Edward Harris, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jan. 9, 1980, Ser. No. 110,782
Int. Cl.³ F16K *31/44, 31/12*
U.S. Cl. 251—229 **11 Claims**



1. A disc-type valve comprising:

(a) a valve body;

(b) a valve seat mounted on the interior surface of said valve body and disposed therein so that the seating face of said valve seat is perpendicular to the general path of material flow through said valve body;

(c) a pivotable shaft pivotably mounted through said valve body, the longitudinal axis of said pivotable shaft being positioned so as to be parallel to said seating face of said valve seat;

(d) means for pivoting said pivotable shaft operable in conjunction with at least one end of said pivotable shaft, said at least one end which extends outwardly from said valve body;

(e) means for translating said pivoting of said pivotable shaft into linear motion directed parallel to said general path of material flow through said valve body, said means for translating being arranged and positioned within said valve body such that said linear motion can be centrally directed within said valve body;

(f) a valve disc flexibly connected to said means for translating, said valve disc being of sufficient size to permit it to mate with said seating face of said valve seat; said linear motion being applied to said valve disc through said flexible connection to cause said valve disc to move;

(g) a pair of tracks, each of said tracks which is disposed adjacent to the periphery of said valve disc, each of said tracks being positioned directly opposite to the other, said tracks being mounted on the walls of said valve body, said tracks being positioned, on the walls of said valve body, each directly opposite the other, said pivotable shaft extending through each of said tracks;

(h) a straight slot section, disposed on each of said tracks, extending generally linearly, perpendicular to said linear axis of said pivotable shaft, from the point on each of said tracks adjacent to where said pivotable shaft extends therethrough, toward said valve seat;

(i) cam means, mounted to said valve disc and fixed in position in relation to said valve disc, operable within said each straight slot section to traverse said each straight slot section;

(j) guide means fixed to said valve disc and operable with said pivotable shaft to maintain said valve disc in alignment parallel to said longitudinal axis of said pivotable shaft and said seating face of said valve seat, as said valve disc is moved into contact with or to leave contact with said seating face of said valve seat;

(k) an arced slot section, disposed in each of said tracks, forming a 90° arc adjacent to the arc of pivotation of said pivotable shaft, each of said arced slot sections forming a continuation of said straight slot section correlated therewith, said cam means being operable within each said arced slot section to traverse each said arced slot section from said point, adjacent where said pivotable shaft extends therethrough where said straight slot section commences, at which said arced slot section forms said continuation of said straight slot section, through an arc of 90°; and

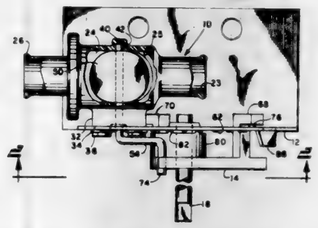
(l) means, mounted on said pivotable shaft and operable with said guide means, to maintain said valve disc in a set position in relation to said pivotable shaft, when said valve disc is not in contact with said seating face of said valve seat, such that the center of said 90° pivotation of said valve disc is said longitudinal axis of said pivotable shaft.

4,280,682

CAM ACTUATED BUTTERFLY VALVE

Keith E. Zakausky, St. Charles, and Donald M. Berlin, Jr., McHenry, both of Ill., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jun. 4, 1979, Ser. No. 45,150
Int. Cl.³ F16K *31/44, 1/22*
U.S. Cl. 251—251 **7 Claims**



1. A fluid valve said fluid valve comprising,

(a) valve body means, said valve body means defining,

(i) a fluid passageway having an inlet and an outlet,

(ii) a valve seat located intermediate said inlet and said outlet;

(b) a valve member rotatably mounted to said valve body means and within said fluid passageway, said valve member movable between a closed position in fluid sealing engagement with said valve seat for preventing fluid flow through said fluid passageway and an open position in which the fluid flow through said passageway is a maximum, said valve member positionable intermediate said closed and open positions for achieving modulated flows;

(c) a crank member connected to said valve member and rotatable therewith, said crank member having a cam follower portion extending exteriorly of said valve body means, said portions defining a cam follower adjacent the free end thereof;

(d) said valve body means including structure defining arcuate guide surface means; and,

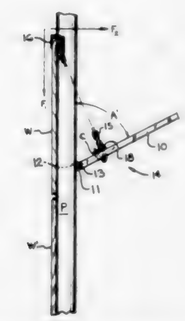
(e) actuator means rotatably mounted to said valve body means and including a portion engageable with and guided by said arcuate guide surface means, said actuator means including means defining a cam surface means, said cam follower portion being directly engageable with said cam surface means wherein the axis of rotation of said actuator means is displaced from the axis of rotation of said crank member such that upon selective rotation of said actuator means a predetermined amount, said crank member and said valve member are angularly displaced relative to said closed position for achieving a predetermined fluid flow rate through said fluid passageway.

4,280,683

UTILITY PULLER

Larry Knierim, Blissfield, Mich., assignor to Dana Corporation, Toledo, Ohio

Filed Jul. 23, 1979, Ser. No. 59,668
Int. Cl.³ B66F *3/00, 15/00*
U.S. Cl. 254—17 **5 Claims**



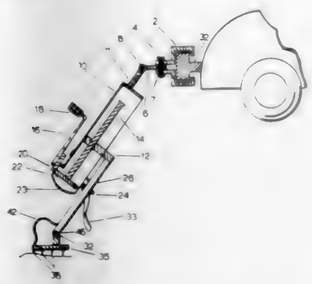
1. An apparatus for use as a utility construction tool comprising a lever arm handle, a grab hook positioned on said lever arm handle, means for anchoring one end of said lever arm handle, said anchoring means including a foot, said foot being substantially wider than said lever arm, said foot including a plurality of adjustable and replaceable pikes extending from the surface of said foot which opposes said lever arm handle, said adjustable pikes being pointed at the end extending from said foot and threaded at the opposing end so as to enable said pikes to be adjustable and replaceable, a work object engaging means separate from said lever arm handle, means for removably connecting said lever arm handle to said work engaging means, said connecting means being fixed to said lever arm handle at a point spaced from said foot and substantially adjacent said grab hook; whereby application of force at said lever handle will pivot said lever arm handle on said anchoring means in a direction away from said work engaging means and produce a concomitant force at said work engaging means in the direction of said connecting means.

4,280,684

MANUAL AUTOMOBILE PUSHER

Francis E. LeVert, 1909 Matthew La., Knoxville, Tenn. 37919

Filed Oct. 23, 1979, Ser. No. 87,325
Int. Cl.³ B60S *9/02*
U.S. Cl. 254—35 **1 Claim**



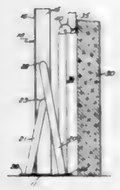
1. An apparatus for freeing vehicles from ice, snow or mud ruts, the device comprising:
an open equal sided rectangular metal channel;
a metal lead screw which is attached firmly to a metal gear;
a spur gear which meshes with said metal gear;
a metal crank with a hand held handle which is permanently connected to said spur gear;
a large rectangular metal nut which is driven by said metal lead screw, with the combination of said metal gear, said metal lead screw and said large rectangular metal nut housed in said open equal sided metal channel;
an equal leg angle metal piece rigidly connected to said large rectangular metal nut;
a metal equal leg angle slotted guide through which said equal leg angle metal piece slides;
a metal plate with metal studs which is connected via a metal connecting linkage to said equal leg angle metal piece by a metal cap screw;
a metal spring clamp which is connected rigidly to said equal leg angle metal piece and used to provide a spring force on said metal plate with metal studs;
means of holding the manual pusher in a stored position when it is not in use, with said means being used in conjunction with said metal spring clamp; and means of attaching said apparatus to a vehicle.

4,280,685

GUARD POST FOR LOADING DOCKS

James E. St. Angelo, Swifts Point, Bristol, R.I. 02809

Filed Feb. 22, 1980, Ser. No. 123,506
Int. Cl.³ E04H *17/00*
U.S. Cl. 256—1 **2 Claims**



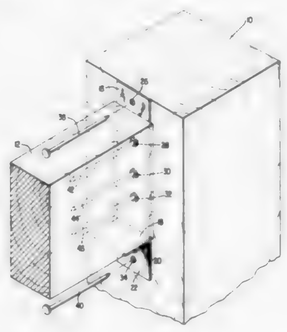
1. In a building having a loading dock opening with a door, a guard post for said opening comprising an upright element, a base plate adapted to be anchored to a supporting surface, two brace members secured to said upright element, said brace members extending away from said upright element at an acute angle to each other, said upright element secured to said base plate, said brace members being secured to said element at a vertical position substantially intermediate thereof and extending away from the element at an acute angle to the vertical extent thereof, means at the terminus of the brace members to anchor the same to a supporting surface, said upright element located substantially in line with said opening and closely adjacent thereto to block contact of a lift truck with the interior face of said opening.

4,280,686

RAIL END MOUNTING BRACKET

David T. Wack, Rte. 1, Box 58, Smallwood Rd., White Plains, Md. 20695

Filed Oct. 25, 1979, Ser. No. 88,153
Int. Cl.³ E04H *17/14*
U.S. Cl. 256—65 **3 Claims**



1. A fence railing end connector bracket for connecting the end of a fence railing to a post, said connector defined by a flat strip of sheet material of generally rectangular form having an intermediate ledge extending at right angles to its plane, said ledge being defined by a wave projecting from said strip transversely of the length of said strip, said wave being of generally U-shape in longitudinal cross-section, the wave being integral with said strip, said strip having flat attaching portions on opposite sides of said wave, one of said attaching portions having a set of nail receiving apertures intermediate thereof for nailing said connector to a fence rail end, and both of said attaching portions having nail receiving apertures adjacent the terminal ends thereof for nailing said connector to a fence post above and and below said wave.

4,280,687

FLAME CUTTER

Gerhard Münch, Frankfurt am Main, Fed. Rep. of Germany, assignor to Messer Griesheim GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 4, 1979, Ser. No. 45,077
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824699
Int. Cl.³ B23K *7/00*
U.S. Cl. 266—50 **8 Claims**

1. A flame cutting machine for severing portions of a moving strand, comprising in combination:
an elongated support, said strand operatively moving above and parallel to said support in one direction of elongation thereof,
rail means disposed on said elongated support,
a carriage having an initial position and being operably movable on said rail means in said one direction and in an opposite direction,
cutting means disposed on said carriage and actuatable for severing said moving strand portions,
synchronizing means for operatively and continuously synchronizing the movement of said carriage with that of said strand in said one direction, said synchronizing means including a rotatable roll couplable to said carriage and in operative driven relationship from said strand,
motion conversion means for converting the rotation of said roll into a translatory motion of said carriage, in said one direction, and including a rotatable and arrestable nut disposed on said carriage, and a spindle in driven connection from said roll engaging said nut,
releasable brake means for arresting rotation of said nut whereby the movement in said one direction of said nut and said carriage by said spindle is initiated, and,
measuring means operatively coupled to said nut through said brake means for determining the moving distance of the carriage from the time of the activation of said brake means to the release thereof,
whereby said carriage is movable in the same direction and at the same speed as said strand, said strand may be cut by said cutting means while the strand is movable in synchronization therewith in said one direction, and said carriage may be returned to said initial position following cutting of the strand by said cutting means.



7. In a method of flame cutting portions of a moving strand, with the aid of an elongated support, rails disposed on said elongated support, a carriage movable on said rails, a cutter disposed on the carriage and actuatable for severing said portions from the moving strand, and a roll couplable to said carriage and in driven relationship from the strand,
the steps comprising:
(a) converting the rotation of the roll into a forward translatory motion of said carriage from an initial position to a measurable end position, so as to operatively and continuously synchronize the translatory motion of the carriage with the motion of the moving strand, during said translatory motion,
(b) measuring the distance covered by said carriage from said initial position to said end position,
(c) concurrently with step (a) so as to correspond to a predetermined length of strand portion to be cut, severing a moving strand portion from a remaining portion of the strand, and
(d) thereafter returning the carriage to said initial position, whereby said strand may be cut by said cutter while the strand is moving in synchronism therewith.

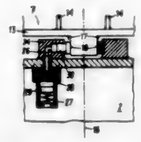
4,280,688

TILTABLE CONVERTER ARRANGEMENT

Bernhard Enkner; Rupert Berger; Manfred Eysn, all of Linz; Hermann Haslehner, Alkoven; Helmut Smejkal, Linz, and Michael Sattler, Ansfelden, all of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Oct. 30, 1979, Ser. No. 89,526
Claims priority, application Austria, Nov. 10, 1978, 8050/78
Int. Cl.³ C21C *5/50*
U.S. Cl. 266—245 **8 Claims**

1. In a tiltable converter arrangement of the type including a converter vessel having a converter shell, a hollow carrying body arranged about said converter shell, lug pairs accommodating bearing forces for supporting said converter vessel on said carrying body, each of said lug pairs including two lugs arranged opposite each other on both sides of said carrying body, and at least one hydraulically actuatable piston-cylinder unit provided between one lug of each of said lug pairs and said hollow carrying body and including a piston and a cylinder, said piston being hydraulically adjustable in the longitudinal direction of said converter vessel, the improvement comprising an equalizing reservoir containing a hydraulic medium and provided within said carrying body, a hydraulic conduit for connecting said cylinder of said at least one piston-cylinder



unit with said equalizing reservoir, and a check valve installed in said hydraulic conduit and selectively switchable into and out of operation, said check valve, when switched into operation, enabling the flow of said hydraulic medium only in the direction from said equalizing reservoir to said cylinder, and when switched out of operation, releasing said hydraulic conduit for flow in both directions.

4,280,689

HEAD FOR HIGH SPEED SPINNER HAVING A VACUUM CHUCK

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Frank Lombardi, Altadena, Calif.

Filed Jun. 27, 1980, Ser. No. 163,840
Int. Cl.³ B60G *11/22*
U.S. Cl. 269—21 **1 Claim**



1. A head for a vertically oriented, high-speed spinner characterized by a negative pressure chuck comprising:
A. a body having a substantially cylindrical peripheral surface and a transverse end surface adapted to be connected to a vertically oriented drive shaft and supported thereby for unidirectional rotation about a vertical axis of rotation including,
means defining in the end surface an outwardly facing chamber circumscribed by an annular work-supporting surface adapted to receive in hermetically sealed relation, an impervious work piece;
B. means responsive to a rotation of said body about said axis, in the presence of a work piece received by said work-supporting surface, for reducing atmospheric pressure in said chamber including,
a plurality of angularly spaced, low-pressure cavities uniformly spaced about the periphery of the body in communicating relation with the peripheral and end surfaces thereof, each cavity being defined by a first surface projected into the body in the plane of the axis at the leading portion of the cavity relative to the direction of rotation thereof, a second surface extended from the peripheral surface of the body along a chord thereof, in a plane paralleling the axis and intersecting

said first surface, and a third surface intersecting said first and second surfaces and extended in a plane transversely related to said axis; and

C. means for connecting each of said cavities in communicating relation with said vacuum chamber including,

a segmented bore having a first segment projected through said second surface and extended to communicate with said chamber.

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COLLATOR

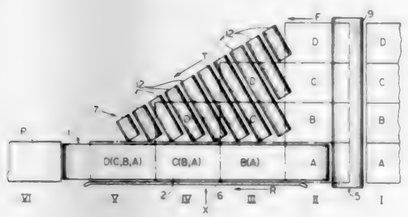
James Hill, 116 Silverdale Rd., Sheffield S11 9JL, England

Filed Jul. 13, 1979, Ser. No. 57,328

Claims priority, application United Kingdom, Jul. 21, 1978, 30762/78

Int. Cl.³ B65H *39/06*

U.S. Cl. 270—58 **6 Claims**



1. A collator comprising a conveyor defining an essentially straight movement path along which plural sheets of material are adapted to be collated in superposed relation to each other, separate supplies of sheet material operatively arranged in side-by-side relation to each other and in lateral offset relation to said conveyor movement path, said conveyor and said supplies of material cooperating to bound in the angle subtended therebetween a triangular-shaped work station for performing said collation of said sheet material, and sheet-conveying means disposed at said work station operatively effective to move individual sheets fed thereon from said supplies thereof along plural angled paths intercepting said conveyor at selected locations in successively spaced relation therealong, whereby at each said intersecting location a different one of said individual sheets is deposited on said conveyor to thereby contribute to the build-up thereon of an assemblage of said sheets in a superposed collated condition.

4,280,691

SHEET FEEDING DEVICE

Herbert Blum, Wiesbaden-Schierstein, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 7, 1978, Ser. No. 922,746

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1977, 2731095

Int. Cl.³ B65H *3/12*

U.S. Cl. 271—11 **18 Claims**



1. A sheet feeding device for the automatic feeding of individual sheets from a stack to an apparatus, having front and delivery ends, comprising:

(a) lower sheet carrier rollers positioned between said stack and said apparatus;

(b) upper sheet feed rollers carried on a first shaft in resilient contact with said lower carrier rollers;

(c) a suction chamber, displaceable in the direction of transport of said sheets from said stack to said apparatus, wherein said chamber comprises:

(i) a perforated base plate;

(ii) a cover plate provided with a suction opening located over said base plate; and

(iii) ventilator means for providing suction to said chamber, said ventilator means being positioned over said suction opening in said cover plate;

(d) a pair of vertical walls between which said suction chamber is located; and

(e) means for displacing said suction chamber;

(f) means for guiding the displacement of said chamber in the direction of transport;

(g) said means for displacing said suction chamber comprising:

(i) a drive motor with a drive shaft, wherein said motor is attached to the inside of one of said vertical walls and said drive shaft passes through to the outside of said one wall;

(ii) a pair of belt driving toothed belt pulleys, each with different diameters, carried by said shaft;

(iii) feed roller driving toothed belt pulley, driven by the larger of said belt driving toothed belt pulleys and operably connected to rotate said feed rollers;

(iv) a second shaft connected to extend perpendicularly from the outside of said one vertical wall to which said motor is attached;

(v) a cam carried by said second shaft, said cam co-operating with said suction chamber to effect displacement thereof; and

(vi) a cam driving toothed belt pulley connected to said cam and driven by the smaller of said belt driving pulleys.

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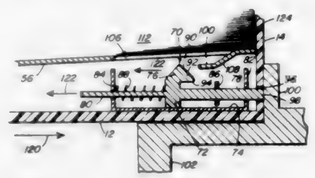
CASSETTE WITH LOCKABLE LIFT PLATE

Peter Hutchinson, and Henry T. Pauk, both of Nashua, N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed Feb. 21, 1980, Ser. No. 123,389

Int. Cl.³ B65H *1/12*

U.S. Cl. 271—160 **2 Claims**



2. A photocopier sheet holding assembly comprising:

a tray for holding sheets of material in a stack and adapted to be inserted into a receiving opening in the frame of a photocopier for engagement of said sheets by sheet feeding apparatus,

said tray being defined by a frame and having

a paper lift member mounted in said tray above a frame bottom wall for pivotal movement about a rear edge of said member, and

means for biasing said paper lift member upwardly, wherein the improvement comprises:

a latching assembly having

a first latch member mounted on said paper lift member, having a first camming surface,

a second latch member mounted on said tray frame for movement between a first position wherein said second latch member can engage and maintain said first latch member in a paper loading condition and a second position wherein said second latch member is out of engaging and locking contact with said first latch member, comprising:

a latch head having

a first surface for lockingly engaging said first latch member when said second latch member is in said first position, said first surface being moved out of engagement with said first latch member when said second latch member is in said second position, and

a second camming surface disposed with respect to said first camming surface of said first latch member to urge said second latch member from its first position toward its second when said paper lift member is urged downward,

a first horizontally directed forward rod member secured at one end to said latch head and defining at its other end a rod surface for engaging a cooperating surface of said photocopier when said tray is inserted into its operative position in said photocopier to move said second latch member from said first position to said second position when said tray is in its operative position,

a second horizontally directed rearward rod member secured at one end to said latch head,

means for mounting said second latching member for supporting and slideably passing therethrough said rearward member,

bias means comprising a coil spring coaxial with said rearward member for urging said latch head in a forward direction, and

stop means cooperating with said forward rod member for limiting the movement of said latch head in a forward direction.

4,280,693

SHEET FEEDING DEVICE FOR PRINTING APPARATUS

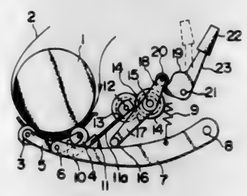
Koh Matsuhisa, Kanagawa; Mamoru Takezawa, Yokohama, and Yoshio Kawajiri, Zama, all of Japan, assignors to Ricoh Co., Ltd., Japan

Filed Dec. 22, 1978, Ser. No. 972,324

Claims priority, application Japan, Dec. 28, 1977, 52-157475

Int. Cl.³ B65H *9/06*

U.S. Cl. 271—246 **7 Claims**



1. A sheet feeding device for a printing apparatus comprising:

a pressing roller operable to be brought into and out of pressing contact with a platen;

stopper hook means located in a position in which a sheet impinges thereon and comes into contact therewith after the sheet has moved a small distance between said platen and said roller with said roller out of contact with said platen;

means mounting said stopper hook means for movement from a position in which the sheet impinges thereon and comes into contact therewith, with said stopper hook means in contact with said platen and said platen and said roller are out of pressing contact with each other, to a position out of contact with the sheet and said platen only after said roller has come into contact with said platen to hold the sheet;

one additional roller operable to be brought into and out of contact with said platen, said stopper hook means located midway between said first-mentioned and additional roller in a path of movement of the sheet fed to said platen, and;

a stopper shaft supporting said stopper hook means and pressing arm means supporting one of said first mentioned and additional roller and capable of moving in pivotal movement in a predetermined range, connected together by transmitting and connecting means; said transmitting and connecting means connecting together said stopper hook means and said pressing arm means comprising a first gear wheel secured to said stopper shaft supporting said stopper hook means, a second gear wheel supported by a release shaft and in meshing engagement with said first gear wheel, release arm means secured to said release shaft and moving in pivotal movement as said second gear wheel rotates, resilient means forcing said pressing arm means against said release arm means by its biasing force, and said first gear wheel and said second gear wheel are in the form of an intermittent drive gear.

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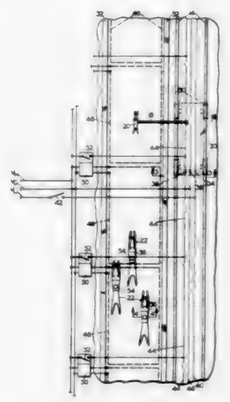
RACE TRACK LURE SPEED CONTROL ASSEMBLY

Lorn L. Trickel, 8806 NE. Thompson St., Portland, Oreg. 97220

Filed Apr. 18, 1980, Ser. No. 141,641

Int. Cl.³ A63K *1/02*

U.S. Cl. 272—4 **12 Claims**



1. For use with a powered race track lure assembly including a lure, an electric-motor-driven carriage mounting the lure, and rails extending along the track, a lure speed control assembly comprising:

(a) an electric circuit including the motor, selected rails, and a plurality of inductive loops placed sequentially along the track for traversal by contestants during a race;

(b) an inductance altering element carried by each contestant, each inductance altering element acting to change the inductance in each inductive loop as it is traversed by each contestant; and

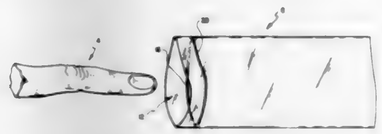
(c) means in the electric circuit responsive to the change in inductance and operable to modify the speed of the motor, and hence the rate of advancement of the lure, as required to maintain the lure immediately ahead of the lead contestant.

4,280,695

PRODUCT FOR SIMULATING A HUMAN BODY PART

Jerome C. Stenehjem, 193 E. Girard Ave., Salt Lake City, Utah 84103, and Stephen C. Jacobsen, 1804 Michigan, Salt Lake City, Utah 84108

Filed Feb. 11, 1980, Ser. No. 120,531
Int. Cl.³ A63J *3/00, 5/00;* **A63H** *33/00*
U.S. Cl. 272—8 N **12 Claims**



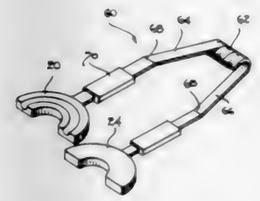
9. A product simulating a human body part composed of a mixture of algin, fillers, sequestriants, calcium source and water in proportions such that the mixture has the characteristic of an elastic solid, said solid being formed in the shape of a human body part.

4,280,696

JAW AND FACIAL MUSCLE EXERCISER

Yoav Ramon, 425 N. Edinburgh Ave., Los Angeles, Calif. 90048

Filed May 25, 1979, Ser. No. 42,460
Int. Cl.³ A63B *23/00*
U.S. Cl. 272—95 **3 Claims**



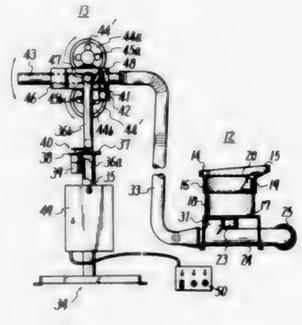
1. An exerciser apparatus for enabling the exercising of facial muscles through movement of the jaws, said apparatus comprising:
(a) a first arm formed of a relatively thin flat band having a first end and a second end,
(b) a second arm formed of a relatively thin flat band having a first end corresponding to the first end of the first arm and a second end corresponding to the second end of the second arm,
(c) pivot means between said first and second arms at a pivot point located at the second ends of said arms, said first ends to be engaged by the teeth or gingiva of a user,
(d) a torque spring forming part of said pivot means connecting the second ends of said arms and being comprised of a plurality of 360° convolutions and each being comprised of a thin flat band configured to form the convolution, the end portion of the end convolutions being integral with the associated arms and which convolutions cause said arms to move in a first direction about the pivot means to an initial position when not engaged by the teeth or gingiva so that the first ends of the arms are capable of being biased in said first direction to a maximum separation created by the bias of said torque spring, and where the user attempts to move the arms away from the initial position in a second direction opposite to the first direction against the action of the torque spring by engaging the arms with the teeth or gingiva and squeezing them together thereby causing a torque force on the convolution of the spring tending to bias the arms back to the initial position,
(d) a first arcuate somewhat cup shaped engaging element located on the first end of one of said arms, said first somewhat cup shaped engaging element opening upwardly and having a shape similar to the upper jaw and teeth arrangement to be engaged by the upper teeth or gingiva, said first engaging element having a somewhat resilient pad in the first somewhat cup shaped portion to be engaged by the lower ends of the upper teeth and
(f) a second arcuate somewhat cup shaped engaging element located on the first end of the other of said arms, said second somewhat cup shaped engaging element opening downwardly and having a shape similar to the lower jaw and teeth arrangement to be engaged by the lower teeth or gingiva, said second engaging element having a somewhat resilient pad in the second somewhat cup shaped portion to be engaged by the upper ends of the lower teeth.

4,280,697

TENNIS TRAINING DEVICE

Sueto Yuasa, 5-9-10, Seta, Setagaya-ku, Tokyo, Japan

Filed Nov. 27, 1979, Ser. No. 97,783
Claims priority, application Japan, Nov. 30, 1978, 53-165190[U]
Int. Cl.³ A63B *69/00*
U.S. Cl. 273—29 A **6 Claims**



1. A tennis training device, comprising:
(a) ball emitting means including ball emitting cylinder and ball rotating means for cyclically emitting tennis balls to a player's side through said ball emitting cylinder;
(b) ball collecting means for collecting tennis balls hit by the player;
(c) ball transferring means for transferring said tennis balls collected by said ball collecting means to said ball emitting means one by one;
(d) control means for controlling horizontal and vertical angles of said ball emitting cylinder;
(e) a supporting base;
(f) a post vertically secured at its lower end to said supporting base and having a fixture plate at its top end;
(g) a crank member one end of which is rotatably received in the top end portion of said post and which is coupled to said fixture plate through a link; and
(h) a base plate to which said ball emitting means is secured and which is coupled to said crank member through a link.

4,280,698

GOLF CUP COVER AND PUTTING AID

Joseph Troiano, 80 Mahan St., West Babylon, N.Y. 11704

Filed Jul. 10, 1980, Ser. No. 168,310
Int. Cl.³ A63B *57/00*
U.S. Cl. 273—34 B **1 Claim**

1. A golf practice aid comprising a cover having a central aperture for passage therethrough of a golf ball, said central aperture being circular in shape and having a diameter slightly

larger than a golf ball; a plurality of fingers extending downwardly from the perimeter of the bottom surface of said cover, each of said plurality of fingers comprising a first portion projecting outwardly away from said perimeter and a second portion connected to said first portion and projecting inwardly toward the perimeter, said first and second portions meeting to form a sharp edge for bearing against the inner surface of a golf cup to hold said cover therein; a plurality of spurs extending from the perimeter of said cover, each of said plurality of spurs being positioned between two of said plurality of fingers, each said spur being coextensive and coplanar with said cover such



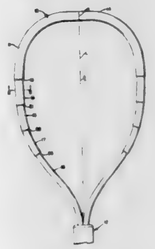
that an acute angle is formed between each said spur and a respective one of said plurality of fingers; said cover being of circular cross-section and said plurality of spurs and said plurality of fingers being mounted about said cover in circular alternating fashion; said plurality of fingers being flexible for tight fitting in a golf cup; and a quantity of simulated grass mounted on the top surface of said cover remote from said bottom surface, said quantity of simulated grass forming an opening at the center thereof for access to said central aperture of said cover, whereby said cover may be readily inserted in a golf cup in order to reduce the size of the hole to which a golf ball is stroked.

4,280,699

GAME RACQUET

Charles A. Drake, San Diego, Calif., assignor to Leach Industries, San Diego, Calif.

Filed Jan. 25, 1980, Ser. No. 115,780
Int. Cl.³ A63B *49/12*
U.S. Cl. 273—73 C **8 Claims**



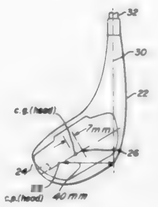
1. A game racquet comprising a substantially integral metal frame member shaped longitudinally to define a striking head outline and terminate in side by side opposite end handle incorporated portions, characterized in that the frame member has a symmetrical outer head region remote from the handle that is of substantially uniform size in cross section and the opposite sides of said frame member extending from opposite ends of said outer head region each comprise a plurality of stepped similarly incremental regions successively decreasing in size in cross section toward the handle, said regions all being of the same general shape.

4,280,700

GOLF CLUB AND GOLF CLUB SET

Stanley Plagenhoef, Amherst, Mass., assignor to Motion Analysis Inc., Amherst, Mass.

Filed Dec. 11, 1978, Ser. No. 968,204
Int. Cl.³ A63B *53/04, 53/12, 53/14*
U.S. Cl. 273—77 A **26 Claims**



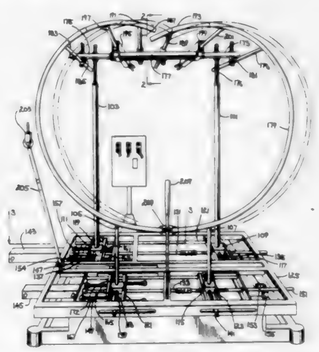
1. A golf club comprising a club head and shaft, said club head being weighted to locate its center of gravity toward the toe 7 mm (±2 mm) from the club face center and the club head center of percussion between the toe and center of gravity 40–60 mm (±2 mm) from the longitudinal axis of said shaft.

4,280,701

GOLF SWING TRAINING DEVICE

John Beckish, 228 W. Mitchell St., Milwaukee, Wis. 53207

Filed Jul. 11, 1980, Ser. No. 167,686
Int. Cl.³ A63B *69/36*
U.S. Cl. 273—191 A **8 Claims**



1. A golf swing training device comprising:
(a) a base;
(b) an arcuate open ended ring having a foreswing end and a backswing end;
(c) post means for supporting the ring, said posts being mounted on the base for movement to the left and to the right;
(d) first actuator means for moving the ring to the left and to the right;
(e) second actuator means for moving the backswing end of the ring forward and backward;
(f) first sensing means, responsive to the presence of a golf club, for initiating the motion of the ring to the left;
(g) second sensing means, responsive to the leftward position of the ring, for initiating the motion of the backswing end of the ring;
(h) first timing means, responsive to the first sensing means, for timing the movement of the ring to the right and to the left; and
(i) second timing means, responsive to the second sensing

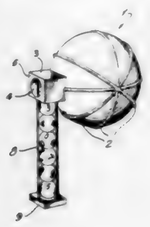
means, for timing the movement of the backswing end of the ring forward and backward.

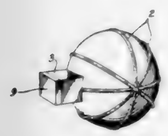
4,280,702

GAMBLING AID

Raymond Tremblay, 1265 Rachel St., East, Apt. 107, Montreal, Canada

Filed Apr. 10, 1980, Ser. No. 138,961
Int. Cl.³ A63F 7/04
U.S. Cl. 273—144 B **4 Claims**





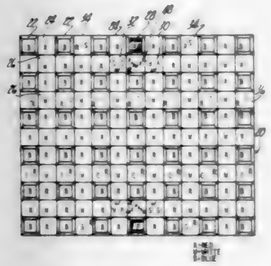
1. An aid for games of chance comprising a generally symmetrical hollow container having an outwardly extending generally symmetrical projection; said projection being formed with a first hole formed in its outer side and communicating with the interior of said container; being formed with a second hole of the same dimension and cross-sectional shape as the said first hole and located in one side of said projection at a right angle to said first hole; further comprising a plurality of balls, each inscribed with a different numerical symbol; further comprising an elongated hollow tube of the same cross-sectional dimension and shape as the two holes, said tube being open at the top and adapted to being inserted in either the first hole or the second hole.

4,280,703

THREE DIMENSIONAL GAME WITH POLITICAL THEME

Keith W. Slone, 13168 Plum, Southgate, Mich. 48195

Filed Sep. 27, 1979, Ser. No. 79,379
Int. Cl.³ A63F 3/00
U.S. Cl. 273—241 **6 Claims**



1. A board game to be played by two persons, said board game comprising:

(a) a board having a single, continuous playing surface thereon, said playing surface having a plurality of squares, said plurality of squares having three different designated colors, one of said three different designated colored plurality of squares further being elevated above the plane of the surface of the second and the third of said three different designated colored plurality of squares, the plane of the surface of the second and the third of said three different designated colored plurality of squares further being on the same plane, such that no part of an elevated square is positioned above another square; and

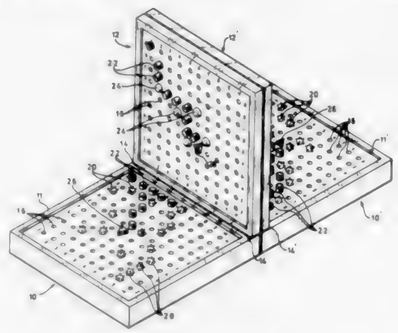
(b) a set of game pieces disposed on said playing surface, each of said set of game pieces having identifying designation thereon and being divided into two equal groups, said identifying designation on each of said set of game pieces further being used to determine the varying capabilities of movement of each of said set of game pieces over said three different designated colored plurality of squares of the game board.

4,280,704

METHOD FOR PLAYING A MILITARY WARFARE BOARD GAME

Gerald G. Massimei, and Gerald G. Massimei, Jr., both of 515 Broadway, Bethpage, N.Y. 11714

Continuation of Ser. No. 904,959, May 11, 1978, abandoned. This application Dec. 26, 1979, Ser. No. 107,212
Int. Cl.³ A63F 3/00
U.S. Cl. 273—258 **4 Claims**



1. A method of playing a naval warfare board game for at least two players of the type which includes a pair of pegboard grids for each of the players including an offensive tracking grid and a defensive network grid, each of which has defined on a face thereof a multiplicity of peg holes defining playing spaces arranged in a plurality of columns and rows, with each of said playing spaces of said offensive tracking grid being positioned in a column and row corresponding to the column and row of a playing space on said defensive network grid, and with each of said grids having a peg hole defining a starting playing space and a finishing playing space which are positioned in a column and row corresponding to the column and row of the starting playing space and finishing playing space of the other grid, one primary first token for each of the players, representing the player's fleet of ships, a multiplicity of auxiliary first tokens for each of the players, one primary second token for each of the players, representing the opposing player's fleet of ships, a multiplicity of auxiliary second tokens for each of the players, a plurality of third tokens for each of said players representing a mine for sinking one of the ships of the opposing player's fleet, and a plurality of fourth tokens for each of the players, representing at least a partial loss of the player's fleet and a mined defensive position held by the opposing player, the steps comprising:

each of said players initially inserting said plurality of third tokens representing their defensive forces in the peg holes on their defensive network grid in any desired arrangement except those peg holes representing said starting and finishing spaces and such that at least one continuous and uninterrupted path defined by adjacent playing spaces of the defensive network grid is maintained between said starting and finishing spaces thereof;

each of said players inserting their primary first and second tokens in the peg holes representing said starting spaces of their offensive and defensive network grids, respectively;

each of said players, in successive alternating turns, moving one's primary first token from said starting space peg hole to an adjacent playing space peg hole, and for each successive turn, from one playing space peg hole in which it was previously positioned to an adjacent playing space peg hole on the player's offensive tracking grid in an attempt to move said primary first token along a desired path to said peg hole representing said finishing space;

each of said players moving one's primary second token from one playing space peg hole in which it was previously positioned to an adjacent playing space peg hole on the defensive network grid in direct relationship to the movement of the primary first token on the opposing party's tracking grid;

each of said players repositioning one's primary first token on said tracking grid in a playing space peg hole it was previously positioned, when said player's primary first token lands on a playing space of said tracking grid which corresponds in row and column to a playing space on the opposing player's defensive network grid on which a third token of the opposing player is positioned;

each of said players inserting one of their fourth tokens in said playing space peg hole of said tracking grid which corresponds in row and column to said playing space peg hole on the opposing player's defensive network grid in which said third token of the opposing player is positioned in substitution of said first token which is repositioned in said playing space peg hole it was previously positioned;

each of said players inserting one of said auxiliary first tokens in a playing space peg hole of said offensive tracking grid in which said primary first token was previously positioned so as to permit charting of the path of the player's offensive forces; and

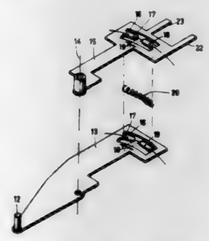
each of said players placing one of said auxiliary second tokens in one of the playing space peg holes of the player's defensive network grid in which the player's primary second token was previously positioned so as to permit charting of the path of the opposing player's offensive forces.

4,280,705

RECORD PLAYER

Kurt Eisemann, and Jürgen Montag, both of Berlin, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,365
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848393
Int. Cl.³ G11B 17/06
U.S. Cl. 369—233 **4 Claims**



1. A record player comprising a pick-up arm (3), a command disk (8) for controlling the position of the pick-up arm, an overload coupling (21) arranged between the pick-up arm and the command disk, which coupling comprises two coupling members (13, 15) which are pivotable relative to each other about a common axis (14) against spring force starting from a neutral position, a first of said coupling members (13) cooperating with the command disk and the second coupling member (15) cooperating with the pick-up arm, characterized in that each coupling member (13, 15) comprises a guide (17, 18) which is concentrically curved about the common axis, in the neutral position the guides of the coupling members coinciding as viewed parallel to the axis (14), and the overload coupling further comprising a continuous helical spring (20) slid over the guides, in the neutral position respective ends of the springs bearing against end portions of the guides.

4,280,706

SEAL FOR FLUIDIZING OUTLET

Frederick E. Vorwerk, St. Peters, Mo., assignor to ACF Industries, Inc., New York, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,343
Int. Cl.³ B61D 7/22; F16J 15/06, 15/40
U.S. Cl. 277—12 **20 Claims**



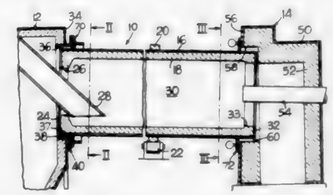
1. An outlet seal comprising: a seal located between an outlet mounting flange and a hopper mounting flange; said seal extending inboard of an inner hopper wall and including a projection extending upwardly which engages said hopper wall; said seal further including a tapered portion which extends inwardly and downwardly from said projection, whereby lading and pressure in the outlet act to urge the projection into engagement with the vertical wall and said tapered portion into engagement with a supporting surface.

4,280,707

SEAL FOR ROTATING CYLINDER SUCH AS KILNS AND THE LIKE

Robert M. Bliemeister, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Continuation of Ser. No. 10,674, Feb. 9, 1979, abandoned. This application Jul. 29, 1980, Ser. No. 173,499
Int. Cl.³ F16J 15/34
U.S. Cl. 277—84 **1 Claim**



1. Apparatus comprising in combination a stationary member and a rotating cylinder telescopically arranged in said stationary member with said cylinder coacting with said stationary member to define an annular opening therebetween disposed in circumscribing relationship to said cylinder, and a seal circumscribing said cylinder adjacent said stationary mem-

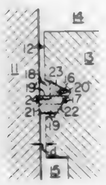
ber and closing said annular opening, said seal comprising an annular ring member formed by a plurality of pivotally connected ring segments and having a narrow inner circular edge portion adapted to reset on and make loose contact with the outer periphery of said cylinder and having a flat annular surface extending radially outwardly from said edge portion and adapted to engage said stationary member to close said annular opening, weighted means extending axially away from a back side of said ring opposite said annular surface, said weighted means extending from a location on said back side that is radially outward of said inner edge portion and providing together with the weight of said ring a center of mass axially backward of said edge portion for tilting said ring whereupon said tilting and the rotation of said cylinder moves said ring member into engagement with said stationary member to substantially seal said annular opening, wherein the improvement comprises at least one of said segments having a rigid arcuate length extending and adjusting means engaging at least one portion of said ring segment, threaded bolting means engaging said portion of said ring segment and projecting through said adjusting means, and threaded fastening means engaging the threaded projecting end of the bolting means and securely clamping said adjusting means to the ring segment in a fixed position of the adjusting means relative to the ring segment, whereby the inner circumferential dimension of the segment and the entire ring member is made adjustable to provide and maintain a fixed inner circumferential dimension providing the loose contact with the outer periphery of said cylinder required in order that the ring member may move axially along the cylinder into sealing engagement with the stationary member.

4,280,708

SEALING DEVICE FOR ENGINE PISTON

Yoshio Arai, 1400, Kamihongo, Matsudo-shi, Chiba-ken, Japan

Filed Aug. 8, 1979, Ser. No. 64,794
Claims priority, application Japan, Aug. 21, 1978, 53-101678
Int. Cl.³ F16J 9/20
U.S. Cl. 277—171 **2 Claims**



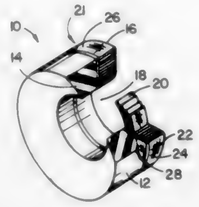
1. A sealing device for reciprocating type pistons of engines in which the piston has a piston ring installed into the piston-ring groove and is slidably fitted in the cylinder bore of the cylinder block, said sealing device comprising: a piston-ring groove cut in the outer periphery of the piston, having an outwardly expanding nearly V-shaped cross section and consisting of first and second annular inclined surfaces; a piston ring consisting of an annular inclined surface that abuts tightly against said first annular inclined surface of the piston-ring groove and an external sealing surface that abuts tightly against the cylinder wall; and an auxiliary ring having an annular inclined surface that bears against said second annular inclined surface of the piston-ring groove and also having a flat surface that bears against the piston ring, said auxiliary ring having a tendency to contract inwardly; whereby the auxiliary ring slides downwardly along the second annular inclined surface to cause the annular inclined surface of the piston ring to bear tightly against and slide outwardly along the first annular inclined surface of the piston-ring groove so that the external sealing surface of the piston ring is forced tightly against the cylinder wall.

4,280,709

PISTON RUBBER

George E. Heikes, Jr., and Claude L. Henderson, both of Denver, Colo., assignors to The Gates Rubber Company, Denver, Colo.

Filed Nov. 8, 1979, Ser. No. 92,406
Int. Cl.³ F16J 9/00, 15/20
U.S. Cl. 277—229 **8 Claims**



1. In a piston rubber of the type having a generally cylindrical body of a desired length with an axial bore, a longitudinal axis, a cylindrical surface portion, a lip-seal end and a reinforced end with an embedded fabric reinforcement, the improvement in the reinforcement comprising:

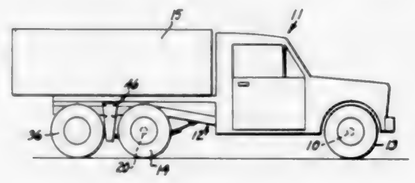
a strip of textile fabric wound over itself into a volute roll that is arranged generally coaxial with the cylindrical body, the fabric having sets of crossing warp and fill threads with side surface portions where one of the sets has threads substantially circumferentially oriented in relation to the cylindrical body and the other set has threads oriented generally with the longitudinal axis of the body so that side surface portions thereof are juxtaposed the cylindrical surface portion of the body to define a wear-resistant surface.

4,280,710

THIRD AXLE ATTACHMENT FOR MOTOR VEHICLES

Gail E. Rogge, 41750 Shady La., Hemet, Calif. 92343

Filed May 11, 1979, Ser. No. 38,333
Int. Cl.³ B60G 5/00
U.S. Cl. 280—81 R **6 Claims**



2. A third axle attachment for a vehicle having a chassis frame, a rear axle, spring means for supporting said frame from said rear axle, and spring mounting means for attaching said spring means to said rear axle, comprising:

an auxiliary leaf spring having mounted means at its forward end for pivotal connection to said rear axle for vertical movement therewith and further mounting means at its rearward end for connection to the axle of a third axle attachment for vertical movement therewith;

load transferring means having mounting means for attachment to said chassis frame for transferring a portion of the load from said frame to said auxiliary leaf spring at a location intermediate the ends of said auxiliary leaf spring;

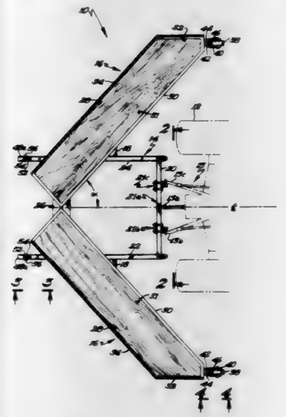
the geometry and loading of said third axle attachment being selected to normally maintain the wheels of the third axle in contact with the ground during all static load conditions.

4,280,711

PERSONNEL CARRIER FOR WEED CONTROL

Paul R. Gorder, Rte. 1, Box 88, Wahpeton, N. Dak. 58075

Filed Jan. 2, 1979, Ser. No. 266
Int. Cl.³ A01D 67/04
U.S. Cl. 280—32.5 **10 Claims**



1. A personnel carrier adapted to be attached to a vehicle for carrying workers through fields in order to perform crop and/or weed control operations, comprising:

a main frame having means thereon for attachment to a vehicle for conveying said frame through a field;

ground engaging skid means supporting said frame for transit;

a pair of wing sections having platform means thereon for carrying workers, said wing sections having inner end segments supported on said main frame and said wing sections projecting horizontally outwardly from said inner end segments on opposite sides of said main frame at an angle of between 20° and 70° with respect to the longitudinal axis of said main frame, said platform means being spaced from the ground so as to allow weed control operations to be performed therefrom; and

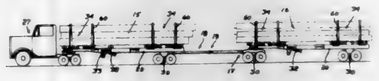
ground engaging wheel means on each of said wing sections at locations thereon spaced laterally outwardly from said main frame.

4,280,712

TRAILERS FOR HAULING LOGS AND THE LIKE AND ADAPTED FOR USE IN TANDEM

Randall N. Clark, P.O. Box 185, Union, Me. 04862

Filed Apr. 2, 1979, Ser. No. 25,837
Int. Cl.³ B62D 3/10
U.S. Cl. 280—144 **14 Claims**



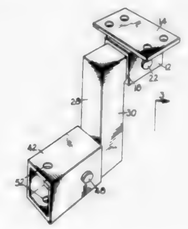
1. A trailer for hauling logs and other long materials, said trailer includes a frame, at least one bunk including two bunk members, means pivotally connecting said members to said frame for movement in a horizontal plane, each member of a length greater than the maximum width of said trailer and including a stake at each of its ends, and means operable to pivot said members between first and second positions, in said first position, each stake spaced from the longitudinal center line of the trailer a distance not more than one-half of said maximum width and in said second position, each stake spaced a predetermined distance from said center line greater than said one-half of said maximum width thus to enable said trailer to accommodate a wider load than when said members are in their first positions, and shoulder plates extending outwardly from the sides of the frame, each shoulder plate in support of a substantial outer portion of a pivotable member when in said second position.

4,280,713

TRAILER HITCH

Larry C. Bruhn, Springfield, Oreg., assignor to LBF Properties, Inc., Springfield, Oreg.

Filed Mar. 15, 1979, Ser. No. 21,168
Int. Cl.³ B60D 1/06
U.S. Cl. 280—415 A **3 Claims**



1. A trailer hitch comprising

(a) a first body member of tubular shape having an open rearward end to provide a socket within said first body member,

(b) means on said first body member arranged to secure it to a vehicle,

(c) a second body member of tubular shape having defining side portions and having an open forward end to provide a socket within said second body member,

(d) two or more hitch coupler means on different side portions of said second body member arranged one at a time to provide a connection with a vehicle to be towed,

(e) a neck portion having opposite end portions one of which is arrranged to project into and fit snugly within said socket formed by said first body member and the other of which is arranged to project into and fit snugly within said socket formed by said second body member,

(f) removable connecting means on one end of said neck portion and on said first body member removably connecting said neck portion in said first body member,

(g) and removable connecting means on the other end of said neck portion and on said second body member removably connecting said neck portion in said second body portion,

(h) said connecting means on said other end of said neck portion and on said body member providing two or more rotated positions of said second body member on said neck portion for using a selected one of said hitch coupler means at a time.

4,280,714

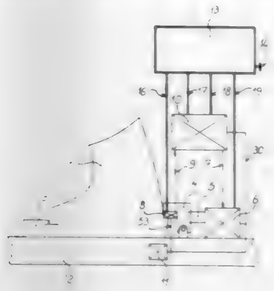
SAFETY BINDINGS FOR SKIS

Georges P. J. Salomon, Annecy, France, assignor to S.A. Etablissements Francois Salomon & Fils, Annecy, France

Continuation of Ser. No. 845,456, Oct. 25, 1977, abandoned. This application Jun. 25, 1979, Ser. No. 51,425
Claims priority, application France, Nov. 4, 1976, 76 33218
Int. Cl.³ A63C 9/08
U.S. Cl. 280—611 **9 Claims**

1. A safety binding for a ski comprising: at least one main electrical circuit for producing signals during skiing to detect and calculate stress on the binding and to control the release of the binding in dependence upon the stress, and being further defined by at least one voluntary operated additional circuit operated by a switch and including warning means and em-

ploying active circuit elements for generating an electrical signal at at least one point in said main circuit, and actuating the warning means for warning of the state of the binding, said



electrical signal being independent of said signals produced during skiing, to thereby enable monitoring of the condition of said binding.

4,280,715

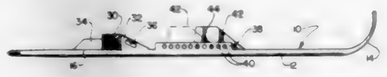
TOY SKI

Israel R. Freelander, and Michael S. Freelander, both of Spring Valley Dr., Worcester, Mass. 01609

Filed Jan. 2, 1979, Ser. No. 580

Int. Cl.³ A63C *5/00, 9/00*

U.S. Cl. 280—623 **4 Claims**



1. A toy ski comprising a longitudinally oriented body portion having a generally planar upper surface section adapted to receive the foot of a skier, a heel rest rigidly fixed to said body portion and upstanding therefrom and positioned adjacent to the rear of said foot receiving section, a toe clamp for receipt of the toe portion of the foot of the skier disposed forwardly of said heel rest and adjacent to forward portions of said foot receiving section, means for mounting said toe clamp on said body portion for longitudinal reciprocal adjustment relative to said heel rest, said mounting means including laterally spaced side bars upstanding from said body portion disposed forwardly of said heel rest, said side bars each having a plurality of longitudinally spaced, laterally directed openings adapted to receive at least one projection laterally extending from opposite sides of said toe clamp, said toe clamp of generally shell-like configuration, a flange laterally outwardly extending from the opposite sides of said toe clamp and terminating in an upwardly extending wall, said projections outwardly extending from said walls.

4,280,716

FOLDABLE WHEEL CHAIR

Ebbe Vonsbeck, Roskilde; Claus C. Hansen, and Lene Munthe, both of Copenhagen, all of Denmark, assignors to E.C.-Hospitalsinventor A/S, Denmark

Filed Feb. 4, 1980, Ser. No. 118,210

Claims priority, application Denmark, Feb. 5, 1979, 476/79

Int. Cl.³ B62B *7/06*

U.S. Cl. 280—642 **7 Claims**

1. A foldable wheel chair, comprising a back and a seat of a formstable, non-flexible material, two wheel pairs, at least three individual supporting frames for said back, said seat and said wheel pairs and two identical pivot assemblies positioned opposite each other at the back-seat junction for pivotally connecting said supporting frames relative to each other around pivot axes extending in parallel relationship to a shaft for one of said wheel pairs, and including a blocking mechanism for interlocking engagement of the seat and back supporting frames with the supporting frame or frames for said wheel pairs in the normal operative state of the chair, said blocking mechanism including means for releasing said interlocking engagement only in response to a pivotal movement of said seat supporting frame to a predetermined reduction of the



angular separation of said seat and back supporting frames, and to allow combined pivotal movement of said seat and back supporting frames relative to the supporting frame or frames for said wheel pairs in a direction opposite to the preceding pivotal release movement of said seat supporting frame, parts of said pivot assemblies connected with said seat supporting frame being rigidly connected with each other to syncronize the pivotal movements of the two pivot assemblies.

4,280,717

SUSPENSION ARM MOUNTING

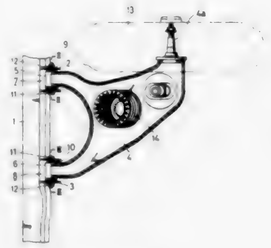
Kiyoshi Hanai, and Takeo Kondo, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed May 21, 1979, Ser. No. 41,197

Claims priority, application Japan, May 24, 1978, 53-71030[U]

Int. Cl.³ B60G *7/02*

U.S. Cl. 280—663 **6 Claims**



1. A trailing arm suspension comprising:

a suspension arm having an inner connecting portion and an outer connecting portion; and

a suspension member to which said suspension arm is connected at said inner and outer connecting portions;

each of said connecting portions comprising a sleeve and a horizontally oriented bush received in said sleeve, each said bush comprising an inner cylinder, an outer cylinder and a cylindrical vibration damping member interposed between said inner and outer cylinders, said inner cylinder being connected to said suspension member by a bolt, said outer cylinder being retained by said sleeve;

said vibration damping member of said bush in said outer connecting portion being designed to cause a smaller deflection than said vibration damping member of said bush in said inner connecting portion when an equal amount of load is radially applied to said vibration damping members.

4,280,718

PRESSURE SENSITIVE RECORDING SHEET CONTAINING SIZE CLASSIFIED CEREAL STARCH GRANULES

Donald L. Johnson, Macon County, Ill.; John L. Bond, Franklin County, Ohio; Saul Rogols, Pickaway County, Ohio, and John W. Salter, Franklin County, Ohio, assignors to Henkel Corporation, Minneapolis, Minn.

Continuation of Ser. No. 561,733, Mar. 24, 1975, abandoned, which is a division of Ser. No. 478,563, Jun. 12, 1974, Pat. No. 3,951,948, which is a division of Ser. No. 180,588, Sep. 15, 1971, abandoned. This application Jul. 24, 1979, Ser. No. 60,162

Int. Cl.³ B41L *1/36;* **B32B** *5/16, 29/04*

U.S. Cl. 282—27.5 **14 Claims**



11. In a carbonless duplicating paper including a coated surface containing chromogenic micro-capsules and protective particles therefor, said protective particles comprising size classified large granules obtained by wet process from a cereal starch originally having a bimodal particle size distribution, said starch being selected from the group consisting of wheat, barley and rye starches, said size classified large granules having 99% by weight above 12 microns in size and having at least about 22% of the total number thereof at least 22 microns in size, and said large granules having a sub-sieve value substantially greater than that of the prime grade, bimodal cereal starch from which it is derived.

4,280,719

CONNECTOR WITH ROTATABLE LOCKING RING, PARTICULARLY FOR A RISER USED IN OFFSHORE OIL EXPLORATION AND PRODUCTION

Edmond Daniel, Saulx-les-Chartres; Jean Guesnon, Saint-Germain-en-Laye, and Andre Laureacin, Lyons, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

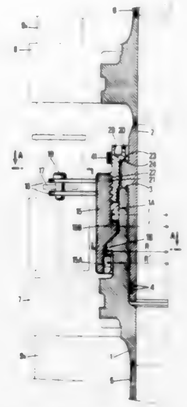
Filed Aug. 3, 1979, Ser. No. 63,659

Claims priority, application France, Aug. 3, 1978, 78 23209

Int. Cl.³ F16L *39/00*

U.S. Cl. 285—90 **11 Claims**

1. A connector with a rotatable locking ring comprising two interlocking tubular elements each having axial abutment means, a locking ring adapted for being inserted into a first of said tubular elements to form therewith a bayonet assembly said locking ring and said first tubular element having lugs wherein said lugs of said ring co-operate with corresponding lugs of said first tubular element, and means bearing on said second tubular element to exert in the axial direction, through said lugs of said locking ring, a prestress urging said tubular elements against each other, said lugs of said first tubular element and said lugs of said locking ring each comprising two lug rows angularly staggered with respect to each other, said lugs being inscribed in respective cylindrical surfaces of different radii, so that in the inserted position in said ring of said first tubular element, the respective lugs can slide effortlessly on one another up to a position where the lugs of each lug row of



said locking ring pass between those of a corresponding row of said first tubular element to form a plurality of bayonet couplings which can be simultaneously locked.

4,280,720

HORIZONTALLY DEVELOPING MULTI-FUNCTIONS ROTATING CONNECTION

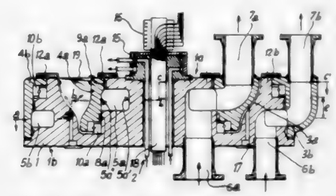
Herve Lomenech, and Jean-Paul Sarrailh, both of Pau, France, assignors to Societe Nationale Elf Aquitaine (Production), Paris, France

Filed Jul. 26, 1978, Ser. No. 928,083

Claims priority, application France, Aug. 4, 1977, 77 24045; Jun. 26, 1978, 78 19015

Int. Cl.³ F16L *39/04*

U.S. Cl. 285—136 **6 Claims**



1. A rotating connection device for a plurality of conduits, comprising

a fixed part constituted by a disc limited by a lower face and an upper face, each of said faces having a common axis of revolution,

at least two parts able to move rotatingly around said common axis of revolution,

said rotating connection being characterized in that

each movable part is located within an annular groove cut out of the fixed part, said groove having an annular opening through the upper face of said fixed part for upward removal of the movable part,

each movable part forming a single annular space with the fixed part, said movable part isolating said said annular space from said groove and from any other annular spaces by at least two annular sealing gaskets, said annular space being moreover defined by a surface on the movable part and by a surface on the fixed part,

each said surface having an aperture for the transfer of fluids, a first aperture opening through said surface of the

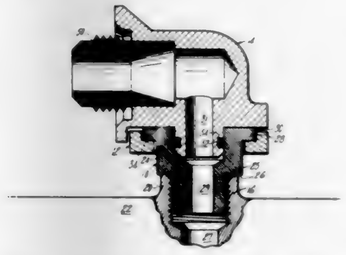
fixed part and connected by a passage in the fixed part to a conduit open on the lower surface of the fixed part, a second aperture opening through said surface of the movable part and connected by a passage in the movable part to a conduit open on the periphery of the movable part and directed towards the upper face of the fixed part.

4,280,721

ANGULARLY LOCKABLE FITTING

Norman W. Narkon, Manchester, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 14, 1979, Ser. No. 94,254
Int. Cl.³ F16L *43/00*
U.S. Cl. 285—179 **6 Claims**



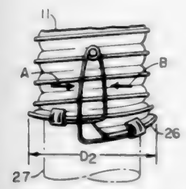
1. A fitting including an elbow adapted to connect to plumbing and rotatable about a central axis for alignment with the mating end of said plumbing, an adapter secured to a casing internally communicating with said plumbing, said adapter having a cylindrical body and a larger diameter cylindrical portion at its upper end extending beyond said body, said cylindrical portion having a top planar surface, the bottom of said elbow having a complimentary planar surface lying normal to said central axis, a collar having a recess having a bottom wall receiving said cylindrical portion and in rotating relation therewith, said elbow having an integral radially extending flange lying in the same plane as said complimentary planar surface complimenting said collar, means for retractably securing said flange to said collar so that said top planar surface and said complimentary planar surface are placed into contact to frictionally lock said elbow to said adapter and the bottom surface of said cylindrical portion bearing against said bottom wall such that said top planar surface of said larger diameter cylindrical portion projects above said recess.

4,280,722

HOSE CLAMP

Richard A. Guptil, Waynesville; Ivan Gaster, Hazelwood, and Roger D. Meadows, Waynesville, all of N.C., assignors to Dayco Corporation, Dayton, Ohio

Filed Aug. 10, 1979, Ser. No. 65,400
Int. Cl.³ F16L *33/00, 47/00, 49/00*
U.S. Cl. 285—244 **9 Claims**



1. In combination, a flexible hose of nominal diameter having a reinforcing member comprising a plurality of longitudinally spaced turns of a continuous helically wound coil and a cover tube, and a clamp, said clamp being a continuous wire member having one end thereof secured to the endmost turn of said coil and the other end thereof secured to the adjacent turn of said coil, said clamp having means to maintain said hose end at said nominal diameter, and portions of said clamp being adapted for motion relative to each other to move apart said ends of said wire of said clamp secured to said turns of said coil and to radially expand said hose end.

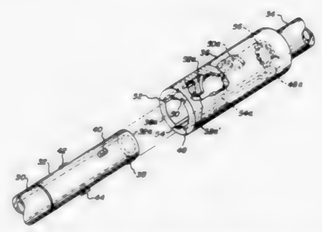
2. In combination, a flexible hose of nominal diameter having a reinforcing member comprising a plurality of longitudinally spaced annular rings and a cover tube, the endmost ring of said hose having a gap, and a clamp, said clamp being a continuous wire member, the ends of said clamp being secured to said endmost ring at opposite sides of said gap, said clamp having means to maintain said hose end at said nominal diameter, portions of said clamp being adapted for motion relative to each other to move apart said ends of said wire of said clamp secured to said endmost ring at opposite sides of said gap and to radially expand said hose end.

4,280,723

SAFETY DEVICE FOR HOSE CONNECTIONS

Jon P. Moldestad, 1015 Cadillac Way, #213, Burlingame, Calif. 94010

Division of Ser. No. 928,097, Jul. 26, 1978, Pat. No. 4,211,439. This application Sep. 17, 1979, Ser. No. 76,221
Int. Cl.³ F16L *21/02*
U.S. Cl. 285—376 **3 Claims**



1. In a fluid handling system having a first and second fluid line for handling the fluids, the improvement comprising:

a first essentially cylindrical connector connected to the first fluid line, the first connector having an outer surface and having a fluid passage therethrough;

a second essentially cylindrical connector connected to the second fluid line, the second connector having a fluid passage therethrough and having an inner surface defining an opening therein for receiving the first connector;

a plurality of keys circumferentially and axially spaced on the outer surface of the first connector, the circumferential and axial positions of the keys forming a first pattern indicative of characteristics of fluids which may be safely carried by the first fluid line;

a plurality of circumferentially spaced axially extending keyways of different length in the inner surface of the second connector;

a plurality of axially spaced circumferentially extending keyways in the inner surface of the second connector, the circumferentially extending keyways intersecting with the axially extending keyways and extending only a portion of the entire circumference of the inner surface;

wherein the circumferential positions of the axially extending keyways and the axial positions of the circumferentially extending keyways form a second pattern indicative of characteristics of fluids which may be safely carried by the second line;

wherein connection of the first and second fluid lines is provided by inserting the first connector into the opening in the second connector until the plurality of keys reach the intersection of the axial and circumferential keyways,

and turning the first and second connectors circumferentially with respect to one another to move the plurality of keys into the plurality of circumferentially extending keyways; and

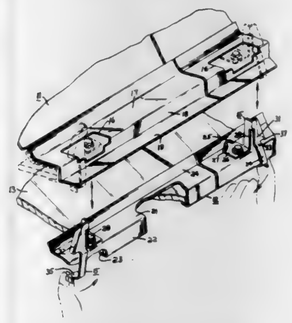
wherein engagement of the first and second connectors is not possible unless the first pattern formed by the keys and the second pattern formed by the keyways match one another in a complimentary manner sufficiently to indicate compatibility of the first and second fluid lines.

4,280,724

SPRING LATCH

John Dalton, Yardley, Pa., assignor to Keystone Lighting Corp., Bristol, Pa.

Filed Jun. 15, 1979, Ser. No. 66,872
Int. Cl.³ E05C *19/06*
U.S. Cl. 292—87 **9 Claims**



1. A spring latch comprising in combination,

(a) a base plate for securement to a portion of the item to be releasably secured by the latch,

(b) means for securing said base plate to the said item to be releasably secured,

(c) a resilient leg connected to and extending substantially orthogonally in a first direction from the plane of said base plate and being resiliently deflectable toward and away from overlying relationship to said base plate,

(d) a non-resilient leg connected at one end to the end of said resilient leg which is remote from said base plate and extending in a second direction opposite to said first direction through the plane of said base plate and terminating therebeyond in a manually engageable actuator,

(e) a latching element carried by said non-resilient leg

at a point intermediate the ends thereof, whereby, said actuator is actuatable to move said non-resilient leg and said latching element carried thereby transversely to said base plate and thereby resiliently deflect said resilient leg, release of said actuator causing reverse movement of said non-resilient leg and latching element with respect to said base plate through the resilient counter deflection action of said resilient leg.

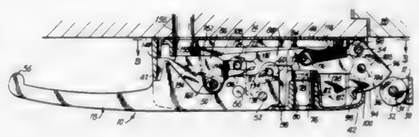
4,280,725

SAFETY CLOSURE SYSTEM

Irving L. Berkowitz, Binghamton, and John J. Bourgeois, Kirkwood, both of N.Y., assignors to Kason Hardware Corporation, Binghamton, N.Y.

Division of Ser. No. 814,408, Jul. 11, 1977. This application Feb. 6, 1979, Ser. No. 9,768
Int. Cl.³ E05C *3/22*
U.S. Cl. 292—223 **3 Claims**

1. A safety latch assembly for use with enclosures or the like, comprising, in combination: a housing; a handle carried by said housing and movable between locking and unlocking positions; a keeper member carried by said housing and having portions thereof remote from said handle and normally movable into and out of a predetermined path of interference with strike means as a result of said handle movement; a lever member supported within said housing and being movable between locking and unlocking positions, and link means disposed within said housing for interconnecting said lever and keeper members, said link means being movable between locking and unlocking positions under the influence of said handle and said lever member, said lever member and said link means being responsive to forces of an actuating member moved from within said enclosure and without the influence of said handle for moving said link means from said locking position to said unlocking position, thereby removing said keeper member portions from said path of interference; means for biasing said



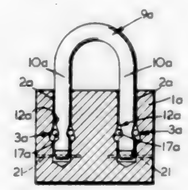
link means and lever member toward their respective locking positions; and lock means for preventing said handle movement, said latch assembly further comprising padlock means for receiving a padlock for preventing said handle movement, a key-operated locking assembly including a portion thereof movable into the path of said unlocking movement of a portion of said link means to prevent influencing of said keeper member by said handle when in a locked position, said keeper member portions being movable from said path of interference in response to forces of said actuating member notwithstanding either the presence of a padlock in said padlock means or the presence of said locking assembly portions in said unlocking movement path or both.

4,280,726

KEYLESS LOCKABLE SECURITY DEVICES

John McCoag, Glasgow, Scotland, assignor to Aardee Spring & Lock Company Limited, Glasgow, Scotland

Filed May 15, 1979, Ser. No. 39,415
Claims priority, application United Kingdom, May 17, 1978, 20255/78
Int. Cl.³ E05C *13/02*; F16B *19/00*
U.S. Cl. 292—327 **8 Claims**



1. A keyless lockable security device comprising a body member having at last one blind bore therein, said bore having an annular recessed portion intermediate its ends, in cross section the recessed portion has an inclined side surface extending from the bottom of the recess to the edge at one sie in the direction of the open end of the bore and the opposite side surface is concave from the bottom of the recess to the other edge, a male member having at least one limb insertable in its respective blind bore, said limb having an annular recessed portion adjacent a free end thereof, in cross-section the recessed portion of the limb has an inclined side surface extending from the bottom of the recess to one edge and an opposite concave side surface extending from the bottom of the recess to the other edge, an annular member of spring steel, split

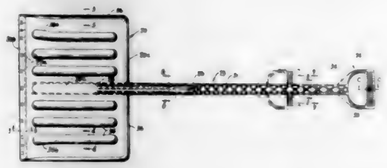
cross-sectionally in the form of a C-ring, is located in the annular recessed portion of its respective blind bore for engagement in the annular recessed portion of its associated limb when the limb is inserted into its respective blind bore to prevent withdrawal of the limb from the bore.

4,280,727

INJECTION MOLDED SNOW SHOVEL

Robert A. Germain, Ashtabula, Ohio, assignor to True Temper Corporation, Cleveland, Ohio

Filed Oct. 10, 1979, Ser. No. 83,260
Int. Cl.³ E01H *5/02*
U.S. Cl. 294—54 **6 Claims**



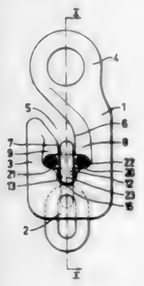
1. A unitary snow shovel scoop with operative handle, comprising a generally planar rectangular scoop having a transverse linear leading edge opposite a handle-attached edge, a bifurcated reinforcement strip extending the entire length of said leading edge, a coacting flat linear metal strip firmly secured in the bifurcation of said reinforcement strip and extending beyond the front edge of said reinforcement strip, and a generally cylindrical hollow handle stem structure extending centrally of said scoop at right angles to said leading edge from a point on said scoop to a position on said handle stem for a handle grip spaced from said handle-attached edge, said hollow handle stem structure being integral with said scoop, said handle stem structure decreasing in diameter continuously and regularly for a length from a point a few inches inside of said handle-attached edge outwardly to said handle grip by an amount of draft permitting a forming core extending through said length to be removed longitudinally of said handle stem from said scoop end, and the hollow portion of said handle stem being cylindrical and having spaced longitudinally extending short reinforcing projections extending throughout said length.

4,280,728

GRAB HOOK

Lars O. A. Fredriksson, Växjö, Sweden, assignor to K A Bergs Smide AB, Gemla, Sweden

Continuation of Ser. No. 894,483, Apr. 7, 1978. This application Nov. 20, 1979, Ser. No. 95,949
Claims priority, application Sweden, Apr. 20, 1977, 7704493
Int. Cl.³ B64D *17/38*
U.S. Cl. 294—78 R **5 Claims**



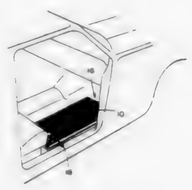
1. Grab hook for connection to a chain, the hook being unsymmetrical and comprising a shank portion with a suspension end, a point portion and a bridge portion interconnecting said shank portion with said point portion and together with said shank and point portions defining an elongated introduction opening, said opening having an open end for receiving a chain link and an inner closed end defined by the bridge portion, said opening having two mutually substantially parallel edge surfaces defined by the shank portion and the point portion, respectively, each of said edge surfaces having an arcuate configuration with one end directed substantially towards the suspension end of the hook and its other end directed substantially towards the bridge portion, each of said shank portion and said bridge portion having a three-dimensional, laterial surface which is arcuate in cross section and extends from the respective edge surface of the introduction opening along the major portion of the extension of the edge surfaces and diverges from said respective edge surfaces of the introduction opening, in sectional planes perpendicular to the introduction opening and each of which lateral surfaces ends in a support shelf extending substantially perpendicularly from said opening, said bridge portion being laterally displaced with respect to the suspension end of the shank portion, substantially perpendicularly to a plane through the suspension end and the point portion, said shelves being substantially coplanar and adapted to support two mutually opposite portions of the same chain link and located above the upper side of the bridge portion and above said closed end of the introduction opening, which is three-dimensional and extends in two mutually perpendicular planes.

4,280,729

FLOOR MAT

Janusz Morawski, P.O. Box 562, Station P, Toronto, Ontario, Canada

Continuation-in-part of Ser. No. 904,772, May 11, 1978, abandoned. This application Sep. 4, 1979, Ser. No. 72,113
Int. Cl.³ B60N *3/04*
U.S. Cl. 296—1 F **10 Claims**



1. A two-level floor mat for horizontal floors such as floors in motor vehicles, and comprising;

a tread portion having a longitudinal axis and having a plurality of longitudinal grooves therein parallel to such axis such grooves defining a predetermined water level for flow of water therealong;

pad means under said tread portion having a lower surface adapted to lie horizontal on said horizontal floor and locating said tread portion and said grooves at a predetermined level raised above the horizontal floor;

water collector means located at one end of said tread portion with said grooves in water flow communication therewith, said collector means having a bottom wall portion lying at a second predetermined level below the level of said tread portion and said grooves whereby water flowing along said grooves will flow downwardly into said collector means and collect therein, and, will not subsequently readily flow forwardly into said grooves, and,

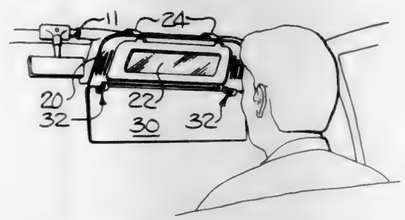
an undersurface forming part of said bottom wall portion and lying on said floor co-planar with said lower surface of said pad means whereby in use on said horizontal floor, said tread portion, and said collector means both are supported horizontal, but in different planes.

4,280,730

GLARE SHIELD FOR VEHICLE SUN VISOR

Joseph D. Turner, Statesville, N.C., assignor to Sun Visors, Inc., Mooresville, N.C.

Continuation-in-part of Ser. No. 770,806, Feb. 22, 1977, abandoned. This application Aug. 16, 1979, Ser. No. 66,913
Int. Cl.³ B60J *3/02*
U.S. Cl. 296—97 G **6 Claims**



1. A glare shield for attachment to a vehicle sun visor of the type including a non-transparent rectangular panel hingedly connected along one edge adjacent the juncture of the vehicle roof and the windshield so that said sun visor may be moved between a stored position with one side adjacent the roof of the vehicle and an operative position with said sun visor wholly or partly in the line of vision of a person seated in said vehicle, said glare shield comprising

(a) a first rectangular panel having a length generally corresponding to the length of said sun visor,

(b) means carried by said first panel for removably attaching said first panel on the side of said sun visor which is positioned adjacent the vehicle roof when said sun visor is in the stored position,

(c) a second rectangular panel being semitransparent and opaque to at least a part of the visual spectrum of light and of substantially the same length as said first panel, said second panel including a first edge and an opposite free edge,

(d) hinge means removably connecting said first edge of said second panel to said first panel, said hinge means comprising a pair of spaced-apart hinges, each of said hinges including a male hinge member carried by an edge portion of one of said panels, and a female hinge member carried by an edge portion of the other of said panels, said male hinge member of each of said hinges extending a short distance into the corresponding female hinge member so that one of said panels may be bowed between said spaced-apart hinges to free the ends of said male hinge members from said female hinge members and to free said second panel for removal from said first panel, and

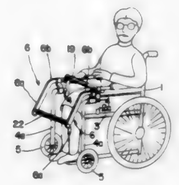
(e) latch means associated with said first and second panels for selectively maintaining said second panel in side-by-side relationship with said first panel and for releasing said second panel to swing downwardly from said first panel and into the line of vision of a person seated in said vehicle when said sun visor is lowered to the operative position.

4,280,731

RESTRAINING DEVICE FOR WHEELCHAIRS AND THE LIKE

William M. Pitts, 3266 E. Scarborough Rd., Cleveland Heights, Ohio 44118, and Don Herron, Willoughby, Ohio, assignors to William M. Pitts, Cleveland, Ohio

Filed Dec. 13, 1979, Ser. No. 103,045
Int. Cl.³ A47C *15/00*; **A62B** *35/00*
U.S. Cl. 297—487 **9 Claims**



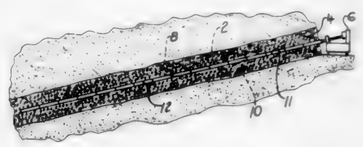
1. In combination with a wheelchair having a back support and laterally-spaced members extending forwardly from said back support and adapted to confine therebetween a patient seated in the chair against movement in a direction laterally of the chair, said members having portions providing arm supports for said patient, clamps removably secured to said members, laterally-spaced side bars supported by said clamps, each of said side bars having a rearwardly extending horizontal portion and a downwardly and forwardly extending portion, a first restraint bar supported by said rearwardly extending portions of said side bars and adapted to confine the upper portion of the patient's body against undue forward movement in said chair, and a second restraint bar substantially parallel with said first restraint bar and supported by said forwardly and downwardly extending portions of said side bars and adapted to confine the legs of said patient against undue forward movement relatively to said chair.

4,280,732

METHOD AND APPARATUS FOR MINING

John C. Haspert, Arcadia, Calif., assignor to United States Pipe and Foundry Company, Birmingham, Ala., a part interest

Filed Jan. 15, 1979, Ser. No. 3,184
Int. Cl.³ E21B *7/28*; **E21C** *41/00*
U.S. Cl. 299—11 **34 Claims**



1. A method for continuously mining a mineral deposit without requiring miners to enter said mineral deposit comprising:

(a) drilling a pilot hole through said mineral deposit;

(b) encasing said pilot hole with a metal casing;

(c) boring out a shaft in said mineral deposit, said shaft having a substantially circular cross section, by means of a rotary mining head with a rotary hollow drive stem, said drive stem having conveyor flights in a helical pattern, said conveyor flights being attached to and protruding from the inside surface of said drive stem, and said rotary mining head being both forced into said mineral deposit and rotated by means of said drive stem;

(d) using said metal casing to guide said rotary mining head in its boring operation;

(e) removing the borings through said hollow drive stem; and

(f) jacking into said shaft means for preventing collapse thereof, said hollow drive stem being rotatably supported within said means for preventing collapse of said shaft by support means mounted on said means for preventing collapse of said shaft.

4,280,733

ASYMMETRIC MINERAL MINING PLOUGH

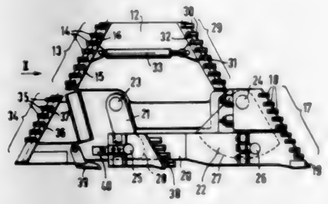
Christoph Rassmann, Lunen; Alois Hauschopp, Werne; Gunter Schwolow, Hattingen, and Horst Huss, Essen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,815

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852241

Int. Cl.³ E21C *27/34*

U.S. Cl. 299—34 **20 Claims**



1. A mineral mining plough for winning material in a material mining working wherein the plough is movable to and fro alongside a conveyor, comprising: a plough body, first cutter means provided on said body for winning material when the plough is moved in a direction opposite to that of said conveyor, said first cutter means having a first predetermined path of travel, second cutter means provided on said body for winning material when the plough is moved in the same direction as said conveyor, said second cutter means having a second predetermined path of travel, and means for vertically moving said second cutter means relative to said body, whereby when said plough is moved in said direction opposite to that of said conveyor, said moving means are operable to vertically move said second cutter means into said first path of travel.

4,280,734

ARRANGEMENT FOR CONTROLLED ENGAGEMENT OF THE TOOLS OF A MINING MACHINE WITH A MINE FACE

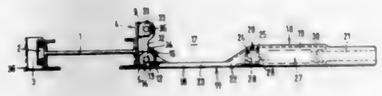
Günter Blumenthal, Westerholt, and Alfred Bollmann, Bochum, both of Fed. Rep. of Germany, assignors to Bochumer Eisenhuette Heintzmann GmbH & Co., Bochum, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,738

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852305

Int. Cl.³ E21C *27/32*

U.S. Cl. 299—34 **12 Claims**



1. An arrangement for controlled engagement of the tools of a mining machine, especially a coal planer, with a mine face, comprising abutment means having a front face directed towards the mine face and a rear face; guide rail means on said front face of said abutment means for guiding a mining machine for reciprocation in substantially horizontal direction along the mine face; and means for tilting said abutment means and said mining machine guided thereon about a substantially horizontal tilting axis, said tilting means being connected to and projecting rearwardly from said rear face of said abutment means and comprising elongated guide linkage means adapted to rest on the floor of the mine gallery and having a rear end section spaced from said rear face, connecting rod means guided in said guide linkage means for movement in longitudinal direction, one of said last-mentioned two means having an upwardly extending front end section pivotally attached in the region of the upper end thereof to said rear face of said abutment means, and the other of said last-mentioned two means having a front end pivotally attached to said rear face, and a tilting unit extending in the direction of said guide linkage means and being embedded and covered by said rear end section of the latter, said tilting unit being pivotally attached to the rear end of said connecting rod means.

4,280,735

NON-ROTARY MINING CUTTER WITH RECESSED NOZZLE INSERT

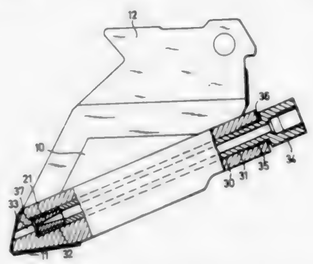
Armin Löbbe, Oberaden, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhütte Westfalia, Fed. Rep. of Germany

Filed Oct. 25, 1978, Ser. No. 954,339

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1977, 2749830

Int. Cl.³ E21C *25/60*

U.S. Cl. 299—81 **14 Claims**



1. In or for a mineral winning machine, a non-rotary tool assembly comprising holding means and a tool detachably mounted to the holding means, the tool being provided with a cutting region and at least one nozzle for discharging a jet of high pressure fluid suitable for detaching mineral from a mineral face, said tool having a body with a detachable nozzle insert therein and wherein the body has a main bore containing the nozzle insert, and said nozzle insert has an outlet mouth communicating with a further bore coaxially with the main bore and leading to an exterior surface of the body.

4,280,736

VEHICLE WHEEL

Charles J. Raudman, 4480 Vechelli La., Redding, Calif. 96001

Filed May 24, 1979, Ser. No. 42,007

Int. Cl.³ B60B *1/08, 5/02*

U.S. Cl. 301—6 CS **4 Claims**

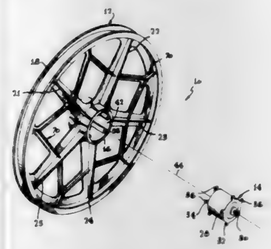
1. A vehicle wheel and hub assembly comprising:

a molded vehicle wheel having a hub with an axially-extending hole for receiving a hub assembly, said hub having a plurality of fastener-receiving tabs angularly spaced about the inside of the hole;

a hub assembly which includes a housing lying in said wheel hole, said housing having a pair of axially opposite ends with each end forming flange means for fastening to said tabs, and with said housing flange means being constructed as a unit which holds together independently of said wheel; and

fastener means for fastening said hub assembly flange means to said tabs;

said molded wheel has a rim and a plurality of spokes extending radially between said hub and rim, each of said spokes being of cruciform cross-section with an axially-extending web (**84**) extending along the center of the spoke as viewed along the axis of the wheel;



said hub includes a largely hollow cylindrical portion having an outer surface connected to said spokes and an inner surface connected to said tabs; and

each of said tabs is located halfway between the radially inner ends of the axially-extending webs of a pair of adjacent spokes, whereby to help absorb shocks transmitted radially along a spoke from the rim.

4,280,737

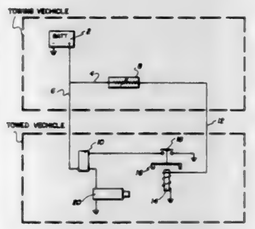
PRESSURE CONTROLLED ELECTRO-HYDRAULIC BRAKE SYSTEM

Larry W. Hipps, 506 Colorado St., Sherman, Tex. 75090

Filed Oct. 26, 1979, Ser. No. 88,349

Int. Cl.³ B60T *13/68*

U.S. Cl. 303—3 **13 Claims**



1. A control system for use in a towed vehicle equipped with hydraulic brakes comprising:

(a) a variable current source for communicating an electric signal from a towing vehicle to said towed vehicle;

(b) hydraulic pumping means communicating with the brake line of said towed vehicle;

(c) an electromagnetic variable valve means for controlling the pressure in the brake line of said towed vehicle in response to the electric signal received from said variable current source, said electromagnetic variable valve means comprising a cap portion, a valve housing portion, and an electromagnetic means which operates to draw said cap portion closer to said valve housing portion as increasing current is applied thereto, said valve housing further comprising pressure monitoring and release means whereby the hydraulic pressure in the brake line of the towed vehicle is employed as a counter force to the electromagnetic force drawing said valve cap towards said valve housing portion of said electromagnetic variable valve means.

4,280,738

TANDEM MASTER CYLINDER

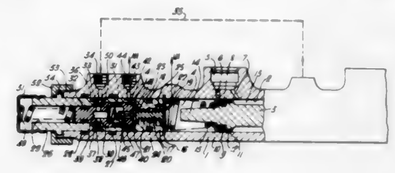
Hans-Henning Lüpertz, Darmstadt, and Peter Riedel, Hattersheim, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed May 16, 1979, Ser. No. 39,612

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830220; Jul. 10, 1978, 2830221; Jul. 10, 1978, 2830222

Int. Cl.³ B60T *8/02, 11/20*

U.S. Cl. 303—6 C **40 Claims**



1. A tandem master cylinder with a regulator for a vehicle hydraulic brake system comprising:

a first pressure piston;

a first pressure chamber bounded by one end of said first pressure piston coupled to a front-axle brake circuit;

a second pressure chamber connected to a regulator input of said regulator, said regulator being disposed adjacent the other boundary of said first pressure chamber and further including a regulator output coupled to a rear-axle brake circuit, at least one stepped piston loaded by a control spring and a regulator valve; and

means associated with said first pressure piston and said regulator valve to mechanically actuate said regulator valve by said first pressure piston to maintain said regulator valve open upon failure of said front-axle brake circuit.

4,280,739

PRESSURE MODULATING VALVES

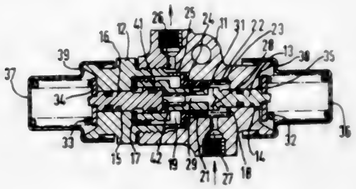
Eric C. Hales, Dorridge, England, assignor to Automotive Products Limited, Warwickshire, England

Filed Jan. 31, 1980, Ser. No. 117,351

Claims priority, application United Kingdom, Feb. 2, 1979, 03801/79

Int. Cl.³ B60T *8/26*

U.S. Cl. 303—6 C **1 Claim**



1. A two stage pressure modulating valve for a vehicle braking system, the modulating valve comprising:

a housing;

a first bore in the housing and having an opening adjacent to one end thereof;

a second bore in the housing and having an opening adjacent to the other end thereof, the axis of said second bore being aligned with the axis of said first bore;

a stepped primary plunger having a small diameter plunger portion sealingly slidable in the first bore;

a secondary plunger sealingly slidable in the second bore and having a lost motion connection with the primary plunger which allows limited axial movement therebetween;

a cavity in the housing between the first bore and the second bore;

sealing means in said cavity slidably engaging a large diameter plunger portion of the primary plunger and dividing the cavity into a first chamber defined between said sealing means and the first bore and a second chamber defined between said sealing means and the second bore;

a primary spring biassing the primary plunger towards the secondary plunger;

a pre-loaded secondary spring biassing the secondary plunger towards the primary plunger;

an inlet port in the housing and communicating with the first chamber;

an outlet port in the housing and communicating with the second chamber;

and valve means for by-passing said sealing means to allow flow from the second chamber to the first chamber when pressure at the outlet port exceeds pressure at the inlet port by a substantial amount and to prevent flow from the first chamber to the second chamber when the force produced by pressure in the first and second chambers acting on the primary plunger overcomes the loading of the primary spring.

4,280,740

SKID PREVENTION METHOD AND AN ANTI-SKID BRAKE DEVICE

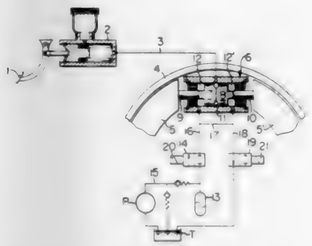
Taiji Ohmori; Yoshikazu Tsuchiya, both of Kawagoe; Makoto Sato, Kamifukuoka; Yoshitaka Miyakawa, Kawagoe, and Etsuo Fujii, Wako, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 4, 1979, Ser. No. 26,991

Claims priority, application Japan, Apr. 6, 1978, 53-40688

Int. Cl.³ B60T *8/00*

U.S. Cl. 303—92 **3 Claims**



1. An anti-skid brake device comprising: brake means for imparting a brake torque to wheels in response to a driver's braking action; a wheel speed detector for detecting the rotational speed of the wheels; a main control system connected to said wheel speed detector and said brake means, for controlling said brake means such that brake torque is decreased when said wheels are being locked, and increased when the possibility of wheel lock is gone; an auxiliary control system connected to said wheel speed detector and said brake means in parallel relation with said main control system for reducing brake torque for a predetermined period, whenever wheel lock continues longer than a predetermined period due to failure of said main control system and being further defined by a time-constant-setting circuit transmitting an output signal to a discharge circuit, said discharge circuit having an output signal applied to a memory circuit means; a wheel-speed-signal setting circuit comprising a division circuit for setting a reference wheel-speed voltage signal; a comparator means for comparing the wheel speed signal with a reference-wheel voltage signal and solenoid coil means and AND gates connected for controlling operation of said solenoid-coil means.

4,280,741

PISTON ROD SUPPORT

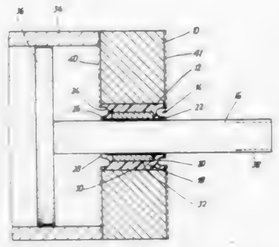
Kurt Stoll, Lenzhalde 72, D-7300 Esslingen, Fed. Rep. of Germany

Filed Aug. 21, 1979, Ser. No. 68,319

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838594

Int. Cl.³ F16C *27/02, 33/72*

U.S. Cl. 308—3.5 **7 Claims**



1. In a piston-cylinder mechanism including a cylinder, a pressure fluid actuated piston movable back and forth in said cylinder, a cylinder head which closes off the cylinder at one end thereof, a piston rod secured on the piston, said piston rod penetrating through a through opening in said cylinder head for carrying out a working movement, a bearing and sealing and stripping sleeve device located in the through opening between its peripheral wall and the piston rod, said sleeve device encircling said piston rod and being axially fixed in said through opening for sealing off the cylinder chamber and for wiping dirt particles off from the piston rod, said sleeve device having at its two ends, respectively, a sealing lip and a sealing and stripping lip each bearing on the piston rod, the improvement comprised in that the sleeve device has two parts, the first part being an elongate inner bearing bushing of a bearing material and the second part being an elongate outer sleeve of elastic material, said elastic outer sleeve being axially longer than the bearing bushing and having a pair of end sections which project axially beyond the bearing bushing and project radially inwardly and respectively form the sealing lip and the sealing and stripping lip, the bearing bushing being positioned axially clearance-free in a radially shallow recess of the elastic outer sleeve between the two lips thereof and being held in a snap fit therebetween, said elongate bearing bushing being of length substantially exceeding its radial thickness and substantially exceeding the axial length of said lips, the axial length of said elastic sleeve substantially exceeding the radial thickness thereof.

4,280,742

WALL CONTACTING TOOL

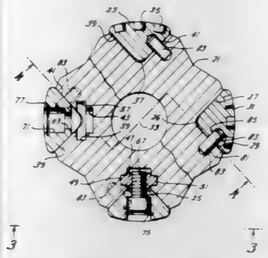
Daniel B. Justman, Houston, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Continuation of Ser. No. 944,639, Sep. 21, 1978, abandoned. This application Mar. 18, 1980, Ser. No. 131,449

Int. Cl.³ F16C *29/02*

U.S. Cl. 308—4 A **7 Claims**

1. Wall contacting tool comprising a body and a wear pad, said body and pad having correlative flute and corner means extending along the body preventing relative motion of pad and body transverse to the length of said means except outwardly from the apex of the corner, screw means extending through the pad into a screw socket carried by the body to prevent relative motion of pad and body outwardly from the apex of the corner, the axis of said screw means bisecting the apex angle of the corner and flute, said apex angle being ninety degrees, releasable retention means preventing relative motion of said screw means and pad along the bisector of said apex angle, and dowel means extending between one side of said flute means and the adjacent side of said corner means, said dowel means preventing relative motion of said pad and body



parallel to the length of said flute and corner means and further preventing relative motion of said pad and body outwardly from the apex of said flute and corner means.

4,280,743

DOUBLE-ROW SPHERICAL ROLLER BEARING

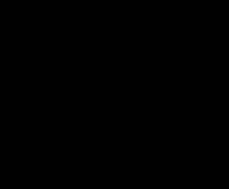
Ingemar Fernlund, Hindas, Sweden, assignor to SKF Industries, Inc., King of Prussia, Pa.

Filed Jan. 30, 1979, Ser. No. 7,671

Claims priority, application Sweden, Feb. 6, 1978, 7801322

Int. Cl.³ F16C *33/50*

U.S. Cl. 308—217 **9 Claims**



1. A double row spherical roller bearing having inner and outer rings (**1**, **2**) with confronting raceways (**1***a*, **2***a*) and a plurality of rollers (**3**) arranged into two rows in the annular space between the raceways, said rollers being symmetrical, a retainer (**5**) having a plurality of pockets for circumferentially spacing the rollers in each row adapted to be centered with respect to the inner raceway (**2***a*) by portions (**6**) which depend from the outer edges of the retainer and contact the inner raceway axially outwardly of the rows of rollers, said retainer comprising two halves (**5***a*, **5***b*) held together by a locating ring (**8**) arranged between the rows of rollers spaced radially from the inner raceway (**2***a*) adapted to contact and urge said retainer halves (**5***a*, **5***b*) in a radial direction.

4,280,744

FOLDABLE DESK

Yutaka Nakano, No. 24-17, Nakamachi 3-chome, Musashino-shi, Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,901

Claims priority, application Japan, Feb. 11, 1978, 53-151139[U]; Jul. 11, 1978, 53-153313[U]; Sep. 6, 1978, 53-122204[U]; Mar. 26, 1979, 54-38868[U]

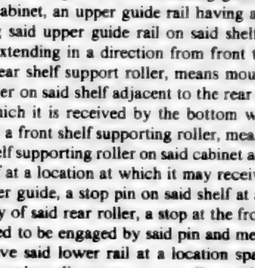
Int. Cl.³ A47B *85/00*

U.S. Cl. 312—240 **14 Claims**

1. A foldable desk comprising:

a support frame comprising a bent pipe having a pair of riser portions erected in parallel relation on a base portion and provided with pivotal support portions in the upper portions of said riser portions;

a top plate comprising a single rectangular plate of a length greater than the height of said pivotal support portions from a floor surface and swingably supported on said pivotal support portions to have a pivotal line across the width and at a position closer to the base end thereof, said pivotal line defining a swinging length of said top plate slightly shorter than the height of said pivotal support portions; and



a leg member having the upper end thereof swingably connected to the underside of said top plate at the outer free end thereof;

said leg member being folded onto the underside of said top plate when the outer free end of said top plate is rotated downwardly about said pivotal line into a vertical folded position.

4,280,745

MERCHANDISING MACHINE SHELF SUPPORTING STRUCTURE

Robert P. Mitchell, Pequannock, N.J., assignor to Rowe International, Inc., Whippany, N.J.

Filed Nov. 1, 1979, Ser. No. 90,502

Int. Cl.³ A47B *88/06, 96/16*

U.S. Cl. 312—323 **14 Claims**

1. In a merchandising machine having a cabinet and a shelf, apparatus for supporting said shelf for movement relative to said cabinet including in combination, a lower guide rail having a bottom wall, means mounting said lower guide rail on said cabinet with the length thereof extending generally fore-and-aft of said cabinet, an upper guide rail having a top wall, means mounting said upper guide rail on said shelf with the length thereof extending in a direction from front to back of said cabinet, a rear shelf support roller, means mounting said rear support roller on said shelf adjacent to the rear thereof at a location at which it is received by the bottom wall of the lower guide rail, a front shelf supporting roller, means mounting said front shelf supporting roller on said cabinet adjacent to the front thereof at a location at which it may receive the top wall of said upper guide, a stop pin on said shelf at a location spaced forwardly of said rear roller, a stop at the front of said lower rail adapted to be engaged by said pin and means forming a recess above said lower rail at a location spaced rearwardly of said front by a distance corresponding to the spacing between said pin and said rear roller, said upper rail top wall being formed with an offset portion at the front of said rail for receiving said front roller as said shelf moves into its home

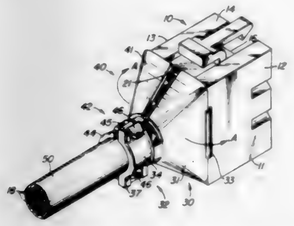
position to ensure that said shelf moves fully into its home position, said upper rail top wall being formed with an upwardly extending ramp engaged by said front roller as said pin approaches said stop, said top wall terminating adjacent to the end of said ramp to permit the front roller to extend above the top wall in the loading position of said shelf.

4,280,746

CONNECTOR ARRANGED TO PERMANENTLY LOCK ONTO A CABLE

Alexander M. Ignatowicz, Rutherford, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 25, 1979, Ser. No. 43,397
Int. Cl.³ H01R *13/58*
U.S. Cl. 339—107 **2 Claims**



1. An electrical connector for terminating in a body of the connector a plurality of electrical conductors formed into a cable having a known diameter and for protecting the terminations by becoming permanently locked onto the terminated cable, comprising:

a pair of arms connected to and extending from opposite sides of the connector body, the arms being connected to the connector body by hinges which urge the arms to remain apart but which permit the arms to be forced together over the termination end of the connector body, each arm including a cover section for enclosing portions of the leads adjacent to the connector body and a first or a second collar section mounted at the end of the cover section;

wherein the first collar section comprises an arcuate member having a diameter no larger than the diameter of the cable, a tab attached to and extending perpendicular to the inner wall of the arcuate member for forcibly contacting and securely clasping the cable and a pair of receiving means, each of the receiving means being located at the ends of the arcuate member; and

the second collar section comprises an arcuate member having a diameter which is smaller than the diameter of the arcuate member of the first collar section, a tab attached to and extending perpendicular to the inner wall of the arcuate member for forcibly contacting and securely clasping the cable and a pair of clasps, each of the clasps being located at an end of and extending perpendicular from the arcuate member and adapted to initially contact and then lock into the receiving means as the two arms are moved into contact with each other,

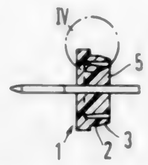
such that when the pair of arms are forced together over the termination end of the connector body to overcome the forces exerted by the hinges attempting to keep the arms apart, the pair of clasps initially contact the pair of receiving means, and as the arms are brought into further contact with the cable the second collar section is forced open, since its arcuate member has a diameter which is smaller than the diameter of the first arcuate member, thereby pushing the pair of clasps away from each other and into permanent locking relationships with the pair of receiving means, the hinges, which exert a force urging the arms to remain apart, further add to the permanent locking relationship, so that the first and second collar sections are permanently locked onto the cable thus enclosing the portions of the leads adjacent to the connector body with the cover sections.

4,280,747

CONNECTION LEAD-IN PLUG

Hans Kinzler, Regensburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 26, 1979, Ser. No. 107,091
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900763
Int. Cl.³ H01B *17/26*; H01R *9/16*
U.S. Cl. 339—126 RS **3 Claims**



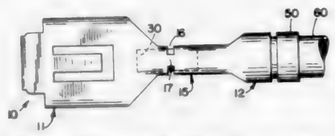
1. An electrical connector lead-in member for insertion into a bore of a housing wall for liquid tight electrical connection between the interior of the housing and electrical conductors exterior of the housing comprising: first and second portions of said member, the first portion having a circular end wall with an outside axial end surface, a projecting peripheral flange projecting axially from said end wall on a side opposite the axial end surface, the flange having an outer peripheral surface, the outer peripheral surface being radially inwardly stepped axially spaced from the end surface and having a cylindrical portion extending axially from the radially innermost portion of the step terminating in an axially extending radially inwardly tapered peripheral surface portion, the tapered portion terminating in an axial end annular surface on an end of the first portion opposite the outside axial end surface, the flange having an inner diameter, said second portion being interior of the inner diameter of the flange of the first portion and extending axially from the end wall towards the annular end surface and having a tapered outer diameter periphery tapering radially inwardly axially from the circular end wall, the first and second portions being attached together at the circular end wall, a central axially extending opening through the second portion and the circular end wall, and an electrical connector being received in the axially extending opening with a periphery of the electrical connector being in sealing contact with walls of the opening, the first and second portions being formed of an elastic material.

4,280,748

FUSIBLE TERMINAL

John R. McHenney, Fort Wayne, and Marlin A. Knowles, Poneto, both of Ind., assignors to International Harvester Company, Chicago, Ill.

Filed Nov. 20, 1979, Ser. No. 96,110
Int. Cl.³ H01R *13/08*
U.S. Cl. 339—147 R **4 Claims**



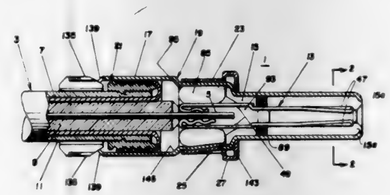
1. A fusible terminal means having a body portion provided with cable insulation crimping means for connecting the body portion to a cable insulation, a head portion provided with terminal connecting means for connecting the head portion to a mating terminal connecting means, a throat portion connecting the head and body portion together and having cable wire crimping means for connecting the throat portion to a bare cable wire, the throat portion further having a fuse bridge means of reduced cross-sectional area, and a rigid insulator bridge support means connected to the throat portion across the fuse bridge means for rigidifying the fuse bridge means and for preventing the separation of the head portion from the body portion in the event of fusing of the fuse bridge means, the rigid insulator bridge support means comprising a cylindrical insulator connected across the reduced cross-sectional area by axial spaced apart insulator grip means on the throat portion.

4,280,749

SOCKET AND PIN CONTACTS FOR COAXIAL CABLE

Valentine J. Hemmer, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 25, 1979, Ser. No. 88,429
Int. Cl.³ H01R *17/06*
U.S. Cl. 339—177 R **12 Claims**



1. An electrical contact for a coaxial cable having a center conductor surrounded by a sleeve of shielding material with insulation between the conductor and the shield and around the shield, said contact comprising:

an outer contact including an electrically conductive tubular shell, said shell including first and second ends;

a center contact having means for gripping and making electrical contact with the center conductor of the coaxial cable;

an insulator supporting said center contact within said outer contact with said center contact accessible from the first one of said tubular shell; and

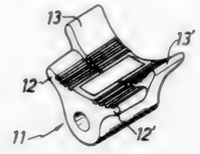
a bushing comprising a tubular body and radially compressible locking means for engaging and disengaging said tubular body within the second end of said tubular shell, said tubular body comprising a first sleeve which constitutes the first end of the tubular body, a second sleeve and a flexible web joining the two sleeves in axial alignment, said locking means being affixed to said second sleeve, said tubular body being first slipped over the end of the coaxial cable with the shielding sleeve of the cable splayed back over the first end of the tubular body and the tubular body then being inserted, said first end first, and locked by the locking means into the second end of the tubular shell with the splayed back shielding sleeve in electrical contact with the interior wall of said tubular shell, said locking means on the second sleeve not engaging the shield of the cable.

4,280,750

BINOCULAR'S FOCUS OR ZOOM ADJUSTING KNOB

Mutsuo Uchiyama, Nihonbashi, Japan, assignor to Hilka International Co., Ltd., Nihonbashi, Japan

Filed Feb. 7, 1979, Ser. No. 10,254
Claims priority, application Japan, Sep. 11, 1978, 53-123607[U]
Int. Cl.³ G02B *7/06*
U.S. Cl. 350—76 **4 Claims**



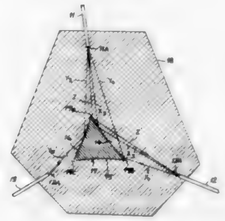
1. In a binocular having a pair of telescopes fixed with arms disposed transversely in relation to a center shaft, a focus or zoom adjusting knob comprising a pair of generally flattened platforms integrally formed with a pair of adjusting members having upwardly projected ends adjacent said flattened platforms so as to be easily contacted by a user's fingertips, said focus or zoom adjusting knob being mounted on said center shaft.

4,280,751

TWO-WAY COUPLER FOR BRANCHED LIGHT-TRANSMISSION NETWORK

Pietro DiVita, Turin, Italy, assignor to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Apr. 24, 1979, Ser. No. 33,009
Claims priority, application Italy, Apr. 26, 1978, 67932 A/78
Int. Cl.³ G02B *5/14*
U.S. Cl. 350—96.15 **10 Claims**



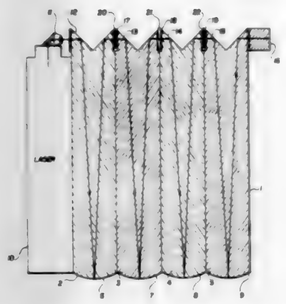
1. In a branched light-transmission network including four light guides with end faces confronting a common region, each of said light guides having an axis intersecting the axes of the other light guides, the combination therewith of a central body in said region spaced from said end faces and provided with six outer reflecting surfaces each terminating near the axes of an associated pair of said light guides, each of said surfaces being part of a respective optical focusing system with two conjugate points respectively coinciding with the centers of the end faces of the associated pair of light guides whereby light rays originating at one of said centers are reflected toward the other of said centers, each of said light guides having ray paths extending from the center of its end face to three of said reflecting surfaces whereby light rays from any one of said light guides can be directed to every other of said light guides without passing through said body.

4,280,752

SOLID-MEDIUM COHERENT OPTICAL PROCESSOR

James S. Shreve, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 9, 1979, Ser. No. 19,031
Int. Cl.[3] G02B 5/18
U.S. Cl. 350—162 SF 2 Claims



1. A unitary coherent optical processor device made of a monolithic transparent medium comprising a solid mass of transparent material having one of its surfaces formed as a plurality of contiguous curved sub-surfaces, each curved sub-surface having a reflective coating disposed thereon whereby such sub-surfaces comprise concave mirror means for reflecting light beams travelling inside of said solid mass,

said mass having the opposed surface thereof formed as a plurality of contiguous V-shaped sub-surfaces, each of said curved and V-shaped sub-surfaces comprising reflecting means for constraining light beams to travel alternately between said respective V-shaped and curved sub-surfaces substantially entirely within the interior of said monolithic solid mass,

said mass of material having a laser integral therewith, said laser being arranged to direct a light beam at its output end into an end-most one of said V-shaped sub-surfaces,

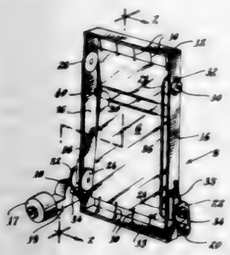
wherein there is an air gap between at least one contiguous pair of said plurality of contiguous V-shaped sub-surfaces, and at least one of said air gaps has a plate or mask disposed therein, said plate or mask having the property of changing the amplitude and/or phase of a light beam traveling therethrough.

4,280,753

FLEXIBLE MIRROR ASSEMBLY

Frank W. Neubauer, 867 6th Ave., New York, N.Y. 10001

Continuation-in-part of Ser. No. 48,056, Jun. 13, 1979, abandoned. This application Jan. 21, 1980, Ser. No. 113,951
Int. Cl.[3] G02B 5/10
U.S. Cl. 350—295 14 Claims



1. A mirror assembly, comprising:

a sheet of flexible material having surface areas adapted to reflect light;

a rigid frame adapted to support said sheet of flexible material;

means shiftably mounted for flexing said sheet along a path extending between one pair of opposite edges of said sheet; and

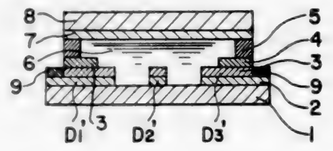
means operably coupled with said flexing means for driving said last named means to traverse said sheet whereby to cause said sheet to undulate.

4,280,754

ELECTROCHROMIC DISPLAY DEVICE AND METHOD OF MANUFACTURE

Kozo Yano, Tenri; Yasuhiko Inami, Nishinomiya; Hiroshi Hamada, Tenri, and Hisashi Uede, Wakayama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 727,448, Sep. 28, 1976, Pat. No. 4,123,841. This application Jul. 12, 1978, Ser. No. 924,060
Claims priority, application Japan, Aug. 2>, 1975, 50-118104
Int. Cl.[3] G02F 1/17
U.S. Cl. 350—357 10 Claims



1. An electro-optical display device comprising:

a pair of conductive electrodes between which an electric field is to be established;

said pair of conductive electrodes being formed, respectively, on a first and a second substrate, at least one of said substrates being transparent;

a layer of electrochromic material disposed in contact with one of said electrodes;

said one electrode and said electrochromic material layer being segmented to form segmented areas, said segmented areas including a required segmented display pattern, the segmented display pattern areas being in contact with said electrolyte;

the edge portions of said one electrode and said electrochromic material layer which are in contact with said electrolyte being in accurate alignment; and

an insulating material layer being disposed on and in registry with those portions of said segmented areas exclusive of said segmented display pattern to define the outermost boundaries of said segmented display pattern.

4,280,755

GRAPHIC SYMBOL SELECTION AND RECORDING APPARATUS

Joseph T. McNaney, 8548 Boulder Dr., La Mesa, Calif. 92041

Filed Feb. 21, 1979, Ser. No. 13,799
The portion of the term of this patent subsequent to Mar. 13, 1996, has been disclaimed.
Int. Cl.[3] G02F 1/33
U.S. Cl. 350—358 4 Claims

1. In a graphic symbol selection and recording apparatus:

(a) a laser source of light;

(b) font plate means for providing an array of graphic symbols and means for exposing graphic symbols of said array, selectively, to light from said laser source for providing any one of a plurality of individual graphic symbol shaped sources of light;

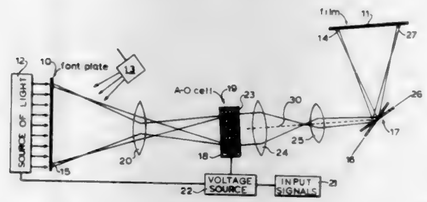
(c) a graphic symbol display medium;

(d) said array of graphic symbols and said display medium

positioned, respectively, at first and second ends of graphic symbol shaped light beam optical paths of said apparatus;

(e) optical means positioned along an optical axis of said apparatus intermediate said array of graphic symbols and said display medium for projecting an image of a graphic symbol selectively exposed to light from said laser source toward a predetermined graphic symbol display position at said display medium, said display position representative of a reference position at said display medium;

(f) acousto-optic light deflector means including an interaction medium and acoustic wave generator means for establishing any of a number of different acoustic wave light deflecting conditions within said medium thereof, said interaction medium positioned intermediate said array of graphic symbols and said optical means positioned along said optical axis;



(g) means for exposing a predetermined one of said graphic symbols of said array to light from said laser source and establishing, simultaneously, a predetermined one of said light deflecting conditions within said interaction medium for allowing said display medium to be exposed to a light image of said predetermined one of said graphic symbols through said optical means and coincident with said reference position at said display medium;

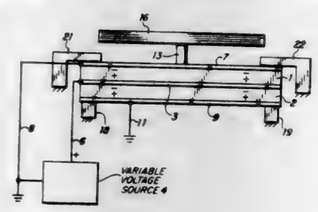
(h) means for exposing another predetermined one of said graphic symbols of said array to light from said laser source and establishing, simultaneously, another predetermined one of said light deflecting conditions within said interaction medium for allowing said display medium to be exposed to a light image of said other predetermined one of said graphic symbols through said optical means and coincident with said reference position at said display medium.

4,280,756

PIEZOELECTRIC BI-MORPH MIRROR ACTUATOR

Nedo P. Albertinetti, Canton, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Jan. 2, 1979, Ser. No. 217
Int. Cl.[3] G02F 1/29
U.S. Cl. 350—360 9 Claims



1. A piezoelectric wavefront modulator actuator comprising:

a. a first layer of a piezoelectric medium (1) internally polarized in a given direction and having a first and second surface;

b. a second layer of a piezoelectric medium (2) mechanically coupled to said first layer and having a first and second surface, also internally polarized in said given direction;

c. a plurality of electrodes (3, 7, 9);

d. a mirror (16);

e. a driver (13) coupled between a centralized portion of said first layer and said mirror;

f. a variable voltage control source (4);

g. a support (18, 19);

h. means (21, 22) for clamping opposite non-centralized portions of said first and second layers to said support; and

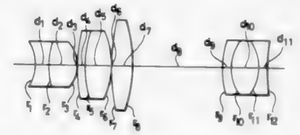
i. means (6, 8, 11) for electrically coupling said variable voltage control source to said a plurality of electodes for increasing the internal electric field in one layer while decreasing the internal electric field in the other layer for changing the degree of bending of said actuator, thereby to control the degree of displacement of said mirror.

4,280,757

OBJECTIVE LENS SYSTEM FOR MICROSCOPES

Tsutomu Tojo, Nagano, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 11, 1979, Ser. No. 102,347
Claims priority, application Japan, Dec. 13, 1978, 53-153036
Int. Cl.[3] G02B 9/34, 21/02
U.S. Cl. 350—414 8 Claims



1. An objective lens system for microscopes comprising a front lens group consisting of a first positive cemented doublet component, a second lens component having positive refractive power and a third lens component having positive refractive power, and a rear lens group consisting only of a negative three-element cemented lens component, and said lens system satisfying the following conditions:

(1) $0.55<r_3/r_1<1.04$
(2) $80<\{(\nu_2-\nu_1)+(\nu_p-\nu_n)\}<130$
(3) $-0.05<f_1/f_2<0$
(4) $0.1<|(N-1)f/R|<0.4$

wherein the reference symbols r_1 and r_3 represent radii of curvature on the object side surface and image side surface respectively of the first lens component, the reference symbol R designates radius of curvature on the image side surface of the positive single-element lens component arranged in said front lens group, the reference symbol N denotes refractive index of the positive single-element lens component arranged in said front lens group, the reference symbols ν_1 and ν_2 represent Abbe's numbers of both the elements respectively of said first lens component, the reference symbols ν_p and ν_n designate Abbe's numbers of the positive and negative elements respectively of the cemented doublet component arranged in addition to said first lens component in said front lens group, the reference symbols f_1 and f_2 denote focal lengths of said front lens group and said rear lens group respectively, and the reference symbol f represents focal length of the objective lens system as a whole.

4,280,758

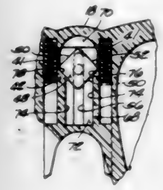
VERTICALLY ADJUSTABLE BIFOCAL EYE GLASSES

Tom R. Flader, Rte. 2, 4116 Meiklejohn Rd., Fond du Lac, Wis. 54935, and Don A. Ellis, New Berlin, Wis., assignors to Tom R. Flader, Fond du Lac, Wis.

Continuation-in-part of Ser. No. 956,914, Nov. 2, 1978, abandoned. This application Aug. 30, 1979, Ser. No. 71,060

Int. Cl.³ G02C *7/06, 1/00, 5/12, 5/04*

U.S. Cl. 351—55 **13 Claims**



1. An eyeglasses frame including

a pair of rims, each adapted to carry a bifocal lens;

a bridge interconnecting said rims;

a nose piece adapted to rest on a wearer's nose;

a push-push mechanism carried by said bridge and operably connected to said nose piece, said mechanism being operable to afford reciprocative vertical movement of said frame relative to said nose piece between a normal position and a raised position and to releasably hold said frame in the position to which it is moved in response solely to the application of a momentary downward force on said frame with said nose piece resting on the wearer's nose.

4,280,759

PERMEABLE WETTABLE CONTACT LENS

Charles W. Neefe, P.O. Box 429, Big Spring, Tex. 79720

Filed Apr. 14, 1980, Ser. No. 139,849

Int. Cl.³ G02C *7/04*

U.S. Cl. 351—160 R **2 Claims**



1. An oxygen permeable contact lens, having a wettable surface concave-convex in form of an optically clear permeable copolymer, made by the steps of adding 100 parts by volume monomeric methylmethacrylate to 2 to 150 parts by volume of a syrup composed of polymerized reactive organosilane, allowing the mixture to further polymerize to form a clear solid from which a contact lens having increased oxygen permeability and improved surface wetting is made by methods well known to the art.

4,280,760

FLASH CAMERA

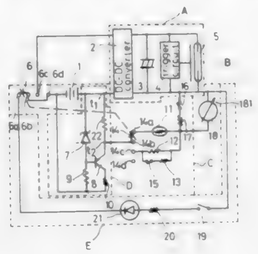
Hiroshi Iwata, Nara; Tetsuo Yamaoka, and Hajime Mitsui, both of Osaka, all of Japan, assignors to West Electric Company, Ltd., Osaka, Japan

Filed Sep. 26, 1979, Ser. No. 79,174

Claims priority, application Japan, Sep. 29, 1978, 53-120821

Int. Cl.³ G03B *7/24, 7/26, 15/05*

U.S. Cl. 354—21 **10 Claims**



1. A flash camera comprising

a strobe apparatus with a battery power source,

an aperture control means for controlling an aperture by deflection angles of a pointer of an indicator,

a first change-over switch for controlling a power supply from said power source to said aperture control means,

a voltage generating circuit for generating a driving voltage of said aperture control means,

first series elements connected across said indicator and comprising a first resistor and a first switch for controlling turn-on and off operation of said first resistor in accordance with a degree of sensitivity of a film,

parallel elements comprising a second resistor, a photoconductive device for detecting an object intensity, and second series elements comprising a third resistor and a second switch being controlled in accordance with a setting of an object distance, and

a second change-over switch interlocked with said first change-over switch, said second change-over switch being for connecting said indicator to said photoconductive device and said parallel elements, and being for supplying a voltage of said voltage generating circuit to said indicator.

4,280,761

ELECTROMAGNETIC SHUTTER DRIVING CIRCUIT

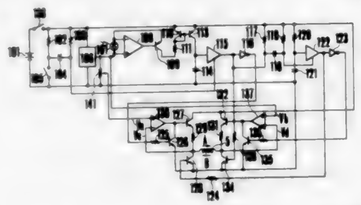
Yukio Ogawa, Kawasaki; Ryoichi Suzuki, Yokohama; Takao Kinoshita, Tokyo, and Takashi Uchiyama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,116

Claims priority, application Japan, Jun. 16, 1978, 53-73040

Int. Cl.³ G03B *7/097;* **H01H** *47/00*

U.S. Cl. 354—29 **5 Claims**



2. A circuit for electromagnetically driving the shutter blades of a shutter for an exposure, comprising:

an electromagnetic driving device including a coil;

a control circuit for supplying a current to the coil;

light measuring means for measuring the brightness of an object and for producing a signal corresponding to the measured light value;

inverting means for inverting the polarity of the current to be supplied to the coil in accordance with the output of the light measuring means;

constant means for maintaining a constant electric value;

detecting means for detecting an electric value at the coil; and

comparison means for comparing the output of the constant means with that of the detecting means;

said comparison means being coupled to the control circuit for controlling the electric value to be supplied to the coil and keeping the electric value constant.

4,280,762

CAMERA HAVING AN INDEPENDENTLY FOCUSED RETRACTABLE OBJECTIVE LENS

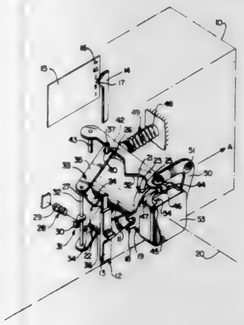
Claus Prochnow, Brunswick, Fed. Rep. of Germany, assignor to Rollei-Werke Franke & Heidecke GmbH & Co., Brunswick, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,358

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856196

Int. Cl.³ G03B *3/00, 17/04*

U.S. Cl. 354—187 **3 Claims**



1. A camera including a camera housing and an objective lens having an image axis:

means for manually setting the focal range of said camera;

means for mounting said objective lens for movement substantially parallel to said image axis, between an extended exposure position and retracted storage position;

means for variably limiting axial movement of said mounting means in said extended position;

means, responsive to said range setting means, for varying said limiting means; and

means for releasably locking said mounting means in said storage position, said locking means comprising at least one locking lever pivotally mounted at one end with an arresting pawl on the other end and a plunger pin mounted on said mounting means such that in said storage position said pawl releasably engages said plunger pin preventing extention of said mounting means, said locking means further including means for releasing said plunger pin from engagement with said pawl, said releasing means comprising a release element internal to said camera housing, and connected to said locking means; and a manually actuated knob, external to said housing, for operating said release lever removing said locking means pawl from engagement with said plunger pin,

said camera further comprising an objective lens cover, pivotally mounted on said mounting means for movement between an open position and a closed position, said cover including an arresting projection, wherein said locking means comprises two locking levers disposed in diametrically opposing positions with respect to said mounting means, said one end of each of said levers pivotally mounted on a common pivoting axle and said arresting pawl of one of said locking levers releasably engages said plunger pin and said arresting pawl of the other of said locking levers releasably engages said arresting projection only when said cover is in said closed position and said mounting means is in said storage position.

4,280,763

SEQUENTIAL CONTROL CIRCUIT MEANS

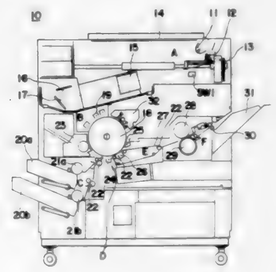
Kenichi Arai, Nakano; Kenji Shibazaki, Aichi; Tsuneo Kitagawa, Toyohashi; Tomoji Murata, Toyokawa, and Kenzo Nagata, Okazaki, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

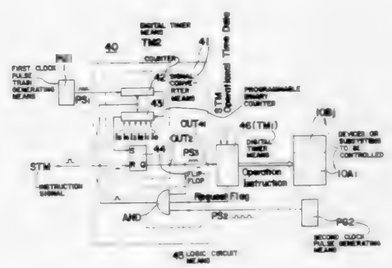
Filed Apr. 20, 1979, Ser. No. 32,104

Claims priority, application Japan, Apr. 24, 1978, 53-49540

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—14 R **4 Claims**





1. A mechanical apparatus including a plurality of devices, and a sequential control means which is adapted to control with a timer means the actuating timing with respect to at least one of an operational mode and a stop mode of at least one of said plurality of devices, said sequential control means comprising:

(a) a first pulse generator for generating a first train of clock pulses;

(b) first counting means operatively connected to said first pulse generator for counting the number of pulses of said first train of clock pulses, said first counting means being adapted to be timed up upon the completion of the counting of a predetermined number of said pulses of said first train of clock pulses, the time period t_0, necessary to count said predetermined number of pulses of said first train of clock pulses, being predetermined;

(c) a second pulse generator for generating a second train of clock pulses in response to an operation of means for driving said mechanical apparatus, with respective pulse time intervals of said second train of clock pulses being

correspondingly variable in accordance with a variation of the driving rate of said driving means, the minimum value t of a pulse interval of said second train of clock pulses being longer than said time period to;

(d) second counting means operatively connected to said first counting means and adapted to count each time said first counting means performs said counting of said predetermined number of pulses of said first train of clock pulses, said second counting means used as a counter of said timer means and outputting a control signal upon completion of the counting of a specific number, said specific number being predetermined in accordance with said actuating timing with respect to at least one of said operational mode and said stop mode of said at least one device to be controlled; and

(e) actuating means to enable said first counting means to start counting in accordance with the detection of the first pulse generated by said second pulse generator, after said first counting means has been timed-up;

whereby the timing of the generation of said control signal of said second counting means is correspondingly varied in accordance with said respective pulse time intervals of said second train of clock pulses, such that the operation of said at least one of said plurality of said devices is controlled in accordance with said variation of said driving rate of said driving means.

4,280,764

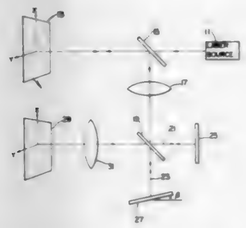
PHASE-CONJUGATE INTERFEROMETER

Louis Sica, Jr., Alexandria, Va., and Hwaling H. Szu, Potomac, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 21, 1980, Ser. No. 123,339

Int. Cl.³ G01L 1/24; G01B 9/02, 11/16

U.S. Cl. 356—35.5 **8 Claims**



1. An interferometer device comprising:

a beam splitter for dividing an input beam of coherent monochromatic light into an object beam and a reference beam after the input beam has been reflected from a surface under investigation;

a phase-conjugate mirror spaced from the beam splitter for reflecting the reference beam back to the beam splitter with a reversal in phase;

a mirror spaced from the beam splitter and tiltable at an angle with respect to a plane normal to the object beam for reflecting the object beam back to the beam splitter to recombine with the reflected reference beam; and

means for imaging the interference pattern produced by the recombined beams.

4,280,765

OPTICAL FIBER TRANSFER FUNCTION MEASURING SYSTEM

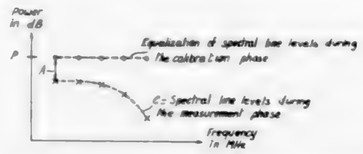
Lucien J. P. Pophillat, Croix Rolland Rospez; Jean J. Moalic, 40, Avenue d'Alsace, both of Lannion, France 22300, and Yvon J. Sorel, Kernu Louannec, Perros Guirec, France 22700

Filed Feb. 27, 1980, Ser. No. 125,088

Claims priority, application France, Mar. 2, 1979, 79 05543

Int. Cl.³ G01N 21/84

U.S. Cl. 356—73.1 **18 Claims**



1. A transfer function measuring system for measuring the transfer function of an optical fiber, said system comprising:

means for producing a first electrical composite signal having a discrete disribution of predetermined component frequencies;

laser emission means for converting said first electrical signal into a modulated light signal which is adapted to be transmitted through said optical fiber into the uniformly excitation condition of the mode coupling;

optical detection means for converting the light signal outputting from said optical fiber into a second electrical composite signal;

means for analyzing the spectrum of said second electrical signal to display said transfer function of said optical fiber by measurement of the power of said second electrical as a function of said predetermined discrete frequency distribution; and

means included in said first electrical signal producing means for adjusting the amplitude of said first electrical signal to equalize the levels of the displayed spectral lines at said predetermined frequencies during a calibration phase for which said laser emission means transmits directly said modulated light signal to said optical detection means.

4,280,766

OPTICAL GYROSCOPE SYSTEM

Willis C. Goss, Altadena, and Raymond Goldstein, Monrovia, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Continuation-in-part of Ser. No. 853,349, Nov. 21, 1977. This application Dec. 22, 1978, Ser. No. 972,252

Int. Cl.³ G01C 19/64

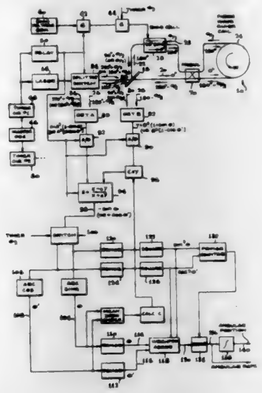
U.S. Cl. 356—350 **7 Claims**

1. In an interferometer gyroscope which includes means defining a wave path that includes a portion extending in a loop, means for directing electromagnetic waves in opposite directions along said wave path, and means responsive to the phase difference of the waves passing in opposite directions along said wave path for indicating rotation of the loop, the improvement comprising:

phase shift means disposed along said wave path and controllable to shift the relative phase of the waves travelling in opposite directions by an odd multiple of 90° at zero rotation of the loop; and

mode control means for controlling said phase shift means so that it alternately operates in a first mode wherein it shifts the relative phase of waves directed to travel in opposite

directions at substantially the same time through said loop, and then in a second mode wherein it does not shift the



relative phase of waves travelling in opposite directions at substantially the same time through said loop.

4,280,767

PRINTING APPARATUS

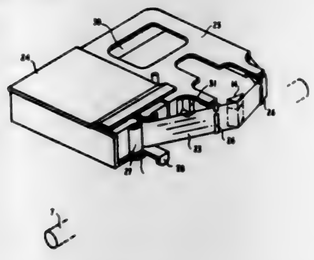
John S. Heath, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 11, 1979, Ser. No. 47,456

Claims priority, application United Kingdom, Feb. 9, 1978, 35407/78

Int. Cl.³ B41J 35/14, 35/18

U.S. Cl. 400—216.2 **5 Claims**



1. Printing apparatus comprising a platen for supporting and feeding a print receiving document,

an impact printing head mounted on a carrier for longitudinal movement along said platen to define a print row,

a print ribbon feed assembly supported on said carrier adapted to support and feed a longitudinally striped multicolour ribbon between said printing head and said platen,

the ribbon feed assembly being pivotally mounted on said carrier so as to be movable from a first tilt position into a plurality of predetermined other higher tilt positions all of which interposes a different colour stripe of said ribbon between the print element of the print head and the platen,

a detent mechanism movable with said carrier and operable for supporting the ribbon feed assembly in any selected tilt position,

a cam follower carried by said feed assembly,

a fixed cam surface located at a first position along said print row beyond the point where printing is required so as to be engaged by said cam follower during movement of the print head along the print row beyond the point where printing is required,

said cam surface and said cam follower coacting at said first position during movement of said carrier to lift said assembly through said plurality of tilt positions,

a detent trip mechanism located at a second position along said print row beyond the point where printing is required in advance of said cam surface to contact and unlatch said detent mechanism during movement of said head to said second position for releasing said ribbon feed assembly for lowering from any of said higher tilt positions to said first tilt position,

and control means for controlling movement of said carrier along said print row to enable printing operations to be performed in any selected colour along said print row where printing is required,

said control means being operable for moving said carrier selectively to said first or second positions to select a tilt position of said ribbon feed assembly to enable subsequent printing to be performed in any selected colour.

4,280,768

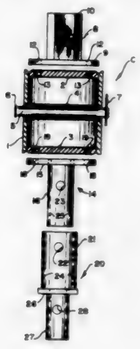
ANCHOR DRIVE COUPLER

James I. Pardue, Jr., Birmingham; William M. Hornsby, Hueytown, and Henry J. Noble, III, Birmingham, all of Ala., assignors to Dixie Electrical Manufacturing Company, Memphis, Tenn.

Filed Dec. 20, 1979, Ser. No. 105,593

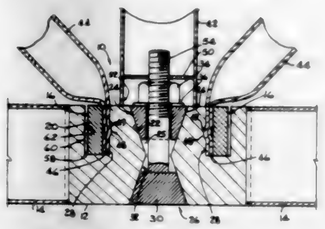
Int. Cl.³ F16D 1/00

U.S. Cl. 403—3 **5 Claims**



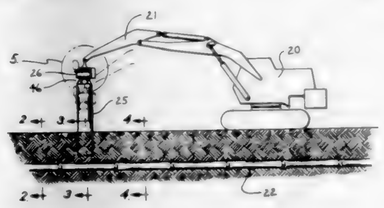
1. In an anchor drive coupler for use in connecting a drive means with an earth anchor in preparation for and use in embedding the anchor into the ground, comprising, a length of sleeve means, said sleeve means having upper and lower closure plates, fastener means provided upon the upper closure plate for attachment with the drive means, an upper adapter, said adapter incorporating a length of shaft having a plate integral of its lower end, and said adapter and its plate means secured by said fasteners to the upper closure plate of the coupler, means connectible with the lower closure means for fastening the coupler with the earth anchor, said means connectible with the lower closure plate including a lower adapter, said adapter incorporating a length of tubing having a plate integrally secured with its upper end, said adapter and its plate being secured by fasteners to the lower closure plate of the coupler, an anchor drive section, said section designed for fitting onto the lower adapter tubing, said section also designed for connecting with the earth anchor, there being aligned apertures provided through said anchor drive section and the tubing of the lower adapter, and a pin insertable through said apertures for interlocking said components together.

4,280,769
JOINT AND FRAMEWORK
Jerzy W. Ceglowski, Durban North, South Africa, assignor to Universal Framework Coupling (Proprietary) Limited, South Africa
Filed May 23, 1979, Ser. No. 41,740
Claims priority, application South Africa, May 24, 1978, 78/2992
Int. Cl.³ F16B 7/04
U.S. Cl. 403—218 16 Claims



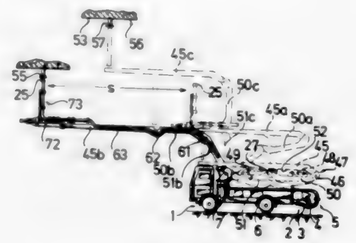
1. A coupling for coupling together a plurality of members, the coupling including
a plurality of coupling elements, each coupling element being securable to a different one of the members and each coupling element having at least one groove therein, with a wall of the groove defining an engagement shoulder, the coupling elements further being configured and arranged adjacent one another in an annular manner to define a central space having a polar axis;
a locking ring received in the grooves with its polar axis parallel to the polar axis of the central space and engaged with the engagement shoulder of each element; and
a biassing means located in the central space engaging the elements and biassing the shoulders of the elements into locking engagement with the locking ring.

4,280,770
APPARATUS FOR COMPACTING SOIL
Roy J. Woodruff, P.O. Box 10127, Bradenton, Fla. 33507
Filed May 25, 1979, Ser. No. 42,438
Int. Cl.³ E01C 19/38
U.S. Cl. 404—133 7 Claims



1. A compactor comprising an elongated rigid tubular member open at its lower end, a power driven vibrator having a rigid housing with laterally spaced vertical flanges, a bottom plate, and eccentric weight means rotatable in said housing and positioned between said flanges, a transverse rigid beam having spaced channel members each receiving one of said vertical flanges, rubber damping members each anchored in a channel and to the received flange, a rigid member projecting upwardly from said tubular member and releasably secured to the bottom plate of said vibrator housing, and means carried by said beam substantially equally spaced from and between said flanges for releasably connecting said beam to a supporting vehicle.

4,280,771
APPARATUS FOR DISTRIBUTING CONCRETE, ESPECIALLY IN THE SHUTTERING OF GALLERY LININGS IN MINE AND TUNNEL WORKINGS
Friedrich W. Schwing, Herne, and Karl-Ernst von Eckardstein, Kamen, both of Fed. Rep. of Germany, assignors to Friedrich Wilh. Schwing GmbH, Fed. Rep. of Germany
Filed Nov. 13, 1978, Ser. No. 960,176
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1977, 2752605
Int. Cl.³ E21D 11/10
U.S. Cl. 405—150 7 Claims



1. A concrete distribution device for use in the shuttering of gallery linings in mines and tunnels, said device mounted on a transportation platform and having an articulated conduit for conveying concrete, said device comprising:
a column vertically mounted onto the transportation platform, said column having a central axis;
a main boom mounted adjacent to said column, said main boom having a first mast section and a second mast section mounted adjacent to said first mast section, second first mast section furter being mounted adjacent to said column;
means for rotatably connecting said main boom to said column such that said main boom is rotatable about said central axis of said column;
first means for pivotably connecting said first mast section to said second mast section;
a swivel extension member mounted adjacent to said second mast section of said main boom;
second means for pivotably connecting said swivel extension member to said mast section of said main boom;
means for folding said main boom relative to said swivel extension member and to said column such that when said main boom is in a folded position, said first pivotably connecting means is disposed between said swivel extension member and the platform; and
means for extending said first and second mast sections of said main boom in a confined area from said folded position to an extended position such that said swivel member is extended vertically and horizontally relative to said column.

4,280,772
LEADLESS METHOD AND APPARATUS FOR DRIVING PILES
Fredric Ruesche, 30303 Beck Rd., Wixom, Mich. 48096
Filed Mar. 14, 1979, Ser. No. 20,530
Int. Cl.³ E02D 7/06
U.S. Cl. 405—232 9 Claims

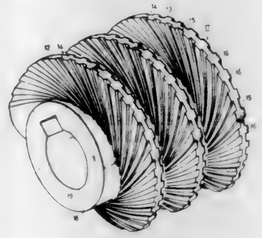
1. A leadless method for driving a pile, comprising:
suspending the pile from a crane boom in vertical position with the lower end of the pile disposed on the location into which the pile is to be driven;
supporting the suspended pile against tipping and lateral movement by engaging the same at a location above the lower end thereof in a guide on the crane;

suspending over the upper end of the pile a wild hammer having a guide including a socket,
engaging the socket over the upper end of the pile; and
driving the pile downwardly by blows applied by the wild



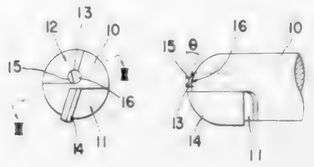
hammer to the upper end thereof while the pile is supported by the guide on the crane and while the upper end thereof is engaged in said socket, characterized by the absence of leads for supporting the pile or a pile-supporting member or the wild hammer guide.

4,280,773
SHAVING CUTTER AND METHOD OF PRODUCING THE SAME
Masato Aisoura, 1253 Eguchi, Kita-Shigeyasu-cho, Miyaki-gun, Saga-ken, Japan
Filed May 15, 1979, Ser. No. 39,237
Claims priority, application Japan, May 31, 1978, 53-65360; Mar. 20, 1979, 54-32469
Int. Cl.³ B26D 1/12
U.S. Cl. 407—27 3 Claims



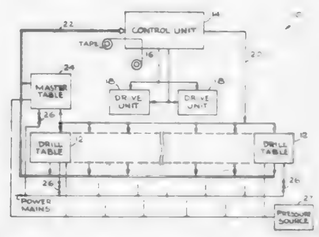
1. A shaving cutter for finishing gear teeth including a shaft, a helical thread integrally formed at a constant pitch on an outer periphery of the shaft, said thread extending radially outwardly from the shaft, and a plurality of cutting portions provided on at least one of two flanks of said thread to cut said gear teeth, comprising: a plurality of cutting grooves formed on said thread with a predetermined depth from the outer surface of the flank of the thread, said cutting grooves extending from an inner end adjacent to the shaft to an outer end radially outwardly away from the shaft, said cutting grooves being respectively inclined against lines extending radially outwardly from the shaft at angles between 15° and 90° toward rotational direction of the shaft; a plurality of lands, each land defined between two adjacent cutting grooves; and cutting edges formed at front margins of said lands, said cutting edges having logarithic curve configurations to allow for continuous abutting against the gear teeth to be cut at a predetermined constant angle so that when the shaft is rotated for cutting, fluctuation due to change of cutting resistance is eliminated.

4,280,774
BALL END MILL
Takatsuru Hayama, Suita, Japan, assignor to Kabushikigaisha Nippon Kogu Seisakusho, Osaka, Japan
Filed Oct. 1, 1979, Ser. No. 81,084
Claims priority, application Japan, Nov. 13, 1978, 53-140213
Int. Cl.³ B26D 1/12
U.S. Cl. 407—36 9 Claims



1. A ball end mill comprising:
a mill body having a longitudinal axis and an end surface, said mill body being rotatable about said axis;
center cutting means mounted on said mill body for cutting a central part of a cutting area of said ball end mill upon rotation of said mill body about said axis, said center cutting means comprising at least one elongated bar embedded in said mill body and extending generally longitudinally thereof, said bar having a circular or oval cross-section and having a free end extending outwardly from said end surface of said mill body, said free end of said bar having a planar surface formed along a plane extending at an angle other than a right angle to the longitudinal axis of said bar, thereby forming a curved cutting edge, said bar being positioned such that a part of the periphery of said cutting edge is positioned at said longitudinal axis of said mill body;
peripheral cutting means mounted on said mill body for cutting a peripheral part of said cutting area of said ball end mill upon rotation of said mill body about said longitudinal axis thereof, said peripheral cutting means including at least one member separate from said bar and having a peripheral cutting edge extending outwardly from the vicinity of said longitudinal axis of said mill body along said end surface of said mill body, such that said peripheral part of said cutting area cut by said peripheral cutting edge overlaps the periphery of said central part of said cutting area cut by said curved cutting edge.

4,280,775
HOLE DRILLING MACHINE AND WORK POSITIONING SYSTEM
Ross C. Wood, 633 California St., El Segundo, Calif. 90245
Filed Jun. 20, 1978, Ser. No. 917,298
Int. Cl.³ B23B 39/08
U.S. Cl. 408—3 45 Claims



1. A hole drilling machine comprising:
a plurality of work stations, each including a work table, a work carrier, and a tool for performing a work operation;

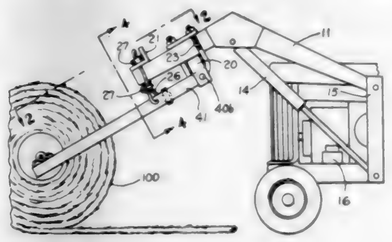
a common drive frame;
means rigidly coupling the respective work carriers to the common drive frame for moving the respective carriers in any direction along their associated work tables while permitting movement of the carriers toward and away from their associated work tables;
means for precisely controlling the movement and position of the drive frame; and
means for supporting the carriers adjacent their associated work tables without frictional contact therewith.

4,280,776
APPARATUS FOR INSTALLATION OF A DOOR LOCKSET
Peter C. Chaconas, Silver Spring, and Richard A. Schafebook, Lutherville, both of Md., assignors to Black & Decker Inc., Newark, Del.
Filed Mar. 7, 1979, Ser. No. 18,383
Int. Cl.³ B23B 49/00
U.S. Cl. 408—72 R **11 Claims**



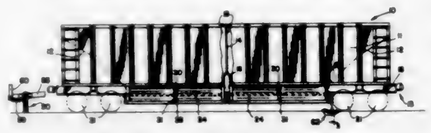
1. A guide for installing a lockset in a door having an edge comprising:
(a) a body having a flat face lying in a plane,
(b) a pair of recesses formed in the body,
(c) one of the recesses located in the flat face, having a width normally greater than the thickness of the door edge, and having a flat base and at least one side,
(d) the flat base being substantially parallel to the flat face,
(e) the other recess having a sloped base formed at a predetermined angle with respect to the flat face,
(f) an aperture extending longitudinally through the body to define a pilot hole guide, and
(g) the aperture formed perpendicular to the flat face.

4,280,777
BALED HAY HANDLING APPARATUS
Thomas C. Gray, P.O. Box 67, Rte. 3, Iva, S.C. 29655
Filed Jan. 24, 1980, Ser. No. 115,089
Int. Cl.³ B66F 9/18
U.S. Cl. 414—24.6 **2 Claims**



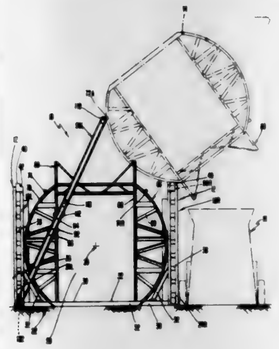
1. An apparatus for use on a conventional hydraulically operated front end loader carried on a conventional tractor, said front end loader including a pair of horizontally spaced boom arms, said apparatus comprising:
a first horizontally oriented frame element;
means for removably securing said first frame element to said spaced boom arms;
a second horizontally oriented frame element;
means for removably securing said second frame element to said spaced boom arms forward of said first frame element;
a pair of elongated bale clamping arms;
slotted joint means for pivotally connecting first ends of said bale clamping arms to said first frame element for swinging movement in a common plane between an open bale release position and a closed bale supporting position and for allowing outer ends of said bale clamping arms to be adjusted vertically relative to said spaced boom arms;
adjustable flexible support means extending between said second element and said bale clamping arms permitting said arms to be moved horizontally between said opened and closed positions and for varying the angle between said clamping arms and said boom arms;
actuator means connected between said clamping arms for effecting adjustment of said clamping arms between said open and closed positions; and
a pair of disk elements, one supported on an extended end of each of said clamping arms and detailed for rotation about a common axis, and wherein each of said disk elements include a number of projections extending axially toward each other and detailed for engaging opposite sides of a bale when said clamping arms are adjusted to said closed bale supporting position.

4,280,778
HOPPER CAR DOOR OPERATING MECHANISM
Willis H. Knippel, Palos Park, Ill., assignor to Pullman Incorporated, Chicago, Ill.
Filed May 9, 1979, Ser. No. 37,569
Int. Cl.³ B65G 67/00
U.S. Cl. 414—387 **12 Claims**



1. In a railway hopper car riding on wheels and having a hopper structure including downwardly and outwardly diverging slope sheets, outer side walls defining with said slope sheets discharge openings, and doors hingedly connected to said outer walls movable downwardly and outwardly from closed to open positions, the improvement of a door locking mechanism for each door comprising,
a support on said hopper,
a plunger reciprocally connected to said support,
wheel trip actuating means movably supported on the ground adjacent to a railway track for actuation upon engagement with a car wheel and having cam means adapted to contact and move said plunger,
a latch mechanism movably supported on said hopper car and including an arm having a hook portion,
a keeper means associated with said door and engageable with said hook portion during the closed position of said door,
said plunger being movable in one direction upon engagement with said wheel trip actuating means to engage and move said hook portion out of engagement with said keeper means whereby said door is moved to an open position.

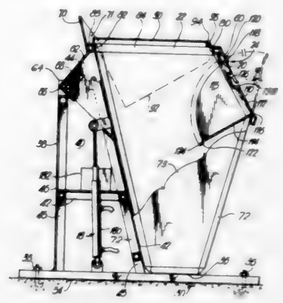
4,280,779
METHOD AND APPARATUS FOR EMPTYING THE CONTENTS OF A CONTAINER
Lee A. Warner, and Michael H. Willcutt, both of Raleigh, N.C., assignors to Cotton Incorporated, New York, N.Y.
Filed Jul. 11, 1979, Ser. No. 56,806
Int. Cl.³ B65G 65/34
U.S. Cl. 414—420 **32 Claims**



1. A container dumping apparatus comprising:
a frame having first and second sides;
a carrier positioned on said frame for movement relative thereto, said carrier including means for supporting a container to be dumped,
a dumping means operably connected to said carrier and including actuating means selectively actuable:
in a first mode for raising and generally inverting said carrier at said first side of said frame to dump the contents of said container over said first side, and
in a second mode for raising and generally inverting said carrier at said second side of said frame to dump the contents of said container over said second side.

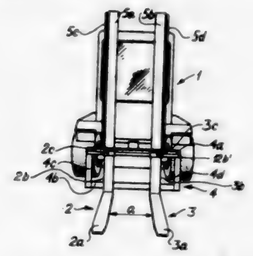
4,280,780
REFUSE CONTAINER
Jacob J. Neufeldt, c/o Neufeldt Industries Ltd., P.O. Box 597, Lethbridge, Alberta, Canada T1J 3Z4
Filed Jan. 5, 1979, Ser. No. 45,668
Claims priority, application Canada, Apr. 5, 1979, 324965
Int. Cl.³ B65G 67/04; B65F 3/00
U.S. Cl. 414—572 **23 Claims**

9. A self dumping refuse container assembly, comprising:
a frame;
a container mounted on said frame for pivotal movement in a vertical plane between a lower, upright position for receiving refuse material and an elevated, at least partially inverted position for discharging refuse material, said container having refuse material receiving and refuse material discharge openings;
lid means mounted on said container for opening and closing said openings;
said lid means including at least one refuse material feed chute pivotally connected to said container, each said chute being movable between a closed position and an open position, and having latch means releasably securing each said chute in said closed position; and



power means for pivoting said container between said lower and elevated positions.

4,280,781
FORK-LIFT TRUCK HAVING MEANS FOR REGULATING THE HORIZONTAL DISTANCE BETWEEN THE TINES AND FOR LATERALLY DISPLACING THE TINES
Ove Bodin, Box 54, 710 10 Fjugesta, Sweden
Filed Apr. 18, 1979, Ser. No. 31,330
Claims priority, application Sweden, Apr. 25, 1978, 7804716
Int. Cl.³ B66B 9/20; B66F 9/00
U.S. Cl. 414—671 **10 Claims**



1. A fork lift truck having tines by which goods can be lifted and conveyed, comprising:
a frame member;
a key member;
a shaft member, said shaft member being rotatably mounted in a substantially horizontal direction on said frame member, and having key way means for accommodating said key member;
a spindle member, said spindle member being mounted on said shaft member and having:
key way means for accommodating said key member such that said spindle member is axially slidable on said shaft member and rotatable with said shaft member;
a first region having a right hand thread;
a second region having a left hand thread; and
a third region substantially centrally located on said spindle member and including at least a part of said first region and at least a part of said second region;
a first tine member, said first tine member being supported by said frame member and having a first sleeve member, said first sleeve member having a right hand thread and being threadedly mounted on said first region of said spindle member;
a second tine member, said second tine member being sup-

ported by said frame member and having a second sleeve member, said second sleeve member having a left hand thread and being threadedly mounted on said second region of said spindle member;

first drive means connected to said shaft member for rotatively driving said spindle member in order to selectively rotate said first and second regions of said spindle member so that said first and second tine members are selectively driven toward and away from each other;

second drive means connected to said third region of said spindle member for laterally moving said first and second regions of said spindle member relative to said shaft member so that said first and second tine members are laterally displaced;

whereby when said shaft member is rotatively driven by said first drive means, said shaft member rotates, said key member accommodated therein urging said spindle member mounted thereon to rotate in unison with said shaft member thereby selectively driving said first and second tine members toward and away from each other; and

further whereby when said spindle member is laterally driven by said second drive means, said key way means included on said spindle member is guided in said lateral movement by said key member accommodated in said key way means included on said shaft member.

4,280,782

AIR CUSHION TABLE FOR TRANSPORTING LAYERS OF LAMINAR MATERIAL, E.G. LAYERS OF FABRIC

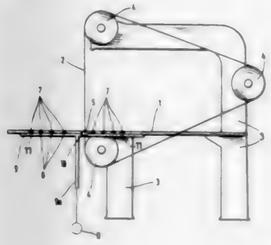
Günter O. Stumpf, Höhenweg 13, 7421 Mehrstetten, Fed. Rep. of Germany

Filed Sep. 28, 1978, Ser. No. 946,787

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1977, 2746086

Int. Cl.³ D06H 7/24; B26D 7/20

U.S. Cl. 414—676 **5 Claims**



1. An arrangement for cutting layers of a lamina material with a cutting member which is stationary relative to the surface area of a support plate through which said cutting member extends, said support plate comprising an air cushion table provided with upwardly directed air outlet apertures which are connected with a compressed air source and are directed beneath the layers of lamina material, and wherein the layers of lamina material are displaced by hand across the surface of the air cushion table during a cutting operation, characterized by the collective compressed air conduits (8) in the area of the outlet openings (7) being provided within plate-shaped inserts (11) of less thickness than their diameters of porous sintered material which correspond to the cross sectional area of the compressed air conduits.

4,280,783

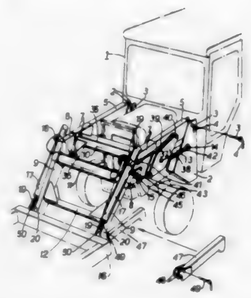
LOST MOTION LINKAGE ASSEMBLY FOR A FRONT LOADER

John A. D. Hayward, Knoll Farm, Damerham, Fordingbridge, Hampshire, SP6, England

Filed Apr. 10, 1979, Ser. No. 28,915

Int. Cl.³ E02F 3/70

U.S. Cl. 414—686 **10 Claims**



1. An improved linkage assembly comprising frame means attachable to a vehicle, said linkage including at least one loading jib of variable length that is turnable upwardly and downwardly relative to the frame means, means adapted to act on said jib for increasing the length of said jib during raising thereof and for decreasing the length of the jib as it is subsequently lowered, a lost-motion connection for rendering said means inoperative throughout a predetermined lower portion of the path of upward and downward turning movement of the jib, wherein: said jib is maintained in a minimum length position throughout said predetermined lower portion of the path of upward and downward turning movement thereof by a pair of plates that are pivotally connected to a first jib portion, said plates also being pivotally coupled to a second jib portion and to said frame means by way of said lost-motion connection so that, upon raising the jib from a lowered position, said lost-motion connection prevents pivotal movement of said pair of plates until a predetermined inclination of the jib to the horizontal has been attained and whereafter, said pair of plates is caused to pivot relative to the first jib portion, the pivotal movement thereof being employed to cause length-increasing displacement of the second jib portion relative to the first jib portion.

4,280,784

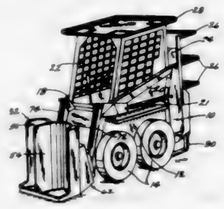
ANIMAL CARCASS HANDLING VEHICLE

William S. Ramacciotti, 13603 Q St., Omaha, Nebr. 68137

Filed Mar. 9, 1979, Ser. No. 19,091

Int. Cl.³ B66F 9/12

U.S. Cl. 414—722 **3 Claims**



1. In combination,

a skid-steer vehicle having rearward and forward ends and a pair of boom arms pivotally secured at one end to said vehicle and extending forwardly therefrom,

and an animal carcass handling bucket mounted on the forward end of said boom arms,

said vehicle having a protective cage extending around the operator's station, said cage having an open forward end, spaced apart side portions, a rearward end and an upper end, and a guard means mounted on the upper end of said cage and spaced outwardly therefrom for preventing the upper end of said cage from coming into contact with hanging animal carcasses.

4,280,785

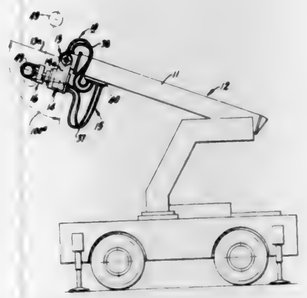
MULTI-DIRECTIONAL LIFTING AND HANDLING ATTACHMENT FOR A CRANE BOOM

Robert G. Albrecht, Shingle Springs, Calif., assignor to Wismer & Becker Contracting Engineers, Sacramento, Calif.

Filed May 9, 1979, Ser. No. 37,487

Int. Cl.³ B66C 1/00, 1/18

U.S. Cl. 414—735 **1 Claim**



1. A multi-directional lifting and handling attachment for a crane boom comprising:

a. an elongated main frame;

b. means for mounting said main frame on the crane boom;

c. an elongated sub-frame pivotally connected to said main frame for rotation of said sub-frame about an axis transverse to the longitudinal axis of said main frame;

d. a work piece supporting frame rotatably connected to said sub-frame for rotation of said work piece supporting frame about an axis located substantially in a vertical plane including the longitudinal axis of said main frame;

e. gripping means on said work piece supporting frame for removably securing an elongated work piece on said work piece supporting frame, said gripping means including an elongated cradle and at least one U-shaped flexible band selectively adjustable so as to secure elongated work pieces of different transverse dimensions positioned in said cradle;

f. first hydraulic actuator means for selectively moving said sub-frame relative to said main frame by rotating said sub-frame about said transverse axis;

g. second hydraulic actuator means for moving said work piece supporting frame relative to said sub-frame by rotating said work piece supporting frame about said axis vertically coplanar with the longitudinal axis of said main frame; and,

h. cooperating limit stop and stop pad means on said main frame and said sub-frame, respectively, for limiting the extent of rotational movement of said sub-frame relative to said main frame about said transverse axis to a predetermined arc.

4,280,786

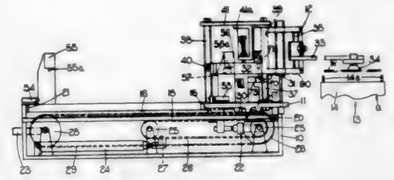
FEED MECHANISM

Leslie Dyche, Birmingham, England, assignor to The Tool Production and Design Company Limited, Tamworth, England

Filed Oct. 18, 1978, Ser. No. 952,412

Int. Cl.³ B65G 15/00, 65/00

U.S. Cl. 414—749 **9 Claims**



1. A feed mechanism for transferring workpieces from a loading station to an unloading station, comprising:

a frame;

carrier means mounted on said frame for horizontal movement relative thereto and operative to grip a workpiece during its transference from the loading station to the unloading station;

moving means operative to move said carrier means upwardly and downwardly with respect to said frame; a detection device mounted on said frame and including a pair of jaws having a predetermined clearance therebetween, said pair of jaws being disposed so that the workpiece must pass through said predetermined clearance when being transferred to the unloading station; and actuating means operative to arrest horizontal movement of said carrier means with respect to said frame in the event that the workpiece collides with said pair of jaws.

4,280,787

METHOD FOR HANDLING PALLETED LOADS COMPRISING BULK MATERIAL CONTAINED IN BAGS

Leif A. S. Henryson, Mörarp, Sweden, assignor to AB Bergu Jarn- & Rorkonstruktioner, Helsingborg, Sweden

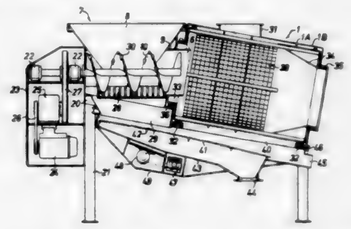
Division of Ser. No. 808,756, Jun. 22, 1977, Pat. No. 4,182,592.

This application Jun. 21, 1979, Ser. No. 50,936

Claims priority, application Sweden, Jun. 28, 1976, 7607344

Int. Cl.³ B65G 65/04

U.S. Cl. 414—786 **3 Claims**



1. A process for handling palleted loads of bulk material contained in bags, comprising the following steps, in combination and in sequence:

(1) dumping a plurality of bags of a pallet load together into a downwardly tapering receiving hopper having an inlet opening at the top thereof;

(2) guiding the bags while allowing the bags to fall downwardly by gravity into contact with the screw of a screw conveyor, the screw having a sharp edge at least in the area of the lower opening of the hopper, and having cutting and tearing means projecting outwardly;

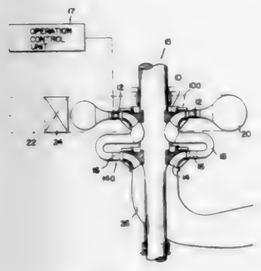
(3) rotating the conveyor screw and thereby cutting through and opening the bags received from said hopper;
(4) allowing some of the cut bag material and some of the bulk material to fall through grid means at the bottom of the housing of the screw conveyor, the grid means having a smooth inside surface formed by the innermost curved surfaces of said grid means, with said innermost surfaces being slightly spaced from said conveyor screw;
(5) separating the said bag and bulk materials from each other by a first separating means and feeding the rest of the bag material and bulk material axially towards the outlet and of the screw conveyor, in which the outlet end of the screw conveyor opens directly into an inlet of a second separating device for separating bag and bulk material; and
(6) separating the rest of the bag material.

4,280,788

MULTISTAGE HYDRAULIC MACHINE SYSTEM AND A METHOD FOR CONTROLLING THE OPERATION THEREOF

Sachio Tsunoda, and Ichiro Yamagata, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed May 3, 1979, Ser. No. 35,699
Claims priority, application Japan, May 22, 1978, 53-60850
Int. Cl.³ F01D *19/00, 27/12*
U.S. Cl. 415—1 **3 Claims**



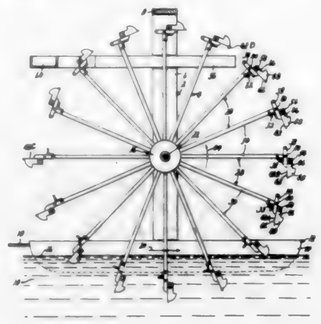
1. A multistage hydraulic machine system comprising:
a multistage hydraulic pump/pump-turbine having a water passage including
a highest-pressure stage comprising a first runner, a plurality of movable guide vanes arranged in a circular row around said runner,
operation and control means for varying opening of said movable guide means for flow of water through said water passage; and
a lower-pressure stage comprising a second runner, a plurality of fixed guide vanes with fixed openings arranged in a circular row around said second runner, and a return passage intercommunicating the highest- to lowest-pressure stages;
said operation control means controlling opening of said movable guide vanes so that said opening is larger than that of said fixed guide vanes for a large-flow normal operation and smaller than that of said fixed guide vanes for a small-flow normal operation
said operation control means further comprising, means for supplying instructions during starting of said pump-/pump-turbine, stopping of said pump/pump-turbine, rejection of turbine load or failure of pump input and means for controlling the opening of said water passage of said movable guide vanes in response to operation control instructions received from said means for supplying instructions.

4,280,789

WATER ELEVATING WHEEL

Lester E. Graden, 1218 Lawrence Ave., Leavenworth, Kans. 66048

Filed Dec. 4, 1978, Ser. No. 965,832
Int. Cl.³ F03B *7/00*
U.S. Cl. 415—6 **2 Claims**



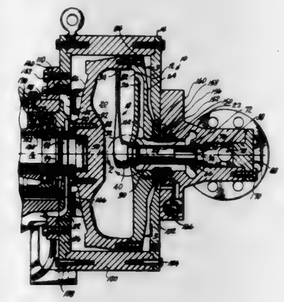
1. A water elevating device comprising:
a. a frame,
b. a buoyant barge capable of floating in a moving stream of water,
c. a wheel carried by said frame for rotation on a horizontal axis transverse to the stream current, at such an elevation that its lower portion is submerged in said stream,
d. paddles mounted on said wheel in spaced relation about the periphery thereof, whereby said wheel is turned by the current of said stream, each of said paddles being essentially planar in a plane transverse to the plane of the wheel, and being pivotally mounted on said wheel on a horizontal transverse axis for movement between an extended position, in which its plane extends generally radially outwardly from said wheel, and outwardly from its pivotal axis, to a retracted position trailing behind its pivotal axis in which its plane is disposed generally tangentially to the wheel, whereby each of said paddles pivots by gravity to said extended position at the descending side of said wheel, and to said retracted position at the ascending side of said wheel,
e. a bucket attached to the leading face of each of at least certain of said paddles so as to be filled with water when submerged in said stream, elevated above the water level of the stream by the turning of said wheel, and the water dumped therefrom in the upper portion of the wheel orbit by inversion thereof caused by rotation of the wheel, said bucket being mounted on the portion of said paddle extending radially outwardly from said wheel, and from the pivotal axis of said paddle, when the paddle is in its extended position, said bucket having a filling opening facing toward the pivotal axis of said paddle, and a discharge opening closer to the pivotal axis of said paddle than said filling opening, whereby said bucket fills when submerged, remains upright to retain water up to the level of said filling opening at the ascending side of said wheel, and dumps water through said discharge opening as said paddle approaches a horizontal plane at the top of said wheel, said filling opening being relatively widely spaced apart from the leading face of said paddle and said discharge opening being relatively closely adjacent said paddle whereby as the paddle approaches a horizontal plane water will flow through said discharge opening rather than said filling opening, said discharge opening of each of said buckets including a pair of spouts directed laterally outwardly from the respectively opposite sides of said bucket,
f. receptacles carried by said frame adjacent the upper portion of said wheel, said receptacles comprising a pair of horizontal, open-topped troughs extending along respectively opposite sides of said wheel to receive water emerging from said spouts, and
g. means operable to moor said barge against movement with the current of said stream, said mooring means comprising mooring lines connected to the upstream end of said barge and extending upstream therefrom, whereby said barge may shift laterally with any change in the current direction of said stream to align said wheel with said current.

4,280,790

CENTRIFUGAL PITOT PUMP WITH MEANS FOR IMPROVING NET POSITIVE SUCTION HEAD

Walter W. Crichlow, La Habra Heights, Calif., assignor to Kobe, Inc., Huntington Park, Calif.

Filed Feb. 26, 1979, Ser. No. 15,120
Int. Cl.³ F04D *1/14*
U.S. Cl. 415—89 **7 Claims**



1. In a rotary pitot pump of the type that includes a rotor casing, a rotor rotatably mounted in the casing and having a chamber, a pitot tube disposed within the chamber having a scoop to receive fluid and a passage from the scoop, a mounting duct extending from a stationary portion of the pump through the rotor and into the chamber, a passage in the duct communicating with the passage in the pitot tube for the discharge of fluid therefrom, an inlet into the rotor casing on the outside of the duct, a leak path between the chamber and the inlet along the interface between the rotor and the duct, and a plurality of radial passages from the inlet into the rotor chamber proper, an improvement which comprises:
an annular ring and a channel in the leak path between the rotor and the duct interrupting line-of-sight communication between the rotor chamber and the inlet, the annular channel receiving the ring and providing a flow path around the ring, the axial extent of the channel being greater than the axial extent of the ring.

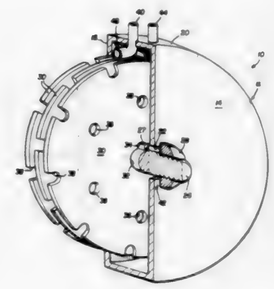
4,280,791

BI-DIRECTIONAL PUMP-TURBINE

Gordon S. Gawne, 840 Roeser St., Freeland, Mich. 48623

Continuation-in-part of Ser. No. 906,486, May 17, 1978, Pat. No. 4,218,176. This application Dec. 20, 1978, Ser. No. 971,189
The portion of the term of this patent subsequent to Aug. 19, 1997, has been disclaimed.
Int. Cl.³ F01D *1/36*
U.S. Cl. 415—90 **12 Claims**

1. In a fluid propulsion apparatus including a generally circular hollow housing, a shaft rotatably mounted in said housing, a plurality of spaced-apart circular discs mounted on the shaft for rotation therewith interiorly of said housing, said discs being concentric relative to said housing, a circumferential peripheral zone defined as the region between the interior of the housing and the periphery of said discs, a first fluid port means and a second fluid port means each of said first and second fluid port means extending through said housing and in communication with the interior thereof so that a fluid stream entering one of said port means flows through said housing in a spiral path and exits from the other of said port means, the improvement of a bi-directional pump-turbine comprising:
a third fluid port means extending through said housing and in communication with the exterior thereof so that a fluid stream can enter and exit from said third fluid port means;
said first and third fluid port means in communication with said peripheral zone and opening in opposite directions



therein relative to the axis of rotation of said shaft and said discs;
said first and third fluid port means each including an elongated pitot-like flow path having a first end and a second end, said first end lying in, and in communication with, said peripheral zone;
the cross-sectional area of the first end of each of said elongated flow paths being at least as large as the cross-sectional area of the second end of said flow path;
the first end of each of said elongated flow paths lying in a plane substantially normal to the flow path within said peripheral zone.

4,280,792

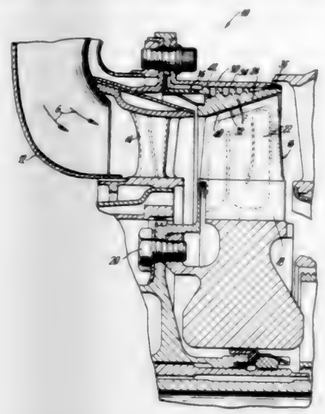
AIR-COOLED TURBINE ROTOR SHROUD WITH RESTRAINTS

Edward O. Hartel, Orange, and John N. Dale, Stratford, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Feb. 9, 1979, Ser. No. 11,041
Int. Cl.³ F04D *29/38*
U.S. Cl. 415—117 **25 Claims**

1. A stationary air-cooled shroud forming a portion of a turbine assembly and extending over and spaced from the tips of a plurality of blades of a rotor, said shroud comprising:
an inner ring having a radially inner surface and a radially outer surface, said inner surface being juxtaposed to and spaced from the blade tips, said outer surface of the inner ring having a matrix of grooves provided therein;
an outer restraining ring concentric with and surrounding the inner ring and covering said matrix of grooves to form a labyrinth of air-cooling passageways; and
a suspension ring which cooperates with the inner ring and the outer restraining ring to define an entry flow path for the cooling air provided to the labyrinth, said suspension ring and outer restraining ring defining a plenum chamber for receiving cooling air, said plenum chamber being in communication with the entry flow path leading to the

labyrinth whereby the passage of a flow of cool air through said labyrinth is operative to reduce the level and



gradient of thermal expansion of the shroud for obtaining improved turbine blade tip clearance control.

4,280,793

BORE HOLE PUMPS

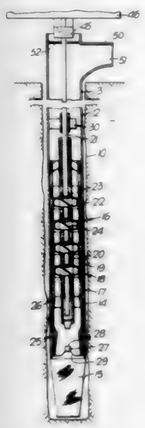
Hugh D. Nelson, Sydney, Australia, assignor to Mono Pumps Limited, Audenshaw, England

Filed Feb. 23, 1979, Ser. No. 14,478

Claims priority, application Australia, Feb. 23, 1978, 07344/78

Int. Cl.³ F04D *29/54*

U.S. Cl. 415—199.5 **7 Claims**



4. A bore hole pump assembly comprising a pump casing member; a plurality of interconnectable bore hole lining pipes, the lower most of said pipes being connectable directly to one axial end of the casing member; a turbine pump having a plurality of axially spaced turbine impellers and a plurality of stator bowl elements interposed between said impellers and each bowl element provided with fixed vanes thereon; a drive shaft at one axial end of the pump; a tubular housing at the other axial end of the pump; means defining two axially spaced internal seating surfaces on said pump casing member, means defining two axially spaced external seating surfaces on said tubular housing and co-operating with said internal seating surfaces of said pump casing member effective to align the tubular housing within said pump casing member, the housing being engageable in the pump casing member and being removable by movement towards said one axial end, whereby the lining pipes act as a discharge pipe of the pump.

4,280,794

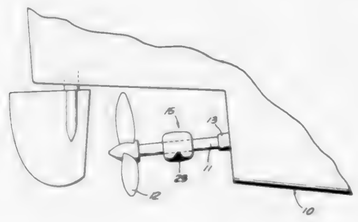
SACRIFICIAL ANODIC PROTECTOR KIT FOR A PROPELLER SHAFT

Wendell W. Goodwin, 4702 Coldbrook Ave., Lakewood, Calif. 90713

Filed Mar. 19, 1979, Ser. No. 21,334

Int. Cl.³ B63H *23/34*

U.S. Cl. 416—146 R **2 Claims**



1. A sacrificial anodic protector kit adapted for assembly to a propeller shaft to protect the same from elecrolytic attack consisting of:

a cast zinc collar having a cylindrical inner surface, said collar being split diametrically lengthwise thereof into two similar halves having a plurality of threaded nuts embedded therein inwardly of the mating surfaces of said halves and each aligned with a respective bore opening through said mating surfaces of said halves when assembled about a normally submerged portion of a propeller shaft;

the semi-cylindrical inner surface of said collar halves each being coated from end-to-end thereof with an electroplated copper layer, to a thickness of about 0.5 to 3 mils; and

separate machine screws insertable through respective ones of said bores and wrenchable into an associated one of said nuts to clamp said zinc castings to a propeller shaft with said copper layers in intimate electrical contact therewith.

4,280,795

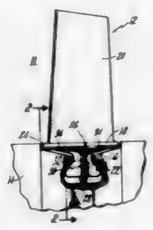
INTERBLADE SEAL FOR AXIAL FLOW ROTARY MACHINES

Edmund D. Trousdell, Tolland, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 26, 1979, Ser. No. 107,296

Int. Cl.³ F01D *5/32*

U.S. Cl. 416—218 **3 Claims**



1. A blade root seal of the type utilized with a tangentially loaded rotor having a circumferentially extending retaining slot for rotor blades, the seal comprising:

a wire adapted to be disposed at the bottom of the retaining slot; and

a plurality of interblade members attached to said wire and spaced therealong, one each for disposition between each pair of adjacent blades on the rotor wherein each interblade member is formed to a "T" shaped cross section including a first portion extending upwardly from the wire in a plane containing the wire and a second portion extending laterally from the first portion in a plane essentially perpendicular to the first portion.

4,280,796

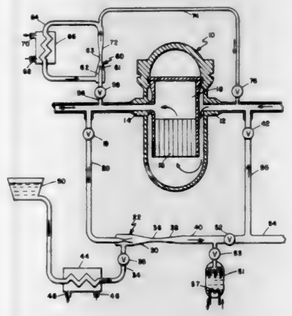
FLASH JET COOLANT CIRCULATION SYSTEM

Arnold O. W. Reinsch, 13140 Carousel La., Del Mar, Calif. 92014

Division of Ser. No. 684,853, May 10, 1976, abandoned. This application Jun. 30, 1978, Ser. No. 920,986

Int. Cl.³ B63H *16/00, 1/26*

U.S. Cl. 417—176 **1 Claim**



1. A system using the energy of heated water for pumping water into a vessel, the vessel having a water coolant inlet connection, the system comprising: in combination

flash jet pump means having a nozzle with converging and diverging sections connected to a source of heated water for flashing a portion of the water from said source of heated water into steam, said flashing taking place at least in said divergent section of said nozzle, and producing a high velocity two-phase flow,

a source of relatively cool water connected to said flash jet pump means for being drawn into said two-phase flow downstream of said divergent section of said nozzle,

the output of said flash jet pump being connected to the vessel,

steam jet pump means having a coolant inlet and having steam inlet which is connected to the vessel for utilizing any steam in the vessel to circulate coolant in a circulation loop,

condenser means comprising a mixing tube in which condensation shock occurs to produce condensed coolant downstream of said jet pump,

heat rejection means for extracting heat from at least a portion of said condensed coolant and returning at least a portion of said condensed coolant, from which heat has been extracted, to said coolant inlet of said steam jet pump, said steam jet pump means enhancing the operation of said flash jet pump means.

4,280,797

METHOD OF CONTROLLING THE SUPERCHARGE PRESSURE IN AN INTERNAL-COMBUSTION ENGINE, AND EXHAUST-GAS TURBOSUPERCHARGER FOR PERFORMING THE METHOD

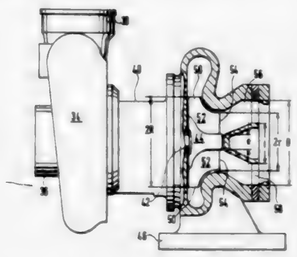
Horst Pfeil, Darmstadt, Fed. Rep. of Germany, assignor to Aktiengesellschaft Kühnle, Kopp & Kausch, Frankenthal, Fed. Rep. of Germany

Filed Jun. 13, 1978, Ser. No. 915,133

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1977, 2728024

Int. Cl.³ F04B *35/00, 29/44, 29/30*

U.S. Cl. 417—406 **2 Claims**



1. Exhaust-gas turbosupercharger for limiting supercharge pressure comprising an exhaust-gas turbine having a bladed rotor, a compressor operatively connected to said bladed rotor, and means for passing a flow of exhaust gas inwardly in substantially radial direction from the outside through respective entrances and exits of the rotor blades, said blades, respectively, being disposed at least partly, in longitudinal planes and, at a region of said exits of said blades, intersecting with a plane radial to said blades at an exit angle of at least 90° as measured on the pressure side of said blades, said blades having an entrance diameter and an exit diameter, and the ratio of the exit diameter to the entrance diameter of said blades is between 0.5 and 0.75.

4,280,798

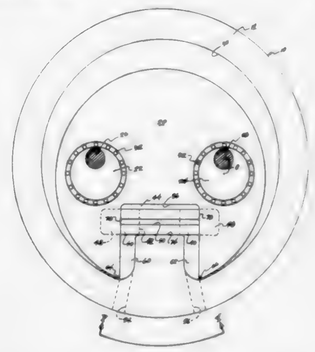
WORK MACHINE

James R. Gurley, Box 42, Rte. 5, Rutherfordton, N.C. 28139

Continuation-in-part of Ser. No. 5,964, Jan. 24, 1979, Pat. No. 4,227,506. This application Nov. 13, 1979, Ser. No. 93,737

Int. Cl.³ F01C *1/00*

U.S. Cl. 418—54 **18 Claims**



1. A work machine comprising a housing having a peripheral wall portion and spaced side wall portions defining an internal compartment having a peripheral lobe, an inner body in said compartment and having a peripheral portion defining

a corresponding peripheral lobe, means mounting said body in said compartment for non-rotational, orbital movement about a central axis of the compartment with the inner body lobe disposed for movement in the compartment lobe during orbital movement of the inner body, said mounting means including rotatable shaft means operatively attached to said inner body and having a rotatable shaft portion extending exteriorally of said housing for rotational movement about an axis during orbital movement of said inner body in said housing compartment, a recess in a peripheral portion of the inner body extending between adjacent ends of the inner body lobe, a wall member received in the inner body recess in sealing engagement with the inner body and housing and movable in response to orbital movement of said inner body to form with said housing and inner body a variable-volume chamber in said inner body recess for receiving and discharging fluid during orbital movement of the inner body; wall portions of said inner body sealingly engaging wall portions of said housing and said wall member during orbital movement of the inner body to form with said housing and said wall member a peripherally disposed variable-volume fluid intake chamber and a peripherally disposed variable-volume fluid discharge chamber in the housing compartment, fluid inlet means in said housing continuously communicating with said intake chamber during orbital movement of the inner body, and fluid outlet means in said housing continuously communicating with said discharge chamber during orbital movement of the inner body whereby fluid is introduced into said intake chamber and fluid is discharged from said discharge chamber and housing during orbital movement of said inner body and rotational movement of said shaft means.

4,280,799

COMPRESSOR WITH GUIDE BAFFLES AND GAS-PERMEABLE MATERIAL SEPARATING MEANS

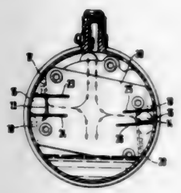
Hans-Dirk Struve, Bühlertal; Jürgen Hess, and Theodor Vysiotis, both of Baden-Baden, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 9, 1979, Ser. No. 19,089

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1978, 2815471

Int. Cl.[3] **F04C** *29/02;* **B01D** *50/00, 45/06*

U.S. Cl. 418—97 **10 Claims**



1. In a compressor particularly for cooling media, having outlet means for streams of compressed gaseous fluid in which lubricating oil of the compressor is entrained, a combination comprising a housing forming an elongated chamber which is located immediately adjacent to and communicates with the outlet means of the compressor to receive the streams of gaseous fluid and oil therefrom, said chamber including an inlet opening having a center axis extending lengthwise of the elongation of said chamber and communicating with said outlet means; a body of gas-permeable material filling said chamber so that the streams must pass through said body on their way to a discharge opening, with concomitant separation of the entrained oil from the gaseous fluid; wall means in part bounding an oil sump space in a bottom part of said housing beneath said body, so that separated oil drips from said body into said oil sump space; and a plurality of guide baffles on said housing and projecting adjacent said outlet means in direction radially inwardly of said chamber towards but short of the center of the chamber, said guide baffles comprising at least two pairs of baffles located at opposite sides of said inlet opening, and the two baffles of each pair extending lengthwise of the direction of elongation of said chamber and being spaced from but substantially parallel to each other.

4,280,800

CONCRETE SLAB SURFACE FINISHING APPARATUS

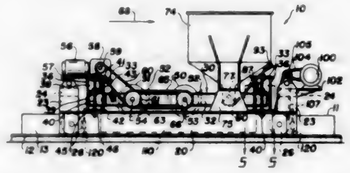
Christopher B. Bunn, North Vancouver, Canada, assignor to Dyform Engineering Limited, Vancouver, Canada

Filed Sep. 13, 1979, Ser. No. 74,842

Claims priority, application Canada, Oct. 28, 1977, 289831

Int. Cl.[3] **B28B** *1/26, 7/04;* **B29C** *1/00*

U.S. Cl. 425—62 **17 Claims**



1. Apparatus for finishing the surface of a concrete slab, comprising:

a support frame to span and to be moved over the surface of a concrete slab to be finished,

confining side walls depending from the frame to overlap side edges of the slab,

means swingingly suspending said side walls from the frame out of balance so that the walls tend to swing inwardly relative to the frame and against the side edges of the slab,

at least one roller carried by the frame and extending transversely thereof,

power means connected to the roller to rotate said roller, and

hopper means carried by the frame and positioned to deposit a layer of finishing material on the slab surface ahead of the roller with reference to the direction of movement of the support frame, said roller rolling out the finishing material on the slab surface and said side walls confining the finishing material on said surface.

4,280,801

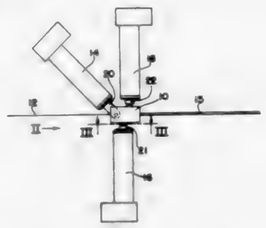
CROSSHEAD

Norton C. Wheeler, Jr., Mystic; John G. Seuferling, Norwich, and Simo A. O. Peanila, Rowayton, all of Conn., assignors to Crompton & Knowles Corporation, New York, N.Y.

Filed May 30, 1979, Ser. No. 43,923

Int. Cl.[3] **B29D** *23/04;* **B29F** *3/04*

U.S. Cl. 425—113 **14 Claims**



1. A crosshead including a die for extruding an annular layer of thermoplastic material about a central longitudinal axis comprising:

(a) an annular slotted die opening surrounding said longitudinal axis;

(b) an inlet passageway spaced from said longitudinal axis and located at one side of said crosshead for receiving molten thermoplastic material, said inlet passageway having a flow axis which is generally transverse to said longitudinal axis;

(c) an annular cavity located between said axis and the inlet passageway, and connected to the inlet passageway, said cavity surrounding said longitudinal axis and extending radially of said longitudinal axis, the cross-sectional area of said cavity gradually diminishing along each half of its circumference from the inlet passageway to a point on its circumference opposite the inlet passageway;

(d) an annular distribution passage located between said longitudinal axis and said annular cavity and connected to said annular cavity, said distribution passage surrounding said longitudinal axis and extending radially of said annular distribution axis, the depth of said longitudinal passage being substantially less than the depth of the annular cavity and the cross-sectional area of said distribution passage gradually diminishing along each half of its circumference from the inlet passageway to a point on its circumference opposite the inlet passageway; and

(e) an annular connecting passage surrounding said longitudinal axis and extending from the distribution passage to the die opening.

4,280,802

SCREW-TYPE EXTRUDER FOR POLYVINYLIDENE FLUORIDE FILAMENTS

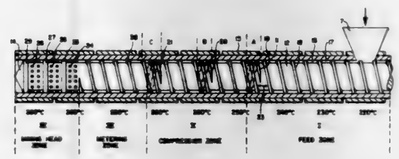
Egon Lang, Troisdorf-Oberlar, and Wilhelm Nachtigall, Troisdorf-Eschmar, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Feb. 22, 1980, Ser. No. 123,645

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907074

Int. Cl.[3] **B29B** *1/06*

U.S. Cl. 425—208 **20 Claims**



1. An apparatus for the continuous manufacture of filaments from polyvinylidene fluoride comprising a screw extruder with a single-spindle screw surrounded by a coaxial barrel with a feed zone, a compression zone, a metering zone, and a mixing head zone for the plasticizing of the polyvinylidene fluoride and with a die outlet tool for shaping the plasticized polyvinylidene fluoride into filaments, characterized in that the compression ratio of the screw is 1:1.2 to 1:2.5, that single-flight and double-flight sections of identical pitch are provided in alternating succession in the compression zone, and that the mixing head zone is provided with a plurality of alternatingly successive mixing zones and shear zones.

4,280,803

METHOD AND APPARATUS FOR THE PRODUCTION OF MOLDED MEAT OR MEAT-LIKE PRODUCTS

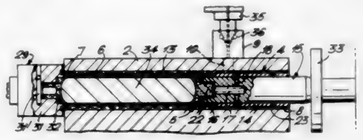
Timothy J. M. Treharne, East Grinstead, England, assignor to Trivet Developments Limited, West Sussex, England

Filed Sep. 13, 1978, Ser. No. 941,872

Claims priority, application United Kingdom, Sep. 14, 1977, 38395/77

Int. Cl.[3] **A21C** *7/00, 11/04*

U.S. Cl. 425—99 **25 Claims**



1. Apparatus for producing a molded proteinaceous product of predetermined shape, said apparatus comprising:

(a) a rigid mold having an enclosed cavity which defines said predetermined shape of a molded proteinaceous product,

(b) means for injecting proteinaceous paste material into the cavity,

(c) the cavity having a wall at least a major part of which is fluid permeable, and

(d) means for introducing a fluid through the permeable cavity wall for treating at least a major portion of the surface of said product while in said predetermined shape.

4,280,804

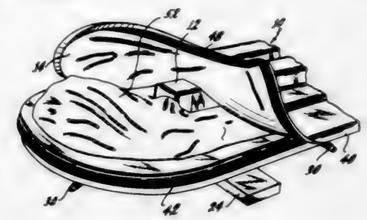
VACUUM CURING TOOL FOR COMPOSITE MATERIALS

Charles L. Holland, Escondido, Calif., assignor to General Dynamics, San Diego, Calif.

Filed Oct. 1, 1979, Ser. No. 81,020

Int. Cl.[3] **B29C** *17/04*

U.S. Cl. 425—388 **3 Claims**



1. A vacuum curing tool for curing a workpiece comprising:

a rigid base with a top side having the desired configuration for the workpiece being cured and a vacuum manifold connected to the bottom side thereof;

a vacuum bag with one part of a peripheral sealing means attached to the bag, said sealing means having radially inwardly extending ribs;

said peripheral sealing means comprising two parts which engage each other in sealing relationship, one of said parts having a plurality of outwardly extending ribs and being disposed about the peripheral edges of the base, the outwardly extending ribs adapted to engage the radially inwardly extending ribs attached to said bag when brought together in wrap-around zipper-like fashion to form a seal for the bag; and

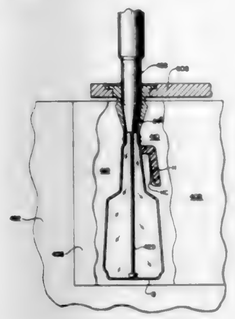
means for connecting said vacuum manifold to a vacuum source for withdrawing air from between said bag and the top side of said base during the curing operation on the workpiece disposed on the top side of said base.

4,280,805

INJECTION BLOW MOLDING APPARATUS

Robert X. Hafele, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Aug. 30, 1979, Ser. No. 71,301
Int. Cl.³ B29C *17/07*
U.S. Cl. 425—535 **26 Claims**



1. A multistation apparatus for injection blow molding a thermoplastic material to form a blow molded container having an integral injection molded handed, said apparatus comprising:

a. an injection molding station for forming a thermoplastic preform having an integral handle thereon, said molding station including,

i. a splite injection mold defining a preform cavity with a contiguous injection mold handle cavity, an injection mold carrier cavity, and an injection nozzle cavity, said preform cavity being between said injection mold cavity and said nozzle cavity and said injection mold handle cavity being contiguous at only a single point with said preform cavity,

ii. power means engaged with said split injection mold for opening and closing said split injection mold,

iii. a movable preform pin,

iv. an injection nozzle which nests into said injection nozzle cavity when said split injection mold is closed, and

v. injection power means for injecting, under pressure, molten thermoplastic material through said injection nozzle to a preform recess formed at least partially by said injection mold handle cavity and by said preform pin being positioned within said preform cavity;

b. a blow molding station having,

i. a split blow mold defining a blow mold cavity with a contiguous blow mold handle cavity and a blow mold carrier cavity, said blow mold cavity and said blow mold handle cavity having but a single contiguous point whereby said injection molded handle is prevented from achieving a second point of attachment to said blow molded container as said preform is blown in said blow mold cavity,

ii. power means engaged with said split blow mold for opening and closing said split blow mold, and

iii. a movable blow pin, said blow pin supplying pressurized gas to inflate said preform;

c. moving means for moving a preform carrier from station to station, said preform carrier having a portion to achieve attachment of said preform to said preform carrier when said preform is formed by said injection of thermoplastic material in said preform recess and having another portion which is in mounted relationship with said moving means at the time said attachment is achieved, and said preform carrier being

i. receivable into said injection mold carrier cavity and said blow mold carrier cavity, and

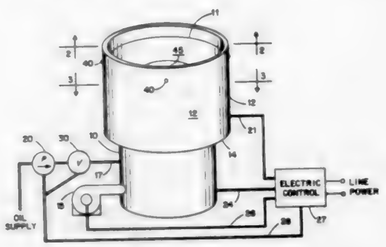
ii. hollow to allow passage through said preform carrier of said preform pin and to allow nesting of said blow pin in said preform carrier.

4,280,806

PREVAPORIZING OIL BURNER AND METHOD

Paul C. King, Leavitt Rd., Pittsfield, N.H. 03263

Filed Aug. 14, 1979, Ser. No. 66,385
Int. Cl.³ F23D *11/44*
U.S. Cl. 431—208 **9 Claims**



1. An oil burner which prevaporizes liquid fuel oil by heat in a vapor chamber prior to combustion in a separate combustion chamber comprising:

(a) a vapor chamber;

(b) means to introduce liquid fuel oil into said vapor chamber;

(c) heating means in said vapor chamber operable at a temperature sufficient to vaporize said liquid fuel oil;

(d) a first combustion chamber connected to said vapor chamber and divided from said vapor chamber by a perforated partition;

(e) fan means connected to said vapor chamber at an aperture near the bottom of said vapor chamber for moving vapor formed in said vapor chamber to said first combustion chamber;

(f) ignition means in said first combustion chamber for igniting vaporized fuel oil;

(g) at least two series of perforations in said first combustion chamber with a first series of perforations for introducing air and a second series of perforations for passing flames and flue gases;

(h) aperforated shell spaced around said first combustion chamber forming a second combustion chamber therebetween, said perforated shell being open at one end for passage of flue gases;

(i) a solid shell spaced around said perforated shell, said solid shell open at a first end for entry of combustion air and at a second end for exhausting heated flue gases.

4,280,807

AUTOCLAVE FURNACE WITH COOLING SYSTEM

Charles W. Smith, Jr., Fairview; Franz X. Zimmerman, Erie, both of Pa., and William H. Walker, Spring, Tex., assignors to Autoclave Engineers, Inc., Erie, Pa.

Division of Ser. No. 967,240, Dec. 7, 1978, Pat. No. 4,246,957.
This application Jun. 27, 1980, Ser. No. 163,434
Int. Cl.³ F27B *5/04*
U.S. Cl. 432—205 **1 Claim**

1. An apparatus for gas pressure bonding, hot isostatic pressing or the like in which the workpiece may be treated at elevated temperatures and pressures, said apparatus comprising

a cylindrical pressure vessel,

an insulating hood within the vessel for enclosing the workpiece,

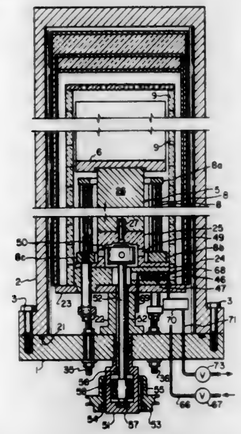
a hearth upon which the workpiece rests, and

a heating element within the insulating hood, the improvement comprising

said hearth set upon a pedestal,

said pedestal having an impeller chamber at the base thereof with exhaust ports extending therefrom,

said pedestal set upon an insulating furnace floor cover having intake ports extending therethrough and in communication with said impeller chamber,



an exhaust conduit associated with at least one intake port and coiled along the walls of said intake port,

said conduit having an intake opening at one end within the vessel and passing through the vessel for exhausting the vessel atmosphere,

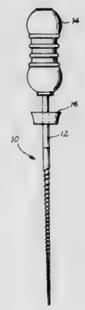
an impeller in said impeller chamber for circulating furnace atmosphere through said intake ports.

4,280,808

ENDODONTIC FILE HOLDER

James B. Johnsen, and Hal J. Olen, both of Portland, Oreg., assignors to Jordco, Inc., Portland, Oreg.

Filed May 6, 1980, Ser. No. 147,379
Int. Cl.³ A61C *1/14*
U.S. Cl. 433—77 **6 Claims**



1. Finger ring apparatus for use in holding an endodontic file and the like, comprising

means defining an elongated double-open-ended socket,

elongated, resiliently deformable cushion means constructed to receive, releasably and at one of its ends, such a file which is inserted into said cushion means, said cushion means being adapted for deformed seating within said socket through travel of the cushion means inwardly relative to one end of the socket as a result of manipulation of that end of said cushion means which is opposite its said one end which extends through the outer socket end,

deformation of said cushion means with seating thereof producing friction locking between the cushion means and said socket, and

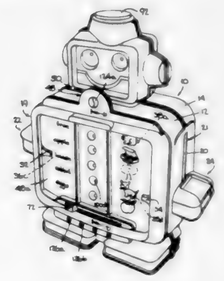
holding means joined to said socket-defining means constructed to be held by a user's hand.

4,280,809

EDUCATIONAL TOY

Lawrence J. Greenberg, 64 Mountain Ave., Larchmont, N.Y. 10538, and Gregory E. Hyman, 19 Sicard Ave., New Rochelle, N.Y. 10804

Filed Feb. 7, 1979, Ser. No. 9,872
Int. Cl.³ G09B *7/06*
U.S. Cl. 434—343 **6 Claims**



1. A toy comprising:

(a) a housing;

(b) a first member mounted on said housing and selectively movable between a plurality of discrete positions on said housing, such positions constituting a first set;

(c) a second member mounted on said housing and selectively movable between a plurality of discrete positions on said housing, such positions constituing a second set, each position of said second set being associated with a position of said first set according to a predetermined pattern;

(d) means for displaying a plurality of symbols of a first type and a plurality of symbols of a second type, each such symbol of said second type being logically related to one of said symbols of said first type, so that each one of said symbols of said first type is displayed on said housing in alignment with one of the positions of said first set and each one of said symbols of said second type is displayed on said housing in alignment with the position of said second set which is associated, according to said predetermined pattern, with the position of said first set in alignment with which is displayed the logically related one of said symbols of said first type;

(e) a switch which is selectively manually actuable independent of the positioning of said members; and

(f) detection and signalling means operatively associated with said switch for detecting in an alignment-testing mode, the position of said first member and the position of said second member, and, responsive to actuation of said switch, emitting a first operator-perceivable signal if, at the time of such actuation, said first and second members are in associated positions, and emitting a second operator-perceivable signal different from said first operator-perceivable signal if, at the time of such actuation said first and second members are in non-associated positions, wherein said detection and signalling means includes output means for emitting a third operator-perceivable signal in the event that said switch is actuated while said first and second members are in non-associated positions, said third signal being indicative of the position of said

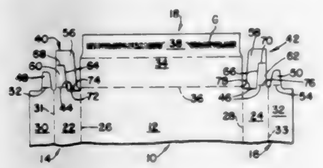
first set at which said first member is located at the time of such actuation, and wherein said output means includes a plurality of visual indicators, one of said visual indicators being positioned in alignment with each one of the positions of said second set, and said third signal includes actuation of the visual indicator which is aligned with the appropriate position of said second set, and wherein said detection and signalling means includes means operable in a randomizing mode for pseudorandomly selecting one of said visual indicators and, in response to actuation of said switch, actuating the visual indicator so selected, said toy further comprising manually operable control means for causing said detection and signalling means to operate either in said alignment-testing mode or in said randomizing mode, as selected by the operator.

4,280,810

METHOD OF FOLDING AND SECURING A BOX COVER

Glenn E. Struble, Oxford, Ohio, assignor to Diamond International Corporation, New York, N.Y.

Division of Ser. No. 954,687, Oct. 25, 1978, Pat. No. 4,214,694. This application Oct. 15, 1979, Ser. No. 85,136
Int. Cl.³ B31B *1/22, 1/26*
U.S. Cl. 493—356 **5 Claims**



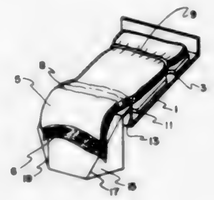
1. A method of forming, assembling, and erecting a box cover or like member of pasteboard or like material with a top panel, fold over side walls, and fold over end walls, wherein each of the side and end walls includes an outer wall panel integral with the top panel, and an inner wall panel integral with and extending alongside a respective one of the outer side wall panels, wherein each of the outer side wall panels includes a corner assembly tab at opposite ends thereof, and each of the inner side wall panels includes a floating corner reinforcement tab at opposite ends thereof; said method comprising the steps of forming each of the corner assembly tabs on one of said outer side wall panels with a duplex hinge member between the outer side wall panel and the respective corner assembly tab with a first hinge portion and a second hinge portion formed between the outer side wall panel and the respective corner assembly tab but farther from the longitudinal midpoint of the outer side wall panel than said first hinge portion.

4,280,811

BAG DISPENSER

Milton A. Howe, Jr., Spartanburg, S.C., assignor to W. R. Grace & Co., Cryovac Division, Duncan, S.C.

Filed Jul. 2, 1979, Ser. No. 54,219
Int. Cl.³ B65H *1/04*
U.S. Cl. 493—386 **14 Claims**



1. A bag dispensing apparatus comprising:
dispensing surface means adapted to hold a stack of generally coinciding bags having edges;
pinching means adapted to pinch said stack of bags to said dispensing surface means; and
crimping means adapted to laterally crimp the edges of said stack of bags.

4,280,812

METHOD OF IMPARTING SMOLDER RESISTANCE TO COTTON-CONTAINING TEXTILES

Darrell J. Donaldson, and Robert J. Harper, Jr., both of Metairie, La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 21, 1980, Ser. No. 132,594
Int. Cl.³ D06M *1/00*
U.S. Cl. 8—116 P **10 Claims**

1. A process for imparting smolder resistance to cotton and cotton-containing fabric, the process comprising:
(a) preparing an aqueous solution of a mixture consisting of
(1) a boron compound,
(2) a compound containing an N-methylol group, and
(3) a phosphorus compound,
(b) applying the solution of (a) onto a cotton fabric or onto a cotton-containing fabric, to a wet-pickup of about from 15% to 100%,
(c) drying the impregnated fabric at a temperature of about from 120° to 185° F. for about from 10 to 2 minutes, respectively, and
(d) curing the dried fabric at a temperature of about from 225° to 300° F. for about from 7 to 1 minutes, respectively.

4,280,813

ANIMAL TATTOOING PASTE AND METHOD OF MAKING THE SAME

Warren H. DeGoler, 42 Ginger Cove Rd., Valley, Nebr. 68064

Filed Dec. 18, 1979, Ser. No. 104,813
Int. Cl.³ D06P *1/613, 1/46*
U.S. Cl. 8—404 **5 Claims**

1. The method of manufacturing an improved animal carcass tattooing paste having substantially enhanced permanency when used to place identifying marks on carcasses, comprising the steps of:
(1) adding a polyoxyethylene derivative of a fatty acid partial ester of sorbitol anhydrides and an organic dye material, which is compatible with the other ingredients of the paste, to heated water and propylene glycol and mixing the same;
(2) adding mineral oil and a sorbitan mono fatty acid ester to a heated inorganic viscosity modifier and mixing the same;
(3) adding the mixture of step (2) to the mixture of step (1) and mixing the same;
(4) adding a thickening agent to the mixture and mixing the same; and
(5) packaging the product.

4,280,814

DYEING PROCESS AND COMPOSITIONS

Gary L. Bond, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 19, 1979, Ser. No. 21,756
Int. Cl.³ D06P *1/62, 1/48*
U.S. Cl. 8—588 **8 Claims**

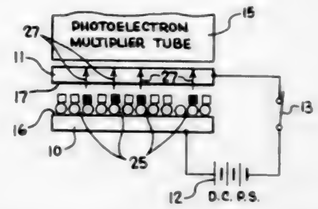
1. A dye composition comprising an admixture of finely ground azo or methine type dye component, from about ¼ to about 4/1 parts of ammonium lignin sulfonate/part of dye and from about 1/10 to about 5/1 parts of ammonium compound-/part of dye, wherein said ammonium compound is one or more ammonium sulfate, ammonium chloride, ammonium acetate, and ammonium hydroxide.

4,280,815

ELECTROCHEMILUMINESCENT IMMUNOASSAY AND APPARATUS THEREFOR

Bruce J. Oberhardt, Mishawaka, Ind., and Neil Wotherspoon, New York, N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Jun. 18, 1979, Ser. No. 49,818
Int. Cl.³ G01N *21/62, 33/54*
U.S. Cl. 23—230 B **21 Claims**



1. A method of immunoassaying a sample containing an immunoreactant comprising the steps of:
(a) forming a reaction mixture comprising said sample immunoreactant, a complementary immunoreactant, and a competitive immunoreactant with respect to said sample immunoreactant, said competitive immunoreactant having a chemiluminescent label attached thereto;
(b) confining said reaction mixture between a pair of electrodes;
(c) immobilizing said complementary immunoreactant adjacent one of said electrodes prior to the confining of said reaction mixture;
(d) incubating said reaction mixture to form a reaction product;
(e) applying a controlled voltage across said pair of electrodes for a controlled period of time to generate an oxidant for chemically triggering said chemiluminescently labelled competitive immunoreactant bound to said complementary immunoreactant in said reaction product; and
(f) measuring the chemiluminescence of said bound chemiluminescently labelled competitive immunoreactant.

4,280,816

MACROENCAPSULATED IMMUNOSORBENT ASSAY TECHNIQUE AND ELEMENT THEREFOR

Nasik Elahi, 41-77 Frame Pl., Flushing, N.Y. 11355

Filed Oct. 25, 1979, Ser. No. 87,928
Int. Cl.³ G01N *33/54, 33/56*
U.S. Cl. 23—230 B **8 Claims**

1. In a method for determining the presence and concentration of an antigen in a liquid medium by immunoassay wherein a supported antibody to said antigen is brought into contact for a predetermined time with said liquid medium in the presence of a quantity of said antigen which has been labelled to permit its detection, and thereafter determining by suitable detection means either the amount of said labelled antigen bound to said supported antibody or the amount of said labelled antigen in said medium, the improvement comprising providing said supported antibody as an element comprising particulate, supported antibody loosely encapsulated and confined within a rigid porous filter membrane having a pore size less than the size of said particulates, said element being of a substantially fixed, pre-determined volume such that said particulates agitate freely within said element.

8. An element comprising particulate, supported antibody loosely encapsulated and confined within a rigid porous filter membrane having a pore size less than the size of said particulates, said element being of a substantially fixed, pre-determined volume such that said particulates agitate freely within said element.

4,280,817

SOLID FUEL PREPARATION METHOD

Satya P. Chauhan; Herman F. Feldmann; Edgel P. Stambaugh, all of Worthington, Ohio, and Ke-Tien Liu, Allison Park, Pa., assignors to Battelle Development Corporation, Columbus, Ohio

Continuation of Ser. No. 949,981, Oct. 10, 1978, abandoned. This application Jun. 25, 1980, Ser. No. 162,979

Int. Cl.³ C10L *9/02*

U.S. Cl. 44—1 R **15 Claims**

1. A process for treating solid particles of a raw carbonaceous fuel of the coal or coke type having an original sulfur content, comprising

(a) producing a slurry of a quantity of the raw fuel particles and a liquid medium comprising water, at least one alkali metal compound including a substantial amount of sodium or potassium sulfide or polysulfide or a combination thereof, and a chemical agent comprising calcium or magnesium oxide or carbonate, or dolomite,

(b) subjecting the slurry for an effective period of time to elevated temperature and pressure effective with the alkali metal compounds and water to cause the medium to penetrate the microscopic structure of the particles and to chemically and physically incorporate a substantial amount of the chemical agent into the structure,

(c) separating the readily separable medium from the fuel particles and washing the particles to remove most of the alkali metal therefrom while producing a particulate fuel product containing a substantial amount of the chemical agent therein,

(d) adding most of the separated medium to the slurry produced in step (a),

(e) adding to the medium or the slurry a sufficient quantity of the chemical agent to replace the chemical agent removed from the slurry with the particulate fuel product,

(f) adding more raw fuel particles to the medium or the slurry, and

(g) continuing to carry out steps (b-f) with a multiplicity of new additions of the raw fuel particles and with a multiplicity of reuses of the separated medium to produce fuel product particles containing a quantity of sulfur that is not substantially less than the original sulfur content, in addition to the chemical agent.

4,280,818

NOVEL COMPOSITIONS OF MATTER AND PROCESS FOR UTILIZING SAME

Johann G. Schulz; John J. Stanulonis, both of Pittsburgh, and William R. Wajert, Delmont, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Feb. 22, 1980, Ser. No. 123,921

Int. Cl.³ C10L *1/02*

U.S. Cl. 44—56 **41 Claims**

1. A process for producing a novel composition of matter which comprises oxidizing a hydrocarbon oil with aqueous nitric acid, separating from the resulting oxidation product an aqueous phase and an oxidized hydrocarbon phase as the novel composition of matter.

26. Process for operating a furnace or combustion engine which comprises burning in said furnace or said combustion engine a novel fuel composition comprising (1) a novel composition of matter obtained by oxidizing a hydrocarbon oil with aqueous nitric acid, separating from the resulting product an aqueous phase and an oxidized hydrocarbon phase and then extracting said oxidized hydrocarbon phase with at least one organic polar solvent to obtain an extract as the novel composition of matter and (2) an organic polar solvent.

28. The process of claim 26 wherein said first named polar solvent is ethanol.

4,280,819

DIESEL FUEL COMPOSITIONS CONTAINING CERTAIN AZIDES FOR IMPROVED CETANE NUMBER

Robert J. Hartle, Gibsonia, and Gary M. Singerman, Monroeville, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Apr. 30, 1980, Ser. No. 145,369

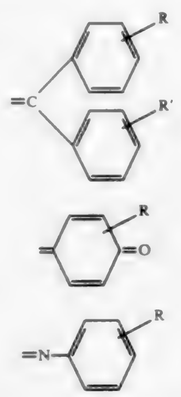
Int. Cl.³ C10L *1/22*

U.S. Cl. 44—64 **9 Claims**

1. An improved fuel composition comprising a major amount of a hydrocarbon fuel oil selected from the group consisting of diesel fuel and jet fuel and a minor amount sufficient to increase the cetane number of the fuel of an additive compound having the following structural formula:

$$X=N^+=N^-$$

where X is selected from the group consisting of:



(i)

(ii)

(iii)

where R and R′ can be the same or different and are selected from the group consisting of hydrogen; alkyl straight- and branched chain hydrocarbons having from 1 to 8 carbon atoms; alkoxy groups having from 1 to 8 carbon atoms; aryl; aryloxy; nitro; hydroxy; halo amino in a position meta or para to the azido; alkylamino; acyl groups having from 2 to 8 carbon atoms; alkylamido; and alkoxy carbonyl.

4,280,820

STEAM REFORMING PROCESS

Reginald G. S. Banks, Olton, and Alan Williams, Cheswick Green, both of England, assignors to British Gas Corporation, London, England

Division of Ser. No. 923,550, Jul. 11, 1978, Pat. No. 4,216,123. This application Feb. 8, 1980, Ser. No. 119,979

Claims priority, application United Kingdom, Jul. 11, 1977, 5655/77

The portion of the term of this patent subsequent to Aug. 5, 1997, has been disclaimed.

Int. Cl.³ C10G *11/02*

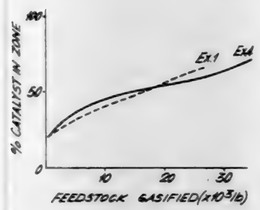
U.S. Cl. 48—214 A **8 Claims**

1. A process for the production of methane-containing gases, said process including the steps of

passing a mixture of steam and the vapor of a hydrocarbon feedstock having a boiling range up to that of gas oils over a coprecipitated catalyst such that a reaction therebetween occurs, said coprecipitated catalyst comprising a metal of Group VIII of the Periodic Table, alumina and optionally, minor amounts of an alkali or alkaline earth metal, wherein, in the calcined but unreduced form of the catalyst:

(i) at least 55% of the pore volume of pores having a pore radius of between 12 and 120 Angstrom Units is in the range of 12 to 30 Angstrom Units, and

(ii) the ratio (Q) of the pore volume contained in pores of radius 10 to 50 Angstrom Units to pore volume contained in pores of radius 50–300 Angstrom Units is at least 5:1, and



controlling the physical conditions of said mixture and said catalyst such that said reaction is conducted at an elevated pressure and at a temperature of from 350° to 650° C. at the upstream end of said catalyst and at least 450° C. at the downstream end of said catalyst.

4,280,821

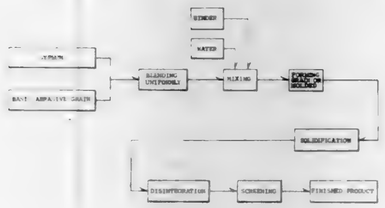
DISINTEGRABLE LUMP ABRASIVE GRAINS AND PROCESS FOR PRODUCING SAME

Liao Chin-Chi, No. 42, Chi Shih St., Tai-Chung City, Taiwan

Filed Oct. 2, 1979, Ser. No. 81,116

Int. Cl.³ C09K *3/14*

U.S. Cl. 51—298 **7 Claims**



1. Process of producing an abrasive composition in lump form for use as polishing and buffing agent, comprising the steps of:

uniformly mixing grains of abrasive material with gypsum,

adding water and a binder selected from the group consisting of water glass, methyl cellulose, glue, polyvinyl alcohol and polyvinyl acetate to solidify the mixture,

disintegrating the solidified mixture to produce lumps containing said grains of abrasive material, and

screening said lumps to selected size.

4,280,822

METHOD FOR PRODUCTION OF ABRASIVE COMPOSITION FOR USE IN TOOTHPASTE

Satish K. Wason, Churchville, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Division of Ser. No. 946,678, Sep. 28, 1978, Pat. No. 4,244,707, which is a division of Ser. No. 826,901, Aug. 24, 1977, Pat. No. 4,159,280, which is a continuation-in-part of Ser. No. 723,345, Sep. 15, 1976, abandoned. This application Mar. 28, 1980, Ser. No. 134,817

Int. Cl.³ C09C *1/02, 1/68*

U.S. Cl. 51—308 **9 Claims**

1. A method for the production of an abrasive composition useful for incorporation into a theraupeutic toothpaste composition and for preventing fluoride-caused corrosion and staining of an unlined aluminum tube containing said toothpaste composition, said abrasive composition comprising a silica which has been treated with a water-soluble alkaline earth metal compound so as to have present therein from about 168–7000 ppm of the alkaline earth metal, said silica being an amorphous precipitated silica and functioning as a carrier for the alkaline earth metal;

said method comprising the following sequence of steps:

(a) forming an aqueous solution of an alkali metal silicate having an SiO_2 to X_2O mole ratio of about 2.0 to 2.7 and of an alkali metal sulfate at a reaction temperature in the range of about 66° to 83° C., wherein X represents the alkali metal;

(b) acidulating said aqueous solution with a mineral acid with continuous agitation until precipitation of silicon dioxide is substantially complete at a pH of about 8.0 to 10.4;

(c) continuing the mineral acid addition until the pH is 6.0 or less;

(d) digesting at a temperature that is 10°–30° C. higher than the reaction temperature for a period of about 10 to 30 minutes;

(e) filtering the resulting slurry and washing the solid product with fresh water;

(f) reslurrying the resulting wet cake in water, and under agitation conditions, adding thereto at ambient temperature a water soluble alkaline earth metal compound in an amount sufficient to add to said wet cake from about 168–7000 ppm of the alkaline earth metal based on the dry recoverable product;

(g) agitating the resulting mixture to provide adherence of the effective level of said metal on the surface of said silicon dioxide; and

(h) drying and recovering said abrasive composition.

4,280,823

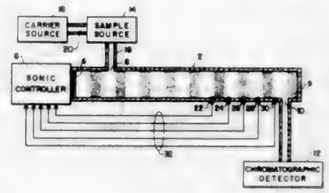
METHOD AND APPARATUS FOR SONIC SEPARATION AND ANALYSIS OF COMPONENTS OF A FLUID MIXTURE

Eugene L. Szonntagh, Flourtown, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 13, 1979, Ser. No. 93,456

Int. Cl.³ B01D *51/08;* **G01N** *31/08*

U.S. Cl. 55—15 **10 Claims**



1. An apparatus for separating fluid components of a fluid mixture comprising:

a closed chamber of uniform cross-section,

sonic generator means for introducing sonic waves in said chamber,

an entrance port into said chamber located adjacent to said sonic generator means,

carrier fluid source means,

sample fluid source means connected between said carrier souce means and said entrance port for supplying a fluid sample having a mixture of at least two components, said carrier source means being arranged to supply a carrier fluid to sweep a sample fluid from said sample source means into said chamber through said entrance port and

exit port means for said chamber located remotely from said entrance port means, said carrier fluid urging said fluid sample through said chamber to separate said fluid com-

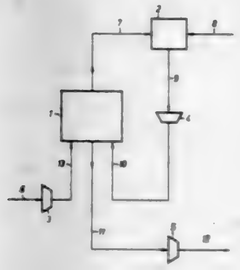
ponents by said sonic waves and ultimately through said exit port means.

4,280,824

PROCESS FOR PROVIDING A FEED GAS FOR A CHEMICAL REACTION AND FOR THE SEPARATION OF A GASEOUS REACTION PRODUCT

Eberhard Lammann, Herrsbenen, and Christian Beakmann, Munich, both of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Dec. 14, 1979, Ser. No. 103,773
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2854860
Int. Cl.³ B01D 53/04
U.S. Cl. 55—26 **17 Claims**



1. An improved process for providing a feed gas for a chemical reaction and for separating a gaseous reaction product from the gaseous mixture obtained from a reaction to which the feed gas is submitted, wherein the feed gas is obtained by the fractionation of a crude gas mixture containing the feed gas, as well as a carrier gas or carrier gas mixture, and in which the feed gas is reacted only incompletely in the reaction, and wherein the unreacted proportion is to be recycled into the reaction, the improvement comprising conducting the fractionation of the crude gas mixture and the separation of the gaseous reaction product in the same adsorption plant containing cyclically reversible adsorbers, and operating by the pressure swing method.

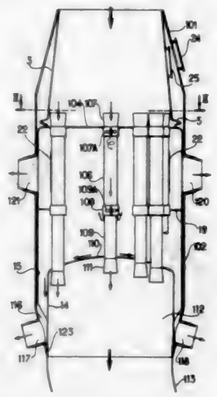
4,280,825

VERTICAL SEPARATOR FOR SEPARATING LIQUID OR SOLID PARTICLES FROM A VAPOR OR A GAS

Jacques Marjollet, Paris; Gerard Tondeur, Velizy-Villacoublay; Jean-Pierre Cordon, Houilles, and Patrick Talleu, Chatou, all of France, assignors to Stein Industrie, Velizy-Villacoublay and Electricite de France, Paris, both of, France

Filed May 7, 1979, Ser. No. 36,703
Claims priority, application France, May 12, 1978, 78 14212; Apr. 6, 1979, 79 08784
Int. Cl.³ B01D 45/12
U.S. Cl. 55—203 **11 Claims**

1. A vertical separator for separating liquid or solid particles from a mixture of the particles and a vapour or gas, said separator including, a cylindrical outer casing, a transverse spacer plate expanding across the interior of said outer casing and defining an upper chamber inside said outer casing for admitting the mixture, a plurality of vertical tubes, said tubes having ends protruding upwardly through said spacer plate and being provided with fixed blades at said ends which impart a helical movement to the mixture and outlets at their lower ends for said tubes provided with a coaxial tube of reduced diameter and being an inner tube which allows dry vapour or gas to be removed by said inner tube and a mixture containing a higher proportion of liquid or solid particles to be removed in the annular space between said inner and outer tubes which leads into a free chamber where said mixture containing a higher proportion of liquid or solid particles is separated into substantially dry vapour or gas and a fluid which contains little vapour or gas, and said inner tubes leading into a dry vapour or gas collecting chamber, the improvement wherein at the bottom of said free chamber, the separator has an upwardly convex bottom forming with said outer cylindrical casing a narrow annular space for collecting the fluid which has a low vapour or gas



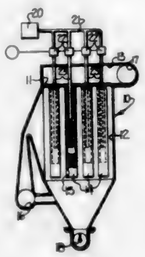
content and passages which are regularly disposed between the tubes and which allow the substantially particle-free vapour or gas to escape upwards between said vertical tubes, and discharge tubes opening radially through said outer casing to said free chamber, above said narrow annular space, for removing said substantially dry vapour or gas.

4,280,826

BAG-TYPE FILTER APPARATUS WITH HIGH PRESSURE AIR JET CLEANING

Allen S. Johnson, Jr., Salisbury, N.C., assignor to Staclean Diffuser Company, Salisbury, N.C.

Continuation-in-part of Ser. No. 76,605, Sep. 18, 1979, Pat. No. 4,231,770. This application Oct. 3, 1979, Ser. No. 81,461
The portion of the term of this patent subsequent to Nov. 4, 1997, has been disclaimed.
Int. Cl.³ B01D 46/04
U.S. Cl. 55—302 **10 Claims**



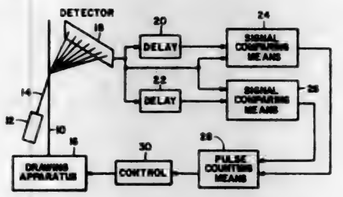
1. In a filter apparatus of the type wherein a particulate-laden gas is directed through a tubular filter bag for filtering and retaining the particulate material on the exterior of the bag, with the filtered air being discharged from one end of the filter bag, a tubular supporting cage positioned within the filter bag and supporting the filter bag thereon, and said filter apparatus also having a cleaning system including a compressed air control valve communicating with a compressed air source for periodically discharging pulses of compressed air for cleaning and removing accumulated particulate material from the filter bag, the combination therewith of an elongate air distributor pipe having one end communicatively connected to said control valve for receiving the periodic pulses of compressed air therefrom, said elongate air distributor pipe extending into said one end of the filter bag and also into said filter bag supporting cage and being positioned longitudinally along the interior of said supporting cage and filter bag, and said air distributor pipe having a plurality of air outlet openings therein for distributing the compressed air throughout the interior of the filter bag, and an elongate hollow diffuser tube extending longitudinally within said tubular supporting cage and said filter bag in surrounding relation to said air distributor pipe, said diffuser tube having perforations therein for diffusing and further distributing throughout the filter bag the compressed air which is discharged from said air distributor pipe to thus more effectively clean the filter bag and provide a substantial increase in the efficiency of the filter apparatus.

4,280,827

SYSTEM FOR MEASURING OPTICAL WAVEGUIDE FIBER DIAMETER

Edward F. Murphy, Wrightsville Beach, N.C., and James R. Portzer, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,011
Int. Cl.³ C03B 37/02
U.S. Cl. 65—11 W **4 Claims**



1. A signal processing system in combination with apparatus for drawing an optical fiber comprising

means for directing a beam of monochromatic light onto said fiber, thereby creating a light interference patern and light detecting means for producing an electrical signal corresponding to said interference patern,

source means providing an input signal having a sinusoidal component,

first and second delay circuits connected to said source means, said first delay circuit providing a first delayed signal which is delayed a given amount, said second delay circuit providing a second delayed signal which is delayed an amount different from said given amount,

first signal comparing means connected to said source means and said first delay circuit for providing output pulses when the amplitude of said input signal exceeds that of said first delayed signal and when the amplitude of said first delayed signal exceeds that of said input signal,

second signal comparing means connected to said source means and said second delay circuit for providing output pulses when the amplitude of said input signal exceeds that of said second delayed signal and when the amplitude of said second delayed signal exceeds that of said input signal,

means for counting the output pulses from said first and second signal comparing means, and

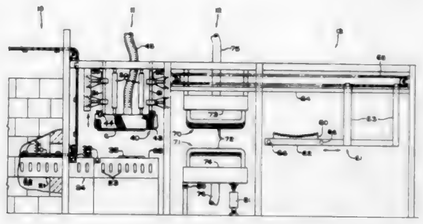
means for utilizing the output of said counting means.

4,280,828

SHAPING GLASS SHEETS BY DROP FORMING WITH PRESSURE ASSIST

Samuel L. Seymour, Oakmont, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 960,404, Nov. 13, 1978, abandoned. This application Mar. 30, 1979, Ser. No. 25,423
Int. Cl.² C03B 23/025
U.S. Cl. 65—106 **7 Claims**



1. A method of shaping glass sheets, comprising the steps of:

heating a glass sheet to approximately its softening point within a heating chamber;

withdrawing the heat-softened glass sheet from the heating chamber and supporting it in an essentially horizontal orientation on support means;

bringing the upper surface of the glass sheet into close proximity to a flat platen in communication with a source of vacuum;

drawing a vacuum through the platen so as to retain the glass sheet on the platen;

vertically separating the platen and the glass sheet carried thereon from the support means;

bringing into vertical alignment with and beneath the glass sheet held on the platen a shaping mold having a contour defining the desired contour for the glass sheet, and bringing the shaping mold to rest a substantial distance below the glass sheet so as to establish a sufficient dropping distance to shape the glass sheet upon impact with the shaping mold; and

rapidly replacing the vacuum in the platen with positive pressure so as to propel the glass sheet from the platen toward the shaping mold with an acceleration greater than the acceleration of gravity, and impacting the shaping mold with the glass sheet with sufficient force to immediately bend the glass sheet to substantially its final shape upon impact with the shaping mold, whereby the glass sheet is shaped in accordance with the contour of the shaping mold.

4,280,829

APPARATUS FOR CONTROLLING INTERNAL PRESSURE OF A BAIT TUBE

Kalapi D. Sheth, Houston, Tex., assignor to Corning Glass Works, Corning, N.Y.

Filed May 12, 1980, Ser. No. 148,953
Int. Cl.³ B05C 7/00; B05D 7/22
U.S. Cl. 65—158 **4 Claims**

1. In an apparatus for depositing a layer of glass on the inner surface of a glass bait tube comprising

means for rotatively supporting said tube,

means for introducing an input gas into said tube,

means for receiving exhaust gas flowing from one end of said tube,

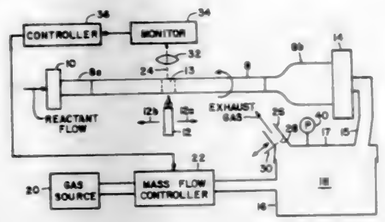
means for heating said tube to form a hot zone therein,

means for monitoring the diameter of said tube in the region of said hot zone, and

means for controlling the pressure within said tube, thereby controlling the outer diameter of said tube,

said means for controlling being characterized in that it comprises

means defining a chamber,



means connecting said means for receiving exhaust gas to said chamber, and

means responsive to said monitoring means for controlling the pressure within said chamber.

4,280,830

UREA-FORMALDEHYDE GRANULAR FERTILIZER

Fred E. Ferguson, Marysville; Rory R. Hughes, Westerville, and Kenneth E. Fersch, Marysville, all of Ohio, assignors to O. M. Scott and Sons Company, Marysville, Ohio

Filed Jan. 23, 1980, Ser. No. 114,638
Int. Cl.³ C05F 11/00
U.S. Cl. 71—25 **14 Claims**

1. A fertilizer composition comprising

free flowing granules, said granules comprising expanded, substantially oil-free coffee grounds as a carrier, said coffee grounds being the residue of coffee beans remaining after extraction of soluble components, said coffee grounds being coated and impregnated with a urea-formaldehyde condensation product, the ratio of urea to formaldehyde in said condensation product ranging from 1 to 3 moles of urea for each mole of formaldehyde, said composition having at least 15% of the total nitrogen in cold water insoluble form.

8. A process for preparing a fertilizer composition comprising

producing an aqueous solution of methylol urea by reacting urea and formaldehyde in an alkaline solution in which the ratio of urea to formaldehyde ranges from 1 to 3 moles of urea for each mole of formaldehyde,

contacting substantially oil-free coffee grounds with said aqueous solution of methylol urea to expand said coffee grounds and to coat and impregnate the expanded coffee grounds with said methylol urea, said coffee grounds being the residue of coffee beans remaining after extraction of soluble components, and

acidifying said methylol urea while coated and impregnated on said coffee grounds to form by condensation therefrom a urea-formaldehyde condensation product, whereby a free-flowing granular fertilizer composition is produced having at least 15% of the total nitrogen in cold water insoluble form.

4,280,831

BENZYLSULFONYL DIETHYLCARBAMYL TRIAZOLE AND USE AS A SELECTIVE HERBICIDE

Natu R. Patel, Overland Park, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Aug. 4, 1980, Ser. No. 174,975
Int. Cl.³ A01N 47/38; C07D 249/12
U.S. Cl. 71—92 **6 Claims**

1. The method of selectively combating unwanted vegetation which comprises applying pre-emergently to the locus of the unwanted vegetation an effective amount of a herbicidal composition which comprises from 0.1 percent to 95 percent by weight 3-benzylsulfonyl-1-diethylcarbamoyl-1,2,4-triazole and from 0.1 to 75 percent by weight of a carrier or surfactant.

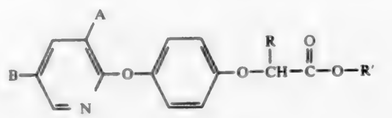
4,280,832

PYRIDYLOXY-PHENOXYALKANE CARBOXYLIC ACIDS AND DERIVATIVES AS SUGAR ENHANCERS FOR PLANTS

John F. Koerwer, Perkasie, Pa., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 25, 1980, Ser. No. 133,851
Int. Cl.³ A01N 43/40
U.S. Cl. 71—94 **70 Claims**

1. A method for increasing the sugar content of plants which comprises applying to such plants from 1 to 7 weeks prior to harvesting an effective amount of a compound of the formula.



wherein:

A is a hydrogen atom or a halogen atom,

B is a hydrogen atom or a halogen atom,

R is a hydrogen atom or a methyl group, and

R′ is a hydrogen atom, an alkyl group having from 1 to 4 carbon atoms, or a cation;

provided, however, that either A or B must be a halogen atom.

4,280,833

ENCAPSULATION BY INTERFACIAL POLYCONDENSATION, AND AQUEOUS HERBICIDAL COMPOSITION CONTAINING MICROCAPSULES PRODUCED THEREBY

George B. Beestman, Creve Coeur, and John M. Deming, Hazelwood, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Mar. 26, 1979, Ser. No. 23,566
Int. Cl.³ A01N 37/18, 37/22; B01J 13/02
U.S. Cl. 71—100 **29 Claims**

1. A process for producing a composition consisting essentially of a mixture of water and microcapsules containing a water-immiscible material within a shell wall of polyurea, which process comprises:

(a) providing an aqueous phase containing an emulsifier selected from the group consisting of the sodium, potassium, magnesium, calcium and ammonium salts of lignin sulfonate;

(b) dispersing in said aqueous phase, a water-OOCH immiscible phase consisting essentially of polymethylene polyphenylisocyanate dissolved in said water-immiscible material, to form a dispersion of water-immiscible phase droplets throughout the aqueous phase;

(c) adding, with agitation, to said dispersion a polyfunctional amine whereby said amine reacts with polymethylene polyphenylisocyanate to form a polyurea shell wall about said water-immiscible material.

19. A herbicidal composition consisting essentially of a mixture of water and microcapsules containing a water-immiscible herbicide, said mixture being produced by a process which comprises the steps of:

(a) providing an aqueous phase containing an emulsifier selected from the group consisting of the sodium, potassium, magnesium, calcium and ammonium salts of lignin sulfonate;

(b) dispersing in said aqueous phase, a water-immiscible phase consisting essentially of polymethylene polyphenylisocyanate dissolved in said water-immiscible herbicide, to form a dispersion of water-immiscible phase droplets throughout the aqueous phase;

(c) adding, with agitation, to said dispersion a polyfunctional amine whereby said amine reacts with polymethylene polyphenylisocyanate to form a polyurea shell wall about said water-immiscible herbicide;

(d) wherein the concentration of said water-immiscible herbicide is from about 480 grams to about 700 grams per liter of said composition, wherein the concentration of polymethylene polyphenylisocyanate is from about 3.5% to about 21.0% by weight of said water-immiscible material, wherein the concentration of said polyfunctional amine is from about 1.5% to about 9.0% by weight of said water-immiscible herbicide, and wherein the concentration of said emulsifier is from about ¼% to about 15% by weight of said water-immiscible herbicide.

4,280,834

NOVEL DIPHENYL ETHER DERIVATIVE AND HERBICIDAL COMPOSITION CONTAINING THE SAME AS AN ACTIVE COMPONENT

Kenji Kobayashi, Ageo; Katahiko Hibi, Fukiage; Hisabumi Kobayashi, and Shoichi Kato, both of Ageo, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 20, 1980, Ser. No. 123,025
Claims priority, application Japan, Mar. 9, 1979, 54-26631
Int. Cl.³ A01N 41/10; C07C 147/06
U.S. Cl. 71—103 **3 Claims**

1. 3-n-propylsulfonylphenyl 4′-trifluoromethylphenyl ether.

2. An herbicidal composition which comprises an effective amount of 3-n-propylsulfonylphenyl 4′-trifluoromethylphenyl ether as an active ingredient, and a carrier and other adjuvants.

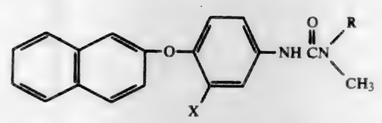
4,280,835

HERBICIDAL N-PHENYL-N-METHYLUREA DERIVATIVES

Takemoto Ichiki, Takarazuka; Ryo Yoshida, Kawanishi; Seizo Sumida, Nishinomiya, and Kamoshita Katsuzo, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 6, 1978, Ser. No. 967,018
Claims priority, application Japan, Dec. 13, 1977, 52-150377; Dec. 17, 1978, 53-128096
Int. Cl.³ A01N 47/30
U.S. Cl. 71—120 **9 Claims**

1. A herbicidal composition which comprises as an active ingredient a herbicidally effective amount of a compound of the formula:



wherein X is a hydrogen atom, a halogen atom or a trifluoromethyl group and R is a methyl group or a methoxy group, and an inert carrier.

4,280,836

METHOD OF PREHEATING IRON SCRAPS IN STEEL-MAKING BY THE ELECTRIC ARC FURNACE

Yukimasa Maeda, Osaka, Japan, assignor to Kyoei Steel Ltd., Osaka, Japan

Filed Jun. 2, 1980, Ser. No. 155,094
Int. Cl.³ C21C 5/52
U.S. Cl. 75—12 **3 Claims**

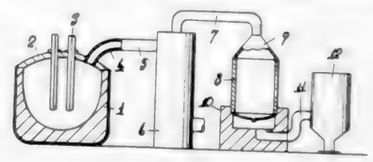
1. A method of preheating iron scraps in steel-making by an electric arc furnace comprising the steps of:

a. burning combustible substances included in high-temperature exhaust gases generated in an electric arc furnace to render the gas non-explosive;

b. directing the non-explosive high-temperature exhaust gases into a charging bucket to preheat iron scraps in the charging bucket up to a predetermined temperature;

c. supplying said preheated iron scraps into the electric arc furnace;

d. directing any malodorous gases generated by the evaporization of elements stuck to the iron scraps in the electric



arc furnace, which gases are emitted directly from the electric furnace and charging bucket into a deodorizing apparatus; wherein the deodorization is effected by pyrolysis or burning of the malodorous elements in the exhaust gases;

e. directing the deodorized gases into a dust removing machine; and

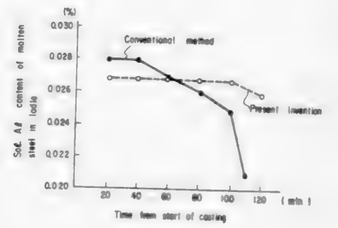
f. discharging the thus-deodorized gases into the atmosphere.

4,280,837

METHOD FOR CONTINUOUSLY CASTING SLAB FOR MANUFACTURING GRAIN-ORIENTED ELECTRICAL STEEL SHEET AND STRIP

Morio Shiozaki, Himejishi; Mitsuaki Kawashima; Yoshiaki Shimoyama, both of Kitakyusyushi, and Nobuoki Ishihara, Nogatashi, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Oct. 31, 1979, Ser. No. 90,072
Int. Cl.³ B22D 27/00
U.S. Cl. 75—54 **4 Claims**



1. In a method for continuously casting a slab for manufacturing a grain-oriented electrical steel sheet and strip, the improved method comprising:

(1) transferring molten steel prepared for continuous casting and containing not more than 4.0% of Si, 0.01–0.08% of Al and 0.01–0.06% of S to a ladle or other vessel;

(2) adjusting a slag in said ladle or other vessel, said slag consisting essentially of SiO_2, CaO and Al_2O_3 on the surface of the molten steel to maintain the ratio of Al_2O_3 to SiO_2 of the slag at not less than 0.25, and the Al_2O_3 to CaO of the slag at not less than 1.0, and

(3) continously casting the molten steel.

4,280,838

PRODUCTION OF CARBON STEEL AND LOW-ALLOY STEEL WITH BOTTOM BLOWING BASIC OXYGEN FURNACE

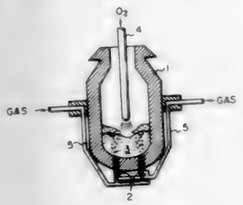
Katsukiyo Marukawa; Isao Yamazaki; Syoji Anezaki, all of Ibaraki, and Tsutomu Kajimoto, Wakayama, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Japan

Filed May 9, 1980, Ser. No. 148,530

Claims priority, application Japan, May 24, 1979, 54-64221; May 24, 1979, 54-64222

Int. Cl.³ C21C *5/32, 5/34*

U.S. Cl. 75—60 **13 Claims**



1. A method of producing carbon steel and low-alloy steel in a basic oxygen furnace comprising preparing a molten metal suitable for producing the steel in said basic oxygen furnace, carrying out the top-blowing of oxygen gas through a lance and bottom blowing and then tapping the resulting molten steel, characterized in that a blow of the bottom-blowing gas predominantly comprising carbon dioxide is introduced into the molten metal through at least one nozzle provided in the bottom or side wall of said basic oxygen furnace at least partly during the period of time from the beginning of blowing to the tapping of the melt, the flow rate of the bottom blowing gas being 1/200–9/100 the rate of oxygen impinged upon the melt through said lance.

4,280,839

RECOVERY OF METAL VALUES FROM A METAL BEARING SOURCE OF NICKEL AND VANADIUM

William K. Tolley, Arlington Heights, and William C. Laughlin, Hoffman Estates, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Nov. 1, 1979, Ser. No. 96,130

Int. Cl.³ B22F *9/00*; C22B *23/02*

U.S. Cl. 75—82 **8 Claims**

1. A process for the recovery of both nickel and vanadium values from a source containing said metal wherein at least one of said nickel or vanadium is present in the form of a sulfide, which process comprises concomitantly treating said source at a temperature in the range of from about 600° C. to about 1500° C. with both (1) an oxidant selected from the group consisting of carbon dioxide and water and (2) a sulfur-containing compound to convert said vanadium to an oxide form and said nickel to a nickel-nickel subsulfide form, wherein said nickel-nickel subsulfide is physically larger than said vanadium oxide and wherein said vanadium oxide is separated from said nickel-nickel subsulfide by means of said difference in size of said nickel-nickel subsulfide and said vanadium oxide.

4,280,840

METHOD OF PROCESSING SPONGE IRON

Z. Alexander Swiecicki, Pittsburgh, Pa., assignor to Pullman Incorporated, Chicago, Ill.

Filed Nov. 8, 1979, Ser. No. 92,610

Int. Cl.³ C21B *13/00*

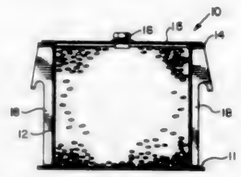
U.S. Cl. 75—43 **13 Claims**

1. A method of processing sponge iron from a direct reduction plant comprising the steps of;

filling a container with sponge iron,

sealing said container and applying a minus atmosphere pressure source thereon to vacuum seal the same,

introducing into said container a means to suppress any chemical reactions within said container,



transporting said container to a smelting furnace and charging said furnace with said container and the contents therein.

4,280,841

METHOD FOR MANUFACTURING A MECHANICAL SEAL RING

Hiroshi Ito, Dazaifu, and Shigeya Sakaguchi, Fukuoka, both of Japan, assignors to Nippon Tungsten Co., Ltd., Fukuoka, Japan

Filed Sep. 6, 1978, Ser. No. 939,947

Claims priority, application Japan, Sep. 27, 1977, 52-116291; Sep. 27, 1977, 52-116493

Int. Cl.³ B22F *5/00, 3/00*

U.S. Cl. 75—203 **7 Claims**



1. A method of bonding a hard carbide powder material to an iron base alloy substrate to form a mechanical seal ring comprising:

(a) disposing a hard carbide powder material in a groove formed in an iron base alloy substrate,

(b) compacting and presintering said hard carbide powder material while the latter is in said groove to form a presintered powder compact in said groove,

(c) applying a separate bonding material in the form of a nickel-phosphorous alloy to said presintered powder compact,

(d) heating said alloy-applied presintered powder compact in a non-oxidizing atmosphere to impart infiltration and diffusion of nickel and phosphorous from said bonding material into said iron base alloy substrate, and

(e) metallurgically bonding said powder compact to said iron base alloy substrate by said infiltration and diffusion.

4,280,842

DENTAL-CEMENT COMPOSITION AND METHOD OF PREPARING AND USING SAME

Floyd E. Dewhirst, Cambridge, Mass., assignor to Forsyth Dental Infirmary for Children, Boston, Mass.

Filed Mar. 19, 1979, Ser. No. 21,337

Int. Cl.³ A61K *6/00*; C08K *3/22, 5/07*

U.S. Cl. 106—35 **19 Claims**

1. A premixed dental-cement composition adapted for use in the oral cavity of a patient, which dental-cement composition comprises in combination:

(a) a metal oxide-hydroxybenzophenone chelate compound;

(b) a dental filler material which comprises a metal oxide in an amount sufficient to provide additional strength to the composition, so that it may be employed as a dental cement;

said dental-cement composition having a eutectic temperature of from about 100° F. to about 125° F. and characterized by being reversibly changed between a hard solid state, suitable for use as a dental cement, to a liquid state, suitable for application as a dental cement within the eutectic temperature range.

4,280,843

FRIT GLASS COMPOSITION

William A. Graff, Willoughby, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed May 12, 1980, Ser. No. 148,917

Int. Cl.³ C03C *5/00*

U.S. Cl. 106—48 **6 Claims**

1. A frit glass composition devoid of both lead and arsenic lead consisting essentially of about, in weight percent,

SiO_2	18–25
TiO_2	0–5
ZrO_2	7–12
ZnO	18–21
BaO	4–6
CaO	4–6
Na_2O	2–4
K_2O	6–8
B_2O_3	15–22
Al_2O_3	3–7
F	0–3

except for incidental impurities and residual fluxes and refining agents.

4,280,844

REFRACTORY BRICK FOR MOLDING MOLTEN STEEL

Hiroshi Shikano, 9-40 Kobai 4-chome, Yahata Nishi-ku, Kita Kyushu-shi, Fukuoka-ken, and Toshihiko Iwata, 14-30 Shinozaki 5-chome, Kokura Kita-ku, Kita Kyushu-shi, Fukuoka-ken, both of Japan

Filed Oct. 29, 1979, Ser. No. 89,032

Claims priority, application Japan, Nov. 7, 1978, 53-136279

Int. Cl.³ C04B *35/52*

U.S. Cl. 106—56 **2 Claims**

1. A spalling- and corrosion-resistant refractory for steel making furnaces and casting pits comprising the composition of refractory material consisting essentially of one or more refractory inorganic substances, 1–30% by weight of aluminum powder having a particle size below 0.5 mm, and 2–15% by weight of thermo-setting organic resin binder based on the total weight of said refractory material, respectively, and prepared by mixing, kneading, molding into bricks and burning said composition at a temperature below 800° C.

4,280,845

CORDIERITE CERAMIC

Tadaaki Matsuhisa, and Shigeo Soejima, both of Nagoya, Japan, assignors to NGK Insulators, Ltd., Japan

Continuation of Ser. No. 936,197, Aug. 24, 1978, abandoned, which is a continuation of Ser. No. 777,575, Mar. 15, 1977, abandoned. This application Dec. 27, 1979, Ser. No. 107,701

Claims priority, application Japan, Dec. 28, 1976, 51-159157

Int. Cl.³ C04B *35/18, 35/20*

U.S. Cl. 106—62 **5 Claims**

1. A process for the preparation of cordierite ceramic consisting mainly of cordierite in crystal phase after fired, and having a mean pore size of 2–50 microns and a thermal expansion coefficient of not more than 16×10^{-7}(1/°C.) in the range of 25°–1000° C., characterized in that a starting material having a chemical composition consisting of 42–52% by weight of silica, 34–48% by weight of alumina and 10–18% by weight of magnesia, in which an average particle size of magnesia starting material is 5–150 microns, is fired by raising temperature at a rate of 30°–300° C./hr in the temperatures above 1100° to control formation of a liquid phase appearing during firing and then keeping a peak temperature for sufficient time to attain crystallization of cordierite from the liquid phase.

4,280,846

METHOD OF FABRICATION OF DIELECTRIC MATERIAL HAVING VOLUME-DISTRIBUTED INSULATING BARRIERS FOR USE AT HIGH VOLTAGES AND A CERAMIC BODY FABRICATED BY SAID METHOD

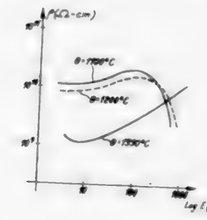
Eliane Charles; Mieczyslaw Hildebrandt, and Francois Buchy, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Jul. 27, 1979, Ser. No. 61,407

Claims priority, application France, Aug. 1, 1978, 78 22734

Int. Cl.³ C04B *35/50, 35/49*

U.S. Cl. 106—73.2 **8 Claims**



7. A ceramic body prepared by a process comprising:

(a) grinding raw materials constituted of a powdered mixture of oxides and salts in the following proportions:

1-x moles of $BaCO_3$;

x moles of $CaCO_3$, $SrCO_3$, $PbCO_3$ or $MgCO_3$ or another salt of Ca, Sr, Pb, or Mg which can readily be decomposed under the action of heat;

z(1-y) moles of TiO_2;

z y moles of SnO_2, ZrO_2 or SiO_2; wherein

$0<x<0.5$

$0<y<0.5$

$1<z<1.1$,

the initial mixture further comprising at least one oxide or salt of a rare earth element or an element having a valence of 3 or 5 in a quantity by weight representing 15 to 30 per ten thousand of the total weight of moles of BaO and of TiO_2 contained in the initial mixture and at least one oxide or salt of copper, manganese, cobalt or iron in a quantity by weight representing 5 to 15 per ten thousand of the total weight of moles of BaO and of TiO_2 contained in the mixture;

(b) heat treatment by calcining;

(c) further grinding said calcined material;

(d) shaping said material by pressing or casting; and

(e) heat treatment by sintering following a temperature curve comprising a rising portion, a level-temperature stage and a falling portion, the rising portion and the level-temperature stage occurring in atmospheric air, the temperature of the level stage being within the range of 1330° C. to 1380° C., the operation being conducted in a substantially oxygen containing atmosphere during the falling-temperature stage which occurs at a rate less than 50° C. per hour, starting from a temperature which is less than the level-stage value by 0° C. to 300° C.; said ceramic body having the characteristic that the curve of variation in resistivity of said ceramic body as a function of the electric field to which said body is subjected has at least one rising portion.

4,280,847

PROCESS AND APPARATUS FOR PRODUCING HIGHLY COLLOIDIZED WATER-CEMENT MIXTURES AND FOR COATING PIPES

Wilfried Hachenev, am Königsberg 15, 4930 Detmold, Fed. Rep. of Germany

Filed Apr. 21, 1978, Ser. No. 898,894

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1977, 2718236; Oct. 13, 1977, 2746053; Dec. 7, 1977, 2754424

Int. Cl.³ C04B *7/02*

U.S. Cl. 106—89 **8 Claims**

1. A process for forming protective coatings for structural components, comprising premixing water and cement in a mixer in a weight ratio between about 0.25 and 0.6 for about 2 minutes at a speed of 300 m/min; rotating said water-cement mixture in the same or in a second mixer so that cement grains in said mixture are exposed to a mass acceleration of at least 2 g ($g = 9.81$ m/sec^2) over at least 8 minutes, thereby forming a completely colloidized cement glue; applying said cement glue to a structural component to be coated; and allowing said coating to set for about 8 to 12 hours.

4,280,848

SAG RESISTANT MORTAR COMPOSITIONS

Jeffrey R. Ellis, Hightstown, N.J., and Herman B. Wagner, Perkasie, Pa., assignors to Tile Council of America Inc., Princeton, N.J.

Continuation of Ser. No. 857,804, Dec. 5, 1977, abandoned, which is a continuation-in-part of Ser. No. 749,946, Dec. 20, 1976, Pat. No. 4,082,563. This application Oct. 4, 1979, Ser. No. 81,811

Int. Cl.³ C04B *7/35*

U.S. Cl. 106—90 **25 Claims**

1. A composition capable of admixture with water to form a sag resistant hydraulic cementitious composition, the composition before said admixture comprising:

(a) at least 20% by weight, based on the weight of the composition, of an hydraulic cement with from about 0.5 to about 50% by weight of at least one substantially water insoluble polymer;

(b) at least 0.2% by weight, based on the weight of the composition, of at least one water soluble high molecular weight polymer; and

(c) from about 0.2 to about 5.0% by weight based on the weight of the composition, of at least one sag resistance imparting agent selected from among gelatinous metal hydroxides and metal salts capable of forming a gelatinous or hydrated hydroxide in the presence of aqueous base.

4,280,849

AQUEOUS DISPERSIONS

Peter B. Howard, Yarm, and Peter J. Broadhurst, Northallerton, both of England, assignors to Tioxide Group Limited, Cleveland, England

Filed Feb. 12, 1980, Ser. No. 120,780

Claims priority, application United Kingdom, Mar. 6, 1979, 07903/79

Int. Cl.³ C09C *1/36*

U.S. Cl. 106—300 **19 Claims**

1. A process for the manufacture of an aqueous paste of solid particulate material having a desired viscosity which comprises subjecting an aqueous dispersion of said particulate material to a two-stage filtration operation in which a filter cake obtained from a first filtration stage is mixed without the addition of any substantial quantity of water with a dispersing agent for the solid particulate material in an amount which is sufficient to render the cake free-flowing and the free-flowing dispersion so obtained is then subjected to the second-stage filtration employing a pressure filter to produce a filter cake which is then homogenised in a mixer until a recovered aqueous paste having the desired viscosity is obtained.

4,280,850

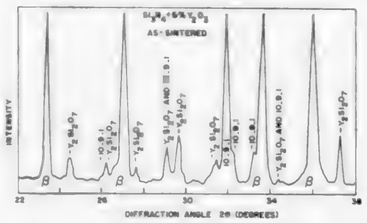
S13N4 HAVING HIGH TEMPERATURE STRENGTH AND METHOD

J. Thomas Smith, Acton; Carr L. W. Quackenbush, Lexington, and F. Joseph Reid, Acton, all of Mass., assignors to GTE Laboratories, Incorporated, Waltham, Mass.

Filed Jun. 15, 1978, Ser. No. 916,334

Int. Cl.³ C04B *35/50, 35/58*

U.S. Cl. 106—73.2 **5 Claims**



1. A polycrystalline ceramic body consisting essentially of a first phase of Si_3N_4 grains, and a second substantially completely crystalline intergranular phase consisting essentially of SiO_2 and a densifying additive RE_2O_3 where RE is selected from the group consisting of Y and the lanthanide rare earths La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu.

4,280,851

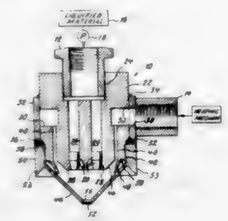
PROCESS FOR COOKING OR GELATINIZING MATERIALS

Ezra Pitchon, Flushing, N.Y.; Joseph D. O'Rourke, Dover, and Theodore H. Joseph, Ellendale, both of Del., assignors to General Foods Corporation, White Plains, N.Y.

Filed Dec. 14, 1979, Ser. No. 103,779

Int. Cl.³ C13L *1/04, 1/08*

U.S. Cl. 127—33 **34 Claims**



1. A method of uniformly cooking a material comprising:

(a) mixing a material in an aqueous solvent;

(b) atomizing the mixture into an enclosed chamber;

(c) interjecting a heating medium into the atomized mixture in the enclosed chamber to cook the material, said chamber containing a vent aperture positioned to enable the atomized mixture to exit the chamber, the size and shape of the chamber and the vent aperture being effective to maintain the temperature and moisture content of the material for a period of time sufficient to cook said material.

4,280,852

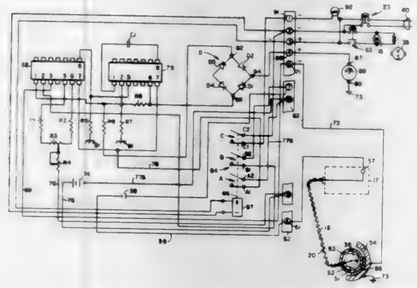
METAL TUBE CLEANING METHOD

Heyward O. Dunham, 12 Eastview Dr., Mooresville, Ind. 46158, and Harry K. Dunham, 11241 Keith Dr., Whittier, Calif. 90606

Division of Ser. No. 61,608, Jul. 30, 1979, Pat. No. 4,224,072. This application Apr. 17, 1980, Ser. No. 141,112

Int. Cl.³ B08B *1/04, 7/04, 9/02*

U.S. Cl. 134—8 **4 Claims**



1. A method of sensing the cleaning progress of a cleaning tool in a heat exchanger tube comprising the steps of:

applying a voltage between the tube and a sensor element of a tube cleaning tool being rotated in the tube;

utilizing any current variation signal in a path between said sensor element and tube to produce an input signal representative of resistance to current flow as the tool is rotated for cleaning the tube;

producing an indicator output signal in response to the input signal, indicative of the current flowing between the sensor element and tube during a period of time, and thus indicating the cleanliness of the tube based upon the amount of high-resistance foreign deposits in the tube.

4,280,853

SOLAR ENERGY CONVERSION UNIT

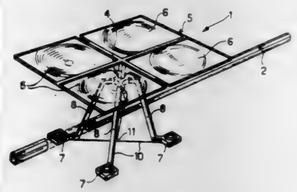
Mario Palazzetti; Cesare Ponti, both of Avigliana, and Pier L. Tenci, Nichelino, all of Italy, assignors to Centro Ricerche Fiat S.p.A., Orbassano, Italy

Filed Mar. 24, 1980, Ser. No. 133,074

Claims priority, application Italy, Mar. 30, 1979, 67669 A/79; Feb. 7, 1980, 67183 A/80

Int. Cl.³ H01L *31/04*

U.S. Cl. 136—246 **6 Claims**



1. A solar-energy conversion unit comprising

a fixed support structure;

a mounting element articulated on said support structure with at least two degrees of freedom relative thereto;

an optical solar-energy concentrator fixed to the said mounting element and comprising a plurality of coplanar spherical lenses mounted with their centers mutually disposed in a geometric pattern corresponding to that formed by the vertices of a polygon, the geometric center of said pattern lying on the notional line perpendicular to the plane of the said lenses which passes through the center of articulation of the said mounting element on the support structure;

a plurality of solar-energy converter modules each comprising a photo-voltaic cell; and

a plurality of connecting legs extending from said mounting element and supporting respective ones of said converter modules in a common plane parallel to said lenses with each converter module being located at the foci of respective ones of the spherical lenses and with the point of articulation of the mounting element to the support structure being located between said plane and said lenses.

4,280,854

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING CONDUCTIVE AND INSULATING PORTIONS FORMED OF A COMMON MATERIAL UTILIZING SELECTIVE OXIDATION AND ANGLED ION-IMPLANTATION

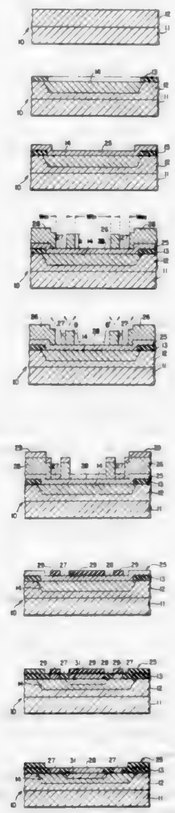
Hiroshi Shibata; Hideo Iwasaki, and Kunio Yamada, all of Kawasaki, Japan, assignors to VLSI Technology Research Association, Kawasaki, Japan

Filed May 1, 1979, Ser. No. 34,901

Claims priority, application Japan, May 4, 1978, 53/52654

Int. Cl.³ H01L *21/265, 21/285*

U.S. Cl. 148—1.5 **2 Claims**



1. A method of manufacturing a semiconductor device comprising a semiconductor substrate having a principal surface and a predetermined conductivity type, said method comprising the steps of:

selectively forming, in said substrate, a first semiconductor region reaching said principal surface, said first semiconductor region being of the conductivity type opposite to said predetermined conductivity type to define a first PN junction in said substrate;

forming a layer of a conductive material on said principal surface to cover said first semiconductor region, said material being oxidizable into an insulating material when heated;

selectively forming a photoresist layer on said conductive layer to a predetermined thickness with a first and a second portion of said conductive layer exposed over said first semiconductor region, said first and said second conductive layer portions having a first width and a second width wider than said first width, respectively, said second conductive layer portion being placed inside said first conductive layer portion with the photoresist layer left therebetween;

carrying out ion implantation to introduce an impurity of the predetermined conductivity type substantially only on said second conductive layer portion at a first and a second angle to said principal surface, said first and said second angles being selected in consideration of said predetermined thickness and said first and said second widths;

forming a layer of a protective material on said photoresist layer and said first and said second conductive layer portions, said protective material preventing those portions of said conductive layer placed on said first and said second conductive layer portions, respectively, from being oxidized;

removing said photoresist layer together with the protective layer portion formed thereon to expose the conductive layer portions other than said first and said second conductive layer portions;

forming a second semiconductor region of the predetermined conductivity type in said first semiconductor region by making said impurity diffuse from said second conductive layer portion while said exposed portions are oxidized into insulating layer portions, said second semiconductor region providing a second PN junction in said first semiconductor region; and

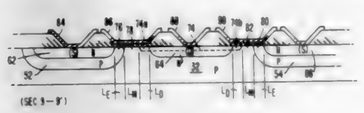
removing the protective layer remaining on said first and said second conductive layer portions.

4,280,855

METHOD OF MAKING A DUAL DMOS DEVICE BY ION IMPLANTATION AND DIFFUSION

Claude L. Bertin, South Burlington, Vt.; Francisco H. De La Moneda, Stormville, N.Y., and Donald A. Soderman, Saratoga, Calif., assignors to IBM Corporation, Armonk, N.Y.

Filed Jan. 23, 1980, Ser. No. 114,484
Int. Cl.³ H01L 7/44, 21/26
U.S. Cl. 148—1.5 **7 Claims**



1. A method for forming a pair of mutually compensated diffused MOS devices having a predictable transconductance, comprising the steps of:

simultaneously forming a first and second channel regions of a first conductivity type in a semiconductor substrate of said first conductivity type, separated by a first distance;

simultaneously forming a first and second source regions of a second conductivity type within said first and second channel regions of said first conductivity type;

forming a third drain region of said second conductivity type between said first and second channel regions of said first conductivity type, having a first separation distance from said first channel region of said first conductivity type and a second separation distance from said second channel region of said first conductivity type, for a common drain of two FET devices having said first and second regions of said second conductivity type as the respective sources of said two FET devices;

ion implanting a conductivity layer of said second conductivity type in said substrate over said third drain region of said second conductivity type, which extends into said region separating said third drain region of said second conductivity type from said first channel region of said first conductivity type and which extends into said region separating said third drain region of said second conductivity type from said second channel region of said first conductivity type;

simultaneously depositing a first gate electrode over the region separating said third drain region and said first source region and a second gate electrode over the region separating said third drain region and said second source region;

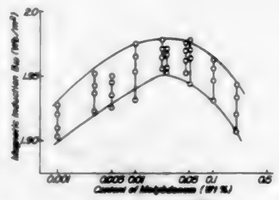
whereby a parallel connected pair of FET devices is formed wherein the transconductance of the first FET device compensates for the error due to misalignment, in the transconductance of the second FET device.

4,280,856

METHOD FOR PRODUCING GRAIN-ORIENTED SILICON STEEL SHEETS HAVING A VERY HIGH MAGNETIC INDUCTION AND A LOW IRON LOSS

Yukio Inokuti; Yoh Shimizu, both of Chiba, and Hiroshi Shimanaka, Funabashi, all of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Jan. 4, 1980, Ser. No. 109,524
Int. Cl.³ H01F 1/04
U.S. Cl. 148—111 **2 Claims**



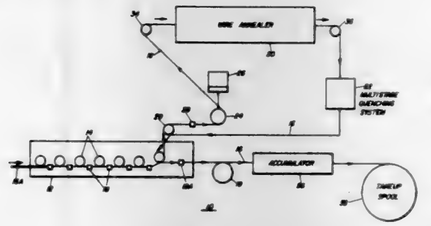
1. In a method for producing grain-oriented silicon steel sheets having a very high magnetic induction and a low iron loss, in which a silicon steel material containing not more than 0.06% of C, 2.0–4.0% of Si, 0.005–0.20% of Sb and not more than 0.10% of at least one of Se and S is hot rolled and the hot rolled sheet is repeatedly subjected to annealing and cold rolling to obtain a cold rolled steel sheet having a final gauge, then subjected to primary recrystallizing annealing concurrently to effect decarburization, and to final annealing at a temperature of 820°–900° C. for 10–80 hours, and to grow secondary recrystallized grains of {110} <100> orientation, the improvement comprises adding Mo of 0.01 to 0.10% to the above-described silicon steel material as an inhibitor.

4,280,857

CONTINUOUS DRAW ANNEAL SYSTEM

H. Clifford Dameron, Jr., Ross Township, Allegheny County; Nicholaas L. Brouwer, Washington Township, Fayette County, and Guy E. Martin, Ross Township, Allegheny County, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Nov. 5, 1979, Ser. No. 91,136
Int. Cl.³ B21C 9/00; C21D 8/06, 9/62
U.S. Cl. 148—156 **3 Claims**



1. Apparatus for successively slip drawing, annealing and quenching non-ferrous wire comprising:

a machine for continuously drawing wire by directing the same through a plurality of successive wire drawing dies using a plurality of capstans upon which turns of the wire are wound, the capstans slipping within the turns of wires in the process of directing wire to the dies,

means for continuously annealing wire,

means for directing the wire from the machine to the annealing means before the wire reaches the last die of the plurality, including means independent of the slip of the drawing machine to control tension on the wire entering the annealing means,

means for continuously quenching the wire after it leaves the annealing means,

means for controlling the rate of cooling in the quenching means and thus the temperature of the wire leaving the quenching means, such that the wire leaving the quenching means has a predetermined temperature value,

means for continuously returning the wire from the quenching means to the drawing machine for final drawing of the wire in the machine, and

a last die for finally drawing the wire in the machine and within the slip profile of the machine.

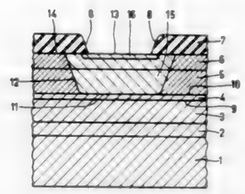
4,280,858

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE BY RETARDING THE DIFFUSION OF ZINC OR CADMIUM INTO A DEVICE REGION

Christianus J. M. Van Opdorp, and Hendrik Veenvliet, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 5, 1979, Ser. No. 91,428
Claims priority, application Netherlands, Nov. 29, 1978, 7811683
Int. Cl.³ H01L 21/20, 21/22
U.S. Cl. 148—175 **10 Claims**

1. A method of manufacturing a semiconductor device including a body of III-V compound type semiconductor material comprising the steps of forming an n-type substrate and a substrate-adjoining region having conductivity properties differing from said substrate, introducing zinc or cadmium into said region over at least a part of a surface of said region away from said substrate, diffusing said zinc or cadmium to said substrate, and retarding diffusion of said zinc or cadmium into said substrate near a junction between said substrate and said



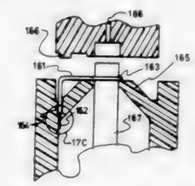
region by selecting the net donor concentration in said substrate near said junction to be high.

4,280,859

METHOD OF MANUFACTURING A BLOW-MOLDED CONTAINER WITH AN INTEGRAL HANDLE

Mortimer S. Thompson, P.O. Box 113, Enfield, Conn. 06082

Continuation of Ser. No. 877,603, Feb. 14, 1978, abandoned. This application Apr. 10, 1979, Ser. No. 28,886
Int. Cl.³ B32B 1/10; B29C 17/07
U.S. Cl. 156—73.5 **34 Claims**



1. Method for forming a plastic container from an expanded preform, comprising:

forming a preform with an integral handle having a ring and projection, wherein said ring is formed intermediate the ends of the preform and is integral with and extends substantially about a region of the preform that remains substantially constant in size during expansion, and wherein said projection is formed to extend from the ring for gripping, lifting and pouring and for distributing the stresses resulting therefrom about said ring,

placing the preform in means for expansion and holding said ring by such means to properly locate and restrict the movement of the preform therewithin, and

expanding the preform below said ring to form the plastic container.

4,280,860

PROCESS FOR MANUFACTURING NONWOVEN FABRICS COMPOSED OF CRIMPED FILAMENTS

Hsiang-Sheng Shen; LeMoyne W. Plischke; William M. Baggett, all of Pensacola, and Franklin T. Osborne, Gulf Breeze, all of Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 2, 1979, Ser. No. 90,825
Int. Cl.³ D04H 5/14; D01D 5/22; D02G 1/18
U.S. Cl. 156—167 **6 Claims**

1. A process for preparing a point-bonded, nonwoven fabric having apparel-like qualities comprising:

(1) melt spinning side-by-side bicomponent filaments in which both components are composed of the same polymer and one component contains at least 500 ppm of CaF_2 uniformly dispersed therein, with no CaF_2 in the other component,

(2) quenching said filaments,

(3) pneumatically attenuating said quenched filaments,

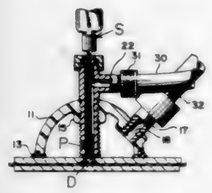
(4) depositing said attenuated filaments onto a moving surface to form a web,
(5) point-bonding said filaments to provide a nonwoven fabric, and
(6) collecting said fabric
wherein said steps (1) through (4) occur within a period of time less than 0.5 seconds and wherein the ratio of the two components and the amount of CaF_2 in said CaF_2-containing component are correlated to provide filaments which without being heated develope at least 5 crimps per inch of non-extended length after being attenuated and prior to being deposited onto said moving surface.

4,280,861

APPARATUS FOR REPAIRING LAMINATED SAFETY GLASS

Herbert S. Schwartz, 915 SW. 101st Ave., Miami, Fla. 33174

Filed Aug. 25, 1980, Ser. No. 180,691
Int. Cl.³ B32B *31/00*
U.S. Cl. 156—382 **7 Claims**



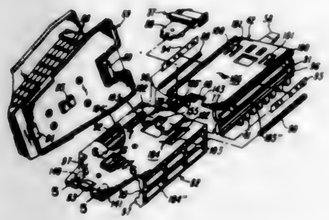
1. Apparatus for repairing laminated safety glass comprising, in combination, an elongated tubular member, means for supporting said tubular member so that its central, longitudinal axis is substantially perpendicular with respect to the surface of the glass to be repaired and with one end thereof in sealing relation with respect to and surrounding the damaged zone to be repaired, a resilient closure at the other end of said tubular member to provide for piercing thereof with the needle of a hypodermic syringe and thereby enable the injection of repair fluid upon the damaged glass zone to be repaired, and means communicating with the interior of said tubular member for alternately imposing reduced and increased air pressure therein to facilitate the withdrawal of air from the damaged zone and substitution therefor of the repair fluid.

4,280,862

LABEL PRINTING AND APPLYING APPARATUS

Paul H. Hamisch, Jr., Franklin, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Aug. 22, 1979, Ser. No. 68,843
Int. Cl.³ B32B *31/00*; B41F *1/02, 1/08*
U.S. Cl. 156—384 **16 Claims**



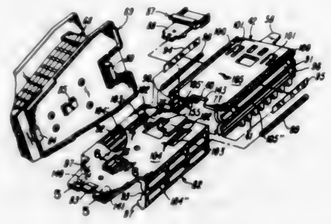
6. Apparatus for printing and applying pressure sensitive labels releasably adhered to a web of supporting material, the apparatus comprising: a housing having a handle, a platen and a cooperable print head mounted by the housing, the housing having means for rotatably supporting a roll of pressure sensitive labels, means for delaminating printed labels from the web, means for applying printed labels, means defining a path for the web from the label roll, to between the platen and the print head, around the delaminating means, into engagement with the feeding means and out of the housing, and means for moving the print head into and out of printing cooperation with the platen and for thereafter moving the feeding means to advance the web to dispense a label into label applying relationship with the label applying means and to bring another label to a printing position between the print head and the platen, the moving means including a first slide slidably mounted by the housing, a second slide connected to the print head and slidably mounted on and relative to the first slide, a manually engageable actuator disposed at the handle, releasable latch means for the second slide, wherein the first and second slides move as a unit when the actuator is manually actuated until the movement of the second slide is stopped by the latch means, spring means acting on the first and second slides, the actuating means further including means coupling the actuator and the first slide for moving the first slide to compress the spring means while travel of the second slide is prevented by the latch means to effect accumulation of energy in the spring means, and means effective after a predetermined length of travel of the first slide for releasing the latch means to enable the spring means to drive the second slide and move the print head into printing cooperation with the platen, the spring means including a spring assembly having a plurality of coupled telescoping members, one member having a head and another member having a socket for receiving the head, the socket having a plurality of fingers for gripping the head, and a helical spring for exerting opposite forces on the members and for maintaining the members in coupled relationship, wherein the one member includes a first section having a relatively large transverse dimension and a second section having a relatively small transverse dimension joined to the first section, the second section terminating at the head, the fingers of the other member being received about the second section and being engaged with the head.

4,280,863

LABEL PRINTING AND APPLYING APPARATUS

Paul H. Hamisch, Jr, Franklin; Donald L. Karn, Springboro, and James A. Makley, Miamisburg, all of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Aug. 22, 1979, Ser. No. 68,844
Int. Cl.³ B41K *1/00*
U.S. Cl. 156—387 **39 Claims**



1. Apparatus for printing and applying pressure sensitive labels releasably adhered to a web of supporting material, the apparatus comprising: a housing having a handle, a platen and a cooperable print head mounted by the housing, the housing having means for rotatably supporting a roll of pressure sensitive labels, means for delaminating printed labels from the web, means for applying printed labels, means defining a path for the web from the label roll, to between the platen and the print head, around the delaminating means, into engagement with the feeding means and out of the housing, and means for moving the print head into and out of printing cooperation with the

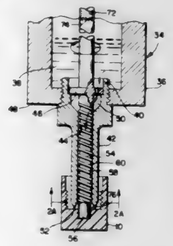
platen and for thereafter moving the feeding means to advance the web to dispense a label into label applying relationship with the label applying means and to bring another label to a printing position between the print head and the platen, the moving means including a first slide slidably mounted by the housing, a second slide connected to the print head and slidably mounted on and relative to the first slide, a manually engageable actuator disposed at the handle, releasable latch means for the second slide, the moving means further including means coupling the actuator and the first slide for moving the first slide relative to the second slide to compress the spring means to accumulate energy in the spring means, and means for releasing the latch means to enable the spring means to drive the second slide relative to the first slide and move the print head into printing cooperation with the platen.

4,280,864

APPARATUS AND METHOD FOR LINING CAPS

Henry Bromberg, Providence, R.I., assignor to Tech Industries, Inc., Woonsocket, R.I.

Filed Mar. 17, 1980, Ser. No. 131,434
Int. Cl.³ B29B *3/02*; B29C *19/00*
U.S. Cl. 156—500 **11 Claims**



1. A device for applying a viscous liquid material such as a hot melt adhesive in a preselected pattern such as an annular ring upon a receiving surface including a central area comprising, an elongated member having an open longitudinal bore and including upper and lower ends thereof, a longitudinally directed shaft extending through said bore and adapted for limited relative rotational contact therewith, said shaft including an extension at the lower end thereof, said extension having a lower surface adapted to contact said central area of said receiving surface, said member lower end terminating in an edge outwardly radially offset from said extension and forming a space therebetween, said shaft and said member bore cooperating to define at least one generally closed continuous helical grooved path operatively associated with a supply of said material at its upper end and terminating in at least one open arcuately shaped slot at its lower end, said slot positioned at the top of said space and extending substantially less than the full perimetal extent of such space at the top thereof, and means for effecting said relative rotation so as to force said material along said grooved path and out of said slot in a heaped pile along at least an arcuate portion of said ring pattern.

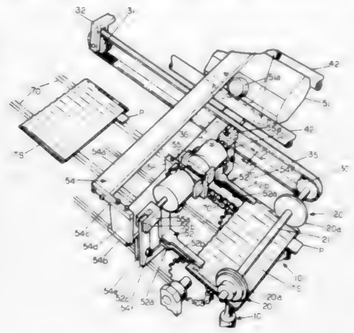
4,280,865

SYNCHRONIZED DRIVE FOR HEAT SEALING ROLLER ANVILS

Robert D. Simonton, Fremont, Ohio, assignor to Dale Products, Inc., Fremont, Ohio

Filed Aug. 27, 1979, Ser. No. 69,620
Int. Cl.³ B30B *15/30*; B32B *31/20*
U.S. Cl. 156—538 **5 Claims**

1. In a mechanism for heat sealing overlapping portions of thermoplastic sheet material having a thermal energy source producing a heating zone and linearly movable gripping means for positively linearly moving the thermoplastic sheet material through the heating zone, the improvement comprising a roller anvil, means mounting said roller anvil for rotation at a position in said heating zone to engage the surface of the thermoplastic sheet material opposite to the thermal energy source,



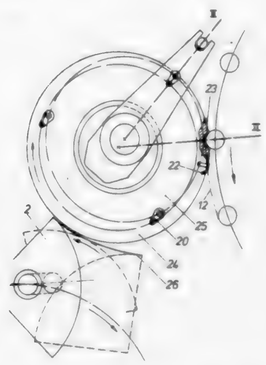
and means movable with said gripping means for positively rotating said roller and to move the peripheral surface thereof in exact speed synchronism with the linear movement of said thermoplastic sheet material through the heating zone.

4,280,866

LABELING STATION

Rudolf Zodrow, Dusseldorf, and Egon Höveler, Haan, both of Fed. Rep. of Germany, assignors to Jagenberg Werke AG, Dusseldorf, Fed. Rep. of Germany

Filed Oct. 4, 1979, Ser. No. 81,990
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1978, 2845645
Int. Cl.³ B65C *9/16, 9/36*
U.S. Cl. 156—568 **3 Claims**



1. In a labeling station for applying labels onto objects, having at least one pickup element mounted eccentrically on a rotatable carrier for movement about an axis, a gripper cylinder comprising a shaft and a rotating carrier having eccentrically disposed gripping and pressing elements on portions thereof, which elements are tangent to the circulation path of the pickup elements approximately in synchronism, the labels being transferred by the gripping and pressing elements to objects moved along a transport path, the portion of the gripper cylinder which carries the pressing elements being eccentrically mounted on the gripper-cylinder shaft in such a way that the areas to be labeled of the objects are tangent to or slightly intersected by the path of rotation of the pressing elements, and the portion carrying the pressing elements and

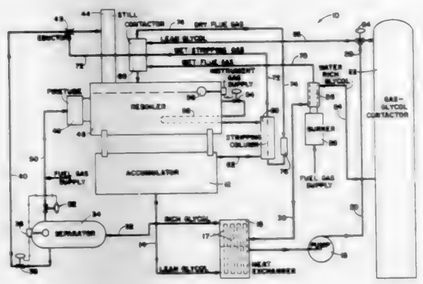
the portion carrying the gripping elements rotate with the same angular velocity, the improvement comprising means for adjusting the rotative speed of the pressing elements from the path speed of the areas to be labeled of a first group of objects being conveyed along an arcuate path whose areas to be labeled are at a first distance from the cylindrical axis of the gripper cylinder to the path speed of the areas to be labeled of another group of objects thereafter being conveyed along an arcuate path, at a different distance from the cylindrical axis of the gripper-cylinder including means for releasably replacing the portion carrying the pressing elements with another portion of a different diameter.

4,280,867

GLYCOL REGENERATION

Robert A. Hodgson, Tulsa, Okla., assignor to Maloney-Crawford Corporation, Tulsa, Okla.

Filed Jun. 11, 1979, Ser. No. 46,784
Int. Cl.³ B01D 1/14
U.S. Cl. 159—47 R **5 Claims**



1. In a method for reconcentrating a liquid desiccant used in dehydrating a stream of gas including a still column and fire-tube reboiler, an accumulator, a gas-desiccant contactor, and means to circulate said desiccant from said accumulator to said contactor and to said still column and reboiler and to return to said accumulator; the improvement in further reconcentrating said liquid desiccant comprising providing a catalytic burner system; continuously producing inert gas in said burner system for use in the method; heat exchanging water-rich desiccant from said gas-desiccant contactor with said flue gas to produce hot, rich desiccant; heat exchanging said hot, rich desiccant with lean desiccant from said accumulator; introducing said rich desiccant to said still column through an eductor; contacting a portion of said lean desiccant with said flue gas to produce dry flue gas and a resulting rich desiccant stream, which is introduced into said reboiler; and drawing said dry flue gas by a vacuum produced by said eductor into a desiccant stripping column where additional water is removed from said desiccant.

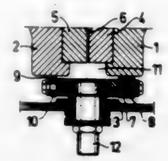
4,280,868

METHOD FOR REFINING LIGNOCELLULOSE-CONTAINING MATERIAL

Hans E. Höglund, Matfors, and Per V. Peterson, Sundsvall, both of Sweden, assignors to Sunds Defibrator Aktiebolag, Sweden

Filed Aug. 23, 1979, Ser. No. 69,082
Claims priority, application Sweden, Aug. 29, 1978, 7809085
Int. Cl.³ D21D 1/30
U.S. Cl. 162—28 **11 Claims**

1. A method of refining lignocellulose-containing material in a disc refiner having a pair of refining discs, which define a gap therebetween, and a housing surrounding the discs, comprising the steps of feeding the material into the gap between the pair of discs; refining the material as it passes through the gap generally radially outwardly with respect to the pair of discs until it exits at an outlet of the gap at the periphery of the pair of discs; continuously flowing a liquid past the outlet of the gap so as to dilute the refined material to a fiber suspension of an easily pumpable concentration; and maintaining a predetermined amount of the fiber suspension adjacent to the outlet of



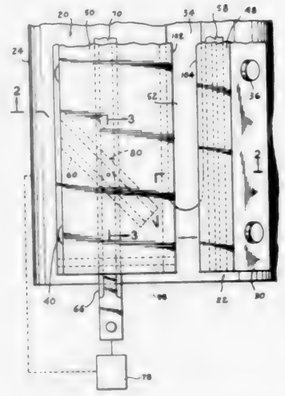
the gap, whereby the pressure at said outlet of said gap may be controlled independently of the pressure in said housing and the retention time of the material in the gap between the pair of discs may be increased.

4,280,869

SUCTION DEWATERING SYSTEM WITH CAM ACTUATED ADJUSTABLE SLOT

Lawrence W. Eckerdt, Glens Falls, N.Y., assignor to Albany International Corp., Menands, N.Y.

Filed Feb. 14, 1980, Ser. No. 121,389
Int. Cl.³ D21C 1/48, 1/52
U.S. Cl. 162—252 **12 Claims**



12. A suction dewatering system comprising; a suction device adapted to be connected to a source of suction and having a longitudinal opening therein through which suction is applied and the opening being positioned substantially perpendicular to the direction of material travelling across the suction device for dewatering thereof, a cover including at least two spaced lands with means thereon for mounting the lands to the suction device and the space therebetween forming a slot in alignment with the longitudinal opening in the suction device, a wear strip removably mounted on each land and having a wear surface for a material to be passed thereover for dewatering, at least one of the wear strips automatically being adjustable by adjustment means so that shifting of the adjustment means will cause the adjustable strip to shift laterally and vary the slot width in the direction of travel of the material across the wear surface and varying the dwell time of the material over the slot to which suction is being applied, the adjustment means including a cam arm on the cover, one of the cam arm and cover having a longitudinal track and the other of the cam arm and cover longitudinally extending into the longitudinal

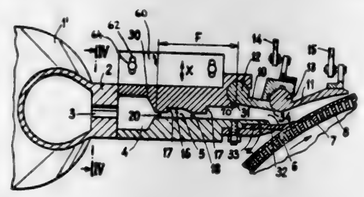
track longitudinally extending in a longitudinal track, at least one recess with a pair of opposing walls at an oblique angle forming an oblique track with respect to the longitudinal slot; and a cam extending into and mating with the oblique track, and automatic control means connectable to the cam arm and actuable to reciprocate the cam arm in response to changing conditions during use of the material causing the cam to slide in the oblique track and the adjustable wear strip to shift laterally with respect to the longitudinal slot and vary the longitudinal slot width to change the dwell time exposure of the material with respect to the longitudinal slot.

4,280,870

PULP FEED FOR A PAPERMAKING MACHINE

Alfred Babik, Ravensburg; Rüdiger Kurtz, Immenstaad, both of Fed. Rep. of Germany, and Hermann Kutzelmann, Kriens, Switzerland, assignors to Escher Wyss GmbH, Ravensburg, Fed. Rep. of Germany

Continuation of Ser. No. 38,625, May 14, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 187,602
Claims priority, application Switzerland, May 30, 1978, 5873/78
Int. Cl.³ D21F 1/06
U.S. Cl. 162—336 **9 Claims**



1. A pulp feed for feeding pulp from a headbox into a forming screen of a papermaking machine containing a guide device for a stock suspension, said guide device comprising:
an elongate, substantially slot-shaped guide channel means having a predetermined lengthwise direction of extent;
said guide channel means being bounded by side surfaces;
one of said side surfaces having two substantially step-shaped widened portions;
the other of said side surfaces being essentially flat at the region of the widened portions and between said widened portions;
the other of said side surfaces defining a substantially flat counter surface;
the one of said side surfaces having, before and after each widened portion, a respective surface section merging therewith;
each said surface section being essentially flat and extending essentially parallel to said flat counter surface;
said step-shaped widened portions defining a first widened portion and a second widened portion spaced from one another in the direction of flow of the stock suspension;
a tapered channel section merging with the flat surface section following the first step-shaped widened portion in the direction of flow of the stock suspension;
said tapered channel section having a boundary surface enclosing an angle which does not exceed 45° with respect to the flat counter surface;
a perforated plate, having substantially cylindrical bores, being connected forwardly of said slot-shaped guide channel means;
a mixing chamber being connected after said perforated plate and having an enlarged cross-sectional area in relation to a starting region of said guide channel means; and
the length of the flat section following the first step-shaped widened portion amounts to at least six times the height of said first step-shaped widened portion.

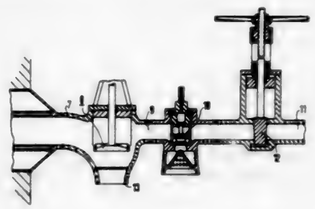
2. A pulp feed for feeding pulp from a headbox onto a forming screen of a papermaking machine containing a guide device for a stock suspension, said guide device comprising:
an elongate, substantially slot-shaped guide channel means having a lengthwise direction of extent;
said guide channel means being bounded by side surfaces;
one of said side surfaces having two substantially step-shaped widened portions;
the other of said side surfaces being essentially flat at the region of the widened portions and between said widened portions;
the other of said side surfaces defining a substantially flat counter surface;
the one of said side surfaces having, before and after each widened portion, a respective surface section merging therewith;
each said surface section being essentially flat and extending essentially parallel to said flat counter surface;
said step-shaped widened portions defining a first widened portion and a second widened portion spaced from one another in the direction of flow of the stock suspension;
a tapered channel section merging with the flat surface section following the first step-shaped widened portion in the direction of flow of the stock suspension;
said tapered channel section having a boundary surface enclosing an angle which does not exceed 45° with respect to the flat counter surface;
a perforated plate, having substantially cylindrical bores, being connected forwardly of said slot-shaped guide channel means;
a mixing chamber being connected after said perforated plate and having an enlarged cross-sectional area in relation to a starting region of said guide channel means; and
the flat surface section directly forwardly of the second step-shaped widened portion having a length amounting to at least twice the gap width of the guide channel means at such location.

4,280,871

LIVE STEAM SHUT-OFF DEVICE FOR PRESSURIZED WATER REACTORS

Jürgen Hoffmann, Erlangen, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim an der Ruhr, Fed. Rep. of Germany

Continuation of Ser. No. 427,148, Sep. 27, 1976, abandoned, which is a continuation of Ser. No. 539,422, Jan. 8, 1975, abandoned. This application Dec. 20, 1977, Ser. No. 862,626
Claims priority, application Fed. Rep. of Germany, Jan. 25, 1974, 2403668
Int. Cl.³ G21C 9/00
U.S. Cl. 176—38 **4 Claims**



1. In a pressurized water reactor having a safety vessel formed of a steel casing and a concrete wall surrounding and spaced from the steel casing, a double-wall steam discharge line extending from the steel casing through a hole formed in the concrete wall, the double-wall steam line having outer and inner walls defining an annular passage open inside the steel casing from returning steam escaping through a possible rupture in the inner wall back to the inside of the steel casing, and

said line being closed outside the steel casing at a location spaced therefrom a distance at least equal to the distance between the steel casing and the concrete wall, a shut-off device disposed in said steam discharge line comprising exclusively one shut-off valve having a casing, said casing being directly connected to an end of said steam line outside said concrete wall, said casing being formed with steam inlet and outlet openings and with a further opening and means for closing said outlet opening, and at least one additional value having a casing formed with an inlet opening, said last-mentioned valve casing being directly connected by weldment to said first-mentioned valve casing so as to connect said inlet opening of said last-mentioned valve casing directly to said further openings.

4,280,872

CORE CATCHER DEVICE

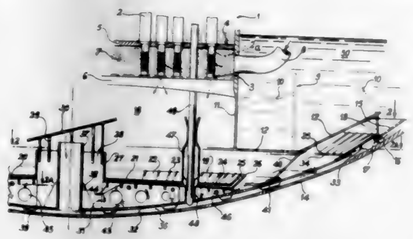
Luciano Ferrari, Modena, Italy; Bernard Fourest, Boulogne, France; Gaston Kayser, Aix en Provence, France, and Robert Martin, Grenoble, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jun. 23, 1978, Ser. No. 918,370

Claims priority, application France, Jun. 23, 1977, 77 19227

Int. Cl.³ G21C *9/00, 13/02*

U.S. Cl. 176—38 **9 Claims**



1. A core catcher device for a liquid metal cooled fast nuclear reactor comprising a pressure vessel with a bottom wall and containing a reactor core and liquid metal coolant and a core-supporting diagrid carried by a diagrid support structure on said bottom wall, wherein said device comprises a collection tray placed beneath the reactor core and pierced by a central chimney, the area of said tray being larger than the horizontal cross sectional area of said core, and a bearing structure for said collection tray having the form of a shell extending substantially parallel to said bottom wall of said pressure vessel, there being delimited between said bottom wall, said diagrid support structure and said diagrid an enclosed space which contains said collection tray, said tray dividing said space into upper and lower portions which communicate through said chimney and in the event of deposit of molten fuel on said tray, permitting circulation of liquid metal coolant from said lower to said upper space and thence through a peripheral passage surrounding said tray and allowing a simultaneous downward flow of coolant from said upper to said lower portion thus insuring cooling of molten fuel in said tray.

4,280,873

NUCLEAR POWER INSTALLATION WITH LOOP ARRANGEMENT

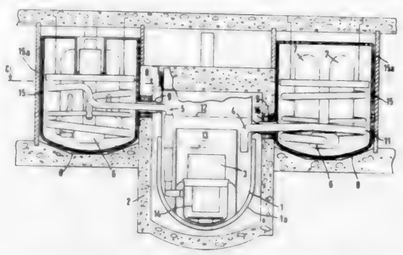
Günter Hahn, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Interatom, International Atomreaktorbau GmbH, Bergisch Gladbach, Fed. Rep. of Germany

Filed Mar. 15, 1979, Ser. No. 20,724

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812124

Int. Cl.³ G21C *15/00*

U.S. Cl. 176—65 **6 Claims**



1. Nuclear power installation with liquid metal cooling, comprising a reactor cavity, a primary circulatory loop carrying heat from the reactor cavity, a secondary coolant loop, intermediate heat exchanging means for transferring heat from the primary loop to the secondary loop and means for pumping coolant through the loops, said intermediate heat exchanging means and pumping means being disposed in separately insulated and heated component tanks, portions of the loops connected to said intermediate heat exchanging means and pumping means forming lines leading into the reactor cavity in radial direction thereof and into the component tank in tangential direction thereof, said connecting lines being helically disposed within the component tanks, and at least one of said intermediate heat exchanging means and said pumping means being disposed inside said helix.

4,280,874

NUCLEAR REACTOR CORE STRUCTURE WITH ZONES OF VARYING ENRICHMENT

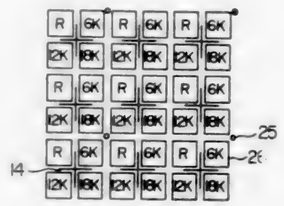
Toshio Kawai, Machida; Junichi Yamashita, and Jun Takamatsu, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 19, 1978, Ser. No. 952,660

Claims priority, application Japan, Oct. 21, 1977, 52/126419

Int. Cl.³ G21C *3/30*

U.S. Cl. 176—78 **15 Claims**



1. In a structure of a nuclear reactor core having axially upper and lower regions and radially central and peripheral regions and comprising predetermined fuel assemblies utilized with other fuel assemblies, each of said predetermined fuel assemblies including a plurality of first fuel rods each containing a fissile material and a burnable poison, and a plurality of second fuel rods each containing a fissile material without burnable poison, said first and second rods extending in the axial direction of said nuclear reactor core when said predetermined fuel assembly is loaded in said nuclear reactor core, the improvement comprising said predetermined fuel assembly having a plurality of said first fuel rods including one group of first fuel rods having respectively an upper part having an upper end portion and a lower part having a lower end portion, said upper and lower parts being separated at the axial middle thereof, said lower part being arranged to be within the axially lower region of said nuclear reactor core and packed with the fissile material of a uniform enrichment, and said upper part being arranged to be within the axially upper region of said nuclear reactor core and packed with the fissile material of a uniform enrichment more abundant than that packed in said lower part, and said one group of said first fuel rods containing the burnable poison having a concentration decreasing from the axial middle toward said upper and lower end portions, and the remaining first fuel rods of said predetermined fuel assembly having respectively and upper end portion, a lower end portion and a middle portion, said upper end portion being arranged to be within the axially upper region of said nuclear reactor core and packed with the fissile material without burnable poison, said lower end portion being arranged to be within the axially lower region of said nuclear reactor core and packed with the fissile material without burnable poison, and said middle portion being packed with the fissile material containing the burnable poison, a plurality of said predetermined fuel assemblies being distributed over said nuclear reactor core in such a way that the concentration of the burnable poison in said first fuel rods and the number of said first fuel rods decrease from said radially central region towards said peripheral region.

4,280,875

SAFETY DEVICE FOR PREVENTING UNSCREWING OF CYLINDER-HEAD SCREWS HAVING AN INNER POLYGON, AND PLASTIC DEFORMATION TOOL FOR USE WITH THE DEVICE

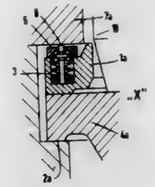
Lothar Werres, Langenaendelbach, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Oct. 13, 1978, Ser. No. 951,273

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1977, 2747994

Int. Cl.³ G21C *13/06*

U.S. Cl. 176—87 **10 Claims**



1. Safety device for preventing unscrewing of cylinder head screws fastening two structural members together, one of the structural members having receiving bores formed therein, the screws having heads disposed in said receiving bores and being formed with inner polygonal cutouts, the screws extending through and braced behind the one structural member and being tensioned against and anchored in the other structural member, comprising circular grooves cut into the one structural member at the receiving bores forming plastically deformable ring collars of said one structural member disposed adjacent to the circular grooves and spaced from and surrounding the screw heads so as to form annular gaps therebetween, at least two arcuate recesses formed at equal distances from one another about the periphery of the screw heads, said ring collars having a first set of rotation-preventing wall portions thereof surrounding the screw heads and being pushable into the arcuate recesses in tightened condition of the screws.

4,280,876

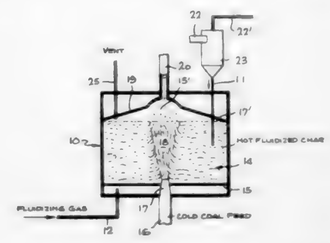
COAL PYROLYSIS PROCESS

Norman W. Green, Upland, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 873,010, Oct. 27, 1978, abandoned. This application Aug. 14, 1979, Ser. No. 66,312

Int. Cl.³ C10B *47/24, 49/22, 57/08*

U.S. Cl. 201—9 **20 Claims**



1. A process for the pyrolysis in a pyrolysis chamber of agglomerative coal particles, which pass through a tacky state during pyrolysis, without the formation of deposits on the chamber walls, which comprises

(a) maintaining a zone of hot solid particles in a fluidized state in said pyrolysis chamber with a fluidizing gas;

(b) injecting upwardly into said pyrolysis chamber a high velocity fluid jet stream of agglomerative coal particles in a carrier gas, thereby forming an upwardly expanding turbulent fluid jet surrounded by said hot solid particles in the fluidized state whereby the said hot solid particles in the fluidized state disposed around said upwardly expanding turbulent fluid jet are entrained in the upwardly expanding turbulent fluid jet and are mixed with and heat said agglomerative coal particles so that by the time the chamber walls are contacted by said agglomerative coal particles, they are no longer in a tacky state, thereby producing char and product gas from said coal particles; and

(c) removing said product gas, char and the entrained hot solid particles from said pyrolysis chamber, the entrained hot solid particles being removed from the pyrolysis chamber without any appreciable recirculation to the zone of said hot solid particles within the pyrolysis chamber.

4,280,877

APPARATUS FOR PROVIDING COAL DUST TO A REACTION CHAMBER

Gerhard Thomas, and Richard Jung, both of Gummersbach, Fed. Rep. of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Fed. Rep. of Germany

Filed Oct. 4, 1979, Ser. No. 81,766

Claims priority, application Fed. Rep. of Germany, Oct. 7, 1978, 2843883

Int. Cl.³ C10B *15/00, 29/00, 31/02*; F27B *1/20*

U.S. Cl. 202—91 **4 Claims**

1. An apparatus for introducing a combustion gas and coal dust to a reaction chamber, said apparatus comprising:

a cylindrical vessel having a closed top and a conical bottom directed towards said reaction chamber;

at least one first conduit means, operatively connected to said vessel, for communicating a source of coal dust and said cylindrical vessel with one another, said vessel coaxially surrounding at least a portion of said at least one first conduit means;

second conduit means, operatively connected to said vessel, for communicating a first stream of combustion gas and said cylindrical vessel with one another;

a central conduit means, operatively connected to said vessel coaxial therewith and forming an extension of said conical bottom thereof, and having an end directed towards said reaction chamber for conveying coal dust and a first combustion gas from said cylindrical vessel toward said reaction chamber;

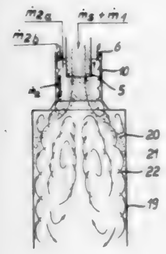
a third conduit means operatively connected to said central conduit means and said reaction chamber for conveying to said reaction chamber at least one second stream of combustion gas; and

means operatively arranged in said second conduit means and located for imparting a swirling motion to part of said second stream of combustion gas;

said third conduit means including;

a housing divided into a first and a second compartment and arranged between said cylindrical vessel and said reaction chamber for receiving at least part of said second stream of combustion gas in said first compartment;

a first duct means operatively connected to said housing for admitting to said first compartment at least part of said second combustion gas stream;



a second duct means operatively connected to said housing for communicating said second compartment with a second combustion gas stream source;

means for imparting a swirl to part of said second combustion gas stream;

an intermediate conduit coaxially surrounding said central conduit means to form therewith a first annular passageway for combustion gas being passed from said first compartment to said reaction chamber, said intermediate conduit having a first end and a second end, said first end being conically widened, operatively connected to said housing, and in communication with said first compartment, said second end of said intermediate conduit being directed towards said reaction chamber and being further away from said reaction chamber than that end of said central conduit means which is directed towards said reaction chamber; and

an outer conduit coaxially surrounding said intermediate conduit to form therewith a second annular passageway for combustion gas being passed from said second compartment to said reaction chamber, said outer conduit having a first end and a second end, said first end being conically widened, operatively connected to said housing, and in communication with said second compartment, said second end of said outer conduit being operatively connected to said reaction chamber.

4,280,878

STRUCTURE AND PROCESS FOR RECLAIMING HEAT FROM CHARCOAL PRODUCTION FACILITY

Gerald E. Sprenger, 200 Hazelwood Ave., Dothan, Ala. 36301

Filed Oct. 30, 1979, Ser. No. 89,591

Int. Cl.[3] **C10B** *1/00, 53/02;* **F23D** *13/20;* **F26B** *7/00*

U.S. Cl. 202—93 **10 Claims**



1. In a charcoal production facility including kiln means for transforming wood into charcoal, an apparatus for reclaiming heat produced during said transforming, said apparatus comprising:

first duct means connected to said kiln means for removing wood gases produced during said transforming;

afterburner means connected to said first duct means and including auxiliary fuel burner means for raising said wood gases to an incendiary temperature, said afterburner means emitting products of complete combustion, said after burner means including an exhaust stack;

first damper means disposed proximate to said afterburner means for regulating the temperature of said products of complete combustion emitted from said afterburner means, said first damper means including a controlled exhaust damper disposed across said stack, said exhaust damper permitting a discharge of a selected portion of said products of complete combustion to the atmosphere while directing an undischarged portion to said second duct means;

second duct means for distributing said products of complete combustion from said afterburner means to an end use station; and

second damper means in fluid communication with said second duct means for allowing cooling air to mix with said products.

4,280,879

APPARATUS AND PROCESS FOR RECOVERY OF HYDROCARBONS FROM INORGANIC HOST MATERIALS

William Taciuk, Calgary, Canada, assignor to Alberta Oil Sands Technology and Research Authority, Edmonton, Canada

Continuation-in-part of Ser. No. 34,098, Apr. 27, 1979, abandoned, which is a continuation of Ser. No. 828,119, Aug. 27, 1977, abandoned, which is a continuation-in-part of Ser. No. 603,044, Aug. 8, 1975, abandoned. This application Nov. 6, 1979, Ser. No. 91,910

Claims priority, application Canada, Aug. 5, 1975, 232862

Int. Cl.[3] **C10B** *1/10, 7/00*

U.S. Cl. 202—100 **9 Claims**

1. Apparatus for recovering hydrocarbons from whole oil said containing sand and clay solids in discrete and lump forms, water, bitumen and oversize rocks, said apparatus comprising:

spaced, substantially horizontal generally concentric inner and outer tubular members having first and second ends, said members being connected to rotate together, said inner member forming substantially open preheat and vaporization zones at its first and second ends respectively, said members combining to form a substantially open substantially annular space between them having a combustion zone at the second end thereof and a heat transfer zone at the first end thereof;

means for supporting and rotating the members;

means for sealing the ends of the outer member and the first end of the inner member; means, extending through the sealing means, for feeding whole oil sand into the preheat zone;

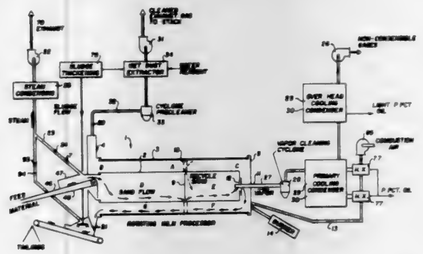
means, carried by the tubular members, for advancing oil sand solids along a path extending through the preheat and vaporization zones and back through the combustion and heat-transfer zones;

said outer member carrying means positioned in the heat transfer zone and adapted to lift hot sand solids being advanced therethrough and to drop them onto a significant portion of the top surface of that section of the wall of the inner member which forms the preheat zone to cause heat to be transferred through such wall section, whereby water in the whole oil sand may be vaporized in the preheat zone and whereby lumps of oil sand may be reduced in size by a combination of heating and cascading effected by rotation of the inner member;

first means, extending through the sealing means, for removing water vapor from the preheat zone;

means, associated with the preheat portion of the inner tubular member, for separating oversize solids from the whole oil sand being advanced through the preheat zone and transferring them into the annular space for disposal;

means, carried by the inner member and extending across



the crossectional area thereof, for restricting gas movement between the preheat and vaporization zones, said means having means in the outer portion thereof operative to permit remaining preheated tar sand to be advanced from the preheat zone into the vaporization zone;

means, associated with the inner tubular member, for recycling hot sand solids, being advanced through the annular space, into the first end of the vaporization zone for mixing with oil sand issuing from the preheat zone to raise its temperature and thereby vaporize and crack hydrocarbons and produce coked solids, said means cooperating with the hot sand solids to prevent significant gas movement therethrough between the annular space and the vaporization zone;

second means for removing gases from the vaporization zone for recovery;

means, associated with the inner tubular member at its second end, for transferring coked solids from the vaporization zone to the combustion zone, said means cooperating with the coked solids to prevent significant gas movement therethrough between said zones;

said second means extending through the sealing means and being associated with the coked solids transfer means;

means for introducing oxygen-containing gas into the combustion zone for burning coke to produce hot sand solids;

third means, associated with the sealing means, for drawing combustion gas from the annular space for disposal; and

means, associated with the sealing means, for removing sand solids from the heat transfer zone for disposal.

4,280,880

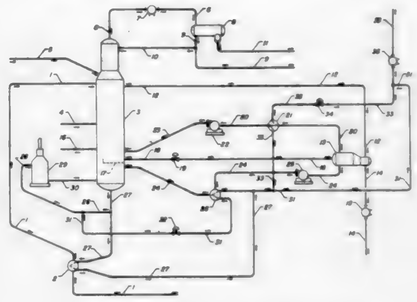
METHOD OF OPERATING AN ISOSTRIPPER COLUMN

Bipin V. Vora, Elk Grove Village, and Anthony G. Vickers, Arlington Heights, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Aug. 25, 1980, Ser. No. 181,032

Int. Cl.[3] **B01D** *3/06;* **C07C** *2/56*

U.S. Cl. 203—23 **8 Claims**



1. A process for the separation of isobutane from an alkylation reaction zone hydrocarbon effluent stream comprising said isobutane, n-butane, propane and alkylate, which comprises the steps of:

(a) passing said effluent stream into a fractionation column operated at fractionation conditions;

(b) separating said propane as an overhead vapor stream;

(c) withdrawing an isobutane vapor stream from said column as an upper intermediate fraction, at least partially condensing said vapor stream by indirect heat exchange with a lower intermediate fraction withdrawn from said column pursuant to step (d), and recovering said isobutane stream;

(d) withdrawing a liquid stream comprising n-butane from said column as said lower intermediate fraction, effecting a reduction in pressure and temperature of said stream, and flashing said stream by indirect heat exchange with said upper intermediate fraction pursuant to step (c);

(e) separating and compressing the resulting vapor phase to form a recycle stream having a temperature and pressure substantially equivalent to the lower intermediate fraction as withdrawn from said column, and introducing said recycle stream into a lower portion of said column at a point above the level of withdrawl of said lower intermediate fraction;

(f) recovering the liquid phase of said mixed phase stream, heating said liquid phase by indirect heat exchange with the alkylate product stream withdrawn as the bottoms fraction with said column, and recycling said liquid phase from said column to the lower portion of said column at a point below the level of withdrawl of said lower intermediate fraction.

4,280,881

SEPARATING INDENE FROM UNSATURATED ALKYLAROMATICS

John C. Montagna, O'Hara Township, Allegheny County; Robert D. Galli, New Kensington, both of Pa., and John Freel, Parker, Colo., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jul. 2, 1980, Ser. No. 165,381

Int. Cl.[3] **B01D** *3/40;* **C07C** *7/08*

U.S. Cl. 203—51 **13 Claims**

1. The method of separating indene in admixture with at least one close boiling mono-olefinically unsaturated aromatic compound by extractive distillation which comprises distilling said mixture comprising indene and at least one close boiling

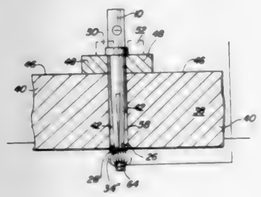
mono-olefinically unsaturated aromatic compound in the presence of at least one liquid oxygen-containing, sulfur-containing or nitrogen-containing organic polar compound having a boiling point at 760 mm Hg of between about 190° and about 300° C., recovering a vapor phase rich in said mono-olefinically unsaturated aromatic compound and recovering a bottoms fraction rich in indene and said organic polar compound.

4,280,882

METHOD FOR ELECTROPLATING SELECTED AREAS OF ARTICLE AND ARTICLES PLATED THEREBY

Ralph J. Hovey, Hot Springs, Ark., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Nov. 14, 1979, Ser. No. 97,289
Int. Cl.³ C25D *5/02*
U.S. Cl. 204—15 **19 Claims**



1. A method of electroplating a selected portion of the inner surface of an elongated bore in a conductive article comprising:

immersing at least the section of said article containing said selected portion in an electrolytic plating bath maintained under agitation;

controlling the flow of said bath to minimize electrolyte wetting of areas of said article outside of said selected portion; and

positioning an electrode in close proximity to said bore with said electrode at a generally uniform distance from said selected portion, and establishing an electrical potential between said electrode and said article to produce a generally uniform electrical field against said selected portion.

4,280,883

METHOD OF OPERATING A SOLID POLYMER ELECTROLYTE CHLOR-ALKALI CELL

Carl W. Raetzsch, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 23, 1979, Ser. No. 15,526
Int. Cl.³ C25B *1/46, 9/00*
U.S. Cl. 204—98 **18 Claims**



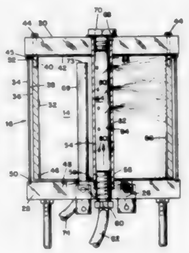
7. In a method of electrolysis comprising feeding aqueous alkali metal chloride brine to an electrolytic cell having an anolyte compartment separated from a catholyte compartment by a solid polymer electrolyte, said solid polymer electrolyte comprising a fluorinated cation exchange membrane having carboxyllic acid groups as the ion exchange groups, an anodic electrocatalyst on the anodic surface thereof and a cathodic electrocatalyst on the cathodic surface thereof; imposing an electrical potential across the solid polymer electrolyte; and withdrawing chlorine from the anolyte compartment and alkali metal hydroxide from the catholyte compartment; the improvement comprising withdrawing liquid chlorine and depleted brine from the cell; and separating the liquid chlorine from the depleted brine.

4,280,884

METHOD AND APPARATUS FOR RECOVERY OF SILVER EMPLOYING AN ELECTROLYTIC CELL HAVING IMPROVED SOLUTION MOVEMENT

James H. Babb, and Johnny C. Cox, both of Oliver Springs, Tenn., assignors to Demco, Inc., Coalfield, Tenn.

Filed Apr. 7, 1980, Ser. No. 138,130
Int. Cl.³ C25C *1/20*
U.S. Cl. 204—109 **4 Claims**



1. A method for the recovery of metallic silver from a solution containing silver ions employing an electrolytic cell that includes a hollow anode disposed concentrically within a hollow cylindrical cathode comprising the steps of

directing said solution into the interior of said hollow anode,

ejecting said solution from said anode through a plurality of apertures through the wall thickness of said anode in a direction toward said cathode, each of said apertures having a divergent exit portion tapered at an angle of between about 40° and 60°, whereby the stream of solution ejected therethrough is of a diverging generally conical geometry.

4,280,885

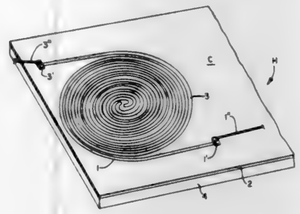
METHOD OF AND APPARATUS FOR ACTIVE ELECTRO-CHEMICAL WATER AND SIMILAR ENVIRONMENTAL CONTAMINANT ELIMINATION IN SEMI-CONDUCTOR AND OTHER ELECTRONIC AND ELECTRICAL DEVICES AND THE LIKE

James W. Savery, 23 Elaine St., Hudson, N.H. 03051

Filed Nov. 9, 1979, Ser. No. 92,695
Int. Cl.³ C25B *1/02, 1/04;* **C25F** *7/00*
U.S. Cl. 204—129 **22 Claims**

1. A method of electrochemically eliminating water and contaminants within an electronic package and the like, that comprises, applying an electric field between a pair of closely spaced co-extensive conductive paths, disposing the paths

along a hygroscopic insulating surface disposed within the package, and adjusting the path dimensions and separation



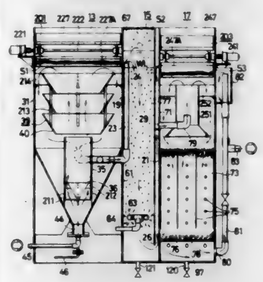
relative to the electric field to hydrolize water within the package into hydrogen and oxygen gases.

4,280,886

METHOD FOR TREATMENT OF SEWAGE

Toshio Sawa; Masayoshi Kubota; Sankichi Takahashi, and Toyohiko Kaneko, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 25, 1979, Ser. No. 60,477
Claims priority, application Japan, Mar. 22, 1979, 54-34592
Int. Cl.³ C02F *1/46, 1/52*
U.S. Cl. 204—149 **17 Claims**



1. A method for a treatment of sewage comprising the steps of:

flocculating suspended matter and organic matter in the sewage by adding flocculant to the sewage to be treated,

firstly processing by providing first bubbles in an amount within the range of 1×10^{-4}–1×10^{-2} on the basis of a sewage quantity by volume and attaching flocculated suspended matter and organic matter to the bubbles to form and to float the latter as scum,

separating and removing the scum from the sewage,

secondly processing by separately thereafter providing second bubbles in an amount within the range of 3–10 on the basis of a sewage quantity by volume to the sewage that has passed said firstly processing step to form foam together with foaming matter in the sewage and to float the foam, and

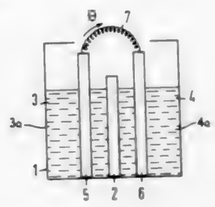
separating and removing the foam from the sewage.

4,280,887

METHOD OF REGENERATING AMMONIACAL ETCHING SOLUTIONS USEFUL FOR ETCHING METALLIC COPPER

Efthimios Konstantouros, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 21, 1980, Ser. No. 142,007
Claims priority, application Fed. Rep. of Germany, Apr. 30, 1979, 2917597
Int. Cl.³ C02F *1/46;* **C25F** *7/02*
U.S. Cl. 204—150 **11 Claims**



1. A method of regenerating ammoniacal etching solution used for etching metallic copper, comprising:

positioning a metal in contact with a spent ammoniacal etching solution, said metal being more electronegative than copper and, in the pH range of the etching solution, forming a relatively insoluable hydroxide; and

causing electrolysis to occur between said metal and said spent etching solution so that Cu^{++}-ions in said spent etching solution are reduced to metallic copper and the etching chemicals are regenerated while substantially simultaneously said more electronegative metal is oxidized into a relatively insoluble hydroxide.

4,280,888

SCREEN PRINTABLE, UV CURABLE OPAQUE LEGEND INK COMPOSITION

Richard W. Bush, Columbia; Russell J. Jenkins, Woodstock, both of Md., and John E. Rie, Orange, Calif., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 842,182, Oct. 14, 1977, abandoned. This application Feb. 12, 1980, Ser. No. 120,803
Int. Cl.³ C08F *8/00*
U.S. Cl. 204—159.15 **6 Claims**

1. A radiation curable screen printable opaque legend ink which comprises

(a) 15 to 40% by weight of an allyl terminated polyene which is the reaction product of an epoxide and an unsaturated amine,

(b) 5 to 25% by weight of a cocurable allyl terminated polyene having a molecular weight of less than 500 selected from the group consisting of diallyl phthalate, triallyl isocyanurate, diallyl adipate, diallyl azelate, diallyl sebacate, diallyl itaconate, diallyl maleate, diallyl chlorendate, diallyl malate and triallyl cyanurate,

(c) 15 to 45% by weight of a polythiol having a molecular weight in the range from about 94 to 20,000 of the general formula: R_8—SH)$_n$ wherein R_8 is a polyvalent organic moiety free from reactive carbon-to-carbon unsaturation and n is at least 2 and

(d) a pigment member of the group consisting of 0.5 to 25% by weight of zinc sulfide and 0.2 to 1.0% by weight of carbon black, said curable legend ink having a viscosity as measured on a Brookfield viscometer at 1 rpm using an RV7 spindle in the range 8,000 to 250,000 centipoises and a viscosity ratio at 1:10 rpm in the range 1.0 to 7.0.

2. The ink of claim 1 containing in addition 0.05 to 15% by weight of the composition of a photoinitiator.

4,280,889

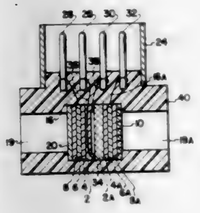
SOLID STATE ION RESPONSIVE AND REFERENCE ELECTRODES

Eugene L. Szonntagh, Flourtown, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 666,166, Mar. 11, 1976, abandoned, which is a continuation-in-part of Ser. No. 552,284, Feb. 24, 1975, abandoned. This application Feb. 2, 1978, Ser. No. 874,660

Int. Cl.[3] **G01N** *27/30*

U.S. Cl. 204—195 F **41 Claims**



1. A pH electrode comprising
an electrically insulating substrate,
a metallic layer on said substrate,
a solid electrolyte layer on said metallic layer, and
an RF sputtered pH glass layer on said last-mentioned layer and having a thickness of 10 to 10,000 Angstroms.

5. A reference electrode comprising
an electrically insulating substrate,
a metallic layer on said substrate,
a solid electrolyte layer on said metallic layer and
a cracked glass layer on said electrolyte layer and having a coefficient of thermal expansions substantially mismatched with respect to a coefficient of thermal expansion of said electrolyte layer to produce differential expansion therebetween.

8. A combination electrode comprising
an electrically insulating substrate means,
a first metallic layer on said substrate means,
a first solid electrolyte layer on said metallic layer,
a pH glass layer on said electrolyte layer,
a second metallic layer on said substrate means and electrically insulated from said first metallic layer, said first electrolyte layer and said pH glass layer,
a second solid electrolyte layer on said second metallic layer and electrically insulated from said first metallic layer, said first electrolyte layer and said pH glass layer, and
a cracked glass layer on said second electrolyte layer and electrically insulated from said first metallic layer, said first electrolyte layer and said pH glass layer, said second glass layer having a coefficient of thermal expansion mismatched with respect to said second electrolyte layer to produce differential expansion therebetween.

17. An ion concentration measuring electrode comprising
an electrically insulating substrate,
a metallic layer on said substrate,
a solid electrolyte layer on said metallic layer, and
an RF sputtered ion selective layer on said last-mentioned layer.

4,280,890

ELECTROCHEMICAL SENSOR FOR OXYGEN CONCENTRATION DETERMINATION IN GASES AND METHOD OF MAKING THE SAME

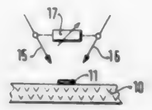
Karl-Hermann Friese, Leonberg; Wolf-Dieter Haecker, Asperg, and Bürkhard Pfeiffer, Ditzingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 14, 1980, Ser. No. 130,453

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1979, 2911042

Int. Cl.[3] **B05D** *1/34;* **G01N** *27/58*

U.S. Cl. 204—195 S **24 Claims**



1. Electrochemical sensor for determination of the concentration of oxygen in gases, particularly in gases resulting from combustion processes, such as exhaust gases from internal combustion engines, having
an ion conductive solid electrolyte body (**10**) and
an electrode (**11**) applied to a surface thereof, adapted to be exposed to the gases,
said electrode comprising a mixture of a ceramic and a noble metal which catalyzes the thermodynamic equilibrium of the gases with respect to a reference,
wherein, in accordance with the invention,
the concentration of noble metal in the electrode is non-uniform, in cross section, and decreases in the direction away from the surface of the solid electrolyte body (**10**) towards the surface of the electrode exposed to the gases.

14. Method of manufacturing an electrochemical sensor for the determination of oxygen concentration in gases, particularly in gases resulting from a combustion process, such as exhaust gases from an internal combustion engine, having
an ion conductive solid electrolyte body (**10**);
and an electrode applied to a surface thereof adapted to be exposed to the gases, and which is composed of a mixture of a ceramic and a noble metal which catalyzes the thermodynamic equilibrium of the gases with respect to a reference, and which is characterized in that the concentration of nobel metal, in cross section, is non-uniform and decreases in the direction away from the surface of the solid electrolyte body (**10**) towards the surface exposed to the gases, said method comprising the steps of
providing a first suspension comprising an aqueous mixture of the noble metal powder, and a powder of a ceramic material;
providing a second aqueous suspension of the powder of the ceramic material alone;
applying said first suspension to the surface of the solid electrolyte material where the electrode is to be applied and decreasing the rate of application of said first suspension while beginning to apply the second suspension at an increasing rate until the requisite electrode layer thickness is reached.

4,280,891

ELECTRODE ASSEMBLY FOR MELT CELL

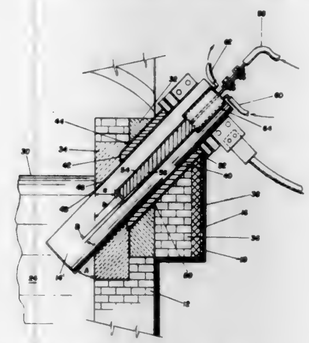
Ramaswami Neelameggham, Salt Lake City, Utah, assignor to AMAX Magnesium Corporation, Greenwich, Conn.

Filed May 17, 1979, Ser. No. 39,797

Int. Cl.[3] **C25C** *7/02*

U.S. Cl. 204—243 R **7 Claims**

1. An electrolytic melt cell, comprising a refractory lined shell including refractory lined sidewalls having at least one elongated graphite electrode assembly extending into said cell through said walls at an angle of from 40° to 50° with respect thereto, said elongated graphite electrode having a central longitudinal axis, a first end adapted to be placed into contact with a material to be heated, and a second end having an open area extending into said graphite electrode along a path proximate to said central axis; and a water cooled metal core contained within said open area of said graphite electrode and adapted to be connected to a source of electrical current, said metal core having a configuration which tapers from said first



end toward said second end of said electrode whereby said metal core expands due to exposure to a temperature gradient extending along said electrode created by contact with said material to be heated, said tapered metal core thereby expanding to a configuration that is sufficient to create good electrical contact between said electrode and said metal core but not sufficient to cause cracking of said graphite electrode due to compressive forces created by contact between said core and said electrode.

4,280,892

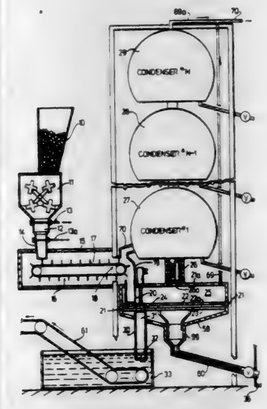
PROCESS AND APPARATUS FOR THE SEPARATION OF HYDROCARBONS FROM PETROLEUM BEARING MATERIALS

Jaroslav J. Havlik, Cambridge, Canada

Continuation-in-part of Ser. No. 974,362, Dec. 29, 1978, abandoned. This application Nov. 5, 1979, Ser. No. 91,571

Int. Cl.[3] **C10B** *1/06, 53/06*

U.S. Cl. 208—8 R **17 Claims**



1. An apparatus for the separation of bitumen crude petroleum from tar sands, and other oil bearing solid materials through destructive distillation and thermal cracking; and the collection of the vapours so produced as multiple fractionated hydrocarbons, said apparatus having means for breaking up the materials into a particulate condition:
(i) a closed destructive distillation chamber;
(ii) means housed in the chamber for heating the oil bearing solid materials to vapourize the bitumen crude petroleum and for transporting all the materials through the chamber, said means comprising:
(iii) an upper perforated electrically heatable plate and a lower imperforate electrically heatable plate, said plates being arranged in fixed spaced apart relationship, said upper plate having an oil bearing materials inlet and the lower plate having a tailings discharge outlet for the discharge of tailings therethrough;
(iv) a material transporter mounted for uni-directional movement with a clearance fit between said plates, said transporter being divided into a plurality of uniformly sized material holding compartments; the said plates forming the top and bottom of the said compartment and the space between the plates constituting a retort;
(v) means for depositing at the inlet end of the chamber, in each compartment in turn, a measured amount of the material during travel of the transporter as it passes the material inlet;
(vi) drive means for moving said transporter in a direction to move the material at a regulated speed of travel through the retort from the material inlet to the discharge outlet, said drive means being synchronized with the depositing means;
(vii) means for controlling the temperature of the plates to heat the material in the compartments to vapourize said bitumen crude petroleum during the travel of the material through the retort;
(viii) collecting means for recovering vapourized hydrocarbons in a liquified condition; and
(ix) means for ejecting, tailings from each compartment in turn as each compartment registers with the tailings outlet and recovering them under conditions inhibiting the admission of ambient air to the retort.

6. A method for the separation of bitumen crude petroleum from tar sands, oil-shale and other oil bearing materials through distillation and thermal cracking and the collection of the vapours so produced as multiple fractionated hydrocarbons, comprising the following steps:
(i) breaking up the materials to a particulate size approximating the physical dimensions of sand particles and storing same in a storage bin sealed against the admission of the ambient air;
(ii) depositing a measured amount of the materials on a rotating transporter divided into a plurality of material holding compartments travelling between and in close proximity to an upper perforate plate and a lower imperforate plate, said upper plate having a material inlet and the lower plate having a waste outlet, said plates forming a retort mounted in a distillation chamber having a material inlet at one end and a waste outlet at the other, said materials being deposited in each compartment through the inlet and the tailings being ejected through the waste outlet under conditions inhibiting the admission of ambient air to the chamber;
(iii) heating the plates by means of electricity to a temperature to heat the materials the retort to the distillation temperature to distill substantially all the bitumen crude petroleum of the materials and vapourize said petroleum; and
(iv) collecting the resultant vapourized hydrocarbons, in solid, liquid and gaseous form.

4,280,893

INTEGRATED COAL CONVERSION PROCESS

Arnold M. Less, 309 E. Van Buren, Columbia City, Ind. 46725

Division of Ser. No. 858,045, Dec. 6, 1977, Pat. No. 4,132,627. This application Sep. 26, 1978, Ser. No. 945,828

Int. Cl.³ C10G *1/06, 35/00;* **C10B** *57/08*

U.S. Cl. 208—10 **15 Claims**

1. A method of converting coal to liquid and gaseous fuels comprising the steps of:

(a) introducing coal having a moisture content of from about 10 wt. % to about 30 wt. % into a vertically elongated coal reactor having a fluidized bed of sand and/or clay in the bottom portion thereof;

(b) introducing superheated hydrogen at a temperature of from about 1000° F. to about 1800° F. into the bottom of said coal reactor;

(c) transforming said moisture to steam to disintegrate said coal; and

(d) converting said disintegrated coal at a temperature from about 1200° F. to about 1700° F. to liquid and gaseous fuels comprising carbon monoxide and hydrogen.

4,280,894

HIGH THERMAL STABILITY LIQUID HYDROCARBONS AND METHODS FOR PRODUCING THEM

William F. Taylor, Mountainside, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 417,723, Nov. 21, 1973, abandoned. This application Jun. 4, 1975, Ser. No. 583,656

Int. Cl.³ C10L *1/24, 1/22*

U.S. Cl. 208—15 **12 Claims**

1. A method for increasing the thermal stability of a hydrocarbon mixture comprising the steps of:

(a) separating therefrom at least a portion of the sulfur present therein in the form of an organic sulfur compound classed as a thiol, sulfide, disulfide, or polysulfide such that the total concentration thereof is less than 10 ppm;

(b) separating at least a portion of the reactive olefins therein such that the concentration thereof remaining is less than 0.2% by volume;

(c) separating at least a portion of the molecular oxygen dissolved therein such that the concentration thereof remaining is less than 15 ppm, and

(d) adding a dibenzothiophene compound selected from the group consisting of dibenzothiophene and the alkyl substituted dibenzothiophenes containing 1 to 8 alkyl groups, the alkyl groups containing from 1 to 4 carbon atoms.

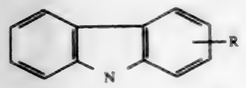
2. A method for increasing the thermal stability of a hydrocarbon mixture comprising the steps of:

(a) separating therefrom at least a portion of the sulfur present therein in the form of an organic sulfur compound classed as a thiol, sulfide, disulfide, or polysulfide such that the concentration thereof remaining is less than 10 ppm;

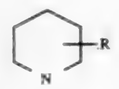
(b) separating at least a portion of the reactive olefins therein such that the concentration thereof remaining is less than 0.2% by volume;

(c) separating at least a portion of the molecular oxygen dissolved therein such that the concentration thereof remaining is less than 15 ppm, and

(d) adding an organic nitrogen compound selected from the group consisting of the paraffinic amines having the general formula RNH_2 where R is an alkyl group having 1 to 22 carbon atoms, the carbazoles having the general formula



where R can be one or more hydrogen radicals or one or more alkyl groups having from 1 to 12 carbon atoms in each group, with the total number of carbon atoms in the alkyl groups being no greater than 12 and the piperidines having the general formula



where R is one or more hydrogen radicals or one or more alkyl groups having 1 to 18 carbon atoms in each group, with the total number of carbon atoms in the alkyl groups being not greater than 18.

4,280,895

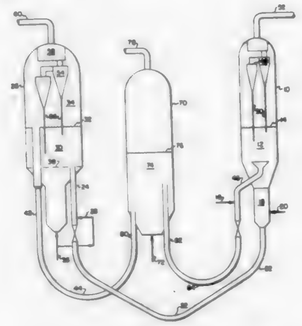
PASSIVATION OF CRACKING CATALYSTS

Gordon F. Stuntz, and Roby Bearden, both of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 31, 1979, Ser. No. 108,395

Int. Cl.³ C10G *9/16, 11/18*

U.S. Cl. 208—113 **10 Claims**



1. A method for passivating a catalyst utilized to crack hydrocarbon feedstock to lower molecular weight products in a reaction zone where the feedstock contains at least two metal contaminants selected from the glass consisting of nickel, vanadium and iron and where at least some of the metal contaminants become deposited on the catalyst, which comprises passing the catalyst after regeneration through a reduction zone maintained at a temperature above about 600° C. for a time sufficient to at least partially passivate the metal contaminants on the catalyst, a reducing environment maintained in the reduction zone by the addition to the reduction zone of a material selected from the class consisting of hydrogen, carbon monoxide and mixtures thereof, said passivated catalyst thereafter passing to said reaction zone without further processing.

4,280,896

PASSIVATION OF CRACKING CATALYSTS

Roby Bearden, and Gordon F. Stuntz, both of Baton Rouge, La., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Dec. 31, 1979, Ser. No. 108,396

Int. Cl.³ C10G *9/16, 11/18*

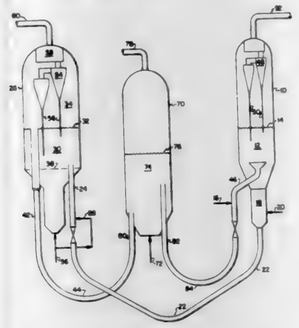
U.S. Cl. 208—113 **7 Claims**

1. A method for passivating a hydrocarbon cracking catalyst utilized to crack hydrocarbon feedstock to lower molecular weight products in the reaction zone of a catalytic cracking system comprising a reaction zone and a reduction zone, where the feedstock contains at least one metal contaminant selected from the class consisting of nickel, vanadium, and iron, and where at least some of said metal contaminant becomes deposited on the catalyst such that at least a major portion of the total of said metal contaminants deposited on the catalyst comprises only one of said metal contaminants,

and where said metal contaminant contributes to excessive hydrogen and coke production, the method comprising:

A. monitoring the composition of said metal contaminant deposited on the catalyst;

B. adding an effective passivating amount of at least one of said metal contaminants not present as the major contaminant on the catalyst; and



C. passing the catalyst from the reaction zone through a reduction zone maintained at an elevated temperature for a time sufficient to at least partially passivate said metal contaminants on the catalyst and thereby minimize excessive hydrogen and coke production, while a reducing environment is maintained in said reduction zone by the addition to the reduction zone of a material selected from the class consisting of hydrogen, carbon monoxide and mixtures thereof.

4,280,897

REMOVAL OF CONTAMINATING METALS FROM FCC CATALYST BY NH_4 CITRATE CHELATES

Syed M. Shah, Berwyn, and Hosheng Tu, Shorewood, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed May 27, 1980, Ser. No. 153,806

Int. Cl.³ C10G *11/00*

U.S. Cl. 208—113 **4 Claims**

1. A catalytic cracking process for converting a hydrocarbon feedstock, contaminated with a metal comprising nickel, vanadium, iron or copper, into lower boiling hydrocarbon products by contacting said feedstock with a cracking catalyst in a cracking zone wherein said cracking catalyst is poisoned and contaminated by said metal present in said feedstock, at least a portion of said metal contaminating said cracking catalyst being removed by:

(a) contacting said metal contaminated catalyst with an aqueous solution of ammonium citrate to effect a chelation of said contaminated metal with said ammonium citrate, the central atom of said chelation comprising nickel, vanadium, iron or copper and the ligands of said chelation comprising molecules of said ammonium citrate; and

(b) separating said chelated metal and ligands from said cracking catalyst to substantially reduce the quantity of hydrogen production in said cracking zone.

4,280,898

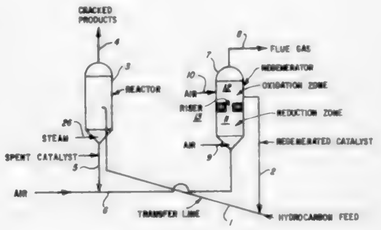
FLUID CATALYTIC CRACKING OF HEAVY PETROLEUM FRACTIONS

David F. Tatterson, and Iacovos A. Vasalos, both of Downers Grove, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Nov. 5, 1979, Ser. No. 91,470

Int. Cl.³ C10G *9/16, 11/05*

U.S. Cl. 208—119 **18 Claims**



1. A process for the fluid catalytic cracking of hydrocarbon feedstocks containing metal compounds and organic sulfur compounds wherein the sulfur content of said feedback is in the range from about 0.1 weight percent to about 12 weight percent, wherein (i) metal deposits on the used cracking catalyst are deactivated in sufficient amounts to reduce hydrogen and coke formation during said cracking, (ii) sulfur oxide emissions from sulfur-containing coke deposits on the used cracking catalyst are reduced in amount, (iii) coke deposits on the used cracking catalyst are reduced in amount sufficiently by regeneration whereby the said catalyst is suitable for re-use, which process comprises;

(a) cracking said feedstock at a temperature from about 850° F. to about 1500° F. in a reaction zone in contact with fluidized solid particles, the said particles comprising a cracking catalyst and at least one metallic reactant in the same or different ones of said solid particles, said metallic reactant consisting essentially of one or more members selected from the group consisting of sodium, scandium, titanium, chromium, molybdenum, manganese, cobalt, nickel, antimony, copper, zinc, cadmium, the rare earth metals, lead, their compounds and mixtures thereof, and wherein said metallic reactant is present in sufficient amount to effect a reduction of at least 50% of the sulfur oxides produced by oxidation of the sulfur-containing coke deposits;

(b) withdrawing of said particles from said reaction zone;

(c) subjecting said particles to a reducing zone wherein carbon monoxide from limited combustion of said sulfur-containing coke deposits is present in a concentration from about 4 to 14 volume percent;

(d) withdrawing said particles from said reducing zone;

(e) subjecting the said particles to an oxidizing zone containing sufficient oxygen to raise the excess molecular oxygen in the flue gas emitted from said oxidizing zone to over 0.1 volume percent and wherein the carbon monoxide content in said flue gas is less than about 4 volume percent;

(f) withdrawing the said particles from said oxidizing zone whereby the said particles are in a condition suitable for re-use in the said reaction zone.

4,280,899

HYDROCARBON DEHYDROCYCLIZATION WITH AN ACIDIC MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 905,907, May 15, 1978, Pat. No. 4,199,438. This application Mar. 31, 1980, Ser. No. 135,586
The portion of the term of this patent subsequent to Apr. 29, 1997, has been disclaimed.
Int. Cl.³ C10G 35/06; C07C 2/52
U.S. Cl. 208—139 26 Claims

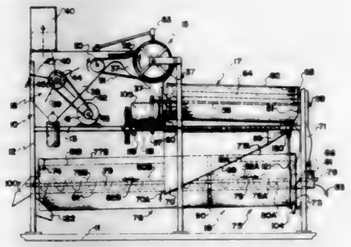
1. A method for dehydrocyclizing a dehydrocyclizable hydrocarbon comprising contacting the hydrocarbon at hydrocarbon dehydrocyclization conditions with an acidic catalytic composite comprising a porous carrier material containing, on an elemental basis, about 0.01 to about 2 wt. % platinum group metal, about 0.05 to about 5 wt. % cobalt, about 0.01 to about 5 wt. % tantalum and about 0.1 to about 3.5 wt. % halogen; wherein the platinum group metal, catalytically available cobalt and tantalum components are uniformly dispersed throughout the porous carrier material; wherein substantially all of the platinum group component is present in the elemental metallic state; wherein substantially all of the tantalum component is present in a positive oxidation state; and wherein substantially all of the catalytically available cobalt component is present in the elemental metallic state or in a state which is reducible to the elemental metallic state under hydrocarbon dehydrocyclization conditions or in a mixture of these states.

4,280,900

ROTARY SEED CLEANER

J. Harvey Gjesdal, Box 245, Birch Hills, Saskatchewan, Canada S0J 0G0

Filed Feb. 25, 1980, Ser. No. 124,290
Int. Cl.³ B07B 15/00
U.S. Cl. 209—34 31 Claims



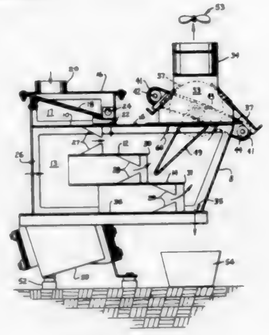
1. A rotary cleaner for grain seeds and the like comprising in combination a supporting framework, a source of power, a scalper drum separator mounted within said framework, an intake auger operatively connected to said scalping drum separator and rotated thereby, separating means for separating seed by widths, the discharge of the desirable fraction from said scalper drum feeding into said separator means, said separator means separating seed into a desirable and an undesirable fraction by width, and an indent separator in said framework, receiving the desirable fraction from said separator means and separating the seed into desirable and undesirable fractions by length, all of said separators being operatively connected to said source of power, said indent separator means including a first section removing seeds shorter than the desired length and a second section for removing seeds longer than the desired length.

4,280,901

METHOD AND APPARATUS FOR SEPARATING FINELY SIZED MATERIALS

Mieczyslaw Budzich; Forest G. Fitz, Jr., both of Lexington, and Andrew M. Lawrence, Richland, all of S.C., assignors to Nassau Recycle Corporation, Staten Island, N.Y.

Filed Jul. 6, 1979, Ser. No. 55,873
Int. Cl.³ B07B 4/04
U.S. Cl. 209—154 5 Claims



1. Apparatus for separating finely sized materials of diverse weights comprising a housing having an opening through which materials may be introduced for separation, an air intake through which air may be introduced, and an air outlet through which an air stream may exit; means for forcing air into said housing through said air intake and out of said housing through said air outlet; a series of steps mounted within said housing over which the materials may cascade; means for channeling air introduced into said housing through said air intake into at least one air stream which passes between adjacent steps of said series of steps whereby the air stream may pass through the cascading materials and entrain the lighter materials; valve means for controlling the flow of the air stream out of the housing through said air outlet; means for sensing the aggregate weight of the materials in said housing at any one time; and means for controlling said valve means in response to the materials weight sensed by said sensing means.

4. A method of separating finely sized materials of diverse weights wherein the materials are gravitated over a series of steps as a cascade while streams of air are flowed transversely through the cascade whereupon lighter materials are drawn from the cascade and entrained in the air streams; wherein the weight of the materials during separation is sensed; and wherein the rate of flow of the air streams is controlled in response to the sensed materials weight.

4,280,902

SEPARATION OF DENSE IMPURITIES FROM A FLUID

Finn Jacobsen, and Lennart Gustavsson, both of Karlstad, Sweden, assignors to Kamyr Aktiebolag, Karlstad, Sweden

Filed Jun. 30, 1980, Ser. No. 164,918
Claims priority, application Sweden, Jul. 4, 1979, 7905853
Int. Cl.³ B04C 5/10
U.S. Cl. 209—211 21 Claims

1. Apparatus for removing dense impurities from a fluid comprising

a vertically upstanding tank substantially circular in cross-section and including a top wall, bottom wall, and side wall;

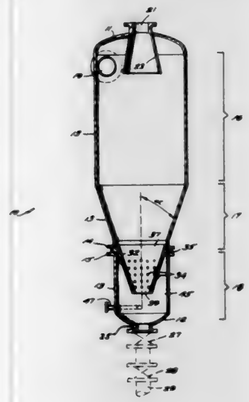
means for introducing fluid having impurities into said tank adjacent to the top wall thereof and tangentially to the side wall, to impart whirling motion to the fluid within the tank;

a fluid outlet disposed substantially centrally in the top wall of the tank;

an impurities outlet disposed substantially centrally in the bottom wall of the tank; and

means for preventing vertical stagnation of dense impurities against the side wall interior at a particular vertical level without dampening the whirling motion imparted to the fluid, said means comprising: a funnel means; means defining perforations larger than the average dimensions of the impurities in said funnel means at areas thereof wherein stagnation of dense impurities is likely to occur; and means for operatively mounting said funnel means to said tank side wall between said fluid inlet and said impurities outlet so that dense impurities being separated must pass through said funnel means in transit to said impurities outlet, and so that said funnel means at said perforated areas thereof is spaced from said tank side wall and said impurities outlet is in open communication with the interior of said funnel means through said perforations.

20. A method of separating sand or like dense impurities from a fluid containing the impurities, utilizing a vertically upstanding tank substantially circular in cross-section and including a top, a bottom, and a side wall; a first conduit extending into communication with the tank interior and extending tangentially to the side wall; a second conduit disposed



substantially centrally in the top wall of the tank; and a third conduit disposed substantially centrally in the bottom wall of the tank; said method comprising the steps of:

(a) continuously introducing fluid containing sand or like dense impurities into the first conduit to impart a whirling motion to the fluid within the tank;

(b) continuously removing fluid with the sand or like dense impurities separated therefrom through the second conduit;

(c) periodically removing sand or like dense impurities separated from the liquid through the third conduit; and

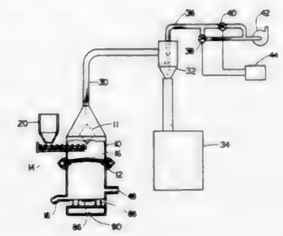
(d) preventing vertical stagnation of sand or like dense impurities against the side wall interior at a particular vertical level without dampening the whirling motion imparted to the fluid by utilizing a funnel having an open large first end and a small second end with perforations disposed in at least the area of the funnel adjacent the second end: and by operatively mounting the funnel to the tank side wall, so that the first end thereof is vertically above the second end thereof, so that all sand or like dense impurities to pass through the third conduit must pass through the funnel, and so that the funnel at the areas thereof containing the perforations is spaced from the tank side wall and in open communication with the third conduit.

4,280,903

APPARATUS FOR SEPARATING SAND FROM BOTANICAL FINES

David L. Scholten, Taylorsville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Aug. 6, 1980, Ser. No. 175,569
Int. Cl.³ B03B 4/00
U.S. Cl. 209—469 7 Claims



1. An apparatus for separating the components of a mixture of sand and botanical fines comprising:

(a) a substantially enclosed chamber;

(b) an opposed pair of rotatively movable juxtaposed members horizontally disposed within said chamber;

(c) means for rotatively adjusting said porous members;

(d) means for vibrating said chamber;

(e) means for introducing said mixture into said chamber above said porous members;

(f) means for passing a moving stream of gas up through said porous members toward said mixture; and,

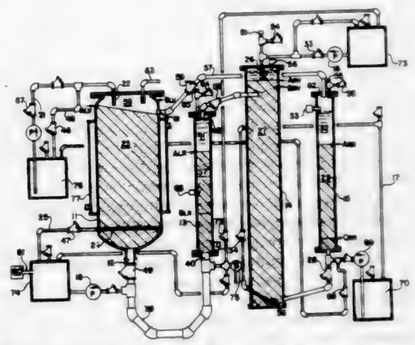
(g) means for collecting said botanical fines downstream from said chamber, said collecting means being in flow communication with said chamber.

4,280,904

HIGH CAPACITY FOLDED MOVING BED ION EXCHANGE APPARATUS AND METHOD FOR TREATING PHOSPHORIC ACID

Lee G. Carlson, Willow Springs, Ill., assignor to American Petro Mart, Inc., Bartow, Fla.

Continuation-in-part of Ser. No. 895,817, Apr. 12, 1978. This application Jan. 31, 1979, Ser. No. 7,980
Int. Cl.³ B01D 15/02
U.S. Cl. 210—676 46 Claims



34. A high capacity moving-bed ion exchange method, comprising:

providing a movable ion exchange resin bed within a plurality of columns, said plurality including a loading column, a loading reservoir column, a regeneration column, and a regeneration reservoir column;

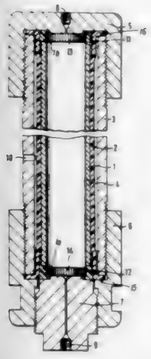
flowing a raw phosphoric acid feed liquid through said loading column to remove ionic materials therefrom;
passing spent resin beads from and out of said loading column to said regeneration reservoir column;
transferring a portion of loading reservoir column having purged and rinsed resin into said loading column;
transferring a portion of said regeneration column into said loading reservoir column;
purging said loading reservoir column to remove liquid from intersticies of resin therein and thereby semi-dry the resin;
rinsing said semi-dry resin by moving rinse liquor through the semi-dry resin in the loading reservoir;
transferring a portion of said regeneration reservoir column into said regeneration column; and
regenerating at least a portion of said regeneration column by passing a regenerating solution therethrough;
wherein each of said steps is repeated whereby in one of the flowing steps phosphoric acid liquid is subjected to a cationic exchange resin to remove magnesium and calcium cations therefrom, and in another of the flowing steps phosphoric acid liquid is subjected to anionic exchange resin to recover uranium values therefrom.

4,280,905

CHROMATOGRAPHY COLUMN

Werner Gunkel, Rossdorf, and Friedhelm Eisenbeiss, Griesheim, both of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Jul. 29, 1980, Ser. No. 173,307
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1979, 2930962
Int. Cl.³ B01D *15/08*
U.S. Cl. 210—198.2 **8 Claims**



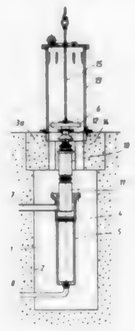
1. In a chromatography column adapted for use in high pressure liquid chromatography comprising a glass tube open at both ends and positioned axially within a pressure tube having an internal diameter larger than the external diameter of the glass tube so as to provide a circumferential intermediate space therebetween and having an aperature in the wall thereof to provide communication between the intermediate space and a source of a pressurizing fluid when the column is connected therewith; a pair of removable screw caps threadably mounted on respective ends of the pressure tube, each having an aperature therein, communicating with respective ends of the glass tube and providing an inlet and outlet, respectively, for chromatography eluent; and sealing means for sealing the open ends of the glass column from the intermediate space, the improvement wherein the sealing means comprises a flexible tubular shaped membrane positioned in the intermediate space and extending the length of the glass tube so as to provide a sleeve therefor which separates the glass tube from the pressurizing fluid.

4,280,906

FILTER FOR SEPARATING SOLID CONTAMINANTS FROM A FLUID, ESPECIALLY SOLID CONTAMINANTS IN A REACTOR COOLING WATER USED IN NUCLEAR REACTOR PLANTS

Lennart Liljegren, Vesteras, Sweden, assignor to AB Asea-Atom, Vesteras, Sweden

Filed Nov. 21, 1979, Ser. No. 96,305
Int. Cl.³ B01D *27/02*
U.S. Cl. 210—282 **9 Claims**



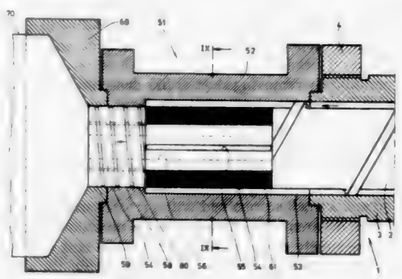
1. A cartridge filter for separating radioactive contaminants from reactor cooling water used, for example, in nuclear power plants, comprising, at least one top opening filter housing having a supply conduit thereon for admitting cooling water to be filtered and a return conduit thereon for returning the filtered water, a lid covering said top opening, said housing having in its upper part an inwardly directed annular shoulder defining a valve seat, at least one removable filter cartridge containing filter material and being provided at its upper part with an outwardly directed supporting ring thereon in sealing engagement with said shoulder for carrying said filter cartridge freely suspended within said housing, said cartridge dividing said housing into two separate chambers respectively in communication with said supply and said return conduits, and said lid being interconnected with the filter cartridge so that by lifting said lid the cartridge is simultaneously lifted.

4,280,907

SEPARATING DEVICE

Wilhelm Häberle, Industriegelände, 7487 Scheer, Wurtt, Fed. Rep. of Germany

Filed Aug. 14, 1979, Ser. No. 66,513
Int. Cl.³ B01D *33/00*
U.S. Cl. 210—408 **4 Claims**



1. A screening device for separating a plasticized material from a mixture of plasticized material and non-plasticized solid material comprising, a separating head for receiving the materials, said head including a housing having a bore extending

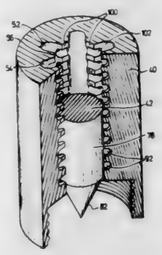
therethrough intermediate an entrance end and an exit end for receiving and passing the materials, material supply means connected to said head to supply the materials to the entrance end of the bore, a plurality of successively arranged annular discs arranged in a closely spaced relationship with each other in said bore, said discs having opposite side faces, each disc having a peripheral surface and a central aperture extending between its side faces defining an inner surface, said discs being concentrically aligned about a central axis so that said inner surfaces define a central bore in said housing bore, said discs being shaped and located relative to each other so as to define a radially extending passage between adjacent side faces of successive discs, said passage being dimensioned to screen said passage from receiving the non-plasticized solid material, said material supply means delivering the mixture to at least one of said surfaces of said discs so as to expel at least part of the plasticized material through each of said passages and convey at least part of the mixture including the solid material to said at least one surface, means connected to said discs for rotating said discs, and a scraper abutting said at least one surface for scraping the solid material therefrom.

4,280,908

INJECTION MOLDING FILTER ASSEMBLY

John Lord, Georgetown, and Jobst U. Gellert, Glen Williams, both of Canada, assignors to Mold-Masters Limited, Georgetown, Canada

Continuation-in-part of Ser. No. 60,827, Jul. 25, 1979. This application Jun. 24, 1980, Ser. No. 162,809
Claims priority, application Canada, Jul. 20, 1979, 332292
Int. Cl.³ B01D *35/02*
U.S. Cl. 210—446 **9 Claims**



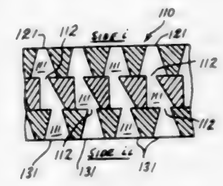
1. An improved injection molding filter assembly to filter pressurized melt flowing therethrough towards a gate comprising:
(a) an elongated hollow outer member having a central longitudinal axis, a first end and a second end, the first end having an inlet opening and the second end having an outlet opening, the outer member having a fluted inner surface defining an even number of inwardly opening longitudinally extending channels with narrow elongated lands therebetween, the lands each having an inner surface and all being located an equal distance from the central axis, alternating ridges and grooves extending laterally across the inner surfaces of the lands, alternate ones of the channels extending from the inlet opening to first blind ends towards the second end of the outer member, the other intervening channels extending from the outlet opening to second blind ends towards the first end of the outer member, and
(b) a generally cylindrical elongated inner torpedo member having an outer surface, the inner member being centrally located and longitudinally secured in the outer member to extend at least between the first and second blind ends, the ridges on the inner surfaces of the lands extending substantially to the outer surface of the inner member whereby the grooves form a plurality of separate filtering apertures between the outer surface of the inner member and the inner surfaces of the lands through which the melt flows from the inlet channels to the outlet channels, impurities too large to pass through the filtering apertures being accumulated at the blind ends of the inlet channels.

4,280,909

MICROPOROUS MEMBER WITH INTERCONNECTED, ORIENTED TAPERED VOIDS

Daniel H. Deutsch, 141 Kenworthy Dr., Pasadena, Calif. 91105

Continuation-in-part of Ser. No. 910,110, May 30, 1978, abandoned. This application May 14, 1979, Ser. No. 38,586
The portion of the term of this patent subsequent to Apr. 3, 1996, has been disclaimed.
Int. Cl.³ B01D *31/00, 53/22*
U.S. Cl. 210—490 **4 Claims**



1. A microporous membrane of a relatively fluid impermeable material having first and second surfaces, permeated by numerous asymmetric pores comprising a series of sequentially directly interconnected generally tapered voids, wherein substantially all of the generally tapered voids are oriented such that the apexes of said generally tapered voids are directed toward the first surface of the microporous membrane and substantially all of the bases of the generally tapered voids are directed toward the second surface of the microporous membrane, and wherein a fluid, upon passing completely through the microporous membrane will pass through at least three and generally less than 10,000,000 sequentially connected generally tapered voids, and wherein the microporous membrane is greater than about 0.001 micron in thickness and less than about 100 centimeters in thickness, and wherein the average distance across the base of each of the generally tapered voids is greater than about 0.001 micron and less than about 100 micron and wherein the average angle at the apex of each of the generally tapered voids is greater than about 10° and less than about 160°, and wherein the average distance across the ports interconnecting the generally tapered voids is greater than about 0.0002 micron and less than about 100 microns, and wherein the pores interconnecting the voids are fluid impervious so that fluid can only flow through the voids and interconnecting ports and wherein there are on the average at least two and less than 16 ports interconnecting each of the generally tapered voids, and wherein the average number of asymmetric pores passing through the microporous membrane is greater than about 10 per square centimeter.

4,280,910

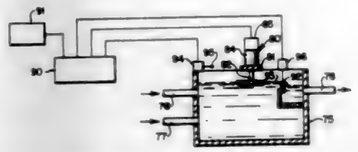
METHOD AND APPARATUS FOR CONTROLLING AERATION IN BIOLOGICAL TREATMENT PROCESSES

Edward J. Baumann, 3109 Walden Ct., Columbus, Ohio 43220

Filed Mar. 10, 1980, Ser. No. 128,535
Int. Cl.³ C02F *3/16*
U.S. Cl. 210—614 **13 Claims**

1. In the biological treatment process for treating waste where air is introduced to the waste to affect aerobic decomposition thereof, the operations of controlling the process and maintaining the efficiency thereof comprising:
(a) introducing air into the waste with air supply means,
(b) measuring the waste load entering the process, and controlling the amount of air introduced by the air supply

means into the waste, dependent upon the measured waste load, and



(c) sensing the temperature of ambient air entering the air supply means, and controlling the amount of air supplied by the air supply means, dependent upon the sensed ambient temperature.

4,280,911

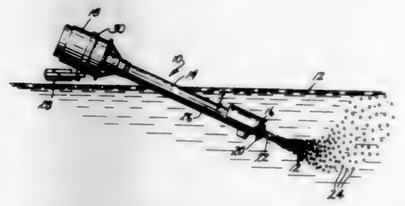
METHOD FOR TREATING WATER

Daniel J. Durda, Spring Park, Minn., and John T. Quigley, Madison, Wis., assignors to Aeration Industries, Chaska, Minn.

Continuation of Ser. No. 934,412, Aug. 17, 1978, abandoned. This application Jun. 19, 1980, Ser. No. 161,151

Int. Cl.³ C02F 3/02, 1/74

U.S. Cl. 210—629 **16 Claims**



1. A method of treating a bounded body of water with a propeller type aerator comprising the steps of:

(a) aerating a bounded body of water with a plurality of propeller type aerators, each aerator having a hollow tube with opposite ends, a longitudinal axis extending between the ends and a propeller adjacent one of the ends;

(b) placing each of said aerators in the bounded body of water with said propeller and tube end adjacent thereto below the top surface of said water and with the longitudinal axis of each aerator disposed at an angle below horizontal;

(c) driving the aerators to create individual flow patterns around each of the aerators;

(d) mixing the water by arranging the aerators in a disposition to link the individual flow patterns created by adjacent aerators to one another to form a larger closed overall flow pattern;

(e) injecting oxygen through said tube into the body of water adjacent said propeller at a rate greater than 1 pound of oxygen per horse power-hour; and

(f) inducing by rotating the propellers of said aerators said closed overall flow pattern at an average linear velocity in a generally horizontal direction through a cross section to flow at least 0.25 feet per second, said angle of inclination of each aerator being sufficient to accomplish the injection rate of step (e) and the average linear velocity of step (f).

4,280,912

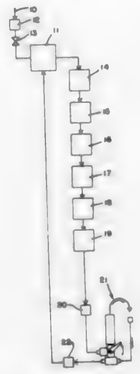
WATER PURIFICATION UNIT AND METHOD

W. James Berry, III, Washington, D.C., and William J. Berry, Durham, N.C., assignors to Darco Water Systems, Inc., Durham, N.C.

Continuation of Ser. No. 907,926, May 22, 1978, abandoned. This application Nov. 5, 1979, Ser. No. 91,452

Int. Cl.³ C02F 1/32, 1/42

U.S. Cl. 210—662 **4 Claims**



1. Apparatus for purifying water comprising: a water supply, a pump means in communication with said water supply for directing water to successive elements of a purifying circuit including a monitoring means, a carbonaceous resin means, a first ion-exchange means, an ultraviolet light means, a temperature control means, said temperature control means communicating with said ultraviolet light means, said temperature control means including cooling elements for lowering the temperature of the water received from said ultraviolet light means, a second ion-exchange means for receiving the water passing from said temperature control means, an outlet means, said outlet means including a filter means and a quick disconnect coupling unit, a water return means including a conduit from said outlet means to said pump means, said water return means including a spigot means having recirculating ability comprising; an inlet means for maintaining fluid communication with a fluid supply, an adjustable valve means for directing fluid entering said inlet means through either first or second outlet means, said first outlet means including a pre-filtering means, an outlet tip joined to said pre-filtering means for providing fluid therefrom, coupling means engageable with said outlet tip, said coupling means communicating with said second outlet means whereby said fluid passing through said outlet tip with said coupling means engaged is returned to the fluid supply.

4,280,913

WATER PURIFICATION PROCESS

Charles S. Applegate, Brookfield, and Paul R. Erickson, Glendale, both of Wis., assignors to Envirex, Inc., Waukesha, Wis.

Filed Jan. 23, 1980, Ser. No. 114,764

Int. Cl.³ B01D 37/02

U.S. Cl. 210—669 **26 Claims**

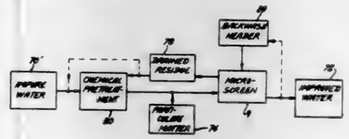
1. A process for removing colloidal and soluble contaminants from impure water, comprising:

providing a hollow cylindrical microscreen capable of maintaining its integrity when exposed to a positive water head pressure, said microscreen having pores substantially all from one to 30 microns in diameter, said microscreen mounted rotatably about its longitudinal axis on a hollow cylindrical frame complementary to said microscreen, said frame open at one end and closed at its opposite end; whereby a stream of said impure water entering the cylindrical space within said microscreen through said open end of said frame can only exit said cylindrical space by passing through said microscreen, while at least some of said contaminants will not be able to pass through said microscreen and will settle on the inner surface thereof,

moving said impure water through said microscreen to provide improved water by introducing a stream of said impure water into said cylindrical space within said microscreen through said open end of said frame at a positive water head pressure,

dispersing discrete, insoluble finely divided particulate matter having a diameter between 1 to 100 microns into said impure water, before said impure water passes through said microscreen leaving said contaminants and particulate matter on said inner surface of said microscreen,

removing said contaminants and particulate matter from said inner surface of said microscreen by passing backwash water through said microscreen from the outer surface thereof at a height above said stream of impure water moving through said microscreen,



collecting and draining said backwash water, removed contaminants and particulate matter extending out of said cylindrical space through said open end of said frame, and

rotating said microscreen about its longitudinal axis at a rate predetermined to form during each rotation of said microscreen, as the result of said impure water passing through said microscreen, an intermixed layer of said contaminants and particulate matter over substantially the entire inner surface of said microscreen through which said stream of impure water is passing, thereby forming a filter substantially impermeable to any of said contaminants and particulate matter of a size able to pass through said pores of said microscreen, while maintaining said microscreen permeable to water, whereby said water pressure head and microscreen pore size will allow said impure water to pass through said microscreen at commercially useful flow rates, while said contaminants and particulate matter having sizes less than a pore of said microscreen are prevented from passing through said microscreen by said filtering layer of said contaminants and particulate matter.

4,280,914

PROCESS FOR AUTOMATICALLY CONTROLLING THE DETOXIFICATION OF WASTE WATERS CONTAINING NITRITE IONS

Helmut Knorre, Seligenstadt, and Joachim Fischer, Hanau, both of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,040

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1978, 2852475

Int. Cl.³ C02F 1/72

U.S. Cl. 210—743 **13 Claims**

1. In a process for the detoxification of nitrite ion containing waste water by oxidizing the nitrite ions to nitrate ions in the weakly acid pH range by means of hydrogen peroxide the improvement comprising automatically controlling the detoxification by successively measuring the pH and stopping the addition of hydrogen peroxide when there is no longer a reduction in the pH upon the addition of more hydrogen peroxide.

4,280,915

SALT STABLE LUBRICANT FOR WATER BASE DRILLING FLUIDS

James D. Kercheville, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed Jun. 23, 1977, Ser. No. 809,369

Int. Cl.³ C09K 7/00

U.S. Cl. 252—8.5 C **15 Claims**

1. A water base drilling fluid having enhanced lubricating properties in the presence of polyvalent cation, comprising a mixture of water clay, and a lubricant mixture consisting essentially of:

about 1–10 wt. % of an alkanol amide of a saturated fatty acid reaction product of an amine selected from the group consisting of mono- and di-substituted amines having C_1–C_{10} range mono- and di-alkanol substituents, and mixtures thereof, and a reactant selected from the group consisting of C_8–C_{20} range saturated fatty acids, triglycerides of C_8–C_{20} range fatty acids wherein at least 50% of the fatty acids are saturated, and mixtures thereof;

about 60–99 wt. % of an alkanol amine of an unsaturated fatty acid reaction product of about 8–13 wt. % amine selected from the group consisting of mono- and di-substituted amines having C_1–C_{10} range mono- and di-alkanol substituents, and mixtures thereof, and about 92 to 87 wt. % of a reactant selected from the group consisting of C_{16}–C_{18} range unsaturated fatty acids, triglycerides of C_{16}–C_{18} unsaturated fatty acids, and mixtures thereof; and

about 0–30 wt. % of a pour point depressant selected from the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol, isobutanol, ethylene glycol, butylene glycol, propylene glycol, and mixtures thereof; wherein the alkanol amine radical concentration is in the range of about 5–15 wt. % of said lubricant mixture.

4,280,916

LUBRICANT COMPOSITION

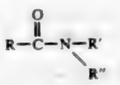
Harry F. Richards, Missouri City, and Douglas C. Carlson, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 31, 1980, Ser. No. 135,819

Int. Cl.³ C10M 1/32, 1/40, 1/48

U.S. Cl. 252—33.4 **10 Claims**

1. In a motor oil composition formulated for use as a crankcase lubricant in internal combustion engines, said oil containing an ashless dispersant, and an oil-soluble detergent sulfonate and/or phenate the improvement comprising including an effective amount of at least one C_8–C_{24} aliphatic monocarboxylic acid amide sufficient to reduce fuel consumption of an internal combustion engine when employing said motor oil compositions as the crankcase lubricating oil of said engine, said aliphatic monocarboxylic acid amide having the general formula:



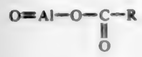
wherein R is an alkyl or alkenyl hydrocarbyl radical of 8 to 24 carbon atoms, and R′ and R″, which may be the same or different, are hydrogen or lower alkyl radical having up to 7 carbon atoms.

4,280,917
GREASE COMPOSITIONS AND OXYALUMINUM ACYLATE INTERMEDIATE COMPOSITIONS USEFUL IN THE PREPARATION THEREOF

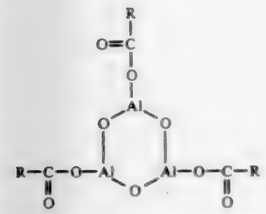
Charles E. Pratt, Signal Mountain, Tenn., assignor to Chattem, Inc., Chattanooga, Tenn.

Filed Nov. 23, 1979, Ser. No. 96,933
Int. Cl.³ C10M *5/12, 7/16, 1/20*
U.S. Cl. 252—37.7 26 Claims

1. Compounds of the formula



and of the formula

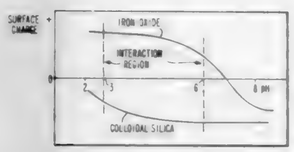


wherein R is selected from the group of radicals consisting of:
Type (A): aliphatic radicals each containing from 10 to 38 carbon atoms, and
Type (B): aromatic radicals each containing from 6 to 16 carbon atoms, and
wherein, in any given group of such compounds, or mixtures of such group, the ratio of the number of radicals of said type (B) to said type (A) ranges from 2:3 to 3:1.

4,280,918
MAGNETIC PARTICLE DISPERSIONS

Andrew M. Homola, and Sondra L. Rice, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 10, 1980, Ser. No. 128,763
Int. Cl.³ B01J *13/00*
U.S. Cl. 252—62.51 7 Claims



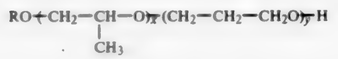
1. A method of manufacturing a magnetic dispersion containing magnetic particles, comprising the steps of:
leaching the dry magnetic particles in an acid to form a slurry;
adjusting the pH of the said slurry to between 3 and 6 to produce a positive electrostatic charge on said magnetic particles;
adding to said slurry a dispersion of colloidal particles having a pH between 3 and 6, the colloidal particles having a negative electrostatic charge thereon; and
mixing said slurry with said dispersion, the opposite charges on said particles causing the colloidal particles to be attracted to and irreversibly bond to the magnetic particles.

4,280,919
DETERGENTS AND CLEANSERS CONTAINING OXYALKYLATED ALCOHOLS AS BIODEGRADABLE, LOW-FOAM SURFACTANTS

Dieter Stoeckigt; Dieter Kiessling, both of Ludwigshafen; Johannes Perner, Neustadt; Wolfgang Trieselt, Ludwigshafen, and Horst Trapp, Plankstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 29, 1980, Ser. No. 144,948
Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2918826
Int. Cl.³ C11D *1/722, 3/075, 3/10, 3/37*
U.S. Cl. 252—135 5 Claims

1. A dishwashing detergent composition which comprises:
10–99.5% by weight based on the total formulation, of builders selected from the group consisting of phosphates, polyacrylic acid, polymaleic acid, maleic acid/vinyl ether copolymers, nitrilotriacetic acid and zeolites, and
0.5–10% by weight of an alkoxylated alcohol of the formula:



wherein R is C_8–C_{18}-alkyl, x is from 2 to 4.5, and y is from 2 to 5.

4,280,920
STABILIZED ALUMINOSILICATE SLURRIES

Michael J. Garvey, Wirral, and Ian C. Griffiths, Liverpool, both of England, assignors to Lever Brothers Company, New York, N.Y.

Filed Feb. 26, 1979, Ser. No. 15,498
Claims priority, application United Kingdom, Mar. 2, 1978, 8373/78
Int. Cl.³ C11D *1/66, 7/02*
U.S. Cl. 252—173 12 Claims

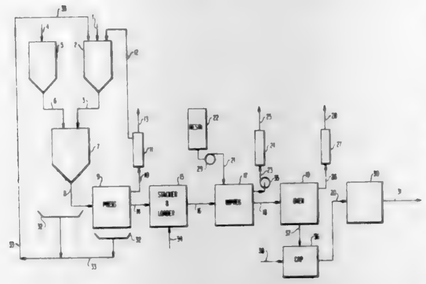
1. A substantially stable aqueous suspension of a sodium aluminosilicate ion-exchange material which comprises from about 35% to about 50% of the sodium aluminosilicate (anhydrous basis) from about 0.5% to about 10% of a water-soluble nonionic detergent active compound having a cloud point in excess of about 55° C. as determined in accordance with DIN 53917 and from about 0.2% to about 15% of a compatible water-soluble salt, all percentages being by weight of the aqueous suspension, said suspension having a maximum viscosity of less than about 50 poise at a low shear rate.

4,280,921
IMMOBILIZATION OF WASTE MATERIAL

John R. May, Newport News, Va., assignor to Newport News Industrial Corporation, Newport News, Va.

Filed Dec. 1, 1978, Ser. No. 965,726
Int. Cl.³ G21F *9/34*
U.S. Cl. 252—301.1 W 22 Claims

1. A method for immobilizing and solidifying and reducing the volume of hazardous waste material which comprises blending substantially anhydrous powdered waste material with powdered metal, and subjecting the admixture to a pressure of at least 10 tons/in² for sufficient time to provide a strong solid of reduced volume and wherein the amount of said powdered metal is up to about 20% by weight based on the

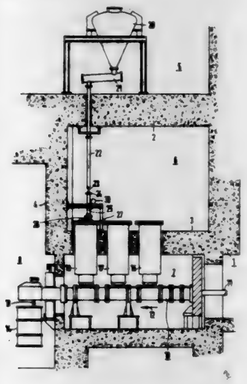


weight of solid waste material and is at least sufficient to immobilize and solidify said waste when subjected to said pressure.

4,280,922
METHOD AND APPARATUS FOR EMBEDDING RADIOACTIVE PULVERULENT ORGANIC WASTE IN A THERMOPLASTIC MASS

Anwer Puthawala, Backenhof; Othmar Meichsner, Raunheim, and Erich Marr, Walldorf, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Mar. 7, 1979, Ser. No. 18,228
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1978, 2810089
Int. Cl.³ G21F *9/34*
U.S. Cl. 252—301.1 W 11 Claims



1. Method of embedding dry radioactive, pulverulent wastes containing an organic substance in a thermoplastic mass in a kneader of the pass through type said kneader having a plurality of degassing domes disposed along its length in which the thermoplastic mass is introduced through an inlet near one end of the kneader and is delivered through a discharge opening near the other end of the kneader into a container capable of providing a final storage therefor, while gases and/or vapors are withdrawn from the degassing domes of the kneader, further including the combination therewith of delivering fluidic dried wastes to the kneader through a metering tube subjected to mechanical movement to facilitate passage of the wastes, said metering tube extending into the degassing dome in the kneader disposed next to the discharge opening, and admitting scavenging gas into the metering tube at least temporarily in direction toward the kneader.

4,280,923
METHOD FOR FRACTIONATING SOLUBLE POLYMERS AND COLLOIDAL PARTICLES

Hamish Small, and Jitka K. Solc, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 18, 1978, Ser. No. 970,493
Int. Cl.³ B01D *17/00*
U.S. Cl. 252—323 7 Claims

1. A liquid chromatographic method for separating different particle size fractions of a suspended colloidal particle system and different molecular weight fractions of a dissolved polymer system, which method comprises passing a polar solvent dispersion containing at least one of said systems through a bed of essentially nonswellable inert granules of a water-insoluble inorganic solid having a chemically bonded surface coating of about 0.01–10 percent by weight of a hydrophilic polymer which is (a) a polymerized alpha-olefin having a functional group substituent selected from the group consisting of carboxyl, carboxy ester, amino, quaternary ammonium, amido, and sulfonate or (b) a water-soluble or methanol-soluble polyethylene glycol, polypropylene glycol or mixed ethylene-propylene polyglycol, said coating swellable by said polar solvent.

5. A liquid chromatographic method for separating different particle size fractions of a suspended colloidal particle system and different molecular weight fractions of a dissolved polymer system, which method comprises passing a polar solvent dispersion containing at least one of said systems through a bed of essentially nonswellable inert granules of a nonporous cross-linked organic polymer gel having a chemically bonded surface coating of about 0.01–10 percent by weight of a hydrophilic polymer which is a water-soluble or methanol-soluble polyethylene glycol, polypropylene glycol, or mixed ethylene-propylene polyglycol.

4,280,924
REGENERATING PEROSMATE CATALYST

Ching-Yong Wu, O'Hara Township, Allegheny County, and Thaddeus P. Kobylinski, Gibsonia, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 972,929, Dec. 26, 1978, Pat. No. 4,217,291. This application Dec. 28, 1979, Ser. No. 107,867
The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.
Int. Cl.³ B01J *31/40, 23/96;* C07C *29/03, 27/16*
U.S. Cl. 252—416 11 Claims

1. A cyclic process for the regeneration of a perosmate catalyst which comprises the steps
(a) contacting ethylene or propylene at an elevated pressure in a hydroxylation reactor with a reaction mixture comprising a secondary or tertiary organic hydroperoxide in the presence of a catalytic amount of cesium perosmate, rubidium perosmate, potassium perosmate or tetra(lower-)alkylammonium perosmate, an organic polar solvent and an aqueous solution containing cesium hydroxide, rubidium hydroxide, potassium hydroxide or a tetra(lower)alkylammonium hydroxide at a moderate temperature until said hydroperoxide is substantially exhausted whereby a portion of said osmium is reduced to a valence state less than +5,
(b) recovering an osmium-containing catalyst residue from the product mixture,
(c) oxidizing that portion of the osmium in the catalyst residue which is at a valence state less than +5 to a valence state greater than +5 by contacting the osmium catalyst residue with a secondary or tertiary organic hydroperoxide at a temperature less than about 30° C. and at a pH greater than 7, and
(d) recycling the regenerated perosmate catalyst to the hydroxylation reactor.

4. A cyclic process for the regeneration of a perosmate catalyst in accordance with claim 1 in which the said osmium catalyst residue is at a pH of at least about 10.

5. A cyclic process for the regeneration of a perosmate

catalyst in accordance with claim 1 in which the said osmium catalyst residue is contacted with said hydroperoxide at a temperature between about −10° C. and about 25° C.

4,280,925

FILTER FOR SORPTION OF HEAVY METALS

John E. Kiefer, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,473
Int. Cl.³ C02F 1/42
U.S. Cl. 252—428 **22 Claims**

1. The method of making a sorbent for heavy metals comprising:

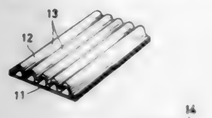
incorporating in a hydrophilic material a zinc sulfide having a high surface area of at least about 15 m^2/g, said hydrophilic material being formed from a cellulose ester selected from cellulose acetate, cellulose butyrate, cellulose propionate or mixed esters thereof.

4,280,926

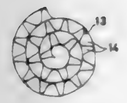
METHOD FOR PRODUCING A CATALYST AND A CARRIER THEREFOR

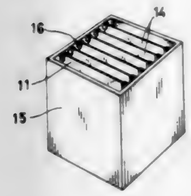
Kazuaobu Abe, Izumi, and Tadao Nakatsuji, Matsubara, both of Japan, assignors to Sakai Chemical Industry Co., Ltd., Japan

Filed Sep. 5, 1979, Ser. No. 72,599
Claims priority, application Japan, Sep. 12, 1978, 53-112558; Jan. 9, 1979, 54-1694; Apr. 27, 1979, 54-53186
Int. Cl.³ B01J 35/04, 31/28, 21/14, 21/12
U.S. Cl. 252—430 **6 Claims**









1. A method for producing a catalytic material for the reduction of nitrogen oxides in the presence of ammonia, which consists essentially of admixing:

(a) a slurry prepared by beating at least one of inorganic heat-resistant fibers of about 1–20 mm in fiber length and of about 0.1–30 microns in diameter selected from the group consisting of asbestos fiber, silica fiber, silica-alumina fiber, chrysotile fiber, rock wool, glass fiber, anthophyllite fiber, potassium titanate fiber, carbon fiber and ceramic fiber, in water,

(b) at least one powdery catalytic material having a particle size of about 0.01 to 50 microns and being an oxide selected from the group consisting of Cu, Fe, V, W and Mo or precursor thereof which is a water-insoluble, powdery compound which will be converted into catalytic material when calcined and,

(c) a powdery carrier material which is at least one oxide of a metal selected from the group consisting of Ti and Al or a precursor which is a water-insoluble, powdery compound which will be converted into the oxide when calcined,

thereby forming a stock material containing solid components in an amount of 1 to 10% by weight with about 80 to 40 parts by weight of fibers in relation to 20 to 60 parts by weight of the total powdery material, forming the stock into a sheet by paper-making means and drying the sheet.

3. The method as claimed in claim 1 further comprising: forming the sheet into a honeycomb structure; immersing the structure in an impregnating slurry or solution containing catalytically active agents, carrier materials, their precursors or a mixture of at least two of these; and drying the structure.

4. The method as claimed in claims 2 or 3, wherein the impregnating slurry or solution further contains 1–10 parts by weight of at least one inorganic heat-resistant fiber of about 0.1–30 microns in diameter and about 0.5–5 mm in fiber length selected from the group consisting of asbestos fiber, ceramic fiber, silica fiber, silica-alumina fiber, chrysotile fiber, rock wool, glass fiber, potassium titanate fiber, anthophyllite fiber and carbon fiber, or about 0.5–5 parts of weight of polytetrafluoroethylene fiber, in relation to 100 parts by weight of the total weight of catalytically active agents, carrier materials and their precursors.

4,280,927

POLYMERIZATION CATALYST AND PROCESS FOR POLYMERIZING DIENES THEREWITH

Delmar F. Lohr, Jr., Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed May 27, 1980, Ser. No. 153,477
Int. Cl.³ C08F 4/48
U.S. Cl. 252—431 N **10 Claims**

1. A polymerization catalyst comprising (a) an R″Li organometal compound in which R″ is a monovalent hydrocarbyl radical of 1 to 20 carbon atoms, and (b) an aminoacetal compound of the formula $R'_2N\text{-}A\text{-}CH(OR)_2$ wherein R and R′ each represents a saturated aliphatic hydrocarbyl group of 1–3 carbon atoms; A represents a divalent saturated aliphatic hydrocarbon group of 1–10 carbon atoms having 1–3 carbon atoms in direct linkage between said two valencies, the proportion of said amino-acetal compound being 0.25–10 moles per mole of said organo-metal compound.

4,280,928

CATALYST COMPOSITIONS AND THEIR USE FOR THE PREPARATION OF METHACROLEIN

Lawrence S. Kirch, Huntingdon Valley, and William J. Kennelly, Newtown, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Oct. 12, 1979, Ser. No. 84,254
Int. Cl.³ B01J 21/02, 23/28, 27/14, 23/02
U.S. Cl. 252—432 **9 Claims**

1. A catalyst having the formula $Mo_aP_bFe_c—Co_dNi_eBi_f$. $Te_gSb_hCs_iZr_jX_kO_x$ wherein when a is 12; b is 2; c is 1–7; d is 3–7; e is 1–5; f is 1; g is 0.7–1.4; h is 0–1; i is 0.5; j is 0–1.75; k is 0–1; x is a value determined according to the state of oxidation, and X is one or more elements selected from Cu, B or Al.

4,280,929

ATTRITION RESISTANT-HIGHER ACTIVE COMPONENT FLUID BED CATALYSTS

Wilfrid G. Shaw, Lyndhurst; Christos Paparizos, Cleveland, and James L. Callahan, Wooster, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed Sep. 17, 1979, Ser. No. 76,115
Int. Cl.³ B01J 21/08, 23/16, 27/00
U.S. Cl. 252—439 **11 Claims**

1. A process for preparing a supported solid oxide complex catalyst comprising the steps of:

(a) adding fumed silica to a mixture containing one or more active components of the catalyst;

(b) drying said mixture to form a dried first-stage mixture;

(c) adding in solution a member having a surface area greater than 50 m^2/g selected from the group of silica and a silica-containing compound other than fumed silica to said dried mixture of (b);

(d) drying and calcining said mixture of (c).

4. The process of claim 1 wherein the active components of step (a) are selected from the group consisting of oxides or reagents that form the oxide of molybdenum, bismuth-molybdenum, antimony-molybdenum and tellurium-molybdenum.

8. A process for preparing a supported solid oxide complex catalyst comprising the steps of:

(a) adding fumed silica to a mixture containing one or more active components of the catalyst;

(b) drying and calcining said mixture to form a cal-cined first-stage mixture;

(c) adding in solution a member having a surface area greater than 50 m^2/g selected from the group of silica and a silica-containing compound other than fumed silica to said dried mixture of (b);

(d) drying and calcining said mixture of (c).

4,280,930

NONACIDIC MULTIMETALLIC CATALYTIC COMPOSITE

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 17,303, Mar. 5, 1979, Pat. No. 4,216,346, which is a continuation-in-part of Ser. No. 892,369, Mar. 31, 1978, Pat. No. 4,179,406, which is a division of Ser. No. 744,061, Nov. 22, 1976, Pat. No. 4,115,252. This application Mar. 31, 1980, Ser. No. 135,585
Int. Cl.³ B01J 23/58, 23/60
U.S. Cl. 252—466 B **13 Claims**

1. A nonacidic catalytic composite comprising a porous carrier material containing, on an elemental basis, about 0.01 to about 2 wt. % platinum group metal, about 0.05 to about 5 wt. % cobalt, about 0.1 to about 5 wt. % alkali metal or alkaline earth metal, and about 0.01 to about 5 wt. % zinc, wherein the platinum group, catalytically available cobalt, zinc and alkali or alkaline earth components are uniformly dispersed throughout the porous carrier material; wherein substantially all of the platinum group conponent is present in the elemental metallic state; wherein substantially all of the catalytically available cobalt component is present in the elemental metallic state or in a state which is reducible to the elemental metallic state under hydrocarbon dehydrogenation conditions or in a mixture of these states; and wherein substantially all of the alkali or alkaline earth component is present in a positive oxidation state.

4,280,931

METHOD AND COMPOSITION FOR ELECTRICALLY RESISTIVE MATERIAL FOR TELEVISION CATHODE RAY TUBES

Dale Delsing, Skokie, and Mark Fogelson, Wilmette, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Aug. 14, 1979, Ser. No. 66,356
Int. Cl.³ H01B 1/08; H01C 7/00
U.S. Cl. 252—518 **15 Claims**

1. For use in a television cathode ray tube including a funnel with a conductive coating on the inner surface thereof and a neck enclosing an electron gun having snubber springs extending from an anode electrode, an improved electrically resistive arc-suppressive material to be deposited in an area between said conductive coating and said gun and in contact with said snubber springs, said improved resistive material comprising tin oxide (SnO_2) doped with an antimony compound and calcined in a semi-sealed crucible for about two hours at a temperature in the range of 1306° C. to 1326° C., and blended with glass frit in a weight-percent ratio range of 45–55, said doping, and said temperature range and duration being effective to imbue said material, with a hardness resistant to plowing by said snubber springs and an electrical resistance value effective to suppress said arcing.

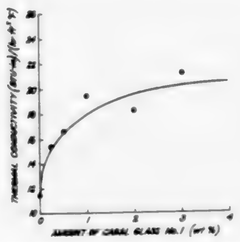
4. For use in the manufacture of a television cathode ray tube including a funnel with a conductive coating on the inner surface thereof and a neck enclosing an electron gun having snubber springs extending from an anode electrode, a method for compounding an improved electrically resistive material comprising the doping of tin oxide (SnO_2) with an antimony compound, calcining the resultant in a semi-sealed crucible at a temperature in the range of 1306° C. to 1326° C. for about two hours, and blending with glass frit in the weight-percent ratio range of 45–55, said doping, and said temperature range and duration being effective to imbue said material with a hardness resistant to plowing by said snubber springs, and an electrical resistance value effective to suppress said arcing.

4,280,932

MAGNESIA INSULATED HEATING ELEMENTS

Marcus P. Borom, Schenectady, N.Y., and John Schultz, Jr., Louisville, Ky., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 11,068, Feb. 12, 1979, Pat. No. 4,234,786. This application May 22, 1980, Ser. No. 152,369
Int. Cl.³ C03C 3/14, 35/04; H02C 1/03
U.S. Cl. 252—521 **3 Claims**



1. An electrically insulating filler showing improved thermal conductance without significantly affecting electrical leakage and having special utility as a thermally-conducting and electrically-insulating filler for sheathed electric-resistance heaters consisting essentially of a uniform mixture of granular fused magnesia and from about 0.1% to about 10% of a glass having resistivity greater than about 10^7 ohm-cm at 600° C. and additionally having a glass transition temperature range below about 700° C. and being thermodynamically stable in the presence of oxygen partial pressure of 10^{-15} atmosphere in the temperature range of 750° to 1100° C. wherein the glass con-

sists essentially of from about 10 to about 50 mol percent CaO, from about 30 to about 90 mol percent B_2O_3, and from about 0 to about 30 mol percent Al_2O_3, said filler being substantially free of electrically conductive metal materials, alkalis and/or easily reducible metal oxides.

4,280,933

DERIVATIVES OF CIS-3-HEXENOL AND PROCESS FOR PRODUCING COMPOSITIONS OF MATTER CONTAINING CIS-3-HEXENAL AND PRODUCTS PRODUCED THEREBY AND ORGANOLEPTIC USES THEREOF

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Edward J. Granda, Englishtown; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 85,707, Oct. 17, 1979, Pat. No. 4,241,098. This application Jul. 17, 1980, Ser. No. 169,902

Int. Cl.³ A61K *7/46*

U.S. Cl. 252—522 R **1 Claim**

1. A process for augmenting or enhancing the aroma of a perfume composition or a cologne comprising the step of adding to a perfume base or a cologne base an aroma augmenting or enhancing quantity of a mixture of cis-3-hexenal, trans-2-hexenal, cis-3-hexenyl formate, cis-3-hexenol and cis-3-hexenyl-cis-2-hexenoate, prepared by reacting cis-3-hexenol with pyridine chlorochromate, the mole ratio of cis-3-hexenol:pyridine chlorochromate initially in the reaction mass being in the range of from 1:0.5 up to 1:2, the reaction being carried out in a solvent, whereby said mixture is stable with respect to the aroma substantivity of the cis-3-hexenal.

4,280,934

CYCLOPENTANE DERIVATIVES USEFUL AS PERFUMING AGENTS

Karl-Heinrich Schulte-Elte, Onex, Switzerland, assignor to Firmenich SA, Geneva, Switzerland

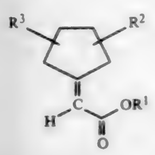
Continuation of Ser. No. 808,688, Jun. 21, 1977, abandoned. This application Feb. 17, 1979, Ser. No. 104,404

Claims priority, application Switzerland, Jun. 30, 1976, 8343/76

Int. Cl.³ A61K *7/46*

U.S. Cl. 252—522 R **7 Claims**

1. The method for improving or enhancing the odoriferous properties of perfumes or perfumed products which consists essentially of adding thereto an effective amount of at least one substantially pure compound characterized by fruity or flowery fragrance and having the formula



(I)

wherein the symbol R^1 represents a linear, branched, saturated or unsaturated hydrocarbon radical containing 1 to 6 carbon atoms and wherein each of the symbols R^2 and R^3 are the same or different and represents a hydrogen atom or a lower alkyl radical.

4,280,935

FRICTION MATERIAL COMPRISING AN IRON POWDER HAVING A CARBON CONTENT OF FROM 0.5–1 PERCENT

Osao Ogiwara, Hanyu, Japan, assignor to Akebono Brake Industry Company, Ltd., Tokyo, Japan

Filed Aug. 31, 1979, Ser. No. 71,765

Claims priority, application Japan, May 28, 1979, 54-65752; May 28, 1979, 54-65753

Int. Cl.³ F16D *69/02*; **C08L** *61/04*

U.S. Cl. 260—3 **5 Claims**

1. A friction material wherein a mixture consisting of 20–60 wt.% of a high carbon iron powder having a carbon content of 0.5 to 1.0 wt.%, 0–20 wt.% of an organic friction modifier, 10–40 wt.% of a lubricant, 0–10 wt.% of a metallic powder, 5–30 wt.% of a fiber reinforcing material, 5–15 wt.% of a thermosetting resin and 0.5 to 10.5 wt.% of a flame retarding material is formed by heating under pressure.

4,280,936

DENTURE ADHESIVE OF SODIUM CARBOXYMETHYLCELLULOSE, POLY(ETHYLENE OXIDE) HOMOPOLYMER AND MINERAL OIL

Dadi J. Dhabhar; Allen Heyd, both of Norwalk, and Nicholas F. Schmidt, Brookfield, all of Conn., assignors to Richardson-Merrell Inc., Wilton, Conn.

Filed Apr. 17, 1980, Ser. No. 140,462

Int. Cl.³ C08L *1/26*

U.S. Cl. 260—13 **3 Claims**

1. An anhydrous denture adhesive liquid composition consisting essentially of sodium carboxymethylcellulose, poly-(ethylene oxide) homopolymer and mineral oil wherein the sodium carboxymethylcellulose and poly(ethylene oxide) homopolymer are present in a weight ratio of about 3:1 and together comprise about 45 weight percent of the total composition.

4,280,937

GRAFT POLYMERS OF POLYSACCHARIDE ESTERS

Herbert Bartl, Odenthal, and Fritz Mietzsch, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 25, 1979, Ser. No. 78,843

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842540

Int. Cl.³ C08L *1/10, 1/14, 3/16*

U.S. Cl. 260—17 A **8 Claims**

1. A graft copolymer comprising

(A) 2 to 30% by weight of a polysaccharide ester as grafting substrate and

(B) 98 to 70% by weight of a mixture of

(1) 8 to 90% by weight of ethylene and

(2) 92 to 10% by weight of vinyl acetate as grafting monomers.

4,280,938

HIGH SOLIDS AIR-DRYING COATING COMPOSITIONS

William F. Strazik; John R. LeBlanc, both of Wilbraham, and J. Owen Santer, East Longmeadow, all of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 19, 1979, Ser. No. 105,058

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—21 **25 Claims**

1. An air-drying composition comprising from about 50 to about 90 parts by weight of an unsaturated oil-modified resin and from about 50 to about 10 parts by weight of an unsaturated stepwise condensate of an alkoxymethylmelamine, an allylic alcohol, and an acrylamide, wherein the ratio of allylic alcohol moieties to acrylamide moieties in the condensate is in the range of about 3:1 to about 1:3, wherein the condensate contains at least about 0.75 allylic moiety and no more than about 3 acrylamide moieties per melamine ring and wherein the total of allylic moieties and acrylamide moieties of the condensate is in the range of about 2 to about 4 per melamine ring.

4,280,939

THERMOPLASTIC INK COMPOSITION FOR DECORATING GLASS, GLASS-CERAMIC, AND CERAMIC WARE

Ronald E. Johnson, Tioga, Pa., assignor to Corning Glass Works, Corning, N.Y.

Filed Sep. 13, 1979, Ser. No. 74,907

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—23 AR **12 Claims**

1. A thermoplastic ink suitable for decorating glass, glass-ceramic, and ceramic articles exhibiting pressure sensitivity at temperatures substantially below its Ring and Ball softening point prepared from a formulation consisting essentially, in weight percent, of:

(a) about 50–80% of a vitrifiable, inorganic flux containing up to about 30% by weight inorganic pigments and opacifiers;

(b) about 2–20% of an ethylene-ester copolymer resin having about 8–40% by weight of a copolymerized ester selected from the group consisting of vinyl alcohol esters of C_1–C_4 saturated monocarboxylic acids and C_1–C_5 saturated alcohol esters of acrylic or methacrylic acid, the molecular weight of the polymer being such as to yield a melt index, as defined by ASTM L 1238, of about 20–400 g/10 minutes;

(c) about 4–20% of an amorphous tackifying resin having a Ring and Ball softening point of about 40°–110° C.;

(d) 0–10% of a modifying polyolefin resin selected from the group consisting of a low molecular weight polyethylene resin with a melt index, as defined by ASTM D1238, greater than about 20 g/10 minutes and an amorphous polypropylene resin having a melt viscosity of about 500–15,000 cps at 375° F. (~ 191° C.); and

(e) about 5–25% of an organic wax and/or plasticizer compatible with the resins of paragraphs (b), (c), and (d) and having a Ring and Ball softening point of less than about 100° C.

6. A thermoplastic ink according to claim 1 wherein said organic wax is selected from the group of paraffin and microcrystalline mineral waxes, animal waxes, vegetable waxes, fatty alcohols, fatty acids, fatty acid esters, glycerides, oxazoline waxes, and hydrogenated vegetable oils.

4,280,940

THERMOPLASTIC COMPOSITION COMPRISING VINYL CHLORIDE POLYMER AND TWO CHLORINATED POLYETHYLENES

Helmut Klag, Aystetten, and Hans-Helmut Frey, Bad Soden am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 12, 1980, Ser. No. 186,463

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1979, 2937178

Int. Cl.³ C08L *23/28, 27/06*

U.S. Cl. 260—23 XA **6 Claims**

1. Thermoplastic composition consisting essentially of

(A) 95–80% by weight of vinyl chloride polymer and

(B) 5–20% by weight of chlorinated polyethylenes, each time calculated on the thermoplastic composition, wherein component

(A) is a vinyl chloride polymer with a K value of from 55–65, and component B is a mixture of

(B_1) 2.5–15 parts by weight of a chlorinated low pressure polyethylene, having a chlorine content of from 37–42% by weight, a residue value of from 0–30% (measured by extraction with toluene/acetone 1:1) and a swelling value of from 10–70% (measured in methyl cyclohexane) and which has been prepared by chlorination of a low pressure polyethylene of a density of from 0.940–0.955 g/cm³ and a melt flow index MFI 190/5 of from 0.1–5 g/10 min in suspension in water or in 10–35% hydrochloric acid in the presence of 0–2% by weight of silicic acid and 0–1% by weight of silicone oil, relative, each time, to the polyethylene used, at temperatures between 50° and 130° C., with at least 10% of chlorine being introduced at temperatures between 120° and 130° C. and

(B_2) 2.5–15 parts by weight of a chlorinated low pressure polyethylene with a chlorine content of from 37–42% by weight, a residue value of 50–70% and a swelling value below 1% and which has been prepared from a low pressure polyethylene with a density between 0.955 and 0.965 g/cm³ and a melt flow index MFI 190/5 of from 20–65 g/10 min by chlorination in suspension in water or in 10–35% hydrochloric acid in the presence of 0–2% by weight of silicic acid and 0–1% by weight of silicone oil, each time calculated on the polyethylene used, at temperatures between 50° and 120° C., while introducing at least the last 10% of chlorine at a temperature of from 110° to 120° C.

4,280,941

VIDEO DISCS AND MOLDING COMPOSITIONS THEREFOR

Pabitra Datta, Cranbury, and Ronald N. Friel, Hamilton Square, both of N.J., assignors to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 59,472, Jul. 20, 1979, abandoned, which is a division of Ser. No. 959,846, Nov. 13, 1978, Pat. No. 4,241,120. This application May 8, 1980, Ser. No. 147,577

Int. Cl.³ C08L *91/00*

U.S. Cl. 260—23 XA **4 Claims**

1. In a conductive molding composition comprising a polyvinyl chloride polymer, a solid mercapto tin stabilizer, an acrylic processing aid, an internal lubricant and a sufficient amount of conductive particles so that the composition has a bulk resistivity below about 500 ohm-cm at 900 MHz, the improvement which comprises employing as said conductive particles polymer grafted carbon particles wherein said polymer is a thermally polymerized polymer of a monomer having vinyl unsaturation, and wherein the ungrafted particles have an apparent bulk density of 150 grams per liter.

4,280,942

AQUEOUS ACRYLIC CONTACT ADHESIVE

Robert W. Green, Loveland, Ohio, assignor to Formica Corporation, Cincinnati, Ohio

Filed Jul. 9, 1980, Ser. No. 167,252

Int. Cl.³ C08L *93/04, 61/10, 33/10*

U.S. Cl. 260—27 R **10 Claims**

1. An adhesive composition comprising (A) 100 parts, by weight, of an acrylate polymer as contained in an aqueous emulsion containing from about 40–65% by weight of said acrylate polymer, (B) from about 0.5–5%, based on the total weight of said acrylate polymer emulsion, of a vinyl alcohol polymer, (C) from about 20–79 parts, by weight, per 100 parts of said acrylate polymer, of a tackifying resin and (D) from about 10–35 parts, by weight, per 100 parts of said acrylate polymer, of a resin plasticizer.

4,280,943

ORGANIC GROUTING COMPOSITION FOR ANCHORING A BOLT IN A HOLE

Joseph R. Bivens, Martinsburg, W. Va.; William M. Lyerly, Hagerstown, Md., and Walter J. Simmons, Martinsburg, W. Va., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Nov. 8, 1979, Ser. No. 92,712

Int. Cl.³ C08L *67/06*

U.S. Cl. 260—29.2 E **15 Claims**

1. In an organic grouting composition comprising

(a) a first component containing a resin formulation comprising an unsaturated polymerizable polyester resin mixed with a monomeric polymerizable ethylenic crosslinking agent therefor, a polymerization inhibitor, and a promoter for a peroxide catalyst,
(b) separated from said first component, a second component containing a peroxide catalyst, and
(c) a particulate solid filler, said polyester and said crosslinking agent, when said first and second components are in a combined and mixed condition around a reinforcing member in a hole, being adapted to react rapidly to form a hardened anchoring composition around the reinforcing member, the improvement comprising the addition of water and a diffusing agent to said first and/or second components, and a particulate solid filler to both said first and second components, the weight ratio of said resin formulation to water being in the range of from 0.3 to 6, said resin formulation constituting about from 5 to 22 percent, said water from 4 to 19 percent, and said solid filler about from 65 to 75 percent of said composition by weight, the weight ratio of said solid filler to said resin formulation being in the range of about from 3 to 15, and any portion of said solid filler which is hydratable being present only in a substantially water-free component.

4,280,944

THERMOSETTING POLYURETHANE RESIN AND COATING AGENT THEREOF PREPARED FROM AT LEAST TWO POLYOXYALKYLENE POLYOLS, BLOCKING AGENT, CHAIN-ELONGATING AGENT, CROSS-LINKING AGENT AND A MIXTURE OF DIISOCYANATES

Takashi Saito; Kiyotsugu Asai, both of Yokohama, and Toshihiko Kawabata, Fujisawa, all of Japan, assignors to Mitsui-Nisso Corporation, Tokyo, Japan

Filed May 16, 1980, Ser. No. 150,684
Claims priority, application Japan, May 17, 1979, 54-59761
Int. Cl.³ C08L 75/04
U.S. Cl. 260—29.2 TN **14 Claims**

1. A thermosetting polyurethane resin obtained by interacting:
(a) a prepolymer having terminal NCO groups which is obtained by reacting at least one polyoxyalkylene polyol with methylene bis(4-cyclohexylisocyanate) and isophorone diisocyanate and then with a chain-elongating agent,
(b) a monofunctional isocyanate-blocking agent,
(c) a non-ionic surface active agent selected from the group consisting of a polyoxyethylene glycol or a polyoxyethylene-polyoxypropylene glycol, and mixtures thereof, and
(d) a cross-linking agent

wherein said prepolymer is reacted with said monofunctional isocyanate-blocking agent, the total weight percentage of said at least one polyoxyalkylene polyol and said non-ionic surface active agent is 10 to 40% based upon the weight of the nonvolatile matter of the thermosetting polyurethane resin, the weight percentage of said non-ionic surface active agent is 1 to 8% relative to the weight of the non-volatile matter of the thermosetting polyurethane resin, and the molar ratio of the methylene bis(4-cyclohexylisocyanate) and iso-phorone diisocyanate is in the range of from 1:0.3 to 1:1.5.

4,280,945

VINYL CHLORIDE COMPOSITIONS PLASTICIZED WITH META-TERTIARY-BUTYLPHENYL DIPHENYL PHOSPHATE

Stanley B. Mirviss, Stamford, Conn., and Silvio L. Giolito, Whitestone, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Nov. 5, 1979, Ser. No. 91,633
Int. Cl.³ C08K 5/49
U.S. Cl. 260—30.6 R **3 Claims**

1. A plasticized vinyl chloride polymer composition comprising a vinyl chloride polymer and a plasticizingly-effective amount of a tertiary-butylphenyl diphenyl phosphate having a nominal molar ratio of tertiary-butyl radicals to phenyl groups ranging from about 1:5 to about 1:2 and wherein the meta-tertiary-butylphenyl portion of the total tertiary-butylphenyl content ranges from about 25% to about 100% and the ortho-tertiary-butylphenyl content is less than about 50 mole %.

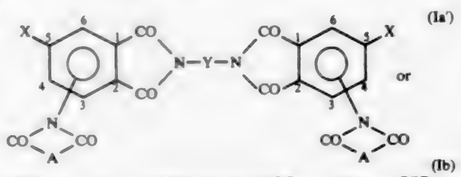
4,280,946

CROSSLINKABLE BIS-IMIDYL DERIVATIVES

Roland Darms, Therwil; Vratislav Kvita, Muttenz, and Gerd Greber, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

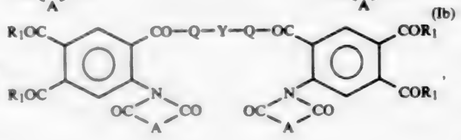
Division of Ser. No. 940,409, Sep. 7, 1978, Pat. No. 4,219,481, which is a division of Ser. No. 747,443, Dec. 6, 1976, Pat. No. 4,126,619. This application Dec. 3, 1979, Ser. No. 99,952
Claims priority, application Switzerland, Dec. 19, 1975, 16510/75
Int. Cl.³ C07D 209/48, 207/04
U.S. Cl. 260—326 N **7 Claims**

1. A crosslinkable compound of the formula



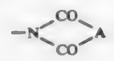
(Ia)

or

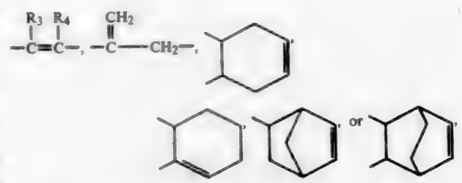


(Ib)

wherein
the X s independently of one another represent hydrogen or, if the radical



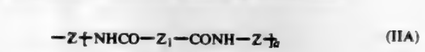
is in the 4-position of the benzene ring, also—COR_2, the R_2 s independently of one another represent hydroxyl, phenoxy; phenoxy substituted by one or two nitro groups, by one alkyl of 1 to 2 carbon atoms, by one alkoxy of 1 to 2 carbon atoms or by two or five halogen atoms; alkoxy of 1 to 18 carbon atoms or an O^-M^+ group,
the R_1 s independently of one another have the same meaning as the R_2 s or two adjacent R_1 s together represent the —O— grouping,
the A s independently of one another represent a radical of the formula



or

R_3 and R_4 independently of one another represent hydrogen, chlorine, bromine or methyl,
M^+ represents an alkali metal cation, a trialkylammonium cation having 3–24 carbon atoms, or a quaternary ammonium cartion,

Q represents —NH—, and
Y represents a structural element of the formula



(IIA)

wherein
a represents a number from 1–100,
Z represents alkylene of 2 to 10 carbon atoms, 1,3-phenylene, 1,4-phenylene, the 4,4'-diphenylmethane group, the 4,4'-diphenylsulfone group or the 4,4'-diphenyl ether group, and
Z_1 represents alkylene of 2 to 10 carbon atoms, 1,3-phenylene or 1,4-phenylene.

4,280,947

PAINT CONTAINING SILICONE ELASTOMER

Tokishige Mori, 4-10, Suwa-cho 3-chome, Nakamura-ku, Nagoya-shi, Aichi-ken, Japan

Filed Jul. 20, 1979, Ser. No. 59,154
Claims priority, application Japan, Aug. 8, 1978, 53-97031
Int. Cl.³ C08K 5/01
U.S. Cl. 260—33.6 SB **3 Claims**

1. A paint containing silicone composition curable to an elastomer comprising:
about 10 parts by volume of liquid or paste silicone composition curable to an elastomer;
about 10 to 30 parts by volume of an organic solvent;
about 3 to 6 parts by volume of a paint film stabilizer;
about 1–10 parts by volume of an oil paint; and a curing agent for said silicone composition;
wherein said paint film stabilizer comprises glass beads.

4,280,948

MODIFIED POLYESTER COMPOSITIONS

Ronald L. Dieck, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Feb. 2, 1979, Ser. No. 8,980
Int. Cl.³ C08L 51/04, 67/00
U.S. Cl. 260—40 R **14 Claims**

1. A thermoplastic composition comprising:
(a) a polyester composition comprising:
(i) a block copolyester of poly(1,4-butylene terephthalate) and an aromatic/aliphatic or aliphatic polyester;
(ii) a blend of (i) and a poly(ethylene terephthalate) resin; or
(iii) a blend of (i) and a poly(1,4-butylene terephtthalate) resin; and
(b) an impact modifier therefor comprising a combination of:
(i) an acrylic or methacrylic monomer grafted polymer of a conjugated diene, alone or in combination with a vinyl monomer; and
(ii) an aromatic polycarbonate resin, said impact modifier (b) being present in an amount of up to 60 parts per 100 parts by weight of (a) and (b) together, the weight ratio of said grafted polymer to said polycarbonate resin being between 1:99 and 99:1.

12. A composition as defined in claim 1 which also includes (c) fibrous glass reinforcing agent in an amount of from about 1 to about 60 parts by weight per 100 parts by weight of (a), (b) and (c) together.

4,280,949

MODIFIED POLYESTER COMPOSITIONS CONTAINING MINERAL FILLER

Ronald L. Dieck, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Feb. 12, 1979, Ser. No. 11,681
Int. Cl.³ C08L 69/00, 67/02
U.S. Cl. 260—40 R **15 Claims**

1. A thermoplastic composition comprising:
(a) a polyester composition comprising:
(i) a poly(1,4-butylene terephthalate) resin;
(ii) a blend of a poly(1,4-butylene terephthalate) resin and a poly(ethylene terephthalate) resin;
(iii) a block copolyester of poly(1,4-butylene terephthalate) and an aromatic/aliphatic or aliphatic polyester;
(iv) a blend of (iii) and a poly(ethylene terephthalate) resin; or
(v) a blend of (iii) and a poly(1,4-butylene terephthalate) resin;
(b) an impact modifier therefor comprising a combination of:
(i) an acrylic or methacrylic monomer grafted polymer of a conjugated diene alone or combined with a vinyl aromatic monomer; and
(ii) an aromatic polycarbonate resin, in an amount of up to 60 parts per 100 parts by weight of (a) and (b) together; and
(c) an effective amount to improve impact strength after annealing and at −20° C. of mineral filler therefor selected from clay, mica, talc or a mixture of any of the foregoing.

4,280,950

MOLDING HAVING GRAIN OF A NATURAL MATERIAL AND METHOD FOR PRODUCING SAME

Yoshiaki Nagata, and Shinya Fukui, both of Osaka, Japan, assignors to Hexa Chemical, Osaka, Japan

Filed Aug. 8, 1979, Ser. No. 64,736
Int. Cl.³ C08L 71/04, 25/06, 23/12
U.S. Cl. 260—42.21 **5 Claims**

1. A molding having a grain resembling a natural material comprising a mixture of 0.1–20% by weight of colored modified polyphenyleneoxide resin and 80–99.9% by weight of thermoplastic, said thermoplastic resin having a higher fluidity in the range of molding temperature than said polyphenyleneoxide resin and selected from group consisting of styrene resin, polyolefine resin, polyvinylchloride resin and polymethylmethacrylate resin.

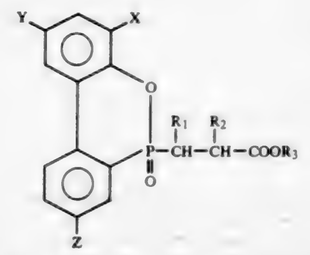
4,280,951

FLAME RETARDANTS

Toranosuke Saito, Kobe, and Hiroyuki Ohishi, Moriyama, both of Japan, assignors to Sanko Kaihatsu Kagaku Kenkyusho, Osaka, Japan

Continuation-in-part of Ser. No. 39,769, May 17, 1979, abandoned. This application Jun. 23, 1980, Ser. No. 162,007
Claims priority, application Japan, May 24, 1978, 53-61047
Int. Cl.³ C08K 5/53; C07F 9/32
U.S. Cl. 260—45.8 R **6 Claims**

1. A flame retardant comprising phosphorus-containing condensation products of an organophosphorus compound represented by Formula I,



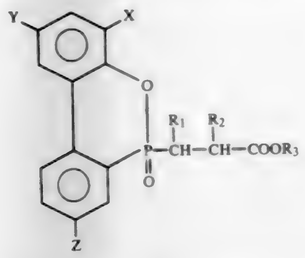
I

wherein X, Y and Z each is hydrogen or halogen, R_1 and R_2 each is hydrogen or methyl and R_3 is hydrogen or an alkyl group with a polyhydric alcohol having at least three alcoholic hydroxyl groups selected from the class consisting of glycerine, polyglycerines, trimethylol ethane, trimethylol propane, pentaerythritol, dipentaerythritol, tripentaerythritol, tetrapen-

taerythritol, mannite and sorbite, where said condensation products have a phosphorus content of 6.0 to 10.7% by weight and a softening point of 55°–155° C.

4. A flame retardant resin composition comprising 100 parts by weight of a thermoplastic resin and 3 to 50 parts by weight of phosphorus-containing condensation products of an organophosphorus compound represented by Formula I,

I



wherein X, Y and Z each is hydrogen or halogen, R_1 and R_2 each is hydrogen or methyl and R_3 is hydrogen or an alkyl group with a polyhydric alcohol having at least three alcoholic hydroxyl groups, where said condensation products have a phosphorus content of 6.0 to 10.7% by weight and a softening point of 55°–155° C.

4,280,952

FLAME RETARDANT POLYSTYRENE PLASTIC COMPOSITIONS

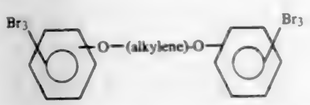
Richard C. Nametz, Manchester, and Paul O. Moore, Ann Arbor, both of Mich., assignors to Velsicol Chemical Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 924,325, Jul. 14, 1978, abandoned. This application Jan. 28, 1980, Ser. No. 115,834

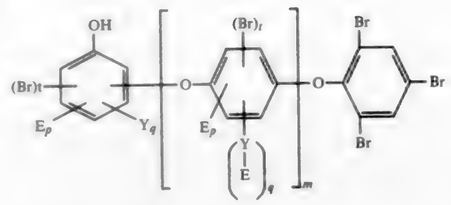
Int. Cl.[3] **C08K** *5/13;* **C08L** *71/04*

U.S. Cl. 260—45.95 G **4 Claims**

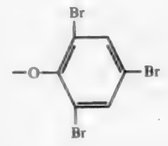
1. A flame retardant plastic composition comprising polystyrene polymer and from about 2 to about 35 weight percent of a flame retardant additive system which contains (i) from about one to about three parts by weight a bis-phenoxy compound of the formula



wherein alkylene is a straight chain carbon group having from one to six carbon atoms; (ii) from about one-fourth part to about 6 parts of a flame retardant enhancing agent selected from the group consisting of oxides and halides of Group IV-A and V-A of the Periodic Table of Elements; and (iii) from about one to about three parts by weight of a poly(brominated phenylene oxide) condensation product derived from tribromphenol, wherein said condensation product is a branched polymer having a hydroxyl number of from 2.8 to about 30 and the structural formula



wherein each repeating unit set out within the brackets of the structural formula is attached in an ortho or para configuration to its adjacent phenyl and phenoxy moiety; and wherein E is an end group of the formula



Y is a side chain of the same structure and configuration as said repeating unit; the substituents Br, E and Y on each phenyl ring are attached only to the ortho or para positions relative the hydroxyl group in the structural formula and the oxygen atom in the repeating unit; each t, p and q are independently the integer 0 or 1, provided that the sum of t plus p plus q equals 2, and provided that from about 10 to about 80 percent of the repeating units have the side chain and end unit —Y—E attached thereto; and m is an integer such that the total molecular weight of the polymer ranges from about 2,000 to about 20,000.

4,280,953

GLYCOSYLATED ANALOGS OF SOMATOSTATIN

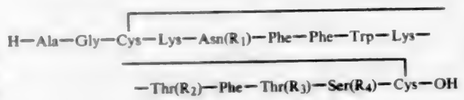
Roger C. L. Guillemin, La Jolla; Solange Lavielle, San Diego; Paul E. Brazeau, Jr., San Diego; Nicholas C. Ling, San Diego, and Robert A. Benoit, San Diego, all of Calif., assignors to The Salk Institute for Biological Studies, San Diego, Calif.

Filed Nov. 8, 1979, Ser. No. 92,647

Int. Cl.[3] **C07C** *103/52;* **A61K** *37/00*

U.S. Cl. 260—112.5 S **5 Claims**

1. A somatostatin peptide having the formula



wherein R_1, R_2, R_3 and R_4 are hydrogen or a carbohydrate moiety selected from the group consisting of hexoses and amino-hexoses modified in the 2-position with an amide group, which hexose has the pyranose structure provided that at least one R group is not hydrogen, and pharmaceutically acceptable nontoxic salts thereof.

4,280,954

CROSSLINKED COLLAGEN-MUCOPOLYSACCHARIDE COMPOSITE MATERIALS

Ioannis V. Yannas, Newtown Center; Philip L. Gordon, Lexington, both of Mass.; Chor Huang, Avon Lake, Ohio; Frederick H. Silver, Danville, N.H., and John F. Burke, Belmont, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 890,427, Mar. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 596,111, Jul. 15, 1975, abandoned. This application Apr. 16, 1979, Ser. No. 30,183

Int. Cl.[3] **A23J** *1/10*

U.S. Cl. 260—123.7 **11 Claims**

1. A process for preparing a crosslinked collagen-mucopolysaccharide composite material, comprising:

a. soaking collagen in an aqueous acidic solution having a pH of below about 6;

b. contacting said aqueous acidic solution of collagen with a mucopolysaccharide to produce a collagen-mucopolysaccharide product; and,

c. covalently crosslinking said collagen-mucopolysaccharide product to an M_C value of between about 800 and about 60,000.

4,280,955

SULFO, CHLORO PHENOLAZOACETOACETYLBENZAMIDE DYES

Hans Baumann, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

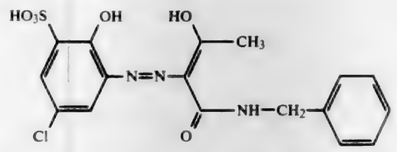
Filed Jun. 11, 1979, Ser. No. 47,246

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1978, 2825517

Int. Cl.[3] **C09B** *29/33, 45/20;* **D06P** *3/06, 3/24*

U.S. Cl. 260—149 **1 Claim**

1. A 1:2 cobalt complex dye of the formula



or its alkali metal salts or ammonium salts.

4,280,956

PHTHALOCYANINE REACTIVE DYESTUFFS

Kurt Schreiner, Hoenebach; Horst Jäger, and Richard Schwaebel, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

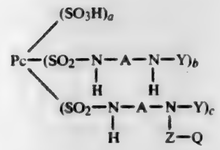
Filed May 29, 1979, Ser. No. 43,050

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1978, 2828227

Int. Cl.[3] **C09B** *47/04, 47/30*

U.S. Cl. 260—242.2 **6 Claims**

1. Phthalocyanine reactive dyestuffs of the formula



wherein

Pc=the radical of a phthalocyanine,

A=an alkylene radical with at least 2 C atoms,

Z=an alkylene radical,

Y=a reactive group,

Q=a carboxyl, sulfide, sulphate or disulphimide group,

a=0—2,

b=0—2,

c=1—4 and

a+b+c≦4.

4,280,957

IMIDAZODIAZEPINES AND PROCESSES THEREFOR

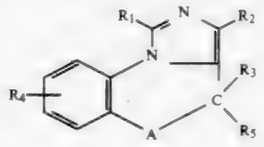
Armin Walser, West Caldwell, and Rodney I. Fryer, North Caldwell, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 663,660, Mar. 4, 1978, abandoned, which is a continuation-in-part of Ser. No. 602,691, Aug. 7, 1975, abandoned, which is a continuation-in-part of Ser. No. 504,924, Sep. 11, 1974, abandoned. This application May 15, 1978, Ser. No. 905,820

Int. Cl.[3] **C07D** *487/04*

U.S. Cl. 260—244.4 **5 Claims**

1. A compound of the formula



wherein A is



R_1 is selected from the group consisting of hydrogen, lower alkyl, hydroxy lower alkyl, acyloxy lower alkyl, phenyl, alkoxy lower alkyl, halo lower alkyl, amino lower alkyl, tolyl substituted amino lower alkyl, substitued phenyl, pyridyl, aralkyl and the group



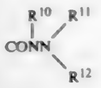
wherein R is hydrogen or lower alkyl and ROOC where R is lower alkyl; R_2 is selected from the group consisting of hydrogen, lower alkyl, hydroxy lower alkyl, acyloxy lower alkyl, alkoxy lower alkyl, halo lower alkyl, cyano, cyano lower alkyl, substituted amino lower alkyl, amino lower alkyl, substituted amino, the group COOR where R is hydrogen or lower alkyl, the group



where R is hydrogen or lower alkyl, or derivatives thereof, i.e., the group R–C=N–R′ wherein R′ is hydrogen, lower alkyl, hydroxy, phenyl, alkoxy, amino, mono or dialkylamino and arylamino and R is hydrogen or lower alkyl, the group



(where R, R' are hydrogen, lower alkyl, aryl, hydroxy lower alkyl, lower alkenyl, or together R and R' with the nitrogen atom may form a part of a 5 or 6 membered heterocyclic ring and the group $(CH_2)_nNRR'$ where R and R' are hydrogen, lower alkyl, hydroxy lower alkyl, lower alkenyl, aryl or together R and R' with the nitrogen may form a part of a 5 or 6 membered heterocyclic ring), the group



where R^{10}, R^{11}, R^{12} are hydrogen or lower alkyl and the group $(CH_2)_nNR^{13}R^{14}$ where n is 1 to 4 and R^{13}, R^{14} are hydrogen or lower alkyl; R_3 is selected from the group consisting of hydrogen or lower alkyl; R_5 is selected from the group consisting of hydrogen, lower alkanoyloxy and hydroxy; R_4 is selected from the group consisting of hydrogen, halogen, nitro, cyano, trifluoromethyl, lower alkyl, substituted amino, amino, hydroxy lower alkyl and lower alkanoyl; R_6 is selected from the group consisting of phenyl, mono-substituted phenyl, disubstituted phenyl, pyridyl and mono-substituted pyridyl
and the pharmaceutically acceptable salts thereof.

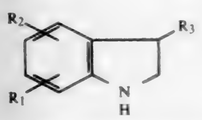
4,280,958

PROCESS FOR PRODUCING INDOLINE DERIVATIVE

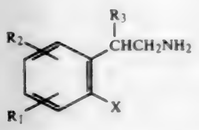
Yoshiki Nakayama, Shimizu; Yasushi Higuchi, Shizuoka, and Chihiro Yazawa, Yokohama, all of Japan, assignors to Ihara Chemical Industry Co., Ltd., Tokyo, Japan

Filed Oct. 3, 1979, Ser. No. 81,487
Claims priority, application Japan, Oct. 31, 1978, 53-134309
Int. Cl.³ C07D *209/08*
U.S. Cl. 260—326.11 R **3 Claims**

1. A process for producing an indoline derivative having the formula



by a cyclization of 2-halogenophenethylamine having the formula



(I)

wherein R_1 represents a hydrogen atom or a lower alkyl, a lower alkoxyl, nitro or hydroxyl group; R_2 represents a hydrogen atom or a lower alkoxyl or nitro group; and R_3 represents a hydrogen atom, a lower alkyl, hydroxy lower alkyl, amino lower alkyl, nitrilo lower alkyl, lower alkoxyl lower alkyl, or lower alkylamino group; and X represents a halogen atom in the presence of a copper type catalyst which supplies copper ions, and an amine selected from the group consisting of (1) compounds having the formula

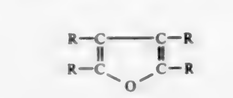
$R_{3-n}NH_n$

wherein R represents a C_{1-16} alkyl group or C_{1-8} alkoxy group; n is 0 to 2 and R can be the same or different in the case of n is 1 or 0; (2) compounds having the formula

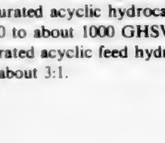
$H_2N(CH_2)_nNH_2$ and

$H_2N(CH_2)_nNH(CH_2)_nNH_2$

wherein n is an integer of 2 to 6; (3) compounds having the formula



wherein R and R' are the same or different and respectively hydrogen atom, a C_{1-4} alkyl group; n is 0 to 2; and R'' represents a hydrogen atom, a halogen atom, a C_{1-4} alkyl group or a C_{1-4} alkoxy group; and (4) compounds having the formula



wherein R represents a hydrogen atom, a C_{1-4} alkyl group; A represents O or NH; n is 2 to 5.

4,280,959

OXIDATIVE DEHYDROGENATION OF ALKENES OR ALKADIENES TO FURAN COMPOUNDS

R. Parthasarathy, and Eugene V. Hort, Wayne, both of N.J., assignors to GAF Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,451
Int. Cl.³ C07D *307/36*
U.S. Cl. 260—346.11 **4 Claims**

1. A process which comprises reacting at least one usaturated acyclic feed hydrocarbon selected from the group consisting of alkenes and alkadienes having from 4 to 10 carbon atoms, with oxygen in contact with a catalyst composition consisting essentially of silver, phosphorus and oxygen, with the silver-to-phosphorus atom ratio being in the range of 0.25:1 to about 10:1, under suitable vapor-phase reaction conditions for the conversion of said at least one unsaturated acyclic feed hydrocarbon to at least one furan compound having the formula

wherein each R is individually selected from the group consisting of hydrogen and alkyl radicals having from 1 to 6 carbon atoms, the total carbon atoms in the R radicals being in the range of 0 to 6; and recovering at least a portion of the furan compounds thus produced, wherein said reaction conditions comprise a temperature in the range of about 200° C. to about 600° C., an unsaturated acyclic hydrocarbon feed rate in the range of about 10 to about 1000 GHSV, and a mol ratio of oxygen to unsaturated acyclic feed hydrocarbon in the range of about 0.1:1 to about 3:1.

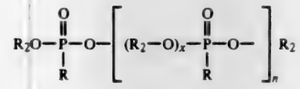
4,280,960

PHOSPHONIC ACID ESTERS

Konrad Nonn; Klaus Walz; Karlheinz Wolf, and Günther Boehmke, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 23, 1979, Ser. No. 96,725
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2853936
Int. Cl.³ C07F *9/40*; C04B *30/02*
U.S. Cl. 260—403 **1 Claim**

1. Phosphonic acid esters of the general formula



in which
R represents a C_{12}—C_{22}—alkyl or -alkenyl radical, a C_7—C_{18}—aralkyl radical or a radical of the formula —R_4—O—CO—R_5 or —R_4—COO—R_5,
wherein
R_4 denotes an optionally substituted C_2—C_4—alkylene radical and
R_5 denotes a C_6—C_{22}—alkyl or -alkenyl radical or a cycloalkyl radical,
R_1 represents the ethylene and/or 1,2-propylene radical,
R_2 represents hydrogen, C_1—C_4—alkyl or —$(R_1$—$O)_{x-1}R_1$—R_3,
R_3 represents OH, Cl or Br,
x represents an integer from 4 to 50 and
n represents a number from 1 to 10.

4,280,961

METHOD OF RECOVERING AND/OR REFINING ANIMAL FATS

Fred Schneider, Gümligen, and Wolfgang Sirtl, Zurich, both of Switzerland, assignors to Ernst Haussener, Berne, Switzerland

Filed Jan. 31, 1980, Ser. No. 117,227
Claims priority, application Switzerland, Feb. 1, 1979, 1000/79
Int. Cl.³ C11B *1/10*
U.S. Cl. 260—412.8 **9 Claims**

1. A method of recovering and/or refining animal fats by extraction using a gas at supercritical conditions, wherein the improvement comprises the step of carrying out the extraction in a static column free from circulation within the column.

4,280,962

METHODS FOR REFINING OILS AND FATS

Haruo Watanabe, Yachiyo; Mutsuhito Watanabe, Narashino; Takao Arima, Funabashi, and Kosei Yamada, Ibaraki, all of Japan, assignors to Showa Sangyo Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,023
Claims priority, application Japan, Nov. 30, 1978, 53-147140
Int. Cl.³ C11B *3/04, 3/06*
U.S. Cl. 260—424 **10 Claims**

1. A method of refining an animal or vegetable oil or fat which comprises:
(a) mixing said oil or fat with an aqueous solution of an alkaline substance;
(b) directly admixing the resulting mixture from step (a) with an aqueous solution of an acid;
(c) separating the insoluble matter in the oil or fat from the resulting admixture; and
(d) steam distilling the oil or fat.

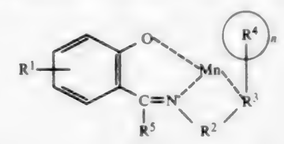
4,280,963

MANGANESE COMPLEXES OF SALICYLALDEHYDE-ALKANOLIMINES AS CATALYSTS FOR THE POLYMERIZATION OF 2,6-DI-SUBSTITUTED PHENOLS

Walter K. Olander, Clifton Park, N.Y., assignor to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 880,135, Feb. 22, 1978, Pat. No. 4,205,007, which is a division of Ser. No. 753,506, Dec. 21, 1976, Pat. No. 4,093,597. This application Nov. 30, 1979, Ser. No. 98,785
Int. Cl.³ C07F *3/00, 13/00*
U.S. Cl. 260—429 C **4 Claims**

1. A catalyst for the oxidative coupling of a phenolic monomer which comprises a compound of the formula:



wherein R^1 is selected from hydrogen, lower alkyl of from 1 to 8 carbon atoms and phenyl; halogen, lower alkoxy of from 1 to 8 carbon atoms; R^2 is o-phenylene; lower alkoxy o-phenylene wherein the lower alkoxy group has from 1 to 8 carbon atoms; halo-o-phenylene; lower alkyl-o-phenylene wherein the lower alkyl group has from 1 to 8 carbon atoms; lower alkylene of from 2 to 3 carbon atoms; phenyl lower alkylene wherein the alkylene portion has from 2 to 3 carbon atoms and lower alkyl substituted lower alkylene wherein the lower alkyl group has from 1 to 8 carbon atoms and the alkylene portion has from 2 to 3 carbon atoms; R^3 is oxygen or nitrogen; R^4 is lower alkyleneoxy having from 2 to 3 carbon atoms, lower alkyl substituted alkyleneoxy wherein the lower alkyl group has from 1 to 8 carbon atoms and the alkylene portion has from 2 to 3 carbon atoms, o-phenyleneoxy, phenyl lower alkyleneoxy wherein the alkylene group has from 2 to 3 carbon atoms lower alkyl-o-phenylene wherein the lower alkyl group has from 1 to 8 carbon atoms or phenyl-o-phenyleneoxy; R^5 is selected from hydrogen, lower alkyl of 1 to 8 carbon atoms or phenyl; and n is 0 or 1.

4,280,964

BASIC DYES

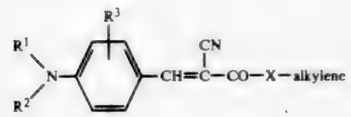
Klaus Grychtol, Bad Durkheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jun. 6, 1979, Ser. No. 45,866
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1978, 2826981
Int. Cl.³ C07C *121/78*; C09B *23/14*
U.S. Cl. 260—465 D **2 Claims**

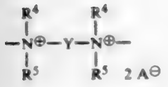
1. A basic dye of the general formula

A—B—A (I)

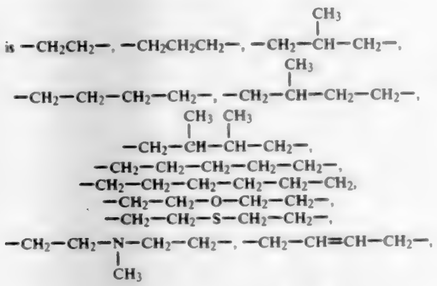
where
the substituents A independently of one another are each a radical of the formula

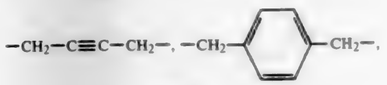


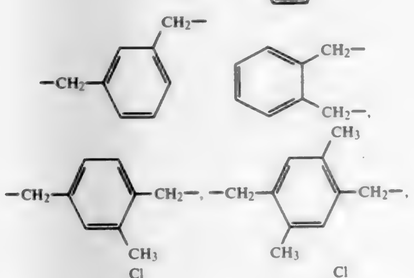
and
B is a bridge member, of the formula

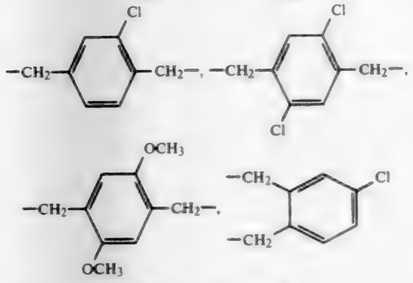


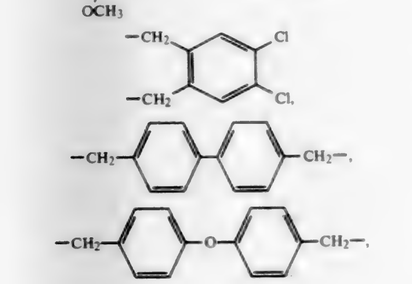
where R^4 and R^5 independently of one another are C_1–C_4-alkyl or benzyl, $A^\ominus$ is an anion and



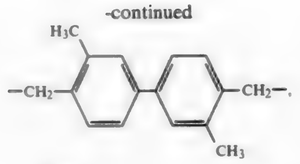


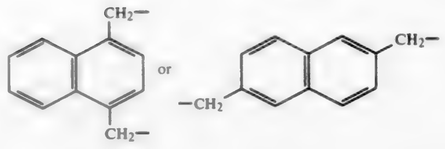






-continued





and in the formula for A

R^1 and R^2 independently of one another are C_1–C_4-alkyl which is unsubstituted or substituted by hydroxyl, C_1–C_4-alkoxy, cyano, C_1–C_4-alkoxycarbonyl, di-C_1–C_4-alkylamino, benzyl-(C_1–C_4-alkyl)amino, chlorine or bromine, or are cyclohexyl, benzyl, phenylethyl or phenyl, or

R^1 and R^2 together with the nitrogen are pyrrolidino, piperidino, morpholino or N-methylpiperazino,

R^3 is hydrogen, chlorine, bromine, methyl, ethyl, methoxy, ethoxy or nitro,

X is oxygen, imino or C_1–C_4-alkylimino and

alkylene is of 2 to 6 carbon atoms and is straight or branched.

4,280,965

PREPARATION OF CYANO SUBSTITUTED BENZYL ESTERS

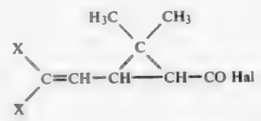
Ludwig A. Hartmann, Wilmington, Del., assignor to ICI Americas Inc., Wilmington, Del.

Filed Apr. 21, 1980, Ser. No. 142,360

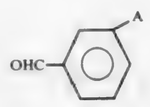
Int. Cl.³ C07C *120/00, 121/66*

U.S. Cl. 260—465 D **7 Claims**

1. A process for preparing a cyano substituted benzyl ester which comprises reacting an acid halide having the following general formula:



wherein each X independently represents CF_3 or halogen and Hal represents halogen, an aldehyde having the following general formula:



wherein A is selected from the group consisting of phenoxy, phenylthio and benzyl, and a water soluble cyanide in water in the presence of a tetraalkyl ammonium halide wherein each alkyl group contains from 1 to about 4 carbon atoms.

4,280,966

PROCESS FOR THE PREPARATION OF ALKANESULFONYL CHLORIDES

Fritz Hübenett, Darmstadt, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,507

Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845918

Int. Cl.³ C07C *43/70;* **C01B** *7/07*

U.S. Cl. 260—543 R **9 Claims**

1. In a process for preparing an alkanesulfonyl chloride having 1–12 carbon atoms by reacting at least one of the corresponding alkanethiol and dialkyl disulfide with chlorine and water at a temperature of from −10 to +50° C.; the improvement which comprises using said alkanesulfonyl chloride as the reaction medium and effecting the reaction with not more than the stoichiometric amount of water.

4,280,967

VULCANIZATION OF RUBBER WITH 2-(ALKYLSULFINYL)-BENZOTHIAZOLES

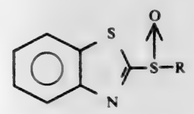
Roger J. Hopper, Akron; Budd H. Sturm, Hartville, and Joseph F. Geiser, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 20, 1980, Ser. No. 132,049

Int. Cl.³ C08C *19/20*

U.S. Cl. 260—785 **9 Claims**

1. A composition comprising an elastomer derived from natural or synthetic rubber and mixtures thereof, wherein synthetic rubbers include homo- and copolymers of conjugated and nonconjugated dienes, copolymers of dienes and monoolefins, ethylene-propylene-diene-terpolymers (EPDM) and polypentenamers derived from ring opening polymerization of cyclopentene; containing a compound selected from the group consisting of accelerators having the following structural formula:



wherein R is a radical selected from the group consisting of alkyl (1–20 carbon atoms), cycloalkyl (5–20 carbon atoms), and aralkyl (7–20 carbon atoms), alkyl of 2–20 carbon atoms substituted in the 2 position by a carboalkoxy radical and cycloalkyl radical of 5 to 20 carbon atoms substituted in the 2 position by carboalkoxy radical.

4,280,968

GAS CARBURETTOR TO BE MOUNTED ON A PETROL CARBURETTOR OF A COMBUSTION ENGINE

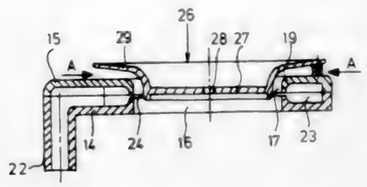
Andreas L. M. T. Smeets, Orleanshof 11, Eindhoven, Netherlands

Filed Dec. 31, 1979, Ser. No. 108,506

Int. Cl.³ F02M *13/08*

U.S. Cl. 261—16 **7 Claims**

1. A gas carburettor adapted for mounting on the petrol carburettor of a combustion engine for mixing gas with air and for supplying the mixture of air and gas to the combustion engine, said gas carburettor comprising a housing defining an annular gas supply channel having a substantially vertical wall portion bounding a central passage and having an opening therein for supplying the gas to the passage and an upper substantially horizontal wall portion joining said substantially vertical wall portion near its upper edge, and a member disposed in the passage partly closing the passage and having wall portions extending substantially parallel to said substantially vertical and substantially horizontal wall portions of said gas supply channel and spaced therefrom to define wall portions of said gas supply channel and spaced therefrom to define a gap



between said channel and said member for supplying air from the environment to said passage.

4,280,969

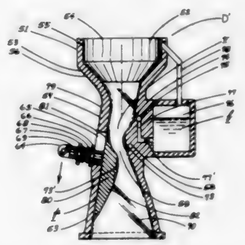
CARBURETOR

Wilbur M. Swanson, 2301 Parkridge Ave., St. Louis County, Mo. 63144

Division of Ser. No. 723,979, Sep. 16, 1976, Pat. No. 4,139,581. This application Nov. 13, 1978, Ser. No. 960,466

Int. Cl.³ F02M *9/04*

U.S. Cl. 261—62 **2 Claims**



1. A carburetor comprising means defining an elognated casing having opposed ends with an air inlet provided at one end and an air-fuel mixture outlet provided at the other end, wall forming means provided in said casing between said inlet and said outlet defining a restricted passage constituting a single sonic throat for flow therethrough of air and entrained fuel, flow stabilizing means disposed on said throat, a diffuser section below said throat and connecting same with said air-fuel mixture outlet, said sonic throat being comprised of first and second coordinating wall forming components, said first component being fixed, said diffuser section having a wall of downwardly and outwardly tapering configuration, a slide body for movement upwardly and downwardly along said diffuser section, said second sonic throat component being defined by said slide body, means for moving said slide body between a first position wherein said first and second sonic throat components are in confronting relationship and a second position wherein said first and second components are offset with respect to each other with one being located relatively outwardly and downwardly of the other as being determined by the taper of said diffuser section so that said first and second components are relatively movable within a converging-diverging path for varying the cross-sectional area of the throat consequent to carburetor operational demands.

4,280,970

POLYOXYETHYLENE GRAFTED MEMBRANE MATERIALS WITH GRAFTING LINKS DERIVED FROM A DIISOCYANATE

Robert E. Kesting, Irvine, Calif., assignor to Puropore Inc., Tustin, Calif.

Filed Jan. 19, 1979, Ser. No. 4,828

Int. Cl.³ B01D *39/16, 39/18;* **B29D** *11/00;* **G02C** *7/04*

U.S. Cl. 264—1.7 **37 Claims**

1. A hydrophilic membrane consisting essentially of the graft copolymer of an active hydrogen containing membrane forming polymer, a diisocyanate grafting link and an active hydrogen containing polyoxyethylene polymer.

3. A hydrophilic membrane comprising a hydrophobic polymer coated with a hydrophilic graft copolymer of a polyoxyethylene polymer, a diisocyanate grafting link and an active hydrogen containing membrane forming polymer.

6. A hydrophilic film comprising a hydrophobic polymer coated with a hydrophilic graft copolymer of a polyoxyethylene polymer a diisocyanate grafting link and an active hydrogen containing film forming polymer.

7. A contact lens consisting essentially of a graft copolymer of polyoxyethylene polymer, a diisocyanate grafting link, and a cellulose acetate-butyrate polymer.

4,280,971

PROCESS FOR THE PRODUCTION OF PANCREATIN PELLETS

Martin Wischniewski; Lutz Feicho, both of Neustadt; Gerhard Fischer, and Guenter Peschke, both of Hanover, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,963

Claims priority, application Fed. Rep. of Germany, Jun. 8, 1979, 2923279

Int. Cl.³ B22D *11/01*

U.S. Cl. 264—15 **22 Claims**

1. A process for producing pancreatin pellets comprising mixing together pancreatin powder and a solvent harmless to pancreatin, forming a pliable mass suitable for extrusion from said mixture, extruding said pliable mass, pre-shaping the extruded mass into pre-pellet forms, drying said pre-pellet forms, and shaping said dried pre-pellet forms into pellets.

4,280,972

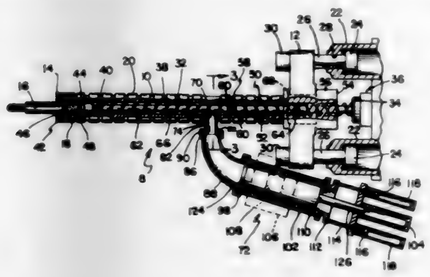
COMBINATION THERMOPLASTIC AND GLASS LOADED THERMOSETTING INJECTION MOLDING MACHINE AND METHOD FOR OPERATING SAME

Thomas G. Bishop, Mount Gilead, Ohio, assignor to HPM Corporation, Mount Gilead, Ohio

Filed Oct. 1, 1979, Ser. No. 80,486

Int. Cl.³ B29F *1/02;* **B29G** *3/00*

U.S. Cl. 264—39 **7 Claims**



1. In an injection molding process wherein a charge of plastics material is injected into a mold by means of a rotating and reciprocating screw, a method of converting from the injection of a thermoplastics compound to a fiber reinforced thermosetting compound comprising:

providing an injection molding machine having a barrel with a rotating and axially reciprocable plasticizing screw therein, the barrel having a first feed opening and a second feed opening forwardly of the first feed opening,

with the second feed opening closed, feeding thermoplastic compound into said barrel through the first feed opening whereupon the material is conveyed forwardly and plasticized by the rotating screw,

with the machine stopped, removing the plasticizing screw and installing a thermosetting compound conveying screw in said barrel for rotation and axial reciprocation,

opening the second feed opening, and

forcing a thermosetting compound having fibers dispersed therein into said barrel through the second feed opening whereupon the thermosetting compound is conveyed forwardly as the thermosetting compound conveying screw rotates.

4. In an injection molding process wherein a charge of plastics material is injected into a mold by means of a rotating and reciprocating screw, a method for converting from the injection of a fiber reinforced thermosetting compound to a thermoplastics compound comprising:

providing an injection molding machine having a barrel with a rotating and axially reciprocable thermosetting compound conveying screw therein, the barrel having a first feed opening and a second feed opening forwardly of the first feed opening,

with the second feed opening open, forcing a thermosetting compound having fibers dispersed therein into the barrel through the second feed opening whereupon the thermosetting compound is conveyed forwardly as the conveying screw rotates,

with the machine stopped, removing the conveying screw and installing a plasticizing screw in the barrel for rotation and axial reciprocation,

covering the second feed opening, and

feeding thermoplastic compound into the barrel through the first feed opening whereupon the material is conveyed forwardly and plasticized by the rotating plasticizing screw.

4,280,973

PROCESS FOR PRODUCING Si_3N_4 BASE ARTICLES BY THE COLD PRESS SINTER METHOD

David Moskowitz, Southfield, and Leslie L. Terner, W. Bloomfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 14, 1979, Ser. No. 94,248

Int. Cl.³ C04B *35/58*

U.S. Cl. 264—63 **7 Claims**

1. A method of making Si_3N_4 based cutting tools, comprising:

(a) pressing a uniform mixture of three powders at ambient conditions to a density substantially less than full density, the base powder constituting at least 75% by weight of said mixture and consisting of crystalline Si_3N_4, the second powder being selected from the group consisting of Y_2O_3, MgO, CeO_2, ZrO_2 and mixtures thereof, the third powder being selected from the group consisting of Al_2O_3, WC, WSi_2, W, TiC and mixtures thereof, said Al_2O_3, when selected, being limited to no more than 4%, said powders being regulated in particle size to one micron or less;

(b) in the absence of substantial mechanical pressure, sintering said pressed mixture equal to or greater than 99% theoretical density under an inert atmosphere.

4,280,974

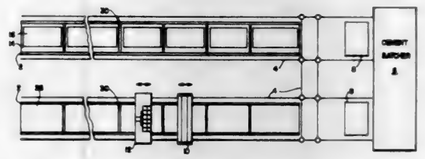
PROCESS AND APPARATUS FOR MAKING A PLURALITY OF BUILDING MODULES HAVING A FOAM CORE AND A CEMENTITIOUS SHELL

Matthew R. Piazza, Nichols, Conn., assignor to Hamden Industries, Inc., Hamden, Conn.

Continuation-in-part of Ser. No. 810,449, Jun. 27, 1977, Pat. No. 4,133,859. This application Oct. 30, 1978, Ser. No. 956,014

Int. Cl.³ B28B *1/08*

U.S. Cl. 264—69 **19 Claims**



1. Process for making a plurality of building modules each having at least one insulating foam core encased in a shell of fiber reinforced cementitious material which comprises:

(a) providing a continuous longitudinal casting zone having continuous side rails along a base having transverse division members thereon positioned so as to correspond to the lengths of the modules being formed;

(b) continuously casting a bottom layer of wet cementitious material between the side rails and over the base and division members along the length of the casting zone and leveling said bottom layer so as to be even with the top of the division members;

(c) adding fiber reinforcement to the bottom layer formed in step (b) by applying fibers in discrete lengths in one or more passes over the casting zone and incorporating the fibers into the bottom layer;

(d) dividing said casting zone into lengths corresponding to the lengths of the modules being formed by inserting end members on top of the division members between the side rails;

(e) placing foam core members on each length of the bottom layer between end members, said foam core members having a peripheral shape smaller than the surface of the bottom lengths so as to leave a free space between the core member, the side rails and the end members, said core member having a height less than the height of the said side rails;

(f) applying wet cementitious material to the entire length of the casting zone so as to fill the free space surrounding each core member and to form a top layer which covers each core member thereby separately encasing each core member;

(g) applying fiber reinforcement to the top layer formed in step (f) by applying fibers in discrete lengths in one or more passes over the casting zone and incorporating the fibers into the top layer; and

(h) curing the cementitious material encasing each core and removing a plurality of cured modules from the casting zone.

4,280,975

METHOD FOR CONSTRUCTING A TURBINE SHROUD

Charles L. Ammann, Bloomfield, N.J., assignor to General Electric Company, Cincinnati, Ohio

Filed Oct. 12, 1979, Ser. No. 84,243

Int. Cl.³ F01D *25/24;* **B32B** *3/00*

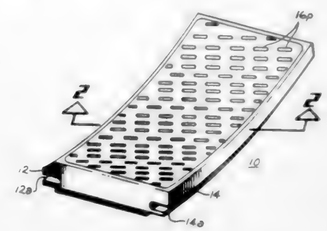
U.S. Cl. 264—81 **9 Claims**

1. A method of constructing a turbine shroud structure, comprising the steps of:

(a) providing a metal substrate;

(b) providing said metal substrate with mechanical matrix bonding means;

(c) applying a ceramic sealing layer of zirconium oxide with magnesium oxide to said mechanical matrix bonding means; and then



(d) heat treating said ceramic sealing layer to increase the rub wear of said ceramic sealing layer and to develop an ordered pattern of very fine cracks therein which reduce the thermal stress in said ceramic sealing layer.

4,280,976

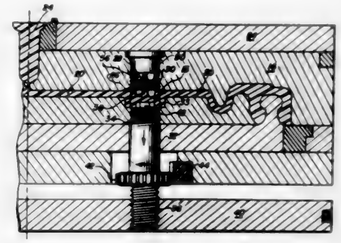
SIMULTANEOUSLY MOLDED THREADED PORT AND PLUG

John W. von Holdt, 7430 N. Croname Rd., Niles, Ill. 60648

Filed Apr. 18, 1980, Ser. No. 141,398

Int. Cl.³ B29D *1/00*

U.S. Cl. 264—152 **19 Claims**



1. The method of simultaneously molding a threaded port in a wall and a separate, threaded plug adapted for sealing said threaded port, which comprises:

defining first cavity means for receiving molding compound to form said wall, and second cavity means for receiving molding compound to form said threaded plug; inserting rotatable shaft means carrying external threads through said first cavity to define the threaded port, said shaft means terminating at the second cavity means; placing molding compound into said first and second cavity means for molding the wall and plug; forming a separable mechanical linkage between said end portion and plug molded in the second cavity means; rotating said shaft after hardening of the molding compound to withdraw it from the newly molded, threaded port and to rotate the molded, threaded plug into said threaded port for sealing thereof.

8. In a mold adapted to simultaneously mold a threaded port in a wall and a separate, threaded plug adapted for sealing said threaded port,

first cavity means for receiving molding compound to form said wall;

second cavity means for receiving molding compound to form said threaded plug;

rotatable shaft means carrying a helical external thread-forming groove and extending through said first cavity to define the threaded port, said shaft means terminating at said second cavity means with an end portion being shaped to form a separable mechanical linkage between

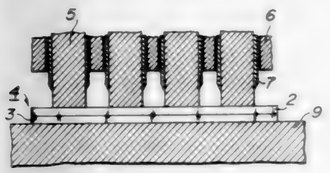
said end portion and a threaded plug molded in the second cavity means, and means for rotating said shaft after molding to withdraw it from the molded, threaded port and to rotate the molded, threaded plug into said threaded port for sealing thereof.

4,280,977

METHOD OF WORKING CERAMIC GREEN SHEET

Go Suzuki, Nagoya, Japan, assignor to NGK Insulators, Ltd., Japan

Continuation of Ser. No. 935,881, Aug. 23, 1978, abandoned, which is a continuation of Ser. No. 800,424, May 25, 1977, abandoned. This application Feb. 21, 1980, Ser. No. 123,404
Claims priority, application Japan, Jun. 3, 1976, 51-04055
Int. Cl.³ B29C *17/10*
U.S. Cl. 264—153 **8 Claims**



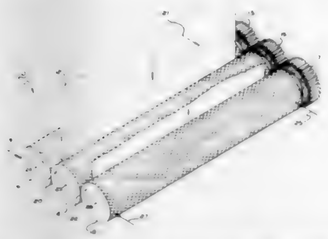
1. A method of working ceramic green sheet, comprising pushing a spacer having at its edge a given profile to a surface of the ceramic green sheet and then forcing a cylindrical knife heated at a temperature of 60°–150° C. and provided with an edge having a form substantially equal to the profile of the spacer edge along the periphery of the spacer into the ceramic green sheet.

4,280,978

PROCESS OF EMBOSSING AND PERFORATING THERMOPLASTIC FILM

Walter R. Dannheim, Andover, and John A. McNaboe, Lake Hopatcong, both of N.J., assignors to Monsanto Company, St. Louis, Mo.

Filed May 23, 1979, Ser. No. 41,869
Int. Cl.³ B29C *17/00*; B29D *27/00*
U.S. Cl. 264—156 **11 Claims**



1. In the process of embossing and perforating a thermoplastic film which includes continuously passing such film through a nip formed by pattern and backup rolls to form an embossed pattern therein, the improvement which comprises:
passing the embossed pattern while in registration with the pattern roll which previously formed said embossed pattern through a second nip formed with the same pattern roll, said embossed pattern in the second nip being drawn and perforated within permanent depressions in another cooperating backup roll to finalize the pattern detail.

4,280,979

COPOLYMERS, COMPOSITIONS, AND ARTICLES, AND METHODS FOR MAKING SAME

Raymond A. Dunleavy, Charleston, and William A. Gill, Hurricane, both of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Sep. 18, 1979, Ser. No. 76,624
Int. Cl.³ C08G *18/62, 18/82, 18/14*
U.S. Cl. 264—157 **30 Claims**

1. A polyester diol/monomer composition which is convertible by reaction with a polyisocyanate to a polyurethane and which is polymerizable in the presence of a vinyl polymerization catalyst comprising
(A) a polyester diol comprising:
(a) aliphatically saturated divalent diacyl moieties of the formula



wherein R is a single bond connecting the two carbonyl groups or a divalent organic group free of aliphatic unsaturation, and olefinically unsaturated divalent diacyl moieties of the formula



wherein R′ is a divalent olefinically unsaturated organic group, said diacyl moieties being present in a mole ratio of 0.25 to 3 moles of said diacyl moieties essentially free of aliphatic unsaturation per mole of said olefinically unsaturated diacyl moieties; and
(b) divalent dioxy moieties having the formula: —OR′′O—wherein R″ is a divalent organic group interconnecting the oxy groups shown in said formula and each oxy group shown by said formula is bonded to a non-carboxyl atom of said R″ group;
said diacyl moieties being bonded through ester linkages to said dioxy moieties in a mole ratio of at least 1.75 moles of all said dioxy moieties per mole of all said diacyl moieties; and said polyester diol
(i) being end-blocked essentially only by non-carboxylic hydroxyl groups bonded to dioxy moieties as defined in (b) hereinabove; and
(ii) having an acid number of less than 3,
(B) a polymerizable ethylenically unsaturated monomer present in an amount providing about 1 to about 6 ethylenically unsaturated groups of said monomer per olefinically unsaturated group of said polyester diol,
(C) a catalyst capable of catalyzing polyurethaneforming reactions of polyisocyanates and polyhydroxy compounds, and
(D) a vinyl polymerization inhibitor.

7. Tough polyurethane/vinyl polymer copolymer of
(I) a polyester diol comprising:
(a) aliphatically saturated divalent diacyl moieties of the formula



wherein R is a single bond connecting the two carbonyl groups or a divalent organic group free of aliphatic unsaturation, and olefinically unsaturated divalent diacyl moieties of the formula



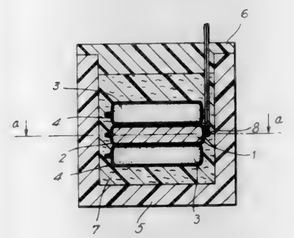
wherein R′ is a divalent olefinically unsaturated organic group, said diacyl moieties being present in a mole ratio of 0.25 to 3 moles of said diacyl moieties essentially free of aliphatic unsaturation per mole of said olefinically unsaturated diacyl moieties; and
(b) divalent branched dioxy moieties having the formula: —OR′′′O—wherein R′′′ is a divalent branched chain composed of carbon and hydrogen or carbon, hydrogen and oxygen and containing 2 to 8 consecutive atoms of carbon and oxygen interconnecting the oxy groups shown in said formula and having alkyl groups of one to eight carbon atoms bonded to one or more carbon atoms of said consecutive atoms, and divalent linear dioxy moieties having the formula: —OR′′′′O—wherein R′′′′ is a linear chain composed of carbon and hydrogen or carbon, hydrogen and oxygen and containing 2 to 8 consecutive atoms of carbon or carbon and oxygen interconnecting the oxy groups shown in said formula, said dioxy moieties being present in a mole ratio of 0.3 to 3 moles of said branched dioxy moieties per mole of said linear dioxy moieties;
said diacyl moieties being bonded through ester linkages to said dioxy moieties in a mole ratio of at least 1.75 moles of all said dioxy moieties per mole of all said diacyl moieties; and said polyester diol
(i) being end-blocked essentially only by alcoholic hydroxyl groups formed from oxy atoms of dioxy moieties as defined in (b) hereinabove; and
(ii) having an acid number of less than 3,
(II) a polymerizable ethylenically unsaturated monomer present in an amount providing about 1 to about 6 ethylenically unsaturated groups of said monomer per olefinically unsaturated group of said polyester diol, and
(III) a polyisocyanate present in an amount providing about 0.9 to about 1.2 isocyanate groups per hydroxyl group of said polyester diol.

4,280,980

PROCESS AND APPARATUS FOR HANDLING AND/OR STORING GALLIUM IN THE METALLIC STATE

Jean-Claude Bontempelli, Champigny sur Marne, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed Dec. 19, 1979, Ser. No. 105,229
Claims priority, application France, Nov. 6, 1979, 79 27284
Int. Cl.³ B01J *19/00*; B65D *85/84, 81/38*
U.S. Cl. 422—40 **17 Claims**



1. A process for protecting gallium in the solid metallic state from melting upon its handling and/or storage, comprising enclosing the gallium in an enclosure which is heat-insulated from the environment and placing with said gallium within the said enclosure a protective compound having an incipient melting temperature of between about 20° C. and 29.70° C.

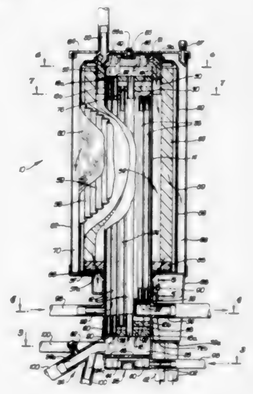
14. A device or apparatus for protecting gallium in the solid metal state from melting upon its handling and/or storage, comprising the said gallium metal, an air-tight envelope containing a protective compound having an incipient melting temperature of between about 20° C. and 29.70° C., and a closed enclosure containing said gallium and said air-tight envelope and thermally protecting the resulting assembly from the outside environment.

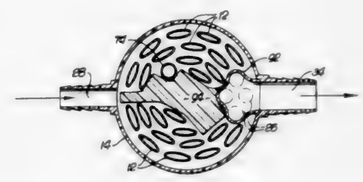
4,280,981

BLOOD OXYGENATOR

Frederick D. Harnsberger, Irvine, Calif., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Filed Nov. 6, 1979, Ser. No. 91,771
Int. Cl.³ A61M *1/03*
U.S. Cl. 422—46 **19 Claims**





1. In a blood oxygenator having a first generally cylindrical chamber with a plurality of oxygenator tubes disposed therein in a predetermined configuration, a blood-oxygen manifold joined to said chamber and having a blood inlet and an oxygen inlet, said manifold configured such that a mixture of blood and oxygen is directed into said tubes adjacent one end thereof, and means for defoaming said mixture of blood and oxygen as it exits out the other end of said oxygenator tubes, the improvement comprising wherein each said oxygenator tube has a generally elliptical cross-section with the elongated axis of each said tube being generally perpendicular to the radius of said first chamber, and further wherein said tubes are positioned in said predetermined configuration in a generally annular array so as to define a central, open space extending from one end of said chamber to the other.

4,280,982

APPARATUS FOR TREATING WASTE MATERIAL WHILE PREVENTING SMELT-WATER EXPLOSIONS

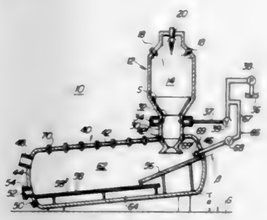
Mamoru Shindome, c/o Asahi Engineering Co., Ltd. of 4100, Asahimachi-6-chome, Nobeoka-shi, Japan; Takanori Yanagita, Nobeoka, Japan; Takanori Nakamura, Nobeoka, Japan, and Hiroyuki Otsuji, Nobeoka, Japan, assignors to Mamoru Shindome, Osaka, Japan

Filed Mar. 19, 1979, Ser. No. 21,538

Claims priority, application Japan, Mar. 23, 1978, 53-32302; Mar. 23, 1978, 53-32303

Int. Cl.[3] **B01J** *19/26;* **D21C** *11/12*

U.S. Cl. 422—185 **11 Claims**



1. An apparatus for treating a water solution of a waste material containing a salt having smelt-water explosion characteristics, said apparatus comprising:

an incinerator defining therein an open-bottomed combustion chamber and provided with at least one sprayer through which the solution is sprayed into said combustion chamber, and a substantially downwardly directed fuel burner for producing a combustion of a fuel in said combustion chamber to heat the spray of the solution to a temperature at which the water in the sprayed solution is vaporized and the salt contained in the spray solution is fused, the combustion gases and the water vapor thus produced flowing through said combustion chamber toward the open bottom thereof, at least a part of the fused salt forming a deposit on the inner surface of said combustion chamber and flowing toward the open bottom thereof;

a gas-liquid separator comprising a substantially closed vessel provided with an inlet substantially vertically aligned with said open bottom of said combustion chamber, a gas outlet and a liquid outlet, the gas and liquid outlets being remote from said inlet in generally horizontal direction;

means connecting the open bottom of said combustion chamber to said vessel to provide a fluid-flow communication therebetween so that the combustion gases and the water vapor flow from said combustion chamber into said vessel, the combustion gases and the water vapor flowing in said vessel generally horizontally toward said gas outlet, the fused salt which forms said deposit falling from said combustion chamber through said inlet into said vessel by gravity, wherein the improvement comprises;

a baffle member in the form of a substantially flat plate disposed in said vessel and having a substantially flat inclined surface intersecting the vertical axis of said inlet so that the salt falls onto said inclined surface, the angle of inclination of said inclined surface to the horizontal ranging from 5° to 60°; and

means for establishing on said inclined surface a flow of water of a depth ranging from 0.5 to 5.0 mm so that the salt falling onto said inclined surface is only partially dipped in the water flow and is moved on the inclined surface generally toward said liquid outlet while being cooled by the water flow, said means for establishing a flow including a water supply tube ending adjacent the upper end of the flat plate.

4,280,983

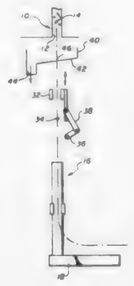
CATALYST UNLOADING MECHANISM

Roger F. Irwin, P. O. Drawer C, Abbeville, La. 70510

Filed Oct. 9, 1979, Ser. No. 82,706

Int. Cl.[3] **B01J** *8/06*

U.S. Cl. 422—219 **8 Claims**



1. A catalyst unloading mechanism for unloading material from a reaction vessel having a plurality of catalyst tubes, which comprises:

base means positionable in stationary manner within said vessel:

a support frame movably mounted to said base means;

first linear actuator means interconnecting said base means and support frame for controllably imparting linear movement of said support frame within said vessel;

a reciprocating frame movably connected to said support frame; a plurality of probe elements secured in substantially immovable relation to said reciprocating frame; and

second linear actuator means interconnecting said support frame and reciprocating frame, said second linear actuator means being operative to reciprocate said probe elements as said support frame is moved by said first linear actuator means to dislodge material from said catalyst tubes.

4,280,984

ISOTOPE SEPARATION

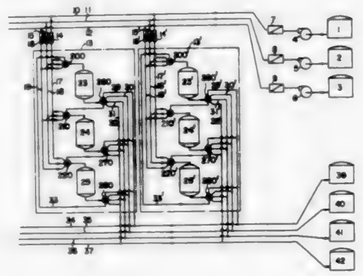
Tetsuya Miyake, Kawasaki; Norito Ogawa, Yokohama; Kohji Inada, Yokohama, and Kunihiko Takeda, Yokohama, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 11, 1978, Ser. No. 941,505

Claims priority, application Japan, Sep. 14, 1977, 52-109858

Int. Cl.[3] **C01G** *56/00;* **B01J** *39/00, 41/00, 47/00*

U.S. Cl. 423—6 **7 Claims**



1. A process for separating isotopes employing an apparatus comprising a plurality of separation units assembled in parallel, each separation unit comprising at least two adsorbent-packed columns in series and forming a continuous developing loop,

and at least one common liquid-supply pipe connected to each separation unit through a liquid flow rate regulator, the process comprising supplying an isotope mixture solution to each separation unit through one of the common liquid-supply pipes, and continuously developing the isotope mixture serially and repeatedly through all the columns making up each unit thereby to separate the isotopes.

4,280,985

PROCESS FOR THE ELUTION OF ION EXCHANGE RESINS IN URANIUM RECOVERY

Tsoung-yuan Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 16, 1979, Ser. No. 21,129

Int. Cl.[3] **C01G** *43/00*

U.S. Cl. 423—7 **6 Claims**

1. In a method for the recovery of uranium from a pregnant lixiviant wherein uranium is adsorbed from said lixiviant by an anion ion exchange resin and thereafter eluted from said resin by contacting said resin with an eluant, the improvement comprising:

eluting said uranium from said resin with an eluant containing ammonium carbonate in a concentration within the range of 0.05–0.5 molar and a base in an amount sufficient to increase the pH of said eluant to a value within the range of 9.0–11.0.

4,280,986

METHOD FOR SEPARATING METAL VALUES FROM SEA NODULES

Harry Zeitlin, Honolulu, Hi., and Quintus Fernando, Tucson, Ariz., assignors to University Patents, Inc., Norwalk, Conn.

Continuation of Ser. No. 676, Jan. 3, 1979, abandoned. This application Jul. 17, 1980, Ser. No. 169,549

Int. Cl.[3] **C01G** *3/10, 51/10, 53/10, 45/10*

U.S. Cl. 423—41 **1 Claim**

1. In a process for separating manganese, cobalt, copper, and nickel metal values from ferromanganese sea nodule ores comprising the steps of:

(a) contacting said nodule ore with sulfur dioxide in the presence of oxygen to convert said metal values to water-soluble salts;

(b) leaching the product of step (a) with water to form a solution of said water-soluble salts;

(c) separating water-insoluble residue from the solution of step (b); and

(d) separating and recovering said metal values from the solution obtained from step (c);

the improvement providing essentially quantitative recovery of manganese, cobalt, and nickel values and about 75% recovery of copper values based on the initial content of said metal values in said nodule ore, consisting of preheating said nodule ore in finely-divided state at elevated temperature until substantially dry prior to said contacting step, and conducting said contacting step with said nodule ore in substantially dry state under substantially dry conditions at a temperature within the range of from about 375° to about 425° C.

4,280,987

METHOD FOR TREATMENT OF BAYER LIQUOR

Yasunori Yamada, Tokyo, and Yuji Shibue, Kamakura, both of Japan, assignors to Showa Aluminum Industries K.K., Tokyo, Japan

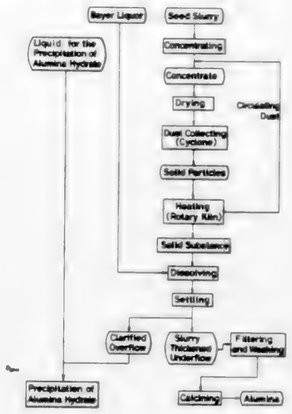
Filed Jun. 29, 1979, Ser. No. 53,521

Claims priority, application Japan, Jul. 11, 1978, 53-83494

Int. Cl.[3] **C01F** *7/06*

U.S. Cl. 423—119 **7 Claims**

1. A method for the removal of carbon compounds from the Bayer liquor having aluminum compounds and sodium compounds as the principal components, also containing carbon compounds and circulating through a system for the manufacture of alumina from an alumina-containing ore by the Bayer Process, which method comprises adjusting the molar ratio of the aluminum component to the sodium component in the Bayer liquor to a value falling in the range of from 1 to 5



calculated as Al_2O_3/Na_2O and thereafter heating the resultant Bayer liquor at a temperature in the range of from 500° to 1350° C.

4,280,988

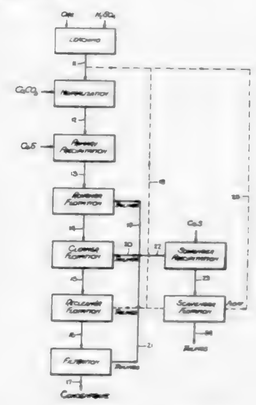
RECOVERY OF NICKEL AND COBALT FROM LEACH SLURRIES

Kohur N. Subramanian, East Hanover, N.J.; Gerald V. Glaum, Oakville, and Einar Walli, Burlington, both of Calif.X, assignors to The International Nickel Co., Inc., New York, N.Y.

Filed Apr. 4, 1980, Ser. No. 137,402

Int. Cl.[3] **C01G** *51/00, 53/11*

U.S. Cl. 423—140 **9 Claims**



1. A process for separating at least one non-ferrous metal selected from the group consisting of nickel and cobalt from a slurry which contains dissolved non-ferrous metal(s) and iron oxide solids, comprising adjusting the acidity of the slurry, if necessary, to ensure that the pH thereof does not exceed about 4; contacting the slurry with a sulfiding agent selected from the group consisting of calcium sulfide and barium sulfide, at a temperature of about 60°–80° C., in a plurality of series-connected reactors, the residence time in the first reactor of the series being shorter than about 15 minutes; controlling the overall residence time as well as the amount of sulfiding agent

used to ensure precipitation of a large proportion of the non-ferrous metal as a sulfide; and thereafter subjecting the resulting slurry to flotation to recover a high grade concentrate containing a large proportion of the non-ferrous metal and a tailings slurry containing substantially all of the iron oxide solids.

4,280,989

METHOD OF PREPARING SILICON NITRIDE

Motoo Seimiya, Yokosuka, and Katsutoshi Nishida, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 12, 1980, Ser. No. 158,875
Claims priority, application Japan, Nov. 14, 1979, 54/146497
Int. Cl.³ C01B *21/06*
U.S. Cl. 423—344 **9 Claims**

1. A method of producing silicon nitride powder which comprises heating finely divided particulate silica to a temperature of 1200° C. to 1600° C. in a gas atmosphere comprising hydrocarbon gas, ammonia gas and hydrogen gas wherein the volume ratio of ammonia (NH_3)/hydrocarbon (methane equivalent) is between 0.1 and 50 and the volume ratio of hydrogen (H_2)/hydrocarbon (methane equivalent) is between 1 and 100.

4,280,990

HIGH PRESSURE PROCESS FOR RECOVERY OF SULPHUR FROM GASES

Richard F. Jagodzinski, and Richard K. Kerr, both of Calgary, Canada, assignors to Hudson's Bay Oil and Gas Company Limited and Alberta Energy Company Ltd., both of Alberta, Canada

Filed Apr. 3, 1980, Ser. No. 136,789
Claims priority, application Canada, Dec. 11, 1979, 341597
Int. Cl.³ C01B *17/04*
U.S. Cl. 423—574 R **68 Claims**

1. A sulphur producing process in which hydrogen sulphide and sulphur dioxide gases are continuously introduced into a reactor containing a bed of a catalyst which causes these gases to react to produce elemental sulphur, wherein said gases when in the reactor are maintained at such conditions of temperature and pressure that free water in the reactor exists only as water vapour and sulphur is condensed in the catalyst bed, and wherein said sulphur is continuously removed from the bed as a liquid while the bed is continuously maintained substantially saturated with liquid sulphur, and wherein the pressure in the reactor is maintained at at least 5 atmospheres absolute.

4,280,991

DIAGNOSTIC COMPOSITIONS

William M. Burch, Duffy, Australia, assignor to Capital Territory Health Commission, Canberra City, Australia

Filed Jul. 27, 1978, Ser. No. 928,615
Claims priority, application Australia, Jul. 29, 1977, PD1020
Int. Cl.³ A61K *49/00, 43/00*; G01T *1/00*
U.S. Cl. 424—1 **2 Claims**

2. A method for introducing radionuclides into the lungs of a patient for lung examination comprising the steps of:

(i) combusting a composition consisting essentially of alkali metal pertechnetate dissolved in ethyl alcohol;

(ii) cooling the resulting product; and

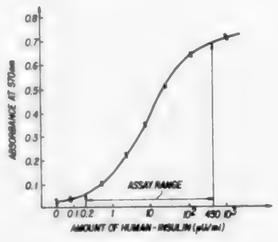
(iii) inhaling the same.

4,280,992

IMMUNOLOGICALLY ACTIVE SUBSTANCE-GLASS CONJUGATES, PROCESS FOR PRODUCING THE SAME AND DIAGNOSTIC REAGENTS CONTAINING THE SAME

Masakuzu Sugiura, Nara; Junichiro Kikutake, Osaka; Masaru Yoshida, and Shigeharu Kondo, both of Kyoto, all of Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto, Japan

Filed Jan. 23, 1979, Ser. No. 5,856
Claims priority, application Japan, Feb. 14, 1978, 53-16342
Int. Cl.³ G01N *33/48*; G01T *1/00*
U.S. Cl. 424—1 **35 Claims**



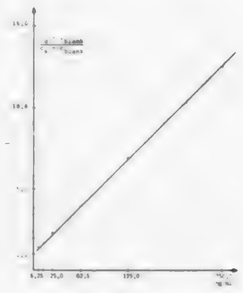
1. An immunologically active substance-glass conjugate which comprises an immunologically active substance bound to a frosted glass.

4,280,993

PROCESS FOR DETERMINING THE CONCENTRATION OF BENZODIAZEPINES IN A BODY FLUID

Claus Braestrup, Ibstrupvej 48, DK-2820 Gentofte, Denmark, and Richard F. Squires, CNS Biology Medical Research Laboratories, Lederle Laboratories, Pearl River, N.Y. 10965

Filed Jan. 18, 1979, Ser. No. 4,619
Claims priority, application United Kingdom, Jan. 19, 1978, 2164/78
Int. Cl.³ G01N *33/48*; A61K *43/00*; G01T *1/00*
U.S. Cl. 424—1 **13 Claims**



1. A process for determining the concentration of benzodiazepines in a body fluid, comprising the steps of contacting freeze-dried brain tissue with a radio-labelled benzodiazepine to form a preparation comprising said brain tissue and labelled benzodiazepine reversibly bonded thereto, determining the concentration of radio-labelled bound benzodiazepine in said preparation, contacting a sample of the body liquid or an extract of such liquid containing the benzodiazepine, the concentration of which is to be determined, with said preparation to establish an equilibrium between labelled and un-labelled benzodiazepine bonded to said brain tissue, determining the concentration of labelled benzodiazepine bonded to said brain tissue after establishing equilibrium conditions and calculating the concentration of benzodiazepine in the sample based on the change of concentration of labelled benzodiazepine in the brain tissue induced by benzodiazepines contained in the sample.

4,280,994

ANTIPERSPIRANT STICK COMPOSITIONS

Mary E. Turney, Briarcliff Manor, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Feb. 10, 1977, Ser. No. 767,489
Int. Cl.³ A61K *7/32, 7/38*
U.S. Cl. 424—68 **16 Claims**

1. An antiperspirant stick composition comprising:

A. from about 35 to about 55 parts of one or more volatile silicone composition; having a boiling point of less than 300° C. at 760 mm. of Hg.

B. from about 15 to about 35 parts of one or more materials having wax-like characteristics;

C. from about 18 to about 50 parts of one or more compounds having antiperspirant properties; and

D. from about 2 to about 10 parts of a polyethylene glycol composition having an average molecular weight within the range of from about 950 to about 1600.

4,280,995

ORAL SUSPENSION OF PHENYTOIN

Muriel R. Loran, New York, N.Y., assignor to Pharmaceutical Associates, Inc., Tampa, Fla.

Filed Dec. 31, 1979, Ser. No. 108,345
Int. Cl.³ A61K *31/70*; C07H *17/00*
U.S. Cl. 424—180 **11 Claims**

1. A compound comprising the reaction product prepared by intimately admixing an aqueous solution of guaran and a solution or dispersion of 5,5-diphenyl -2,4-imidazolidinedione.

6. A composition in dosage form comprising an anti-convulsant effective amount of the product of claim 1 and a pharmaceutically acceptable carrier.

9. A method for reducing the severity of generalized tonic-clonic seizures and complex partial seizures in animals and humans comprising administering to an animal or human in need thereof an anti-convulsant effective amount of the product of claim 1.

4,280,996

FAT EMULSION FOR INTRAVENOUS INJECTION

Hiroyuki Okamoto, Akashi; Yoshio Tsuda, Kyoto, and Kazumasa Yokoyama, Toyonaka, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed Sep. 13, 1979, Ser. No. 75,684
Claims priority, application Japan, May 7, 1979, 54-55476
Int. Cl.³ A61K *31/20, 31/56, 31/685*; B01J *13/00*
U.S. Cl. 424—199 **4 Claims**

1. A fat emulsion suitable for intravenous injection comprising 5 to 50 (w/v)% of soybean oil, yolk phospholipids in a weight ratio of the soybean oil of ¼ to 1/25, glycerol or glucose as an isotonic agent, the diameter of the emulsified particles being 0.1μ or less, water, 0.01 to 0.30 (w/v)% of a fatty acid having 12 to 20 carbon atoms or a pharmaceutically acceptable salt thereof and 0.005 to 0.50 (w/v)% of cholesterol.

4,280,997

EXTRUSION PROCESS FOR THE PREPARATION OF ANHYDROUS STABLE LACTOSE

Johannes Van Leverink, Grevelingenhof 3, Veghel, Netherlands

Filed Dec. 6, 1979, Ser. No. 100,872
Claims priority, application Netherlands, Dec. 8, 1978, 7812002
Int. Cl.³ C13K *5/00*; A61K *33/16*
U.S. Cl. 424—151 **6 Claims**

1. A process for the preparation of anhydrous stable lactose, comprising introducing crystalline alpha-lactose hydrate as a dry product into an extruder, wherein a gradual, controlled, build-up of shear takes place and wherein the jacket of said extruder is heated to temperature above 100° C. such that anhydrous stable lactose is produced, and extruding said crystalline alpha-lactose with this extruder.

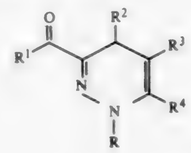
4,280,998

1,4-DIHYDROPYRIDAZINE-3-CARBOXYLIC ACID DERIVATIVES, A PROCESS FOR THEIR PREPARATION AND THEIR USE AS ANTIHYPERTENSIVES

Gerhard Franckowiak; Friedrich Bossert; Arend Heise, and Robertson Towart, all of Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 18, 1979, Ser. No. 58,590
Claims priority, application Fed. Rep. of Germany, Aug. 8, 1978, 2834624
Int. Cl.³ A61K *31/50*; C07D *237/04, 409/04, 401/04*
U.S. Cl. 424—250 **14 Claims**

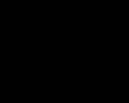
1. A compound of the formula


(I)

in which

R is a hydrogen atom or a straight-chain or branched alkyl radical having 1 to 8 carbon atoms which is optionally interrupted in the chain by one or two oxygen atoms, or a mono- or bi-cyclic carbocyclic aryl or ar-C_1–C_4-alkyl radical,

R^1 is a group of the formula



in which

R^5 is a hydrogen atom or a straight-chain, branched or cyclic, saturated or unsaturated aliphatic hydrocarbon radical, having up to 8 carbon atoms, which is optionally interrupted in the saturated or unsaturated aliphatic chain by 1 or 2 oxygen or sulphur atoms and which is optionally substituted by a hydroxyl or halogen; or by a phenoxy or phenyl group which is optionally substituted by a halogen, cyano amino, C_1–C_8 alkylamino, C_1–C_8-alkoxy, C_1–C_8-alkyl, trifluoromethyl or nitro, or by an α-, β- or γ-pyridyl group or by an amino group, this amino group optionally carrying either hydrogen and one substituent or two identical or different substituents selected from C_1–C_8-alkyl, C_1–C_8-alkoxy-alkyl, C_1–C_8-alkyl, a mono- or bi-cyclic carbocyclic aryl and a mono- or bi-cyclic carbocyclic ar-C_1–C_4-alkyl, or

R^5 is a mono- or bi-cyclic carbocyclic aryl group which is optionally substituted by one or two identical or different substituents selected from C_1–C_8-alkyl, C_1–C_8-alkoxy, a mono- or bi-cyclic carbocyclic aryl, a mono- or bi-cyclic carbocyclic ar-C_1–C_4-alkyl, halogen, nitro, cyano, trifluoromethyl, trifluoromethoxy, amino and mono-C_1–C_8 and di-C_1–C_8-alkylamino,

R^6 is a hydrogen atom or a C_1–C_8-alkyl, a mono- or bi-cyclic carbocyclic aryl, a mono- or bi-cyclic carbocyclic ar-C_1–C_4-alkyl, thienyl, furyl or pyridyl radical which optionally carries 1 to 3 identical or different substituents selected from halogen, nitro, cyano, trifluoromethyl, trifluoromethoxy, C_1–C_8-alkoxy, C_1–C_8-alkyl and di-C_1–C_8-alkylamino and

R^7 is a hydrogen atom or an amino or mono-C_1–C_8- or di-C_1–C_8-alkylamino group, or has a meaning given for radical R^6, without being identical to R^6,

R^2 is a mono- or bi-cyclic carbocyclic aryl radical or a thienyl, furyl, pyrryl, pyrazolyl, imidazolyl, oxazolyl, isooxazolyl, thiazolyl, pyridyl, pyridazinyl, pyrimidyl, pyrazinyl, quinolyl, isoquinolyl, indolyl, benzimidazolyl, quinazolyl or quinoxalyl radicals, said aryl radical and said heterocyclic radicals optionally containing 1 to 3 identical or different substituents selected from phenyl, C_1–C_8-alkyl, C_1–C_8-alkoxy, halogen, trifluoromethyl, cyano, trifluoromethoxy, hydroxyl, nitro, azido, carboxyl, carb C_1–C_8-alkoxy, carboxamido, sulphonamido, SO_2-C_1–C_8-alkyl and SO_2-trifluoroalkyl,

R^3 is a hydrogen atom or a group of the formula COR^8,

in which

R^8 is an C_1–C_8-alkyl, a mono- or bi-cyclic carbocyclic aryl or a mono- or bi-cyclic carbocyclic ar-C_1–C_4-alkyl aralkyl radical or a group of the formula OR^9,

in which

R^9 has a meaning given for radical R^5, but need not be identical to R^5, and

R^4 is a straight-chain or branched alkyl radical having 1 to 8 carbon atoms in which a hydrogen is replaced by a hydroxyl group, or a polyfluoro C_1–C_8-alkyl radical or a phenyl, benzyl, thienyl, furyl, pyrryl or pyridyl radical.

5. A method of combating hypertension in warm-blooded animals which comprises administering to the animals an antihypertensively effective amount of an active compound according to claim 1 either alone or in admixture with a diluent or in the form of a medicament.

4,280,999

INSECTICIDAL PROCESS UTILIZING CERTAIN URACILS

Carrol D. Steelman; Doyle M. Chambers, and Michael D. Andis, all of Baton Rouge, La., assignors to Louisiana State University Board of Supervisors, Baton Rouge, La.

Filed Aug. 9, 1979, Ser. No. 65,381
Int. Cl.³ A01N *43/54*
U.S. Cl. 424—251 **7 Claims**

1. A process for killing insects by applying to said insects and to substrates susceptible to infestation by said insects or their larvae an insecticidally effective amount, but less than a herbicidally effective amount, of a compound which is selected from the group consisting of 5-bromo-3-sec-butyl-6-methyluracil, 5-bromo-3-sec-butyl-6-methyluracil, sodium salt, 5-chloro-3-sec-butyl-6-methyluracil, 5-bromo-3-tert-butyl-6-methyluracil, 5-chloro-3-tert-butyl-6-methyluracil, 5-bromo-3-(1-ethylpropyl)-6-methyluracil, 5-chloro-3-(1-ethylpropyl)-6-methyluracil, 5-bromo-3-isopropyl-6-methyluracil, 5-chloro-3-isopropyl-6-methyluracil, 5-chloro-3-cyclohexylmethyl-6-methyluracil, 3-cyclohexyl-5-methoxy-6-methyluracil, 3-sec-buty-5, 6-dimethyluracil, 5-bromo-6-methyl-3-norbornylmethyluracil, 3-sec-butyl-6-methyl-5-nitrouracil, 3-cyclo-hexyl-5, 6-dimethyluracil, 5-bromo-3-cyclohexyl-6-methyluracil and 5-chloro-3-phenyl-6-methyluracil.

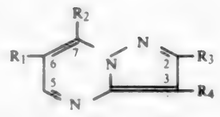
4,281,000

SUBSTITUTED PYRAZOLO (1,5-A)PYRIMIDINES AND THEIR USE AS ANXIOLYTIC AGENTS

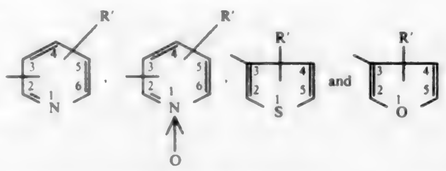
John P. Dusza, and Jay D. Albright, both of Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 55,941, Jul. 9, 1979, abandoned. This application Feb. 26, 1980, Ser. No. 124,686
Int. Cl.³ A61K *31/505*; C07D *487/04*
U.S. Cl. 424—251 **18 Claims**

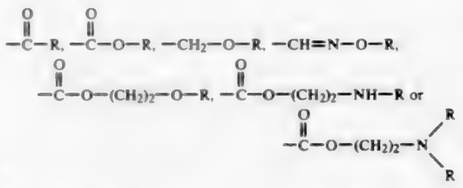
1. A compound selected from the group consisting of those of the formula:



wherein R_1 is hydrogen or alkyl having from 1 to 3 carbon atoms; R_2 is selected from the group consisting of



wherein R′ is hydrogen or alkyl having from 1 to 3 carbon atoms; R_3 is hydrogen, fluoro, chloro, bromo, cyano, cyanomethyl, carbamoyl or alkyl having from 1 to 3 carbon atoms; R_4 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, formyl, carboxyl, cyano, hydroxymethyl, N-hydroxyformimidoyl, alkyl having from 1 to 3 carbon atoms and moieties of the formulae:



where R is alkyl having from 1 to 3 carbon atoms, and the pharmacologically acceptable acid-addition salts thereof.

16. The method of meliorating anxiety in a mammal which comprises administering internally to said mammal an effective amount of a compound of claim 1.

4,281,001

METHOD FOR TREATMENT OF RHEUMATISM

Yutaka Maruyama; Kazuhiro Goto, and Michio Terazawa, all of Nakatsu, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

Filed Apr. 14, 1980, Ser. No. 139,624
Claims priority, application Japan, Jan. 17, 1980, 55-4161
Int. Cl.³ A61K *31/435*
U.S. Cl. 424—256 **4 Claims**

1. A method of treating rheumatism in a mammal which comprises administration to said mammal which has rheumatism of an effective amount of 9-chloro-7-(1H-tetrazol-5-yl)-5-oxo-5H-[1H]benzopyrano-[2,3-b]pyridine, a pharmaceutically effective salt and a pharmaceutically effective hydrate thereof.

4,281,002

3-(2-AMINOETHYLTHIO)-6-AMIDO-7-OXO-1-AZABICYCLO(3.2.0)-HEPT-2-ENE-2-CARBOXYLIC ACID

Burton G. Christensen, Metuchen; Ravindra N. Guthikonda, Edison; David B. R. Johnston, Warren, and Susan M. Schmitt, Scotch Plains, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 30,786, Apr. 17, 1979, Pat. No. 4,224,336. This application Oct. 3, 1979, Ser. No. 81,518
Int. Cl.³ C07D *487/04*; A61K *31/395*
U.S. Cl. 424—263 **2 Claims**

1. An antibiotic pharmaceutical composition comprising a therapeutically effective amount of a compound and a pharmaceutical carrier therefor.

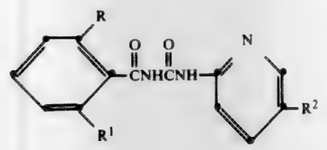
4,281,003

1-(2-6-DIHALOBENZOYL)-3-(5-SUBSTITUTED-2-PYRIDINYL)UREA INSECTICIDES AND INSECTICIDAL METHOD

John L. Miesel, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 938,723, Aug. 31, 1978, Pat. No. 4,219,557. This application Jan. 23, 1980, Ser. No. 114,770
Int. Cl.³ C07D *213/75*; A01N *43/40*
U.S. Cl. 424—263 **32 Claims**

1. A compound of the formula



wherein

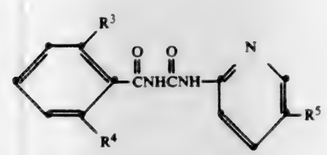
R and R^1 are fluoro, and

R^2 is trifluoromethyl;

or wherein R is chloro, R^1 is fluoro, and R^2 is chloro, bromo or trifluoromethyl;

or an acid addition salt thereof.

17. A method of reducing a population of manure-breeding insects which comprises orally administering to a warm-blooded animal an insecticidally-effective amount of a compound of the formula



wherein R^3 and R^4 independently represent chloro or fluoro; R^5 is chloro, bromo or trifluoromethyl; provided that, when R^3 and R^4 are both chloro, R^5 is trifluoromethyl; or a physiologically-acceptable acid addition salt thereof.

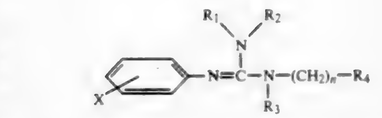
4,281,004

PHENYLGUANIDINE THERAPEUTIC AGENTS

Jeffrey L. Ives, King of Prussia, Pa., assignor to Pfizer Inc., New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,374
Int. Cl.³ A61K *31/44*; C07D *401/12, 405/12*; A61K *31/40*
U.S. Cl. 424—263 **5 Claims**

1. A compound selected from the group consisting of phenylguanidine bases of the formula:



and the pharmaceutically acceptable acid addition salts thereof, wherein

X is a member selected from the group consisting of hydrogen, fluorine, chlorine, bromine, trifluoromethyl, lower alkyl and lower alkoxy;

R_1 and R_2, when taken separately, are each lower alkyl, and when taken together complete a pyrrolidino ring;

R_3 is hydrogen or lower alkyl;

R_4 is a member selected from the group consisting of pyridyl, furyl and thienyl; and

n is an integer of from zero to four, inclusive.

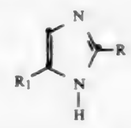
4,281,005

NOVEL 2-PYRIDYLIMIDAZOLE COMPOUNDS

John J. Baldwin, Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 17,877, Mar. 5, 1979, abandoned, which is a continuation-in-part of Ser. No. 891,662, Mar. 30, 1978, abandoned, which is a continuation-in-part of Ser. No. 755,777, Dec. 30, 1976, abandoned. This application Jun. 6, 1980, Ser. No. 157,927
Int. Cl.³ A61K *31/415*; C07D *401/02*
U.S. Cl. 424—263 **6 Claims**

1. A compound having the formula



wherein R is 4-pyridyl and R_1 is C_1–C_5 alkyl or pharmaceutically acceptable salt thereof.

5. Method of treating hypertension in humans which comprises administering an effective amount of compound of claim 1.

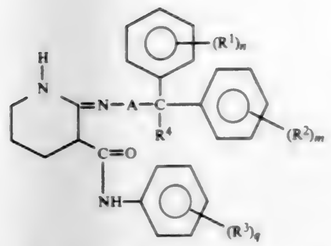
4,281,006

2-(DIPHENYLALKYLIMINO)PIPERIDINE-3-CARBOXANILIDES AS INHIBITORS OF GASTROINTESTINAL HYPERSECRETION

J. Martin Grisar, and Norbert L. Wiech, both of Cincinnati, Ohio, assignors to Richardson-Merrell Inc., Wilton, Conn.

Filed May 2, 1980, Ser. No. 146,132
Int. Cl.³ A61K *31/445*; C07D *211/60*
U.S. Cl. 424—267 **27 Claims**

13. A method of treating gastrointestinal hypersecretion in a patient suffering from the symptoms thereof, which comprises administering to said patient an amount effective for inhibiting gastrointestinal hypersecretion of a compound of the formula



wherein A is a bond or C_{1-4} alkylene; R^1, R^2 and R^3 are independently a halogen atom, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} alkylthio, CF_3, SCF_3 or OCF_3; R^4 is a hydrogen atom or C_{1-4} alkyl; and n, m and q are independently an integer from 0 to 3; or a pharmaceutically acceptable acid addition salt thereof.

4,281,007

METHOD OF STABILIZING SOIL-APPLIED DIMETHYLCARBAMYLTRIAZOLES

Gayle E. Back, Olathe, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Mar. 31, 1978, Ser. No. 891,985

Int. Cl.[3] A01N *43/64*

U.S. Cl. 424—269 **6 Claims**

1. The method of improving the stability of a dimethylcarbamyltriazole pesticide against decarbamylation in contact with a finely divided argillaceous substance comprising incorporating therewith at least one part by weight of a non-ionic aliphatic polyol per ten parts by weight of dimethylcarbamyltriazole.

4,281,008

PHARMACEUTICAL HETEROCYCLIC COMPOUNDS AND COMPOSITIONS

Terence R. Chamberlain, Kimarnock, Scotland, and John R. Bantick, Loughborough, England, assignors to Fisons Limited, London, England

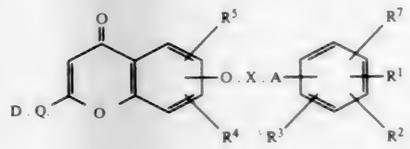
Filed Mar. 6, 1980, Ser. No. 127,832

Claims priority, application United Kingdom, Mar. 20, 1979, 09835/79

Int. Cl.[3] A61K *31/41, 31/35*; C07D *311/22, 257/04*

U.S. Cl. 424—269 **10 Claims**

1. The substituted chromones of the formula:



(I)

wherein R^1, R^2, R^3, R^4, R^5 and R^7, which may be the same or different, each represent hydrogen, hydroxy, alkyl or alkoxy of 1 to 6 carbon atoms, amino, alkanoyl or alkanoylamino of 2 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, halogen, or alkoxy of 1 to 6 carbon atoms substituted by phenyl,

X is an alkylene chain of 1 to 10 carbon atoms optionally substituted by a hydroxy group,

A is oxygen or is absent,

Q represents a straight or branched alkylene, alkenylene, or alkynylene group of 2 to 6 carbon atoms, and

D represents carboxy, 5-tetrazolyl or carboxamido-5-tetrazolyl,

and pharmaceutically acceptable salts thereof, and pharmaceutically acceptable esters and amides of those compounds where D is carboxy.

9. A pharmaceutical composition for treating disorders in which the slow-reacting substance of anaphylaxis is a factor which comprises an effective amount of at least one compound according to claim 1 in association with a pharmaceutically-acceptable adjuvant, diluent or carrier.

4,281,009

HYDANTOIN DERIVATIVES

Jin-emon Konishi, Musashino, Japan, assignor to Nippon Zoki Pharmaceutical Co., Ltd., Osaka, Japan

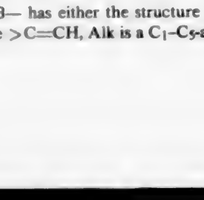
Filed Sep. 5, 1978, Ser. No. 939,791

Claims priority, application Japan, Jun. 13, 1978, 53-71236

Int. Cl.[3] A61K *31/415*; C07D *233/30, 213/46*

U.S. Cl. 424—273 R **22 Claims**

1. A hydantoin derivative of the general formula:



in which:

(a) when R_1 is hydroxy, and each of R_2 and R_3 is independently hydrogen,

X is C_1–C_3 alkyl, thienyl, or hydroxyphenyl;

(b) when R_1 is C_1–C_3 alkoxy, R_2 is halogen, and R_3 is hydrogen,

X is C_1–C_3 alkoxyphenyl; and

(c) when each of R_1, R_2 and R_3 is independently hydroxy,

X is trihydroxyphenyl p1 or a pharmaceutically acceptable salt thereof.

4,281,010

DITHIENYLALKYLAMINES AND PROCESS FOR THEIR PRODUCTION

Axel Kleemann, Hanau; Ingomar Nubert; Fritz Stroman, both of Offenbach, and Klaus Thiemer, Hanau, all of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Division of Ser. No. 867,157, Jan. 5, 1978, Pat. No. 4,206,213.

This application Jul. 12, 1979, Ser. No. 56,840

Claims priority, application United Kingdom, Jan. 12, 1977, 1121/77

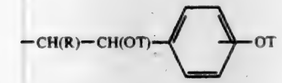
Int. Cl.[3] C07D *409/06*

U.S. Cl. 424—275 **17 Claims**

1. A medicament containing as an active ingredient in an amount sufficient to increase blood circulation a compound of the formula



where >A— B— has either the structure >C(OH)—CH_2— or the structure >C=CH, Alk is a C_1–C_5-alkylene group and Y is



where R is hydrogen or a C_1–C_4— alkyl group and T is hydrogen or a C_2—C_6—alkanoyl group or a salt thereof.

4,281,011

INSECTICIDAL N-METHYL-N-(BENZENE SULFONIC ACID METHYLAMIDE-N'-SULFENYL)-CARBAMIC ACID OXIME ESTERS

Peter Siegle, Cologne; Engelbert Kühle, Bergisch-Gladbach; Ingeborg Hammann, Cologne, and Wolfgang Behrenz, Overath-Steinenbrueck, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 408,253, Oct. 19, 1973, Pat. No. 3,954,836.

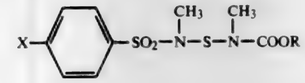
This application Jan. 27, 1976, Ser. No. 652,929

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1972, 2254359

Int. Cl.[3] C07C *145/04, 119/00*; A01N *9/12*

U.S. Cl. 424—277 **11 Claims**

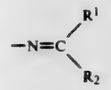
1. A N-sulfenylated carbamate of the formula



in which

X is halogen, C_1–C_6 alkyl or hydrogen, and

R is a benzodioxolanyl or indanyl radical optionally carrying at least one alkyl, alkenyl, alkynyl, alkoxy, alenoxy, alkynoxy, alkylmercapto, alkenylmercapto, alkynylmercapto, dialkylamino, trihalogenomethyl, halogeno, nitro, nitrile, cycloalkyl, formamidino, dioxanyl or dioxolanyl radical; phenyl or naphthyl carrying at least one dioxanyl or dioxolanyl radical; or an oxime radical of the formula



in which

R^1 and R^2 each individually is alkyl, alkoxy, alkylthio or alkoxycarbonyl, the alkyl moieties of R^1 and R^2 optionally being linked to one another.

10. A method of combating insects or acarids which comprises applying to the insects or acarids or to a habitat thereof an insecticidally or acaricidally effective amount of a compound according to claim 1.

4,281,012

[4H]-1,3-BENZODIOXIN-2-CARBOXYLIC ACIDS

Daniel Humbert, Fontenay-sous-Bois; Francois Clemence, Paris, and Michele Dagnaux, Fontenay-sous-Bois, all of France, assignors to Roussel Uclaf, Paris, France

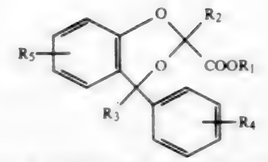
Filed Apr. 30, 1979, Ser. No. 34,432

Claims priority, application France, May 3, 1978, 78 13095; May 3, 1978, 78 13096

Int. Cl.[3] A61K *31/335*; C07D *319/08*

U.S. Cl. 424—278 **15 Claims**

1. A compound selected from the group consisting of racemates and optically active isomers and mixtures of isomers of a compound of the formula



wherein R_1 is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, alkali metal, alkaline earth metal, aluminum, —NH_4 and non-toxic, pharmaceutically acceptable organic amines, R_2 is selected from the group consisting of hydrogen and alkyl of 1 to 5 carbon atoms, R_4 and R_5 are individually selected from the group consisting of hydrogen, halogen, trifluoromethyl, cyclohexyl, alkyl and alkoxy of 1 to 3 carbon atoms and p-chlorophenoxy and R_3 is selected from the group consisting of 2-propenyl, ethenyl, cyclohexyl, benzyl, alkyl of 1 to 5 carbon atoms and hydrogen with the proviso that when R_3 is alkyl, at least one of R_4 and R_5 is not hydrogen or halogen and when R_3 is hydrogen, at least one of R_4 and R_5 is not hydrogen, halogen or trifluoromethyl.

6. An hypolipemiant composition comprising an hypolipemiantly effective amount of at least one compound of claim 1 and an excipient.

11. A method of inducing hypolipemic activity in warm-blooded animals comprising administering to warm-blooded animals an hypolipemiantly effective amount of at least one compound of racemates and optically active isomers and mixtures of isomers of a [4H]-1,3-benzodioxin-2-carboxylic acid compound of claim 1.

4,281,013

ANTIATHEROSCLEROTIC USE OF KHELLIN AND KHELLININ

Paul E. Schurr, Portage, and Charles E. Day, Fulton, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Feb. 13, 1979, Ser. No. 11,815

Int. Cl.[3] A61K *31/35*

U.S. Cl. 424—283 **6 Claims**

1. A method of treating or preventing serum lipid associated atherogenic hyperbetalipoproteinemia in a human suffering from or susceptible to the development of an atherosclerotic disease which comprises:

administering systemically to said human an amount of khellin or khellinin effective to significantly reduce levels of atherogenic serum betalipoproteins.

2. A method of reversing serum lipid associated atherosclerotic lesions in a human which comprises:

administering systemically to said human an amount of khellin or khellinin effective to significantly reduce levels of atherogenic serum betalipoproteins.

3. A method of reversing serum lipid associated atherosclerotic lesions in a human which comprises:

administering systemically to said human an amount of khellin or khellinin effective to selectively enhance levels of antiatherogenic serum alphalipoproteins.

4. A method of treating a human suffering from or susceptible to the development of a serum lipid associated atherosclerotic disease which comprises:

administering systemically to said human an amount of khellin or khellinin effective to significantly reduce levels of atherogenic serum betalipoproteins.

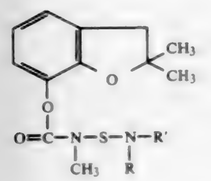
4,281,014

STABILIZED COMPOSITIONS CONTAINING N-AMINOSULFENYLATED DERIVATIVES OF CARBOFURAN

Jerome Yaffe, El Cerrito, Calif., assignor to FMC Corporation, Philadelphia, Pa.

Filed Jun. 4, 1980, Ser. No. 156,290
Int. Cl.³ A01N *25/22;* **C07D** *307/86;* **A01N** *47/18*
U.S. Cl. 424—285 **9 Claims**

1. A stabilized insecticidal composition comprising about 0.2 to 98% by weight insecticidal N-aminosulfenyl derivative of carbofuran of the formula



wherein R and R′ may be the same or different, and each is alkyl of 1 to 8 carbon atoms which may contain an —O—, —S—, or —NR″— linkage (where R″ is lower (1 to 4 carbons) alkyl, benzyl, or phenyl), cycloalkyl of 3 to 6 carbon atoms, or benzyl, or R and R′ taken together with the nitrogen form a heterocyclic ring of 5 to 8 members which may contain an —S—, or —NR″—, which heterocyclic ring may be substituted by one or more alkyl, aralkyl, aryl, or alkoxy groups, and about 0.01 to 20% by weight epoxide compound.

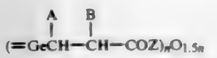
4,281,015

GERMANIUM-CONTAINING ORGANIC POLYMER AND IT'S USE IN THE TREATMENT OF PSYCHONEUROLOGICAL DISORDERS

Akira Ishikawa, Tokyo; Yukihito Ishida, Fujisawa; Shiro Ikegami, Funabashi; Hiroshi Satoh, Tokyo; Ryuichi Sato, 2310, Kamikoizumi, Oizumicho, Ora-gun, Gunma-ken; Setsuo Tomisawa, Tokyo, and Shigeru Toyoshima, Funabashi, all of Japan, assignors to Ryuichi Sato, Gunma, Japan

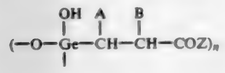
Division of Ser. No. 12,151, Feb. 14, 1979. This application Feb. 29, 1980, Ser. No. 125,876
Claims priority, application Japan, Mar. 1, 1978, 53-21992; Mar. 1, 1978, 53-21993
Int. Cl.³ A61K *31/28*
U.S. Cl. 424—287 **6 Claims**

1. A method of treating an animal suffering from a psychoneurological disorder, which comprises, administering to said animal an effective amount to relieve said suffering, of a polymer selected from the group consisting of those of the formulae:



(III)

and



(IV)

wherein A represents one of a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, —COOH, —COOR (wherein R is an alkyl group having 1 to 3 carbon atoms),
B represents one of a hydrogen atom and an alkyl group having 1 to 3 carbon atoms; Z represents one of a hydroxy group, an alkoxy group having 1 to 3 carbon atoms and an alkyl group having 1 to 3 carbon atoms; and n is an integer greater than 3, inclusive.

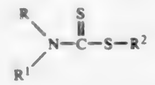
4,281,016

NEMATOCIDAL COMPOSITION

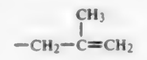
Yasuhisa Kurosu, Fujimi; Hiroshi Kawada, Tokyo; Haruki Kanasugi, Tokyo, and Akiko Kashima, Tokyo, all of Japan, assignors to Hodogaya Chemicals Co., Ltd., Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,550
Claims priority, application Japan, Jul. 18, 1978, 53-86706; Feb. 24, 1979, 54-20233
Int. Cl.³ A01N *47/10;* **C07C** *155/08*
U.S. Cl. 424—300 **8 Claims**

1. A nematocidal composition containing as active ingredient(s) dithiocarbamate compound(s) represented by the general formula,



wherein R and R^1 are respectively a lower alkyl group, and R^2 is a group of $-CH_2CH=CH_2$,



or

$-CH_2-CH=CHCH_3$.

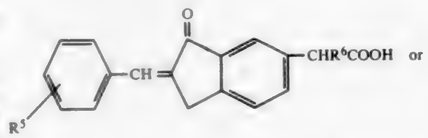
4,281,017

PHARMACEUTICALLY ACTIVE INDANE DERIVATIVES

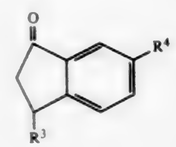
William R. N. Williamson, Slough, England, assignor to Lilly Industries Limited, London, England

Filed Sep. 10, 1979, Ser. No. 74,221
Claims priority, application United Kingdom, Sep. 16, 1978, 37121/78
Int. Cl.³ C07C *59/86, 69/738;* **A61K** *31/235, 31/19*
U.S. Cl. 424—308 **7 Claims**

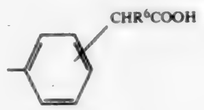
1. A compound of the formula



or



wherein
R^3 is;



R^4 is H;
R^5 is H, halogen or (C_1-C_4)alkyl; and

R^6 is H or (C_1-C_4)alkyl; or a pharmaceutically acceptable salt or a (C_1-C_4)alkyl ester thereof.

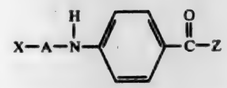
4,281,018

NOVEL 4-[(CARBOXYL- AND SULFAMYL-SUBSTITUTED ALKYL)-AMINO]BENZOIC ACIDS AND ANALOGS

Robert G. Shepherd, South Nyack, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 895,574, Apr. 12, 1978, Pat. No. 4,230,628. This application May 16, 1980, Ser. No. 150,511
Int. Cl.³ A61K *31/245, 31/195*
U.S. Cl. 424—310 **7 Claims**

1. The method of treating hyperlipidemia and hyperlipoproteinemia and/or altering the lipoprotein pattern in a mammal comprising administration to said mammal of an effective lipid-altering amount of a compound of the formula:



wherein X is selected from the group consisting of carboxy, lower alkoxycarbonyl and aryloxycarbonyl; A is an unbranched or branched alkylene group optionally saturated or mono- or poly-unsaturated, and containing or not containing a cycloalkyl group, represented by for formula $C_nH_{2(n-p)}$ with n being an integer from 8 to 18, inclusive, and p being an integer from 0 to 5, inclusive; and Z is selected from the group consisting of hydroxy, lower alkoxy, lower alkoxyalkoxy, di(lower alkyl)aminoalkoxy, (mono- or poly-hydroxy)lower alkoxy, allyloxy and substituted or unsubstituted benzyloxy; and the pharmaceutically acceptable non-toxic acid-addition and cationic salts thereof.

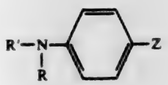
4,281,019

4-[(UNSATURATED OR CYCLOPROPYLATED ALKYL)AMINO]PHENYL COMPOUNDS USEFUL AS HYPOLIPIDEMIC AND ANTIATHEROSCLEROTIC AGENTS

Robert G. Shepherd, South Nyack, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Feb. 1, 1979, Ser. No. 8,641
The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.
Int. Cl.³ A61K *31/135, 31/195, 31/24, 31/415, 31/44;* **C07C** *87/62, 95/08*
U.S. Cl. 424—330 **24 Claims**

1. The method of inhibiting atherosclerotic lesion development in a mammal comprising administering to said mammal an effective lesion-development inhibiting amount of a compound of the formula:



wherein Z is



wherein J is hydrogen; R is selected from the group consisting of hydrogen, or a group convertible in vivo thereinto, such as methyl; and R′ is a branched or unbranched mono- or polyunsaturated or cyclopropylated C_3-C_{22} alkyl group; and the pharmaceutically acceptable non-toxic acid addition and cationic salts thereof; and mixtures thereof.

4,281,020

DEUTERATED ANALOGUES OF METHOXYFLURANE USEFUL AS AN ANESTHETIC

Leslie P. McCarty, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 16,644, Mar. 1, 1979, abandoned, which is a continuation-in-part of Ser. No. 961,158, Nov. 16, 1978, abandoned, which is a division of Ser. No. 759,943, Jan. 17, 1977, Pat. No. 4,153,636. This application Feb. 11, 1980, Ser. No. 120,404
Int. Cl.³ A61K *31/08*
U.S. Cl. 424—342 **5 Claims**

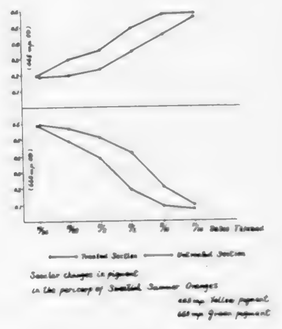
1. The process for anesthetizing an animal which comprises administering to said animal an effective concentration of the compound 2,2-dichloro-1,1-difluoro-1-methoxy-d_3-ethane-d or 2,2-dichloro-1,1-difluoro-1-methoxy-d_3-ethane as a general inhalation anesthetic.

4,281,021

METHOD OF ACCELERATING COLORING AND SWEETENING OF CITRUS FRUITS

Chiyokichi Iizuka, and Hiroaki Maeda, both of Chiba, Japan, assignors to Noda Shokkin Kogyo Kabushiki Gaisha, Noda, Japan

Filed Aug. 15, 1979, Ser. No. 66,837
Claims priority, application Japan, May 10, 1979, 54/57367
Int. Cl.³ A23L *1/272*
U.S. Cl. 426—61 **4 Claims**



1. A method for accelerating the coloration and increasing the sugar content of citrus fruits which comprises applying to the citrus fruit plants a dilute, aqueous solution of the active ingredients obtained by water extraction of the mycelium nutrient medium and tissue medium of an edible fungus of the genus Basidiomycetes, concentrating, and subsequent aqueous dilution thereof to form said dilute, aqueous extract containing said active ingredients.

4,281,022

METHOD OF COOKING THIN MEATS IN A MICROWAVE OVEN

Ronald G. Buck, Burnsville, Minn., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Continuation-in-part of Ser. No. 829,075, Aug. 30, 1977, abandoned. This application Mar. 15, 1979, Ser. No. 20,696
Int. Cl.³ A23L *1/31;* **H05B** *9/06*
U.S. Cl. 426—233 **5 Claims**

1. A method for cooking thin meat bodies in a microwave oven having means for measuring the humidity of the microwave oven cooking cavity environment associated therewith comprising the steps of:

(a) energizing a microwave energy source to provide microwave energy to said cooking cavity whereby at least a portion of said energy is absorbed by a thin meat body located in said cooking cavity;

(b) measuring the humidity of said cooking cavity environment at a plurality of time-spaced intervals while said thin meat body is being heated and storing said measurements in a microprocessor forming part of the controls for said oven;
(c) calculating the slope of a humidity-time curve described by said measurements;
(d) comparing said calculated slope with the slope of a charscteristic humidity-time curve stored in said microprocessor and obtaining from said comparison the time when said thin meat body will reach thermal equilibrium at 100° C.;
(e) calculating in said microprocessor the time said thin meat body will reach a preselected doneness as a predetermined percentage of said thermal equilibrium time; and,
(f) de-energizing said microwave energy source at said calculated doneness time.

4,281,023

SOLUBLE COFFEE PROCESS

Richard R. Pyves, Pointe Claire, Canada, assignor to General Foods Limited, Toronto, Canada

Filed Feb. 19, 1980, Ser. No. 122,226
Claims priority, application Canada, Nov. 28, 1979, 342742
Int. Cl.³ A23F *5/50*
U.S. Cl. 426—385 **7 Claims**

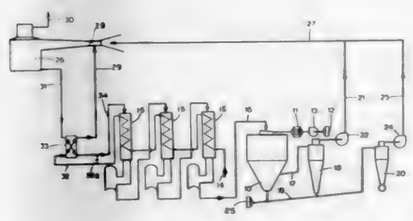
1. A method for producing a soluble coffee product comprising the steps of:
(a) obtaining an aqueous extract of roasted coffee, said extract having a soluble solids concentration of from 12% to 30% by weight,
(b) concentrating said extract to a solids concentration of from 35 to 55% by weight in a vacuum evaporator at a temperature between 35° C. and 80° C. and a pressure of between 40 and 360 mm of mercury,
(c) condensing the vacuum evaporate,
(d) vacuum stripping the condensed evaporate at a pressure below 400 mm of mercury and condensing said strippings in order to obtain a condensate of from 5 to 15% by weight of the condensed evaporate,
(e) adding the condensed stripping to the concentrated extract at a level of about 0.2 to 0.60 kgs. of condensate to one kg. of extract solids, and
(f) drying the mixture from step (e).

4,281,024

METHOD FOR SPRAY DRYING LIQUID PRODUCTS

Georg H. H. Hauberg, Allerod; Jens Krag, Copenhagen, and Jan Pisecky, Taastrup, all of Denmark, assignors to Aktieselskabet Niro Atomizer, Soborg, Denmark

Continuation of Ser. No. 925,846, Jul. 18, 1978, abandoned, which is a division of Ser. No. 837,876, Sep. 29, 1977, abandoned. This application Dec. 3, 1979, Ser. No. 99,508
Claims priority, application Denmark, Sep. 30, 1976, 4416/76
Int. Cl.³ A23C *1/04*
U.S. Cl. 426—471 **10 Claims**



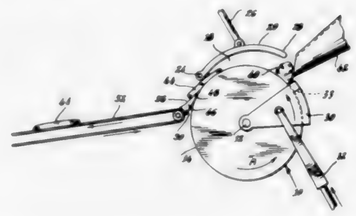
1. A method of spray drying a bacteria liable perishable solids containing liquid product comprising
passing said liquid product along a flow path defined in a preheater of a multistage evaporator so as to heat said liquid product to a pasteurization temperature,
concentrating said liquid product in said evaporator,
spraying said concentrated liquid product having passed said evaporator into a spray drying chamber,
supplying drying gas into said spray drying chamber,
passing exhaust gas phase from said spray drying chamber into a gas scrubber to remove solid particles from said gas phase, deriving at least part of said pasteurized liquid product from the flow path of said evaporator at a first location and immediately thereafter passing it into said gas scrubber where it is used as washing liquid prior to spraying said liquid product part into said spray drying chamber,
cooling said heated liquid product part in a heat exchanger prior to passing it into said gas scrubber from said evaporator, and
returning said washing liquid from said gas scrubber to the flow path of said evaporator at a second location adjacent to said first location and at substantially the same temperature as that at which said washing liquid is removed from said flow path of the evaporator, said washing liquid being returned from said gas scrubber is heated in said heat exchanger by said heated liquid product part derived from said evaporator and being passed to said gas scrubber.

4,281,025

METHOD FOR SHAPING AND PRECOOKING TORTILLA DOUGH

John G. Longenecker, Ozone Park, N.Y., assignor to Roberto Gonzalez Barrera, Monterrey, Mexico

Division of Ser. No. 26,368, Apr. 2, 1979, Pat. No. 4,241,648, which is a continuation-in-part of Ser. No. 849,890, Nov. 9, 1977, abandoned. This application May 23, 1980, Ser. No. 152,585
Int. Cl.³ A21D *6/00*
U.S. Cl. 426—496 **3 Claims**



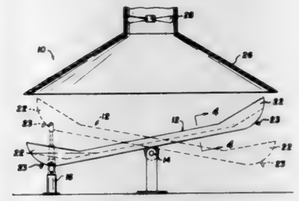
1. A method of forming tortillas comprising the steps of
inserting a ball of tortilla dough into a region between a rotatable forming base having a heatable arcuate outer surface and an associated compression plate having a heatable arcuate surface which is configured so as to be substantially equidistant throughout to the opposing portion of said outer surface of said base when said surfaces are juxtaposed spaced-apart at a distance desired for forming tortillas therebetween, said plate being moveable with respect to said base into said juxtaposed spaced-apart relationship and out of said relationship with the end of said plate which the advancing base surface first passes under when said base rotates in a desired direction being moveable away from said base while the other end of said plate remains pivotally fixed in substantially the same spaced-apart position with respect to said base,
moving said plate into said juxtaposed spaced-apart relationship so that said ball is compressed between said plate and said base,
moving said plate out of said relationship,
and rotating said base in said desired direction to cause the compressed dough to move out of said region between said plate and said base.

4,281,026

PREPARING FRUIT JUICE POWDER

Lucio Reale, 1827 - 46th St., SE, Calgary, Alberta, Canada T2B 2J9

Filed Jun. 26, 1979, Ser. No. 52,231
Int. Cl.³ A23L *2/10*
U.S. Cl. 426—599 **8 Claims**



1. A process for producing a fruit preparation from a natural fruit juice, the process comprising the steps:
removing water from the juice by flowing the juice in a thin film on a heated, reciprocable, inclinable surface to reduce the water content to 10 to 25% by volume to produce a first product;
adding a crystalline modifying agent selected from the group consisting of sugars or pectin in a quantity sufficient to enable solidification of the preparation, to the first product and blending said modifying agent and said first product while heating them by blowing air on them to produce a second product; and
continuing said heating and blending until the water content of said second product is in the range of 1 to 15% by volume to produce said fruit preparation.

4,281,027

PROCESS FOR MANUFACTURING COCOA POWDER

Mitsuyori Inoue, Chuoku Tokyoto, and Akira Yamabe, Chibashi, both of Japan, assignors to Iwatani Sangyo Kabushiki Kaisha, Chuoku Tokyoto, Japan

Filed Apr. 2, 1979, Ser. No. 26,385
Claims priority, application Japan, Nov. 10, 1978, 53/139014; Nov. 17, 1978, 53/142573
Int. Cl.³ A23G *1/00*
U.S. Cl. 426—631 **28 Claims**

1. A process for manufacturing cocoa powder using cocoa shells comprising the steps of:
a. separating the cocoa shells from cocoa beans;
b. extracting astringency from said cocoa shells;
c. freezing said cocoa shells in liquid nitrogen;
d. pulverizing said frozen cocoa shells at a temperature not greater than −30° C.; and
e. recovering the extracted, frozen and pulverized cocoa shells for use as a cocoa powder.

4,281,028

MALTULOSE-CONTAINING SYRUPS

Raoul Walon, Brussels, Belgium, assignor to CPC International Inc., Englewood Cliffs, N.J.

Division of Ser. No. 5,524, Jan. 22, 1979, Pat. No. 4,217,413. This application Feb. 6, 1980, Ser. No. 118,891
Claims priority, application United Kingdom, Jan. 23, 1978, 2653/78
Int. Cl.³ A23L *1/09*
U.S. Cl. 426—658 **1 Claim**

1. A sweet syrup composition derived from starch having a dextrose equivalent value within the range of 60 to 90 and having the following saccharide composition, by weight dry basis:
from 20% to 40% dextrose
from 20% to 40% levulose
from 10% to 60% maltulose
from 0% to 25% maltose
from 0% to 20% saccharides having a degree of polymerization of greater than 2,
the total ketose content, which is principally levulose plus maltulose, being within the range of 40% to 80%, wherein said syrup is non-crystallizing at a concentration of 75% solids.

4,281,029

METHOD OF COATING WITH A STOICHIOMETRIC COMPOUND

Toshinori Takagi, 10-3 Tomooka 2-chome, Nagaokakyo-shi, Kyoto-fu; Kiyoshi Morimoto, and Hiroshi Watanabe, both of Futaba Denshi Kogyo K.K. 629, Oshiba, Mobara-shi, Chiba-ken, all of Japan

Division of Ser. No. 877,502, Feb. 13, 1978, abandoned. This application Oct. 1, 1979, Ser. No. 80,220
Claims priority, application Japan, Mar. 10, 1977, 52-25494
Int. Cl.³ B05D *3/06*; C23C *13/08*; H01L *7/36*
U.S. Cl. 427—38 **4 Claims**



1. A method of producing compounds which comprises the steps of separately heating and vaporizing a plurality of substances-to-be-vaporized containing the component elements of a desired compound and placed in a plurality of crucibles respectively to form vapors of said substances, the degree of heating of said crucible being proportional to the vapor pressure of the substance contained therein, feeding said vapors into a heated mixing chamber in a stoichiometric proportion and mixing said vapors therein to form a mixed vapor, jetting said mixed vapor through an aperture in said mixing chamber and into a vacuum region to form clusters, and making said clusters impinge on a substrate under the influence of injection energy given to said clusters when jetted, wherein during the feeding of said vapors into said mixing chamber, said vapors are not initially directed towards said aperture.

4,281,030

IMPLANTATION OF VAPORIZED MATERIAL ON MELTED SUBSTRATES

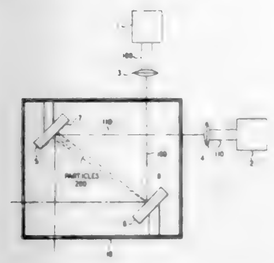
William T. Silfvast, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 12, 1980, Ser. No. 149,234
Int. Cl.³ C23C *13/00, 13/12*
U.S. Cl. 427—42 **19 Claims**

1. A method of depositing material from a particle flux onto a collector substrate which comprises the steps of:
disposing said collector substrate in the path of said particle flux;
characterized in that
said method further includes the step of directing a pulse of radiation from an energy source to impinge upon and melt an area of the surface of said collector substrate before said particle flux impinges thereon.

12. An apparatus for depositing material from a target (8) onto a collector substrate (5) which comprises:
an evacuated chamber (10) within which said target and said collector substrate are disposed;
a first source (1) of first radiation;

means (3) for applying said first radiation to said target to provide a particle flux of material from said target, which particle flux travels toward said collector substrate;
a second source (2) of second radiation; and

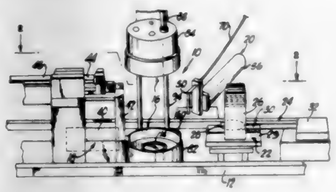


means (4) for applying said second radiation to said collector substrate to melt an area of the surface of said collector substrate before said particle flux impinges thereon.

4,281,031
METHOD AND APPARATUS FOR PROCESSING WORKPIECES

Gary Hillman, Livingston, and Michael J. Devico, Madison, both of N.J., assignors to Machine Technology, Inc., Whippany, N.J.

Filed Jul. 25, 1979, Ser. No. 60,337
Int. Cl.³ B05D 3/14; B05B 15/06
U.S. Cl. 427—45.1 **22 Claims**



1. In a method of processing a substrate which is useful in the manufacture of semiconductor devices, said process including one or more non-baking steps, such as scrubbing, coating, developing, rinsing or drying, and a baking step, the improvement wherein all of said non-baking and baking steps are carried out at a single work station, said improvement further comprising the steps of providing said substrate on a work support which is located at said work station and selectively and sequentially performing at least one of said non-baking steps and said baking step on said substrate while said substrate is continuously maintained on said work support, whereby said baking step may be performed before or after one or more of said non-baking steps or between two or more of said non-baking steps.

9. Apparatus for processing a substrate which is useful in the manufacture of semiconductor devices, said apparatus performing one or more non-baking steps, such as scrubbing, coating, developing, rinsing or drying, and a baking step, the improvement wherein all of said non-baking and baking steps are carried out at a single work station, said improvement further comprising a work support provided at said work station and performing means for selectively and sequentially performing at least one of said non-baking steps and said baking step on said substrate while said substrate is continuously maintained on said work support, whereby said baking step may be performed before or after one or more of said non-baking steps or between two or more of said non-baking steps.

4,281,032
METHOD FOR COATING MOLD

Barnee M. Escott, Austin, Tex.; Jerald J. Reynolds, Swanton, and William C. Ward, Burlington, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,475
Int. Cl.³ B29C 1/04
U.S. Cl. 427—135 **5 Claims**

1. A method of improving the release properties of a mold for plastic parts comprising the steps of:
contacting carnauba wax with a solvent to dissolve the para methoxy cinnamic acid ester in said wax, decanting the solution of said dissolved ester and
spraying said solution onto the mold prior to molding of said parts.

4,281,033
FLUORESCENT PENETRANT SYSTEM

Adolf Mlot-Fijalkowski, Lincolnwood, Ill., assignor to Magnaflux Corporation, Chicago, Ill.

Filed Mar. 12, 1980, Ser. No. 129,726
Int. Cl.³ B05D 7/24; C09K 11/00
U.S. Cl. 427—157 **7 Claims**

1. A method for the non-destructive testing for flaws on the surface of a workpiece which comprises:
applying a penetrant composition including a fluorescent dye in a liquid vehicle onto said surface to permit said penetrant to become trapped in said flaws,
removing excess penetrant from said surface while leaving penetrant entrapped in said flaws,
applying a remover composition to said surface, said remover composition including a solvent, at least one surface active agent dissolved in said solvent, and a fluorescent material which is more readily soluble in said liquid vehicle than in said solvent, whereby said fluorescent material is preferentially absorbed in the penetrant entrapped in said flaws to thereby enhance the fluorescence of the entrapped penetrant, and
applying a developer to the surface to draw the entrapped penetrant to the surface of the workpiece.

4,281,034
PLATING ON PLASTICS BY SOFTENING WITH TRICHLOROETHYLENE AND METHYLENE CHLORIDE BATH

Raichur S. Narayan, Schaumburg, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed Apr. 3, 1980, Ser. No. 137,024
Int. Cl.³ C23C 3/00, 7/00; C25D 5/56
U.S. Cl. 427—191 **20 Claims**

1. A process for plating a metal on an article fabricated from a resin susceptible to softening of the resin upon contact of the resin with trichloroethylene or with trichloroethylene and methylene chloride, said process comprising the steps of
(a) immersing the article in a bath being agitated as the article is immersed therein and consisting essentially of
(1) approximately 90 parts of trichloroethylene by volume,
(2) approximately from 9 to 10 parts of ethanol by volume, and
(3) approximately from 0 to 1 part of methylene chloride by volume, wherein the bath contains approximately 1 part of methylene chloride if the resin is polypropylene,
(b) contacting the article with the metal as a powder of particle sizes of approximately from 50 to 150 microns, and
(c) dipping the article in a bath being agitated as the article is dipped therein and consisting essentially of trichloroethylene, ethanol, and methylene chloride in proportions used in the bath for step (a).

4,281,035
MARKING COMPOSITION AND METHOD OF USING SAME

Peter F. Hawthorne, Sutton Coldfield, and Peter J. Rollin, Tamworth, both of England, assignors to Foseco International Limited, Birmingham, England

Filed Feb. 22, 1979, Ser. No. 13,901
Claims priority, application United Kingdom, Feb. 22, 1978, 6996/78
Int. Cl.³ B41M 1/28
U.S. Cl. 427—199 **8 Claims**

1. A composition in powder form for marking a hot metal object, consisting essentially of titanium dioxide as a refractory pigment in a major proportion by weight and trisodium polyphosphate as a fusible adhesion agent for adhering said pigment to said object said pigment and said adhesion agent being below 60 mesh.

5. A method of marking a hot metal object comprising applying to a surface of said object a composition, in powder form and suspended in a carrier gas, which composition consists essentially of titanium dioxide as a refractory pigment in a major proportion by weight and trisodium polyphosphate as a fusible adhesion agent for adhering said pigment to said object, and allowing said composition to adhere to the object to form a marking on said object said pigment and said adhesion agent being below 60 mesh.

4,281,036
METHOD FOR COATING FINE PARTICULATE EXPANDABLE STYRENE POLYMERS

Horst Leithäuser; Heinz Osterhoff, and Karl Trukenbrod, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed Jul. 24, 1980, Ser. No. 171,829
Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932321
Int. Cl.³ B32B 27/02
U.S. Cl. 427—222 **13 Claims**

1. In a method for coating fine particulate expandable styrene polymers with dispersion of coating materials, the improvement comprising:
(a) introducing the fine particulate expandable styrene polymers into a closed mixing vessel;
(b) reducing the pressure in the mixing vessel below atmospheric;
(c) preparing dispersions of the coating materials and heating the dispersions to about 30° C.; and
(d) aspirating the heated dispersions of the coating materials into the mixing vessel while simultaneously mixing the dispersions with the particulate styrene polymers to form a coating thereon and drying the coated particles.

4,281,037
CLEANING AND PRIMING COMPOSITION CONTAINING TITANIUM ACETYLACETONATE AND METHOD

Hun R. Choung, Dayton, Ohio, assignor to DAP, Inc., Tipp City, Ohio

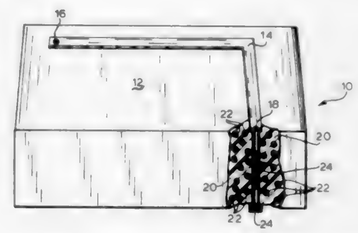
Filed Aug. 8, 1980, Ser. No. 176,385
Int. Cl.³ C11D 7/50; B05D 3/10
U.S. Cl. 427—407.3 **16 Claims**

1. A composition useful for cleaning and priming surfaces comprising a solution of:
(a) 0.1 to 10 weight percent titanium acetylacetonate,
(b) 20 to 50 weight percent of alkanol having 1 to 4 carbon atoms,
(c) 20 to 50 weight percent of alkanone selected from the group consisting of methylethylkeytone, methylisobutylketone, acetone, and mixtures thereof, and,
(d) 5 to 40 weight percent water.

4,281,038
NON-CONDUCTIVE SUBSTRATE FOR A PRINTED CIRCUIT AND METHOD OF MANUFACTURE

Peter Ambros, Hohenroth, and Hermann Geyer, Oberlach, both of Fed. Rep. of Germany, assignors to Preh, Elektrofeinmechanische Werke, Jakob Preh Nachf GmbH & Co., Neustadt, Fed. Rep. of Germany

Filed Dec. 10, 1979, Ser. No. 102,154
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854385
Int. Cl.³ C08K 9/06
U.S. Cl. 428—131 **13 Claims**



1. An electrically non-conductive base for a printed circuit, which comprises:
a high temperature resistant thermoplastic selected from the group consisting of polyphenyloxide, polyphenylsulfide, polyimide and polyethersulfone having dispersed therein a plurality of discrete particles of a material selected from the group consisting of iron, copper, compounds of iron, compounds of copper and mixtures thereof;
said particles bearing a coating of a bonding assistant selected from the group consisting of a silicone resin, an organic silane and a silane ester.

4,281,039
METHOD FOR MAKING A VINYL CHLORIDE RESIN SHEET AND SHEET FORMED BY SAID METHOD

Nobuo Miura, Kashiwa, and Yuichi Akiba, Tokyo, both of Japan, assignors to Lonseal Corporation, Tokyo, Japan

Filed Oct. 4, 1979, Ser. No. 81,922
Claims priority, application Japan, Oct. 6, 1978, 53-123757
Int. Cl.³ B29D 27/00
U.S. Cl. 428—159 **30 Claims**

1. A method for making a vinyl chloride resin sheet having a relief pattern thereon, said method comprising the steps of:
(a) providing an open celled vinyl chloride resin sheet;
(b) printing a portion of said sheet with a composition comprising a cross-linkable compound in accordance with said pattern;
(c) drying said printed sheet;
(d) heating said dried sheet to a temperature higher than its softening temperature whereby the open celled unprinted portion of said sheet is depressed and whereby said printed pattern remains open celled and stands in relief with respect to said depressed portion.

6. The sheet formed by the method of any one of claims 1, 2, 3, 4, or 5.

4,281,040

ABRASION RESISTANT COATING FOR FOAMED PLASTIC SUBSTRATES

Edgardo Santiago, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 33,279, Apr. 25, 1978, Pat. No. 4,231,911, which is a continuation of Ser. No. 926,189, Jul. 20, 1978, abandoned. This application Apr. 18, 1980, Ser. No. 141,448

Int. Cl.³ B32B *3/00, 5/18*

U.S. Cl. 428—195 **5 Claims**

1. A composite material consisting of a rigid or semi-rigid foamed plastic substrate, at least one layer of decorating and/or printing ink applied over at least some selected surface areas of said substrate, and an overcoat of synthetic varnish composition comprising an aqueous mixture of polyurethane resin and polyethylene resin having a solids ratio ranging from 1:9 to 1:1, said polyethylene resin being emulsified with a non-ionic or anionic emulsifying agent, and up to 30% by weight of a low molecular weight alcohol, said composition adapted to provide a protective coating for the said decorated and/or printed plastic substrate and be co-extensive therewith.

4. The composite material in accordance with claim 1, wherein said composite material consists of a generally rectangular blank adapted to be formed into a tubular sleeve, said blank being devoid of said ink and said overcoat at opposing marginal ends to facilitate fabrication into said tubular sleeve.

4,281,041

HARD SOLDERABLE METAL LAYERS ON CERAMIC

Wolfgang Koehler, Alzenau, Fed. Rep. of Germany, assignor to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 122,053

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1979, 2906888

Int. Cl.³ B32B *9/00, 9/06, 15/04*

U.S. Cl. 428—336 **17 Claims**

1. A product suitable for applying hard solder comprising a ceramic base and a coating on the surface thereof of an alloy consisting essentially of (1) palladium with 20 to 70 weight percent of a member of the group consisting of cobalt, iron and a mixture of cobalt and iron or (2) an alloy containing (1) and an additionally 3 to 20 weight percent of a member of the group consisting of chromium, manganese, titanium and mixtures thereof.

4,281,042

POLYESTER FIBERFILL BLENDS

Georges Pamm, Geneva, Switzerland, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 30, 1979, Ser. No. 71,196

Int. Cl.³ D02G *3/00*

U.S. Cl. 428—361 **7 Claims**

1. A polyester fiberfill blend consisting essentially of (a) from about 70 to about 90% by weight of crimped polyester staple fiber and (b) complementally, to total 100% by weight, from about 10 to about 30% of crimped staple binder fiber of a polymer having a melting point lower than that of said polyester fiber, wherein from about 25 to about 75% by weight of said polyester fiber is slickened with a cured polysiloxane coating and the remainder of said polyester fiber is unslickened.

4,281,043

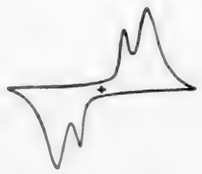
POLYMODAL MAGNETIC RECORDING MEDIA AND COMPOSITIONS USEFUL THEREIN

Robert J. Deffeyes, Arlington, Tex., assignor to Graham Magnetics, Inc., North Richland Hills, Tex.

Continuation-in-part of Ser. No. 411,253, Oct. 31, 1973, and a continuation-in-part of Ser. No. 734,605, Oct. 21, 1976, abandoned. This application Dec. 12, 1977, Ser. No. 859,962

Int. Cl.³ B22F *3/00;* **C04B** *35/64;* **H01F** *1/04, 1/14*

U.S. Cl. 428—457 **27 Claims**



1. A polymodal ferromagnetic powder composition formed of at least two populations of ferromagnetic particles of substantially different coercivities wherein a first said population is so selected that it can be magnetically switched at a magnetic field intensity at which a second population of said composition is not switched wherein no two populations adjacent each other, with respect to coercivity value, will both have their coercivity substantially influenced by shape anisotropy; and wherein each said ferromagnetic particle population is a material characterized by a maximum coercivity ratio of about 1.5:1 between different axes of said particle population and wherein a nonintegrated dM/dt curve of the magnetic powder formed of said populations will exhibit a valley between two adjacent peaks equal to at least one-half the average distance from the base line to top of said two peaks.

4,281,044

ADHESION OF PHENOLICS TO COPPER

Linwood A. Walters, Storrs, and J. Mark Mersereau, Brooklyn, both of Conn., assignors to Rogers Corporation, Rogers, Conn.

Continuation-in-part of Ser. No. 844,293, Oct. 21, 1977, abandoned, and a continuation-in-part of Ser. No. 844,297, Oct. 21, 1977, abandoned. This application Jun. 29, 1979, Ser. No. 53,533

Int. Cl.³ B32B *15/08, 27/42*

U.S. Cl. 428—460 **9 Claims**

1. An article of manufacture comprising:

molded body means, said molded body means being formed from a material consisting essentially of a thermosetting phenolic resin molding compound and 0.005 to 1.0 weight percent sulfur in elemental form; and

a copper element in contact with and directly adhered to said molded body means.

4,281,045

MULTI-LAYER EXTRUDED ARTICLE

Takehiko Sumi; Yoshinobu Oshige; Yoshio Koike, and Kazuya Matsumoto, all of Kyoto, Japan, assignors to Kyoraku Co., Ltd., Kyoto, Japan

Filed Nov. 29, 1979, Ser. No. 98,891

Int. Cl.³ B32B *27/30, 27/32*

U.S. Cl. 428—516 **7 Claims**

1. A multi-layer extruded article comprising a gas-barrier layer and a polyolefin layer laminated on at least one of the opposite sides of the gas-barrier layer, the gas-barrier layer being made of a mixture comprising (a) a saponification product of an ethylene-vinyl acetate copolymer having an ethylene content of from 25 to 50 mol percent and a saponification degree of not less than 90 percent (Saponification Product A), (b) a saponification product of an ethylene-vinyl acetate copolymer having an ethylene content of from 60 to 98 mol percent and a saponification degree of not less than 20 percent (Saponification Product B), and (c) a polyvinyl alcohol having an average polymerization degree of from 300 to 3000 and a saponification degree of not less than 70 percent, wherein the ratio of the amounts of the aforementioned two saponification products (A:B) is in the range of from 98:2 to 50:50 by weight and wherein the amount of the polyvinyl alcohol is in the range of from 5 to 100 parts by weight per 100 parts by weight of the total weight of the two saponification products (A and B).

4,281,046

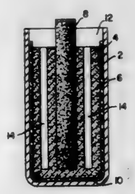
DRY CELL WITH ELECTROLYTE DISPERSION CHANNELS THROUGH THE CATHODE MIX

Charles Davis, Jr., Warrensville Heights, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Jun. 24, 1980, Ser. No. 162,587

Int. Cl.³ H01M *2/36*

U.S. Cl. 429—72 **14 Claims**



1. A dry cell comprising an anode; a cylindrical porous cathode depolarizer mix cake comprising an oxidic depolarizer, finely divided conductive material and an electrolyte; a separator disposed between said anode and said depolarizer mix cake; and a cathode collector rod longitudinally embedded in the center of said cathode depolarizer mix cake; the improvement wherein a plurality of spaced apart internal channels extends within the annular volume of the cathode depolarizer mix cake parallel to the cathode collector rod and terminates within the cathode depolarizer mix cake, and wherein the electrolyte in the cathode depolarizer mix cake is maximum at the vicinity of the wall area defining said channels.

10. A process for producing a dry cell comprising the steps:

(a) assembling within a cupped cylindrical container the active components of a dry cell including in addition to an anode, a cylindrical cathode depolarizer mix cake, a separator disposed between said anode and said cathode depolarizer mix cake and a cathode collector rod longitudinally embedded in said cathode depolarizer mix cake and protruding from the opened end of said container;

(b) providing a plurality of spaced apart channels extending within the annular volume of the cathode depolarizer mix cake parallel to the cathode collector rod and terminating within the cathode depolarizer mix cake;

(c) feeding a predetermined amount of an electrolyte solution into the longitudinal channels;

(d) placing a cover over the opening of said container; and

(e) sealing the cover to the container.

4,281,047

ZINC ELECTRODE MADE FROM A MODIFIED ZINC OXIDE FOR USE IN RECHARGEABLE ELECTROCHEMICAL CELLS

Ivan F. Danzig, Gainesville, Fla., assignor to General Electric Company, Gainesville, Fla.

Filed Jun. 11, 1980, Ser. No. 158,485

Int. Cl.³ H01M *10/30*

U.S. Cl. 429—217 **8 Claims**

1. A zinc electrode for use in rechargeable nickel-zinc electrochemical cells having greatly enhanced cycle life which comprises in admixture Zn, ZnO, HgO and an organic liquid binder produced via the reaction of diacetone acrylamide (DAA) and acrylic acid, which mixture has been formed into a paste and uniformly applied to a suitable current collector, wherein the ZnO component has an average surface area of about 3.5–4.0 m^2/gr and contains about 0.08 to 0.11 percent by weight Cd and about 0.05 to 0.08 percent by weight Pb, and has a generally rod-like particle structure.

4,281,048

BATTERY CATHODE AND METHOD OF MAKING SAME

Rudolph R. Haering, 647 Croydon Pl., Vancouver, British Columbia; James A. R. Stiles, 4133 Fairway Pl., North Vancouver, British Columbia, and Klaus Brandt, #318-1741 W. 10th Ave., Vancouver, British Columbia, all of Canada

Continuation-in-part of Ser. No. 33,718, Apr. 26, 1979, Pat. No. 4,245,017, which is a continuation-in-part of Ser. No. 935,361, Aug. 21, 1978, abandoned. This application Aug. 30, 1979, Ser. No. 71,399

The portion of the term of this patent subsequent to Jan. 13, 1998, has been disclaimed.

Int. Cl.³ H01M *4/04, 4/58*

U.S. Cl. 429—218 **7 Claims**

1. A method of making a battery cathode having a predominantly molybdenum dioxide cathode-active material, said method comprising the steps of:

(a) baking finely divided molybdenum disulphide particles in an oxygen-containing atmosphere to convert substantially all of the molybdenum disulphide particles to finely divided molybdenum trioxide particles;

(b) further baking the molybdenum trioxide particles in a reducing atmosphere to convert substantially all of the molybdenum trioxide particles to finely divided molybdenum dioxide particles;

(c) applying a suspension of said molybdenum dioxide particles in a viscous liquid as a film on a selected substrate; and

(d) baking the substrate and applied film in an inert atmosphere to drive off substantially all of the viscous liquid.

4,281,049

COLOR SEPARATION TRANSPARENCY AND PROCESS FOR THE PREPARATION THEREOF

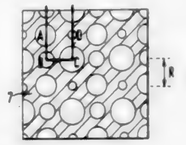
Roland Moraw, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 13, 1979, Ser. No. 48,159

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826380

Int. Cl.³ G03C *5/04*

U.S. Cl. 430—9 **13 Claims**



1. A color separation transparency of one color selected from the primary colors, black and white, comprising:

a partial image in said one color, said transparency being transparent in areas representing said one color and opaque in areas representing all other colors;

said partial image in said one color being screened such that said partial image comprises a plurality of screen dots, the average apertures of said screen dots in each portion of said image corresponding approximately to the average density of said one color in said portion;

said screen dots being arranged in said partial image in a pattern of repeating units, each unit comprising an array

of more than two non-overlapping screen dots each having an aperture different from the other screen dots, the arrangement of the screen dots in all of said units being identical.

4,281,050

MIGRATION IMAGING SYSTEM

David A. Buckley; Roger N. Ciccarelli, both of Rochester, and Frank G. Belli, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 566,791, Jul. 21, 1966, abandoned. This application Jan. 29, 1970, Ser. No. 6,862

Int. Cl.³ G03G *17/00*

U.S. Cl. 430—41 **12 Claims**



1. A method of preparing migration imaging members which comprises:

providing a supporting substrate,

forming upon said substrate a layer of softenable material,

exposing the entire surface areas of said softenable layer to hardening radiation sufficiently to form on said surface a surface skin having a thickness not greater than about 0.3 micron and a viscosity during imaging of said member greater than that of the bulk of said softenable layer, and

forming contiguous the surface of said softenable layer spaced apart from said substrate and contacting said softenable layer, a fracturable layer of migration marking material.

4,281,051

THREE COLOR ELECTROSTATOGRAPHIC PROCESS

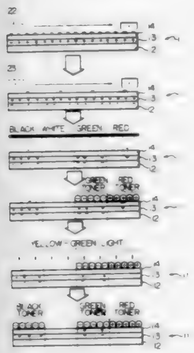
Katsuo Sakai, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 23, 1979, Ser. No. 96,729

Claims priority, application Japan, Nov. 29, 1978, 53-147430

Int. Cl.³ G03G *13/01*

U.S. Cl. 430—42 **4 Claims**



1. An electrostatographic process comprising the steps of:

(a) providing a photoconductive material having a first photoconductive layer which is sensitive to light of a first color and insensitive to light of a second color and a second photoconductive layer which is sensitive to light of the second color and insensitive to light of the first color, the first and second photoconductive layers being insensitive to light of a third color;

(b) forming uniform electrostatic charges of opposite polarities at outer surfaces of the first and second photoconductive layers respectively;

(c) radiating a color light image comprising the first, second and third colors onto the material to form an electrostatic surface potential pattern having a high potential of a first polarity in an area radiated with the first color, a low potential of the first polarity in an area radiated with the third color and a potential of a second polarity in an area radiated with the second color;

(d) applying a toner of a fourth color charged to the first polarity to the material to form a first toner image in the area radiated with the second color;

(e) applying a toner of a fifth color charged to the second polarity to the material to form a second toner image in the area radiated with the first color while applying a bias voltage which prevents the toner of the fifth color from adhering to the area radiated with the third color;

(f) radiating the material with light of a color which causes one of the first and second photoconductive layers to photoconduct and increase the surface potential in the area radiated with the third color; and

(g) applying a toner of a sixth color charged to the second polarity to the material to form a third toner image in the area radiated with the third color;

step (a) further comprising providing substrate, the first photoconductive layer being formed on the substrate and the second photoconductive layer being formed on the first photoconductive layer, the first photoconductive layer being semiconductive, step (b) comprising charging the second photoconductive layer with the second polarity which causes current flow from the substrate through the first photoconductive layer to an interface of the first and second photoconductive layers and then charging the second photoconductive layer with the first polarity for partially neutralizing the charge of the second polarity on the second photoconductive layer.

4,281,052

IMAGE FORMING MEMBER

Hiroshi Ito, Narashino; Ichiro Endo, Yokohama, and Shigeru Ohno, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 825,043, Aug. 16, 1977, abandoned. This application Feb. 28, 1980, Ser. No. 125,673

Claims priority, application Japan, Aug. 18, 1976, 51/98437; Aug. 18, 1976, 51/98438

Int. Cl.³ G03G *13/14*

U.S. Cl. 430—48 **11 Claims**

1. In an electrostatic printing process comprising the steps of:

(a) providing an electrostatic printing master from a heat developed photosensitive member having a layer formed by uniformly dispersing a reducible organic silver salt compound in an insulating medium, said layer upon imagewise exposure from an original and heating, providing both a conductive metallic silver grain image corresponding to said image and undesirable by-products tending to prevent conduction through the metallic grain image during electrostatic printing,

(b) forming an electrostatic latent image,

(c) developing said image, and

(d) transferring said developed image to a transfer material, the improvement comprising: employing a capturing means associated with said member capable of capturing said by-products, said capturing means consisting essentially of (i) a capturing layer being overcoated with said organic silver salt layer, or (ii) a capturing substance dispersed in said organic silver salt layer said capturing layer (i) being composed of a capturing substance having a particle size of not more than 10 microns, said capturing substance selected from a particulate inorganic pigment, a porous ion-exchange resin, a cellulosic material, a zeolite or polar adducts thereof, electrically conductive salts, and

mixtures thereof, whereby high quality electrostatic images are formed.

4,281,053

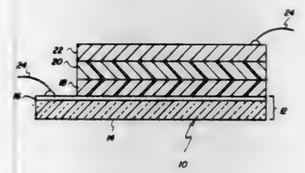
MULTILAYER ORGANIC PHOTOVOLTAIC ELEMENTS

Ching W. Tang, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 5,636, Jan. 22, 1979, abandoned, which is a division of Ser. No. 907,361, May 18, 1978, Pat. No. 4,164,431, which is a continuation-in-part of Ser. No. 821,115, Aug. 2, 1977, abandoned. This application Feb. 7, 1980, Ser. No. 119,328

Int. Cl.³ B32B *9/04, 15/04;* **G05D** *11/00;* **H01J** *40/14*

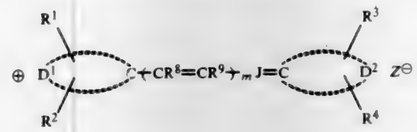
U.S. Cl. 430—58 **7 Claims**



1. A photoconductive laminate comprising

a single-phase layer of an organic electron-donor compound containing a generally planar polycyclic nucleus,

and in contact with said layer, a single-phase layer of a photoconductive organic dye having the structure



wherein:

J is



or N;

D^1 and D^2 are the same or different and are each the non-metallic atoms necessary to complete a heterocyclic 6-membered ring containing O, S, or Se as a ring atom;

R^8, R^9 and R^{10} are the same or different and are each H, alkyl from 1 to about 3 carbon atoms, aryl, cyano or nitro;

R^1, R^2, R^3 and R^4 are the same or different and are each phenyl, or alkyl or alkoxy containing from 1 to about 5 carbon atoms, at least two of R^1, R^2, R^3 and R^4 being phenyl;

m is 1 or 0 and is 0 if J is N;

and $Z^{\ominus}$ is an anion.

4,281,054

OVERCOATED PHOTORECEPTOR CONTAINING INJECTING CONTACT

Anthony M. Horgan, Pittsford, and Richard W. Radler, Marion, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 9, 1979, Ser. No. 28,635

Int. Cl.³ G03G *5/04*

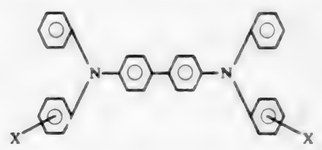
U.S. Cl. 430—59 **11 Claims**

1. A layered photosensitive imaging device which comprises in the order stated:

(a) a supporting substrate,

(b) a hole injecting material capable of injecting holes into a layer on its surface, this material being selected from the group consisting of trigonal selenium, halogen doped trigonal selenium, selenium dioxide, arsenic, tellurium, arsenic selenium alloys, selenium tellurium alloys, and arsenic selenium tellurium alloys,

(c) a hole transport layer in operative contact with the layer of hole injecting material, which transport layer comprises a combination of a highly insulating organic resin having dispersed therein small molecules of an electrically active material, the combination of which is substantially non-absorbing to a visible light but allows injection of photogenerated holes from a charge generator in contact with the hole transport layer and electrically induced holes from the layer of an injecting material, said electrically active material dispersed in said insulating organic resin is a nitrogen containing compound of the formula:



wherein X is selected from the group consisting of (ortho) CH_3, (meta) CH_3, (para) CH_3, (ortho) Cl, (meta) Cl, (para) Cl,

(d) a layer of charge generating material in operative contact with the charge transport layer, said generating material being X-metal free phthalocyanine or vanadyl phthalocyanine, and

(e) a layer of insulating organic resin overlaying the layer of charge generating material.

4,281,055

PHOTOSENSITIVE ELEMENT WITH WATER SOLUBLE INTERLAYER

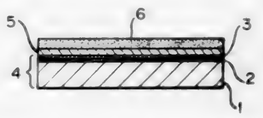
Hiroyuki Moriguchi; Satoshi Haneda; Tadashi Kaneko; Akira Itoh; Takeo Shimura; Masanori Matsumoto, and Hiroyuki Nomori, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Feb. 19, 1980, Ser. No. 122,196

Claims priority, application Japan, Feb. 24, 1979, 54-20212; Jul. 30, 1979, 54-96051

Int. Cl.³ G03G *5/14, 5/087*

U.S. Cl. 430—60 **6 Claims**



1. A photosensitive element for electrophotography which comprises

(a) a photosensitive layer comprising

(1) a binder resin and (2) photoconductive zinc oxide particles being dispersed in said binder resin, said photoconductive zinc oxide particles having been encapsulated over its surface with an encapsulating resinous layer;

(b) an electroconductive support for said photosensitive layer; and

(c) an intermediate layer consisting essentially of a water-soluble polymer and said intermediate layer being located between said photosensitive layer and said support.

4,281,056

METHOD FOR FORMING NOBLE METAL SILVER PRECIPITATING NUCLEI

Carl M. Berke, Boston, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 1, 1979, Ser. No. 80,691

Int. Cl.³ G03C *1/48, 5/54;* **F01C** *21/16;* **F03C** *3/00*

U.S. Cl. 430—232 **15 Claims**

1. A method for forming noble metal silver-precipitating nuclei which comprises the steps of

(a) forming an aqueous solution of a stannous salt;

(b) contacting said solution with a ferric oxidizing agent to partially oxidize said stannous ion; and

(c) adding a noble metal salt or complex.

9. The method of claim 1 which includes the step of coating said nuclei on a support.

4,281,057

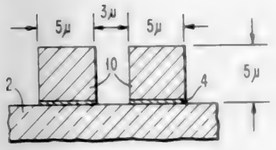
VARIABLE PRE-SPIN DRYING TIME CONTROL OF PHOTORESISTS THICKNESS

Eugene E. Castellani, Putnam Valley; Ian M. Croll, Pleasantville; Aloysius T. Pfeiffer, Peekskill, and Lubomyr T. Romankiw, Briarcliff Manor, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 697,794, Jun. 18, 1976, abandoned, which is a continuation of Ser. No. 510,954, Oct. 2, 1974, abandoned, which is a continuation of Ser. No. 311,006, Nov. 30, 1972, abandoned. This application Feb. 7, 1977, Ser. No. 766,308

Int. Cl.³ G03C *5/00, 1/76, 1/86, 1/94*

U.S. Cl. 430—270 **9 Claims**



1. A process of depositing a uniform layer of photoresist comprising the steps of:

flooding a positive liquid photoresist onto the substrate;

preselecting the desired thickness of the ultimate resist layer by measuring a predetermined interval of time while partially drying the liquid resist for a preliminary stationary drying time following flooding; and

spinning the resist subsequent to the end of said stationary drying time to produce a uniform coating with the thickness increasing with the amount of time allowed for partial drying.

4,281,058

TELLURIUM IMAGING COMPOSITION

Stanford R. Ovshinsky, Bloomfield Hills; Daniel K. Angell, Ann Arbor, and Terry T. Yu, Mt. Clemens, all of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Filed Sep. 10, 1979, Ser. No. 73,700

Int. Cl.³ G03C *1/00, 5/24*

U.S. Cl. 430—296 **35 Claims**

1. In a composition for forming an imaging film, which composition comprises

(a) a tellurium compound reactable with a glyceryl ether to form an image-forming tellurium compound;

(b) a reductant precursor which will abstract labile hydrogen from a hydrogen donor under the influence of activating energy to become a reducing agent with respect to the image-forming tellurium compound;

(c) a source of labile hydrogen for reaction with said reductant precursor; and

(d) a matrix in which said tellurium compound, reductant precursor and source of labile hydrogen are combined in amounts effective to form a composition which may be applied to a substrate,

the improvement wherein said source of labile hydrogen is a compound of the formula

$$R^7—X—CH_2—CHOH—CH_2OH$$

wherein

R^7 is alkyl, alkanoyl, thiazolinyl, alkenyl, benzyl, alkylbenzyl, alkoxybenzyl, hydroxyalkylbenzyl, and halobenzyl; the alkyl radical having from 1 to 7 carbon atoms; and

X is oxygen or sulphur,

there being at least one mole of said diol in said composition for each mole of said image-forming tellurium compound.

4,281,059

PHOTOGRAPHIC MATERIAL

Kenichi Kishi, and Takashi Sasaki, both of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1979, Ser. No. 100,234

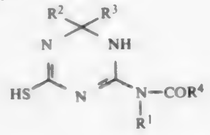
Claims priority, application Japan, Dec. 12, 1978, 53-154402

Int. Cl.³ G03C *1/34*

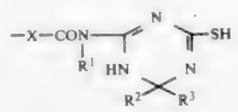
U.S. Cl. 430—551 **7 Claims**

1. A photographic material comprising a support and at least one silver halide emulsion layer coated thereon, which material comprises a compound represented by the following general formula [I]:

General formula [I]



wherein R^1 represents a hydrogen atom or a substituted or unsubstituted aryl group, R^2 and R^3 individually represents a hydrogen atom, an alkyl group, alkenyl group, a substituted or unsubstituted aryl group, or R^2 and R^3 represent nonmetal atoms necessary for forming by their mutual linkage a 5- or 6-membered ring, and R^4 represents a hydrogen atom, an alkyl group, alkenyl group, a substituted or unsubstituted aryl group or a group of the general formula



wherein X represents the group $—(CH_2)_n—$ (in which n represents a value of 0, 1, 2, 3, or 4) or an allylene group, and R^1, R^2 and R^3 are individually as defined above.

7. A photographic material according to claim 1, wherein the material comprises a dye forming coupler.

4,281,060

HEAT-DEVELOPABLE PHOTOSENSITIVE MATERIALS

Toshimasa Usami; Tomoyuki Kobayashi, both of Fujinomiya; Sumitaka Tatsuta, Minami-ashigara, and Shigeo Komine, Odawara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 27, 1980, Ser. No. 163,455

Claims priority, application Japan, Jun. 27, 1979, 54-80864

Int. Cl.³ G03C *1/02*

U.S. Cl. 430—618 **15 Claims**

1. In a heat-developable photosensitive material comprising a support having coated thereon at least one sensitive layer comprising (a) a binder and at least one of (b) an organic silver salt, (c) a photocatalyst, and (d) a reducing agent, the improvement which comprises said heat-developable photosensitive material additionally containing (e) a polyisocyanate.

4,281,061

DOUBLE ANTIBODY FOR ENHANCED SENSITIVITY IN IMMUNOASSAY

Robert F. Zuk, San Francisco; Ian Gibbons, Menlo Park; Gerald L. Rowley, Cupertino, and Edwin F. Ullman, Atherton, all of Calif., assignors to Syva Company, Palo Alto, Calif.

Filed Jul. 27, 1979, Ser. No. 61,542

Int. Cl.³ C12N *9/96;* **G01N** *33/54, 33/48, 31/14*

U.S. Cl. 435—7 **17 Claims**

1. An assay method for determining the presence in a sample of an analyte which is a member of a specific binding pair consisting of ligand and its homologous receptor, antiligand; said method employing:

(A) an aqueous medium;

(B) a signal producing system capable of producing a detectible signal and including at least two members, one of which is bonded to ligand and another of which is macromolecular and capable of modulating said signal when in spatial proximity to said member bonded to said ligand;

(C) labeled ligand, wherein ligand is conjugated to a member of said signal producing system and wherein said label is selected from fluorescers or enzymes;

(D) a polyvalent macromolecular member of said signal producing system having a molecular weight of at least about 1×10^4 daltons;

(E) antiligand, when ligand is the analyte;

(F) poly(ligand analog), when ligand has a single binding site to receptor; and

(G) anti(antiligand), which is a polyvalent receptor for antiligand wherein ligand, antiligand, and anti(antiligand) bind to form a matrix which results in said macromolecular member being enclosed in or excluded from said matrix, so as to have enhanced interaction with said labeled ligand or be prevented from interacting with said labeled ligand respectively;

said method comprising:

combining in an aqueous medium at a pH in the range of about 4 to 11 at a temperature in the range of about 10° to 50° C.:

(a) said sample;

(b) said labeled ligand;

(c) said macromolecular member;

(d) any remaining members of said signal producing system;

(e) anti(antiligand)

(f) antiligand, when ligand is the analyte; and

(g) poly(ligand analog), when haptenic ligand is the analyte; and after a sufficient time for antiligand and anti(antiligand) to bind to their homologous ligands

determining the signal level from said signal producing system in said assay medium as compared to an assay medium having a known amount of analyte.

4,281,062

TEST FOR THE IDENTIFICATION OF GLUCOSE AND FOR THE DETERMINATION OF GLUCOSE

Karl-Heinz Kallis, Sebnitz, German Democratic Rep., assignor to Veb Arzneimittelwerk Dresden, Radebeul, German Democratic Rep.

Filed Jul. 23, 1979, Ser. No. 60,168

Claims priority, application German Democratic Rep., Jul. 25, 1978, 206900

Int. Cl.³ C12Q *1/54*

U.S. Cl. 435—14 **13 Claims**

1. Test for the identification of glucose and for the determination of glucose, comprising locating, in given instances within a capillary tube marked at both its ends, a test strip which, conjointly with a flow-inducing agent, will allow a reaction not influenced by the time elapsed after sampling, the test strip containing a metering zone, a reaction zone with glucose oxidase applied in an acid solution below the isoelectric point and affixed to it to prevent a substrate inhibition by means of the diffusion of the test fluid taking place within it, and an indicator zone having at least one indicator signal zone of peroxidase and indicator applied in the form of stripes and alternating with untreated intermediate spaces.



4,281,063

PROCESS FOR TREATING CELLULOSIC MATERIALS AND OBTAINING GLUCOSE THEREFROM

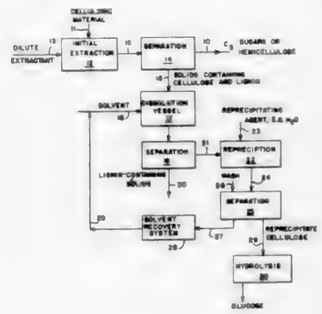
George T. Tsao; Michael R. Ladisch; Christine M. Ladisch, all of West Lafayette, Ind., and Teh-An Hsu, Honolulu, Hi., assignors to Purdue Research Foundation, West Lafayette, Ind.

Continuation-in-part of Ser. No. 884,479, Mar. 8, 1978, abandoned. This application Oct. 3, 1979, Ser. No. 81,537

The portion of the term of this patent subsequent to Nov. 20, 1996, has been disclaimed.

Int. Cl.³ C13K *1/02;* **C12P** *19/14*

U.S. Cl. 435—99 **17 Claims**



1. A process for providing a yield of glucose from a cellulosic material, said process comprising:

fractionating the cellulosic material into a solid cellulose-and lignin-containing fraction and a liquid fraction containing hemicellulose or C_5 sugars derived therefrom;

treating said solid cellulose- and lignin-containing fraction with a solvent for cellulose to dissolve the cellulose in said fraction and to form a lignin-containing residue;

reprecipitating the dissolved cellulose; and

hydrolyzing the reprecipitated cellulose to yield glucose.

4,281,064

PROCESS FOR PRODUCING LIPIDS HAVING A HIGH LINOLEIC ACID CONTENT

Osamu Suzuki; Yoshifumi Jigami; Satoshi Nakasato, and Tetsutaro Hashimoto, all of Yatabe, Japan, assignors to The Agency of Industrial Science and Technology, Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 107,869
Claims priority, application Japan, Feb. 19, 1979, 54-18228
Int. Cl.³ C12P *7/64*
U.S. Cl. 435—134 **2 Claims**

1. A process for producing lipids comprising the steps of:
(a) cultivating a fungus of the Pellicularia genus aerobically in a liquid containing 20–80 g/l of a carbon source selected from the group consisting of glucose, sucrose, starch, molasses, and cellulose, a nitrogen source in the range of 1/5 to 1/100 of the amount of carbon sources, and an inorganic salt; and
(b) separating lipids having a high linoleic acid content from the resulting culture.

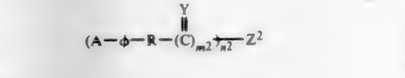
4,281,065

PHENCYCLIDINE CONJUGATES TO ANTIGENIC PROTEINS AND ENZYMES

Cheng-I Lin, San Jose, and Prithipal Singh, Santa Clara, both of Calif., assignors to Syva Company, Palo Alto, Calif.

Filed Jan. 25, 1979, Ser. No. 6,935
Int. Cl.³ C12N *9/96;* **G01N** *33/54;* **C07G** *7/00*
U.S. Cl. 435—188 **10 Claims**

1. Compound of the formula:



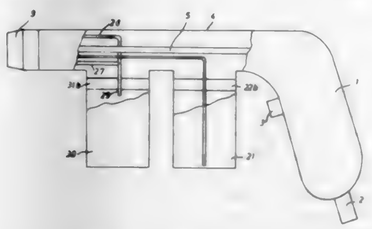
wherein:
A is 1-(N piperidyl)cyclohexyl-1;
ϕ is p-phenylene;
R is a divalent aliphatic group of from 2 to 6 carbon atoms and 0 to 1 oxygen atom bonded solely to aliphatically saturated carbon atoms;
Y is oxygen;
m^2 is one;
Z^2 is a poly(amino acid);
n^2 is at least one and not greater than the molecular weight of Z^2 divided by 500.

4,281,066

TRANSPORTABLE APPARATUS FOR TAKING SAMPLES FOR MICROBIOLOGICAL, PARTICULARLY BACTERIOLOGICAL TESTS FROM SURFACES

Volker Thran, Allmandstr. 9, 7000 Stuttgart, and Werner Treige, Waldenserstr. 14, 1000 Berlin, both of Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,474
Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2853956
Int. Cl.³ C12M *1/26;* **C12Q** *1/24*
U.S. Cl. 435—292 **43 Claims**



1. A transportable apparatus for taking microbiological and bacteriological test samples from surfaces by use of a rinsing liquid atomized by a compressed gas, comprising:
a compressed gas supply connection;
a rinsing liquid supply connection;
a nozzle, having a free end which can be placed on and pressably engage the surface;
an atomizer disposed in the nozzle, through which the compressed gas flows from the compressed gas supply connection, drawing the rinsing liquid through the rinsing liquid supply connection, the atomized rinsing liquid being sprayed onto the surface;
a discharge line immediately adjacent the free end of the nozzle and arranged around the periphery thereof, for removing a mixture of compressed gas, rinsing liquid and rinsed-off particles formed under the nozzle; and,
a collecting tank connection in fluid communication with the discharge line through which the mixture is urged only by pressure from after flowing compressed gas in the nozzle, thereby obviating the need for a vacuum source downstream from the nozzle.

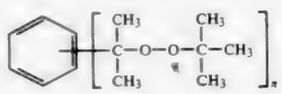
4,281,067

METHOD OF POLYMERIZING STYRENE

Charles Kienzle, East Brunswick; Stanley E. Gebura, Mountain Lakes, and John W. Boghosian, Plainsboro, all of N.J., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation-in-part of Ser. No. 849,904, Nov. 9, 1977. This application Aug. 8, 1980, Ser. No. 176,315
Int. Cl.³ C08J *9/20*
U.S. Cl. 521—56 **14 Claims**

1. A method for manufacturing a flame-retardant expandable polystyrene bead product, comprising polymerizing a polymerizable composition containing a major portion of styrene in the presence of a blowing agent, the polymerizable composition containing from about 0.4 part to about 2.0 parts by weight per 100 parts by weight of styrene, of an organic bromide selected from the group consisting of hexabromocyclododecane, tetrabromocyclooctane, tetrabromovinylcyclohexane, and mixtures thereof and from about 0.01 part to about 0.15 part by weight per 100 parts by weight of styrene, of an organic peroxide synergist corresponding to the formula:



wherein n equals 2 or 3, and wherein the composition is polymerized to a K value of 55 to 59, the bead product having a moisture content of from about one-half to one percent by weight based on the weight of the product.

4,281,068

AQUEOUS POLYESTER EMULSIONS FOR THE PRODUCTION OF OPEN-PORE COATINGS

Walter Frank; Otto Bendszus; Hans J Freier, and Hans-Joachim Traenckner, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 7,141, Jan. 29, 1979. This application Sep. 15, 1980, Ser. No. 187,460
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1978, 2804216
Int. Cl.³ C08J *9/02*
U.S. Cl. 521—62 **6 Claims**

1. A monomer-free aqueous emulsion comprising
A. 10 to 90% by weight of a mixture of α,β-ethylenically unsaturated polyesters,
B. 9.95 to 83% by weight of water,
C. 0.05 to 2% by weight of a paraffin wax sealing agent having a melting point of 35° to 100° C. and,
D. 0 to 5% by weight of a thickener,

the percentages by weight, being based on the sum of components A, B, C and D and the polyester mixture A containing
(a) 50 to 95% by weight, based on the sum of (a) and (b), of at least one α,β-ethylenically unsaturated polyester which contains per 100 g of polyester (a) from 0.2 to 0.8 moles of β,γ-ethylenically unsaturated ether groups, but which is free of co-condensed polyalkylene glycol residues having molecular weights of 250–2,000, and
(b) 5 to 50% by weight, based on the sum of (a) and (b), of at least one α,β-ethylenically unsaturated polyester of which from 25 to 90% by weight, based on (b), consists of co-condensed polyalkylene glycol residues having a molecular weight of from 250 to 2,000 and which contains per 100 g of polyester (b) from 0.4 to 0.5 mole of β,γ-ethylenically unsaturated ether groups.

4,281,069

PHENOLIC FOAM

Thomas G. Harris, Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed May 14, 1980, Ser. No. 149,766
Int. Cl.³ C08J *9/02*
U.S. Cl. 521—123 **4 Claims**

1. A phenolic foam produced, without the use of a chlorofluorocarbon or hydrocarbon blowing agent, as the reaction product of a mixture comprising a phenolic resole, a surfactant and stannous chloride.

4,281,070

MELT PROCESSABLE UHMWPE

Howard A. Scheetz, Lancaster, and Richard C. Gilles, Sinking Spring, both of Pa., assignors to The Polymer Corporation, Reading, Pa.

Filed Jan. 7, 1980, Ser. No. 110,205
Int. Cl.³ C08K *3/36*
U.S. Cl. 525—1 **1 Claim**

1. An ultrahigh molecular weight polyethylene molding composition comprised of 70 to 95 percent by weight ultrahigh molecular weight polyethylene, from 5 to 30 percent by weight of an intermediate molecular weight polyethylene having a molecular weight in a range from about 400,000 to 600,000 and from 0.1 to 10 percent by weight of a pyrogenic silica nucleating agent.

4,281,071

FILLED UNSATURATED POLYESTER RESIN COMPOSITIONS HAVING LOWERED VISCOSITIES

Ralph B. Fearing, Bardonia; Jeffrey E. Telschow, Tarrytown, and Edward D. Weil, Hastings-on-Hudson, all of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Feb. 26, 1980, Ser. No. 124,877
Int. Cl.³ C08K *5/51*
U.S. Cl. 525—2 **8 Claims**

1. A filled unsaturated polyester resin composition which comprises an unsaturated polyester resin, a filler, and an effective amount of an organic phosphite ester having the formula

where R is independently selected from the group consisting of hydrogen, alkyl, and aryl, with the proviso that at least one R is either alkyl or aryl for reduction of the viscosity of the composition.

4,281,072

AMORPHOUS COMPLEXES OF POLYTHIOETHERS WITH SALTS

Raymond E. Wetton, Woodhouse Eaves, and David B. James, Norwich, both of England, assignors to National Research Dev'p Corp., London, England

Continuation of Ser. No. 828,607, Aug. 29, 1977, Pat. No. 4,200,701. This application Oct. 12, 1979, Ser. No. 84,376
Claims priority, application United Kingdom, Aug. 31, 1976, 35990/76
The portion of the term of this patent subsequent to Apr. 29, 1997, has been disclaimed.
Int. Cl.³ C08L *81/00, 81/02*
U.S. Cl. 525—4 **22 Claims**

1. A polymeric material which comprises an amorphous solid solution formed between a metallic salt and a polymer by virtue of a multiplicity of thioether linkages present in the backbone of said polymer or in pendant groups of said polymer or both, the metal of the metallic salt being selected from the group consisting of Be, Mg, Sr, Ba, Sc, Y, Ti, V, Cr, Mn, Fe, Co, Ni, Zn, Ga, Ge, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Hf, Ta, W, Re, Os, Ir, Pt, Au, Hg, Tl, Pb, Bi, Al, La and other lanthanides.

4,281,073

METHOD OF PRODUCING CROSS-LINKED, UNSATURATED POLYESTERS

Joseph P. Michel, Anglet, France, assignor to Martine Anciaux, widow Vastesaeger, Anglet, France, a part interest

Filed Sep. 18, 1978, Ser. No. 943,332
Claims priority, application France, Sep. 28, 1977, 77 29123
Int. Cl.³ C08G *63/76*
U.S. Cl. 525—11 **9 Claims**

1. A method of producing cured unsaturated polyesters from a solution of linear unsaturated polyester in a cross-linking agent, comprising the step of contacting, at room temperature and under atmospheric pressure, a reaction medium comprising said solution and a free radical initiator and containing free hydroxyl radicals with at least one totally hydrolyzable chlorine-containing derivative in an amount from 1 to 10% by weight, based on said solution, said chlorine-containing derivative being selected from the group comprising phosphorous chloride, phosphorous oxychloride, and silicon chloride and an acid chloride selected from acetyl chloride and benzoyl chloride, to thereby form said cured unsaturated polyesters in a single step without the external application of heat.

4,281,074

PROCESS OF MANUFACTURING CURED UNSATURATED POLYESTER RESINS WITH A REGULAR NETWORK STRUCTURE

Zbigniew Jedlinski, Gliwice; Antoni Kotas, Zabrze; Boleslaw Ryndak, Debica; Stanislaw Mazur, Debica; Jan Czarnecki, Debica; Mieczyslaw Walkowicz, Debica, and Stanislaw Jedlinski, Debica, all of Poland, assignors to Polska Akademia Nauk, Zaklad Polimerow, Zabrze, Poland

Continuation-in-part of Ser. No. 936,938, Aug. 25, 1978, abandoned. This application Feb. 26, 1980, Ser. No. 124,933
Claims priority, application Poland, Sep. 2, 1977, 200683
Int. Cl.³ C08L *67/00*
U.S. Cl. 525—40 **4 Claims**

1. A process for producing cured unsaturated polyester resins having a regular network structure which comprises the consecutive steps of (1) polycondensing a mixture of a crude diene adduct of 2-naphthol and maleic anhydride at a temperature within the range from 180° to 200° C. with an alcohol selected from the group consisting of aliphatic glycols and dihydric aromatic alcohols and mixtures thereof, in the ratio of from 0.1 to 3.0 moles of the alcohol per 1 mole of the adduct (2); condensing the resultant product at a temperature within the range from 160° to 210° C. with an unsaturated acid or the anhydride thereof and an alcohol selected from the group

consisting of glycols and dihydric aromatic alcohols in a quantity equimolar to the unsaturated acids or anhydride; and (3) subsequently dissolving the product of step (2) in styrene and copolymerizing to obtain a cured polyester resin.

4,281,075

SULFONATE ESTER CATALYSTS IN THERMOSETTING COMPOSITIONS

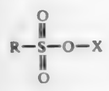
Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jan. 4, 1980, Ser. No. 109,591

Int. Cl.³ C08L *63/00, 29/02, 61/20*

U.S. Cl. 525—110 **30 Claims**

1. In a thermosetting composition comprising a film-forming component and an amine-aldehyde compound, which composition cures by reaction between said amine-aldehyde compound and hydroxyl functionality present on said film-forming material, said hydroxyl functionality being selected from (i) hydroxyl groups present on said film-forming material prior to reaction during cure of said composition, (ii) hydroxyl groups generated in situ on said film-forming material during cure of said coating composition, and (iii) a combination of (i) and (ii), wherein the improvement comprises including in said composition a latent reactive catalyst in an amount of between about 0.05 and about 7 weight percent based on the total weight of reactive components, including said latent reactive catalyst, in said coating composition, said latent reactive catalyst having the formula:



wherein R is selected from alkyl and aryl groups and X is selected from 2-hydroxycycloalkyl and aryl substituted 2-hydroxycycloalkyl groups.

4,281,076

THERMOSETTING ACRYLIC RESIN POWDER COATING COMPOSITIONS

Masaaki Kamimura, Hiratsuka, Japan, assignor to Kansai Paint Company, Limited, Japan

Filed Apr. 3, 1979, Ser. No. 26,802

Claims priority, application Japan, Aug. 18, 1978, 53-101346; Sep. 27, 1978, 53-119783

Int. Cl.³ C08L *37/00, 75/04*

U.S. Cl. 525—124 **15 Claims**

1. A thermosetting acrylic resin powder coating composition comprising:

(A) a mixture of 10 to 90% by weight of a glycidyl-containing acrylic resin comprising (i) 15 to 40% by weight of a glycidyl-containing vinyl monomer and/or methylglycidyl-containing vinyl monomer, (ii) 10 to 85% by weight of an acrylate and/or methacrylate and (iii) 0 to 50% by weight of other vinyl monomer, and 90 to 10% by weight of a hydroxyl-containing acrylic resin comprising (i) ' 5 to 40% by weight of a hydroxly-containing vinyl monomer, (ii) 10 to 95% by weight of an acrylate and/or methacrylate and (iii) 0 to 50% by weight of other vinyl monomer, or a glycidyl- and hydroxyl-containing acrylic resin comprising (i) 15 to 30% by weight of a glycidyl-containing vinyl monomer and/or methylclycidyl-containing vinyl monomer, (ii) 5 to 20% by weight of a hydroxyl-containing vinyl monomer, (iii) 10 to 80% by weight of an acrylate and/or methacrylate and (iv) 0 to 40% by weight of other vinyl monomer,

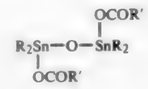
(B) a blocked isocyanate compound having a melting point of 60° to 140° C. and solid at room temperature,

(C) an aliphatic dibasic acid or anhydride thereof, and

(D) at least one tin compound represented by the formula SnO_2, R_2SnO, R_2SnX_2, $R_2Sn(OCOR')_2$,



R_3SnX, $R_3Sn\text{-}O\text{-}SnR_3$



or R_4Sn wherein R is phenyl or alkyl having 1 to 18 carbon atoms, X is halogen, alkoxyl having 1 to 18 carbon atoms or hydroxyl, R' is alkyl or alkenyl having 1 to 18 carbon atoms and n is an integer of 1 to 5,

each of the acrylic resins having a glass transition temperature of 50° to 90° C. and a weight average molecular weight of 5000 to 20000, wherein when said mixture is used as the component (A), the coating composition comprises 45 to 80% by weight of the mixture, 20 to 40% by weight of the blocked isocyanate compound (B), 3 to 20% by weight of the aliphatic dibasic acid or anhydride thereof (C) and 0.1 to 5% by weight of the tin compound (D), or when said glycidyl- and hydroxyl-containing acrylic resin is used as the component (A), the coating composition comprises 45 to 75% by weight of the acrylic resin, 22 to 40% by weight of the blocked isocyanate compound (B), 3 to 12% by weight of the aliphatic dibasic acid or anhydride thereof (C), and 0.4 to 4.0% by weight of the tin compound (D).

4,281,077

PLASTIFIERS, METHOD OF PREPARATION AND PVC COMPOSITIONS CONTAINING SAME

J. William Hirzy, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 864,889, Dec. 27, 1977, Pat. No. 4,210,730. This application Mar. 24, 1980, Ser. No. 133,187

Int. Cl.³ C08G *63/76;* **C08L** *27/06, 75/06*

U.S. Cl. 525—129 **8 Claims**

1. An ordered, solid, block copolyester having from about 15 to about 50 percent by weight amorphous end blocks and from about 85 to about 50 percent by weight ordered polymeric center block having from 20 to about 100 percent crystallinity based on heat of fusion, said copolyester having from about 20 to about 95 percent crystallinity based on heat of fusion, said ordered polymeric center block consisting essentially of crystalline or semi-crystalline prepolymer blocks coupled via ester or urethane linkages, said crystalline prepolymer prepared by reacting equivalent amounts of dicarboxylic acid and crystallizing dihydroxy compound, said semi-crystalline prepolymer being prepared by reacting dicarboxylic acid with a mixture of non-crystallizing dihydroxy compound and and crystallizing dihydroxy compound in a ratio of non-crystalizing dihydroxy compound to crystalizing dihydroxy compound from about 0.1 to about 0.5. and said end blocks and center block being acid halide-coupled.

6. Composition comprising a halogen-containing polymer and a copolyester of claim 1.

4,281,078

HIGH-SOLIDS POLYURETHANE ENAMEL COATING COMPOSITION

Clifford H. Strolle, Springfield, Pa., and Glenn D. Thornley, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 26, 1979, Ser. No. 97,582

Int. Cl.³ C08L *75/06*

U.S. Cl. 525—131 **14 Claims**

1. A coating composition, capable of curing at ambient temperatures, of a mixture of a polymer blend and a solvent for the polymer blend wherein the blend is 65–90% by weight of the mixture and consists essentially of

(a) 25–45% by weight, based on the weight of the blend, of an organic polyisocyanate;

(b) 5–25% by weight, based on the weight of the blend, of a copolymer of

(1) a hydroxyalkyl ester of acrylic or methacrylic acid wherein the alkyl group has 2–10 carbon atoms and wherein the hydroxyalkyl ester is 25–35% by weight of the copolymer, and

(2) at least one other ethylenically unsaturated monomer that is copolymerizable with the hydroxyalkyl ester but that is free of functional groups reactive with the polyisocyanate at ambient temperatures, wherein this monomer is selected from the group consisting of vinyl chloride, vinylidene chloride, ethylene, propylene, vinyl acetate, butadiene, styrene, α-methyl styrene, dibutyl maleate, C_1–C_{12} alkyl esters of acrylic acid, C_1–C_{12} alkyl esters of methacrylic acid, and mixtures of these

wherein the copolymer has a hydroxyl content of 2–6% by weight; and

(c) 40–60% by weight, based on the weight of the blend, of a saturated polyester polyol that is the reaction product of

(1) pentaerythritol and at least one branched-chain glycol wherein the molar ratio of glycol to pentaerythritol is from 2:1 to 6:1,

(2) an aromatic or aliphatic monocarboxylic acid selected from the group consisting of benzoic acid, paratertiary butyl-benzoic acid, triethyl benzoic acid, toluic acid, phenylacetic acid, acetic acid, propionic acid, butyric acid, valeric acid, caproic acid, caprylic acid, pelargonic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, and mixtures of these, and

(3) a mixture of an aromatic and a aliphatic dicarboxylic acid wherein the molar ratio of aromatic acid to aliphatic acid is from 2:1 to 6:1,

wherein the polyol has a hydroxyl content of 5–9% by weight.

4,281,079

POLYARYLENE ESTER COMPOSITIONS

Massimo Baer, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 11, 1978, Ser. No. 968,524

Int. Cl.³ B28B *3/20;* **C08L** *23/00*

U.S. Cl. 525—152 **18 Claims**

1. A composition having improved impact strength comprising in intimate admixture a polyarylene ester and up to about 10% by weight of an elastomer consisting essentially of ethylene 1-alkene copolymer present in an amount sufficient to provide improved impact strength in comparison with the polyarylene ester composition without the elastomeric copolymer, wherein the polyarylene ester forms a melt at a temperature below about 350° C. and is the condensation product of a C_8 to C_{25} aromatic dicarboxylic acid and a C_6 to C_{25} diphenol and wherein the 1-alkene is selected from the group consisting of propylene and 1-butene.

4,281,080

AGE RESISTANT RESIN COMPOSITIONS CONTAINING ANILINO ARYL ACRYLAMIDE POLYMER

Herbert L. Bullard, Norton Village, and Robert A. Osborn, Stow, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 511,412, Oct. 2, 1974, Pat. No. 4,010,140. This application Feb. 17, 1977, Ser. No. 769,604

Int. Cl.³ C08L *33/24, 7/00, 9/00*

U.S. Cl. 525—205 **6 Claims**

1. A rubber composition having enhanced resistance to oxidation aging which comprises 100 parts by weight of a rubber selected from natural rubber and synthetic rubber in admixture with

(A) 1 to about 10 parts by weight or

(B) for pressure sensitive adhesive, about 40 to about 250 parts by weight

of an age resistant resin composition where said resin composition has a softening point

(a) in the range of about 80° to about 110° C. when its monomers are polymerized in the presence of aluminum chloride or ethylaluminum dichloride, or

(b) about 0° C. to about 30° C. when the monomers are polymerized in the presence of boron trifluoride or boron trifluoride etherate,

where said resin is prepared by polymerizing (1) about 40 to about 80 weight percent units derived from at least one diolefin selected from piperylene, 1,3-butadiene and 2,3-dimethyl-1,3-butadiene, (2) about 60 to about 20 weight percent units derived from at least one aliphatic monoolefin selected from at least one of isobutylene, 2-methyl-1-butene, 2-methyl-2-butene, 2,3-dimethyl-1-butene, 2,3-dimethyl-2-butene, 2-methyl-1-pentene and 2-methyl-2-pentene, where the mole ratio of diolefin to monoolefin is about 0.7/1 to about 2/1, (3) about 0 to about 40 weight percent units derived from at least one of dicyclopentadiene, styrene and α-methylstyrene and (4) about 0.2 to about 2 weight percent units derived from at least one compound selected from N-(4-anilinophenyl)-methacrylamide and N-(1,3-dimethyl-butyl)-N-(p-anilinophenyl)acrylamide.

4,281,081

PROCESS FOR GRAFT COPOLYMERIZATION

Heinz Jost, Messel; Hellmuth Knoell, Reichenbach; Gerhard Markert, Ober-Ramstadt-Eiche, and Horst Pennewiss, Neu-Kranichstein, all of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Feb. 1, 1979, Ser. No. 8,395

Claims priority, application Fed. Rep. of Germany, Feb. 11, 1978, 2805826

Int. Cl.³ C08F *255/02*

U.S. Cl. 525—281 **6 Claims**

1. The method of making a lubricating-oil additive which improves the viscosity index and has a dispersing and detergent action, which method comprises graft copolymerizing 0.5 to 10 percent of N-vinyl pyrrolidone together with 0.1 to 3 percent of N-vinyl imidazole onto an oil-soluble base polymer selected from the group consisting of polyalkyl methacrylic acid esters of alcohols having at least 8 carbon atoms and mixtures of said polyalkyl methacrylic acid esters with a polyolefin, said percentages being by weight of said base polymer.

4,281,082

ORGANIC PIGMENTS

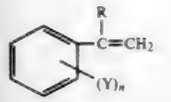
William W. Maslanka, London-Britain Township, Chester County, Pa., and Gavin G. Spence, New Castle County, Del., assignors to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 909,606, May 25, 1978, Pat. No. 4,235,982, which is a continuation-in-part of Ser. No. 803,330, Jun. 3, 1977, abandoned. This application Dec. 26, 1979, Ser. No. 106,607

Int. Cl.³ C08L *33/02*

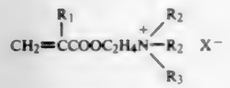
U.S. Cl. 525—296 **12 Claims**

1. Water-insoluble graft copolymer particles consisting essentially of the free radical catalyzed graft copolymerization product of (1) at least one ethylenically unsaturated monomer and (2) a water-soluble cationic prepolymer having an RSV of about 0.1 to about 2.5 (1 M NaCl, 1%, 25° C.), the prepolymer moiety of the graft copolymer particles being present on the surface of the particles, said monomer (1) being selected from the group consisting of methyl alpha-chloroacrylate, ethyl alphachloroacrylate, methyl methacrylate, isopropyl methacrylate, phenyl methacrylate, vinyl chloride, acrylonitrile, methacrylonitrile, and monomers having the formula

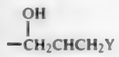


wherein R is hydrogen or methyl, Y is methyl or chlorine, and n is 0, 1, 2, or 3, and said prepolymer (2) being the addition polymerization product of

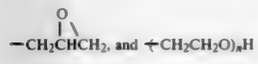
(i) about 5 mole percent to 100 mole percent of a cationic monomer having the formula



wherein R_1 is hydrogen or methyl, R_2 is hydrogen or a C_1–C_4 alkyl, R_3 is selected from the group consisting of hydrogen, a C_1–C_4 alkyl,



where Y is hydroxyl or halogen,



where n is an integer 1 or more and X^- is an anion, and

(ii) from about 95 mole percent to 0 mole percent of at least one monoethylenically unsaturated amide monomer,

the amount of prepolymer (2) employed in preparing the graft copolymer particles being from about 1 part to about 25 parts by weight for each 100 parts by weight of monomer (1) employed.

4,281,083

BLENDS OF POLY(P-METHYLSTYRENE) WITH POLYFUNCTIONAL MONOMER

Harold A. Arbit, Highland Park, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 971,179, Dec. 20, 1978, abandoned. This application Aug. 1, 1980, Ser. No. 174,402

Int. Cl.³ C08F *257/02*

U.S. Cl. 525—305 **5 Claims**

1. A blend consisting essentially of poly(methylstyrene) containing at least 90 weight percent poly(p-methylstyrene) with between about 0.1 weight percent and about 10 weight percent of a polyfunctional monomer.

4,281,084

COCONTINUOUS INTERPENETRATING MORPHOLOGICAL NETWORK COMPOSITION OF POLYMER OF METHYL METHACRYLATE AND POLYMER OF ETHYLENE-VINYL ACETATE

Robert P. Fellmann, Wrightstown; Daniel R. Kory, Levittown, and William H. Stass, Churchville, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Nov. 1, 1976, Ser. No. 737,628

Int. Cl.³ C08L *23/26, 31/04*

U.S. Cl. 525—309 **7 Claims**

1. A composition comprising a cocontinuous interpenetrating mor phological network of (A) a polymer of at least 50 weight percent methyl methacrylate units and (B) a polymer of ethylene and vinyl acetate, wherein the ratio of (A) to (B) is about 1:0.01 to about 1:1.

4,281,085

RUBBER COMPOUND CAPABLE OF GIVING A VULCANIZED RUBBER HAVING A HIGH MODULUS OF ELASTICITY

Hiroharu Ikeda, Machida, and Yasuyuki Shimozato, Yokohama, both of Japan, assignors to Japan Synthetic Rubber Company, Ltd., Tokyo, Japan

Filed May 10, 1979, Ser. No. 37,778

Claims priority, application Japan, May 12, 1978, 53/55526; Feb. 14, 1979, 54/14958

Int. Cl.³ C08F *126/00, 126/06*

U.S. Cl. 525—326 **15 Claims**

1. A rubber compound, which comprises:

(1) 100 parts by weight of a rubber component,

(2) 0.1–15 parts by weight of an amine salt of a carboxylic acid, and

(3) 0–7 parts by weight of sulfur, said rubber component (1) comprising an elastomeric copolymer being composed of a C_4 or C_5 conjugated diene, styrene and a glycidyl group-containing monomer; the content of said conjugated diene, the total amount of said conjugated diene and said styrene and the content of said glycidyl group-containing monomer in said elastomeric copolymer being 50% by weight or more, 80–99.5% by weight and 0.5–20% by weight, respectively.

4,281,086

POLYMER BOUND MULTIDENTATE COMPLEXES

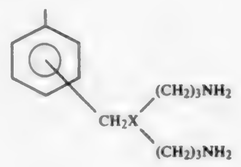
John H. Gaul, Jr., Midland, Mich., and Russell S. Drago, Champaign, Ill., assignors to The University of Illinois Foundation, Urbana, Ill.

Division of Ser. No. 968,123, Dec. 11, 1978, Pat. No. 4,230,828. This application May 12, 1980, Ser. No. 148,065

Int. Cl.³ C08F *8/18, 8/26, 8/30, 8/32*

U.S. Cl. 525—330 **2 Claims**

1. A polymer bound multidentate ligand system comprising an insoluble crosslinked polymer support and at least one pendant polyamine ligand attached thereto, the ligand being represented by the formula



where X is nitrogen or phosphorus.

4,281,087

LACTONE COPOLYMERS, PROCESS FOR THEIR PREPARATION AND COMPOSITIONS CONTAINING THEM

Jean Heuschen, Malmedy; Robert Jerome, Tilff, both of Belgium, and Philippe Teyssie, Avenue de Bois de Rognac, 85, B. 4121 Neuville-en-Condroz, Belgium, assignors to Philippe Teyssie, Neuville-en-Condroz, Belgium

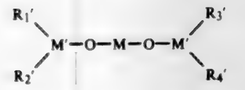
Continuation-in-part of Ser. No. 911,025, May 31, 1978, abandoned. This application Aug. 13, 1979, Ser. No. 66,354

Int. Cl.³ C08L *67/04*; C08G *63/10*

U.S. Cl. 525—361 **9 Claims**

1. A process for the preparation of lactone block and graft copolymers which comprises

(a) contacting a base polymer containing one or more hydroxyl groups with a catalyst of the formula



wherein R_1', R_2', R_3' and R_4' are alkoxy groups having 1 to 20 carbon atoms, M' is a trivalent metal and M is a divalent metal, whereby the organometallic group becomes bonded to the base polymer by way of the hydroxyl groups;

(b) replacing the remaining alkoxy group having 1 to 20 carbon atoms with a group having no catalytic effect on lactone polymerization;

(c) reacting the resulting intermediate containing organometallic groups with a lactone.

4,281,088

NOVEL HALOBISPHENOLETHYLENE POLYCARBONATE-POLYESTER BLENDS

Philip L. Kinson, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

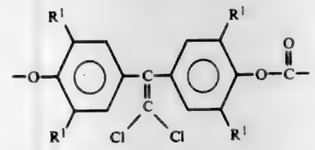
Continuation of Ser. No. 52,279, Jun. 26, 1979, abandoned. This application Aug. 22, 1980, Ser. No. 180,351

Int. Cl.³ C08L *69/00*

U.S. Cl. 525—439 **5 Claims**

1. A polymer blend comprising:

(I) about 1–99 parts by weight of a polycarbonate containing halobis(phenyl)ethylene carbonate units of the formula:



where independently each R^1 is hydrogen, C_{1-4} alkyl or phenyl, and having an intrinsic viscosity of 0.38 to 0.7 deciliters per gram, and

(II) about 99–1 parts by weight of a poly(1,4-alkylene terephthalate) having an intrinsic viscosity of 0.5 to 1.3 deciliters per gram.

4,281,089

POLYURETHANE COMPOSITIONS AND PROCESS

Jose F. Pazos, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 8, 1980, Ser. No. 184,950

Int. Cl.³ C08G *18/80, 18/50, 18/54*

U.S. Cl. 525—456 **21 Claims**

1. A curable polyurethane prepolymer composition consisting essentially of a reaction product of the following components (A) and (C) with (B):

(A) 1 mole of a polymeric glycol having a number average molecular weight of about 400–3000;

(B) at least 1.3 moles of an organic diisocyanate; and

(C) a blocking agent having at least three active hydrogen groups per molecule capable of reacting with isocyanate groups, the proportion of the blocking agent being about 0.01 to 0.15 active hydrogen equivalent per equivalent of isocyanate groups in excess of hydroxyl groups.

with the proviso that when the blocking agent is a phenol-/aldehyde resin, its proportion is at most 5% by weight of component (A).

11. A process for making cured polyurethane elastomer articles, said process comprising the following two steps:

(1) the following composition is blended together and molded at a sufficiently high temperature to crosslink the prepolymer, thereby to impart to the shaped article adequate mechanical integrity to permit the article to be demolded prior to complete cure:

(A) 1 mole of a polymeric glycol having a number average molecular weight of about 400–3000;

(B) at least 1.3 moles of an organic diisocyanate;

(C) about 0.01 to 0.15 equivalent of an isocyanate-blocking agent having at least three active hydrogen groups per equivalent of isocyanate groups in excess of hydroxyl groups;

with the proviso that when the blocking agent is a phenol-/aldehyde resin, its proportion is at most 5% by weight of component (A); and

(D) a diol having aliphatic hydroxyl groups and a molecular weight of less than about 250,

the amount of the diol being equivalent to at least 75%, but no more than about 120%, of the diisocyanate (B) in excess of the polymeric glycol (A); and

(2) the crosslinked molded article is demolded and maintained at a temperature of about 25°–150° C. until cure is completed;

with the proviso that, instead of a mixture of components (A), (B), (C), and (D), one can use a mixture of (D) or of (D) and one of (A) and (C) with the product of a one-step or a two-step reaction of the remaining components with one another.

4,281,090

CATECHOL RESINS FOR THE SHELL PROCESS

Robert S. Craig, Hoffman Estates, Ill., assignor to Acme Resin Corporation, Forest Park, Ill.

Division of Ser. No. 869,407, Jan. 16, 1978, Pat. No. 4,206,262. This application Nov. 1, 1979, Ser. No. 90,388

Int. Cl.³ C08L *61/12*

U.S. Cl. 525—501 **3 Claims**

1. A thermosetting molding composition consisting essentially of from about 50% to about 98% of a phenol-formaldehyde novolak resin; from about 2% to about 50% of a catechol-formaldehyde novolak resin; and an amount of a curing agent to render the novolak resin potentially thermosetting.

4,281,091

UNSATURATED MELAMINE CONDENSATES

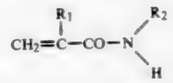
William F. Strazik; John R. LeBlanc, both of Wilbraham, and J. Owen Santer, East Longmeadow, all of Mass., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 19, 1979, Ser. No. 105,060

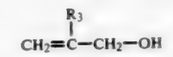
Int. Cl.³ C08F *283/00*; C08G *8/30*

U.S. Cl. 525—518 **12 Claims**

1. An unsaturated condensate of an alkoxymethylmelamine, an allylic alcohol, and an acrylamide, wherein the alkoxymethylmelamine has a combined ratio of formaldehyde to melamine in the range of about 5:1 to about 6:1 and a combined ratio of etherifying alcohol to melamine in the range of about 4.7:1 to about 6:1, wherein the alkoxymethyl groups of the unsaturated condensate contain C_1 to C_{10} alkoxy groups, wherein the acrylamide is represented by the formula:



wherein R_1 and R_2 are selected from the group consisting of hydrogen and methyl, wherein the allyl alcohol is represented by the formula:



wherein R_3 is hydrogen or a C_1 to C_4 alkyl group, wherein the

ratio of allylic alcohol moieties to acrylamide moieties in the condensate is in the range of about 3:1 to about 1:3, wherein the condensate contains at least about 0.75 allylic moieties and no more than about 3 acrylamide moieties per melamine ring and wherein the total of allylic moieties and acrylamide moieties of the condensate is in the range of about 2 to about 4 per melamine ring.

4,281,092

VULCANIZABLE FLUORINATED COPOLYMERS

Almut F. Breazeale, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 965,071, Nov. 30, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 83,751

Int. Cl.³ C08F 8/00, 214/26

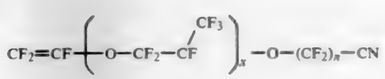
U.S. Cl. 526—247 **10 Claims**

1. A copolymer, the elastomeric vulcanizate of which is suitable for use where extraordinary resistance to environmental attack by a temperature of 700° F. and corrosive fluids is required, comprising copolymerized units of:

(a) 53–79.8 mole percent tetrafluoroethylene,

(b) 20–45 mole percent perfluoromethyl perfluorovinyl ether, and

(c) 0.2–2 mole percent of a cure site monomer of the formula:



where n = 1–4 and x = 1–2.

4,281,093

CATALYST COMPOSITIONS AND THEIR USE IN THE PREPARATION OF RELEASE COATINGS

William D. Garden, Largs, Scotland, assignor to Imperial Chemical Industries Limited, London, England

Filed Dec. 28, 1979, Ser. No. 107,853

Claims priority, application United Kingdom, Jan. 31, 1979, 03438/79

Int. Cl.³ C08G 77/06

U.S. Cl. 528—15 **5 Claims**

4. A heat-curable catalyzed polysiloxane coating composition containing at least two liquid organo polysiloxanes, at least one of which contains silicon-bonded hydrogen, and at least one of which contains silicon-bonded hydroxyl, allyl or vinyl groups, together with an organo-metallic complex of platinum or rhodium wherein the improvement comprises having present sufficient of a liquid allyl ether compound to dissolve said organo-metallic complex in the composition, said liquid allyl ether compound being

(a) free from groups having a deleterious effect on the catalytic activity of the organo-metallic complex as a catalyst for the condensation of polysiloxanes containing silicon bonded hydrogen with diorganopolysiloxanes containing silicon-bonded hydroxy or allyl or vinyl groups, and

(b) has a boiling point of at least 150° C. at 1 bar pressure.

4,281,094

NOVEL MERCAPTOORGANOPOLYSILOXANES

Gary R. Homan, and Jan M. Blevins, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 99,303, Dec. 3, 1979, abandoned. This application Jul. 23, 1980, Ser. No. 171,622

Int. Cl.³ C08G 77/22

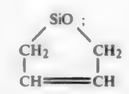
U.S. Cl. 528—30 **5 Claims**

1. As a composition of matter, an organopolysiloxane consisting essentially of a combination of units having at last three and no more than one hundred diorganosiloxane units per molecule wherein the units of the combination of siloxane units forming the molecule are selected from the group consisting of:

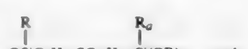
units of the formula,



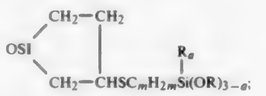
units of the formula,



alkoxy containing units of the formula,

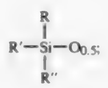


alkoxy containing units of the formula

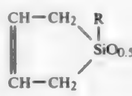


and any endblocking units present being selected from the group consisting of

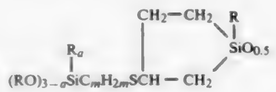
units of the formula,



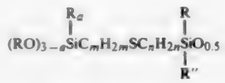
units of the formula,



alkoxy containing units of the formula,



and alkoxy containing units of the formula



wherein R is a lower alkyl radical; R′ is a lower alkyl, aryl or lower alkenyl radical; R″ is a lower alkyl or aryl radical; a is either 0 or 1; n is from 2 to 4 inclusive; m is from 1 to 6 inclusive; and wherein said compound includes at least one alkoxy containing unit and at least one aliphatically unsaturated unit.

4,281,095

COATING COMPOSITIONS OBTAINED BY REACTING AMINO CARBOXYLIC ACIDS DERIVATIVES WITH POLYISOCYANATES AND COMPOUNDS CONTAINING CARBOXYLIC GROUPS TO PRODUCE POLYMERS CONTAINING HYDANTOIN RINGS AND AMIDE GROUPS

Willi Dünwald, Leverkusen; Jürgen Lewalter, Odenthal; Rudolf Merten, Leverkusen; Ludwig Rottmaier, Odenthal; Bernhard Schulte, and Karl-Heinrich Meyer, both of Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,633

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854412

Int. Cl.³ C08G 18/06

U.S. Cl. 528—49 **9 Claims**

1. A polymer attached through (thio)hydantoin rings and amide groups obtained by reacting

(a) polyfunctional amino carboxylic acids, its amide or its ester, with

(b) polyiso(thio)cyanates which are masked or unmasked and a compound containing at least one carboxylic group or at least one carboxylic group together with at least one additional moiety selected from polyhydroxy, cyclic anhydride and isocyanurate polyisocyanates,

with the reacting proceeding with or without a non-phenolic solvent.

4,281,096

MANUFACTURING PROCESS FOR POLYURETHANE AUTO PARTS AND AUTO PARTS MANUFACTURED THEREBY

Takao Nomura, Toyota; Yoshiro Umemoto, Nagoya, and Shuichiro Takao, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Dec. 13, 1979, Ser. No. 103,398

Claims priority, application Japan, Jun. 29, 1979, 54-82509

Int. Cl.³ C08G 18/18; C08J 9/04; B29F 1/00; B29D 27/00

U.S. Cl. 528—53 **10 Claims**

1. A process for manufacturing polyurethane based auto parts by reaction-injection molding, comprising:

(a) preparing a polyol component by blending a stabilizer combination of from 2–15 parts by weight of (A) nickel dibutyldithiocarbamate and 10 parts by weight of (B) N-mono or dimethylphenyl-N′-mono or dimethylphenyl phenylene diamine and/or (C) N,N′-diphenyl-P-phenylene diamine with a polyol and carbon black;

(b) reacting said polyol component with a polyisocyanate; and

(c) reaction-injection molding said reacted mass.

10. An auto part formulated from polyurethane prepared by the process of claim 1.

4,281,097

REACTIVE PHOSPHATE FLAME RETARDANTS

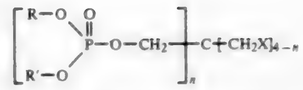
James A. Albright, Hampton, N.J., assignor to Velsicol Chemical Corporation, Chicago, Ill.

Division of Ser. No. 904,668, May 10, 1978, abandoned, which is a division of Ser. No. 811,491, Jun. 30, 1977, Pat. No. 4,133,846. This application Apr. 23, 1980, Ser. No. 142,936

Int. Cl.³ C08G 18/30, 63/20

U.S. Cl. 528—72 **5 Claims**

1. A flame retardant polymeric composition comprising a polymer selected from the group consisting of polyester and polyurethane polymers and chemically bound into the polymer a flame retarding amount of a phosphate of the formula



wherein R and R′ are independently selected from lower haloalkyls having 2 to 6 carbon atoms and 1 to 6 halogen atoms, n is an integer from 1 to 3, and wherein each X is independently selected from hydrogen, halogen, alkyl, and hydroxyl, provided that only one X is hydroxyl.

4,281,098

CONTROL OF PHENOL/ALDEHYDE CONDENSATION REACTIONS

Bryan H. McCormick, South Glamorgan, Wales, assignor to BP Chemicals Limited, London, England

Filed Oct. 24, 1979, Ser. No. 87,739

Claims priority, application United Kingdom, Oct. 25, 1978, 41922/78

Int. Cl.³ C08G 8/04, 8/08, 8/10

U.S. Cl. 528—139 **12 Claims**

1. The process for retarding or stopping the condensation reaction between a phenol and an aldehyde in the presence of a catalyst which is a Group I or Group II metal hydroxide or a strong acid which comprises adding to the reaction at an elevated temperature an aqueous solution containing at least 10% by weight based on the weight of water, of a salt of a weak acid having a pK_a in aqueous solution at 25° C. of more than 2.8 and a metal which is copper or a metal of Groups III to VIII of the Periodic Table.

4,281,099

PROCESS FOR STABILIZING POLYARYLATES WITH AN AROMATIC PHENOL

Louis M. Maresca, Belle Mead, N.J., assignor to Union Carbide Corporation, New York, N.Y.

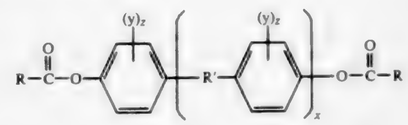
Filed Oct. 29, 1979, Ser. No. 89,270

Int. Cl.³ C08L 67/02

U.S. Cl. 528—176 **26 Claims**

1. A process for preparing a melt stable polyarylate having a reduced viscosity of from about 0.4 to greater than 1.0 dl/gm, which process comprises reacting:

(a) at least one diester derivative of a dihydric phenol having the following formula:



wherein R is independently selected from an alkyl radical having from 1 to about 6 carbon atoms, or cycloalkyl having from 4 to about 7 carbon atoms, y is independently selected from alkyl groups of 1 to 4 carbon atoms, chlorine, or bromine, z independently has a value of from 0 to 4, inclusive, and R′ is independently selected from a direct bond, a divalent saturated aliphatic hydrocarbon radical having 1 to 8 carbon atoms, a cycloalkylene or cycloalkylidene radical having up to and including 9 carbon atoms, O, S, SO, SO_2, CO, x is 0 or 1; with

(b) at least one aromatic dicarboxylic acid, at a temperature of from about 260° to about 350° C.; to form a polyarylate having a reduced viscosity of from about 0.5 to greater than 1.0 dl/g; and

(c) adding a stabilizing amount of an aromatic phenol to the polyarylate to form a polyarylate substantially free of anhydride linkages; said aromatic phenol being free of

substituents in at least one of the positions ortho to the hydroxy group.

4,281,100

INJECTION MOLDABLE POLYETHERIMIDE OLIGOMERS AND METHOD FOR MAKING

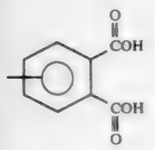
Tohru Takekoshi, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 37,438, May 9, 1979, abandoned. This application Jun. 18, 1980, Ser. No. 160,463

Int. Cl.³ C08G 69/28, 69/32, 73/10, 73/14

U.S. Cl. 528—188 13 Claims

1. Particulated substantially organic solvent-free polyetherimide amide acid prepolymer convertible under melt polymerization conditions to high molecular weight injection moldable polyetherimide which comprises the product of reaction under interfacial polymerization conditions of substantially equal molar amounts of aromatic bis(ether anhydride) and organic diamine which allows for the production of reaction product having terminal units of the formula,



which can be present at up to about 20 mole percent, based on the total moles of chemically combined units in the polyetherimide amide acid prepolymer and where the stoichiometry of the initial reactants in the reaction product is substantially maintained.

4,281,101

PROCESS FOR THE PREPARATION OF ALIPHATIC-AROMATIC POLYCARBONATES WITH DIPHENOL CARBONATE END GROUPS AND THEIR USE FOR THE PREPARATION OF HIGH-MOLECULAR, SEGMENTED, ALIPHATIC-AROMATIC POLYCARBONATE ELASTOMERS WHICH CAN BE PROCESSED AS THERMOPLASTICS

Manfred Schreckenberg, Krefeld; Klaus König, Leverkusen; Dieter Freitag, Krefeld; Günther Lehnert, Leverkusen, and Christian Lindner, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

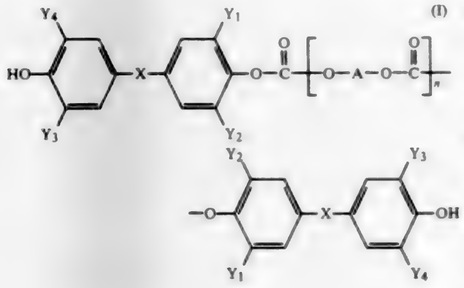
Filed May 31, 1979, Ser. No. 44,786

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827325

Int. Cl.³ C08G 63/62

U.S. Cl. 528—196 25 Claims

9. An aliphatic diol bis-diphenol carbonate of the formula

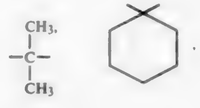


(I)

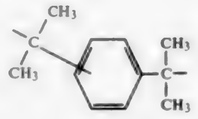
wherein

A denotes the bivalent radical of an aliphatic diol, selected from a group consisting of 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 3-methyl-1,5-pentanediol, trimethyl-1,6-hexanediol, 1,6-hexanediol, 1,12-dodecanediol, 1,12-octadecanediol, diethylene glycol, dipropylene glycol, neopentyl glycol and prepolymeric aliphatic polycarbonate diols having a M_n between 300 and 3,000 prepared from diethylene glycol, 1,6-hexanediol, 1,4-butanediol or 1,12-dodecanediol,

X denotes a single bond, —CH_2—,



O, S, SO_2 or



Y_1, Y_2, Y_3 and Y_4 are identical or different and denote a hydrogen or halogen atom or a C_1 or C_4 alkyl group and n is an integer from 2 to 40.

4,281,102

TACKIFIER FOR ADDITION POLYIMIDES CONTAINING MONOETHYLPHTHALATE

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, Terry L. St. Clair, Poquoson, and John M. Butler, Roanoke, both of Va.

Filed Nov. 7, 1979, Ser. No. 92,141

Int. Cl.³ C08G 12/00, 16/00, 73/10

U.S. Cl. 528—229 5 Claims

1. A method of preparing a novel addition type polyimide comprising the steps of reacting by refluxing stoichrometric amounts of benzophenonetetracarboxylic acid dianhydride, norbornene dicarboxylic acid anhydride, and phthalic anhydride in an excess of ethanol at reflux temperature and while mechanically stirred for a period of time at least exceeding that required for all monomers to go into solution, cooling the resulting solution slightly and mixing an equimolar warmed solution of mixed dianilines therewith, and cooling and storing the recovered homogeneous ester-acid/amine polyimide precursor for subsequent use as a liquid resin system.

4. A liquid composition of matter consisting of 1.10 moles of 5-norbornene-2,3-dicarboxylic ethyl ester acid (NE); 0.67 moles of benzophenone tetracarboxylic diethyl ester diacid (BTDE); 0.12 moles of monoethylphthalate (MEP) and 2.56 molar equivalents of a methylenedianiline mixture.

4,281,103

DICARBOXYLIC ACIDS CONTAINING TRIAZINE RINGS, AND POLYESTERS FORMED FROM THESE DICARBOXYLIC ACIDS

Thomas Kainmüller, Lindenfels, Fed. Rep. of Germany; Jürgen Habermeier, Pfeffingen, Switzerland, and Lothar Buxbaum, Lindenfels, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

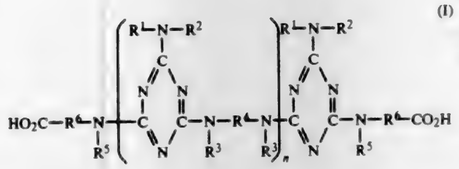
Division of Ser. No. 943,031, Sep. 18, 1978, Pat. No. 4,228,281. This application Jan. 28, 1980, Ser. No. 116,355

Int. Cl.³ C08G 63/68, 69/44

U.S. Cl. 528—289 19 Claims

1. A linear thermoplastic polyester, which has a relative viscosity of at least 1.2, measured on a solution of 1 gram of polyester in 100 ml. of a solvent consisting of equal parts of phenol and symmetrical tetrachloroethane at 30° C., which comprises the condensation product in about a 1:1 molar ratio of diacids (a) and (b) with diols (c) or where equimolar portions of (b) and (c) are replaced by a hydroxycarboxylic acid (d), so that the composition of the polyester comprises in the diacid component of the polyester

(a) from 50 to 0.5 mol %, relative to the total polyester, of radicals of a dicarboxylic acid of the formula I



(I)

in which

n has a value from 1 to 100,

R^1, R^2, R^3 and R^5 independently of one another are each a hydrogen atom, a straight- or branched-chain alkyl of 1 to 22 C atoms, cycloalkyl of 5 to 7 C atoms, cyclohexylmethyl, aryl of 6 to 10 C atoms, benzyl, or said cycloalkyl, said cyclohexylmethyl, said aryl or said benzyl substituted with alkyl of 1 to 4 C atoms, or

R^1 and R^2 together are alkylene of 3 to 7 C atoms, 3-oxapentylene or 3-thiapentylene,

R^4 is a straight- or branched-chain alkylene of 2 to 18 C atoms, cycloalkylene of 5 to 7 C atoms, arylene of 6 to 10 C atoms, cycloalkylenealkylne or cycloalkylenebisalkylene with 1 to 4 C atoms in the alkylene group, arylenealkylene or arylenebisalkylene with 1 to 4 C atoms in the alkylene group; or said cycloalkylene, said cycloalkylenealkylene or said cycloalkylenebisalkylene substituted with alkyl of 1 to 4 C atoms, or said arylene, said arylenealkylene or said arylenebisalkylene substituted by alkyl of 1 to 6 C atoms or by halogen, or

R^4 is phenylene-X-phenylene where X is a direct bond, O, S, SO_2, alkylene of 1 to 3 C atoms, alkylidene of 2 to 12 C atoms, cycloalkylidene of 5 to 6 C atoms, benzylidene, bisphenylmethylidene, 1,1,1-trichloroethylidene or —O—p-phenylene-O—, or

R^4 together with one R^3 and the N atom to which they are bound form a ring having 4 to 7 C atoms, or R^4, and also both R^3s together, are alkylene groups having 1 to 5 C atoms, and forming together with the two N atoms a 5- to 7-membered ring, and

R^6 is a straight- or branched-chain alkylene or alkylidene of 1 to 12 C atoms, o-phenylene, m-phenylene, p-phenylene, p-benzylene or p-cyclohexylene; and

(b) from 0 to 49.5 mol %, relative to the total polyester, of radicals of at least one aliphatic, cycloaliphatic or aromatic dicarboxylic acid or mixture thereof; and in the diol component of the polyester

(c) 50 mol % relative to the total polyester, of radicals of at least one aliphatic, cycloaliphatic or aromatic diol of mixture thereof; or

where equimolar amounts of (b) and (c) are replaced by (d) so that the polyester contains, relative to the total polyester, from 50 to 0.5 mol % of component (a); from 0 to 49.5 mol % of component (b); from 50 to 0.5 mol % of component (c); and

(d) from 0 to 99 mol % of radicals of at least one aliphatic, cycloaliphatic or aromatic hydroxycarboxylic acid,

wherein the radicals (a), (b), (c) and (d) are attached when (b) or (d) are present through ester linkages in a random distribution.

4,281,104

LINEAR RANDOM COPOLYESTER PIGMENT BINDERS

Maya Agarwal, Seaford, Del., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 15, 1980, Ser. No. 121,756

Int. Cl.³ C08G 63/16

U.S. Cl. 528—302 4 Claims

1. As compositions of matter, linear random copolyesters having intrinsic viscosities of at least 0.4 deciliters per gram as determined in a 60/40 by volume mixed solvent system of phenol and tetrachloroethane at 30° C., said copolyesters being essentially free of cyclic oligomeric contaminants and which are suitable for preparing clear solvent based adhesive solutions for bonding metallic oxide pigments to magnetic tape substrates, said copolyesters comprising the polymeric reaction product of a mixture of reactants consisting of

(a) ethylene glycol,

(b) the ester glycol, neopentyl glycol hydroxypivalate,

(c) terephthalic acid or a lower C_1–C_4 dialkyl ester thereof,

(d) phthalic acid or phthalic anhydride, and

(e) an aliphatic dicarboxylic acid selected from the group consisting of unsubstituted and lower alkyl substituted aliphatic dicarboxylic acids containing from 5 to 12 carbon atoms in the linear chain or lower C_1–C_4 dialkyl esters thereof in which mixture the amount of ethylene glycol ranges from 60 to 90 mol percent and the amount of neopentyl glycol hydroxypivalate ranges from 10 to 40 mol percent, said percentages being based on the total mols of glycol components in the mixture and in which mixture the amount of terephthalic acid or lower C_1–C_4 dialkyl ester thereof ranges from 50 to 60 mol percent, the amount of phthalic acid or phthalic anhydride ranges from 15 to 30 mol percent and the amount of aliphatic dicarboxylic acid or lower C_1–C_4 ester thereof ranges from 15 to 30 mol percent said percentages being based on the total mols of the acid constituents or reactive equivalents thereof in said mixture.

4,281,105

FORMATION OF PARTICULATE POLYPYRROLIDONE

Carl E. Barnes, 482 Trinity Pass, New Canaan, Conn. 06840, and Arthur C. Barnes, 320 Stamford Ave., Stamford, Conn. 06902

Continuation-in-part of Ser. No. 104,675, Dec. 17, 1979, abandoned, which is a continuation-in-part of Ser. No. 39,773, May 17, 1979, Pat. No. 4,217,442, which is a continuation-in-part of Ser. No. 899,066, Apr. 24, 1978, abandoned. This application Jun. 2, 1980, Ser. No. 155,561

Int. Cl.³ C08G 69/24

U.S. Cl. 528—313 9 Claims

1. A process for forming particulate polypyrrolidone comprising heating at a temperature of from about 20° to about 70° C. an anhydrous mixture comprising 2-pyrrolidone, an alkaline polymerization catalyst, a polymerization accelerator selected from the group consisting of quaternary ammonium sulfates and bisulfates and a polymerization initiator selected from the group consisting of CO_2, SO_2 and MoO_3 thereby causing the formation of a friable gel phase of short duration as the polymerization proceeds and agitating the mass while in this phase.

4,281,106

HEAT-RESISTANT, RIGID POLYMERS FROM DIFUNCTIONAL 9,10-DIHYDRO-9,10-ETHANOANTHRACENES

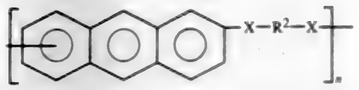
Burton C. Anderson, and August H. Frazer, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 12, 1979, Ser. No. 57,113

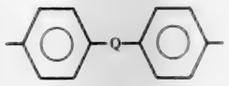
Int. Cl.³ C08G 69/26

U.S. Cl. 528—344 10 Claims

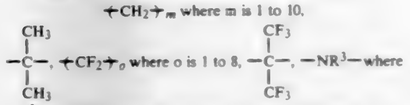
10. A polymer, in the form of a shaped article, consisting essentially of repeating units of the structure



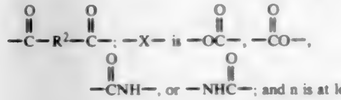
wherein —R^2— is an alkylene group containing 2 to 14 carbon atoms, an arylene group containing 6 to 14 carbon atoms, an alkyl-substituted or chloro-substituted arylene group containing 6 to 14 carbon atoms, a cycloalkylene group containing 4 to 14 carbon atoms, or



where —Q— is —O—, —OCH_2CH_2O—, —C(=O)—, $+CH_2+_m$ where m is 1 to 10,



R^3 is an alkyl group containing 1 to 6 carbon atoms or an aryl group containing 6 to 12 carbon atoms, —S—, —S(=O)(=O)— or



—NHC(=O)—; and n is at least 10.

4,281,107

NEAMINE DERIVATIVES AND PROCESS FOR PREPARING THE SAME

Tetsuo Suami, No. 5-8, Naka-machi 3-chome, Musashino-shi, Tokyo, Japan

Filed May 20, 1977, Ser. No. 799,017

Claims priority, application Japan, May 28, 1976, 51/61247

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—17 R **5 Claims**

1. 5,6-Dideoxyneamine.

4,281,108

PROCESS FOR OBTAINING LOW MOLECULAR WEIGHT HEPARINS ENDOWED WITH ELEVATED PHARMACOLOGICAL PROPERTIES, AND PRODUCT SO OBTAINED

Fernando Fussi, Lesmo, Italy, assignor to Hepar Industries, Inc., Franklin, Ohio

Continuation-in-part of Ser. No. 115,778, Jan. 28, 1980, abandoned. This application Jun. 2, 1980, Ser. No. 155,674

Int. Cl.³ C08B *37/10*

U.S. Cl. 536—21 **7 Claims**

1. A process for obtaining low molecular weight heparins endowed with elevated pharmacological properties, comprising the following steps:

(a) acidification of normal heparin to obtain heparinic acid,

(b) depolymerization of said heparinic acid by heating in the presence of peroxides, to obtain a low molecular weight heparamine of molecular weight approximately 4000 D to 12,000 D,

(c) sulphation of said heparamine to obtain the corresponding low molecular weight heparin.

4,281,109

POLLUTION-FREE CATIONIZATION OF STARCH

Wadym Jarowenko, Green Brook, and Daniel B. Solarek, Somerville, both of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

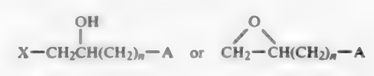
Filed Mar. 3, 1980, Ser. No. 126,229

Int. Cl.³ C08B *31/08, 31/10*

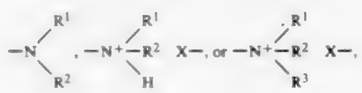
U.S. Cl. 536—50 **11 Claims**

1. A method for preparing a cationic starch comprising

(a) spraying a starch having a moisture content of less than about 30% by weight or a starch filter cake having a moisture content of about 46% or less by weight with a catalyst-reagent mixture comprising an aqueous solution of an alkali catalyst and an etherifying halohydrin or epoxide reagent having the structural formula



wherein A is



X is a halogen atom, R^1 and R^2 are independently selected from the group of C_1-C_4 straight or branched alkyl radicals or they are joined to form a cyclic structure and R^3 is a C_1-C_4 straight or branched alkyl radical, with the proviso that the total number of carbon atoms in R^1, R^2, and R^3 does not exceed 8, and n is 1-3, said reagent being combined with said alkali catalyst immediately prior to the spraying step; and

(b) reacting the sprayed starch in a dry or substantially dry state at a pH of at least 11.

4,281,110

PROCESS FOR THE PRODUCTION OF BROKEN DOWN LIGNIN-CELLULOSE SILICATE COPOLYMERS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 112,290, Jan. 15, 1980, which is a continuation-in-part of Ser. No. 29,202, Apr. 12, 1979, Pat. No. 4,220,757. This application Nov. 3, 1980, Ser. No. 203,730

Int. Cl.³ C08B *31/00*

U.S. Cl. 536—84 **16 Claims**

1. The process for the production of broken down lignin-cellulose silicate copolymer by mixing and reacting the following components:

Component (a) chemically broken down alkali metal lignin-cellulose silicate polymer.

Component (b) an organic compound having the graphical skeleton carbon structure of where

X—C—C—X

—C—C—

represents two adjacent carbon atoms, or

X—C—R—CX

where X and X represent the substituents which splet off during the reaction. The R between the pair of reactive carbon atoms is selected from the following groups: saturated straight chain carbon atoms, unsaturated carbon atoms, ether linkages and aromatic structures. The X and X substituents can be halogen, acid sulfate, nitrate, acid phosphate, bicarbonate, formate, acetate, propionate, laurate, oleate, stearate, oxalate, acid malonate, acid tartrate and acid citrate.

4,281,111

COLD WATER HYDRATING STARCH

Walter G. Hunt, Bridgeton, Mo.; Leslie P. Kovats, Granite City, Ill., and Edward M. Bovier, St. Louis County, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo.

Continuation-in-part of Ser. No. 919,961, Jun. 28, 1978, abandoned. This application Oct. 25, 1979, Ser. No. 87,827

Int. Cl.³ C08G *59/40*

U.S. Cl. 536—111 **16 Claims**

1. A process of preparing a cold water hydrating starch comprising the steps of:

A. reacting an acidic aqueous starch slurry with a source of active chlorine in which the active chlorine is present in amount of from about 0.1 to about 1.0% based on weight of starch at a temperature and time sufficient to produce a cross-linked intermediate starch product which is not degraded or depolymerized and has decreased solubility,

B. reacting the intermediate product with propylene oxide, and

C. recovering a cold water hydrating hydroxypropyl starch product having about 15-20% hydroxypropyl content.

4,281,112

PROCESS FOR THE PREPARATION OF CATIONIC DYESTUFFS

Klaus-Friedrich Lehment, Odenthal; Roderich Raue, Leverkusen, and Harald Gleinig, Odenthal-Neschen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

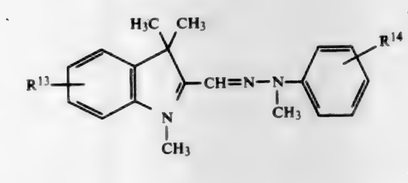
Filed Jul. 17, 1980, Ser. No. 169,582

Claims priority, application Fed. Rep. of Germany, Aug. 4, 1979, 2931687

Int. Cl.³ C07D *209/14*

U.S. Cl. 542—417 **10 Claims**

1. Process for the preparation of cationic hydrazone dyestuffs of the general formula

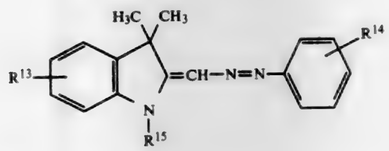


wherein

R^{13} and R^{14} independently of one another represent hydrogen, C_1- to C_4-alkyl, C_1- to C_4-alkoxy or halogen, in particular chlorine or bromine, and

A^- denotes an anionic radical,

by reacting azo bases of the general formula



wherein

R^{13} and R^{14} have the abovementioned meaning and

R^{15} represents hydrogen or the methyl group, with dimethyl sulphate in a mixture of water and an organic solvent and in the presence of an acid-binding agent, characterised in that (a) aromatic or aliphatic chlorinated hydrocarbons are used as the organic solvents, (b) the reaction is carried out at a temperature of 10°-60° C., (c) a 5-90% excess of dimethyl sulphate is employed and (d) the reaction is allowed to proceed at a pH of 5-10.

4,281,113

2,5-INTER-O-PHENYLENE-3,4-DINOR-6,9α-EPOXY-6β-5-IODO-PGF$_1$ COMPOUNDS

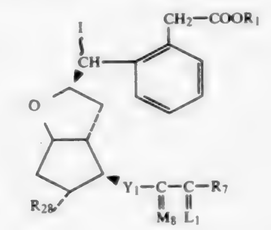
Udo F. Axen, Plainwell, and John C. Sih, Kalamazoo, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 62,443, Jul. 31, 1979, which is a continuation-in-part of Ser. No. 962,845, Nov. 22, 1978, abandoned. This application Jul. 3, 1980, Ser. No. 165,595

Int. Cl.³ C07D *307/935*

U.S. Cl. 542—426 **1 Claim**

1. A prostacyclin intermediate of formula VIII



wherein R_{28} is —OR_{10}, —CH_2OR_{10}, hydroxy, hydroxymethyl, or hydrogen, wherein R_{10} is a blocking group removable by mild acidic hydrolysis;

wherein Y_1 is

(1) trans-CH=CH—,

(2) cis-CH=CH—,

(3) —CH_2CH_2—, or

(4) —C≡C—,

wherein M_8 is α-R_5:β-OH or α-OR_{10}:β-R_5, wherein R_5 is hydrogen or methyl and R_{10} is as defined above, or α-R_5:β-OH or α-OH:β-R_5, wherein R_5 is as defined above;

wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and α-R_4:β-R_3, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro:

wherein R_7 is

(1) —$(CH_2)_m$—CH_3, wherein m is an integer from one to 5, inclusive;

(2) phenoxy;

(3) phenoxy substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;

(4) phenyl;

(5) phenyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;

(6) phenylmethyl, phenylethyl, or phenylpropyl; or

(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, 2 or 3 chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different;

wherein R_1 is

(1) hydrogen;

(2) alkyl of one to 12 carbon atoms, inclusive;

(3) cycloalkyl of 3 to 10 carbon atoms, inclusive;

(4) aralkyl of 7 to 12 carbon atoms, inclusive;

(5) phenyl;

(6) phenyl substituted with one, 2 or 3 chloro or alkyl of one to 3 carbon atoms;
(7) phenyl substituted in the para position by
(a) —NH—CO—R_{25}
(b) —CO—R_{26}
(c) —O—CO—R_{27}
(d) —CH=N—NH—CO—NH_2
wherein R_{25} is methyl, phenyl, acetamidophenyl, benzamidophenyl, or —NH_2; R_{26} is hydroxy, methyl, phenyl, —NH_2, or methoxy; and R_{27} is phenyl or acetamidophenyl, inclusive, or a pharmacologically acceptable salt thereof when R_1 is hydrogen.

4,281,114
METHOD FOR PREPARING DIFURFURYLIDENEACETONE OLIGOMER

Juldash Mamatov, ulitsa Pushkina, 50, kv. 60; Makhammadzhon Akhmadaliev, ulitsa Kuvasaiskaya, 203, kv. 27, and Vladimir S. Kozhevnikov, ulitsa Pushkina, 64b, kv. 20, all of Fergana, U.S.S.R.

Filed Apr. 2, 1980, Ser. No. 136,699
Claims priority, application U.S.S.R., Apr. 10, 1979, 2741301
Int. Cl.³ C07D *409/14*
U.S. Cl. 542—432 **1 Claim**

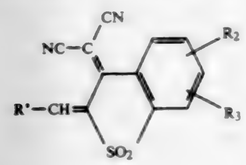
1. A method for preparing difurfurylideneacetone oligomer comprising heating difurfurylideneacetone with a moisture content of from 15 to 40% at a temperature ranging from 80° to 90° C. under progressively increasing vacuum from the atmospheric pressure to 180–200 mm Hg, adding a catalyst selected from the group consisting of hydroxides of alkali and/or alkali-earth metals at a weight ratio of difurfurylideneacetone to the catalyst of 1:0.005–0.04, followed by oligomerization of difurfurylideneacetone at a temperature ranging from 180° to 220° C.

4,281,115
3-DICYANOMETHYLIDENE-2,3-DIHYDROTHIOPHEN-1,1-DIOXIDE DERIVATIVES

Werner Baumann, Therwil, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Jul. 25, 1979, Ser. No. 60,745
Claims priority, application Switzerland, Jul. 28, 1978, 8151/78
Int. Cl.³ C07D *333/52, 409/06*
U.S. Cl. 542—441 **16 Claims**

1. A disperse dyestuff of the formula



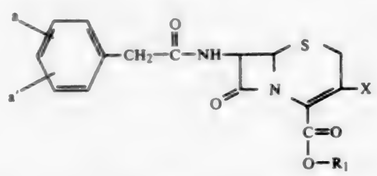
in which
R° is a group of the benzene, indoline or hydroquinoline series,
R_2 is hydrogen, chlorine, bromine, hydroxy, amino, (C_{1-2})alkyl, phenyl, (C_{1-2})alkoxy, phenoxy, cyano, nitro, (C_{1-4})alkylsulphonyl, aminosulphonyl, mono- or di-(C_{1-4})alkylaminosulphonyl, phenylaminosulphonyl, N-phenyl-N-(C_{1-2})alkylaminosulphonyl, alkoxy(C_{1-6}) carbonyl, phenoxycarbonyl, aminocarbonyl, mono- or di(C_{1-4})alkylaminocarbonyl, phenylaminocarbonyl, N-phenyl-N-(C_{1-2})alkylaminocarbonyl, alkyl(C_{1-6})carbonyloxy, chloro- or bromo-(C_{1-2})alkylcarbonyloxy, (C_{1-2})alkoxy(C_{2-6})alkoxy carbonyloxy, phenoxycarbonyloxy, (C_{1-4})alkylsulphonyloxy, phenylsulphonyloxy, alkyl(C_{1-4})carbonylamino, alkoxy(C_{1-2})alkoxy(C_{2-4})carbonylamino, chloro- or bromo-alkyl(C_{1-2})carbonylamino, alkoxy(C_{1-4})-carbonylamino, phenoxycarbonylamino, aminocarbonylamino, mono- or di-(C_{1-4})-alkylaminocarbonylamino, phenylaminocarbonylamino, N-phenyl-N-(C_{1-2})alkylaminocarbonylamino, benzoyloxy, naphthoyloxy, benzoylamino, di-(C_{1-4})alkylaminosulphonyloxy, mono- or di-(C_{1-4})alkylaminocarbonyloxy or phenylaminocarbonyloxy,
and R_3 is hydrogen, chlorine, bromine, (C_{1-2})alkyl, (C_{1-2})alkoxy or alkoxy(C_{1-4})carbonyl.

4,281,116
3-HALO CEPHALOSPORINS

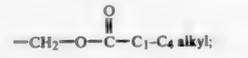
Robert R. Chauvette, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 84,228, Oct. 12, 1979, which is a division of Ser. No. 784,770, Apr. 5, 1977, Pat. No. 4,208,515, which is a division of Ser. No. 656,240, Feb. 9, 1976, Pat. No. 4,064,343, which is a division of Ser. No. 457,150, Apr. 1, 1974, Pat. No. 3,962,227, which is a continuation-in-part of Ser. No. 335,414, Feb. 23, 1973, abandoned. This application Jul. 2, 1980, Ser. No. 165,462
Int. Cl.³ C07D *501/20*
U.S. Cl. 544—16 **4 Claims**

1. A compound of the formula



wherein a and a' independently are hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy, halogen, hydroxy, nitro, amino, or carboxy; R_1 is hydrogen, benzyl, p-methoxybenzyl, p-nitrobenzyl, diphenylmethyl, 2,2,2-trichloroethyl, t-butyl, or a pharmaceutically acceptable ester of the formula



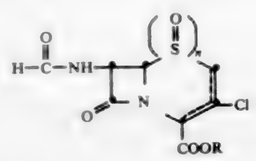
X is fluoro, chloro, bromo or iodo; and when R_1 is hydrogen the non-toxic pharmaceutically acceptable salts thereof.

4,281,117
PROCESS FOR 3-CHLORO CEPHALOSPORIN NUCLEUS

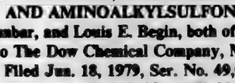
Pamela A. Chauvette, and Robert R. Chauvette, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Sep. 4, 1980, Ser. No. 183,918
Int. Cl.³ C07D *501/04*
U.S. Cl. 544—016 **12 Claims**

1. A process for preparing a compound of the formula



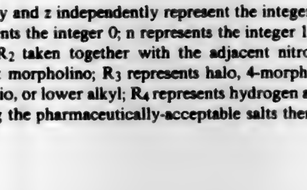
which comprises the steps
a. reacting a 7-amino-3-hydroxy-3-cephem ester of the formula



in substantially dry dimethylformamide at a temperature between about 15° C. and about 60° C. with between about 2 moles and about 6 moles of a chlorinating agent selected from the group consisting of phosphorus trichloride, phosgene, oxalyl chloride, thionyl chloride, or a sulfonyl chloride of the formula

R_2—SO_2—Cl,

b. recovering from said reaction a 7β-dimethylamidino-3-chloro-3-cephem ester of the formula



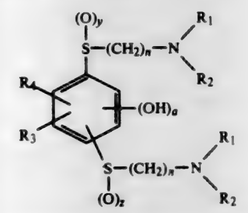
and
c. adding to a solution of said 7β-amidino-3-chloro ester in an inert organic solvent at a temperature between about 20° C. and about 45° C. a carboxylic acid, percarboxylic acid, or a phenol each having a pH in water of between about 2 and about 5, wherein R in the above formulae is a carboxy-protecting group, n is 0 or 1, and when n is 0 the dotted bond indicates a double bond in the 2,3- and 3,4-positions, and when n is 1 the double bond is in the 3,4-position; and R_2 is C_1–C_4 alkyl, phenyl, or phenyl substituted by halogen or methyl, provided that, when n is 1, said percarboxylic acid is added in step c, and when n is 0, said carboxylic acid or said phenol is added in step c.

4,281,118
AMINOALKYLSULFIDES, AMINOALKYLSULFOXIDES, AND AMINOALKYLSULFONES

Joseph E. Dunbar, and Louis E. Begin, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jun. 18, 1979, Ser. No. 49,029
Int. Cl.³ C07D *413/12, 295/08*; A61K *31/535, 31/445*
U.S. Cl. 544—85 **8 Claims**

1. A compound of the formula

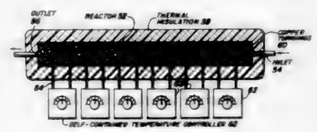


wherein y and z independently represent the integer 0, 1 or 2; a represents the integer 0; n represents the integer 1, 2, 3 or 4; R_1 and R_2 taken together with the adjacent nitrogen atom represent morpholino; R_3 represents halo, 4-morpholinylloweralkylthio, or lower alkyl; R_4 represents hydrogen and further including the pharmaceutically-acceptable salts thereof.

4,281,119
CRYOGENICALLY CONTROLLED DIRECT FLUORINATION PROCESS, APPARATUS AND PRODUCTS RESULTING THEREFROM

Richard J. Lagow, Manchester; James L. Adcock, and Norma J. Maraschia, both of Cambridge, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 379,876, Jul. 16, 1973, Pat. No. 4,113,345.
This application Jun. 23, 1976, Ser. No. 699,291
Int. Cl.³ C07D *265/30*; C07B *9/00*
U.S. Cl. 544—106 **10 Claims**



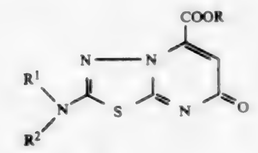
1. A direct fluorination process for fluorinating a reactant with elemental fluorine, comprising:
a. providing a packed column fluorination reactor having a multiplicity of temperature zones independently controllable to a temperature within a range of about −190° C. to about +20° C.;
b. lowering the temperature of a first zone below the condensation point of the reactant to be fluorinated;
c. introducing said reactant to be fluorinated into said first zone while it is maintained at the lowered temperature whereby said reactant condenses on the column packings in said first zone;
d. introducing a source of elemental fluorine and an inert gas into said first zone, the source of elemental fluorine initially comprising a very small percentage of said mixture and which gradually rises as fluorination proceeds;
e. maintaining the temperature of said first zone until at least partial fluorination of the condensed reactant has occurred;
f. raising the temperature in said first zone to volatilize said partially fluorinated reactant and lowering the temperature in a second zone below the freezing point of said partially fluorinated reactant whereby the partially fluorinated reactant is transported to said second zone wherein it condenses on the column packings therein; and,
g. repeating step f. until said reactant has been fluorinated to the desired degree.

4,281,120
7H-1,3,4-THIADIAZOLO-[3,2-A]-PYRIMIDIN-7-ONE-5-CARBOXYLIC COMPOUNDS

Siegfried Herrling, Dohlenweg 33, 5190 Stolberg, Fed. Rep. of Germany

Filed Dec. 12, 1978, Ser. No. 968,826
Int. Cl.³ C07D *513/04*
U.S. Cl. 544—117 **8 Claims**

1. Heterocyclic compounds of the following general formula (I)



(I)

wherein R represents hydrogen or an alkyl radical with 1 to

5 carbon atoms, R^1 and R^2, which may be the same or different, represent alkyl radicals with 1 to 5 carbon atoms or together with the nitrogen atom to which they are attached form a 5- to 7-membered heterocyclic ring which may be substituted by one or more alkyl groups containing 1 to 3 carbon atoms which may also be interrupted by an oxygen or a sulfur atom or a R^3-N< group, wherein R^3 represents an alkyl radical with 1 to 4 carbon atoms, a monocyclic aryl radical or an aralkyl radical with 1 or 2 carbon atoms in the alkylene group

and the pharmaceutically acceptable salts thereof.

4,281,121

1,3,4-THIADIAZOLE-2-CARBOXYLIC ACID DERIVATIVES, PROCESS FOR MAKING THE SAME AND FUNGICIDAL AND NEMATOCIDAL COMPOSITIONS CONTAINING SAME

Ludwig Nüsslein; Dietrich Baumert, and Ernst A. Pieroh, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin, Fed. Rep. of Germany

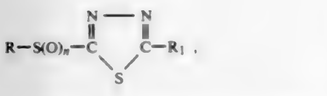
Filed Dec. 6, 1979, Ser. No. 101,061

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1978, 2853196

Int. Cl.[3] **C07D** *285/12, 417/06*

U.S. Cl. 544—134 **182 Claims**

1. 1,3,4-thiadiazole-2-carboxylic acid derivatives of the formula



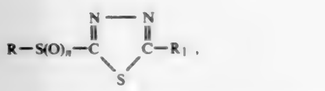
I

wherein R is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkinyl or C_3–C_6-cycloalkyl,

R_1 is C_1–C_6-alkoxycarbonyl, aminocarbonyl, C_1–C_8-alkylaminocarbonyl, C_3–C_6-cycloalkylaminocarbonyl, di-C_1–C_8-alkylaminocarbonyl, cyclohexylmethylaminocarbonyl, methoxy-C_2–C_3-alkylaminocarbonyl, morpholinocarbonyl, pyrrolidinocarbonyl, piperidinocarbonyl or cyano,

and n is 0,1 or 2.

2. 1,3,4-thiadiazole-2-carboxylic acid derivatives of the formula



I

wherein R is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkinyl or C_3–C_6-cycloalkyl,

R_1 is allylaminocarbonyl, N,N-trimethylene aminocarbonyl or cyclooctylaminocarbonyl and

n is 0,1 or 2.

4,281,122

PREPARATION OF SODIUM DICHLORO-S-TRIAZINE TRIONE COMPOSITIONS

Stephen M. Balaban, Chesterfield, Mo., and Raymond C. Cox, Belleville, Ill., assignors to Monsanto Company, St. Louis, Mo.

Filed May 12, 1980, Ser. No. 149,213

Int. Cl.[3] **C07D** *251/36*

U.S. Cl. 544—190 **12 Claims**

1. In a process for preparing a sodium dichloro s-triazine trione composition by chlorinating a sodium s-triazine trione in an aqueous mixture having a liquid phase, the improvement which comprises maintaining the triazine compounds in said mixture essentially completely dissolved in said liquid phase and the amount of water in said mixture below about 65% by weight.

4,281,123

PROCESS FOR INTRODUCING THREE SUBSTITUENTS IN CYANURIC CHLORIDE

Klaus Hentschel, Kalmthout, Belgium, and Friedrich Bittner, Bad Soden, Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,873

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850338

The portion of the term of this patent subsequent to Jun. 23, 1998, has been disclaimed.

Int. Cl.[3] **C07D** *251/46, 251/52, 251/66, 251/70*

U.S. Cl. 544—194 **28 Claims**

1. A process for the replacing the three chlorine atoms of cyanuric chloride by reacting cyanuric chloride with a compound which reacts with the chlorine atoms of cyanuric chloride in the presence of an acid binding agent comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from the upper portion of a tertical tubular zone closed at the top thereof to contact and mix with the other compound which forms a liquid layer defining said tubular zone, constricting said layer in breast-shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening, discharging said other compound as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top above said constriction and below the point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed into a breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,281,124

REACTIVE QUATERNARY COMPOUNDS, THEIR PREPARATION AND THEIR USE FOR INCREASING THE AFFINITY OF ANIONIC DYESTUFFS FOR FIBRES WHICH CONTAIN NITROGEN OR HYDROXYL GROUPS

Bernd Berger-Lohr; Karl H. Schündehütte, and Manfred Söll, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

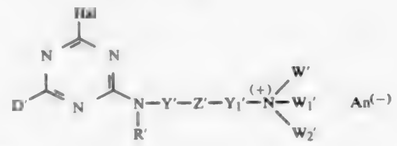
Filed Nov. 29, 1979, Ser. No. 99,116

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1978, 2853881

Int. Cl.[3] **C07D** *251/50, 251/42, 295/10*

U.S. Cl. 544—208 **4 Claims**

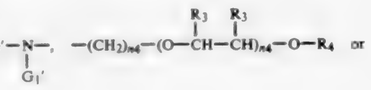
1. A compound of the formula



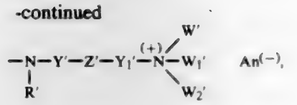
wherein

Hal is fluorine or chlorine,

D' is



-continued



An(−),

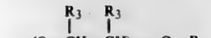
G' and G'$_1$ each independently is hydrogen, C_1–C_4-alkyl, phenyl or benzyl, which are optionally substituted by hydroxyl,

n_4 each independently is a number from 0 to 4,

one of the radicals R_3 is hydrogen and the other is hydrogen or methyl,

R_4 is hydrogen or C_1–C_4-alkyl,

R' is hydrogen or C_1–C_4-alkyl which can be substituted by



Y' is

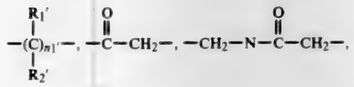


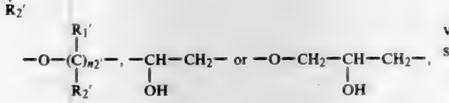
R'$_1$ and R'$_2$ each independently is hydrogen or C_1–C_4-alkyl,

n is 0 or 1,

Z' is phenylene or naphthylene which is optionally substituted by fluorine, chlorine, bromine, hydroxyl, C_1–C_4-alkyl or C_1–C_4-alkoxy,

Y'$_1$ is a radical of the formula

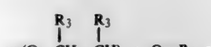




n'$_1$ is 1 or 2,

n'$_2$ is 2 or 3,

W', W'$_1$ and W'$_2$ each independently is C_1–C_6-alkyl which can be substituted by



W' also may be benzyl, amino, C_1–C_4-alkylamino or C_1–C_4-dialkylamino, or

W'$_1$ and W'$_2$, together with the nitrogen atom, may form a pyrrolidine, piperidine, morpholine or piperazine ring, or

W', W'$_1$ and W'$_2$, together with the nitrogen atom, may form a pyridine ring, and

An(−) is an anion.

4,281,125

QUINOLINE CATALYZED SYNTHESIS OF PYRIDAZINONE PHARMACEUTICAL INTERMEDIATES

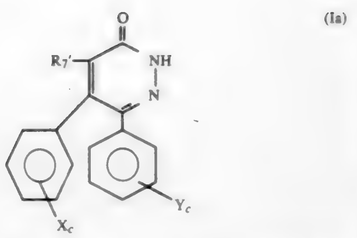
Michael F. DePompei, and Alex Hlynsky, both of Mentor, Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed May 15, 1980, Ser. No. 149,918

Int. Cl.[3] **C07D** *237/14, 237/24, 237/22, 237/18*

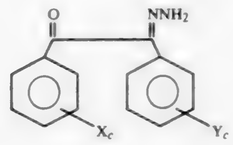
U.S. Cl. 544—239 **24 Claims**

1. A process for the preparation of a compound of the general formula:



(Ia)

wherein R'$_7$ is acetyl, cyano, phenylsulfonyl, (C_1–C_4)alkylhydrazono, naphthyl, phenyl or phenyl substituted with at least one substituent selected from the group consisting of halogen, C_1–C_6 alkylamino and C_1–C_4 alkoxy; and X_c and Y_c are the same or different and are independently selected from the group consisting of halogen, C_1–C_4 alkyl and C_1–C_4 alkoxy where c is 0, 1 or 2; which comprises the quinoline catalyzed reaction of a monohydrazone of the formula:



(II)

wherein X_c and Y_c are defined as above, with a substituted acetic acid ester of the formula:



(III)

wherein R'$_7$ is defined as above and R is an alkyl group, in a suitable organic solvent, at elevated temperature.

4,281,126

N-SUBSTITUTED 1,2,3,4-TETRAHYDROPYRIMIDINES, HEXAHYDROPYRIMIDINES AND PROCESS FOR THEIR PREPARATION

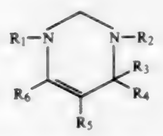
Bernardus A. Oude Alink, St. Louis, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Jan. 30, 1978, Ser. No. 873,322

Int. Cl.[3] **C07D** *239/04, 239/06*

U.S. Cl. 544—242 **12 Claims**

1. A compound of the formula



where R_1 and R_2 are substituted groups and R_3, R_4, R_5 and R_6 are hydrogen, alkyl, alkenyl, aryl, aralkyl, cycloalkyl or heterocyclic.

4,281,127

TRANS-3-(4-OXO-4H-QUINAZOLIN-3-YL)-2-PROPENOIC ACID DERIVATIVES

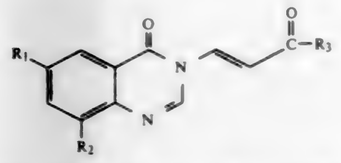
Ronald A. LeMahieu, North Caldwell, and William C. Nason, Mountain Lakes, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 55,728, Jul. 9, 1979, abandoned. This application Apr. 23, 1980, Ser. No. 142,903

Int. Cl.³ C07D *239/90*

U.S. Cl. 544—287 **12 Claims**

1. A compound of the formula



wherein R_1 is lower alkyl, lower cyclo-(C_3–C_7)-alkyl, lower alkoxy, hydroxy, halo, lower alkylthio, lower alkylsulfinyl, lower alkylsulfonyl, di-(C_1–C_7)alkyl $N(CH_2)_nO$— or 2-hydroxyethoxy; R^2 is hydrogen; and R_3 is hydroxy, lower alkoxy, di-(C_1–C_7)alkyl $N(CH_2)_nO$— or di-(C_1–C_7)alkyl $N(CH_2)_nNH$—; and wherein n is 2 to 7, when R_3 is hydroxy, a salt thereof with a pharmaceutically acceptable base, or when R_3 is di-(C_1–C_7)alkyl-$N(CH_2)_nO$— or di-(C_1–C_7)alkyl-$N(CH_2)_nNH$—, a salt thereof with a pharmaceutically acceptable acid.

4,281,128

BISPIPERAZIDO PHOSPHORUS COMPOUNDS

Johny C. Hermans, Wespelaar, Belgium, assignor to s.a. Texaco Belgium n.v., Brussels, Belgium

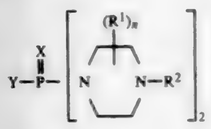
Division of Ser. No. 628,288, Nov. 3, 1975, Pat. No. 4,081,445. This application Nov. 18, 1977, Ser. No. 852,879

Claims priority, application United Kingdom, May 21, 1975, 21796/75

Int. Cl.³ C07D *295/16*

U.S. Cl. 544—337 **5 Claims**

1. A compound of the formula:



and salts of such compounds, wherein

X represents an oxygen or sulphur atom or is absent;

Y represents an aliphatic, cycloaliphatic, or aromatic hydrocarbon group;

R^1 represents an inert substituent on the piperazine ring;

R^2 represents a hydrogen atom or an aliphatic or cycloaliphatic hydrocarbon group, an acyl group, a sulphonyl group, a substituted phosphorus-containing group, or a substituted carbamoyl group; and

n represents 0 or an integer; and

salts of such compounds in which at least one of the groups R^2 represents a hydrogen atom.

4,281,129

PIPERIDINYL HYDROGEN 2-HYDROXYALKYL PHOSPHATES AND METAL SALTS THEREOF

Gether Irick, Jr., and Richard H. S. Wang, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

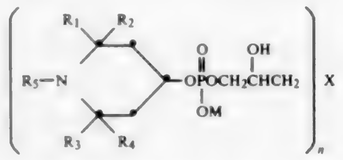
Division of Ser. No. 963,716, Nov. 27, 1978, Pat. No. 4,194,989. This application Oct. 2, 1979, Ser. No. 81,231

The portion of the term of this patent subsequent to Mar. 25, 1997, has been disclaimed.

Int. Cl.³ C07D *211/46, 211/94*

U.S. Cl. 546—6 **12 Claims**

1. A piperidinyl phosphate having the formula:



wherein R_1 and R_2 are each alkyl having 1–6 carbons; R_3 and R_4 are each alkyl having 1–6 carbons or together with the carbon to which they are bound form a cyclopentyl or cyclohexyl ring which is unsubstituted or substituted with a methyl group; R_5 is hydrogen, oxy, alkyl having 1 to 12 carbon atoms, β-methoxyethyl, alkenyl having 3 or 4 carbon atoms, propargyl, benzyl or alkyl substituted benzyl; M is either hydrogen or a metal ion selected from the group consisting of Li, Na, K, Mg, Ca, Ba, Mn, Co, Ni, Sn, Zn, Ce; X is an alkyl, alkylene, oxyalkyl or oxyalkyleneoxy having 2 to 12 carbon atoms or an aryl, arylene, oxyaryl or oxyaryleneoxy with 6, 12 or 18 carbon atoms; and n is 1 to 4.

4,281,130

LOWER-ALKYL 4,6,7,8,8A-9-HEXAHYDRO-6,9-ETHANOTHIENO [3,2-f]INDOLIZINE-10-CARBOXYLATE

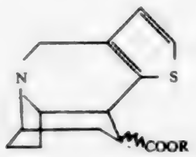
Robert L. Clarke, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 41,907, May 24, 1979, Pat. No. 4,214,084, which is a division of Ser. No. 894,894, Apr. 10, 1978, Pat. No. 4,179,567. This application Oct. 26, 1979, Ser. No. 88,536

Int. Cl.³ C07D *513/22, 513/18*

U.S. Cl. 546—63 **2 Claims**

1. A compound of the formula



wherein R is alkyl of 1 to 3 carbon atoms; or a pharmaceutically acceptable acid-addition salt thereof.

4,281,131

4-HYDROXY-2-QUINOLINONE-3-CARBOXYLIC ACIDS AND SALTS THEREOF

Goetz E. Hardtmann, Morristown, N.J., assignor to Sandoz, Inc., E. Hanover, N.J.

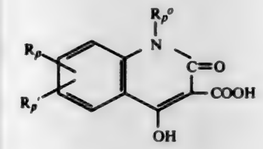
Division of Ser. No. 807,914, Jun. 20, 1977, Pat. No. 4,187,309. This application Jul. 16, 1979, Ser. No. 57,962

The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.

Int. Cl.³ C07D *491/056, 215/22*

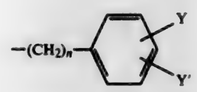
U.S. Cl. 546—90 **32 Claims**

1. A compound having in free acid form the formula:



wherein

R_p^o is alkenyl of 3 to 6 carbon atoms, alkynyl of 3 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, cycloalkylalkyl in which the cycloalkyl is of 3 to 6 carbon atoms and the alkyl portion is of 1 or 2 carbon atoms, or



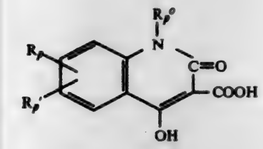
n is 0 or 1,

Y and Y′ are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 3 carbon atoms, alkoxy of 1 to 3 carbon atoms, trifluoromethyl or nitro with the proviso that only one of Y and Y′ can be from the group of nitro and trifluoromethyl, and

R_p and R_p' are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, nitro or trifluoromethyl, with the proviso that only one of R_p and R_p' can be from the group consisting of nitro and trifluoromethyl,

with the further proviso that the unsaturation in any alkenyl or alkynyl is on other than the alpha carbon atom; or a mono- or di-salt form thereof in which the salt forming cation is a pharmaceutically acceptable cation.

20. A compound having in free acid form the formula:

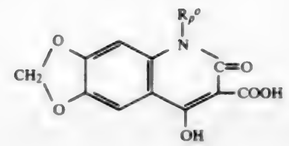


wherein

R_p^o is alkyl of 1 to 6 carbon atoms, and

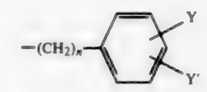
R_p and R_p' are independently alkoxy of 1 to 4 carbon atoms; or a mono- or di-salt form thereof in which the salt forming cation is a pharmaceutically acceptable cation.

25. A compound having in free acid form the formula:



wherein

R_p^o is hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 3 to 6 carbon atoms, alkynyl of 3 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, cycloalkylalkyl in which the cycloalkyl is of 3 to 6 carbon atoms and the alkyl portion is of 1 or 2 carbon atoms, or



n is 0 or 1, and

Y and Y′ are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 3 carbon atoms, alkoxy of 1 to 3 carbon atoms, trifluoromethyl or nitro, with the proviso that only one of Y and Y′ can be from the group consisting of nitro and trifluoromethyl,

with the further proviso that the unsaturation in any alkenyl or alkynyl is on other than the alpha carbon atom; or a mono- or di-salt form thereof in which the salt forming cation is a pharmaceutically acceptable cation.

4,281,132

PIPERIDINO UREAS AND THIOUREAS

Terence J. Ward, Slough, England, assignor to John Wyeth & Brother Limited, Maidenhead, England

Filed Oct. 24, 1978, Ser. No. 954,147

Claims priority, application United Kingdom, Oct. 29, 1977, 45142/77

Int. Cl.³ C07D *211/58*

U.S. Cl. 546—224 **1 Claim**

1. Benzoyl-3-[1-(2-hydroxy-3-[2-methoxyphenoxy]propyl)-piperid-4-yl]urea.

4,281,133

SUBSTITUTED PHENOXY AND PHENYLTHIO PICOLINALDEHYDES

Sudarshan K. Malhotra, Walnut Creek, and Michael J. Ricks, Martinez, both of Calif., assignors to The Dow Chemical Company, Midland, Mich.

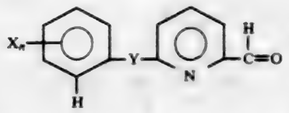
Continuation-in-part of Ser. No. 17,752, Mar. 5, 1979, which is a continuation-in-part of Ser. No. 859,908, Dec. 12, 1977, Pat. No. 4,163,787, which is a continuation-in-part of Ser. No. 777,188, Mar. 14, 1977, abandoned. This application Nov. 29, 1979, Ser. No. 98,464

Int. Cl.³ C07D *213/48*

U.S. Cl. 546—298 **10 Claims**

1. A compound corresponding to the formula

(Formula I)



wherein X independently represents alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms, trifluoromethyl,

3,4-methylenedioxy, chloro, fluoro or bromo; n represents an integer of 0 to 2 and Y represents oxygen or sulfur.

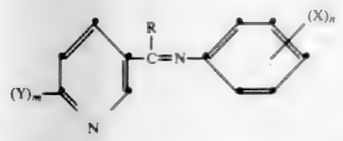
4,281,134

DERIVATIVES OF CERTAIN PHENYLIMINOMETHYLPYRIDINES

Pieter Ten Haken, Eastling, Near Faversham; Shirley B. Webb, Sheldwich, Near Faversham, and Graham C. Smith, Sittingbourne, all of England, assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 60,716, Jul. 26, 1979, abandoned. This application Jan. 14, 1980, Ser. No. 111,734
Claims priority, application United Kingdom, Aug. 8, 1978, 32523/78
Int. Cl.³ C07D *213/36*
U.S. Cl. 546—334 **3 Claims**

1. A phenyliminomethylpyridine of the formula:



(1) m is zero, n is zero and R is alkylthio of from one to five carbon atoms;

(2) m is zero, n is one or two, and R is alkyl, alkoxy or alkoxyalkoxy of from one to twenty carbon atoms; alkylthio of from one yo five carbon atoms; cycloalkyloxy of from three to six carbon atoms; cyano, optionally substituted phenylthio, triazolyl, (n-butyl)amino, di(n-butyl-)amino, 1-piperidinyl, di(n-propyl)amino, (n-nonyl)amino, di(3-methylpropyl)amino; 3,5-dimethyl-piperidin-1-yl; and X is alkyl of from one to four carbon atoms or halogen, with the provisos that

(a) when R is alkoxy and X is alkyl, n is one;

(b) when R is isopropoxy, X is halogen, and n is two, 3-chloro, 4-fluor is excluded;

(c) when R is alkoxy, n is two, one of X is halogen and the other is alkyl, 3-methyl, 4-bromo is excluded;

(d) when R is alkylthio; X is alkyl and n is one, 4-alkyl is excluded;

(3) R is isopropoxy, is isopropylthio, m is one, Y is chlorine, and $(X)_n$ is 4-chloro.

3. A phenyliminomethylpyridine according to claim 1 wherein m is zero, R is octyloxy and $(X)_n$ is 4-chloro.

4,281,135

PREPARATION OF HIGHLY CHLORINATED PYRIDINES

Donald J. Perettie, Midland, Mich., and Norman L. Dean, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 47,514, Jun. 11, 1979, abandoned. This application May 28, 1980, Ser. No. 153,793
Int. Cl.³ C07D *213/04*
U.S. Cl. 546—345 **6 Claims**

1. A process for preparing 2,3,5,6-tetrachloropyridine and pentachloropyridine in high yields which comprises reacting 2,6-dichloropyridine with chlorine at temperatures of from about 150° to about 300° C. in the presence of a catalytic amount of an aluminum, iron or silica oxide catalyst and under sufficient pressure to maintain the 2,6-dichloropyridine reactant as a liquid and recovering the desired product.

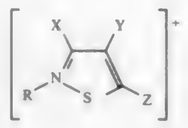
4,281,136

2-ALKYL-3-HALOISOTHIAZOLIUM SALTS AND THEIR DERIVATIVES

Joseph A. Virgilio; Milton Manowitz, both of Wayne, and Emanuel Heilweil, Fairfield, all of N.J., assignors to Givaudan Corporation, Clifton, N.J.

Continuation-in-part of Ser. No. 854,456, Nov. 25, 1977, abandoned. This application Oct. 16, 1978, Ser. No. 952,038
Int. Cl.³ C07D *275/02*; A61K *31/424*
U.S. Cl. 548—206 **44 Claims**

1. A salt of the formula:



wherein:

R is an alkyl or alkenyl up to 8 carbons;

X is chlorine or bromine;

Y is selected from the group consisting of hydrogen, methyl, ethyl, carbomethoxy, carboethoxy, chlorine, bromine, cyano and nitro;

Z is selected from the group consisting of methyl, ethyl, hydrogen, chlorine, bromine, cyano, carbomethoxy and carboethoxy; and

A^- is a suitable anion.

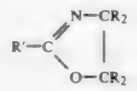
4,281,137

PURIFICATION OF 2-OXAZOLINES

James W. Sanner, and Peter W. Owen, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 20, 1980, Ser. No. 122,946
Int. Cl.³ C07D *263/12*
U.S. Cl. 548—239 **11 Claims**

1. A process for purifying a 2-oxazoline compound represented by the formula



wherein R' is hydrogen, an aryl or aliphatic group having less than 8 carbon atoms and R at each occurrence is independently hydrogen or a methyl group, said 2-oxazoline containing residual water and other impurities, said process comprising the steps of:

(a) treating the 2-oxazoline with a dialkyl phosphite or a silane bearing at least one halogen substituent and a remaining number of hydrogen, phenyl or C_1 to C_4 alkyl substituents, so as to react with substantially all of the water present; and

(b) distilling the treated 2-oxazoline to recover the purified oxazoline.

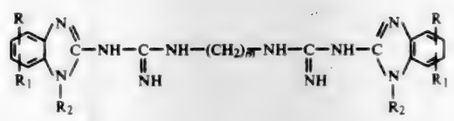
4,281,138

ANTIMICROBIAL BIS-BENZIMIDAZALE COMPOUNDS

Bola V. Shetty, Stamford, Conn., and John E. Airey, Mt. Kisco, N.Y., assignors to The Purdue Frederick Company, New York, N.Y.

Filed Nov. 8, 1979, Ser. No. 92,279
Int. Cl.³ C07D *235/04*
U.S. Cl. 548—306 **12 Claims**

1. A compound of the formula:



wherein R and R_1=H, lower alkyl, halogen, methoxy, hydroxy, nitro, carboxy, phenyl, phenyl substituted by lower alkyl or sulfamyl, where R_2=H, lower alkyl, phenyl or phenyl substituted by lower alkyl and where n is an integer from 2–20.

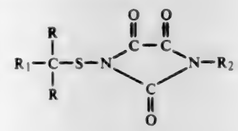
4,281,139

ALKYLTHIOIMIDAZOLIDINETRIONES

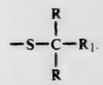
Otto W. Maender, Copley, Ohio, assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 948,118, Oct. 2, 1978, Pat. No. 4,207,216. This application Oct. 25, 1979, Ser. No. 88,317
Int. Cl.³ C07D *233/96*
U.S. Cl. 548—307 **14 Claims**

1. A compound of the formula



in which each R independently is alkyl of 1–5 carbon atoms, R_1 is alkyl of 1–12 carbon atoms, R_2 is hydrogen, alkyl of 1–12 carbon atoms, aryl of 6–10 carbon atoms, aralkyl of 7–10 carbon atoms or



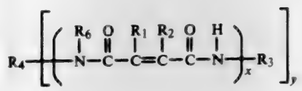
4,281,140

PROCESS FOR THE PREPARATION OF HYDANTOINS

Wilfried Zecher, and Rudolf Merten, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 854,111, Nov. 23, 1977, Pat. No. 4,182,812. This application Jul. 26, 1979, Ser. No. 61,061
Claims priority, application Fed. Rep. of Germany, Apr. 1, 1977, 2714655
Int. Cl.³ C07D *233/64*
U.S. Cl. 548—313 **4 Claims**

1. A process for the preparation of a hydantoin comprising reacting at a temperature of from 0° to 450° C. an organic monoisocyanate or monoisothiocyanate of the formula R_5-NCO or R_5-NCS with an unsaturated diamide of the formula:



wherein

R_1, R_2, R_3, R_4 and R_6 may be the same or different and each is selected from the group consisting of hydrogen, alkyl of 1–20 carbon atoms, aryl of 6–20 carbon atoms and aralkyl of 7–20 carbon atoms; R_3 and R_4 are also bivalent and trivalent organic moieties corresponding to the previously mentioned monovalent organic moieties; when x and y are both one, R_4 and R_6 are additionally together forming a heterocyclic having 3–7 carbon atoms wherein a nitrogen heteroatom is bonded to both R_4 and R_6; R_1 and R_2 are also halogen; R_5 is selected from the group consisting of unsubstituted or substituted alkyl of 1–20 carbon atoms, unsubstituted or substituted cycloalkyl of 5–12 carbon atoms, unsubstituted or substituted aryl of 6–12 carbon atoms, heterocyclic aryl of 4–12 carbon atoms wherein the hetero atom is N, O or S and heterocycloalkyl of 4–12 carbon atoms wherein the hetero atom is N, O or S, and the substituents are selected from the group consisting of halogen, alkyl of 1–6 carbon atoms and aryl of 6–16 carbon atoms; and

x and y each are integers from 1 to 3, with the proviso that at least one of x and y is 1.

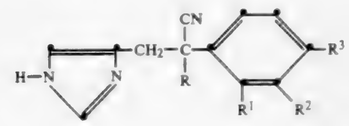
4,281,141

3-(IMIDAZOL-4-YL)-2-PHENYLPROPANENITRILES

Leander Merritt, and Richard P. Pioch, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed May 30, 1980, Ser. No. 154,653
Int. Cl.³ C07D *401/06, 233/54*
U.S. Cl. 548—342 **11 Claims**

1. A compound of the formula



wherein

R is C_1–C_4 alkyl, 2-pyridyl, phenyl or phenyl mono (3- or 4-) substituted with methyl, bromo, chloro, fluoro or trifluoromethyl;

R^1 is hydrogen, chloro, bromo or fluoro;

R^2 is hydrogen, methyl, bromo, chloro, fluoro or trifluoromethyl;

R^3 is hydrogen, methyl, bromo, chloro, fluoro or trifluoromethyl;

provided that one or both of R^2 and R^3 is hydrogen; and that R^1 is an atom other than hydrogen only when R^3 is chloro, bromo or fluoro;

or a non-phytotoxic acid addition salt thereof.

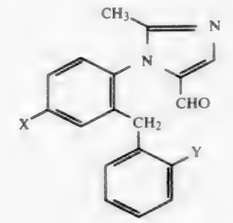
4,281,142

IMIDAZOLECARBOXALDEHYDES

George F. Field, West Caldwell, and William J. Zally, Cresskill, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 25,219, Mar. 29, 1979, Pat. No. 4,194,049. This application Sep. 27, 1979, Ser. No. 79,288
Int. Cl.³ C07D *233/64*
U.S. Cl. 548—343 **1 Claim**

1. A compound of the formula



wherein X and Y are selected from the group consisting of hydrogen, halogen and trifluoromethyl.

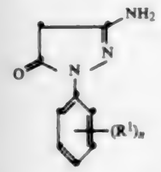
4,281,143

PROCESS FOR PREPARING 1-ARYL-3-AMINO-5-PYRAZOLONES

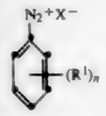
John A. Hyatt, Kingsport, Tenn.; Stephen E. French, Rochester, and Catalde A. Maggialli, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,548
Int. Cl.³ C07D *231/52*
U.S. Cl. 548—360 **5 Claims**

1. The process for preparing a 1-aryl-3-amino-5-pyrazolone of the formula



comprising reacting a non-reactive ester of 3-nitropropionic acid with an aryldiazonium salt of the formula



to produce the intermediate α-nitrohydrazone, and then reducing said intermediate to give the corresponding aminopyrazolone, wherein each R^1 is independently selected from hydrogen; lower dialkylamino; and straight or branched lower alkyl, lower alkoxy, phenyl and cyclohexyl, each of which may be substituted with hydroxy, lower alkoxy, or lower dialkylamino; n is 1, 2 or 3; and X is an anion.

4,281,144

PREPARATION OF MULTI-BRANCHED SILICON-FUNCTIONAL POLYORGANO-SILOXANES

Armand de Montigny, Leverkusen, and Hans-Heinrich Moretto, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 28, 1980, Ser. No. 144,101
Claims priority, application Fed. Rep. of Germany, May 15, 1979, 2919559
Int. Cl.³ C07F *7/10, 7/18*
U.S. Cl. 556—416 **7 Claims**

1. In the preparation of multi-branched equilibrated mixed acyloxy-containing and chlorine-containing organopolysiloxanes by reacting a chlorosilane of the formula

$$R_aSiCl_{4-a}$$

wherein
a=0 or 1,
with at least one organosiloxane containing units of the formula

$$R_2R'SiO_{1/2},\ RR'SiO,\ R'SiO_{3/2} \text{ and/or } SiO_2$$

wherein
R is hydrogen or an aliphatic, aromatic, saturated or unsaturated, optionally halogen-substituted or cyano-substituted monovalent hydrocarbon radical with up to 8 C atoms and
R′ is chlorine, hydroxyl, hydrogen or an aliphatic, aromatic, saturated or unsaturated, optionally halogen-substituted or cyano-substituted monovalent hydrocarbon radical with up to 8 C atoms,
in proportions such that the number of all the SiCl groups is always at least 1.5 times greater than the number of SiOH groups, in the presence of (a) fluoroalkanesulphonic acid or salt thereof and (b) relative to the chlorine atoms bonded to silicon, at least 1.1 times the molar amount of a concentrated monobasic carboxylic acid, the improvement which comprises adding a portion of the carboxylic acid in a first stage, and in a second stage adding the balance of the carboxylic acid along with water in the amount required to achieve the desired degree of branching.

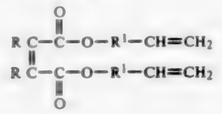
4,281,145

PROCESS FOR PRODUCING ALKOXYLATED SILANES

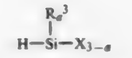
Tyrone D. Mitchell, Albany, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Apr. 2, 1980, Ser. No. 136,640
Int. Cl.³ C07F *7/18, 7/04*
U.S. Cl. 556—440 **63 Claims**

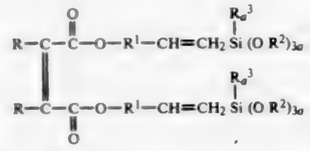
1. A process for producing silyl maleates comprising (a) reacting a maleate of the formula,



with



in the presence of a platinum catalyst and (b) reacting the intermediate product with an aliphatic alcohol of the formula R^2OH where said intermediate product is present in an organic solvent and where said aliphatic alcohol is added to said intermediate product slowly over a period of at least six hours wherein said intermediate product is maintained at the reflux temperature of said organic solvent during said addition wherein the aliphatic alcohol is added to said intermediate product below and into the liquid layer of said intermediate product in the reaction vessel and wherein the reaction is carried out at the reflux temperature of said organic solvent and wherein there is continually removed overhead an azeotrope of alcohol, solvent and water in which is dissolved HCl so as to keep the concentration of the HCl and unreacted alcohol in the reaction mixture to a minimum to produce in at least 70% yield a silyl maleate of the formula,



where R^2 and R^3 are monovalent hydrocarbon radicals of 1 to 8 carbon atoms, R is selected from hydrogen and monovalent hydrocarbon radicals of 1 to 8 carbon atoms, a varies from 1 to 2, X is halogen, and R^1 is a divalent hydrocarbon radical of 0 to 8 carbon atoms.

4,281,146

METHOD OF NEUTRALIZING A HALOGEN SILICONE COMPOUND

Bruce A. Ashby, Schenectady, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,248
Int. Cl.³ C07F *7/04, 7/08, 7/20*
U.S. Cl. 556—456 **14 Claims**

1. A method of neutralizing a halogen silicone compound comprising adding to the halogen silicone compound from 1 to 5 moles per mole of the halogen silicone compound selected from the class consisting of halo silanes and siloxanes of a formate of the formula,



where R is selected from the class consisting of halogen and alkyl radicals of 1 to 3 carbon atoms and R^1, R^2, R^3 may be the same or different and is an alkyl radical of 1 to 8 carbon atoms and from 0.05 to 1 mole based on 1 mole of said halogen silicone compound of an aliphatic alcohol having 1 to 6 carbon atoms.

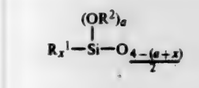
4,281,147

PROCESS FOR THE PRODUCTION OF AQUEOUS SOLUTIONS OF ALKALI ORGANOSILICONATES

Götz Koerner; Vaclav Kropac, and Harald Rau, all of Essen, Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 126,389
Claims priority, application United Kingdom, Mar. 5, 1979, 7664/79
Int. Cl.³ C07F *7/04, 7/08*
U.S. Cl. 556—459 **8 Claims**

1. In a process for the preparation of aqueous solutions of alkali organosiliconates which comprises reacting an organoalkoxypolysiloxane having the formula



wherein
R^1 is an alkyl residue with 1 to 3 carbon atoms, a vinyl residue and/or a phenyl residue,
R^2 is an alkyl residue with 1 to 4 carbon atoms,
a is a number ≦2, and
x is 1 to 1.25,
with an aqueous solution of sodium hydroxide or potassium hydroxide having a concentration of 0.7 to 0.9 mole/100 g at temperatures ≧80° C.

4,281,148

METHOD FOR THE PREPARATION OF A TRIORGANOSILYLATED 2,3-UNSATURATED ALCOHOL

Ryoji Noyori, Aichi, Japan, assignor to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 11, 1980, Ser. No. 186,212
Claims priority, application Japan, Sep. 18, 1979, 54-119814
Int. Cl.³ C07F *7/18*
U.S. Cl. 556—470 **4 Claims**

1. A method for the preparation of a triorganosilylated 2,3-unsaturated alcohol which comprises reacting an oxirane compound having at least 3 carbon atoms in a molecule, of which the carbon atom adjacent to the oxirane ring has at least one hydrogen atom directly bonded thereto, with a triorganosilyl trifluoromethanesulfonate in the presence of an amine compound.

4,281,149

PROCESS FOR TREATING SILICON PARTICLES WITHIN A SILICONE REACTOR SYSTEM

Ray W. Shade, Clifton Park, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Mar. 24, 1980, Ser. No. 132,718
Int. Cl.³ C07F *7/16, 7/08*
U.S. Cl. 556—472 **29 Claims**

1. A process for treating the particles in a silicone reactor where an organic chloride where the organic is a monovalent hydrocarbon radical is reacted with particles of silicon in the presence of copper comprising (a) removing particles selected from silicon particles and particles of silicon and copper from said reactor of less than 40 microns average diameter particle size; (b) abraiding said particles to remove the surface coating of said particles; and (c) returning said particles to the reactor.

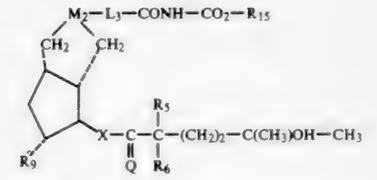
4,281,150

19-HYDROXY-19-METHYL-6A-CARBA-PGI$_2$ SULFONYLAMIDES

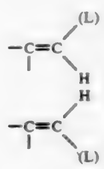
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,466
Int. Cl.³ C07C *103/737, 143/82*; A61K *31/18*
U.S. Cl. 560—10 **1 Claim**

1. A prostacyclin-type compound of the formula



1. wherein L_3 is
(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive,
(2) $-(CH_2)_p-CF_2-$, wherein p is 2, 3, or 4, or (3) $-CH_2-CH=CH-$;
wherein M_2 is



(1)

(2)

wherein Q is oxo, α-H:β-H, α-OH:βR_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;
wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive; wherein R_g is hydrogen or hydroxyl; and wherein X is
(1) trans-CH=CH—,
(2) cis-CH=CH—,

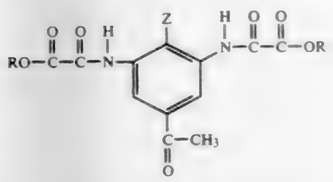
(3) —C≡C—, or
(4) —CH_2CH_2—.

4,281,151
PHENYLENE DIOXAMATE ESTERS

Charles M. Hall, and John B. Wright, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

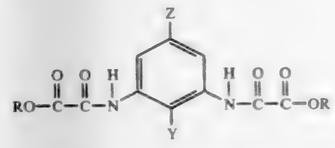
Continuation of Ser. No. 714,572, Aug. 16, 1976, Pat. No. 4,095,028, which is a division of Ser. No. 382,762, Jul. 26, 1973, Pat. No. 3,993,679, which is a continuation-in-part of Ser. No. 317,005, Dec. 20, 1972, abandoned. This application Jun. 2, 1978, Ser. No. 912,136
The portion of the term of this patent subsequent to Jun. 13, 1995, has been disclaimed.
Int. Cl.[1] **C07C** *103/60*
U.S. Cl. 560—44 **2 Claims**

1. A compound of the formula



wherein R is selected from the group consisting of alkyl of from one to six carbon atoms, inclusive;
Z is selected from the group consisting of hydrogen, alkyl of from one to three carbon atoms, inclusive, alkoxy of from one to three carbon atoms, inclusive, fluoro, chloro, and bromo.

2. A compound of the formula



wherein R is alkyl of one to six carbon atoms, inclusive; Z is trifluoromethyl, nitro, or



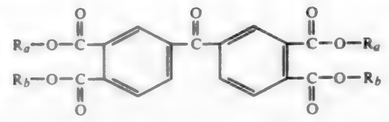
wherein D is hydrogen or alkyl of one to three carbon atoms, inclusive; Y is hydrogen, alkyl of one to three carbon atoms, inclusive, alkoxy of one to three carbon atoms, inclusive, fluoro or chloro.

4,281,152
ACRYLATE MONOMERS AND PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING SAME

Thomas F. Huemmer, and Pallavoor R. Lakshmanan, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

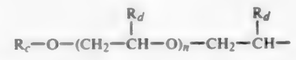
Filed Jun. 20, 1980, Ser. No. 161,638
Int. Cl.[3] **C07C** *69/767*
U.S. Cl. 560—52 **4 Claims**

1. A copolymerizable acrylate monomer useful as a component of U.V. curable resin compositions and anaerobic adhesive compositions with the structure:

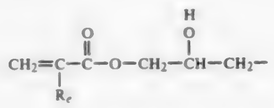


(1)

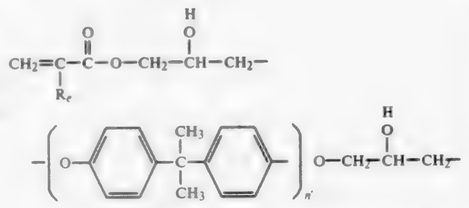
where R_a is an alkyl group containing up to about 18 carbon atoms or an alkoxy ether moiety having the structure:



where R_c is an alkyl group containing up to about 18 carbon atoms, R_d is hydrogen or a methyl group, and n is zero or a small integer, and R_b has the structure:



or



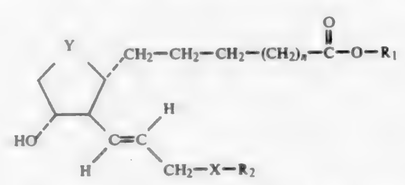
where R_e is hydrogen or an alkyl group and n' is a small integer.

4,281,153
15-DEOXY-16-HYDROXY-16-SUBSTITUTED PROSTANOIC ACIDS AND CONGENERS

Middleton B. Floyd, Jr., Suffern, N.Y.; Martin J. Weiss, Oradell, N.J.; Charles V. Grudzinskas, Garnerville, N.Y., and Sow-Mei Lai Chen, Park Ridge, N.J., assignors to American Cyanamid, Stamford, Conn.

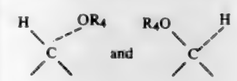
Division of Ser. No. 821,022, Aug. 1, 1977, Pat. No. 4,202,989, which is a division of Ser. No. 706,343, Jul. 13, 1976, Pat. No. 4,061,670. This application Jan. 17, 1980, Ser. No. 112,773
Int. Cl.[3] **C07C** *177/00*
U.S. Cl. 560—118 **24 Claims**

1. An optically active compound of the formula:

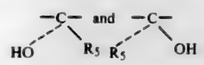


or a racemic mixture of that formula and the mirror image thereof wherein R_1 is selected from the group consisting of hydrogen and alkyl having from 1 to 12 carbon atoms, R_2 is selected from the group consisting of alkyl having from 2 to 7 carbon atoms optionally substituted with one or two alkyl

groups each having up to 3 carbon atoms; Y is a divalent moiety selected from the group consisting of:



wherein R_4 is selected from the group consisting of hydrogen and alkanoyloxy having from 2 to 6 carbon atoms; X is a divalent moiety selected from the group consisting of:



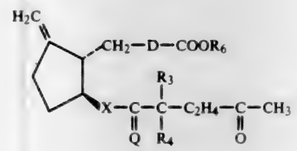
wherein R_5 is selected from the group consisting of vinyl and cyclopropyl; n is an integer from 3 to 5, inclusive; and the pharmacologically acceptable cationic salts thereof when R_1 is hydrogen.

4,281,154
9-DEOXY-9-METHYLENE-11-DEOXY-19-OXO-PGF_2 COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,046
Int. Cl.[3] **C07C** *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



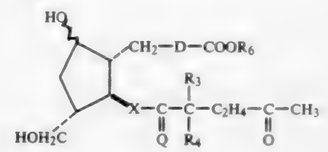
wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—, or
(4) trans—$(CH_2)_3$—CH=CH—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

4,281,155
11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGF_2 COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,047
Int. Cl.[3] **C07C** *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



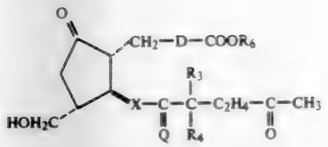
wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—, or
(4) trans—$(CH_2)_3$—CH=CH—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one of 3 carbon atoms, inclusive,
(g) -(p—Ph)—CO—CH_3,
(h) -(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) -(p—Ph)—NH—CO—(p—Ph),
(j) -(p—Ph)—NH—CO—CH_3,
(k) -(p—Ph)—NH—CO—NH_2,
(l) -(—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis-or trans—CH=CH—.

4,281,156
11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGE_2 COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,048
Int. Cl.[3] **C07C** *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) cis-CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis-CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis-CH_2—CH=CH—CH_2—CH_2—, or
(4) trans-$CH_2)_3$—CH=CH—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hyrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

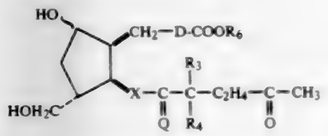
4,281,157

11-DEOXY-11-HYDROXYMETHYL-INTER-OXA-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,069
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein
D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein
Q is α—OH:β—R_5 or α—R_5:β—OH,
wherein
R_5 is hydrogen or methyl;
wherein
R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein
(p—Ph) is para-phenyl or inter-para-phenylene,
wherein
R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein
R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein
X is cis- or trans—CH=CH—.

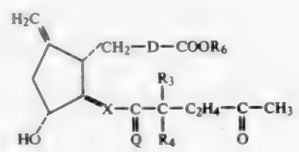
4,281,158

9-DEOXY-9-METHYLENE-INTER-OXA-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,070
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

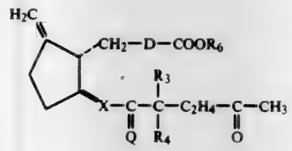
4,281,159

9-DEOXY-9-METHYLENE-11-DEOXY-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,211
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—;
wherein g is zero, one, two, or three;
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—,O—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

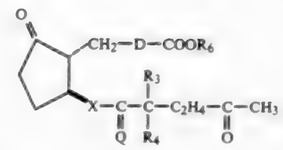
4,281,160

11-DEOXY-19-OXO-PGE$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,212
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28}, wherein (p-Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

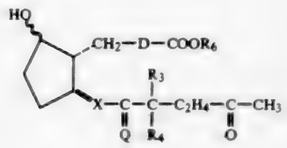
4,281,161

11-DEOXY-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,213
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis— or trans—CH=CH—.

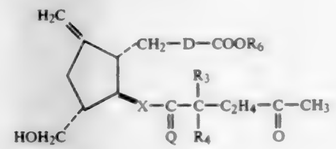
4,281,162

9-DEOXY-9-METHYLENE-11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,214
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

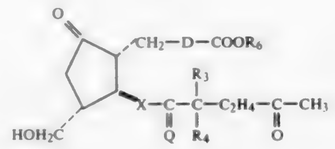
4,281,163

11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGE$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, Pat. No. 4,228,104. This application Mar. 20, 1980, Ser. No. 132,215
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—; wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-pH)—CO—CH_3,
(h) —(p-pH)—NH—CO—(p-pH)—NH—CO—CH_3,
(i) —(p-pH)—NH—CO—(p-pH),
(j) —(p-pH)—NH—CO—CH_3,
(k) —(p-pH)—NH—CO—NH_2,
(l) —(p-pH)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28}, wherein (p-pH) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

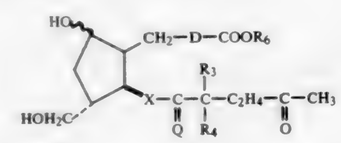
4,281,164

11-DEOXY-11-HYDROXYMETHYL-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,216
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(2) $(CH_2)_3$—$(CH_2)_g$—CF_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

(2) $(CH_2)_3$—$(CH_2)_g$—CH_2—;
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:βOH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive;
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

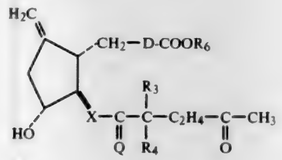
4,281,165

9-DEOXY-9-METHYLENE-19-OXO-PGF$_2$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,219
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—, or
(4) trans—$(CH_2)_3$—CH=CH—;
wherein g is zero, one, two or three;
wherein Q is αOH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—PH)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—pH),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis-or trans-CH=CH—.

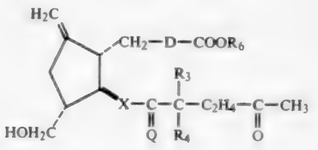
4,281,166

9-DEOXY-9-METHYLENE-11-DEOXY-11-HYDROXYMETHYL-INTER-OXA-19-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,228
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans—CH=CH—.

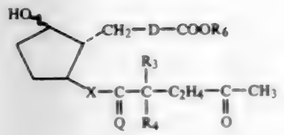
4,281,167

11-DEOXY-INTER-OXA-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,229
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

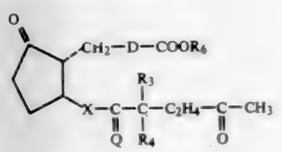
4,281,168

11-DEOXY-INTER-OXA-19-OXO-PGE$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo. Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,233
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

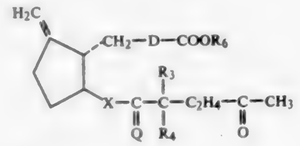
4,281,169

9-DEOXY-9-METHYLENE-11-DEOXY-INTER-OXA-19-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979. This application Mar. 20, 1980, Ser. No. 132,234
Int. Cl.^{3} C07C *177/00*
U.S. Cl. 560—121 **4 Claims**

1. A compound of the formula



wherein D is
(1) $(CH_2)_3$—O—CH_2—,
(2) $(CH_2)_3$—O—CF_2—, or
(3) —CH_2—O—$(CH_2)_3$—;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p-Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{28},
wherein (p-Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein X is cis- or trans-CH=CH—.

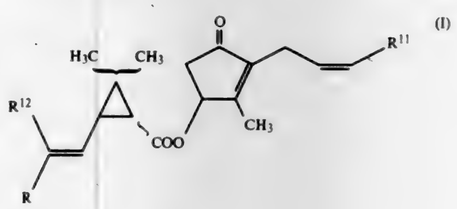
4,281,170

PROCESS FOR THE PREPARATION OF PYRETHRINS AND ANALOGUES THEREOF AND INSECTICIDAL COMPOSITIONS CONTAINING THE SAME

István Székely, Szentendre, and Marianna Lovász née Gáspár; Budapest, Gábor Kovacs, Rudolf Soós, both of Budapest, Lajos Nagy, Szentendre; Bela Kószegi, Budapest, all of Hungary, assignors to Chinoin Gyógyszer és Vegyészti Termékek Gyára Rt, Budapest, Hungary

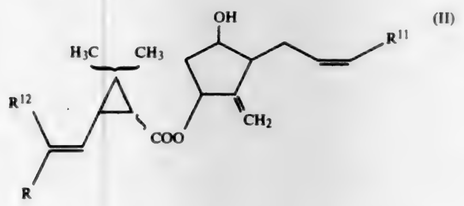
Filed Feb. 21, 1979, Ser. No. 13,070
Claims priority, application Hungary, Feb. 23, 1978, CI 1814
Int. Cl.^{3} C07C *69/747, 67/297, 69/743*
U.S. Cl. 560—124 **10 Claims**

1. A process for the preparation of an optically active or racemic compound of the formula I



(I)

wherein
R^{11} is straight or branched chain lower alkyl or 1-alkenyl or hydrogen;
R and R^{12} are the same or different and are hydrogen, halogen or lower alkyl or one of the moieties R and R^{12} is lower alkoxy-carbonyl;
the ∼ valency bonds represent α- and/or β-configuration; and the — bonds represent β-configuration, which comprises treating an optically active or racemic compound of the formula II



(II)

with an oxidizing agent in an aprotic inert organic solvent wherein the oxidizing agent is capable of oxidizing the secondary hydroxy group of the compound of the formula II without damaging other parts of the compound.

4,281,171

LIQUID CARBON DIOXIDE EXTRACTION OF PYRETHRINS

Marc Sims, 5835 Colton Blvd., Oakland, Calif. 94611

Filed Jul. 26, 1979, Ser. No. 60,886
Int. Cl.^{3} C07C *67/48*
U.S. Cl. 560—124 **4 Claims**

1. A process for removing pyrethrins from a pyrethrin containing material comprising the steps of:
(i) contacting said pyrethrin containing material with liquid carbon dioxide; and
(ii) separating said liquid carbon dioxide containing extracted pyrethrins from said material.

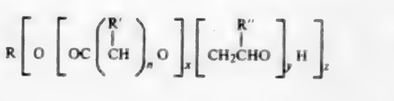
4,281,172

ACRYLYL ESTERS OF POLYESTER-POLYETHER COPOLYMERS

Robert J. Knopf, Saint Albans, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

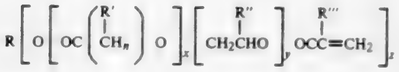
Filed Mar. 21, 1980, Ser. No. 132,652
Int. Cl.^{3} C07C *69/675*
U.S. Cl. 560—185 **21 Claims**

1. A polyester-polyether copolymer of the formula:



wherein
R is the organic residue of a mono-, di-, tri- or tetra-hydroxyl alcohol having from 1 to 20 carbon atoms;
R′ is hydrogen or alkyl having from 1 to 6 carbon atoms, with the proviso that at least n+2 of the R′ groups in the —$OC(CR'H)_nO$— moiety are hydrogen atoms;
R″ is hydrogen, methyl or ethyl;
n is an integer having a value of from 4 to 7;
x is an integer having an average value of from 2 to 250;
y is an integer having an average value of from 1 to 100;
z has a value equal to the valence of R and is from 1 to 4.

11. An acrylyl ester of the formula:



wherein
R is the organic residue of a mono-, di- tri- or tetrahydroxyl alcohol having from 1 to 20 carbon atoms;
R′ is hydrogen or alkyl having from 1 to 6 carbon atoms, with the proviso that at least n+2 of the R′ groups in the —$OC(CR'H)_nO$— moiety are hydrogen atoms;
R″ is hydrogen, methyl or ethyl;
R‴ is hydrogen, methyl or cyano;
n is an integer having a value of from 4 to 7;
x is an integer having an average value of from 2 to 250;
y is an integer having an average value of from 1 to 100;
z has a value equal to the valence of R and is from 1 to 4.

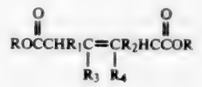
4,281,173

PREPARATION OF UNSATURATED DIESTERS BY CATALYTIC OXIDATIVE CARBONYLATION OF DIOLEFINS

Haven S. Kesling, Jr., Drexel Hill, Pa., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 3, 1979, Ser. No. 99,377
Int. Cl.^{3} C07C *67/38*
U.S. Cl. 560—204 **10 Claims**

1. In the process for preparing an unsaturated diester having the formula



wherein R is alkyl having 1 to 8 carbon atoms or aralkyl having 6 carbon atoms in the ring and 1 to 4 carbon atoms in the alkyl moiety and R_1, R_2, R_3 and R_4 are the same or different and are each hydrogen, halogen, alkyl having 1 to 4 carbon atoms or aryl having 6 carbon atoms in the ring by reacting a diolefin having the formula



wherein R_1, R_2, R_3, and R_4 are as aforesaid, with a mixture of carbon monoxide and oxygen and a stoichiometric amount of a dehydrating agent selected from the group consisting of acetals, ketals, carboxylic ortho esters, trialkylorthoborates and dialkoxycycloalkanes, at a pressure of from about 15 psig to 5,000 psig and at a temperature of about 25° to 200° C. in the presence of an effective amount of a catalytic mixture of (1) a platinum group metal compound or mixtures thereof and (2) a copper (I), copper (II), iron (II) or iron (III) oxidant salt compound and recovering the desired unsaturated diester, the improvement comprising carrying out said reaction in the presence of from 0.3 to 3 weight percent of a vanadium salt which is soluble in the reaction mixture under reaction conditions.

8. In the process of preparing dimethylhex-3-endioate by reacting 1,3-butadiene with a mixture of carbon monoxide and oxygen and a stoichiometric quantity of a dehydrating agent selected from the group consisting of acetals, ketals, carboxylic ortho esters, trialkylorthoborates and dialkoxycycloalkanes, at a pressure of between about 500 psig and 1800 psig and at a temperature of from about 80° to 150° C. in the presence of an effective amount of a palladium metal salt compound and a copper (II) oxidant salt compound, the improvement comprising carrying out said reaction in the presence of from 0.3 to 3 weight percent of a soluble vanadium salt.

4,281,174

OXIDATIVE CARBONYLATION OF ALCOHOLS TO PRODUCE DIALKYL OXALATES

Steven P. Current, Novato, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Apr. 21, 1980, Ser. No. 141,840

Int. Cl.[3] C07C *67/36*

U.S. Cl. 560—204 **15 Claims**

1. A process for preparing dialkyl oxalates by the oxidative carbonylation reaction which comprises contacting a normally liquid monohydric saturated aliphatic or alicyclic alcohol containing from 1 to 20 carbon atoms with a mixture of carbon monoxide and oxygen in the presence of a catalytic amount of a mixture comprising (1) palladium in complex combination with a neutral or negatively charged ligand, (2) a quinone, and (3) a redox agent comprising a compound of cobalt, manganese, copper, iron or vanadium, said contacting being conducted at a reaction temperature in the range of about 50° C.–100° C. and a carbon monoxide partial pressure in about the range 500 psi to 1500 psi.

4,281,175

PROCESS FOR PRODUCING DIMETHYLAMINOETHYL METHACRYLATE

Yoshiya Kametani, and Yasuo Iino, both of Yokohama, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 802,901, Jun. 2, 1977, abandoned. This application Jun. 17, 1980, Ser. No. 160,367

Claims priority, application Japan, Jun. 18, 1976, 51-71009

Int. Cl.[3] C07C *67/02*

U.S. Cl. 560—217 **9 Claims**

1. A process for producing dimethylaminoethyl methacrylate which comprises transesterifying methyl methacrylate with dimethylaminoethanol with a catalyst selected from the group consisting of tetrabutyltin, trioctyltin ethoxide, dibutyltin dimethoxide, dibutyltin diethoxide, dibutyltin dihydride, dibutyltin dilaurate, dioctyltin dilaurate, dibutyltin maleate, dioctyltin maleate bis(tributyltin) oxide, bis (dibutylmethoxytin) oxide and bis (dioctylmethoxytin) oxide.

4,281,176

PREPARATION OF ETHYL CARBOXYLATES

Max Gruffaz, La Mulatiere, and Odile Micaelli, Lyons, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jan. 16, 1979, Ser. No. 3,814

Claims priority, application France, Jan. 16, 1978, 78 01570; Nov. 22, 1978, 78 33770

Int. Cl.[3] C07C *67/04;* C11C *3/00*

U.S. Cl. 560—247 **19 Claims**

1. In a process for the preparation of an ethyl carboxylate, in the liquid phase, from ethylene under pressure and at least one carboxylic acid, in the presence of an effective amount of acid catalyst, the improvement which comprises conducting the reaction in an essentially anhydrous medium comprising at least one solvent selected from the group consisting of nitrobenzene, dimethylsulfone, tetramethylenesulfone, dichloro-tetramethylenesulfone, 3-methyltetramethylenesulfone and 2,4-dimethyltetramethylenesulfone.

4,281,177

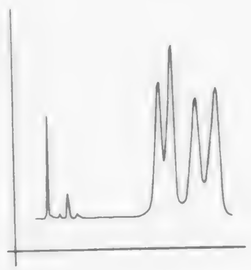
6-HYDROXY-2,6-DIMETHYLHEPTANAL, ORGANOLEPTIC USES THEREOF AND PROCESSES FOR PREPARING THE SAME

Mark A. Sprecker, Sea Bright; Robert W. Trenkle; Braja D. Mookherjee, both of Bricktown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J.; Jacob Kiwala, Brooklyn, N.Y., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

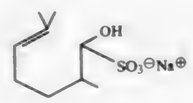
Division of Ser. No. 88,519, Oct. 26, 1979, Pat. No. 4,242,281, which is a division of Ser. No. 52,355, Jun. 27, 1979, abandoned, which is a division of Ser. No. 961,685, Nov. 17, 1978, abandoned. This application Jul. 17, 1980, Ser. No. 169,899

Int. Cl.[3] C07C *143/16, 141/00, 47/19*

U.S. Cl. 260—513 R **1 Claim**



1. The sulfite-aldehyde addition salt of 2,6-dimethyl-5-heptenal having the structure:



4,281,178

PROCESS FOR THE PRODUCTION OF BENZOIC ACID FROM PROCESS RESIDUES THAT CONTAIN BENZYL BENZOATE

Henri Sidi, Paramus, and William G. Hughes, Plainfield, both of N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Continuation-in-part of Ser. No. 99,696, Dec. 3, 1979, abandoned. This application Apr. 18, 1980, Ser. No. 141,713

Int. Cl.[3] C07C *51/16, 51/255*

U.S. Cl. 562—412 **10 Claims**

1. In the process for the production of benzoic acid by the liquid phase oxidation of toluene with an oxygen-containing gas in the presence of a heavy metal oxidation catalyst wherein benzoic acid and benzaledehyde are separated from a process residue that comprises benzoic acid, benzyl banzoate, reaction by-products having boiling points higher than the boiling point of benzaldehyde, and spent catalyst, the improvement that comprises the steps of

(a) heating the process residue to a temperature in the range of 180° C. to 250° C. at a pressure in the range of 50 to 200 torr to separate a benzyl benzoate-rich fraction from a residue that contains spent catalyst and the higher-boiling by-products of the toluene-oxidation reaction;

(b) contacting the benzyl benzoate-rich fraction with an oxygen-containing gas in the presence of an oxidation catalyst selected from the group consisting of cobalt, manganese, and vanadium salts of monocarboxylic acids having 1 to 12 carbon atoms at a temperature in the range of 130° C. to 200° C. at a pressure in the range of 1 atmosphere to 10 atmospheres until 25% to 60% of the benzyl benzoate has been oxidized to benzoic acid and an oxidation product mixture that comprises benzoic acid and benzyl benzoate has been formed; and

(c) recovering benzoic acid from the oxidation product mixture.

4,281,179

PROCESS FOR PRODUCING TEREPHTHALIC ACID WITH HIGH PURITY

Makoto Komatsu, and Toru Tanaka, both of Kurashiki, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation of Ser. No. 967,091, Dec. 6, 1978, abandoned. This application Feb. 8, 1980, Ser. No. 119,969

Claims priority, application Japan, Dec. 7, 1977, 52-146935

Int. Cl.[3] C07C *51/16*

U.S. Cl. 562—416 **15 Claims**

1. A process for producing terephthalic acid with a high purity, where terephthalic acid is produced by oxidizing p-tolualdehyde with molecular oxygen in the presence of a heavy metal catalyst and a bromine compound in water as a solvent, characterized by conducting the oxidation at 180°–280° C., using manganese and/or cerium as the heavy metal catalyst, maintaining the bromine concentration in the reaction system during the reaction in a range of 0.5–12% by weight on the basis of the reaction solution in terms of bromine ions, and maintaining the amount of mineral acid in the reaction system during the reaction at a ratio of g-equivalents of hydrogen ions of the mineral acid to sum total of g-equivalents of the hydrogen ions and manganese and/or cerium ions ($H^+/H^+ + 2Mn^{++}$ or $H^+/H^+ + 3Ce^{+++}$) of 1–85%, and at a ratio of sum total of g-equivalents of the hydrogen ions and manganese and/or cerium ions to g-equivalents of bromine ions ($H^+ + 2Mn^{++}/Br^-$ or $H^+ + 3Ce^{+++}/Br^-$) of 0.5–5.

4,281,180

PROCESS FOR PRODUCING THREO-3-AMINO-2-HYDROXYBUTANOYL-AMINOACETIC ACIDS, AS WELL AS NOVEL INTERMEDIATED THEREFOR AND PROCESS FOR PRODUCING THEM

Hamao Umezawa, Tokyo; Takaaki Aoyagi, Fujisawa; Tadashi Shirai, Musashino; Rinzo Nishizawa; Masao Suzuki, both of Tokyo, and Tetsushi Saino, Yono, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 23, 1979, Ser. No. 96,693

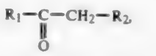
Claims priority, application Japan, Nov. 25, 1978, 53/145509; Dec. 13, 1978, 58/153157

Int. Cl.[3] C07C *51/347*

U.S. Cl. 562—448 **7 Claims**

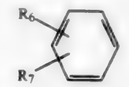
1. A process for producing a threo-3-amino-2-hydroxybutanoyl aminoacetic acid comprising the steps of;

(A) reacting an N-protected 2-oxoethylamine represented by the formula:



(I)

wherein R_1 represents a naphthyl or a group of the formula:

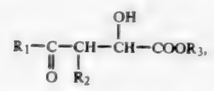


in which R_6 and R_7 represent individually hydrogen, halogen, amino or a protected amino, hydroxy or a protected hydroxy, a lower alkoxy or a lower alkyl and R_2 represents a protected amino; with glyoxylic acid or its ester represented by the formula:



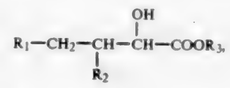
(II)

wherein R_3 represents hydrogen, lower alkyl having 1 to 6 carbon atoms or benzyl, in a solvent at a temperature from 0° C. to the boiling point of the solvent in the presence of a base, to produce a threo-3-protected amino-2-hydroxy-4-oxobutanoic acid or its ester represented by the formula:



(III)

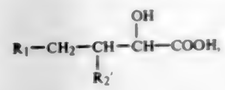
wherein R_1, R_2 and R_3 have the same meanings as above; (B) then reducing the compound of formula (III) in a solvent at a temperature from 0° C. to 150° C. a threo-3-protected amino-3-hydroxybutanoic acid or its ester represented by the formula:



(IV)

wherein R_1, R_2 and R_3 have the same meanings as above; (C) further subjecting the compound of formula (IV), as required, to the steps of (a) eliminating the lower alkyl or benzyl of R_3, (b) optical resolution and/or (c) eliminating the amino protecting group, thereby converting the com-

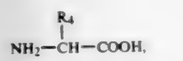
pound of formula (IV) into a threo-3-amino-2-hydroxybutanoic acid represented by the formula:



(V)

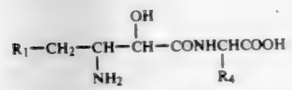
wherein R_1 has the same meanings as above and R_2' represents amino or a protected amino; and then

(D) condensing the compound of formula (V), in a conventional manner for forming a peptide coupling, with an aminoacetic acid represented by the formula:



(VI)

wherein R_4 represents an alkyl of 3 or 4 carbon atoms or 3-guanidinopropyl, whose amino or hydroxyl groups not relevant to the reaction have previously been protected as required, and then eliminating the protecting groups for the amino or hydroxyl groups to produce the threo-3-amino-2-hydroxybutanoylaminoacetic acid represented by the formula:



(VII)

wherein R_1 and R_4 have the same meanings as above.

4,281,181

NOVEL L-γ-GLUTAMYL-3-CARBOXY-4-HYDROXYANILIDE AND SALTS THEREOF

Takeshi Nagasawa; Katsumasa Kuroiwa; Katsuyuki Takabayashi, all of Koriyama; Norimasa Takizawa, Funabashi; Kazuyo Hagihara, Ichikawa, and Tadami Akatsuka, Tsuchiura, all of Japan, assignors to Nitto Boseki Co., Ltd., Fukushima and Iatron Laboratories, Inc., Tokyo, both of, Japan

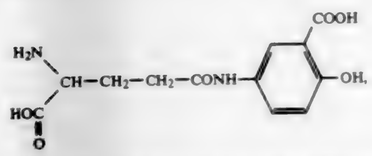
Filed Nov. 14, 1979, Ser. No. 94,072

Claims priority, application Japan, Nov. 16, 1978, 53-141463

Int. Cl.³ C07C *101/72*

U.S. Cl. 562—453 **1 Claim**

1. L-γ-glutamyl-3-carboxy-4-hydroxyanilide represented by the formula



(I)

an acid addition salt thereof, or an alkali metal or amine salt thereof.

4,281,182

NOVEL LACTONES OF CIS 2,2-DIMETHYL-CYCLOPROPANE-1-CARBOXYLIC ACID AND THEIR USE

Jacques Martel, Bondy; Jean Tessier, Vincennes; Jean-Pierre Demoute, Montreuil-sous-Bois, and Jean Jolly, Fontenay-sous-Bois, all of France, assignors to Roussel UCLAF, Paris, France

Division of Ser. No. 914,399, Jun. 12, 1978, Pat. No. 4,166,063.

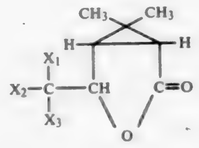
This application Apr. 6, 1979, Ser. No. 27,654

Claims priority, application France, Jun. 27, 1977, 77 19612

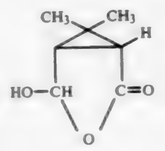
Int. Cl.³ C07C *61/40*; C07D *307/93*

U.S. Cl. 562—506 **5 Claims**

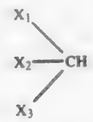
1. A process for the preparation of a cis compound of the formula



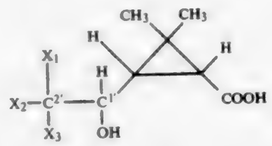
wherein X_1, X_2 and X_3 when identical are selected from the group consisting of chlorine and bromine and when at least two are different, are selected from the group consisting of fluorine, chlorine and bromine comprising reacting in the presence of a basic agent selected from the group consisting of alkali metal alkanolates, alkali metal hydrides and alkali metal hydroxides a compound of the formula



with a haloform of the formula



wherein X_1, X_2 and X_3 have the above definition to obtain a compound of the formula



and reacting the latter with an acid agent or a dehydrating agent or subjecting the latter to heat to obtain the desired compound.

4,281,183

OXYIMINO-SUBSTITUTED CYCLOPROPANECARBOXYLATE

Steven A. Roman, Oakdale, Calif., assignor to Shell Oil Company, Houston, Tex.

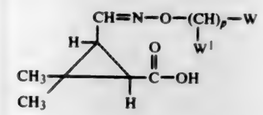
Division of Ser. No. 51,668, Jun. 25, 1979, Pat. No. 4,237,123.

This application Jun. 5, 1980, Ser. No. 156,894

Int. Cl.³ C07C *61/04, 131/02*

U.S. Cl. 562—506 **6 Claims**

1. A cyclopropane compound having the formula



wherein W is $-OR^1$, $-SR^1$, $-S(O)R^1$, $-S(O)_2R^1$, $-NR^1R^2$, $-N(O)R^1R^2$ or $-(OCH_2CH_2)_q-OR^1$ in which q is an integer of 1 to 4, R^1 and R^2 each independently is a hydrogen atom, an alkyl group containing from 1 to 8 carbon atoms optionally substituted by one or more halogen atoms, a (cycloalkyl)alkyl group containing from 3 to 7 ring carbon atoms, a total of from 4 to 9 carbon atoms and optionally ring-substituted by one or more halogen atoms, a cycloalkyl group containing from 3 to 7 ring carbon atoms, an alkenyl group containing from 3 to 4 carbon atoms optionally substituted by one or more halogen atoms or an alkynyl group containing from 3 to 4 carbon atoms or an aryl group containing from 6 to 12 carbon atoms or an aralkyl group containing from 7 to 10 carbon atoms, each optionally ring-substituted by one or more halogen atoms or when p is 2 then W^1 is a hydrogen atom.

4,281,184

MONOCHLOROACETIC ACID PROCESS

Placido Spaziante, Lugano, Switzerland; Giancarlo Sioli, Cernobbio, and Luigi Giuffre, Milan, both of Italy, assignors to Fondazione deNora, Milan, Italy

Filed Mar. 22, 1978, Ser. No. 888,954

Claims priority, application Italy, Feb. 16, 1978, 20313 A/78

Int. Cl.³ C07C *51/363*

U.S. Cl. 562—603 **5 Claims**

1. A method of producing monochloroacetic acid which comprises:

(a) chlorinating at a temperature of at least 75° C. a mixture of acetyl chloride and acetic acid to produce a gaseous fraction comprising hydrogen chloride gas and a liquid fraction comprising monochloroacetic acid and acetic acid and separating the hydrogen chloride gas from the liquid, (b) separately contacting resulting hydrogen chloride from Step (a) with a solution of acetic acid and acetic anhydride at a temperature not above 60° C. to form a liquid mixture of acetic acid and acetyl chloride and a second gaseous hydrogen chloride gas containing acetyl chloride, (c) contacting at least part of the second gaseous hydrogen chloride with the liquid from Step (a) to strip acetyl chloride from the liquid and produce a third gaseous hydrogen chloride fraction containing acetyl chloride, (d) scrubbing said third gaseous fraction with liquid acetic acid and feeding the resulting acetic acid-acetyl chloride solution to Step (a).

4,281,185

SYMMETRICAL DIPHOSPHATETRAAZACYCLOOCTATETRAENES

Kazimiera J. L. Paciorek, Corona Del Mar; Reinhold H. Kratzer, Irvine; Thomas I. Ito, Fountain Valley, and James H. Nakahara, Irvine, all of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 26, 1980, Ser. No. 163,134

Int. Cl.³ C07F *9/22*; C10M *1/44*

U.S. Cl. 564—13 **8 Claims**

1. A process for synthesizing symmetrical diphosphatetraazacyclooctatetraenes which comprises the steps of (1) forming a reaction mixture composed of (a) a diaryltrihalophosphorane and (b) a perfluorinated amidine; (2) heating said reaction mixture in the presence of an acid acceptor for a period of time and at a temperature sufficient to effect a reaction therebetween; and (3) separating the resulting reaction product.

7. The compound 1,5-bis(diphenylphospha)-3,7-bis[$C_3F_7OCF(CF_3)$]-2,4,6,8-tetraazacyclooctatetraene.

8. The compound 1,5-bis(diphenylphospha)-3,7-bis[$C_3F_7OCF(CF_3)CF_2OCF(CF_3)$]-2,4,6,8-tetraazacyclooctatetraene.

4,281,186

ACRYLYL AND METHACRYLYL UREAS CONTAINING QUATERNARY GROUPS, PROCESS FOR THEIR PREPARATION AND THEIR USE IN THE PREPARATION OF POLYMERS

Erich Küster, Krefeld; Kurt Dahmen, Monchen-Gladbach, and Eduard Barthell, Krefeld, all of Fed. Rep. of Germany, assignors to Chemische Fabrik Stockhausen & Cie, Krefeld, Fed. Rep. of Germany

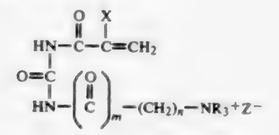
Filed Dec. 18, 1979, Ser. No. 104,989

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856384

Int. Cl.³ C07C *127/22*

U.S. Cl. 564—46 **9 Claims**

1. A urea of the formula



wherein

X is hydrogen or a methyl group,

R is a lower alkyl radical having from 1 to 4 carbon atoms,

m is 0 or 1,

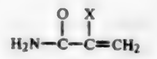
n is an integer between 1 and 4, and

Z is a salt-forming anion.

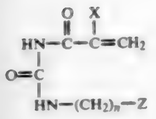
4. A process for the preparation of a urea according to claim 1, wherein Z is halogen and m is 0, comprising reacting a haloalkyl or haloacyl isocyanate of the formula

$$O=C=N-(CH_2)_n-Z$$

with an α,β-unsaturated carboxylic acid amide of the formula



to produce a halogen-substituted urea of the formula



and reacting the halogen-substituted urea in a solvent with a trialkylamine of the formula NR_3 at a temperature from about 20° to 100° C. and at a pressure from about 1 to 4 bars.

4,281,187

PROCESS FOR THE PREPARATION OF 2,4-DINITROPHENYL UREA

Theodor Papenfuhs, Frankfurt am Main, and Kurt Gengnagel, Kriftel, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,561

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2855882

Int. Cl.³ C07C *126/04*

U.S. Cl. 564—50 **5 Claims**

1. In a process for the preparation of 2,4-dinitrophenyl urea comprising a reaction of 2,4-dinitro-1-chlorobenzene with cyanamide and subsequent acid hydrolysis of the 2,4-dinitrophenyl cyanamide, the improvement consisting of conducting the reaction of the 2,4-dinitro-1-chlorobenzene with the cyanamide and the subsequent acid hydrolysis in an aqueous medium without intermediate isolation of the 2,4-dinitrophenyl cyanamide.

4,281,188

N'[3-(HALOBENZOYL)-4-(GLYCYLAMINO)PHENYL-]UREAS

Albert E. Fischli, and Andre Szente, both of Riehen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

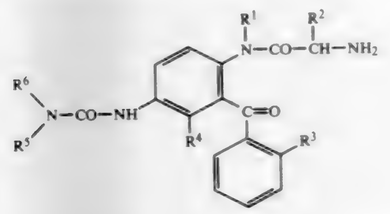
Division of Ser. No. 63,288, Aug. 2, 1979. This application Sep. 11, 1980, Ser. No. 186,051

Claims priority, application Switzerland, Aug. 11, 1978, 8563/78; Jun. 6, 1979, 5270/79; Jul. 5, 1979, 6296/79

Int. Cl.³ C07C *127/19*

U.S. Cl. 564—51 **2 Claims**

1. Compounds of the general formula



IV

wherein R^1 represents a lower alkyl group, R^2 represents a hydrogen atom or a lower alkyl group, R^3 represents a halogen atom and R^4 represents a hydrogen or halogen atom and either R^5 represents a hydrogen atom or a lower alkyl group and R^6 represents a lower alkyl, lower hydroxyalkyl or lower acyloxyalkyl group or R^5 represents a hydrogen atom and R^6 represents an aryl or lower aralkyl group or R^5 and R^6 together with the nitrogen atom to which they are attached represent a 3-membered to 7-membered heterocycle which, when it is at least 5-membered, can contain as a ring member an oxygen or sulphur atom or a group of the formula $>N—R^7$ in which R^7 represents a hydrogen atom or a lower alkyl group.

4,281,189

SULFONAMIDE INTERMEDIATES FOR ADRENERGIC BLOCKING AGENTS

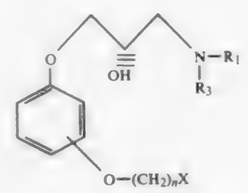
Kenneth E. Fahrenholtz, Bloomfield; Robert W. Guthrie, Saddle Brook; Richard W. Kierstead, North Caldwell; Jefferson W. Tilley, North Caldwell, all of N.J., assignor to Hoffman-La Roche Inc., Nutley, N.J.

Division of Ser. No. 73,051, Sep. 6, 1979, Pat. No. 4,247,710, which is a division of Ser. No. 875,966, Feb. 8, 1978, Pat. No. 4,202,978. This application Aug. 22, 1980, Ser. No. 180,259

Int. Cl.³ C07C *143/75, 143/79*

U.S. Cl. 564—92 **2 Claims**

1. The compound of the formula



wherein R_1 is lower alkyl, R_3 is selected from the group consisting of mesyl, tosyl, brosyl and benzenesulfonyl, X is halo and n is 2 to 20.

4,281,190

PROCESS FOR PREPARING N-[2-(P-HYDROXYPHENYL)-ETHYL]-P-CHLOROBENZAMIDE

Nicholas Harris, Norwich, N.Y., assignor to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed Aug. 14, 1980, Ser. No. 177,906

Int. Cl.³ C07C *103/78*

U.S. Cl. 564—185 **1 Claim**

1. The method of preparing N-[2-(p-hydroxyphenyl)ethyl]-p-chlorobenzamide which consists in: (a) reacting N-(p-chlorobenzoyl)glycine and p-hydroxybenzaldehyde in the presence of sodium acetate and acetic anhydride to form 4-(p-acetoxybenzylidene)-2-(p-chlorophenyl)-5-oxazolone; (b) treating said oxazolone with sodium hydroxide to form 2-(p-chlorobenzamido)-3-(p-hydroxyphenyl)acrylic acid; (c) decarboxylating said acrylic acid to form 1-(p-chlorobenzamido)-2-(p-(hydroxyphenyl)ethylene; and (d) hydrogenating said ethylene.

4,281,191

19-HYDROXY-19-METHYL-PG AMIDES

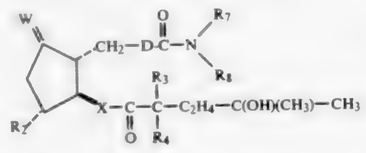
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,203

Int. Cl.³ C07C *103/19*; A61K *31/16*

U.S. Cl. 564—189 **178 Claims**

1. A compound of the formula



wherein D is

(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,

(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,

(3) cis—CH_2—CH=CH—CH_2—CH_2—,

(4) trans—$(CH_2)_3$—CH=CH—,

(5) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,

(6) —$(CH_2)_3$—CH_2—CF_2—,

(7) —$(CH_2)_3$—O—CH_2—,

(8) —$(CH_2)_2$—O—$(CH_2)_2$,

(9) —CH_2—O—$(CH_2)_3$—,

(10) —(m—Ph)—$(CH_2)_2$—, or

(11) —(m—Ph)—O—CH_2—,

wherein —(m—Ph)— is inter-meta-phenylene, and

wherein g is zero, one, two, or three;

wherein Q is α-OH:β-R_5 or α-R_5: β-OH, wherein R_5 is hydrogen or methyl;

wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different;

wherein R_2 is, hydroxyl, or hydroxymethyl;

wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and

wherein X is cis- or trans—CH=CH—, —C≡C—, or —CH_2CH_2—.

4,281,192

N-(2,5-DIHYDROXY-3,4,6-TRIMETHYL-BENZYL)-ACRYLAMIDE AND-METHACRYLAMIDE

Bernard Jacquet, Antony; Claude Mahieu, Paris, and Christos Papantoniou, Montmorency, all of France, assignors to L'Oreal, Paris, France

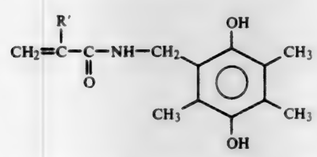
Filed Oct. 16, 1979, Ser. No. 85,399

Claims priority, application France, Oct. 26, 1978, 78 30461

Int. Cl.³ C07C *103/60*

U.S. Cl. 564—207 **3 Claims**

1. A compound of the following formula:



(I)

in which: R' represents a hydrogen atom or a methyl radical.

4,281,193

PROCESS FOR PREPARING SUBSTITUTED FORMAMIDES

Harold E. Bellis, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 16, 1980, Ser. No. 169,530

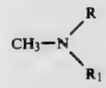
Int. Cl.³ C07C *102/00*

U.S. Cl. 564—215 **7 Claims**

1. A process for the catalytic preparation of a substituted formamide, the process comprising

(A) bringing together, in an inert liquid medium, under conditions suitable for reaction,

(1) a compound represented by the structure



where

R and R_1 are alkyl radicals of 1–8 carbon atoms, aryl radicals of 6–10 carbon atoms, aralkyl radicals of 7–10 carbon atoms or alkaryl radicals of 7–10 carbon atoms, and R_1 can in addition be an alkyl radical containing a —$N(CH_3)R_2$ group in which R_2 can be hydrogen, an alkyl radical of 1–8 carbon atoms, an aryl radical of 6–10 carbon atoms, an aralkyl radical of 7–10 carbon atoms or an alkaryl radical of 7–10 carbon atoms, with the provisos that R and R_1 can be joined together to form an alkylene or azaalkylene group of 3–8 carbon atoms, and when

R is alkyl or aralkyl, R_1 can be hydrogen;

(2) oxygen; and

(3) a catalytically effective amount of a combination of

(a) a soluble chloride, bromide or iodide of copper, cobalt, gold, iron, mercury, nickel, palladium, platinum, silver or zinc, and

(b) a chloride, bromide or iodide of sodium, potassium, lithium or ammonium, and then

(B) recovering the substituted formamide product from the reaction mass.

4,281,194

PROCESS FOR AMMOXIMATION OF CYCLOHEXANONE

John N. Armor, Morris Plains, and Emery J. Carlson, Chatham, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Feb. 28, 1980, Ser. No. 125,723

Int. Cl.³ C07C *131/04*

U.S. Cl. 564—267 **5 Claims**

1. In a process of direct conversion to oxime of a mixture of cyclohexanone, ammonia and oxygen in contact with a solid catalyst at temperature in the range of 50° to 500° C., the improvement which comprises employing as catalyst a silica/alumina amorphous gel, obtained by forming a nearly clear liquid solution consisting essentially of an orthosilicate tetraester and an aluminate triester in mole ratio of about 2:1–3:1 of said silicate:said aluminate; hydrolyzing said esters, thereby coprecipitating silica and alumina in the form of a gel, by adding to the ester solution, under agitation, a quantity of water amounting to about 0.4 to 5 moles of water per molecular equivalent of total ester groups, at a rate of addition which equals or exceeds the rate at which gelation of the liquid commences, whereafter rapid gelation of the body of liquid to a body of gel occurs with evolution of heat; and evaporating out of the gel at temperatures not over about 275° C. the by-products of hydrolysis thereby producing dried gel of bulk density about 0.3 to 0.4 g/cc.

4,281,195

PROCESS FOR THE PREPARATION OF SCHIFF'S BASES BY THE REACTION OF AROMATIC AMINES WITH KETONES

Joachim George, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Fed. Rep. of Germany

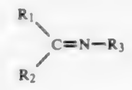
Filed Jan. 10, 1980, Ser. No. 110,806

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1979, 2901863

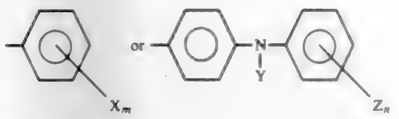
Int. Cl.³ C07C *119/06*

U.S. Cl. 564—271 **6 Claims**

1. A process for preparing a Schiff's base of the formula



wherein R_1 when taken separately is alkyl having 1 to 3 carbon atoms, R_2 when taken separately is alkyl having 2 to 9 carbon atoms, R_1 and R_2 when taken together with the carbon atom to which they are attached form a saturated hydrocarbon ring having from 5 to 7 carbon atoms and R_3 is



wherein
X is alkyl having 1 to 3 carbon atoms,
m is 1 to 3,
Y is hydrogen or phenyl,
Z is alkyl having 1–3 carbon atoms or amino and
n is 1 to 3, said process comprising reacting an amine of the formula $H_2N—R_3$ wherein R_3 is aforesaid with a ketone of the formula



wherein R_1 and R_2 are as aforesaid in a molar ratio of amine to ketone of from 1:1 to 1:10 and in the presence of a catalytic amount of at least one catalyst selected from the group consisting of calcium hydrogen phosphate, apatite, aluminum oxide and aluminum hydroxide and removing water of reaction by azeotropic distillation.

4,281,196

QUATERNARY AMMONIUM COMPOUNDS, THEIR PREPARATION, AND THEIR USE AS SOFTENING AGENTS

Horst Rutzen, Langenfeld; Jochen Heidrich, Düsseldorf; Martin Bischoff, Gelsenkirchen; Udo Kloubert, Erkrath; Peter Waltenberger, Hilden, and Ingo Wegener, Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

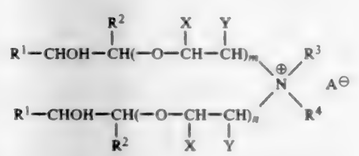
Filed Oct. 11, 1979, Ser. No. 83,850

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1978, 2844451; Oct. 12, 1978, 2844463

Int. Cl.³ C07C *91/26*

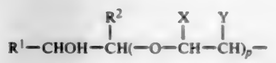
U.S. Cl. 564—292 **13 Claims**

1. A quaternary ammonium compound of formula



(I)

wherein R^1 represents an aliphatic hydrocarbon radical of from about 1 to 21 carbon atoms; R^2 represents hydrogen or has the same meaning as R^1, the total number of carbon atoms in R^1 and R^2 being from 6 to 22, and, when R^2 is hydrogen, R^1 has from 6 to 21 carbon atoms; R^3 represents an alkyl or hydroxyalkyl group having from 1 to 4 carbon atoms or a radical of formula



(Ia)

wherein R^1 and R^2 are as defined above, X and Y are each hydrogen or a methyl group, with the proviso that X and Y cannot be a methyl group, and p is an integer of from 1 to 20; R^4 represents an alkyl radical of from 1 to 4 carbon atoms; m and n are integers of from about 1 to 20; and $A^\ominus$ is an anion.

4,281,197

HYDROLYTIC DECOMPOSITION METHOD

Fred G. Oblinger, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 49,511, Jun. 18, 1979, abandoned, which is a continuation of Ser. No. 826,915, Aug. 22, 1977, abandoned. This application Oct. 6, 1980, Ser. No. 194,164

Int. Cl.³ C07C *85/26;* **C08J** *11/00*

U.S. Cl. 564—393 **13 Claims**

1. In a process for hydrolytically decomposing porous polyurethane solids disposed in a chamber and separating liquid polyol therefrom the improvement comprising:
(A) evacuating said chamber to a pressure below about 10^{-1} atmospheres;
(B) preheating the walls of said chamber and thereafter admitting saturated steam into said chamber to provide at least about 30 atmospheres of pressure therein;
(C) maintaining a temperature in said chamber sufficient to continue hydrolytic decomposition and to promote separation of gaseous diamine and liquid polyol in said chamber;
(D) exhausting gaseous effluent from the upper portion of said chamber;
(E) cooling said chamber; and
(F) collecting liquid polyol from the lower portion of said chamber.

4,281,198

PROCESS FOR PRODUCING METHYLHYDRAZINES

Shiro Hojo, Sakaide; Yoichi Hasegawa, Marukame; Tuyoshi Ichimiya, Takamatsu, and Kazuo Kimura, Sakaide, all of Japan, assignors to Japan Hydrazine Co., Inc., Tokyo, Japan

Filed Jul. 10, 1980, Ser. No. 167,352

Claims priority, application Japan, Jul. 17, 1979, 54/90842

Int. Cl.³ C07C *109/02*

U.S. Cl. 564—464 **6 Claims**

1. A process for producing methylhydrazines, which comprises reacting trimethylanilinium halide with hydrazine or monomethylhydrazine.

4,281,199

POLYALKYLENE POLYAMINE ETHER DERIVATIVES OF POLYOXYALKYLENE COMPOUNDS

William K. Langdon, Grosse Ile, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation-in-part of Ser. No. 866,205, Jun. 3, 1978, abandoned. This application Sep. 24, 1979, Ser. No. 78,544

Int. Cl.³ C08G *59/14, 65/32*

U.S. Cl. 564—475 **9 Claims**

1. A process for the preparation of a polyamine comprising:
(a) reacting propylene oxide, a butylene oxide or mixtures thereof with a hydroxyl compound having from one to eight hydroxyl groups,
(b) reacting the oxyalkylated hydroxyl compound of (a) with an epihalohydrin,
(c) reacting the product of (b) with a molar excess of amine, and
wherein there is substantially no dioxane formation when reacting the epihalohydrin with the oxyalkylated hydroxyl compound.

4,281,200

CATALYTIC PROCESS FOR CONVERTING OXAZOLIDINONES TO THEIR CORRESPONDING AMINOALCOHOLS

Karel A. J. Snoble, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Aug. 30, 1979, Ser. No. 71,208

Int. Cl.³ C07C *91/04, 51/56*

U.S. Cl. 564—487 **11 Claims**

1. A method for catalytically converting an oxazolidinone to its respective alkanolamine precursor by driving carbon dioxide from the oxazolidinone, comprising contacting said oxazolidinone with a small but catalytic amount of an inorganic base in aqueous solution and heating the reactants at a temperature of about 105° to about 200° C.

4,281,201

TERTIARY AMINES FOR USE IN WATER BASE HAIR CARE COMPOSITIONS

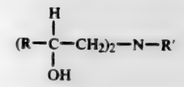
Phillip G. Abend, Los Angeles, Calif., assignor to Quad Chemical Corporation, Long Beach, Calif.

Filed Dec. 10, 1979, Ser. No. 101,775

Int. Cl.³ C07C *91/06, 91/10*

U.S. Cl. 564—506 **3 Claims**

1. A tertiary amine having the formula:



wherein R is a linear C_8 to C_{20} alkyl group, and R′ is a hydroxyalkyl or polyhydroxyalkyl group having from 1 to 10 carbon atoms and having from one to five hydroxy groups per R′.

4,281,202

PREPARATION OF MERCAPTO-ALCOHOLS

Bernard Buchholz; Charles B. Welsh, both of Blue Bell, and Henry C. Miller, Hatfield, all of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Apr. 29, 1980, Ser. No. 144,897

Int. Cl.³ C07C *149/18*

U.S. Cl. 568—62 **12 Claims**

1. A process for preparing mercapto-alcohols which comprises reacting a molar excess of hydrogen sulfide at sufficient pressure to maintain said hydrogen sulfide as a liquid with an alkylene, cycloalkylene, or aralkylene oxide having up to 8 carbon atoms in the presence of a zeolite catalyst in the alkali metal form and selected from the group consisting of Type X, Type Y, Type L and mixtures thereof.

4,281,203

(CYCLOPROPYL)VINYL ALKYL ETHER DERIVATIVES

Johannes L. M. Syrier, and Johannes Van Berkel, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

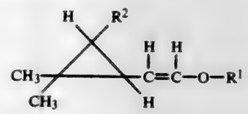
Filed May 28, 1980, Ser. No. 153,996

Claims priority, application United Kingdom, Jun. 1, 1979, 19266/79

Int. Cl.³ C07C *49/21, 43/162*

U.S. Cl. 568—303 **4 Claims**

1. A compound of the formula (I)



(I)

wherein R^1 represents an alkyl group with fewer than six carbon atoms and R^2 a 2-oxopropyl group or a 2,2-dihalovinyl group and the compound has the 1R,cis form in which 1 denotes the underlined carbon atom in the group H—C—C(H)=C in formula I.

4,281,204

SUBSTITUTED SPIROCYCLIC DERIVATIVES

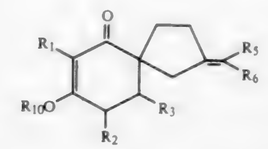
Brian J. Willis, Bergenfield, N.J., and Robert G. Ellerman, Merrick, N.Y., assignors to Fritzsche Dodge & Olcott Inc., New York, N.Y.

Filed Oct. 5, 1979, Ser. No. 82,066

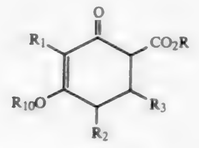
Int. Cl.³ C07C *45/61, 49/427*

U.S. Cl. 568—361 **6 Claims**

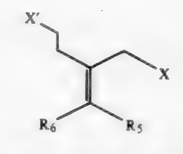
1. A process for preparing a spiroketone having the structure:



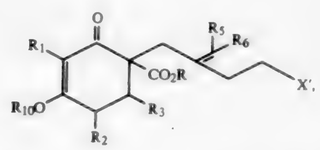
wherein each of R_1, R_2, R_3, R_5, and R_6 may be hydrogen or lower alkyl, and wherein R_{10} is lower alkyl which comprises:
(a) reacting a substituted cyclohexanone carboxylate having the structure:



wherein R may be methyl or ethyl, with an alkylidene 1,4-dihalobutane having the structure:



wherein each of X and X′ may be chloro, bromo, or iodo, in the presence of a base such as an alkali metal hydride to form a carboxylate compound having the structure:



said reaction being carried out in a suitable solvent and at a suitable temperature in the range from about 0° to about 150° C. and said base being present in an amount equal to about one equivalent; and
(b) decarboxylatively alkylating the compound formed in the presence of an alkali metal salt in a polar aprotic solvent to produce said spiroketone, said decarboxylative alkylation being carried out at a temperature in the range from about 80° to about 160° C. and the mole ratio of said carboxylate compound to said alkali metal salt being in the range from about 1:0.5 to 1:10.

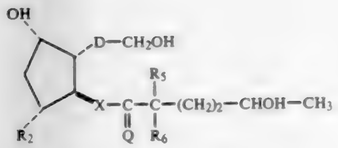
4,281,205

2-DECARBOXY-2-HYDROXYMETHYL-19-HYDROXY-6-OXO-PGF$_1$ COMPOUNDS

John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,811, Jul. 5, 1979, Pat. No. 4,225,508.
This application Mar. 3, 1980, Ser. No. 126,485
Int. Cl.^{3} C07C *49/534, 49/297*
U.S. Cl. 568—380 **9 Claims**

1. A prostacyclin-type compound of the formula



wherein D is $-(CH_2)_2-CO-CH_2-L_2-$ or $-CH_2-CO-CH_2-L_3-$

wherein L_2 is

(1) $-(CH_2)_j-$, wherein j is one to 4, inclusive,

(2) $-(CH_2)_q-CF_2-$, wherein q is one, 2, or 3, or

(3) $-CH=CH-$,

wherein L_3 is

(1) $-(CH_2)_n-$, wherein n is one to 5, inclusive,

(2) $-(CH_2)_p-CF_2-$, wherein p is 2, 3, or 4, or

(3) $-CH_2-CH=CH-$;

wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,

wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,

wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;

wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro;

wherein X is

(1) trans-CH=CH—,

(2) cis-CH=CH—,

(3) $-C\equiv C-$, or

(4) $-CH_2CH_2-$.

4,281,206

METHOD OF CONDUCTING REACTIONS IN A TRICKLE-TYPE REACTOR

Günter Brandes, Hamburg; Johannes Wöllner, Kapellen; Wilhelm Neier, and Werner Webers, both of Orsoy, all of Fed. Rep. of Germany, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Fed. Rep. of Germany

Filed Jan. 30, 1975, Ser. No. 545,641
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1974, 2404329
The portion of the term of this patent subsequent to Dec. 12, 1997, has been disclaimed.
Int. Cl.^{3} C07C *45/45, 29/04*
U.S. Cl. 568—396 **10 Claims**

1. In a process for carrying out reactions between gaseous and liquid reactants which, during an onstream period, pass downwardly through a reaction zone containing a fixed bed of particulate catalyst having an average particle size not greater than about 2.0 mm, the improvement which comprises treating the catalyst prior to initiating an onstream period said treatment comprising removing air from said reaction zone by passing a gas devoid of free oxygen downwardly through said reaction zone and said catalyst bed, interrupting the flow of said gas and introducing a liquid to flow upwardly through said catalyst bed and cover same and then removing said liquid from said reaction zone and substantially simultaneously introducing said gaseous and liquid reactants into said reaction zone to flow downwardly through said catalyst bed thereby initiating the onstream period.

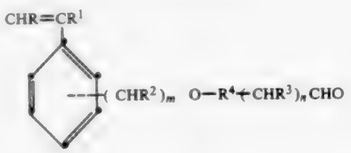
4,281,207

ALDEHYDE-CONTAINING VINYLARYL ETHERS

John C. Wilson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 928,138, Jul. 26, 1978, Pat. No. 4,225,689.
This application Oct. 26, 1979, Ser. No. 88,705
Int. Cl.^{3} C07C *47/232, 47/548*
U.S. Cl. 568—433 **11 Claims**

1. A compound having the formula (I):



wherein:

R, R^1, R^2 and R^3 are independently hydrogen or alkyl containing from 1 to 4 carbon atoms;

R^4 is arylene containing 6 to 18 carbon atoms;

m is an integer from 1 to 4; and

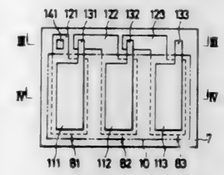
n is an integer from 0 to 4.

4,281,208

PHOTOVOLTAIC DEVICE AND METHOD OF MANUFACTURING THEREOF

Yukinori Kuwano, Takatsuki; Terutoyo Imai, Hirakata, and Masakazu Umetani, Nagoya, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Jan. 29, 1980, Ser. No. 116,402
Claims priority, application Japan, Feb. 9, 1979, 54-14497; Feb. 9, 1979, 54-14498; Mar. 9, 1979, 54-27801; Mar. 12, 1979, 54-28922; Mar. 12, 1979, 54-28923; Mar. 16, 1979, 54-31305; Mar. 16, 1979, 54-31306
Int. Cl.^{3} H01L *31/06, 31/18*
U.S. Cl. 136—249 **75 Claims**



1. A photovoltaic device including a plurality of photoelectric converting regions, comprising:

a substrate of insulating material,

a unitary and continuous amorphous silicon layer formed on said insulating substrate and forming a plurality of spaced photoelectric converting regions,

a pair of electrodes provided in each said photoelectric converting region, the respective electrodes of each pair opposing each other with said unitary amorphous silicon layer therebetween, at least one electrode of each said pair of electrodes being of a radiation transmissive material,

each electrode of a said pair of electrodes of a photoelectric converting region having an extension extending outward of said amorphous silicon layer, and

means for electrically connecting corresponding ones of said extensions of said respective electrodes of said plurality of photoelectric converting regions in series for withdrawing photoelectromotive force of said plurality of photoelectric converting regions in electrical series fashion.

4,281,209

GAS-INSULATED ELECTRICAL APPARATUS WITH DIELECTRIC PARTICLE TRAPPING BARRIERS

Akiyoshi Yoshioka, Itami; Yoshikazu Shibuya, A, and Ioichiro Nakanishi, Osaka, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 21, 1980, Ser. No. 114,005
Claims priority, application Japan, Jan. 25, 1979, 54-8074
Int. Cl.^{3} H01B *9/04;* H02G *5/06*
U.S. Cl. 174—14 R **7 Claims**

1. A gas insulated electrical apparatus comprising a high voltage electric conductor, a grounded metallic housing in the form of a hollow cylinder connected to ground and filled with an amount of an electrically insulating gas high in dielectric strength, a plurality of disc-shaped electrically insulating spacers disposed at predetermined intervals in said metallic housing and supporting said high voltage electric conductor, and at least one separate dielectric member disposed adjacent to and spaced-apart from each of said electrically insulating spacers each dielectric member having a cross section in the form of a hollow truncated cone having larger and smaller diameter ends with the larger diameter end contacting the inner surface of said metallic housing, each dielectric member extending radially inwardly toward and spaced apart from said electric conductor and axially outwardly away from its adjacent insulating spacer.

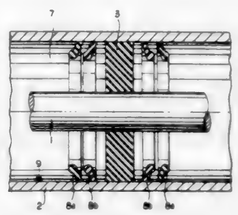
5. Vertically disposed gas-insulated electrical apparatus, comprising:

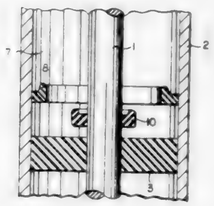
a vertically disposed high voltage electric conductor;

a vertically disposed grounded cylindrical metallic housing filled with an insulating gas high in dielectric strength;

a disc-shaped electrically insulating spacer disposed in said metallic housing and supporting said high voltage electric conductor in said housing;

a separate first dielectric member disposed on said conductor vertically higher than said insulating spacer, said first dielectric member being disposed adjacent to and spaced apart from said insulating spacer, said first dielectric member extending radially outwardly toward, and spaced apart from, said housing; and





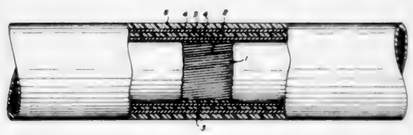
a hollow separate second dielectric member having an inner and outer diameter disposed adjacent to, and spaced apart from, said insulating spacer and said first dielectric member, said second dielectric member being disposed vertically higher than said insulating spacer with said second dielectric member outer diameter contacting said housing, said second dielectric member having an axial width at said outer diameter less than the axial width of said second dielectric member at said inner diameter, said second dielectric member being spaced apart from said conductor.

4,281,210

ELECTRICAL DEVICES CONTAINING A GREASE COMPATIBLE, MINERAL OIL EXTENDED POLYURETHANE

Melvin Brauer, East Brunswick, and Thaddeus F. Kroplinski, Bound Brook, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Division of Ser. No. 877,905, Feb. 15, 1978, Pat. No. 4,168,258.
This application Apr. 6, 1979, Ser. No. 27,820
Int. Cl.^{3} H01B *3/30, 7/28*
U.S. Cl. 174—23 C **13 Claims**



1. An insulated electrical device containing a plurality of insulated wire conductors, said device having interior spaces

between the insulated wire conductors which contain a grease compatible, cured, cross-linked, mineral oil extended polyurethane which is non-spewing, comprising:

(a) from about 8 to about 45 parts, by weight, of polyurethane, said polyurethane being prepared by reacting

(i) a polyisocyanate compound or a polyisocyanate prepolymer prepared by the reaction of a polyisocyanate compound with a polyol selected from the group consisting of castor oil, polyether polyols, hydroxyl bearing homopolymers of dienes, hydroxyl bearing copolymers of dienes, and combinations thereof, wherein at least about 0.25 equivalents of the polyisocyanate compound per 1.0 equivalents of the polyisocyanate compound used is a liquid long chain aliphatic polyisocyanate, with

(ii) a polyol selected from the group consisting of castor oil, polyether polyols, hydroxyl bearing homopolymers of dienes, hydroxyl bearing copolymers of dienes, and combinations thereof,

(b) from about 20 to about 75 parts, by weight, of mineral oil, said mineral oil being characterized by having from about 1.0 to about 30% aromatic carbon atoms, based on the total number of carbon atoms present in the mineral oil, and

(c) from about 10 to about 47 parts, by weight, of coupling agent, said coupling agent being characterized by

(i) being miscible in all proportions with said mineral oil,

(ii) having a total solubility parameter from about 7.0 to about 9.5,

(iii) having a hydrogen bonding index number from about 6.0 to about 12.0, and

(iv) being substantially non-reactive with said polyisocyanate prepolymer and said polyol, and

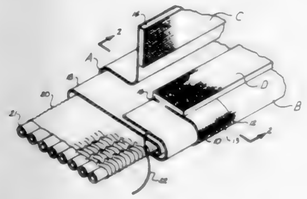
wherein the grease compatible, cured, cross-linked, mineral oil extended polyurethane is further characterized by the presence of a polydiene moiety in the polyurethane structure.

4,281,211

WOVEN COVER FOR ELECTRICAL TRANSMISSION CABLE

Odes D. Tatum, and Edgar A. Ross, both of Greenville, S.C., assignors to Southern Weaving Company, Greenville, S.C.

Filed Apr. 13, 1979, Ser. No. 29,887
Int. Cl.³ H01B 11/06
U.S. Cl. 174—36 **9 Claims**



1. A flexible woven jacket assembly encasing a woven electrical transmission cable or cables of generally flat configuration providing protection against abrasion and for maintaining conductors of stacked cables generally fixed in their relative positions while affording a flexible package comprising:

at least one of said transmission cables;

an elongated cover strip constructed from warp and fill strands woven together to form a generally solid outer cover fabric;

said cover strip woven to define a pair of longitudinal marginal edges;

a strip of fastener hook tape carried adjacent one of said marginal edges;

a strip of fastener loop tape carried adjacent said other marginal edges;

said fastener tapes securing said marginal edges of said woven cover strip wrapped about the transmission cable; and

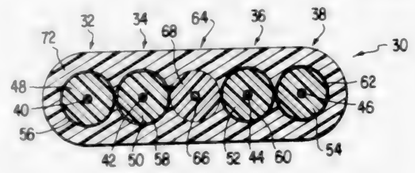
said woven cover strip and fastener tapes having a sufficient width to afford adjustability to enable the jacket circumference of said cover strip to vary and said marginal edges be joined to accommodate a variety of sizes and numbers of said transmission cables such as when in a stacked configuration.

4,281,212

CABLE ASSEMBLY HAVING SHIELDED CONDUCTOR

Stephen B. Bogese, II, Roanoke, Va., assignor to Virginia Patent Development Corp., Roanoke, Va.

Filed Jun. 14, 1979, Ser. No. 48,523
Int. Cl.³ H01B 7/08
U.S. Cl. 174—36 **6 Claims**



1. Apparatus, which comprises:

a first shielded wire assembly which includes:

(a) a conductive wire adapted to transmit an electrical signal;

(b) cylindrical insulation covering said wire along its length;

(c) means for shielding said wire against outside electrical interference which comprises a thin metallic layer of conductive material bonded to said insulation; and

(d) a ground wire covered by a cylindrical semi-conductive material which is in contact with said thin layer of conductive material along its length;

a second shielded wire assembly substantially identical to said first shielded wire assembly;

an insulating jacket covering said semi-conductive material and said first and second shielded wire assemblies to form a substantially planar multi-conductor cable array;

the outer diameters of said semi-conductive material and said thin metallic layer of conductive material of said first and second shielded wire assemblies being approximately the same;

means for electrically isolating said conductive material of said second shielded wire assembly from said conductive material of said first shielded wire assembly, said electrically isolating means comprising an additional conductive wire covered by an unshielded insulation and positioned between said first and second shielded wire assemblies.

4,281,213

INSULATING SUPPORT STRUCTURE FOR AN ELECTRIC BUS CONDUCTOR

Philip Sciscione, Philadelphia, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Mar. 20, 1980, Ser. No. 131,740
Int. Cl.³ H02G 5/02; H01B 17/18
U.S. Cl. 174—68 B **6 Claims**

4. In electric bus equipment:

(a) a post-type insulator having spaced-apart proximate and distal ends,

(b) a first bus-conductor supporting member of generally U-shaped form fixed to the distal end of said insulator and comprising a pair of spaced-apart legs and a flange at the free end of one of said legs projecting generally radially-outwardly from said one leg,

(c) a second bus-conductor supporting member of generally

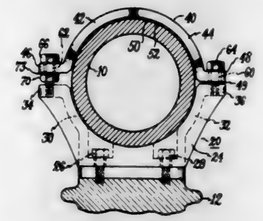
U-shaped form comprising spaced legs and a flange at the free end of one of said legs projecting generally radially-outwardly from said one leg,

(d) said supporting members having generally semi-cylindrical surfaces which together define a generally cylindrical internal surface when said flanges are placed in juxtaposition,

(e) a bus conductor having a generally cylindrical external surface substantially surrounded by said generally cylindrical internal surface,

(f) means for securing together said supporting members comprising means fastening the flange of said second support member to the juxtaposed flange of the first support member,

(g) the fastening means between said juxtaposed flanges being adjustable to position the flange of said second supporting member in either of two fixed positions relative to the juxtaposed flange of said first supporting member, one of said positions being a slip-joint position spaced by a relatively large distance from the juxtaposed flange of said first member thereby providing sufficient clearance between said internal and external cylindrical surfaces to



permit said bus conductor to slide longitudinally relative to said supporting members, the other of said positions being a fixed-joint position sufficiently close to the juxtaposed flange of said first member that said internal cylindrical surface tightly embraces said external cylindrical surface,

(h) said fastening means of (g) comprising a threaded member extending between said juxtaposed flanges and threaded into one of the flanges and nut structure positioned between said flanges and threaded onto said threaded member,

(i) said threaded member having thereon a part bearing against a surface of one of said flanges so as to force said flanges together when said part is rotated in a tightening direction,

(j) said nut structure being axially movable on said threaded member between first and second positions, the nut structure when in said first position being tightened on said threaded member against one of said juxtaposed flanges thereby locking said flanges in said fixed-joint position, and the nut structure when in said second position being tightened against the other of said juxtaposed flanges thereby locking said flanges in said slip-joint position.

4,281,214

IGNITION COIL COVER

Yoshimi Miyamoto, and Tetsuo Tanigawa, both of Toyota, Japan, assignors to Nippondenso Co., Ltd., Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Sep. 19, 1979, Ser. No. 76,956
Claims priority, application Japan, Jan. 26, 1979, 54/9449[U]
Int. Cl.³ H01R 13/52, 39/60
U.S. Cl. 174—138 F **2 Claims**

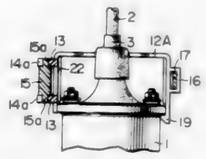
1. A cover for an ignition coil having a peripheral enlargement at the top thereof, said cover comprising:

first and second diametric cover segments defining, when assembled, an inverted cup;

a pair of vertically spaced lateral projections on said first cover segment along one side edge thereof;

a support shaft integrally formed on said second cover segment at one side edge thereof for engagement with said pair of projections for pivotal opening and closing movements of said segments;

a locking member provided on one of said cover segments adjacent the other side edge thereof;



a first pawl member provided on the other of said cover segments adjacent the other side edge thereof for engagement with said locking member; and

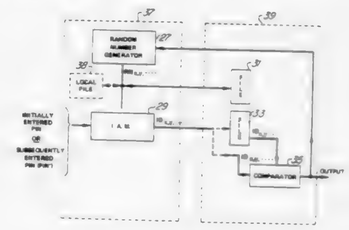
second pawl members provided on said first and second cover segments to engage over the enlargement of the ignition coil to lock said cover thereto.

4,281,215

METHOD AND APPARATUS FOR SECURING DATA TRANSMISSIONS

Martin M. Atalla, Menlo Park, Calif., assignor to Atalla Technovations, Sunnyvale, Calif.

Filed May 3, 1978, Ser. No. 902,444
Int. Cl.³ H04L 9/00
U.S. Cl. 178—22.08 **5 Claims**



1. A method of securing the identification of an individual in data-handling operations utilizing identification information supplied by the individual, the method comprising the steps of:

generating a selected number that is different for each data-handling operation;

producing a first identification code in response to the generated selected number and to first identification information supplied by an individual;

storing the generated selected number and the first identification code;

producing a second identification code in response to the stored selected number and second identification information supplied by an individual;

comparing the stored first identification code with the second identification code to determine the authenticity of the supplied identification information;

generating a second selected number that is different for each data-handling operation;

producing a third identification code in response to the second selected number and to the second identification information supplied by the individual; and

storing the second selected number and the third identification code for subsequent use.

2. A method of simultaneously securing transmitted data and

the identification of an individual in data transmission between stations utilizing identification information about the individual which is pre-stored and identification information supplied by the individual, the method comprising the steps of:

generating a selected number that is different for each data transmission;

producing a first encryption key in response to the generated selected number and to identification information supplied by an individual at a first station;

encoding data in ccordance with the first encryption key;

transmitting the generated selected number and the encoded data to a second station;

producing a second encryption key utilizing the pre-stored identification information and the transmitted selected number; and

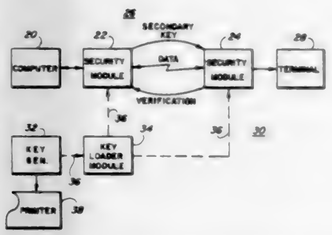
decoding the encoded data in accordance with the second encryption key.

4,281,216

KEY MANAGEMENT FOR ENCRYPTION/DECRYPTION SYSTEMS

Gerald J. Hogg, Tempe; Robert A. Newman, and Robert F. Pfeifer, both of Phoenix, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Apr. 2, 1979, Ser. No. 25,951
Int. Cl.³ H04L *9/00*
U.S. Cl. 178—22.08 **12 Claims**



1. In a data encryption/decryption system employing key word security wherein secure data is transferred between at least two security modules, the improvement comprising:

means for generating at least one key word, said generating means being responsive to the times of an operator's switch input to generate said at least one key word; and

keyloading means for storing and transporting said at least one key word, said key loading means and said generating means having interfaces thereon for transferring said at least one key word from said generating means to said keyloading means in a form readable only by the system.

4,281,217

APPARATUS AND METHOD FOR THE IDENTIFICATION OF SPECIALLY ENCODED FM STEREOPHONIC BROADCASTS

Ray M. Dolby, 50 Walnut St., San Francisco, Calif. 94118

Continuation-in-part of Ser. No. 890,498, Mar. 27, 1978, abandoned. This application Mar. 12, 1979, Ser. No. 19,666
Int. Cl.³ H04H *5/00*
U.S. Cl. 179—1 GN **28 Claims**

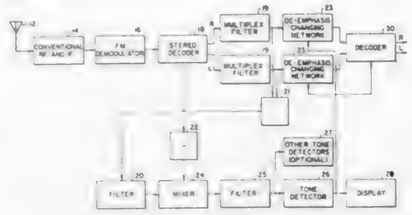
18. In a stereophonic FM transmission system, a method for providing an identification of specially encoded transmissions comprising

continuously generating an identification signal having a frequency in the audio spectrum, said frequency having the characteristics

that it is in the range of 12 kHz through 18 kHz in the upper frequency range of the transmission system, and

when mixed with a mixing frequency derived by multiplying and dividing the stereophonic subcarrier pilot signal frequency by whole integers it provides a low frequency signal in the range of 10 Hz through 3 kHz, and

transmitting said identification signal at an amplitude in the



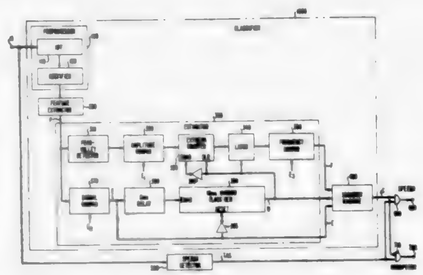
order of 70 dB below 100% modulation when there are no signals in said upper frequency range, whereby the identification signal is sufficiently low as not to be heard when the transmission is reproduced.

4,281,218

SPEECH-NONSPEECH DETECTOR-CLASSIFIER

Chin-Sheng Chuang, Marlboro, and Robert E. LaMarche, Atlantic Highlands, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 26, 1979, Ser. No. 88,634
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SC **3 Claims**



1. Apparatus for classifying a signal among one of a plurality of classifications, said classifying apparatus including an input terminal for receiving said signal to be classified, means coupled to said input terminal for classifying said signal, means for extending a classifying signal from said classifying means to an output terminal and characterized in that said classifying apparatus further comprises:

means for extending said signal to be classified through a feature extractor, said feature extractor for extracting at least one property of said signal to be classified,

an estimator responsive to said property for providing an estimate of said classification,

a sequency machine responsive to said estimate for providing said classifying signal,

a speech detector responsive to said signal to be classified for providing a TAS signal, and

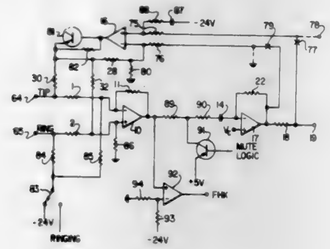
means responsive to said classifying signal and to said TAS signal for providing a methodology signal to at least one output terminal.

4,281,219

TELEPHONE LINE CIRCUIT

Michael C. J. Cowpland, Ottawa, and Patrick R. Beirne, Stittsville, both of Canada, assignors to Mitel Corporation, Ontario, Canada

Filed Aug. 2, 1979, Ser. No. 62,989
Claims priority, application Canada, Feb. 1, 1978, 296137; Fed. Rep. of Germany, Aug. 23, 1979, 2925444
Cl.³ H04Q *3/18*
U.S. Cl. 1. **7 Claims**



1. A telephone line circuit comprising:

(a) a balanced tip and ring lead for connection to a telephone set, and an unbalanced line output lead,

(b) first differential amplifier means having its input terminals connected through individual equal valued resistor means to the tip and ring leads, the values of each of the resistor means being at least ten times the off hook impedance of the telephone set,

(c) the output of the first differential amplifier means being connected in a circuit path to a line output lead, for applying outgoing signals thereto,

(d) second amplifier means having its input connected in a circuit path to a line input lead for receiving incoming signals,

(e) the output of the second amplifier means being connected in a circuit path to one of the tip or ring leads,

(f) the output of the second amplifier means also being connected by a further resistor means to the input of the first differential amplifier means which is connected to the other of the tip or ring leads,

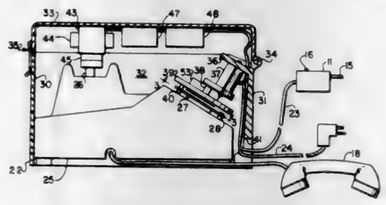
(g) the value of the further resistor means being selected to apply sufficient output signal from the second amplifier means to said other input of the first differential amplifier means so as to substantially cancel signals within the first differential amplifier means appearing at its input terminals which were applied from the output of the second amplifier means to the tip and ring leads.

4,281,220

TELEPHONE DIALING AND ANSWERING DEVICE

George E. Frailey, R.D. 2, Box 152, New Milford, Pa. 18834

Filed Feb. 15, 1980, Ser. No. 121,652
Int. Cl.³ H04M *1/31*
U.S. Cl. 179—90 AD **5 Claims**



1. An apparatus for use by a handicapped person to operate a telephone instrument of the type having a handset, a base, means on the base defining a handset receiving location, a hook switch, a hook switch button protruding into the handset receiving location, a dial rotatable in a first direction to select a digit to be selected as part of a number being called, the dial being provided with spring return to generate a signal representative of the selected digit, the dial having angularly spaced finger holes and the base having a finger stop adjacent the dial, the apparatus comprising the combination

a switch unit having first and second manually operable switch means therein and first and second operator arms extending therefrom to facilitate selective operation of said switches by the person;

a housing dimensioned to at least partially enclose the base of the telephone;

means on said housing for releasing the hook switch button in response to momentary actuation of said first switch;

a dial engaging member including a drive pin engaging a finger hole in said dial;

a motor supported by said housing and electrically connected to said second switch, said motor having an output shaft coupled to said dial engaging member for rotating said member and said

dial during actuation of said second switch;

a light;

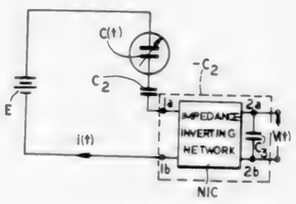
means responsive to rotation of said dial and dial engaging member for energizing said light each time a finger hole reaches said finger stop and for deenergizing said light as the hole passes said stop such that a count of the number of energizations of said light indicates the digit which will be dialed when said second switch is released.

4,281,221

CONDENSER MICROPHONE

Vincenzo DelBello, Milan, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

Filed Jul. 11, 1979, Ser. No. 56,648
Claims priority, application Italy, Jul. 12, 1978, 25585 A/78
Int. Cl.³ H03F *1/34*; H04R *3/00, 19/00*
U.S. Cl. 179—111 R **4 Claims**



1. An electroacoustic transducer comprising:

a condenser of a capacitance variable in response to changes in ambient air pressure;

a source of d-c voltage;

a circuit of insignificant ohmic resistance connecting said condenser across said source;

two reactive impedance elements with reactances of equal frequency-dependent magnitude and opposite sign connected in series with each other and with said condenser and said source in said circuit, one of said impedance elements being a first capacitor, the other of said impedance elements being an impedance-inverting four-terminal network with output terminals connected across a second capacitor; and

a pair of load terminals connected across one of said impedance elements.

4,281,222

MINIATURIZED UNIDIRECTIONAL ELECTRET MICROPHONE

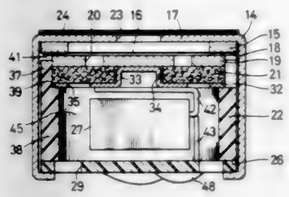
Sadayoshi Nakagawa, and Mitsuharu Shinohara, both of Fukuoka, Japan, assignors to Hosiden Electronics Co., Ltd., Osaka, Japan

Filed Sep. 21, 1979, Ser. No. 77,702

Claims priority, application Japan, Sep. 30, 1978, 53-135215[U]

Int. Cl.³ H04R *19/04*

U.S. Cl. 179—111 E **7 Claims**



1. A miniaturized unidirectional electret microphone comprising:

a tubular case having at one end a front end plate formed integrally therewith, the front end plate having a hole therein for introducing sound into the case;

an electret diaphragm disposed in the case in opposing relation to the front end plate;

a back electrode disposed in the case in opposing relation to the electret diaphragm;

a damper cloth disposed in contact with the back of the back electrode, said damper cloth having a hole therein;

a terminal plate disposed behind the damper cloth, said terminal plate having a projection which is connected with said back electrode through said hole in the damper cloth;

a tubular back electrode holder disposed in the case coaxially therewith for holding the terminal plate, the damper cloth and the back electrode together;

a printed circuit board disposed at the back of the back electrode holder to close its rear open end, thereby to define a rear compartment in the back electrode holder;

an impedance converter formed on said printed circuit board in the rear compartment and connected with the terminal plate for converting an input into a low-impedance output; and

a sound hole for intercommunicating the rear compartment and the outside of the case and operative to introduce sound from the outside of the case into the said rear compartment.

4,281,223

ELECTRO-ACOUSTIC TRANSDUCER

Masana Ugaji, Tokyo; Hideo Suyama, Yokohama; Sadaaki Sakurai, Tokohama; Shigenori Yamaoka, Yokohama; Toshinaga Endo, Yokohama, and Akinobu Kusuhara, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

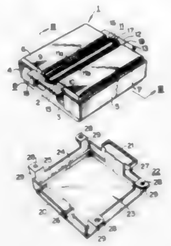
Filed Aug. 14, 1979, Ser. No. 66,381

Claims priority, application Japan, Aug. 18, 1978, 53-100532

Int. Cl.³ G10K *13/00*; **H04R** *7/00*

U.S. Cl. 179—115 R **19 Claims**

1. An electro-acoustic transducer, comprising a magnetic circuit having at least one air gap; current conducting means disposed in the air gap of said magnetic circuit to form a voice coil, and a vibratory structure mechanically coupled to said voice coil, said vibratory structure being comprised of a heat resistant film containing an epoxide-modified resin in which a



heterocyclic compound containing a polyimide group is the main component.

4,281,224

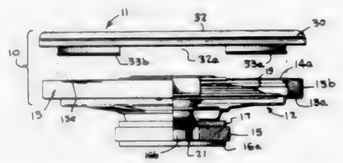
GRILLE COVERED SPEAKER ASSEMBLY CONSTRUCTION FOR COMPACT AUTOMOBILES AND THE LIKE

John F. Castagna, Brooklyn, N.Y., assignor to Sparkomatic Corporation, Milford, Pa.

Filed Apr. 21, 1980, Ser. No. 142,459

Int. Cl.³ B60R *11/02*; **G12B** *9/02*; **H04R** *1/02*

U.S. Cl. 179—146 R **13 Claims**



1. A multirange thin speaker assembly for installation in automobile doors and like constricted space installations in compact automobiles and the like with the front of the assembly facing inwardly of the automobile to project sound toward the automobile interior, comprising a main speaker section including a speaker basket frame having an outer generally annular rim portion supporting an anchor ring member and mounting formations for receiving front mounting fasteners to fix the speaker basket frame against an interior wall portion of the automobile door by outwardly directed fasteners applied from the automobile interior, the main speaker section including a woofer speaker unit comprising a speaker magnet and pole structure supported rigidly from the basket frame and a deformable woofer cone peripherally supported from said rim portion having a voice coil carried thereby movable in a gap in the pole structure, bridge structure supported by said rim portion having a higher-frequency-range second speaker unit carried thereby forwardly of said voice coil in the direction of sound projection, a front grille panel of unitary plastic material to be assembled in a snap-on manner onto the main speaker section, the grille panel including a generally flat panel portion having a plurality of openings therethrough disposed in an array to form an interrupted sound transmitting opening forwardly aligned with the woofer cone and a pair of transversely spaced arcuate rear snap ring segments forming an interrupted annular ring projecting rearwardly from the panel portion of a diameter closely conforming to the inner diameter of said anchor ring member to interfit therein, said anchor ring member having a retaining lip formation about its inner edge defining a rearwardly facing retaining shoulder for the grille panel and said snap ring segments having radially outwardly projecting bead formations to snap behind said retaining shoulder to fasten the grille panel to the anchor ring.

4,281,225

PICKUP CARTRIDGE FOR REPRODUCING SIGNALS RECORDED ON A 45-45 STEREOPHONIC RECORD DISK

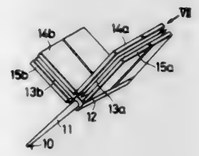
Tsugio Ito; Kenshiro Aizawa, and Hisashi Okada, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Jan. 8, 1979, Ser. No. 1,826

Claims priority, application Japan, Jan. 17, 1978, 53-3634[U]; Apr. 24, 1978, 53-54518[U]; Oct. 3, 1978, 53-135702[U]; Oct. 3, 1978, 53-135703[U]; Oct. 3, 1978, 53-135704[U]

Int. Cl.³ H04R *9/16*

U.S. Cl. 369—139 **33 Claims**



1. An improved pickup cartridge for reproducing signals recorded on a sound groove of a record disk wherein the groove is defined by wall surfaces having undulations thereon, the cartridge comprising:

a vibration system including a stylus tip for engaging the wall surfaces and moving in accordance with the undulations as the disk is displaced with respect to the stylus tip, an elongated cantilever carrying the stylus tip and movable in accordance with movement of said stylus tip, and means for supporting said cantilever to permit movement thereof; and

a movement-electromagnetism conversion system responsive to the movement of said cantilever for converting said movement to electrical signals equivalent to the signals recorded on the sound groove, the improvement involving said movement-electromagnetism conversion system wherein the system includes:

at least one magnetic field producing means, each having an air gap and producing discrete first and second magnetic fields traversing respective adjacent first and second portions of said air gap, said first and second magnetic fields having substantially uniform intensity and oppositely directed magnetic fluxes with a sharp transition therebetween, said magnetic field producing means including:

a first pair of permanent magnet poles of opposite polarity separated by said first air gap portion and facing each other through said first air gap portion for producing said first magnetic field, and

a second pair of permanent magnet poles of opposite polarity separated by said second air gap portion and positioned adjacent said first pair of permanent magnet poles, said second pair of permanent magnet poles facing each other through said second air gap portion and having pole polarities arranged inverse to the pole polarities of said first pair of permanent magnet poles relative to said air gap, for producing said second magnetic field; and

at least one voltage-generating coil, each being associated with a respective one of said at least one magnetic field producing means and mechanically coupled to said cantilever and movable within the air gap of said associated magnetic field producing means in response to movement of said cantilever to cut perpendicularly the respective magnetic fluxes in said first and second magnetic fields of said associated magnetic field producing means to produce said electrical signals therein, and neutrally positioned in the air gap of said associated magnetic field producing means in such a manner that substantially one half thereof is located within said first magnetic field and substantially the other half thereof is located within said second magnetic field.

4,281,226

IGNITION SWITCH

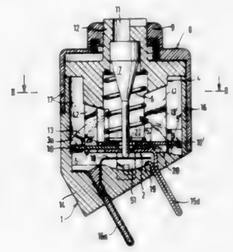
Werner Berginski, Werdohl-Eveking, Fed. Rep. of Germany, assignor to Firma Leopold Kostal, Luedenscheid, Fed. Rep. of Germany

Filed Nov. 5, 1979, Ser. No. 90,990

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849914

Int. Cl.³ H01H *27/00, 1/20*

U.S. Cl. 200—44 **8 Claims**



1. An ignition switch comprising a part defining a generally cylindrical socket provided with a hood covering the socket and enclosing the components of the switch, a central contact and edge contacts in said socket, a rotatable switching wheel in said socket, two contact bridges having switching arms at their ends for engagement with said edge contacts and arranged to be driven in rotation by said switching wheel, said contact bridges being substantially planar with one in direct and permanent contact with said central contact and the other in direct and permanent contact with said one bridge, a single pressure spring in said switching wheel acting to urge the switching arms of both said bridges toward said edge contacts, diametrically opposed helical sections projecting radially inwardly of said socket into the path of rotation of said switching arms whereby rotation of said switching wheel causes said planar bridges to tilt and said switching arms to ride up said helical sections and drop from upper ends thereof and impact on certain of said edge contacts under the influence of said pressure spring.

4,281,227

DRAWOUT SWITCHGEAR WITH BLOW-OUT PREVENTION DEVICE

James O. Rexroad, Beaver, and John P. Majcher, Chippewa Twp., Beaver County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

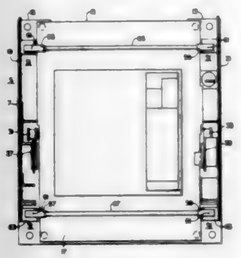
Filed Apr. 25, 1979, Ser. No. 33,061

Int. Cl.³ H01H *9/20*

U.S. Cl. 200—50 AA **1 Claim**

1. Drawout switchgear comprising a cell having a front opening, a circuit interrupting unit movable into and out of the cell, stationary terminal means supported in the cell, movable-terminal means on said unit and in electrical engagement with the stationary terminal means when the unit is in the cell, stop means releasably mounted between the cell and the unit for preventing the unit from moving out of place when high magnetic forces occur, the stop means comprising at least two clamps pivotally mounted on the cell and movable into and out

of the path of movement of the unit within the cell, and the stop means also comprising clamp-engaging stop bars on the



front surface of the unit and detachably mounted between corresponding clamps.

4,281,228

TOOL FOR MAKING AND BREAKING LOAD CURRENTS

Robert W. Harmon, Rte. 4, Centralia, Mo. 65240

Filed Apr. 2, 1979, Ser. No. 25,903
Int. Cl.³ H01H *3/54, 9/16, 9/30*
U.S. Cl. 200—51 R **4 Claims**



1. A portable tool for making and breaking load currents, comprising:

a first pair of electrical load-making and breaking contacts, at least one of said contacts of said first pair being shiftable relative to the other contact thereof for closing and opening of the first contact pair;

a second contact pair, at least one of the contacts of said second contact pair being shiftable relative to the other contact thereof for closing and opening of the second contact pair;

means for electrically connecting said first and second contact pairs in series;

mechanism for breaking a load current passing through said contact pairs, when both of the latter are closed, by sequentially opening said first contact pair and thence opening said second contact pair, and for making a load current through said contact pairs, when both of the latter are open, by sequentially closing said second contact pair and thence closing said first contact pair,

said mechanism including

structure operatively interconnecting the shiftable contact of said first pair thereof, and a shiftable contact of said second pair thereof, for movement of the interconnected contacts in unison;

means for biasing said interconnected contacts in a direction for opening the first contact pair;

means for selectively shifting the free contact of said second pair thereof in a direction, when both of said contact pairs are open, for engaging the interconnected contact of said second pair and closing the latter, overcoming the bias of said biasing means, and shifting the shiftable contact of said first pair into operative engagement with the remaining contact of the first pair for closing the latter, and alternatively in a direction, when both of said contact pairs are closed, for opening of said first and second contact pairs, said shifting means comprising an elongated first tubular member enclosing said first and second contact pairs, an outer second tubular member telescoped over said first member and axially shiftable relative to the latter, and means operatively interconnecting said outer tubular member and said free contact of said second pair thereof for axial reciprocation of the latter within said first tubular member in response to corresponding reciprocation of said second tubular member;

means for selectively and releasably latching said contact pairs in a closed condition,

said biasing means being constructed and arranged for exerting sufficient biasing force on said interconnecting contacts such that when both of said contact pairs are open and the free contact of said second pair is shifted toward the interconnected contact of the second pair, said second contact pair is initially closed whereupon said first contact pair is closed for making a load current path through said contact pairs, and such that, when both of the said contact pairs are closed and said latching means is released, said interconnected contacts are initially shifted under the influence of said biasing means to thereby open said first contact pair, whereupon additional shifting of said free contact of said second pair thereof serves to open said second contact pair;

means for suppressing arcing between said first contact pair during said closing and opening thereof; and

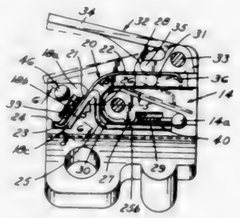
means for temporarily electrically connecting both of said series-connected contact pairs between a pair of conductors.

4,281,229

BUZZER SWITCH

Nicholas A. Poleschuk, Farmington, and Samuel E. Purdy, Ortonville, both of Mich., assignors to Beta Manufacturing Corp., Warren, Mich.

Filed Aug. 1, 1979, Ser. No. 62,719
Int. Cl.³ H01H *3/16*
U.S. Cl. 200—52 R **14 Claims**



1. A buzzer switch comprising

a body of plastic material including a laterally extending first slot within said body,

a first contact made of electrically conducting spring material,

said first contact having a first portion thereof in said first slot and a second portion thereof extending from said first slot in cantilever fashion adjacent the upper end of said body,

said body having a second slot within said body,

a second contact of electrically conducting spring material capable of flexing the same degree as said first contact,

said second contact having a first portion thereof within said second slot and a second portion thereof extending in cantilever fashion in generally the same direction as the cantilever portion of said first contact,

a cover closing said body and covering said contacts,

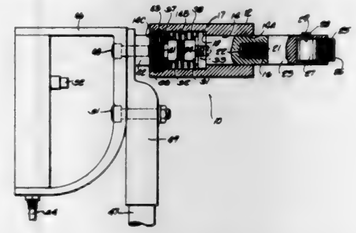
an actuator pivoted to said body and having a rotatable portion thereof adapted to rotatably engage and move said cantilever portion of said first contact inwardly of said body into contact with said second contact such that upon initial movement of said actuator by a force on said actuator, the first contact is flexed into engagement with said second contact and continued movement of said actuator causes said first and second contacts to flex while maintaining contact therebetween, and such that when the force on said actuator is removed, the first contact returns to its original position and in turn the actuator returns to its original position and the second contact also returns to its original position.

4,281,230

ANTI-ARC PROD

Carl A. Naylor, York, Pa., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 4, 1979, Ser. No. 81,937
Int. Cl.³ H01H *3/16*
U.S. Cl. 200—61.58 R **6 Claims**



1. An anti-arc prod for magnetic particle testing of a surface of a part;

a handle;

a body member having an axial opening carried by said handle;

a movable member slidably carried within the axial opening of said body member;

a prod tip removably secured to said movable member for axial movement relative to said body member;

a pair of normally open contact means within the axial opening of said body member; said normally open contact means being movable to a closed position upon pressure engagement of said prod tip with the surface of a part to be tested;

yieldable means operating between said contact means carried within the axial opening of said body member and normally operating to maintain said contact means in their normally open position;

current carrying means for connection between a current source of high amperage/low voltage electricity and one of said contact means, and;

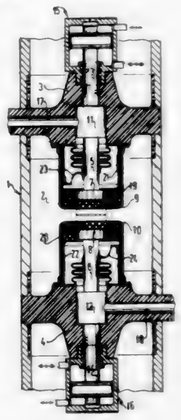
a power switch carried by said handle and operable when actuated to effect the flow of current from a source of high amperage/low voltage electricity through said contact means to said prod tip.

4,281,231

HIGH TENSION VACUUM SWITCHES

Bertus Griesen, and Harry C. W. Gundlach, both of Hengelo, Netherlands, assignors to Hazemeijer B.V., Hengelo, Netherlands

Filed Nov. 15, 1978, Ser. No. 960,938
Claims priority, application Netherlands, Nov. 23, 1977, 7712932
Int. Cl.³ H01H *33/66*
U.S. Cl. 200—144 B **9 Claims**



1. In a high tension vacuum switch of the type having first and second switching contacts, means for axially moving at least one of said contacts back and forth between an open condition in which the two contacts are spaced apart and a closed condition in which the contacts are engaged, and shielding electrode means surrounding and enclosing said contacts when the switch is in said open condition for allowing said contacts to withstand high voltages, without arcing, despite contact-roughness thereof due to prior arcing incidental to switching, the improvement wherein said shielding means comprises first and second outer hollow conductors respectively surrounding said first and second contacts, said hollow conductors having adjacent end portions which are disposed in axially spaced relation when the contacts are in open condition and which end portions extend beyond their respective contacts when the contacts are in such open condition whereby to locate such contacts in regions of relatively low-intensity electric field when in open condition, means mounting at least one of said hollow conductors in electrically insulated relation to its respective contact, and capacitance means connected electrically to said respective contact for capacitively coupling said one hollow conductor to its respective contact.

4,281,232

SMALL ILLUMINATING SWITCH

Akira Hirai; Yukihisa Tanaka, and Shigeo Ohashi, all of Tokyo, Japan, assignors to Nihon Kaiheiki Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 10, 1980, Ser. No. 128,618
Int. Cl.³ H01H *9/16*
U.S. Cl. 200—315 **10 Claims**

1. An illumination-type small sized toggle lever switch comprising:

a housing having at least one open end;

main contact contained in the housing and having at least

one first movable contact element and at least one first fixed contact element;

a cover member mounted on the open end of the housing said cover member including a cover mounted on the open end of the housing and a sleeve mounted on said cover;

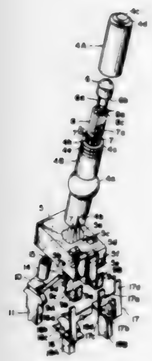
a movable operating handle comprising a cylindrical member having a hollow interior space extending longitudinally therethrough, said movable operating handle having two open ends, one open end being disposed within said housing and the other open end projecting from said sleeve;

an illuminator having terminals and being disposed in said hollow interior space and at said open end of said movable operating handle projecting from said sleeve;

a convertor member disposed at the other end of the movable operating handle for making or breaking the main contacts;

second movable contact elements fitted to the convertor member;

lead wires having bare end portions and extending in said interior space of said movable operating handle there-



through for electrically connecting said illuminator to said second movable contact elements;

an insulating member being contained in said hollow interior space of said movable operating handle, said insulating member having at least two through bores through which said lead wires are led so as to be electrically connected with said illuminator;

said convertor member being formed with a through opening into which said open end of the movable operating handle is fitted, and said lead wires being passed through said opening so as to be connected with said second movable contact elements;

said movable operating handle consisting of a first cylindrical member and a second cylindrical member, said first cylindrical member containing said illuminator and said insulating member;

said movable operating handle having a swivel portion which is received by a swivel receiver formed on the inner wall of said sleeve so that the handle can be swiveled about the swivel receiver portion as a fulcrum; and

second fixed contact elements disposed within the housing and which the second movable contact elements are brought into contact.

4,281,233

HYDROPHILIC MACROPOROUS THREE DIMENSIONAL COPOLYMERS OF HYDROXYALKYL ACRYLATES OR METHACRYLATES WITH CROSSLINKING AGENTS AND THE METHOD OF THEIR MANUFACTURING

Jiri Coupek; Karel Filka, and Jan Kocourek, all of Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Division of Ser. No. 900,892, Apr. 28, 1978. This application Jul. 21, 1980, Ser. No. 170,767

Int. Cl.[3] **B01J** *20/26*; **C08J** *9/36*

U.S. Cl. 260—112 R **1 Claim**

1. An affinity chromatography process for the isolation of physiologically effective materials from active protein comprises:

(a) applying a physiologic saline solution of said protein to a column of hydrophilic macroporous three dimensional copolymer of a hydroxyalkyl acrylate or a hydroxyalkyl methacrylate, said hydroxyalkyl containing 1 to 4 carbon atoms, and containing a crosslinking agent in the amount of 15 to 50 weight percent selected from the group consisting of ethylene diacrylate and ethylene dimethacrylate, wherein said copolymer contains, after glycosylation reaction at the surface, saccharides or their derivatives, selected from the group consisting of monosaccharides, oligosaccharides, deoxy sugars, amino sugars, acylated saccharides, either or halogen derivatives of monosaccharides and oligosaccharides, equilibrated with physiologic saline solution;

(b) eluting said column with physiologic saline solution; and

(c) recovering fractions active in haemaglutination.

4,281,234

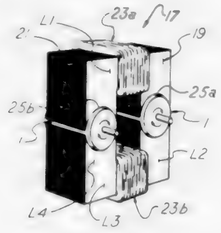
METHOD OF INDUCTION ANNEALING SQUIRREL CAGE ROTORS

L. Ranney Dohogne, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 20, 1979, Ser. No. 31,772

Int. Cl.[3] **H05B** *6/06*; **H02K** *15/02*

U.S. Cl. 219—10.43 **6 Claims**



1. The method of fabricating squirrel cage rotors having enhanced electrical conductivity over "as cast" rotors, said rotor having a core made of a stack of plate-like laminations of suitable ferro-magnetic material, said core having a central longitudinal axis and a plurality of slots spaced around said central longitudinal axis proximate the outer surface of the core and extending substantially lengthwise through the core, said rotor having conductor bars of suitable aluminum material die cast in place within said slots and end rings of die cast aluminum at the ends of the conductor bars integral with and interconnecting the connector bars, said conductor bars and said end rings constituting a rotor cage, wherein the method of this invention comprises the steps of:

placing a rotor within a gap of the core of an induction heating apparatus;

energizing said induction heating apparatus with relatively low frequency alternating current so as to generate an alternating magnetic field which passes generally radially through said rotor and which induces heating of said conductor bars and end rings;

rotating said rotor about its longitudinal axis so as to ensure substantially uniform heating of the conductor bars and the end rings of its rotor cage; and

continuing to energize said apparatus and to rotate said rotor thereby to heat said conductor bars and end rings to a temperature sufficient to enhance the electrical conductivity of said conductor bars and said end rings and so as to result in the heating of said core to a lower temperature.

4,281,235

METHOD FOR WELDING FERROUS ALLOYS TO ALUMINUM AND ALUMINUM ALLOYS OR REFRACTORY METALS

Conrad Peloquin, San Leandro, Calif., assignor to Tri Delta Industries, Inc., Hayward, Calif.

Filed Oct. 9, 1979, Ser. No. 82,983

Int. Cl.[3] **B23K** *15/00*

U.S. Cl. 219—121 ED **12 Claims**



1. A method for joining a first metal having a higher melting point to a second metal having a lower melting point, said first and second metals being substantially insoluble in one another, comprising depositing a thin layer of a third metal on the surface of one of said first and said second metals, placing the other of said first and said second metals in contact with said thin layer of third metal, directing a high energy particle beam over an area including the first metal, the second metal, and the third metal to heat the first metal, to partly melt the second metal, and to at least partly dissolve the third metal in the second metal, and cooling the resultant weld, said third metal melting at a temperature intermediate the melting temperature of said first metal and said second metal and being capable of wetting said first metal.

4,281,236

PROCESS FOR THE MANUFACTURE OF ELECTRICAL CONTACTS UPON SEMICONDUCTOR COMPONENTS

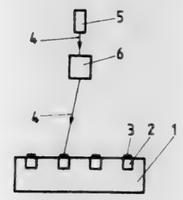
Martin vonAllmen, Pasadena, Calif., and Marc Wittmer, Baden, Switzerland, assignors to BBC Brown, Boveri & Co Limited, Baden, Switzerland

Filed Sep. 26, 1979, Ser. No. 79,216

Claims priority, application Switzerland, Oct. 31, 1978, 11195/78

Int. Cl.[3] **B23K** *27/00*

U.S. Cl. 219—121 LC **6 Claims**



1. A process for the manufacture of electrical contacts on semi-conductor components, wherein a metallic layer having a thickness of between 0.05 and 0.3 μm is placed upon the surface of a semiconductor component with which contact is to be made, and the metallic layer is then sintered by heating to a predetermined temperature, comprising:

irradiating the metallic layer with laser light having an energy density between 1 and 3 Joule/cm^2 and an intensity sufficient to bring the metallic layer and the semiconductor material adjacent the metallic layer to the melting point.

4,281,237

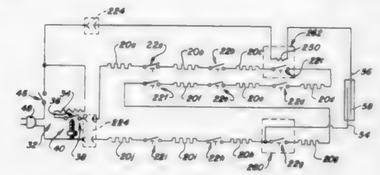
SAFETY CIRCUIT FOR ELECTRIC BEDCOVER

Allen V. Berenson, Chicago, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed Mar. 5, 1979, Ser. No. 17,509

Int. Cl.[3] **H05B** *1/02*; **H02H** *1/02*

U.S. Cl. 219—511 **3 Claims**



1. In an electric bedcover of a type comprising

a fabric shell, which has plural plies and a network of serpentine passages within said plies,

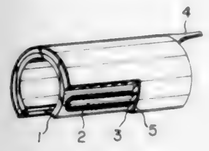
an elongated flexible heater, which is deployed throughout at least some of said passages, and

a safety thermostat, which is connected in series with at least part of said heater and with plural conventional thermostats, which is located within said network of serpentine passages, which comprises a bimetallic element and electrical contacts arranged to be opened and closed by said bimetallic element, and which is operative to disconnect at least part of said heater from a source of electrical power at said contacts when said bimetallic element is heated sufficiently and to reconnect the same part of said heater to the source of electrical power through said contacts when said bimetallic element is cooled sufficiently, an improvement wherein an elongated flexible sensor, of a type comprising a pair of elongated flexible electrical conductors spaced from each other by an elongated flexible layer of material having a negative temperature coefficient of resistance, is deployed through at least some of said passages, wherein a resistor is mounted for heat dissipation from said resistor to the bimetallic element of said safety thermostat, and wherein a first circuit branch comprising said resistor, said conductors, and said layer, in series with each other, is confined by and embodied entirely within said network of serpentine passages so as not to require additional leads extending from the fabric shell and connected in parallel with a second circuit branch comprising at least part of said heater so as to maintain said conductors at relatively different electrical potentials at least when said heater operates, so as to conduct essentially no current except when said layer acts as an electrical conductor having low impedance rather than as an electrical insulator having high impedance, and so as to conduct sufficient current to cause said resistor to dissipate sufficient heat to cause said bimetallic element to open said contacts when some part of said layer is heated so as to act as an electrical conductor having low impedance rather than as an electrical insulator having high impedance, whereby said bimetallic element receives essentially no heat from said resistor except when said layer thus acts as an electrical conductor.

4,281,238
TUBULAR JACKET HEATER

Hideyuki Noma, Ageo, and Takaaki Nakano, Omiya, both of Japan, assignors to Shin-Etsu Polymer Co., Ltd., Japan

Filed Sep. 12, 1979, Ser. No. 74,733
Claims priority, application Japan, Sep. 18, 1978, 53-114305
Int. Cl.³ H05B 3/58
U.S. Cl. 219—535 5 Claims



1. A tubular jacket heater for preheating a tubular lamp having an aperture extending in the direction parallel to the axis of the heater to form a C-wise radial cross section comprising

(a) an inner layer made of a first electrically insulating rubbery elastomer,

(b) an outer layer made of a second electrically insulating rubbery elastomer and bonded to the inner layer, and

(c) a flexible heater element embedded in said heater and comprising an undulating wire having longer segment portions extending co-axially of the layers and with shorter connecting segment portions extending generally circumferentially of the layers,

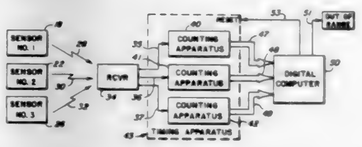
the first and the second electrically insulating rubbery elastomers are silicone rubbers,

the hardness of the first and the second electrically insulating rubbery elastomers is in the range from 40 and 70 by this JIS scale.

4,281,239
TIMING APPARATUS AND METHOD

Michael D. Coon, Mesa; Martin K. Grace, Scottsdale, and Steven R. Smith, Mesa, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jul. 23, 1979, Ser. No. 59,815
Int. Cl.³ G06M 3/08
U.S. Cl. 235—92 GA 8 Claims



1. In a projectile scoring system of the type including a transmitter for illuminating the projectile and a plurality of spaced apart sensors receiving reflected energy from the projectile and connected to provide signals indicative of the reflected energy at each of the sensors to a computer designed to calculate the position of the projectile relative to the sensors, improved timing apparatus comprising:

(a) a clock pulse generator;

(b) a plurality of counters, one associated with each sensor, each having an input coupled to said clock pulse generator for receiving pulses thereon and an input adapted to be connected to the computer, and each counter being constructed to provide a pulse at a second output when a predetermined count is reached;

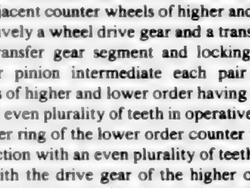
(c) gate means connected to the second output of each of said counters and providing a pulse at an output thereof when a first pulse from one of said counters is received; and

(d) switching means connected to said plurality of counters and adapted to be coupled to the sensors for enabling each of said counters in response to a signal from the associated sensor, said switching means further being connected to said gate means for receiving the output pulse therefrom and deactivating all of said counters simultaneously.

4,281,240
FUEL PUMP COUNTER TRANSFER MECHANISM

Bruno S. Smilgys, Hartford, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed Dec. 10, 1979, Ser. No. 101,838
Int. Cl.³ G06C 7/10; F16H 57/00
U.S. Cl. 235—139 R 14 Claims

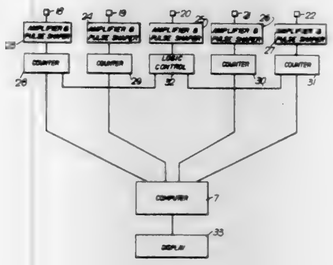


1. In a rotary counter having at least two coaxial counter wheels of ascending order of significance adapted to be rotated in a first angular direction thereof for accumulating a count, each pair of adjacent counter wheels of higher and lower order having respectively a wheel drive gear and a transfer ring with a two-tooth transfer gear segment and locking ring, and a rotary transfer pinion intermediate each pair of adjacent counter wheels of higher and lower order having an input gear section with an even plurality of teeth in operative engagement with the transfer ring of the lower order counter wheel and an output gear section with an even plurality of teeth in operative engagement with the drive gear of the higher order counter wheel and whereby the transfer pinion is intermittently angularly indexed a predetermined transfer angle thereof by rotation of the lower order counter wheel in said first angular direction, for indexing the higher order counter wheel one count in said first angular direction, the improvement wherein at least the tens transfer pinion intermediate the lowest and next lowest order counter wheels is a special transfer pinion having an input gear section with first alternate teeth and second different elongated alternate teeth extending radially outwardly of the first teeth and having a tooth profile for initial engagement with and disengagement from the leading and trailing edges of the two-tooth gear segment radially inwardly of the root circle thereof to reduce the rate of acceleration and deceleration of the transfer pinion at the beginning and end of its transfer angle.

4,281,241
FIRING RANGE

Lindsay C. Knight, Albury, Australia; David A. Cash, Camberley, England; Duncan Stewart, Farnham Common, England; Robert A. Cottis, Maidenhead, England; William H. Bowyer, Farnham, England; Robert C. Newnham, Slough, England; Frederick J. Williams, Meppershill, England, and David W. Pardon, Bennington, England, assignors to Australasian Training Aids (Pty.) Ltd., Albury, Australia

Continuation of Ser. No. 879,458, Feb. 21, 1978, abandoned.
This application Jun. 22, 1979, Ser. No. 51,218
Claims priority, application United Kingdom, Feb. 21, 1977, 7253/77
Int. Cl.³ F41J 5/12; G06F 15/20
U.S. Cl. 235—400 64 Claims



1. Apparatus for determining the location in a predetermined two-dimensional target area adjacent a target member through which the trajectory of a supersonic projectile passes, said projectile originating from a firing point and directed toward said target member, the apparatus comprising:

at least four transducers,

means for positioning said at least four transducers in a generally horizontal elongate array adjacent a lower edge of the predetermined target area,

said transducers positioned spaced apart one from the other at respective predetermined locations,

each said transducer comprising means for providing an output signal in response to an airborne shock wave generated by the supersonic projectile,

individual threshold circuit means coupled to each transducer and responsive to said output signal for providing a digital signal when said output signal exceeds a predetermined threshold, the digital signal having a leading edge representing a time at which said airborne shock wave generated by the supersonic projectile impinges on the transducer, and

digital processing means, provided with data representing the respective predetermined locations at which the transducers are positioned, and operative for

(1) determining time differences between the leading edge of the digital signal associated with one of said transducers relative to the leading edge of the digital signal associated with each of the remainder of the transducers,

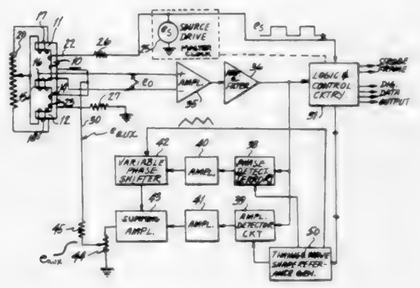
(2) calculating, from said determined time differences and from the data representing the respective predetermined transducer locations, the location in said predetermined target area through which said trajectory passes, and

(3) providing an indication of said calculated location.

4,281,242
BALANCING APPARATUS FOR MAGNETIC CIRCUITS EMPLOYED IN DATA STORAGE AND RETRIEVAL SYSTEMS

Robert S. Mannion, Carbondale, Pa., assignor to Continental Instruments Corporation, Hicksville, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,669
Int. Cl.³ G06K 7/08; G11B 5/43, 5/20
U.S. Cl. 235—449 11 Claims



1. A balancing apparatus for providing a null at the output of a quadrature circuit of the type driven by a drive source for providing a first signal at a given frequency and of a reference phase and a second signal at the same frequency of a phase relatively about said reference phase, said circuit operating to provide a null signal at an output manifesting a zero voltage output during a balanced condition when said quadrature circuit is not effected by the presence of a desired unbalancing means, said quadrature circuit undesirably providing a random output signal at said frequency due to an undesired unbalance as manifested by an interfering external source, comprising:

(a) first means responsive to said random output signal to provide an amplified version of said signal at said given frequency,

(b) amplitude detecting means responsive to said random output signal to provide an amplitude compensating signal at said frequency indicative of the amplitude of said random signal,

(c) phase detecting means operative to provide a DC error signal indicative of the phase of said random signal with respect to a predetermined reference phase,

(d) phase comparator means operative to compare a reference waveform at a first input with a DC reference level at a second input to provide at an output, a phase compensating signal at said frequency having a phase indicative of the difference between said reference waveform and said DC level,

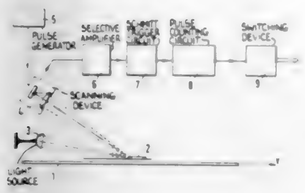
(e) means for generating a reference waveform indicative of a reference phase from said drive source for applying said reference waveform to said first input of said comparator means,

(f) means for applying said DC error signal to said second input of said comparator means to cause said comparator means to provide at said output, said phase compensating signal of a phase determined by said DC error signal,

(g) summing means responsive to said amplitude compensating signal and said phase compensating signal to provide at the output, a summed signal indicative of the phase and amplitude of said random signal, and

(h) means for applying said summed signal to said drive source to compensate for said random signal and therefore for said unbalance as manifested by said interfering external source.

4,281,243
APPARATUS FOR DETECTING POSTAGE STAMPS ON ENVELOPES
Heinz Hudler, Ketzergasse 389, 1235 Wien, Austria
Filed May 4, 1979, Ser. No. 35,961
Claims priority, application Austria, Jun. 8, 1978, 4101/78
Int. Cl.³ G01V *9/04*
U.S. Cl. 250—223 R **14 Claims**



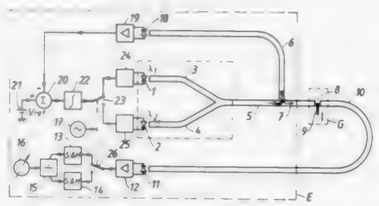
1. Apparatus for detecting a perforated postage stamp on envelopes travelling in a given direction comprising:
- a light source directed to illuminate teeth of a perforated edge of said stamp at a right angle to said given direction;
- a scanning device disposed to receive light from said illumination edge of said stamp and to produce a high frequency pulse train responsive to scanning said teeth of said illuminated edge of said stamp; and
- an evaluating circuit coupled to said scanning device responsive to said pulse train to provide an indication signal indicating the presence of said stamp.

4,281,244
APPARATUS FOR DETECTING SHEET-FORMED SUPPORT MATERIAL
Tomoji Murata, and Masazumi Ito, both of Toyokawa, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Jun. 18, 1979, Ser. No. 49,642
Claims priority, application Japan, Jun. 17, 1978, 53/73567
Int. Cl.³ G02F *1/01*
U.S. Cl. 250—225 **8 Claims**



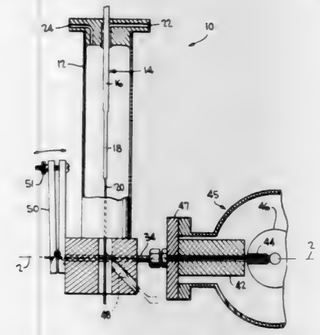
1. Apparatus for detecting a sheet-formed article passing along a predetermined path, said apparatus comprising:
- a light source provided with a first polarizing means and a photoresponsive element provided with a second polarizing means, said light source and said photoresponsive element positioned adjacent said path of said sheet-formed article passing therebetween, the relative spacing relationship between a first plane of polarization of said first polarizing means and second plane of polarization of said second polarizing means so arranged that the amount of light received by said photoresponsive element is increased when a transparent sheet-formed article is passed across a light path orginating from said light source;
- said apparatus further comprising another photoresponsive element disposed on the side opposite to said light source with respect to said predetermined path, said another photoresponsive element disposed with respect to said light source such that the amount of light received by said another photoresponsive element is decreased when a non-transparent sheet-formed article is passed across said light path originating from said light source;
- wherein said photoresponsive element and said another photoresponsive element are connected to a first electric circuit means for the detection of the passage of said sheet-formed article and connected to a second electric circuit means for the detection of the transparency of said sheet-formed article.

4,281,245
FIBER OPTICAL MEASUREMENT APPARATUS
Torgny Brogardh, Vasteras, and Leif Stensland, Jarfalla, both of Sweden, assignors to ASEA Aktiebolag, Vasteras, Sweden
Filed May 29, 1979, Ser. No. 43,031
Claims priority, application Sweden, Jun. 2, 1978, 7806486; Dec. 18, 1978, 7812949
Int. Cl.³ G02B *5/14*
U.S. Cl. 250—227 **26 Claims**



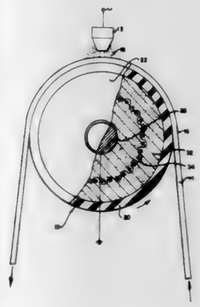
1. Optical measuring apparatus for measuring physical magnitudes, comprising:
- electronic circuit means including at least one light source for emitting light and means for processing measuring signals;
- a transducer for receiving said emitted light and including an optical modulator responsive to optical signals representing the measured physical magnitudes for modulating the light emitted from said at least one light source;
- at least one optical fiber for conducting light between said at least one light source and said transducer;
- said transducer further including at least one optical filter having a spectrally-varying absorbing, transmitting or reflecting characteristic within the spectra of the light emitted by said at least one light source, said at least one optical filter being positioned in the path of the light emitted from the transducer to generate at least one optical stabilization signal for stabilizing the optical signals in said at least one optical fiber and said means for processing measuring signals, and said at least one optical filter generating at least one optical measuring signal, said at least one fiber end in said transducer including an interference filter positioned adjacent thereto for generating a light signal in one wavelength range less dependent on the measured physical magnitude than the light within another, non-identical wavelength range of the light emanating from said transducer, the optical wavelength of said interference filter is changed by mechanical stresses induced in the interference layers thereof; and
- said means for processing including means for detecting said at least one optical measuring signal.

4,281,246
CONTINUOUS-FLOW SOLUTION CONCENTRATOR AND LIQUID CHROMATOGRAPH/MASS SPECTROMETER INTERFACE AND METHODS FOR USING BOTH
Edward White, V; Harry S. Hertz, and Richard G. Christensen, all of Gaithersburg, Md., assignors to The United States of America as represented by the Administrator of the United States Environmental Protection Agency, Washington, D.C.
Filed Oct. 12, 1979, Ser. No. 84,273
Int. Cl.³ B01D *59/44, 1/22*
U.S. Cl. 250—282 **35 Claims**



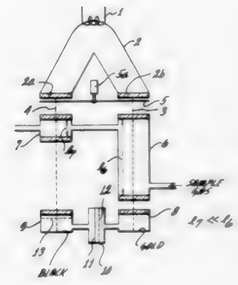
15. A method of conducting a liquid stream from a liquid chromatograph and introducing the stream into a mass spectrometer, said method comprising:
- (a) transporting a liquid stream from one end of a tapered wire to the other end of said wire;
- (b) heating said stream so as to evaporate a portion of said solvent from said liquid stream; and
- (c) drawing and conducting said liquid stream from adjacent said second end of said wire along the inside of a tube towards said mass spectrometer.

4,281,247
ROLLER ELECTRODE FOR USE IN APPARATUS FOR TREATING PLASTIC FILM WITH HIGH VOLTAGE CORONA DISCHARGE
Samuel J. Schuster, 617 Vallombrosa, Pasadena, Calif. 91107
Filed Nov. 5, 1979, Ser. No. 91,384
Int. Cl.³ A01T *19/04*
U.S. Cl. 250—324 **9 Claims**



1. A roller electrode for use in apparatus for treating plastic film with high voltage corona discharge, said electrode comprising:
- a tubular outer casing of dielectirc material, the casing having opposite ends;
- a shaft positioned coaxially of the casing and having end portions projecting from the ends of the casing, the inner surface of the casing and the outer surface of the shaft definng an annular cavity; and
- an electrically conductive composition within the annular cavity, said composition comprising a cementitious matrix in which conductive particles are bound, the composition being in intimate contact with the inner surface of the casing and the outer surface shaft.

4,281,248
NONDISPERSIVE INFRARED GAS ANALYZER
Walter Fabinski, Kriftel, and Udo Deptolla, Ober-Olm, both of Fed. Rep. of Germany, assignors to Hartmann & Braun Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Apr. 30, 1980, Ser. No. 145,364
Claims priority, application Fed. Rep. of Germany, May 5, 1979, 2918207
Int. Cl.³ G01N *21/26*
U.S. Cl. 250—345 **5 Claims**



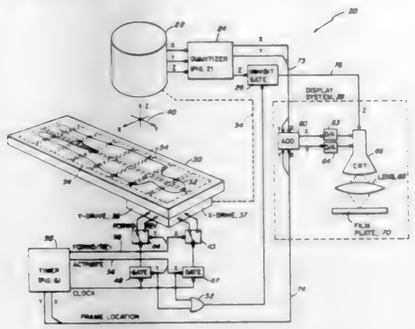
1. A nondispersive infrared gas analyzer having a source for infrared radiation as well as means for defining a first and a second path as well as chopper means for periodically interrupting radiation in each of said paths, further including first and second detection cells filled with gas of the type to be detected in the sample gas, the cells being respectively disposed in said first and second paths, there being additionally differential pressure sensing means with capacitive pickup connected to the first and second detection cells for responding to pressure differences in those detection cells and providing an electrical signal representative thereof, the improvement comprising:
- a first and a second cell for sample gas, respectively disposed in the first and the second path, the first cell being significantly shorter in the direction of the first path than the second cell; and
- the walls of the first detection cell absorbing more radiation than the walls of the second detection cells.

4,281,249
STEPPED SCANNER IMAGING SYSTEM
Stanley N. Lapidus, Bedford, N.H., assignor to The Machlett Laboratories, Incorporated, Stamford, Conn.
Filed Jan. 14, 1980, Ser. No. 111,558
Int. Cl.³ G01T *1/20*
U.S. Cl. 250—363 S **13 Claims**

1. A radiographic system comprising:
- a camera for providing images of a subject;
- a support for supporting said subject in view of said camera;
- means coupled between said support and said camera for imparting a relative motion between said camera and said support, said motion being step-wise to provide a sequence of lateral displacements between said support and

said camera alternating with a sequence of substantially different, laterally displaced, fixed locations of said support relative to said camera;

means coupled to said camera for obtaining imaging data therefrom; and



means coupled to said motion means for inhibiting a flow of said imaging data between said camera and said data obtaining means during each of said displacements.

4,281,250

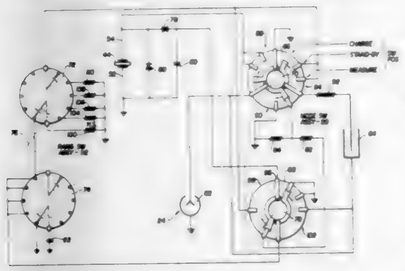
RADIATION DOSE RATE METER

Stanley Kronenberg, Skillman, N.J.; Carl R. Siebentritt, Mc Lean, Va., and Harry Van Gorden, Brick, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 4, 1980, Ser. No. 109,598

Int. Cl.³ H01J *39/29, 39/30*

U.S. Cl. 250—377 **10 Claims**



1. A radiation detecting instrument powered by charging means and being adapted to measure dose rate over a wide range, comprising, in combination: an electrostatic metering device including visual indicator means; a storage capacitor;

circuit means in a first mode of operation coupling said storage capacitor to said metering device for measuring the voltage appearing across said storage capacitor during operation of said charging means;

circuit means in a second mode of operation decoupling said storage capacitor from said metering device following said first mode of operation;

circuit means including a radiation sensitive charge transport device, in a third mode of operation, coupling said charge transport device between said storage capacitor and said electrostatic metering device, and additionally including means shunting said metering device to rapidly discharge the stray capacitance associated therewith to provide indications of individual rays of radiation being sensed; and

circuit means including a radiation sensitive charge transport device, in a fourth mode of operation, coupling said charge transport device between said storage capacitor and said electrostatic metering device and additionally including means coupled to said storage capacitor for providing a discharge circuit therefor and having a predetermined discharge time constant which is adapted to provide a predetermined operating time interval for said charge transport device whereby said metering device provides an indication of measured dose rate.

4,281,251

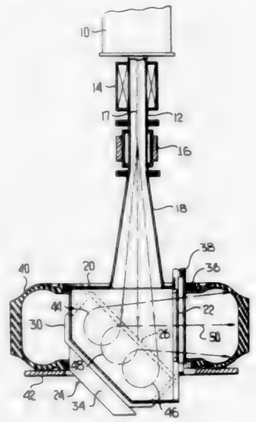
SCANNING BEAM DEFLECTION SYSTEM AND METHOD

Chester C. Thompson, Roslyn Heights, and Marshall R. Cleland, Huntington Station, both of N.Y., assignors to Radiation Dynamics, Inc., Melville, N.Y.

Filed Aug. 6, 1979, Ser. No. 63,822

Int. Cl.³ H01G *37/00*

U.S. Cl. 250—398 **10 Claims**



1. A system for uniformly irradiating an object with a beam of charged particles comprising

means for forming a narrow beam of electrons directed along a predetermined central axis,

an evacuated chamber positioned to receive said beam and having an exit window generally parallel to said central axis,

first deflection means disposed between said means for forming and said evacuated chamber for deflecting said beam through predetermined angles to both sides of said central axis, and

second deflection means located at said evacuated chamber for rotating said beam through approximately 270° to exit through said window at the same angle relative to the undeflected beam as said beam bore to said central axis upon entering said evacuated chamber.

4,281,252

COUPLING APPARATUS FOR PORTABLE RADIOGRAPHY SYSTEMS

George W. Parsons, Jr., North Reading, and Riccardo A. Drainoni, Woburn, both of Mass., assignors to Technical Operations, Inc., Boston, Mass.

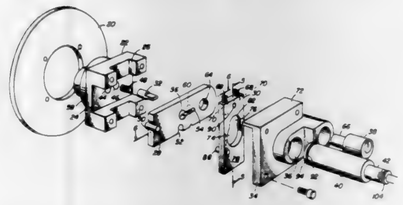
Continuation of Ser. No. 964,078, Nov. 27, 1978, abandoned. This application Oct. 26, 1979, Ser. No. 88,464

Int. Cl.³ G21F *5/02*

U.S. Cl. 250—497 **17 Claims**

1. In radiographic apparatus for manipulating a quantity of radioactive material between a stored position and a use position including a capsule of said radioactive material, a storage unit with a passage through it for storing the capsule in the

passage and shielding the surrounding environment from the stored radioactive material, manipulating means for location remote from said storage unit, flexible conduit means connectible to said storage unit between one end of said passage and the manipulating means, and flexible elongated drive means movable within said conduit means and said passage for moving said capsule between a stored position and a use position under control of said manipulating means, the improvement comprising: disconnectible coupling means having a first component fixed to said storage unit at said one end of said passage and a second component of tubular shape fixed at one end to an end of said conduit means remote from said manipulating means, said first component having a tubular aperture for



receiving said second component endwise therein, and means for releasably locking said second component to said first component, said locking means comprising a first slide member mounted in said first component for movement transverse to said tubular aperture between first and second limits, said first slide member having engagement means which extends into said tubular aperture when said first slide member is at said second limit, and is withdrawn from said tubular aperture when said first slide member is at said first limit, said second component having means to receive said engagement means in said tubular aperture for locking said second component against withdrawal from said tubular aperture when said first slide member is moved toward said second limit.

4,281,253

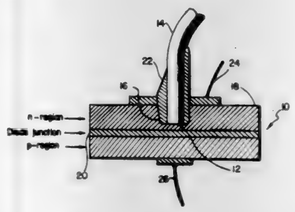
APPLICATIONS OF DUAL FUNCTION ELECTRO-OPTIC TRANSDUCER IN OPTICAL SIGNAL TRANSMISSION

William H. Culver, Gaithersburg, Md., assignor to Optelecom, Inc., Gaithersburg, Md.

Filed Aug. 29, 1978, Ser. No. 937,828

Int. Cl.³ H01L *31/12, 33/00*

U.S. Cl. 250—551 **12 Claims**



1. An invention including at least one optical fiber cable assembly for the transmission of signals in either direction from one end of the cable assembly to the other, said cable assembly being terminated at each of the two ends with an electrical connector, and each of said connectors containing at least one semiconductor diode which functions as a dual function transducer, said diode adapted to convert the signals both from optical to electrical form and from electrical to optical form, and said cable assembly having one or more optical fibers to transmit the signals in optical form between the transducer diodes, and the ends of said fiber being positioned approximately against the diodes so that the fiber axis is essentially perpendicular to the diode junction plane, the cable assembly further characterized in that the at least one semiconductor diode is provided with a well in the n-region to render the diode weakly absorbing of emitted and received radiation and the end of the fiber is positioned approximately against the n-region in said well.

4,281,254

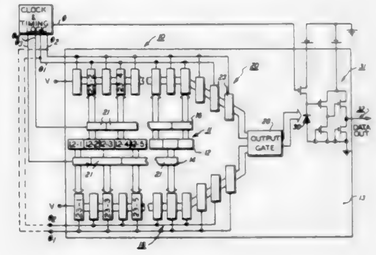
SELF SCANNED PHOTOSENSITIVE ARRAY

Ned J. Seachman, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jul. 2, 1979, Ser. No. 54,354

Int. Cl.³ H01J *40/14*

U.S. Cl. 250—578 **12 Claims**



1. A self scanned photosensitive device comprising:

(a) an array of photosensors;

(b) a shift register having a plurality of phase gates for receiving signals from said photosensors individually:

(c) an array of transfer switches for coupling said photosensors with individual ones of said shift register phase gates to enable signals from said photosensors to be transferred to said shift register phase gates;

(d) counter means for triggering said transfer switches of said switch array in sequence; and

(e) clock means for indexing said shift register to shift signals serially along said shift register from one phase gate to the next, said clock means having a frequency relative to that of said counter means to provide a number of adjoining shift register phase gates equal to the number of phases in said clock means for each photosensor signal.

4,281,255

SOURCE OF ENERGY AND A METHOD OF GENERATING ENERGY

Victor L. Sherman, 115 Logan St., Apt. 2D, Brooklyn, N.Y. 11208

Filed Jul. 3, 1978, Ser. No. 921,850

Int. Cl.³ F25B *25/00;* **H02P** *9/04*

U.S. Cl. 290—1 R **9 Claims**

1. An energy source arrangement, comprising

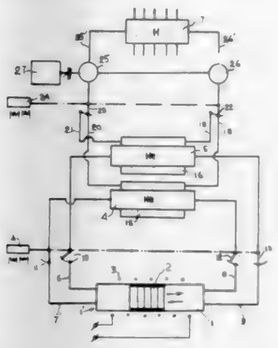
a mover having a housing;

container means accommodating helium, said container means being so arranged that the helium accommodated therein is heated under the action of surrounding medium, said container means including two containers each having two oppositely located openings;

communicating means communicating said container means with said mover so that the thus-heated helium travels through said communicating means from said container means into said housing of said mover wherein the helium expands and moves said movable element and during this the helium becomes cooled and partially condensed, said communicating means being further arranged so that the thus-cooled and partially condensed helium thereupon travels from said housing of said mover back into said container means without being externally cooled to be

again heated in the latter under the action of the surrounding medium, said communicating means including four conduits each communicating one of said openings of one of said containers with said housing of said mover; and

actuating means operative for actuating said communicating means so that the heated helium is fed from one of said containers through one of its openings into said mover to move said movable element in one direction whereby the



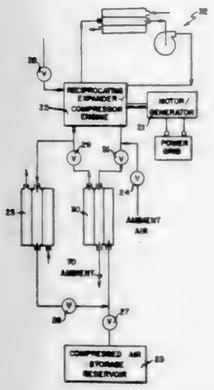
helium is cooled and partially condensed, then the heated helium is fed through another opening from the same container into the housing of said mover so that it moves said movable element in an opposite direction and expels the cooled and partially condensed helium from said mover into one opening of another container wherein the helium is to be again heated to thereafter be fed through another opening of said other container into said housing of said motor.

4,281,256

COMPRESSED AIR ENERGY STORAGE SYSTEM

Frederick W. Ahrens, and George T. Kartsounes, both of Naperville, Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 15, 1979, Ser. No. 39,412
Int. Cl.³ F04B *17/00*
U.S. Cl. 290—1 R **7 Claims**



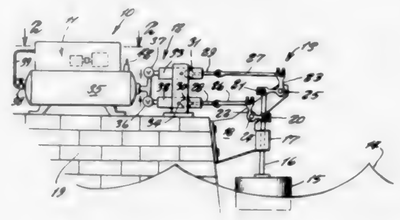
1. A compressed air energy storage system comprising an internal combustion reciprocating engine, an air storage reservoir, means external to said reciprocating engine for operating said reciprocating engine as an air compressor during slack demand periods for power, means for charging the storage reservoir with air compressed by the reciprocating engine, means for feeding air from the storage reservoir and fuel to the reciprocating engine during peak demand periods for power, and means for burning the air/fuel mixture whereupon the engine operates as an expander, developing power available for external use.

4,281,257

WAVE POWERED GENERATOR

Victor Testa, c/o George Spector 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Jan. 29, 1979, Ser. No. 7,464
Int. Cl.³ F03B *13/12*
U.S. Cl. 290—42 **2 Claims**



1. A machine for converting wave energy to electrical energy comprising a float responsive to wave action causing reciprocating up and down float motion a first means connected to the float along its vertical axis and to parallel rods causing opposing motion of said rods, each said rod connected to a piston mounted in a cylinder which in turn is connected to compressed air tank, including a check valve between each cylinder and said tank in further combination with a second means for operating an electric generator by the compressed air in said tank, wherein the first said means comprise a pair of linkages connected to the float at spaced points, each said linkage attached to each said rod, wherein one of said linkages includes a pivot point secured to a fixed member on one side of said float axis and the other of said linkages includes a pivot point secured to said fixed member at the opposite side of said float axis whereby vertical reciprocal float motion causes opposing rod motion and air compression in at least one cylinder on both up and down float motion.

4,281,258

HIGH SPEED, LOW COMPONENT COUNT, CML EXCLUSIVE NOR GATE

Richard L. Doucette, San Marcos, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 6, 1978, Ser. No. 958,255
Int. Cl.³ H03K *19/21, 19/082, 19/20*
U.S. Cl. 307—455 **7 Claims**

1. A CML exclusive NOR gate circuit comprising:

a first NPN transistor having a base, a collector and an emitter, said base serving as a first input to said gate,

a second NPN transistor having a base, a collector and an emitter, said base serving as a second input to said gate,

a third NPN transistor having a base, a collector and an emitter, the base of said third transistor being connected to the emitter of said first transistor,

a fourth NPN transistor having a base, a collector and an emitter, the base of said fourth transistor being connected to the emitter of said second transistor,

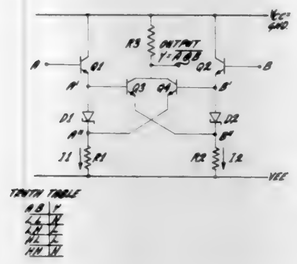
first and second diode means,

said first diode means being coupled between the emitter of the first transistor and the emitter of the fourth transistor,

said second diode means being coupled between the emitter

of the second transistor and the emitter of the third transistor,

means for connecting the emitters of said third and fourth transistors to respective current sources, and for connecting the collectors of said first and second transistors to a reference voltage source,



resistance means,

means connecting the collectors of said third and fourth transistors together and to said reference voltage source through said resistance means, and

means forming an output connected between said resistance means at the collectors of said third and fourth transistors.

4,281,259

DIGITAL PHASE COMPARING APPARATUS

Toshiyuki Ozawa, Gunma, Japan, assignor to Sanyo Electric Co., Ltd., Osaka and Tokyo Sanyo Electric Co., Ltd., Gunma, both of, Japan

Filed Jul. 5, 1979, Ser. No. 54,974
Claims priority, application Japan, Nov. 8, 1978, 53-139135; Nov. 8, 1978, 53-139136; Feb. 2, 1979, 54-11762; Feb. 2, 1979, 54-11763; Feb. 5, 1979, 54-12472
Int. Cl.³ H03K *5/26;* **H03L** *7/18*
U.S. Cl. 307—514 **24 Claims**

1. An apparatus for comparing the phases of two input signals, comprising:

first and second signal processing circuit means, each including first, second and third input terminals, and first and second output terminals,

each of said first and second signal processing circuit means being structured such that said signal processing circuit means is responsive to a signal obtained at said first input terminal for transferring a signal obtained at said third input terminal to said first and second output terminals in a reversed logical relation and is responsive to a signal obtained at said second input terminal for forcing said first and second output terminals to a logical state determined by said signal obtained at said second input terminal,

first input signal providing means for providing a first input signal the phase of which is to be compared to said first input terminal of said first signal processing circuit means,

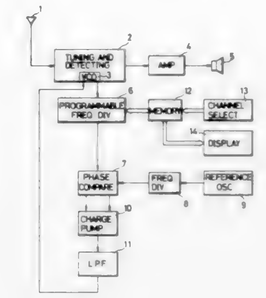
second input signal providing means for providing a second input signal the phase of which is to be compared to said first input terminal of said second signal processing circuit means,

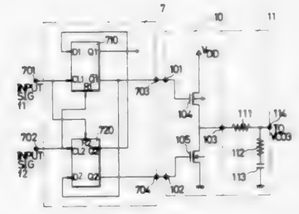
first signal supplying means for supplying the signal obtained at said first input terminal of said first signal processing circuit means to said second input terminal of said second signal processing circuit means,

second signal supplying means for supplying the signal obtained at said first input terminal of said second signal processing circuit means to said second input terminal of said first input processing circuit means,

third signal supplying means for supplying the signal obtained at said first or second output terminal of said first signal processing circuit means to said third input terminal of said second processing circuit means, and

fourth signal supplying means for supplying the signal obtained at said first or second output terminal of said second





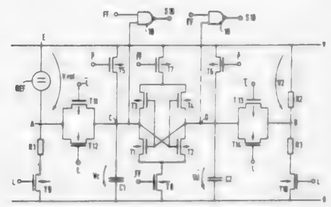
signal processing circuit means to said third input terminal of said first signal processing circuit means.

4,281,260

CONTROLLED POWER SUPPLY FOR INTEGRATED CIRCUITS

Gerhard Moegen, Neubaldham, and Gottfried Wotruba, Poing, both of Fed. Rep. of Germany, assignors to Eurosil, GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 5, 1978, Ser. No. 948,678
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1977, 27453027
Int. Cl.³ H03K *17/60, 3/01*
U.S. Cl. 307—573 **12 Claims**



1. A circuit that may be formed in integrated CMOS for the control of a supply voltage for integrated circuits by indication of the relation of the supply voltage to a predetermined voltage value characterized by

first and second capacitors,

a constant reference voltage source adapted for connection to charge one of said capacitors and means connecting a supply voltage to charge the other of said capacitors,

a bistable comparison circuit having first and second complementally conductive stages, triggering inputs for said stages and signal outputs from said stages, said first and

second capacitors being connected to said triggering inputs to control the order of complemental conductivity of said stages according to the relative voltage values on said capacitors;

logic means connected to respective outputs of the bistable comparison circuit for producing a digital signal the value of which indicates the order of complemental conductivity of said bistable comparison circuit; and

means for simultaneously actuating the comparison circuit and the logic means subsequent to the charging of said capacitors.

4,281,261

INTEGRATED IGFET CONSTANT CURRENT SOURCE

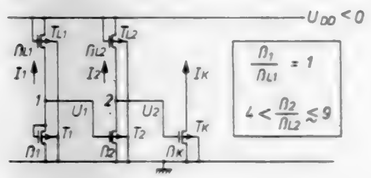
Fritz G. Adam, Freiburg, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed May 21, 1979, Ser. No. 40,801

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1978, 2826624

Int. Cl.³ H03K *3/01*

U.S. Cl. 307—270 **4 Claims**



1. A monolithically integrated circuit for an IGFET-constant current source containing a source-drain series arrangement of two IGFET's of one conductivity type in series between the voltage supply and the substrate, in which series arrangement the gate electrode of the first load IGFET of the series arrangement, as applied to the first pole of the voltage supply, is connected to the first pole of the voltage supply, and the common connection point of the two IGFET's is connected to the gate electrode of a current-source IGFET whose source electrode is applied to the substrate, wherein the improvement comprises that:

when using enhancement IGFET's of the same channel conductivity type, the gate electrode of the second IGFET (T_2) of the series arrangement is connected to the common connection point (**1**) of a further source-drain series arrangement of two IGFET's (TL_1, T_1) arranged in series between the first pole and the substrate,

that in the further source-drain series arrangement, the gate electrode of the load-IGFET (T_{L1}) as applied to the first pole of the supply voltage (U_{DD}) is applied to this first pole of the voltage supply (U_{DD}), and that the gate electrode of the second IGFET (T_1) is applied to the common connection point (**1**) thereof, and

that the condition $(\beta_1/\beta_{L1})=1$ is extensively approximated and that the condition $4<\beta_2/\beta_{L2}\leqq 9$ is satisfied.

wherein β_1 indicates the mutual conductance constant of the second IGFET (T_1) of said further series arrangement,

wherein β_{L1} indicates the mutual conductance constant of the load-IGFET of said further series arrangement,

wherein β_2 indicates the mutual conductance constant of the second IGFET (T_2) of the series arrangement, and

wherein β_{L2} indicates the mutual conductance constant of the load-IGFET of the series arrangement.

4,281,262

CIRCUIT ARRANGEMENT FOR EVALUATING PULSE GENERATOR SIGNALS OF VARIOUS AMPLITUDES

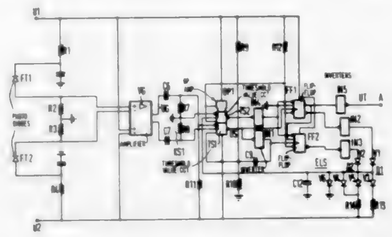
Anton Dressen, Dachau, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 21, 1979, Ser. No. 40,635

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2827959

Int. Cl.³ H03K *5/153*

U.S. Cl. 307—350 **12 Claims**



1. A circuit arrangement for evaluating pulse signals of different amplitudes and producing output pulses therefrom, comprising:

a first threshold value means for receiving the pulse signals and producing rectangular pulses having pulse widths dependent on the durations of the pulse signals above a first threshold value;

discharge means including a capacitor, connected to said first threshold means and operable in response to the leading edge of a rectangular pulse to discharge said capacitor from an initial value at a first discharge rate and at a second discharge rate which is twice the first discharge rate in response to the trailing edge of a rectangular pulse; and

a second threshold value means connected to said discharge means and operable to produce an output pulse in response to the potential of said capacitor falling below a second threshold value.

4,281,263

HYBRID STATOR AND A TWO-AXIS INDUCTION ELECTRIC MOTOR CONSTRUCTED THEREWITH

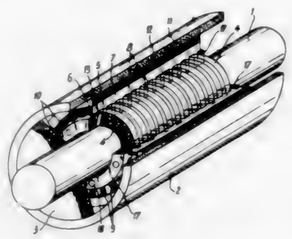
Alain F. Virolleau, Paris; Michel Kant, Thourotte, and Pierre H. Burnier, Longjumeau, all of France, assignors to Gradient, Compiegne, France

Filed May 22, 1979, Ser. No. 41,301

Claims priority, application France, May 23, 1978, 78 15304; Jun. 30, 1978, 78 19613

Int. Cl.³ H02K *7/06*

U.S. Cl. 310—13 **11 Claims**



1. A tubular stator capable of creating a magnetic field having a linear component and a rotary component, comprising:

a tubular magnetic frame divided into longitudinal magnetic elements spaced angularly apart at least peripherally and having a comb-like radial profile whose teeth are directed radially towards the centre,

a tubular winding having circular induction coils which are disposed between the teeth of the longitudinal magnetic elements,

undulating coil bunches disposed longitudinally between the longitudinal magnetic elements and surrounding the circular induction coils, and

a magnetic sleeve surrounding the magnetic frame.

4,281,264

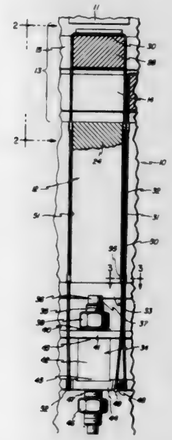
MOUNTING OF ARMATURE CONDUCTORS IN AIR-GAP ARMATURES

Thomas A. Keim, Clifton Park, and Donald W. Jones, Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 26, 1979, Ser. No. 14,942

Int. Cl.³ H02K *3/48*

U.S. Cl. 310—194 **14 Claims**



1. In a dynamoelectric machine having a stator core, a rotor rotatable relative to said core about a longitudinal axis of said core and separaed from said core by an air-gap, and a plurality of circumferentially-spaced armature conductors located in said air-gap, the improvement comprising means for securing said armature conductors in said air-gap under continuous radial and circumferential compression, said armature conductors securing means comprising in combination, electrically nonconductive conductor-engaging means, conductor retaining means in contact with said conductor-engaging means, and resilient means for applying a radially-outwardly directed force to said conductor-retaining means, said conductor retaining means means transmitting force from said resilient means to said armature conductors through said conductor-engaging means.

4,281,265

DISC MOTOR WITH A.C. AND D.C. STATOR WINDINGS

John F. Eastham, and Peter D. Evans, both of Bath, England, assignors to KGEL Limited, England

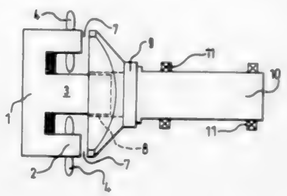
Filed Oct. 16, 1978, Ser. No. 951,602

Claims priority, application United Kingdom, Oct. 17, 1977, 43016/77; Oct. 17, 1977, 43017/77

Int. Cl.³ H02K *1/12*

U.S. Cl. 310—254 **9 Claims**

1. A disc machine comprising a circular stator from which teeth project axially, a central boss projecting from the stator in the same direction as the teeth, an AC winding wound through the slots between the teeth, a DC winding surrounding the central boss, a rotor having polar regions and a central aperture passing entirely therethrough, and means for mounting said rotor for rotation so that the boss passes through the central aperture of the rotor and so that there is an axial gap



between the rotor and the teeth but only a radial gap between the central boss and the rotor through which magnetic flux may flow between the stator and rotor, said mounting means comprising a shaft axially aligned with the central boss on the stator but extending from the rotor away from the stator.

4,281,266

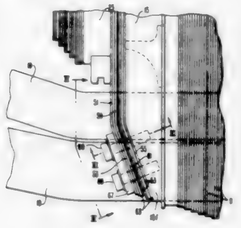
DYNAMOELECTRIC MACHINE WITH FLUX SCREEN

Raymond M. Calfo, Braddock Hills; Arthur Mulach, Penn Hills, and Warren W. Jones, Bullskin, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 14, 1979, Ser. No. 75,452

Int. Cl.³ H02K *1/12*

U.S. Cl. 310—256 **9 Claims**



1. A dynamoelectric machine having a stator and a rotor disposed within said stator with a gap therebetween, said stator comprising:

a plurality of laminations forming a core;

said core laminations have slots disposed to extend radially outwardly from the radially inner margin, said slots being aligned to form axially extending grooves and teeth;

conductors disposed in said grooves and extending axially therein and therebeyond;

finger plates having fingers which extend over said teeth and fit between said conductors for transmitting compressive forces to said core laminations including the teeth;

end plates disposed outboard of said finger plates for transmitting compressive forces to said finger plates; and

flux screens disposed between said end plates and said finger plates;

each of said flux screens being formed of laminations and having digital portions which extend radially inwardly over said fingers of said finger plates, clamping plates disposed over the digital portions, and fastening means for applying a compressive force to the portion of the screen laminations making up the digital portion, the radially inner margins of said flux screen laminations being stepped so as to ascent radially and axially outwardly from the inner margin thereof, whereby the teeth of the core are shielded from fringing flux which would enter the ends of

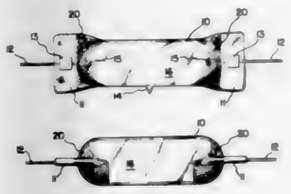
the core generally perpendicular to the plane of the core laminations.

4,281,267

HIGH INTENSITY DISCHARGE LAMP WITH COATING ON ARC DISCHARGE TUBE

Peter D. Johnson, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 14, 1979, Ser. No. 38,464
Int. Cl.³ H01J *61/35*
U.S. Cl. 313—25 **6 Claims**



1. In a high intensity arc discharge lamp including an outer envelope and inner, evacuable elongated discharge tube having electrodes disposed through substantially flat pinch-off flanges at opposed ends thereof and containing a discharge medium, one of the ends of each of said electrodes projecting into said medium, the improvement comprising:

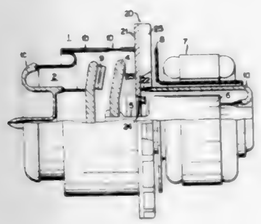
a reflective coating on said discharge tube, said coating being disposed at, and covering the ends of said discharge tube and extending just beyond the ends of said electrodes projecting into said medium except for an approximately semicircularly shaped portion on at least one of said discharge tube ends, said semicircular portion lying in a plane approximately parallel to the plane containing said pinch-off flanges, and extending toward the nearest pinch-off flange to expose the end of the electrode so that a greater portion of the arc is exposed, whereby the amount of escaping light is increased, while sufficient reflective coating is retained to avoid a decrease in the heat reflective operation thereof.

4,281,268

X-RAY TUBE WITH COOLED SHIELD BETWEEN TARGET AND ROTOR

Tsuna Sawa, Fujisawa, and Yasbunori Ishii, Chigasaki, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 8, 1979, Ser. No. 1,825
Claims priority, application Japan, Jan. 18, 1978, 53/3795
Int. Cl.³ H01J *35/04*
U.S. Cl. 313—60 **12 Claims**



1. An X-ray tube comprising:

an evacuated envelope including first and second end portions made of glass and an intermediate portion made of metal, said first end portion having a smaller diameter than said intermediate portion;

a cathode unit disposed in said evacuated envelope;

an anode unit disposed in said evacuated envelope and including a target received in said intermediate portion and facing the cathode unit, a rotor disposed in said first end portion and a shaft interconnecting said target and said rotor;

a shielding ring made of a heat conductive material and connected to said intermediate portion at its outer peripheral portion and to said first end portion at its inner peripheral portion, thereby constituting a part of said envelope, the inner periphery of said shielding ring extending between said target and said rotor, thereby protecting said first end portion against electrons emitted from said target; and

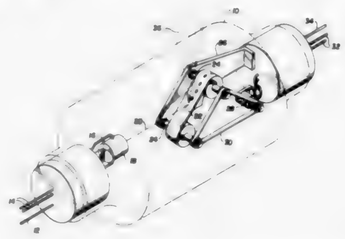
an insulation cylinder including a first section surrounding said first end portion and a second section adjacent to at least a portion of said shielding ring, said first and second sections, said shielding ring and said first end portion defining a region through which a cooling medium may flow to cool said shielding ring and first end portion.

4,281,269

MICROFOCUS X-RAY TUBE

Robert S. Ledley, 1002 Lagrande Rd., Silver Spring, Md. 20903

Continuation-in-part of Ser. No. 791,328, Apr. 27, 1977, abandoned. This application Oct. 23, 1979, Ser. No. 87,374
Int. Cl.³ H01J *35/08*
U.S. Cl. 313—60 **32 Claims**



1. A reusable microfocus X-ray tube adapted to generate a relatively large number of X-rays in a relatively short period of time using a narrowly focused electron beam, said microfocus X-ray tube comprising:

(a) first means for producing a dense, narrow electron beam;

(b) a target anode; and

(c) second means for moving said target anode so that it is stationary during production of X-rays but a fresh portion of the surface of said target anode is presented to the electron beam each time the X-ray tube is used.

4,281,270

PRECOATED RESISTIVE LENS STRUCTURE FOR ELECTRON GUN AND METHOD OF FABRICATION

Benjamin Abeles, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 25, 1979, Ser. No. 51,400
Int. Cl.³ H01J *29/82*
U.S. Cl. 313—444 **11 Claims**

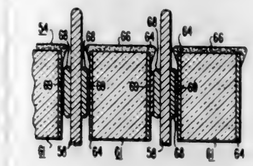
1. An electron gun comprising a plurality of electrodes and a resistive lens structure disposed between two of said electrodes, said lens structure comprising:

(a) a plurality of apertured electrodes, and

(b) a plurality of resistive spacer blocks,

(c) said apertured electrodes and said blocks being alternately stacked together such that each resistive block

provides an electrical resistive connection between the two apertured electrodes on either side thereof,



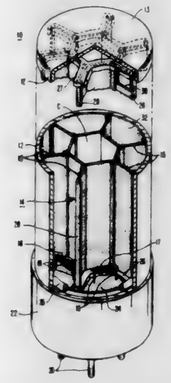
(d) each of said resistive blocks comprising an insulator block having a separate precoated layer of resistive material on a surface thereof.

4,281,271

COMPACT FLUORESCENT LAMP HAVING A PARTITIONED ENVELOPE

Robert G. Young, Nutley, and John F. Gilmore, Verona, both of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 12, 1979, Ser. No. 47,834
Int. Cl.³ H01J *61/10, 61/33, 61/42*
U.S. Cl. 313—493 **10 Claims**



1. A low-pressure electric discharge lamp comprising;

an elongated light-transmitting sealed envelope that contains an ionizable medium and a pair of spaced electrodes,

conductor means extending into said envelope and connected to the respective electrodes, and

an elongated partition assembly within said envelope having a plurality of panel segments that define a continuous discharge channel which extends between the electrodes and substantially traverses the envelope a predetermined number of times in retroverted fashion,

the panel segments of said partition assembly extending longitudinally along and inwardly from the walls of said envelope and being so shaped and arranged that they divide the envelope interior into a plurality of interconnected sectors and also form an elongated centrally-located chamber that is closed to the discharge and constitutes the core of said partition assembly,

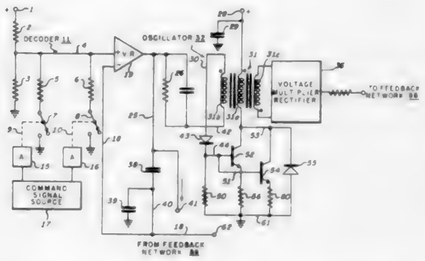
the size of the core chamber defined by said partition assembly being correlated with that of the envelope and being such that the maximum cross-sectional dimension of said core chamber at a given location is from about 25% to about 85% of the maximum cross-sectional dimension of the envelope at the same location so that the discharge is displaced outwardly toward the envelope walls as it traverses the respective envelope sectors formed by the panel segments of the partition assembly.

4,281,272

HIGH VOLTAGE SWITCHING POWER SUPPLY FOR PENETRATION CATHODE RAY DISPLAYS

Thomas W. Spilsbury, Phoenix, Ariz., assignor to Sperry Corporation, New York, N.Y.

Filed Jan. 21, 1980, Ser. No. 113,902
Int. Cl.³ H01J *23/34*; **H04N** *9/27*
U.S. Cl. 315—1 **5 Claims**



1. A switching high voltage power supply for supplying a plurality of varible d.c. voltages to the anode of a penetration type color cathode ray tube display apparatus comprising:

selector means for sequentially selecting one of a plurality of predetermined d.c. command signals corresponding to an intial value of said anode voltage to values of decreasing amplitudes dependent upon the colors of the information to be displayed,

voltage regulator means responsive to said command signal and said anode voltage for providing a d.c. error signal,

d.c. to d.c. converter means including blocking oscillator means responsive to said error signal and an energy storing voltage multiplier rectifier means responsive to said blocking oscillator for supplying said d.c. anode voltage corresponding to said initial value,

level detector means responsive to a change of polarity of said error signal, and

means including pull-down switch means responsive to said level detector means for reducing said anode voltage to the value corresponding to said error signal, the energy stored in said voltage multiplying rectifier means substantially reestablishing said initial anode voltage upon completion of said selector means sequence.

4,281,273

SPIN TUNED MAGNETRON HAVING LOAD SHARING BEARING ARRANGEMENTS

John E. Baker, London, England, assignor to E M I -Varian Limited, Hayes, England

Filed Sep. 27, 1979, Ser. No. 79,255
Claims priority, application United Kingdom, Oct. 3, 1978, 39026/78
Int. Cl.³ H01J *25/50*
U.S. Cl. 315—39.61 **10 Claims**

1. A spin tuned magnetron including:

a spinner assembly having a spinner member;

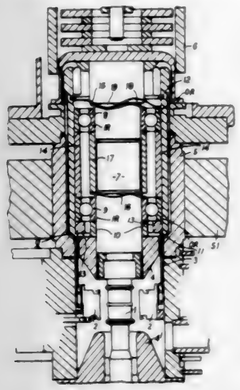
a shaft member coaxial with the spinner assembly and defining an axis of rotation relative to which the spinner member rotates;

rotor and pole piece bearing arrangements to allow the spinner member to rotate relative to the shaft member, the bearing arrangements being axially spaced apart, each bearing arrangement having an outer race associated with one of the members and an inner race associated with the other of the members;

means retaining the races associated with one of the mem-

bers in fixed positions relative to that member and axially spaced apart relative to each other;

spacing means for maintaining the races associated with the other member in an axial spacing relationship with the said races associated with the said one of the members which is dependent on an axial load acting on the spinner member, the spacing means including first spring means arranged between, and axially urging apart the said races associated



with the other member, and second spring means arranged at a side remote from the first spring means of one of the said races associated with the other member to oppose the said axial load, and

means for adjusting the positions of the said races associated with the other member relative to each other and to that member to preload the spring means and to adjust the end play in the bearing arrangements.

4,281,274

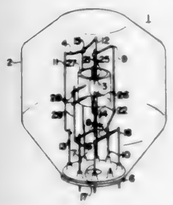
DISCHARGE LAMP HAVING VITREOUS SHIELD

Conrad E. Bechard, Moreland Hills; John M. Davenport, Lyndhurst, and Denis A. Lynch, Jr., South Euclid, all of Ohio, assignors to General Electric Co., Schenectady, N.Y.

Filed Aug. 1, 1979, Ser. No. 62,717

Int. Cl.³ H01J *7/44, 17/34, 19/78;* **H01K** *1/62*

U.S. Cl. 315—49 **9 Claims**



1. A lamp comprising:

an arc tube within an outer glass bulb having inleads sealed thereinto,

said arc tube being made of vitreous material transmissive of ultraviolet radiation and containing a filling of mercury and metal halide including sodium iodide and serving as the main light source in said lamp,

said outer bulb having metal members within it extending from said inleads and supporting said arc tube,

and an enclosure of glass substantially opaque to ultraviolet radiation surrounding said arc tube and open to the atmosphere of said outer bulb, said enclosure being of glass having substantial conductivity at its operating temperature in said lamp and being connected to a point maintained at a potential which on average is positive relative to said arc tube.

4,281,275

CIRCUIT FOR DRIVING DEFLECTION COIL

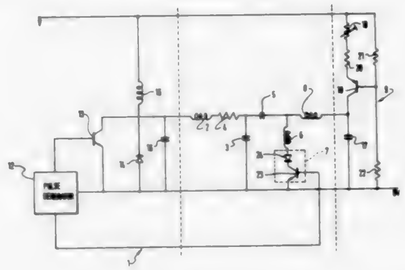
Peter Chapman, Gillingham, and Martin W. Redfern, Maidstone, both of England, assignors to Elliott Brothers (London) Limited, Chelmsford, England

Filed Sep. 7, 1979, Ser. No. 73,520

Claims priority, application United Kingdom, Sep. 12, 1978, 36515/78

Int. Cl.³ H01J *29/70*

U.S. Cl. 315—399 **7 Claims**



1. A circuit for driving a deflection coil comprising: a capacitor forming a series L-C circuit with the deflection coil; a drive circuit to produce a current of sawtooth waveform through the series L-C circuit; and a switchable resonant circuit connected across the capacitor of the said series L-C circuit to produce across said capacitor a saw-tooth waveform voltage component which is substantially equal and opposite to the voltage drop attributable to a resistive component of the L-C circuit.

4,281,276

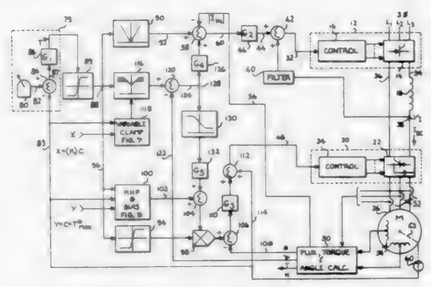
DUAL MODE AC MOTOR DRIVE SYSTEM

John H. Cutler, Roanoke, and Loren H. Walker, Salem, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 24, 1979, Ser. No. 32,937

Int. Cl.³ H02P *7/42, 7/58*

U.S. Cl. 318—803 **18 Claims**



1. A system for providing control of an AC electric motor having a stator and a rotor spaced from the stator by a gap across which flux is produced in response to an electrical motor current of variable magnitude and frequency supplied from a controlled source, said control being a function of both torque command and motor speed, and comprising:

(a) means to determine with respect to the motor the instantaneous motor current and the instantaneous angle between the gap flux and said motor current and to provide signals proportional thereto;

(b) means to establish a torque reference signal proportional to a desired level of electrical torque;

(c) means to compare said torque reference signal with said signal proportional to the motor current and to generate a first error signal representative of any differences therebetween, said first error signal being coupled to said controlled source to vary the magnitude of the motor current supplied from said source;

(d) means responsive to motor speed and said torque reference signal to derive an angle reference signal representative of the desired angle between the gap flux and motor current for first and second operational modes, said first operational mode being at speeds less than a predetermined reference speed wherein said angle reference signal is of a substantially constant angle value, and said second operational mode being at speeds greater than said predetermined reference speed wherein said angle reference signal is of a variable angle value; and

(e) means to compare said angle reference signal with said signal proportional to the instantaneous angle between the gap flux and the motor current to generate a second error signal representative of a difference therebetween, said second error signal being coupled to said controlled source to vary the frequency of the motor current supplied thereto from said source.

4,281,277

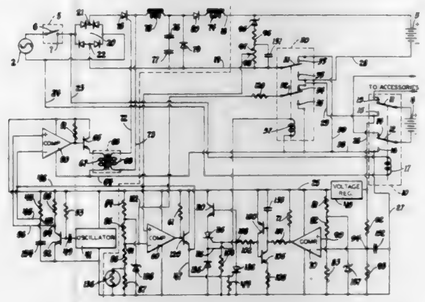
DUAL SECONDARY CELL CHARGING SYSTEM

Leroy E. Lakey, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 10, 1979, Ser. No. 65,566

Int. Cl.³ H02J *7/14, 7/32*

U.S. Cl. 320—6 **5 Claims**



1. A dual secondary cell charging system for charging a separable series of secondary cells that is adapted for the application of a supply potential thereto comprising:

means for producing a direct current charge potential, said means being of the type that may be selectively disabled;

means responsive to the application of said supply potential for effecting the connection of all of said separable series of secondary cells in series across said charge potential;

means responsive to the charge potential level upon a portion of said separable series of secondary cells attaining a predetermined magnitude for effecting the disconnection of only said portion of said separable series of secondary cells from said charge potential; and

means responsive to the charge potential level upon the remainder of said separable series of secondary cells attaining a first predetermined magnitude for effecting the reconnection of all of said separable series of secondary cells in series across said charge potential and to the charge potential level upon all of said separable series of secondary cells in series attaining a second higher predetermined magnitude for effecting the disabling of said means for producing said charge potential.

4,281,278

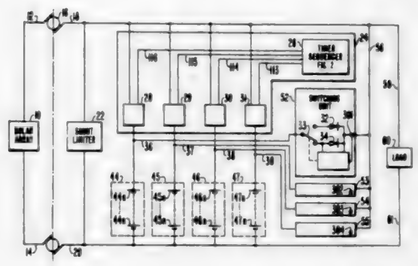
REDUNDANT BATTERY PROTECTION SYSTEM

Herbert W. Bilsky, Lawrenceville, N.J., and Patrick J. Callen, Yardley, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 5, 1979, Ser. No. 100,454

Int. Cl.³ H02J *7/10;* **H01L** *31/00*

U.S. Cl. 320—13 **4 Claims**



1. A system for coupling a battery to a load, comprising:

first and second unidirectionally conducting devices, each connected at one like terminal to the load, and each having a second terminal;

controllable switch means normally connecting said battery to the second terminal of said first device for causing a flow of current therethrough to said load, thereby normally producing a voltage drop in the forward direction across said first device;

sensing means for sensing (a) the current flow between said battery and said load and (b) the voltage across said first device; and

means coupled to said sensing means responsive to the presence of said current flow between said battery and said load and the substantial absence of a forward voltage drop across said first device for operating said controllable switch means causing it to switch the connection of the battery from the second terminal of the first device to the second terminal of the second device.

4,281,279

CHOPPER-CONTROLLED ALTERNATOR FOR BATTERY CHARGING

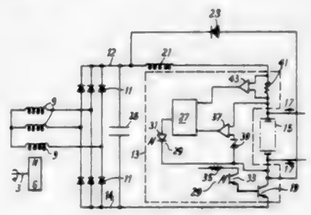
David Gurwicz, Gateshead, England, assignor to NADA Electronics Limited, Tyne & Wear, England

Filed Jan. 24, 1979, Ser. No. 6,237

Claims priority, application United Kingdom, Jan. 24, 1978, 2865/78; Jan. 4, 1979, 212/79

Int. Cl.³ H02J *7/04*

U.S. Cl. 320—45 **6 Claims**



1. An alternator for an internal combustion engine driven

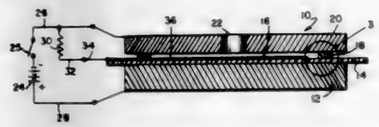
vehicle, comprising a permanent magnet rotor adapted to be mounted for rotation with a vehicle engine crankshaft, a wound stator within which the rotor extends, rectifier means connected to the output of the stator and adapted to convert the stator output to DC, a pulse controlled DC chopper regulator connected at the input thereof to the DC output of the rectifier means and adapted to control the output from the rectifier and to supply said controlled output to the vehicle battery for charging thereof, and means for regulating the mark/space ratio of the DC chopper in dependence upon the required charging rate of the battery.

4,281,280

THERMAL ELECTRIC CONVERTER

John A. Richards, 37 Stone St., Beverly, Mass. 01915

Filed Dec. 18, 1978, Ser. No. 970,212
Int. Cl.³ H02N *21/00, 7/00*
U.S. Cl. 322—2 R **36 Claims**



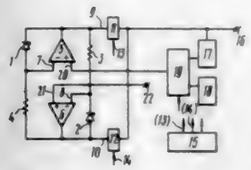
1. A thermal electric converter comprising a conducting member, a non-porous dielectric barrier layer mounted at least proximate said member; a first electrode positioned at least proximate said layer on the reverse side thereof; an enclosure member of non-conducting material mounted on said layer at least partially enclosing said first electrode and defining a cavity with said layer; a second electrode mounted in spaced proximity with said first electrode and said barrier layer, which second electrode extends at least partially across said enclosure member to at least partially close said cavity; means for connecting said second electrode and said first electrode through external circuitry; means to introduce and maintain gas in said cavity at a desired pressure; means to apply a DC voltage across said conducting member and said electrodes and means to apply heat to said conducting member to cause current to flow from said second electrode to said first electrode through said external circuitry.

4,281,281

REFERENCE VOLTAGE SOURCE

Toom A. Pungas, bulvar Sypruse, 219, kv. 3; Toomas E. Parve, bulvar Ryannaku, 3, kv. 7, and Mart V. Min, ulitsa Ladva, 26, all of Tallin, U.S.S.R.

Filed Oct. 16, 1978, Ser. No. 951,503
Claims priority, application U.S.S.R., Apr. 27, 1978, 2590404
Int. Cl.³ G05F *1/40*
U.S. Cl. 323—271 **16 Claims**



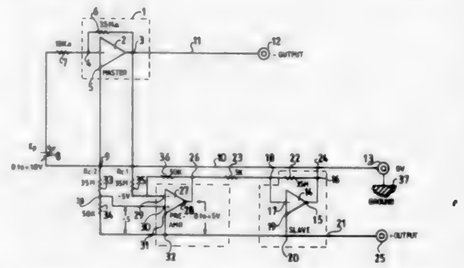
1. A reference voltage source, comprising
an input terminal and an output terminal;
means for applying a control voltage to said input terminal;
a bridge circuit having a first pair of opposite arms, a second pair of opposite arms, two avalanche diodes connected in the first pair of opposite arms and two resistors connected in the second pair of opposite arms;
a first operational amplifier having an inverting input, a non-inverting input and an output, the inverting input of said first operational amplifier being connected to the anode of said first avalanche diode and the output of said first operational amplifier being connected to the cathode of said first avalanche diode;
a second operational amplifier having an inverting input, a non-inverting input and an output, the inverting input of said second operational amplifier being connected to the cathode of said second avalanche diode, the non-inverting input of said second operational amplifier being connected to said input terminal of said source, and the output of said second operational amplifier being connected to the anode of said second avalanche diode, the outputs of said first and second operational amplifiers being alternately connected to said output terminal of said source;
an AC-DC voltage converter having an input connected to said output terminal and an output;
a DC voltage setting circuit having an output;
a comparator having a first input connected to the output of said converter and a second input connected to the output of said DC voltage setting circuit and an output connected to the non-inverting input of said first operational amplifier.

4,281,282

HIGH POSITIVE AND NEGATIVE VOLTAGES PROGRAMMED BY A LOW VOLTAGE RETURNED TO COMMON

Sarkis Nercessian, Flushing, N.Y., assignor to Kepco, Inc., Flushing, N.Y.

Filed Oct. 5, 1979, Ser. No. 82,094
Int. Cl.³ G05F *1/10*
U.S. Cl. 323—350 **7 Claims**



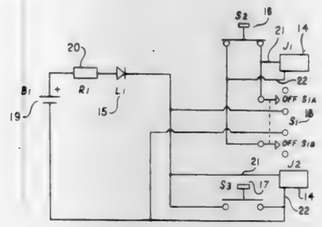
1. In a master/slave power supply configuration, the combination of;
a pair of high voltage programmable power supplies of like output polarity;
a common line;
one of said power supplies connected between said common line and an output line of predetermined polarity;
a source of programming voltage connected between said common line and the programming input of the latter said power supply for programming the voltage on said output line;
the second of said power supplies connected between said common line and a second output line of opposite polarity to said predetermined polarity;
and an inverting preamplifier coupled between said first output line and the programming input of said second power supply;
whereby said second output line is programmed in accordance with the magnitude of the voltage on the first said output line and of opposite polarity.

4,281,283

AUDIO CABLE TESTER

Joseph H. Ross, 1719 San Jose Ave., Alameda, Calif. 94501; Richard J. Hall, 365 Pearl St., Livermore, Calif. 94550

Filed Mar. 14, 1979, Ser. No. 20,537
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—51 **1 Claim**



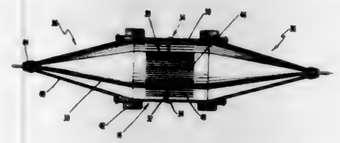
1. A portable audio cable tester comprising:
a plastic electrical housing defining a box having a length of about 5 inches, a width of about 4 inches and a height of about 3 inches, the box having a removable top secured thereto by cornered screws;
two jacks located on top of the box for connecting with the to-be-tested cables;
a signal light located on top of the box midway between and below the locality of the two jacks;
a resistor connected with the signal light;
a push-button "short" switch in normally closed position located below one of the jacks and connected thereto such that when pressed the switch will open the circuit of the cable to be tested;
a push-button "check" switch in normally open position located below the second jack and connected to bypass both jacks such that when pressed the switch can activate the signal light to indicate that the tester circuit is in order;
a three position toggle switch located in a lower corner of the box and connected in normally open position such that when flipped in a first position the conductor wire will be bypassed and when flipped in a second position the ground wire will be bypassed; and
a small nine volt battery,
whereby with a minimum of adjustments, an audio cable can be quickly and inexpensively tested for short circuit, open conductor, and open shield element of the ground wire.

4,281,284

METHOD AND APPARATUS FOR ELECTRICALLY CONTACTING A MATERIAL SPECIMEN TO THE CONDUCTORS OF A COAXIAL CABLE

David E. Stutz; Thomas Atterbury, and William F. Scharenberg, Jr., all of Columbus, Ohio, assignors to Transmet Corporation, Columbus, Ohio

Filed Nov. 26, 1979, Ser. No. 97,890
Int. Cl.³ G01R *27/04*
U.S. Cl. 324—58 A **12 Claims**



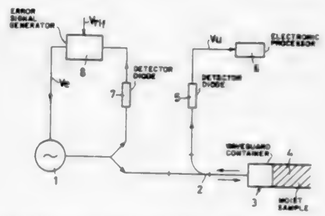
1. Apparatus for holding a specimen of material in electrical contact with the conductors of a coaxial electrical cable, comprising:
a first tubular conductor having a pair of longitudinal slots establishing a radially flexible strip in the wall of said first conductor, to thereby enable said first conductor to establish electrical contact with the inner surface of an annular specimen;
a second tubular conductor larger in diameter than said first conductor and coaxial therewith, said second conductor having a pair of longitudinal slots establishing a radially flexible strip in the wall of said second conductor, to thereby enable said second conductor to establish electrical contact with the peripheral surface of an annular specimen; and
means for providing electrical connection between said first and second conductors and the inner and outer conductors of a coaxial electrical cable, respectively.

4,281,285

INSTRUMENT FOR MEASURING MOISTURE IN MATERIALS

Ezio M. Bastida, Milan, Italy, assignor to C.I.S.E. Centro Informazioni Studi Esperienze S.p.A., Italy

Filed Oct. 29, 1979, Ser. No. 88,976
Claims priority, application Italy, Oct. 31, 1978, 29327 A/78
Int. Cl.³ G01R *27/04*
U.S. Cl. 324—58.5 B **4 Claims**



1. An instrument for measuring moisture in materials, comprising a constant amplitude microwave signal generator, a waveguide container for a sample of moist material to be examined, a microwave signal ampliutde detector and a directional coupler of high directivity disposed between said generator, said container and said detector to transmit to the container the constant amplitude microwave signal generated by the generator and to transmit to the detector the microwave signal which is reflected by the sample container in the container, and of which the amplitude varies with the humidity.

4,281,286

APPARATUS AND METHOD FOR DETECTING WET AND ICY CONDITIONS ON THE SURFACE OF A PATHWAY

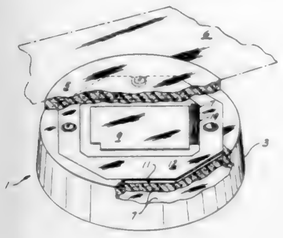
Donald E. Briggs, St. Louis County, Mo., assignor to Surface Systems, Inc., St. Louis County, Mo.

Filed Nov. 15, 1979, Ser. No. 94,556
Int. Cl.³ G01R *27/26*
U.S. Cl. 324—61 R **25 Claims**

1. Apparatus for detecting wet and icy conditions on the surface of a pathway, comprising:
a block of electrically insulative material adapted to be embedded in the pathway with the top surface of the block substantially flush with the surface of the pathway and exposed to atmospheric precipitation;
a sensor electrode encapsulated in said block and positioned a predetermined distance beneath the top surface of the block so that an accumulation of atmospheric precipitation on said top surface affects the capacitance and conductance between the sensor electrode and the pathway;
means for detecting the presence of predetermined concentrations of impurities such as salt or the like on the top surface of the block;
means for supplying a time-varying electrical current to the sensor electrode at at least two different predetermined

frequencies, the apparatus being relatively sensitive to impurities on the surface of the block at one of the predetermined frequencies and being relatively insensitive to said impurities at the second predetermined frequency;

means, responsive to the detecting means, for controlling the current supplying means to supply electrical current to the sensor electrode at the one predetermined frequency when substantially pure precipitation is present on the top



surface of the block and at the other predetermined frequency when impurities are detected; and

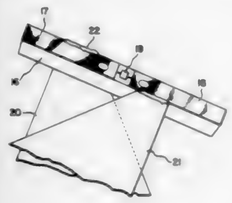
precipitation signal means connected to the sensor electrode for signalling the presence of atmospheric precipitation on the pathway, said precipitation signal means being responsive to the capacitive and conductive losses between the sensor electrode and the pathway when precipitation is present on the pathway to signal the presence of said precipitation.

4,281,287

MAGNETIC TAPE LEADS FOR PROBES IN ELECTROMAGNETIC RADIATION

Charles L. Andrews, Albany, N.Y., and Lorne H. Belden, Jr., Louisville, Ky., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,179
Int. Cl.³ G01R *21/04, 19/22, 33/02*
U.S. Cl. 324—95 **5 Claims**



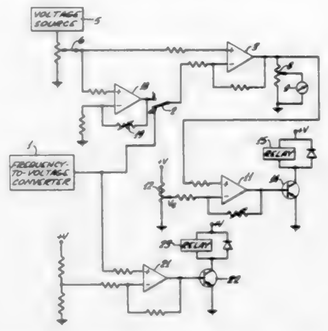
1. A uniquely electric probe for detecting the electric field component of electromagnetic radiation comprising: a dipole antenna and associated diode detector for generating a potential difference related to the magnitude of the electric field, and a pair of leads connected across said detector to transmit the potential difference to utilization circuitry, said leads being electrically conductive flexible magnetic tape that has a high resistance per unit length and is minimally perturbing to the electromagnetic waves and is comprised of an insulating substrate having a coating of contacting γ-Fe_2O_3 particles.

4,281,288

APPARATUS FOR THE MEASUREMENT OF THE MECHANICAL OUTPUT OF INDUCTION MOTORS

Kaichi Izumi, Tokyo, Japan, assignor to Kao Soap Company Limited, Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,261
Claims priority, application Japan, Jul. 21, 1978, 53-89162; Nov. 30, 1978, 53-148182
Int. Cl.³ G01R *31/00;* **G01N** *11/02;* **G01R** *1/38*
U.S. Cl. 324—158 MG **9 Claims**



1. An apparatus for measuring and/or supervising the output of an induction motor comprising:

means for generating a first voltage signal (S) corresponding to the synchronous speed of said motor;

means for generating a second voltage signal (H) proportional to the rotary speed of said motor at rated maximum output;

means for generating a third voltage signal (Ha) proportional to the rotary speed of said motor in operation;

circuit means responsive to said first voltage signal and either said second or third voltage signals for generating voltage signals proportional to S-H or S-Ha;

means for switching the second voltage signal or the third voltage signal to said circuit means;

indicator means responsive to the output of said circuit means; and

means operative when the first voltage signal and the second voltage signal are applied to said circuit means for adjusting the full scale indication of said indicator means, said switching means thereafter enabling the application of the third voltage signal to said circuit means so that said indicator means indicates S-Ha.

4,281,289

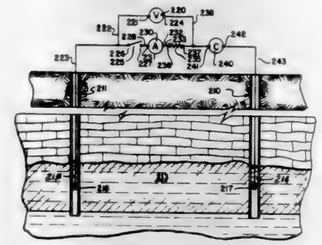
METHOD OF DETERMINING INTERWELL OIL FIELD FLUID SATURATION DISTRIBUTION

Erle C. Donaldson, and F. Dexter Sutterfield, both of Bartlesville, Okla., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 16, 1979, Ser. No. 21,141
Int. Cl.³ G01V *3/02, 3/20*
U.S. Cl. 324—355 **8 Claims**

1. A method of determining the fluid saturation distribution in an oil and brine bearing formation penetrated by a plurality of open hole wells comprising the steps of: introducing an effective amount of an oxidizing solution into a first well and an effective amount of a reducing solution into a second well, introducing an electrode into the first well in contact with the oxidizing solution therein, introducing an electrode into the second well in contact with the reducing solution therein, interconnecting said first and second electrodes with an electrical conductor, measuring the current between the electrodes generated solely by the solutions in the first and second wells,

calculating the apparent resistivity of the oil and brine bearing formation from the electrical current measurements, and determining the fluid saturation distribution between wells from the resistivity calculations.

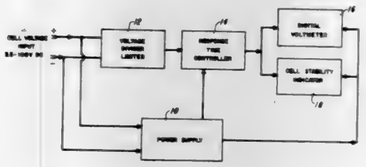


4,281,290

VOLTAGE MONITOR

John G. Peacey, Pointe Claire, Canada; Ralph R. Ebersole, Sikeston, Mo.; Frank Kitzinger, Montreal, and Jean-Claude Viens, Dollard-des-Ormeaux, both of Canada, assignors to Noranda Mines Limited, Toronto, Canada

Filed Feb. 27, 1979, Ser. No. 15,593
Int. Cl.³ G01N *27/42*
U.S. Cl. 324—426 **9 Claims**



1. A voltage monitor comprising:

(a) a digital voltmeter for displaying a measured input voltage;

(b) means for converting the varying input voltage of the monitor into a stabilized power supply voltage for the operation of the digital voltmeter; and

(c) response time controller means for applying said input voltage to said digital voltmeter, said response time controller means providing a long time constant averaging value of input voltage to the digital voltmeter when the input voltage is within a predetermined range about a normal value, and providing a faster response to input voltage values when the input voltage exceeds its normal value.

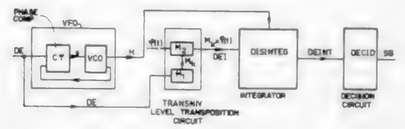
4,281,291

ARRANGEMENT FOR DETECTING THE BINARY VALUES OF BIT CELLS HAVING CENTER TRANSITIONS SUBJECT TO PHASE DISTORTION

Jean-Claude Lamare, Ezanville, and Christian Maury, Velizy, both of France, assignors to Compagnie Internationale pour l'Informatique-CII Honeywell Bull, Paris, France

Filed Nov. 29, 1978, Ser. No. 964,724
Claims priority, application France, Dec. 12, 1977, 77 37290
Int. Cl.³ H03K *9/00;* **G11B** *5/06*
U.S. Cl. 329—50 **10 Claims**

1. Apparatus for detecting data in the form of a sequence of electrical signals of frequency F_0, comprising a clock circuit responsive to and synchronized by the sequence for deriving a clock signal H of frequency F_0, a level transposing device responsive to the sequence and a timing signal synchronized with signal H for deriving a bilevel signal DEI, an integrating apparatus responsive to signal DEI for deriving signal DEINT, a decision circuit responsive to signal DEINT for determining the polarity of signal DEINT and deriving binary data bits having values that are a function of the polarity, said integrating apparatus including at least one integrator having a capacitive integrating member, a device responsive to signal DEI for controlling the direction and duration of charging



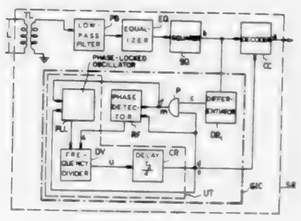
current supplied to the capacitive member as a function of the polarity and duration of each of the levels of signal DEI, a circuit for resetting the integrator to zero at the end of the integrating operation for each level of signal DEI, and a generator for supplying the capacitive integrating member with a charging curmet proportional to frequency F_0.

4,281,292

SAMPLING SYSTEM FOR DECODING BIPHASE-CODED DATA MESSAGES

Riccardo Caldarella, and Riccardo Nobile, both of Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

Filed Jul. 27, 1979, Ser. No. 61,480
Claims priority, application Italy, Jul. 28, 1978, 26237 A/78
Int. Cl.³ H03K *9/00*
U.S. Cl. 329—50 **8 Claims**



1. In a receiver for a biphase-coded carrier wave of predetermined frequency undergoing a phase reversal in the middle of each cycle thereof and also at the beginning of certain cycles according to the logical value of corresponding bits of a binary message conveyed thereby, in combination:

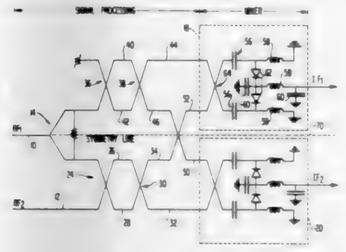
input means connected to a transmission line over which said carrier wave arrives from a remote station;

decoding means connected to said input means for sampling said carrier wave once per cycle to reconstruct said binary message; and

circuitry for producing a sequence of timing pulses recurring at said predetermined frequency and controlling the sampling of said carrier wave in said decoding means, said circuitry comprising differentiation means connected to said input means for deriving a spike from said carrier wave upon each phase reversal thereof, timing means controlled by said differentiation means for producing a local square wave of said predetermined frequency in substantial quadrature with said carrier wave, gating means with inputs respectively connected to said differentiation means and to said timing means for blocking the transmission of said spikes during a fraction of each cycle equal to substantially half a cycle, and phase-detecting means with inputs connected to said gating means and to said timing means for emitting an error pulse in response to a discontinuity in the succession of spikes passed by said

gating means, said timing means having a switching input connected to said phase-detecting means for reversing the phase of said square wave in response to said error pulse.

4,281,293
PLANAR QPSK DEMODULATOR
William H. Childs, Gaithersburg, Md., and Christoph E. Mahle, Washington, D.C., assignors to Communications Satellite Corporation, Washington, D.C.
Filed Jun. 22, 1979, Ser. No. 51,297
Int. Cl.³ H04L *27/22*
U.S. Cl. 329—105 **5 Claims**



1. A QPSK demodulator of the type having RF_1 and RF_2 input ports for receiving RF_1 and RF_2 input signals respectively, and IF_1 and IF_2 output ports for providing IF_1 and IF_2 output signals, respectively, power dividing means connected to said RF_1 input port and supplying a RF_1 input signal to each of first and second mixers, coupling means coupled to said RF_2 input port for providing RF_2 inputs to each of said first and second mixers, said RF_2 inputs to said first and second mixers being 90° out-of-phase with respect to one another, said first and second mixers providing said IF_1 and IF_2 output signals, respectively, the improvement comprising:

said RF_1 and RF_2 input ports being adjacent one another and said IF_1 and IF_2 output ports being adjacent one another without the necessity of any IF-RF signal path crossovers in said demodulator.

4,281,294
DIRECT SOLAR PUMPED LASER
Howard C. Volkin, 405 Cheryl, Los Alamos, N. Mex. 87544
Filed Apr. 16, 1979, Ser. No. 30,008
Int. Cl.³ H01S *3/20*
U.S. Cl. 331—94.5 L **10 Claims**



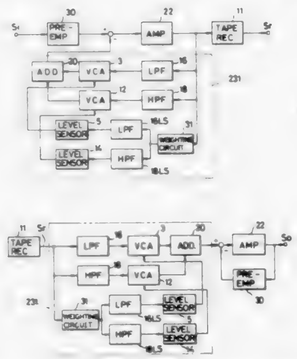
1. A direct solar-pumped laser having a power output and comprising in combination:

(a) means for collecting and concentrating solar energy into a laser medium, said medium consisting of an active heavy-atom substituted dye molecule in solution, the said solar laser operation occurring on the phosphorescence transition of the active dye molecule,

(b) said active dye molecule having an intersystem crossing rate from its first excited singlet electronic state and a phosphorescence band intensity maximum that are enhanced over that of an unsubstituted dye molecule, and having relatively little triplet-triplet absorption occurring from its first triplet state at wavelengths in the spectral region of the phosphorescence intensity maximum, and

(c) a low-powered input laser at a desired frequency whose laser beam provides a driver signal for amplifier operation of the said solar-pumped laser.

4,281,295
NOISE REDUCING APPARATUS
Satoshi Nishimura, Kagamigahara; Tetsuo Shimizu, Gifu; Kenichi Sato, Gifu, and Takehiko Asano, Gifu, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Aug. 30, 1978, Ser. No. 938,009
Claims priority, application Japan, Sep. 2, 1977, 52-106441
Int. Cl.³ H04B *1/64*
U.S. Cl. 333—14 **15 Claims**



1. A split frequency region noise reducing apparatus employing compression and expansion of a signal comprising:

compressor means and expander means,

one of said compressor and expander means having first signal processing circuit means for receiving said signal and for producing a modified signal corresponding thereto, the other of said compressor and expander means having second signal processing circuit means for receiving said modified signal, each of said first and second signal processing circuit means having substantially the same compression or expansion characteristic for respectively compressing or expanding the dynamic range of the signal applied thereto and each comprising,

first and second filter means for respectively selecting a high frequency region portion and a low frequency region portion of the signal applied to said signal processing means,

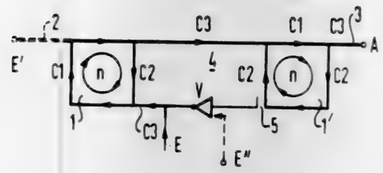
a respective controlled variable gain amplifier coupled to the output of each of said first and second filter means receiving the frequency region portion of the signal selected thereby,

third and fourth filter means also for respectively selecting a high frequency region portion and a low frequency region portion of the signal applied to said signal processing means,

a respective level detecting means having an input coupled to the output of each of said third and fourth filter means for producing an output control signal in response to the selected high or low frequency region portion applied thereto, said level detecting means output signal being coupled to the controlled variable gain amplifier means which receives the corresponding higher or lower frequency region of the signal applied to the processing means, and

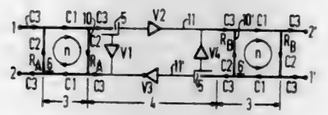
adding means for adding the outputs of the controlled variable gain amplifier means.

4,281,296
ELECTRICAL FILTER CIRCUIT UTILIZING CHARGE TRANSFER DEVICES FORMED AS LOOPED CIRCUITS
Hermann Betzl; Ernst Hebenstreit, both of Munich, and Roland Schreiber, Ottobrunn-Riemerling, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jul. 24, 1979, Ser. No. 60,194
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832795
Int. Cl.³ H03H *17/02;* **G11C** *27/00*
U.S. Cl. 333—165 **4 Claims**



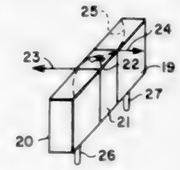
1. A filter circuit comprising a first end four-terminal resonator (1) comprising a charge transfer device having n individual elements with its output connected to its input to form a self-contained closed loop, a second end four terminal resonator (1') comprising a charge transfer device having n individual elements with its output connected to its input to form a self-contained closed loop, a coupling circuit (4) formed of a pair of charge transfer device line sections having the transfer capacitance of C3 interconnecting and forming first and second longitudinal lines between said first and second end resonators, an output terminal (A), an output charge transfer device line (3) connected between said output terminal (A) and said second end four terminal resonator (1'), and an input terminal (E) connected to said first end four terminal resonator (1) through said second longitudinal line of said coupling circuit (4) and supplying an input (E) thereto.

4,281,297
ELECTRICAL FILTER CIRCUIT UTILIZING CHARGE TRANSFER DELAY LINES UTILIZING INDIVIDUAL CHARGE TRANSFER DELAY ELEMENTS
Hermann Betzl; Ernst Hebenstreit, both of Munich, and Roland Schreiber, Ottobrunn-Riemerling, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jul. 24, 1979, Ser. No. 60,195
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832849
Int. Cl.³ H03H *17/02;* **G11C** *27/00*
U.S. Cl. 333—165 **3 Claims**



1. An electrical filter circuit comprising CTD-lines consisting of individual CTD-elements formed as four-terminal resonators, each of which are designed as closed looped circuits, and which determine the frequency-dependent transmission behaviour of the filter circuit, and wherein successive four-terminal resonators are interconnected with a coupling circuit, characterized in that there are parallel-connected, with the input and/or output of the individual four-terminal resonator (6, 6'), amplifiers (V1, V4) which have signal flow directions in a first direction, CTD-lines (10, 10') connected in parallel with said amplifiers (V1, V4) to pass current in said first direction, and that series lines (11, 11') of the coupling circuit (4) which connect successive four-terminal resonators (6, 6') have unidirectional transmission behaviour, and including an inverting amplifier (V3) mounted in at least one of said series lines (e.g. 11'). (FIG. 2).

4,281,298
FLEXURAL TRANSDUCER
Takashi Gounji, Kawasaki, and Yoshihiko Kasai, Yokahama, both of Japan, assignors to Fujitsu Limited, Japan
Filed Nov. 13, 1979, Ser. No. 93,208
Claims priority, application Japan, Oct. 13, 1978, 53-138813; Dec. 27, 1978, 53-159980; Oct. 16, 1979, 54-133356
Int. Cl.³ H03H *9/125, 9/50, 9/54;* **H01L** *41/18*
U.S. Cl. 333—186 **23 Claims**



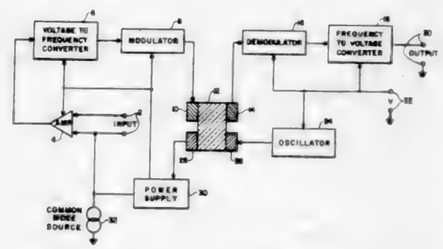
1. A flexural electromechanical transducer of elongated configuration comprising:

(a) at least one constant-modulus alloy plate;

(b) a piezoelectric ceramic plate mechanically coupled to said at least one constant-modulus alloy plate and having a residual polarization in one direction and surfaces parallel to the polarization direction; and

(c) lead means electrically connected to said piezoelectric ceramic plate surfaces parallel to the polarization direction for applying a specified frequency signal to said parallel surfaces and obtaining a thickness-shear vibration mode of said piezoelectric ceramic plate and flexural vibration of said transducer.

4,281,299
SIGNAL ISOLATOR
William F. Newbold, Philadelphia, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 23, 1979, Ser. No. 96,895
Int. Cl.³ H03H *9/00, 9/13;* **H04R** *17/00;* **H01L** *41/04*
U.S. Cl. 333—187 **8 Claims**



1. A signal isolator circuit comprising:

an acoustic medium having electrical insulation properties and acoutsic transmission properties,

a first acoustic transducer on said acoustic medium,

input means for applying an input signal to the isolator circuit to energize said first acoustic transducer to produce corresponding acoustic signals in said medium,

a second acoustic transducer on said medium arranged to receive acoustic signals from at least said first transducer and to produce electrical output signals representative thereof,

output means for receiving output signals from said second transducer and for responding to said output signals representative of acoustic signals from said first transducer,

a third acoustic transducer located on said acoustic medium,

power signal means for energizing said third transducer to produce corresponding acoustic signals in said medium,

a fourth acoustic transducer located on said acoustic medium and arranged to receive acoustic signals from at least said third transducer and to produce electrical output signals representative thereof,

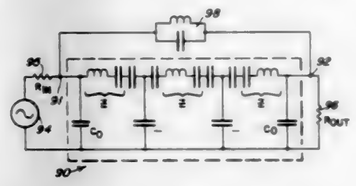
power supply means connected to said fourth transducer and arranged to develop power supply signals for said input means in response to said output signals from said fourth transducer representative of acoustic signals from said third transducer.

4,281,300

MULTI-POLE CRYSTAL FILTER AND METHOD OF IMPROVING THE FREQUENCY RESPONSE

Aristotelis S. Arvanitis, Addison, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 8, 1979, Ser. No. 92,788
Int. Cl.³ H03H *9/56, 9/58, 9/60*
U.S. Cl. 333—192 **13 Claims**



1. A crystal filter comprising:

(a) an acoustically coupled crystal with three resonators formed thereon;

(b) connecting means associated with said crystal and defining an input and an output, said connecting means further connecting the three resonators so that the phase relationship of the input and the output are the same; and

(c) a parallel tuned circuit connected from the input to the output and constructed to provide an attenuation zero symmetrically located about a desired center frequency.

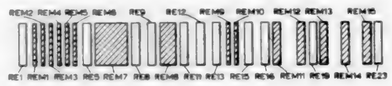
4,281,301

ACOUSTIC WAVE DEVICES

Richard Stevens, Copthorne; Richard F. Mitchell, Merstham, and Philip D. White, Chessington, all of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 12, 1979, Ser. No. 74,694
Claims priority, application United Kingdom, Sep. 22, 1978, 37798/78
Int. Cl.³ H03H *9/64, 9/25*
U.S. Cl. 333—195 **16 Claims**

1. An acoustic wave resonator device comprising, a substrate able to propagate acoustic waves, a pair of spaced apart reflectors forming a resonant cavity capable of supporting acoustic standing wave energy in the substrate, each said reflector comprising an array of parallel reflective elements disposed one behind another at a surface of said substrate, at least one of the reflectors being modified with respect to a nominal uniform array of equal reflectivity equally spaced reflective elements, the reflectivity-frequency characteristic of the uniform array having a main lobe and side lobes centred on a predetermined frequency and the reflectivity-frequency characteristic of said at least one modified reflector having a passband substantially similar to said main lobe and a stopband suppressed compared with said side lobes, and a transducer including an array of electrodes disposed at said substrate surface for coupling with acoustic standing wave energy in the cavity, characterized in that each of the reflective elements of said nominal uniform array comprise a discontinuity formed as a strip at said substrate surface, said strips each being a quarter wavelength wide and having the same depth and length and being centred on the same line of acoustic wave propagation at



said substrate surface and being located at a centre to centre spacing along said line of propagation of half a wavelength of said acoustic waves at said predetermined frequency, and that said one reflector is modified with respect to the uniform array to include a plurality of sets of at least one consecutive strip which substitute for an equal number of similarly positioned sets of at least one consecutive strip of the uniform array, the depth and length of the substituting strips being the same as that of the strips of the uniform array and the number, width and location along said line of propagation of the at least one strip of each substituting set being such that each substituting set provides net-zero reflection of said acoustic waves at said predetermined frequency.

4,281,302

QUASI-ELLIPTIC FUNCTION MICROSTRIP INTERDIGITAL FILTER

Ronald E. Stegens, Brookeville, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Dec. 27, 1979, Ser. No. 108,250
Int. Cl.³ H01P *1/203, 1/205, 3/08*
U.S. Cl. 333—204 **9 Claims**



1. In a microstrip interdigital filter having a desired passband, said passband comprising at least a lower frequency skirt, having a desired location and slope, said microstrip interdigital filter having a supporting structure and a microwave circuit mounted thereon; means for effecting a change in (1) said location of said low frequency skirt and (2) said slope of said low frequency skirt comprising:

(a) cover means having first and second ends fixedly attached to said supporting structure so as to cover said filter;

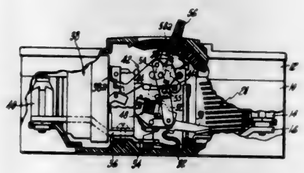
(b) a first dielectric layer located between said supporting structure and said first end of said cover means.

4,281,303

INDIVIDUAL CIRCUIT BREAKER POLE TRIP MECHANISM

Eldon B. Heft, West Hartford, Conn., assignor to General Electric Company, New York, N.Y.

Filed Mar. 10, 1980, Ser. No. 128,982
Int. Cl.³ H01H *77/10*
U.S. Cl. 335—16 **10 Claims**



1. A circuit breaker having a spring-powered operating mechanism manually operable between open and closed conditions, a trip mechanism responsive to an over-current condition for tripping the operating mechanism to initiate automatic conversion of same from its closed condition to its open condition, and at least one breaker pole comprising, in combination:

A. carrier means coupled with the operating mechanism and mounted for pivotal movement between open and closed positions as the operating mechanism articulates between its open and closed conditions, respectively;

B. an elongated, conductive arm pivotally mounted adjacent one end by said carrier means at a location displaced from the pivotal mounting location of said carrier means;

C. a movable contact carried by said arm adjacent the other end thereof.

D. a stationary contact;

E. a magnetic field piece inductively coupled with the current flowing through the breaker pole;

F. an armature mounted for movement from a quiescent position to an actuated position under the magnetic attraction of said field piece as developed by fault current flowing through the breaker pole;

G. a first latch surface carried by said arm at a location beyond said arm pivotal mounting location from said movable contact;

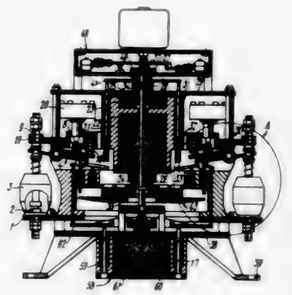
H. a second latch surface carried by said armature for latching engagement with said first latch surface with said armature in its quiescent position to latch said arm against pivotal movement relative to said carrier means, whereby said arm is pivoted between a closed circuit position where said movable contact engages said stationary contact and an open circuit position in concert with the pivotal movement of said carrier means between its closed and open positions, respectively, said latching surfaces disengaging upon attraction of said armature to its actuated position to free said arm for independent, uninhibited pivotal movement motivated by the flow of fault current from its closed circuit position to a tripped open position distinct from its open circuit position, the angle of the current path in said arm in its tripped open position relative to the line of separation of said contacts being more acute than when said arm is in its open circuit position.

4,281,304

ELECTRIC CIRCUIT SWITCHGEAR

Vitaly I. Koshman, balvar Shevchenko, 123, kv. 25; Vladimir F. Petrichenko, ulitsa Prozhektornaya, 6, kv. 44; Boris S. Gnilitsky, ulitsa Artema, 116, kv. 21, all of Donetsk; Vyacheslav G. Mironenko, ulitsa Stromynka, 11, korpus 2, kv. 120, Moscow, and Pavel V. Kamshitsky, prospekt Mira, 53a, kv. 23, Donetsk, all of U.S.S.R.

Filed Feb. 26, 1979, Ser. No. 15,167
Int. Cl.³ H01H *3/26*
U.S. Cl. 335—72 **3 Claims**



1. An electric circuit switchgear comprising:

a fixed panel;

a plurality of main contacts circumferentially arranged on said panel;

a plurality of auxiliary contacts for switching over the switchgear control circuits;

a driving shaft;

a rotary electromechanical drive for turning said driving shaft through a pre-set angle;

an electromagnetic drive having an electromagnet for closing said main and auxiliary contacts, at least one electromagnet for disconnecting said main and auxiliary contacts, and an actuating element,

said actuating element of said electromagnetic drive including an armature of said electromagnet for closing said main and auxiliary contacts, which armature being mounted on said driving shaft for moving along the axis thereof and rotated together with said driving shaft;

an armature of at least one of said electromagnets for disconnecting said main and auxiliary contacts, which armature reciprocating when said main and auxiliary contacts are disconnected; and

a plurality of mechanisms for closing and disconnecting said main and auxiliary contacts, which mechanisms having locks for said main and auxiliary contacts;

a switch unit for switching over said main and auxiliary contacts when said electromagnetic drive comes into action, which unit includes

a contactor fixed on said armature of said electromagnet for closing said main and auxiliary contacts,

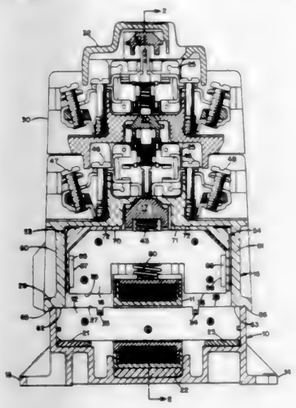
a disconnector fixed on said armature of said electromagnet for disconnecting said main and auxiliary contacts, both said contactor and said disconnector having at least one projection acting upon said main and auxiliary contacts through said mechanisms for closing and disconnecting said main and auxiliary contacts.

4,281,305

ELECTROMAGNETIC SWITCHING APPARATUS

Robert W. Weeks, Lyndhurst, Ohio, assignor to Clark Control, Inc., Cleveland, Ohio

Filed Jan. 18, 1979, Ser. No. 50,000
Int. Cl.³ H01H *50/16*
U.S. Cl. 335—132 **8 Claims**



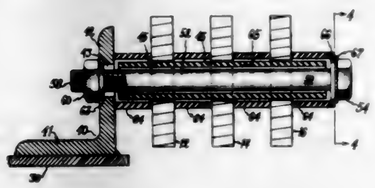
1. An electromagnetic switching apparatus comprising
a first housing section;
an operating coil positioned in said first housing section;
a stationary magnetic core positioned in said first housing section and magnetically coupled to the operating coil;
said magnetic core having a pair of pole face structures;
a second housing section;
said second housing section having a pair of reference surfaces;
means for attaching said first and second housing sections together with the pole face structures of said magnetic core abutting the reference surfaces of the second housing section;
a movable armature mounted within said second housing section for reciprocating movement between a first position in which the armature abuts the pole face structures of the magnetic core and a second position in which the armature is spaced from the magnetic core;
switch means mounted in said second housing section; and
switch actuator means movable with the movable armature and coupled to said switch means for actuating said switch means upon movement of the armature between said positions.

4,281,306

ELECTRIC BUS BAR ASSEMBLY FOR POLYPHASE DISTRIBUTION TRANSFORMERS

Charles W. Schoendube, Hickory, N.C., assignor to General Electric Company, Philadelphia, Pa.

Filed May 14, 1980, Ser. No. 149,779
Int. Cl.³ H01F *33/00*
U.S. Cl. 336—5 **7 Claims**



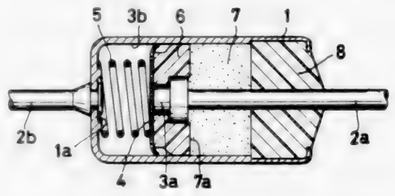
1. Electric bus structure for a polyphase distribution transformer comprising a core-and-coil assembly, said bus structure comprising:
(a) a plurality of horizontally-spaced bus bars located above the core-and-coil assembly, each bus bar having at its horizontally-opposite sides generally vertically-extending surface portions, said bus bars having generally aligned openings extending horizontally therethrough,
(b) a common metallic support member for said bus bars fixed to said core-and-coil assembly and having a horizontally extending opening generally aligning with the openings in said bus bars,
(c) a metal fastening device having a shank, a head at one end of the shank, and threads at the other end of the shank,
(d) said fastening device being positioned so that said shank extends through said aligned openings in said bus bars and said support member and so that said head is at the opposite side from said support member of the bus bar most remote from the support member,
(e) tubular spacers of insulating material surrounding said shank and respectively located between adjacent bus bars, between said support member and the bus bar closest thereto, and between said most remote bus bar and the head of said fastening device,
(f) internally-threaded means cooperating with said threaded portion of said shank to provide force-transmitting means between said support member and said fastening device, said internally-threaded means cooperating with said head when relative rotation occurs between said shank and said internally-threaded means to clamp said bus bars together and to said support member, and
(g) a sleeve of insulating material surrounding said shank and positioned within the openings in said bus bars for providing an insulating barrier between said bus bars and said shank.

4,281,307

THERMAL CUT-OFF FUSE

Kunio Hara, Kawasaki, Japan, assignor to Nifco Inc., Kanagawa, Japan

Filed Feb. 21, 1980, Ser. No. 123,133
Int. Cl.³ H01H *37/36*
U.S. Cl. 337—114 **5 Claims**



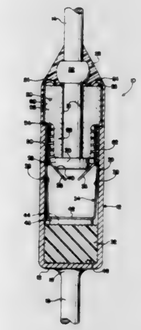
1. A self-restoring type thermal cut-off fuse for making electric continuity between first and second lead wires extended out of a housing when the temperature of the ambience is lower than a prescribed temperature and breaking said electric continuity when said temperature rises above the prescribed temperature, which thermal cut-off fuse comprises an electrically conductive contact means adapted to move between first and second positions in a hollow space of said housing and, while at said first position, remain in contact with both first and second terminal portions electrically connected within said housing respectively to said first and second lead wires and, while at said second position, separate from at least one of said first and second terminal portions; a temperature-sensitive member tightly sealed in a space on the side of the first position of said contact means within the hollow space of said housing so as to abut one surface of said contact means, said temperature-sensitive member having the property of retaining a solid state under normal conditions and, at the prescribed temperature, melting with increase in volume and, on falling to a temperature lower than said prescribed temperature, solidifying with loss of volume; and resilient energizing means adapted to keep said contact means energized at all times in the direction from the second position to the first position and possessed of energizing force insufficient to overcome the force which said temperature-sensitive member generates upon melting with increase in volume in the direction of causing the surface of said temperature-sensitive member abutting said contact means to move said contact means to the second position and sufficient to energize said contact means to the first position at the time said temperature-sensitive member solidifies with loss of volume.

4,281,308

THERMAL SWITCH WITH SPLIT RING CONSTRUCTION

John K. McVey, Bensenville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 26, 1979, Ser. No. 107,750
Int. Cl.³ H01H *37/76*
U.S. Cl. 337—407 **7 Claims**



1. A thermal switch comprising an elongated conductive housing having first and second ends, a first axial lead electrically connected to said conductive housing at said first end, an insulator positioned in said conductive housing at said second end, a second lead that passes through said insulator into the interior of said housing, a thermally sensitive pellet having a generally flat top surface inserted in said housing at said first end and positioned so as to leave a gap between said insulated lead and said pellet, and a compressed coiled spring that encircles at least a portion of said insulator so as to provide a spring bias force toward said sensing pellet and an electrically conductive contact member having a generally flat base surface which lies substantially parallel to said top surface of said thermal sensing pellet, side contact surfaces which contact the inside of said conductive housing, a plurality of inwardly-bent contact surfaces which contact said insulated lead and a plurality of bend portions, from which said inwardly bent contact surfaces project, in contact with said coiled spring, said inwardly-bent contact surfaces and said side contact surfaces being initially deformed as a consequence of the dimensions of said gap so that said contact makes electrical connection to said housing and said second lead.

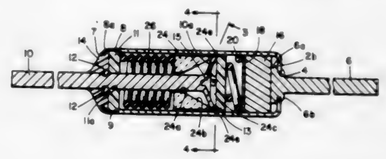
4,281,309

THERMALLY ACTUATED CUT-OFF LINK OR SWITCH AND METHOD OF MAKING THE SAME

Harry W. Olson, 3124 - 63rd St., Woodridge, Ill. 60515

Continuation-in-part of Ser. No. 891,020, Mar. 28, 1978, abandoned. This application Apr. 2, 1979, Ser. No. 25,949
Int. Cl.³ H01H *37/76*
U.S. Cl. 337—409 **30 Claims**

1. An ambient thermal switch comprising: a casing of electrically conductive material; a first power lead in said casing exposed to the outside of said casing through an opening in said casing where it is insulated therefrom, said first power lead having at the inner end thereof deformable contact-forming arm means for making a low resistance contact with the inner conductive surface of said casing when expanded outwardly to a given degree; a second exposed power lead making a permanent low resistance connection with said casing; a sandwich of serially located elements urged under spring pressure between fixed spaced points in said casing and including stressed spring means, arm-deforming means for deforming said arm means inwardly out of contact with said casing, backing means for said arm means for expanding said arm means against said casing to establish a given low resistance contact therewith,



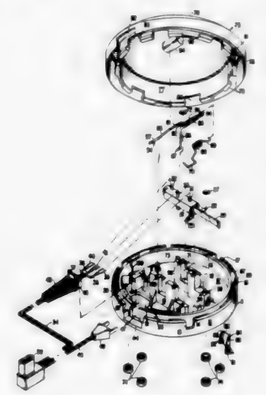
and a fusible body which melts at a given control temperature causing the stressed spring means to move to an unstressed state, said spring, arm-deforming and backing means being positioned for causing one of said arm-deforming and backing means to move against said arm means when the spring means moves to its unstressed state and effecting the expanding or contracting of said contact-forming arm means.

4,281,310

FOOT CONTROLLER

Albert N. Cook, Madison, and Boleslaw Kornatowski, Elizabeth, both of N.J., assignors to The Singer Company, Stamford, Conn.

Filed Feb. 28, 1980, Ser. No. 125,732
Int. Cl.³ H01C *10/10*
U.S. Cl. 338—108 **15 Claims**



1. A foot controller comprising: a variable resistance means; a first molded member comprising a round base molded of insulating material, the base comprising a floor, first and second coaxial cylindrical walls adjacent the perimeter of the base and defining an annular space therebetween, the first wall surrounding the second wall, a first set of projections angularly spaced apart and projecting into the annular space from one of the walls, and integrally formed boss means to support variable resistance means;

a second molded member comprising a cover molded of insulating material and comprising third and fourth coaxial cylindrical walls adjacent the perimeter of the cover, the third wall extending into the annular space between the first and second walls and having a second set of projections angularly spaced apart and projecting therefrom to engage the first set of projections, the arcuate length of each of the projections of the second set being less than the angular spacing between adjacent projections of the first set to pass therebetween, the internal diameter of the fourth wall being greater than the external diameter of the first wall of the base;

means to maintain the first and second molded members in a relatively fixed angular orientation to keep the projections of the first set engaged with the projections of the second set to keep the first and second molded members together while allowing limited axial and tilting movement of one of the molded members relative to the other; and

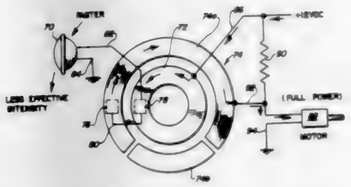
resilient means to urge the molded members axially apart, thereby urging the first set of projections into engagement with the second set of projections.

4,281,311

METHOD AND APPARATUS FOR INCREASING EFFECTIVE LIGHT INTENSITY OF A ROTATING LIGHT

Earl W. Gosswiller, Clarendon Hills, Ill., assignor to Federal Signal Corporation, Oak Brook, Ill.

Filed Jun. 7, 1979, Ser. No. 46,173
Int. Cl.³ B60Q *1/46;* **H02P** *5/08*
U.S. Cl. 340—81 R **1 Claim**



1. A rotatable signal light assembly comprising, in combination, a lamp mounted for rotation for producing light flashes in a plurality of different directions during a complete revolution of the lamp, and drive means for rotating said lamp at a non-uniform rate of speed which changes at least twice during said complete revolution to produce at least two different rates of speed during said revolution, said drive means including means effecting a reduced rate of motion when said lamp is aimed in a predetermined direction where it is desired to provide a light flash of increased intensity, said drive means including a variable speed drive motor, and means for varying the speed of said motor during a complete revolution of said lamp by varying the electrical power supplied to said motor, said means for varying the electrical power supplied to said motor comprising segmented collector ring means providing at least two alternate circuits between an electrical power source and said electric motor, each of said alternate circuits being operative during a selected respective portion of one complete revolution of said lamp.

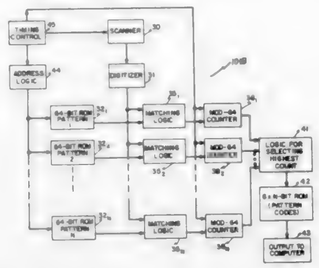
4,281,312

SYSTEM TO EFFECT DIGITAL ENCODING OF AN IMAGE

Donald R. Kandson, Concord, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Nov. 4, 1975, Ser. No. 628,712
Int. Cl.³ G06K *9/50;* **H04N** *1/00*
U.S. Cl. 340—146.3 MA **15 Claims**

1. A method of representing an image, that comprises: scanning the image as a series of sub-images in uniform block form wherein block dimensions are the order of 1/100-inch, digitizing the same, comparing a digital representation of the same



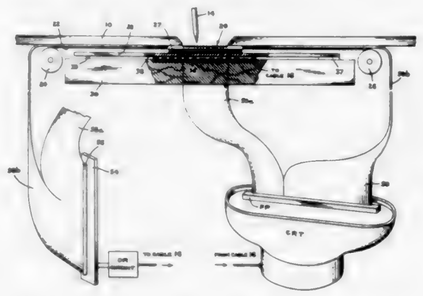
with digital representations of a set of reference blocks to select a reference block that most nearly matches the sub-image, and reproducing said image from the digital representations of the selected reference blocks.

4,281,313

BAROOPTICAL VERIFICATION APPARATUS

Austin G. Boldridge, Jr., Freehold, N.J., assignor to Conversational Systems, Inc., New York, N.Y.

Filed Jun. 15, 1979, Ser. No. 48,804
Int. Cl.³ G06K *9/20*
U.S. Cl. 340—146.3 SY **12 Claims**



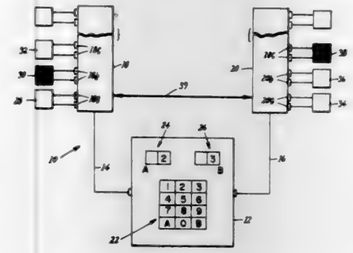
1. Barooptical identification verifier apparatus comprising: a first planar conductor means comprising a first plate of non-conductive material having a surface opposite said second planar conductor means upon a part of said first plate is deposited a layer of conductive material; a second planar conductor means opposite said first planar conductor means comprising a second plate of conductive material; spacer means for rigidly fixing in spaced parallel relationship one end of said second plate to a corresponding end of said first plate and a foot rest point edge means fixed to the other end of said first plate for slidingly supporting the corresponding other end of said first plate; a stylus adapted to be gripped by the person whose identification is to be verified for moving over said second planar conductor means; optical means for indicating the position of said stylus on said second planar conductor means; and a utilization means connected to said planar conductor means and responsive to the changes in the electrical capacitance of said planar conductor means, said utilization means also being connected to said optical means and responsive to indications of said stylus whereby combined three dimensional indications of the movement of the stylus can be obtained.

4,281,314

SELECTION SWITCHING APPARATUS

Theodore R. Hunt, Aloha, Oreg., assignor to Morris S. Wagner, Beaverton, Oreg., a part interest

Filed Jun. 5, 1978, Ser. No. 912,942
Int. Cl.³ H04Q *9/00*
U.S. Cl. 340—147 R **2 Claims**



1. Electrical apparatus for selectively interconnecting different pieces of audio electrical equipment, said apparatus comprising

means defining a plurality of binary-code-designated, address-assigned electrical coupling ports, each being adapted for external connection to a different piece of such equipment,

means for addressing different selected pairs of said ports utilizing related binary-coded addresses,

electronic memory means operatively connected to said addressing means for memorizing and storing the addresses of each such addressed pairs of ports, and

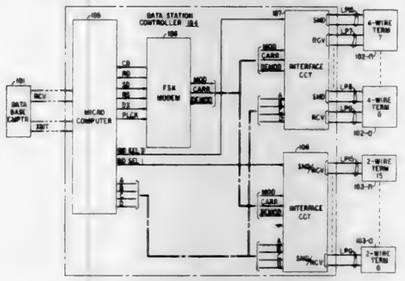
selectively changeable circuit-path establishing means operatively connected both to said memory means and to said ports, operable, with said memory means storing the addresses of ports in an addressed pair of ports, to establish a circuit path coupling the same.

4,281,315

COLLECTION OF MESSAGES FROM DATA TERMINALS USING DIFFERENT PROTOCOLS AND FORMATS

Henry C. Bauer, Morganville; Gary J. Burns, Jackson; Clair A. Buzzard, Lincroft; Travis H. Gordon; Heinz Kahlbrock, both of Holmdel; Robert F. Ricca, Neptune, and Robert M. Zachok, Lavallette, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 27, 1979, Ser. No. 69,975
Int. Cl.³ G06F *3/00;* **H04Q** *5/00*
U.S. Cl. 340—147 R **15 Claims**



1. In a polling system wherein each of a plurality of terminals (102, 103) is sequentially selected to communicate with a common station (104) in response to selection signals, the station including means (201, 203) for determining the terminal to be selected and signaling and signal responsive means (206, 207, 106) for transmitting the selection signals to select the determined terminal and for communicating with the terminal thus selected,

characterized in that

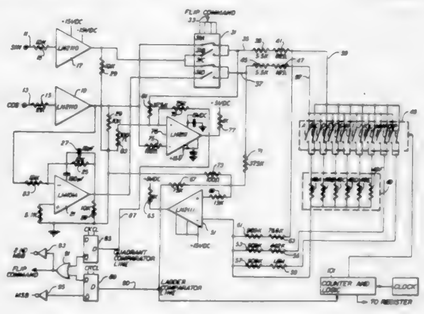
the common station further includes memory means (202) for storing instructions defining a first and second communication procedure individually used for selecting different ones of the terminals, means (201) responsive to the determining means for accessing the memory means to obtain the instructions defining the procedure individual to the terminal to be selected, and means (201, 206, 207) responsive to the accessed instructions for controlling the signaling and signal responsive means to transmit the selection signals in accordance with the communication procedure defined thereby.

4,281,316

SUCCESSIVE APPROXIMATION S/D CONVERTER WITH INHERENT QUANTIZATION ERROR CENTERING

David J. Simon, Saddle Brook, N.J., and Edward C. Costello, Scarsdale, N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed Aug. 11, 1978, Ser. No. 932,829
Int. Cl.² H03K *13/02*
U.S. Cl. 340—347 SY **12 Claims**



10. In a successive approximation synchro-to-digital converter which includes first and second comparators having as respective inputs voltages corresponding to the sine and cosine of the synchro angle and providing outputs which are decoded to determine the quadrant in which the angle lies and which also includes a steering voltage comparator receiving inputs from a ladder network and providing an output to control selection of the less significant bits, the improvement comprising:

a single comparator used as one of the quadrant comparators and as the steering voltage comparator; and

means to provide an error-centering compensation signal to said comparator.

4,281,317

MASKED HYSTERESIS IN DUAL-SLOPE ANALOG-TO-DIGITAL CONVERTER

W. David Pace, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 19, 1979, Ser. No. 31,554
Int. Cl.³ H03K *13/20*
U.S. Cl. 340—347 NT **11 Claims**

1. In a dual-slope analog-to-digital (A/D) conversion system of the type wherein a comparator compares a ramp voltage consisting of first and second sloped voltage ramps with a threshold voltage for generating digital output transitions at the crossover points thereof, said ramps being initiated by a

ramp control signal, a circuit for reducing offset error comprising:

a threshold voltage generating circuit coupled to an input of said comparator;

first means responsive to said ramp control signal and coupled to said input for altering said threshold voltage in a first direction upon a first transition of said ramp control signal and, subsequent thereto, in a second direction upon a second transition of said ramp control signal; and

second means coupled to said input for again altering said threshold voltage in said first direction when said first ramp crosses said threshold voltage and, subsequent thereto, in said second direction when said second ramp crosses said threshold voltage.

4,281,318

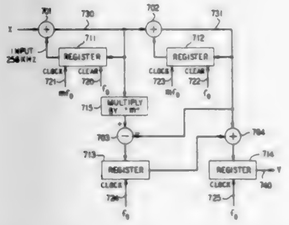
DIGITAL-TO-DIGITAL CODE CONVERTER

James C. Candy, and Bruce A. Wooley, both of Tinton Falls, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 30, 1980, Ser. No. 154,843

Int. Cl.³ G06F *5/06*

U.S. Cl. 340—347 DD **7 Claims**



1. Apparatus for converting a series of input samples at a frequency mf_0 to a series of output samples at rate f_0, the value of each of said output samples being a weighted sum of 2m of said input samples occurring in an accumulation period prior to said each output sample, comprising:

first and second linear accumulators connected in cascade arrangement, the output of said first accumulator representing the unweighted sum of m particular ones of said input samples, and the output of said second accumulator representing a uniformly distributed weighted sum of said m particular input samples, wherein the weight of the first of said m samples is m times greater than the weight of the last of said samples,

means for multiplying said first accumulator output by a scaling factor m,

means for forming the difference between the output of said multiplying means and said output of said second accumulator,

means for delaying the output of said difference forming means until the next m input samples are accumulated, and

means for adding the output of said delaying means to said output of said second accumulator to form one of said output samples.

4,281,319

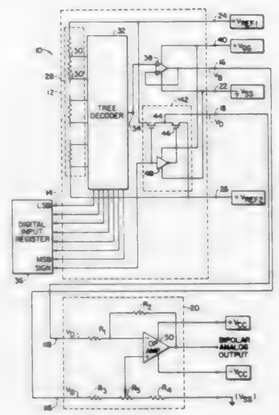
DIGITAL-TO-ANALOG CONVERTER

Ben D. Roberts, Jr., San Jose, Calif., assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jun. 30, 1980, Ser. No. 164,122

Int. Cl.³ H03K *13/11*

U.S. Cl. 340—347 DA **8 Claims**



1. An apparatus for converting a digital code of a plurality of digital signal lines into an analog signal value representative of said digital code wherein said analog signal value may have either a positive or negative polarity, said apparatus comprising:

a Metal Oxide Semiconductor silicon substrate including means for coupling said substrate to a ground reference as the substrate reference voltage V_{ss};

a Metal Oxide Semiconductor resistor means disposed on said substrate in a series ladder having means for coupling a first end to a first analog voltage reference V_{ref1} and a second opposing end to a second analog voltage reference V_{ref2}, such that said first analog voltage reference is of a higher voltage and of the same polarity as said second analog voltage reference and said substrate is reverse biased between said first analog voltage and said substrate reference voltage, said resistor means having a plurality of taps between said first end and said second end thereby to define a 2^NR ladder;

a first analog signal node upon said substrate, said first node coupling voltage signal lines through a first pair of analog switches to said first analog voltage reference and to said second analog voltage reference, said first pair of analog switches being coupled in inverting complement having its control input coupled to means for providing a sign bit of said digital signal lines;

a tree decoding means on said substrate coupling voltage signal lines between said taps and a second analog signal node through analog switches, said analog switches being coupled in pairs in inverting complement to means for providing bit values of said digital signal lines;

means on said substrate for conveying a signal representative of said voltage signal at said second node to an output terminal of said substrate; and

amplifier means coupled to said first node and to said substrate output terminal, said amplifier means having a first input and a second input, said second input being responsive to a voltage signal applied to said second node for reproducing as an output a signal having an amplitude proportional to said voltage signal, and said first input being responsive to selected first and second voltage levels at said first node to establish the polarity of said signal applied to said second node.

4,281,320

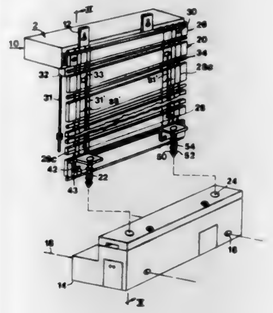
COMBINED PROTECTIVE BARRIER AND BURGLAR ALARM

Ariel Rosenberg, 4 Ophir St., Tel Aviv, Israel

Filed Sep. 11, 1979, Ser. No. 74,421

Int. Cl.³ G08B *13/08, 13/12*

U.S. Cl. 340—545 **6 Claims**



1. A protective barrier for mounting to a structure to cover an opening therein, comprising: a plurality of slats mounted to said structure at one end of said opening and extending in spaced parallel relationship towards the opposite end of said opening; two groups each including a plurality of flexible cords extending at right angles to said slats along opposite sides thereof, said flexible cords being interwoven between said slats for securing them in said spaced parallel relationship but permitting them to be pivotted to open the slats and to be moved towards one end of the opening to open the barrier; at least some of said flexible cords including metal wires serving to securely hold the slats together and also to serve as electrical conductors; each of said groups of flexible cords being of yarn only some of which include said metal wires in a manner so as not to be readily distinguishable from those yarns which do not include metal wires; circuit means including said metal wires establishing an electrically-conductive pathway through the length of said barrier; means for supplying electrical power to said electrically-conductive pathway; an end member secured to the structure along said opposite end of the opening therein; mating retaining means carried by said end member and one end of the barrier mechanically retaining the barrier in its closed position covering said opening; circuit interrupting means effective, when the barrier is retained in its closed position, to establish electrical continuity in said electrically-conductive pathway through the length of said barrier, and when moved from its closed position to interrupt said electrical continuity; a signalling device actuated by an interruption in said pathway caused by the severance of said metal wires in the barrier or by the actuation of said circuit interrupting means.

4,281,321

SURVEILLANCE SYSTEM EMPLOYING A FLOOR MAT RADIATOR

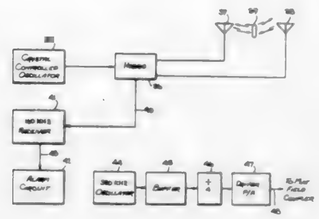
Douglas A. Narlow, and James G. Farrar, both of Coral Springs, Fla., assignors to Sensormatic Electronics Corporation, Deerfield Beach, Fla.

Filed Jun. 9, 1980, Ser. No. 157,848

Int. Cl.³ G08B *13/24*

U.S. Cl. 340—572 **7 Claims**

1. A surveillance system for detecting the presence in a controlled space of a miniature electromagnetic wave receptor-reradiator with signal mixing capability, comprising in combination means for propagating through said space an electromagnetic microwave signal, a source of low frequency signals, an electrode coupled to said source of low frequency signals for disposition along the path of travel of said receptor-reradiator through said space for direct capacitive coupling to said receptor-reradiator whenever the latter is present in said space, signal detecting means coupled to said space for receiving signals therefrom and detecting signals related to said low frequency signals only when received as modulation on a carrier signal whose frequency bears a predetermined relationship to that of said microwave signals, and means coupled to said detecting means for providing an alarm responsive to detection of said signals that are related to said low frequency signals.



4,281,322

FUSE BLOWING DETECTOR

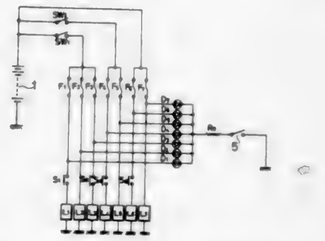
Tetsuji Nasu, Yokohama, and Mitsuyoshi Nagayama, Fujisawa, both of Japan, assignors to Nissan Motor Company, Ltd., Kanagawa, Japan

Filed Sep. 12, 1979, Ser. No. 75,181

Claims priority, application Japan, Oct. 4, 1978, 53-135498[U]

Int. Cl.³ G08B *21/00*

U.S. Cl. 340—638 **18 Claims**



1. In an electrical circuit wherein a first terminal of an electrical source is connected to first terminals of a plurality of fuses, and the second terminal of the fuses are connected to the first terminals of the same number of loads, the other terminals of the loads being connected to the other terminal of the electrical source, whereby the loads are supplied with electrical power via their respective fuses,

a device for detecting the blowing of any one of the fuses, comprising:

(a) for each fuse, a light emitting element, one terminal of which is connected to the second terminal of the fuse,

(b) a switch, one terminal of which is connected to all the other terminals of all the light emitting elements, and the other terminal of which is connected to the said other terminal of the electrical source, and

(c) an electrically insulating housing for each fuse, each fuse being mounted in its housing between two spaced electrically conductive strips, one of the strips being

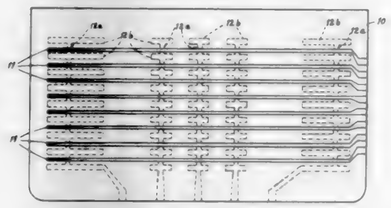
connected, via the light emitting element which corresponds to the fuse, to a third electrically conductive strip mounted within the housing, the light emitting element being received in a groove on said housing, the third strips all being connected together to the switch, the one strips all being each connected to the load corresponding to this fuse, the remaining strips being connected to the electrical source.

4,281,323

NOISE RESPONSIVE DATA INPUT APPARATUS AND METHOD

Bradley W. Burnett, Hobart, Ind.; Charles E. Fiterman, and Leonard A. Fish, both of Chicago, Ill., assignors to Bank Computer Network Corporation, Schiller Park, Ill.

Filed Dec. 5, 1978, Ser. No. 966,739
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—712 **13 Claims**



1. A data input device associated with a display unit comprising:
- a thin, transparent member positioned in front of said display unit,
- a plurality of elongate transparent conductive strips mounted in spaced-apart relation on one side of said transparent member,
- a second plurality of elongate transparent conductive strips mounted in spaced-apart relation on the other side of said transparent member,
- portions of said first and second conductive strips being aligned with each other in a direction normal to the face of said display unit at a plurality of spaced-apart locations; and
- detector means continuously connected to at least one of said conductive strips for producing an electrical signal in response to the level of ambient electrical noise present on said conductive strip,
- whereby placement of a finger by an operator into a position close to one or more of said strips causes said detector means to change the value of said electrical signal, irrespective of the presence of ambient noise radiation.

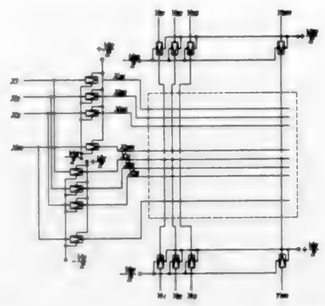
4,281,324

MATRIX TYPE LIQUID CRYSTAL DISPLAY

Keisaku Nonomura; Toshiaki Takamatsu, both of Nara; Hisashi Uede, and Tomio Wada, both of Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 27, 1978, Ser. No. 955,318
Claims priority, application Japan, Oct. 31, 1977, 52/131370
Int. Cl.³ G08B *5/36*
U.S. Cl. 340—784 **1 Claim**

1. A matrix type liquid crystal display panel system comprising:
- a matrix type liquid crystal display panel having matrix electrodes, said liquid crystal display panel having at least a first panel portion and a second panel portion; and
- driving means for line scanning said matrix type liquid crystal display panel, said driving means supplying said first panel portion and said second panel portion with different drive voltages, the drive voltage applied to said first panel portion being selected to develop substantially the highest contrast as perceived by a viewer viewing said display panel with a viewing angle toward a middle point in the first panel portion, the drive voltage applied to the second panel portion being selected to develop substantially the



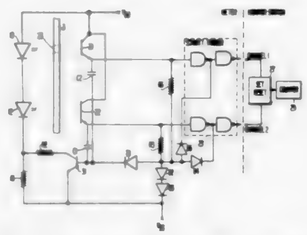
highest contrast as perceived by a viewer viewing said display panel with a viewing angle toward a middle point in said second panel portion different from the viewing angle toward said first panel portion.

4,281,325

POSITIVE FEEDBACK METER PULSE INITIATOR

Curt W. Jarva, Jamaica Plain, Mass., assignor to American Science and Engineering, Inc., Cambridge, Mass.

Filed Aug. 17, 1979, Ser. No. 67,263
Int. Cl.³ G08C *19/36, 19/16*
U.S. Cl. 340—870.29 **7 Claims**



1. A meter pulse initiator for use with a watthour meter of the type comprising a rotor disc having at least one creep hole therein, said meter pulse initiator comprising at least one light emitting diode disposed adjacent said rotor disc for directing at least one beam of radiant energy toward one side of said disc along the path of rotary movement of said creep hole to effect a transmission of said radiant energy through said rotor disc when said creep hole passes through said beam, at least one phototransistor disposed adjacent said rotor disc for producing a signal in response to the transmission of radiant energy through said creep hole to the other side of said rotor disc, the magnitude of the signal provided by said phototransistor being related to the intensity level of the radiant energy which is transmitted through said creep hole, a first energizing circuit connected to said light emitting diode and operable to cause said light emitting diode normally to emit radiant energy at a comparatively low intensity level, and a normally inactive second energizing circuit connected to said light emitting diode and operable, when activated, to supply a comparatively brief current pulse to said light emitting diode in supplementation of the energization supplied to said light emitting diode by said first energizing circuit thereby to cause a comparatively brief increase in the intensity level of the radiant energy which

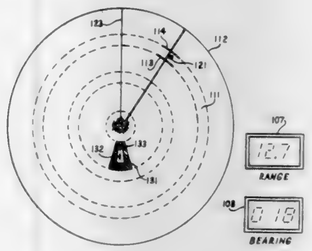
is emitted by said light emitting diode, said second energizing circuit including control means responsive to the comparatively small magnitude of signal provided by said phototransistor as a result of the passage of radiant energy at said comparatively low intensity level through said creep hole for activating said second energizing circuit and subsequently operable, in response to the resulting increased magnitude of signal produced by said phototransistor, to deactivate said second energizing circuit, whereby the transmission of radiant energy at said comparatively low intensity level through said creep hole effects a pulse-like increase in the intensity level of the radiant energy w ich is emitted by said light emitting diode followed by a return of said light emitting diode to its normal comparatively low intensity level of emission and a resulting pulse-like increase and decrease in the magnitude of the signal produced by said phototransistor, notwithstanding the continued passage of radiant energy through said creep hole.

4,281,326

AUTOMATIC COLLISION WARNING TARGET DISPLAY SYSTEM

Lawrence F. Anderson, 344 Westline Dr., #C121, Alameda, Calif. 94501

Filed Apr. 27, 1976, Ser. No. 680,685
Int. Cl.³ G01S *13/00*
U.S. Cl. 343—5 EM **9 Claims**



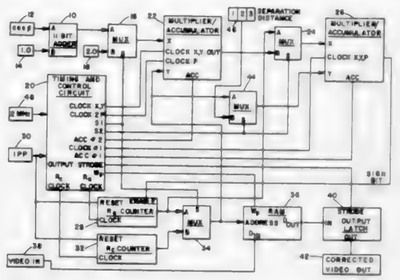
1. An automatic collision warning system adapted for use with a radar system having a display scope and generating echo signals containing information relative to bearing and range of targets reflecting radar pulses comprising a range gate connected to said radar system and having control means for setting maximum and minimum ranges to pass only echo signals from a range zone between these limits, means applying signals representative of said maximum and minimum ranges of said range gate to said radar system for display as range lines on said radar scope, target verification means connected to receive signals passed by said range gate and only passing echo signals of targets which repeat a predetermined number of times in a predetermined period of time, a variable azimuth gate connected in series with said range gate and having manually adjustable control means for presetting maximum and minimum degrees of bearing of radar echo signals passed thereby whereby said target verification means only receives echo signals in a predetermined controllable azimuth sector of radar operation, means connecting said variable azimuth gate to said radar system for limiting the angular extent of said range lines to the azimuth sector controllably set by said variable azimuth gate, and an alarm system connected to receive signals passed by said range and azimuth gates and target verification means and operated thereby to automatically produce an alarm indication upon actuation by received signals.

4,281,327

RANGE CORRECTOR CIRCUIT FOR A BISTATIC PASSIVE RADAR DISPLAY

Lawrence M. Frazier, West Covina, and William H. Johnson, Upland, both of Calif., assignors to General Dynamics, Pomona Division, Pomona, Calif.

Filed Dec. 14, 1979, Ser. No. 103,327
Int. Cl.³ G01S *13/16*; G06G *7/78*
U.S. Cl. 343—12 R **6 Claims**



1. In a bistatic passive radar system including a directional antenna for receiving input pulses from a host transmitter, an omni-directional antenna for receiving reflected pulses from targets illuminated by said host transmitter, a plan position indicator (PPI) display, and a sweep generator for generating linear traces on said display, the improvement for correcting the range of the target returns comprising:
- a R_a counter,
- a R_c counter,
- a random access memory (RAM),
- means for resetting both counters upon receipt of a transmitter pulse,
- means for continuously incrementing said R_c counter at a linear rate,
- a first multiplexer,
- means coupling the output of both counters in parallel to the address input of said RAM through said first multiplexer,
- means for incrementing said R_a counter in accordance with the equation:

$$R_c=(R_a^2+2R_aD)/(R_a+D(1+\text{Cos }\phi))$$

where
- R_c=the correct range to the target;
- R_a=the apparent range to the target;
- D=the distance from the bistatic passive radar to the host transmitter;

and ϕ=the angle between the extension of a line extending from the bistatic passive radar through the host transmitter and a line extending from the host transmitter to a selected target;
- means for writing target returns into said RAM at the address specified by said R_c counter; and
- means for reading target returns out of said RAM at the address specified by said R_a counter and applying said target returns to said PPI display,
- whereby said target returns appear on the PPI display trace at their correct range with respect to said host transmitter.

4,281,328

SLIP RING ASSEMBLY

Marvin W. Shores, Pomona, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

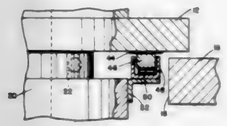
Filed Jan. 28, 1980, Ser. No. 116,340
Int. Cl.³ H01Q *1/50*
U.S. Cl. 343—763 **6 Claims**

1. In a rotary system having a supporting structure, a rotat-

able unit having a shaft, and a slip ring/brush assembly attached between said shaft and said supporting structure, the improvement comprising:

a flat slip ring of electrically conductive material on said rotatable unit concentric with said shaft and facing axially with respect to said shaft, and said flat slip ring being larger in diameter than said slip ring/brush assembly;

a circular brush mounted on said supporting structure concentric with said flat slip ring and facing said slip ring, said circular brush being approximately the same diameter as said flat slip ring;



means urging said circular brush into electrical contact with said flat ring;

means electrically connecting said flat slip ring to said rotatable structure; and

whereby large pulses of electrical energy applied to said rotating structure are conducted to said supporting structure through said flat slip ring and circular brush without passing in close proximity to the electrical circuits passing through said slip ring/brush assembly.

4,281,329

LIQUID RECORDING MEDIUM

Yasuhiro Yano, Tokyo; Masahiro Haruta, Funabashi, and Tokuya Ohta, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

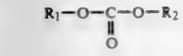
Filed Jun. 19, 1979, Ser. No. 49,956

Claims priority, application Japan, Jun. 20, 1978, 53-75145; Jun. 1, 1979, 54-68562

Int. Cl.³ G01D *9/00*; C09D *11/00*

U.S. Cl. 346—1.1 **70 Claims**

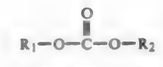
1. A liquid recording medium for use in a recording device, wherein said liquid recording medium is discharged from a discharge orifice in a recording head of the device and spattered in the form of droplets, for recording, characterized in that said liquid recording medium contains therein a coloring agent and a carbonic acid ester compound represented by the general formula A as follows:



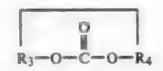
(A)

wherein R_1 and R_2, which may be the same or different, each represents an alkyl, alkenyl or haloalkyl radical, wherein the content of said carbonic acid ester in said liquid recording medium is from 5 to 99.5 percent by weight based on the total weight of the liquid recording medium.

24. In the process for recording information comprising ejecting and spattering a colored liquid recording medium as droplets from an orifice onto a recording member, the improvement comprising: employing in said liquid recording medium a carbonic acid ester compound in amounts from 5 to 99.5 percent by weight based on the total weight of the recording medium, said carbonic ester compound being represented by the general formula A or B as follows:



(A)



(B)

wherein R_1 and R_2, which may be the same or different, each represents an alkyl, alkenyl or haloalkyl, radical and wherein R_3 and R_4, which may be the same or different, together form a cyclic alkylene group.

4,281,330

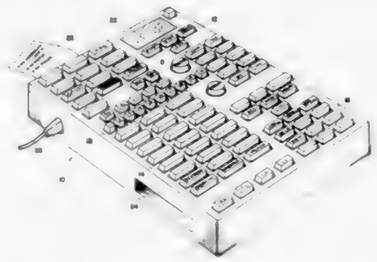
MEDICAL PROCEDURES MONITORING AND RECORDING DEVICE

Nancy J. Warrick, 5104 Robertson Ave., Carmichael, Calif. 95608

Filed Feb. 19, 1980, Ser. No. 122,485

Int. Cl.³ G01D *9/00*

U.S. Cl. 346—20 **8 Claims**



1. A medical procedure recording and monitoring device comprising:

a keyboard;

a first series of keys on said keyboard, each representing a medical treatment;

a treatment signal circuit operative when energized to transmit an electrical signal representative of the medical treatment selected by a key;

a clock circuit operative when energized to transmit signals indicating time;

selectively operated enter means to energize said signal transmitting circuits; and

a recording device to record signals so transmitted.

4,281,331

VARIABLE RATE INK JET PRINTING

Irwin Shair, Needham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed Jan. 24, 1980, Ser. No. 40,264

Int. Cl.³ G01D *15/18*

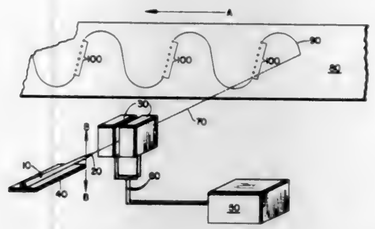
U.S. Cl. 346—75 **5 Claims**

1. The method of variable rate ink jet printing of characters with a fixed frequency of nozzle oscillation which comprises the steps of

a. providing a two dimensional printing matrix of appropriate dimensions, in which the first dimension is a number of scanning cycles and the second is a number of discrete character elements per scanning cycle,

b. selectively skipping scanning cycles in printing and

c. establishing a number of scanning cycles for space between characters,



in order to approximate desired values of characters per second.

4,281,332

DEFLECTION COMPENSATED INK EJECTION PRINTING APPARATUS

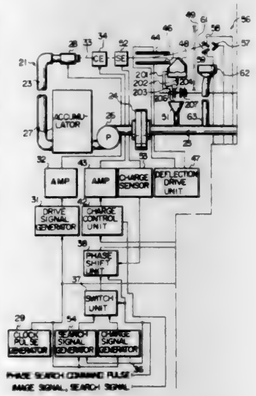
Masanori Horike, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 26, 1979, Ser. No. 106,801

Claims priority, application Japan, Dec. 28, 1978, 53-162729; Dec. 30, 1978, 53-165827

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **20 Claims**



1. An ink ejection apparatus characterized by comprising:

container means for containing a predetermined volume of ink;

constricted passageway means shaped such that ink from the container means flows through the constricted passageway means and falls therefrom in the form of drops;

sensor means for sensing the drops;

counter means for counting a number of drops falling per unit time; and

ejection means for ejecting ink and deflecting the ink from an ejection axis in a direction in response to a deflection signal, the container means being disposed along the axis for catching undeflected ink.

4,281,333

INK-ON-DEMAND TYPE INK-JET PRINTER WITH COORDINATED VARIABLE SIZE DROPS WITH VARIABLE CHARGES

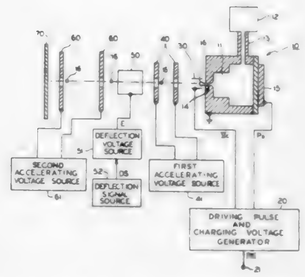
Mitsuo Tsuzuki, and Michihisa Suga, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Feb. 11, 1980, Ser. No. 120,579

Claims priority, application Japan, Feb. 14, 1979, 54-16652; Feb. 14, 1979, 54-16653; Feb. 22, 1979, 54-20425; Mar. 22, 1979, 54-33746; Apr. 11, 1979, 54-44020; Apr. 12, 1979, 54-44651; May 4, 1979, 54-55023; May 4, 1979, 54-55024; May 4, 1979, 54-55025

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—140 R **1 Claim**



1. An ink-jet printer for recording with droplets of conductive ink on a recording medium, comprising:

an ink chamber filled with said conductive ink, said chamber having a nozzle and a piezoelectric member attached to one wall of said chamber, said chamber squirting said droplets out of said nozzle in response to a driving pulse applied to said piezoelectric member, the size of said droplets being responsive to the energy content of said driving pulse;

means for charging said droplets squirted out of said nozzle in response to a charging voltage; and

means for generating said driving pulse and said charging voltage, said charging voltage being responsive to said energy content of said driving pulse.

4,281,334

ELECTROSTATIC LABEL PRINTING SYSTEM

Robert A. Moore, Amherst; Bruce K. Norlund, Keene; Harold S. Kontrovitz, Keene; Clayton B. Robbins, Keene, and Jeffrey B. Brooks, Keene, all of N.H., assignors to Markem Corporation, Keene, N.H.

Filed Oct. 22, 1979, Ser. No. 87,153

Int. Cl.³ G01D *15/06*; G03G *15/22*

U.S. Cl. 346—153.1 **14 Claims**

1. An electrostatic label printing system comprising:

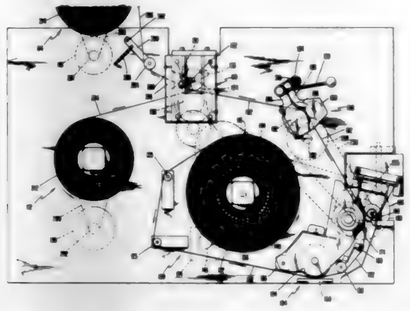
(a) an electrostatic writes station for forming an electrostatic image on a continuous recording medium in response to a synchronization signal,

(b) a rotary cutting station for cutting the continuous recording medium to define individual labels, said rotary cutting station including a rotating cutting member having at least one cutting element thereon having a tangential velocity for defining the individual labels,

(c) means for continuously feeding the recording medium along a feed path from the electrostatic write station to the rotary cutting station at a uniform feed velocity equal to the tangential velocity of said cutting elements,

(d) means cooperating with the rotary cutting station for detecting a predetermined rotational position of each rotary cutting element and for producing in response to said predetermined rotational position said synchroniza-

tion signal for application to the electrostatic write station, and



(e) means for coupling said synchronization signal to said write station.

4,281,335

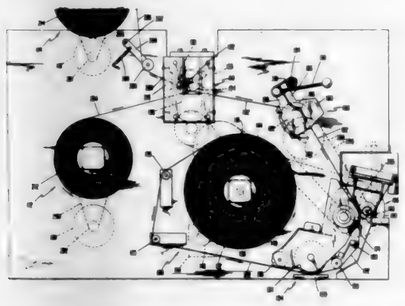
ELECTROSTATIC LABEL PRINTING SYSTEM

Robert A. Moore, Amherst; Bruce K. Norlund, Keene; Harold S. Kontrovitz, Keene; Clayton B. Robbins, Keene, and Jeffrey B. Brooks, Keene, all of N.H., assignors to Markem Corporation, Keene, N.H.

Division of Ser. No. 87,153, Oct. 22, 1979. This application Sep. 25, 1980, Ser. No. 190,508

Int. Cl.³ G01D *15/06*; **G03G** *15/22*

U.S. Cl. 346—153.1 **5 Claims**



1. An electrostatic label printing system for printing label indicia on a continuous strip of label stock comprising an adhesive-backed layer capable of receiving a latent electrostatic image and a releasable backing layer on the adhesive surface thereof, said electrostatic label printing system comprising:

(a) a supply reel for dispensing a continuous strip of said label stock,

(b) an electrostatic write station for forming a latent electrostatic image on the adhesive-backed layer of said continuous strip of label stock in response to a synchronization signal,

(c) a developing station for rendering visible the latent electrostatic images produced on said continuous strip of label stock by the electrostatic write station,

(d) a pressure fixing station for rendering permanent the visible images developed on said continuous strip of label stock by said developing station, said pressure fixing station comprising first and second pressure rollers for grippingly engaging said continuous strip of label stock therebetween,

(e) a rotary cutting station for cutting only the adhesive-backed layer of said continuous strip of label stock to define individual printed labels on the releasable backing layer, said rotary cutting station including a rotating cutting member having at least one cutting element thereon for making periodic penetrating contact with said adhesive-backed layer, said at least one cutting element having a tangential velocity,

(f) means for supplying rotary power to said rotary cutting member and to at least one of said first and second pressure rollers for drawing the continuous strip of label stock grippingly engaged therebetween through said electrostatic write station and said developing station at a uniform feed velocity equal to the tangential velocity of said cutting element,

(g) means for drawing said continuous strip of label stock through said rotary cutting station at said uniform feed velocity and for rewinding said releasable backing layer with said individual printed labels thereon onto a label takeup reel,

(h) means cooperating with the rotary cutting station for detecting a predetermined rotational position of the rotary cutting member and for producing in response thereto said synchronization signal for application to the electrostatic write station, and

(i) means for coupling said synchronization signal to said write station.

4,281,336

THYRISTOR ELEMENT WITH SHORT TURN-OFF TIME AND METHOD FOR PRODUCING SUCH ELEMENT

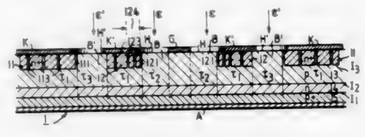
Karlheinz Sommer, and Alois Sonntag, both of Warstein, Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

Filed May 5, 1980, Ser. No. 146,401

Claims priority, application Fed. Rep. of Germany, May 3, 1979, 2917786

Int. Cl.³ H01L *29/74*

U.S. Cl. 357—38 **6 Claims**



1. In a fast switching thyristor in which, in order to shorten the turn-off time, the charge carrier lifetime is set to be low by means of recombination centers, said thyristor including a semiconductor wafer having four zones of alternating opposite conductivity type including a control base zone which extends to one major surface of said wafer and an emitter zone which is formed within said control base zone adjacent said one major surface and which is penetrated by shorting channels emanating from said control base zone, an emitter electrode on said one major surface contacting said shorted emitter zone, and a control electrode on said one major surface contacting said control base zone; and wherein the charge carrier lifetime in said control base zone of said thyristor is set to be homogeneous and low corresponding to a desired firing resistance underneath said emitter zone with respect to the voltage rise of the returning forward voltage in said thyristor after every recovery process; the improvement wherein: the charge carrier lifetime is set to be lower compared to said homogeneous setting in the partial region of said control base zone extending from below the edge of said control electrode substantially to the portion of the edge of said emitter zone which faces said control electrode but without contacting said edge of said emitter zone.

4,281,337

APPARATUS FOR DETECTING THE COLOR TEMPERATURE OF A SOURCE OF LIGHT AND AUTOMATIC WHITE BALANCING MEANS FOR USE THEREWITH

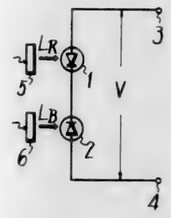
Takashi Nakamura, Hatano, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 13, 1979, Ser. No. 20,036

Claims priority, application Japan, Mar. 15, 1978, 53/29554

Int. Cl.³ H04N *9/535*

U.S. Cl. 358—29 **13 Claims**



2. Apparatus for white color balance in the event that the color temperature of a televised scene changes from a predetermined level, comprising color temperature detecting means, including first and second semiconductor photosensing elements connected in series circuit, said first and second photosensing elements being oppositely poled in said series circuit, light-filter means for supplying light of predetermined respective colors having respectively different spectral characteristics to said first and second photo-sensing elements, and means coupled across opposite ends of said series circuit for producing a signal representing the color temperature of said televised scene; differential amplifier means connected to receive said signal and having first and second outputs for providing first and second voltages representing the relative intensities of the light received by said first and second photo-sensing elements, respectively; means for supplying first and second color video signal components corresponding to the respective colors of the light received by said first and second photo-sensing elements; first and second combining means for combining each of said first and second color video signal components with a signal representing the difference between said relative intensities of the light received by said first and second photo-sensing elements to vary the levels of said first and second color video signal components, respectively; and adjusting means coupled to said first and second combining means for adjusting the levels of the respective color video signal component outputs from said first and second combining means to substantially the white balanced levels thereof at said predetermined color temperature.

4,281,338

SOLID STATE COLOR IMAGING APPARATUS

Kenji Takahashi, Kodaira; Shusaku Nagahara, Hachioji; Kazuhiro Sato; Masuo Umemoto, both of Tokyo; Toshiyuki Akiyama, Kokubunji, and Morishi Izumita, Inagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 29, 1979, Ser. No. 70,816

Claims priority, application Japan, Sep. 6, 1978, 53-108640

Int. Cl.³ H04N *9/07*

U.S. Cl. 358—44 **7 Claims**

1. In a solid state color imaging apparatus comprising:

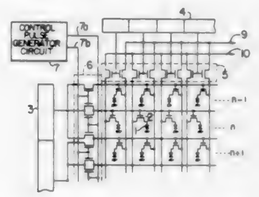
a plurality of photo sensitive elements arranged horizontally and vertically in an array;

a signal read-out circuit scanning the plurality of photo sensitive elements of said array with parallel scanning of the photo sensitive elements arranged in sets of two horizontal lines and delivering photo signals from the photo sensitive elements to first and second output circuits associated with the two horizontal lines of the respective sets;

a mosaic color filter having luminance filtering counterparts which alternate horizontally and vertically one after the other with one of first and second filtering counterparts which are arranged at the remaining positions of the mosaic on alternate horizontal lines, each of the filtering counterparts being in register with each of the photo sensitive elements; and

a signal processing circuit for converting the signals developed by the first and second output circuits into a composite color signal combined with a chrominance subcarrier;

the improvement wherein said signal read-out circuit includes means for scanning the plurality of photo sensitive elements of said array at a horizontal clock frequency which is twice the chrominance subcarrier frequency, whereby a first color difference signal between a first chrominance signal corresponding to the first filtering counterpart and a luminance signal is delivered to the first



output circuit whereas a second color difference signal between a second chrominance signal corresponding to the second filtering counterpart and the luminance signal is delivered to the second output circuit, said first and second color difference signals varying at the same frequency as the chrominance subcarrier frequency; and

wherein said signal processing circuit includes bandpass filters respectively connected to the first and second output circuits, first means for shifting by $\pi/2$ the phase of the output signal from one of the bandpass filters and for adding the phase-shifted signal to the output signal from the other bandpass filter, second means for obtaining a luminance signal component from the first and second output circuits, and third means for forming a composite color signal from the outputs of the first and second means and a synchronizing signal.

4,281,339

COLOR SOLID STATE IMAGE PICK-UP APPARATUS

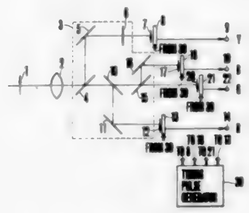
Masanobu Morishita, and Takanori Tanaka, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Japan

Filed May 31, 1979, Ser. No. 44,399

Claims priority, application Japan, Jun. 5, 1978, 53/67959

Int. Cl.³ H04N *9/09*

U.S. Cl. 358—52 **8 Claims**



1. A color solid state image pick-up apparatus comprising:

an optical system which separates incident light from an object to be photographed into a brightness light component and a plurality of color light components;

a first solid state image pick-up device having photoelectric

converting units disposed at the position of a light image of said brightness light component;

a group of second solid state image pick-up devices having their photoelectric converting units disposed at positions respectively corresponding to positions of light images of each of said plurality of color light components;

each of said second solid state image pick-up devices having solid state photoelectric converting means, charge transfer electrodes and a charge detection element;

first drive circuit means which drives said first solid state image pick-up device for sequentially detecting signal charges corresponding to the light brightness component of respective photoelectric converting units of said first solid state image pick-up device; and

second drive circuit means which drives each of said group of the second solid state image pick-up devices in a manner to combine signal charges which are sequentially transferred through portions of the solid state photoelectric converting means beneath at least two charge transfer electrodes of at least one second solid state image pick-up device to synthesize an enhanced charge signal detected by the charge detection element to thereby improve sensitivity of the image pick-up apparatus to said color light components.

4,281,340

HORIZONTAL SCANNING RATE CORRECTION APPARATUS FOR BEAM INDEX COLOR CATHODE-RAY TUBE

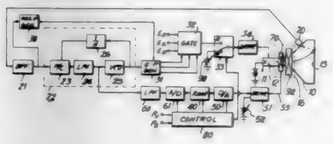
Ichiro Mitamura, Tokyo; Katsuo Isono, Kawagoe, and Takashi Hosono, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 3, 1979, Ser. No. 99,911

Claims priority, application Japan, Dec. 7, 1978, 53/152167

Int. Cl.³ H04N 9/24

U.S. Cl. 358—67 **10 Claims**



1. Horizontal scanning rate correction apparatus for a beam index color cathode ray tube having a display screen with beam-excitable color elements to be scanned by an electron beam as the latter is modulated by color control signals applied through color switching circuitry, and index elements which are scanned by said beam as the latter scans said display screen, said apparatus comprising:

beam deflection means supplied with at least horizontal and vertical deflection signals for causing said beam to repeatedly scan across said screen in a vertical succession of horizontal lines;

means for generating an index signal in response to the scanning of said index elements by said beam, the frequency of said index signal being determined by the frequency of incidence of said beam upon said index elements as it scans across said horizontal lines;

means for controlling the operation of said color switching circuitry in response to said index signal so that said color switching circuitry sequentially switches said color control signals individually for modulating said electron beam as said beam scans the respective ones of said color elements; and

means for compensating for delay errors in said means for controlling by further controlling the scanning of said beam repeatedly across said screen whereby said electron beam scans said color elements in correspondence with the modulation of said electron beam by said respective color control signals, said means for compensating including:

memory means for storing a plurality of correction values representing deviation of the horizontal scanning rate of said electron beam from a desired scanning rate at each of a plurality of horizontal sampling positions along at least one of said horizontal lines, said correction values being obtained from said means for controlling when said at least one horizontal line is scanned by the beam in accordance with said horizontal and vertical beam deflection signals;

reading means for reading said correction values from said memory means and for producing a deflection correction signal in accordance with said correction values being read; and

means for supplying said deflection correction signal to said beam deflection means so that said deviation of the horizontal scanning rate is substantially cancelled.

4,281,341

STEREOSCOPIC TELEVISION SYSTEM

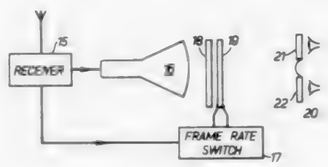
Dennis W. G. Byatt, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Oct. 24, 1979, Ser. No. 88,059

Claims priority, application United Kingdom, Nov. 9, 1978, 43780/78

Int. Cl.³ H04N 9/54

U.S. Cl. 358—92 **3 Claims**



1. A stereoscopic television system including a stereoscopic television transmission arrangement, said transmission arrangement comprising a stereoscope and a television camera, said camera having a first switchable polariser positioned in its image receiving path which is alternately switchable between two states of optical polarisation, said first switchable polariser comprising a liquid crystal cell and means for transmitting light which is of a pre-determined state of optical polarisation, said liquid cell containing a thin layer of liquid crystal material of the twisted nematic kind; and said stereoscope being comprised of two respective arms, two stereoscope polarisers in mutually crossing relationship, and means for projecting images obtained from both arms on to said first switchable polariser whereby the camera receives images alternately from the respective arms of said stereoscope, each of said stereoscope polarisers being located in a respective one of said arms of the stereoscope.

4,281,342

MARK DETECTING SYSTEM USING IMAGE PICKUP DEVICE

Hirotada Ueda, San Jose, Calif.; Toshikazu Yasue, Hachioji, and Takeshi Uno, Sayama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 28, 1979, Ser. No. 24,517

Claims priority, application Japan, Mar. 29, 1978, 53-35493; Apr. 7, 1978, 53-40322; Apr. 7, 1978, 53-40325

Int. Cl.³ H04M 7/18; G06F 15/70; G01B 11/14

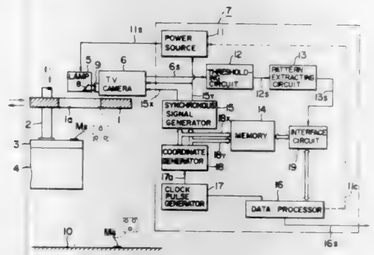
U.S. Cl. 358—93 **35 Claims**

1. A mark detecting system for detecting a light reflective mark provided on an object, comprising:

image pickup means for producing a two-dimensional image

of said object on its imaging plane and for scanning said imaging plane to deliver a sequential image signal;

illuminating means for illuminating the field of view of said image pickup means with light of a specified wavelength, said illuminating means including a metal vapor discharge tube and a driving circuit for causing the discharge of said discharge tube by an alternate current which is in synchronism with the scanning of said imaging plane by said image pickup means;



filter means for preventing light of wavelengths other than said specified wavelength from impinging upon said image pickup means; and

a data processing section for processing said image signal to detect a pattern corresponding to said mark.

4,281,343

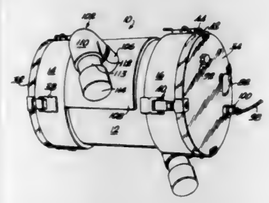
UNDERWATER VIDEO CAMERA HOUSING

George Monteiro, 3338 Devon Rd., Miami, Fla. 33133

Filed Apr. 28, 1980, Ser. No. 144,412

Int. Cl.³ H04N 7/18

U.S. Cl. 358—99 **16 Claims**



1. An underwater video camera housing to receive a video camera for use in transmitting underwater pictures to a video receiver or video tape recorder device located in a remote area, such as on a boat, comprising,

a main generally cylindrical body portion of a predetermined length and diameter and defining a generally cylindrical interior chamber, front and back removable lens means and latch means to secure said front and back lens means in a water-tight closed relation to respective normally open front and back ends of said cylindrical body portion; video camera support means fixed relative to an inside of said back lens means whereby said support means may be selectively positioned within said interior chamber or removed therefrom, said support means being sized for sliding movement into and out of said interior chamber;

adjustable handle means fixed relative to an exterior surface of said cylindrical body portion, and video camera control means extending from control knob means exteriorly of said back lens through said back lens means, in a water-tight relation thereto, into said interior chamber for operable connection to the video camera.

4,281,344

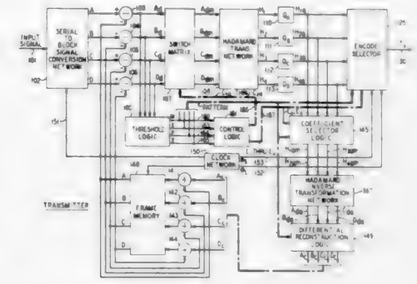
VIDEO INTERFRAME TRANSFORM CODING TECHNIQUE

Frank W. Mounts, Colts Neck, and Arun N. Netravali, Matawan, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 2, 1980, Ser. No. 146,188

Int. Cl.³ H04N 7/12

U.S. Cl. 358—136 **15 Claims**



1. Apparatus for encoding a series of samples each representing the intensity of an element in a picture, comprising:

a. means (**103–106**) for forming the frame difference for each intensity value in a block of M pels, and

b. means (**108**) for generating N ($N \leq M$) transform coefficients representing said M frame differences,

CHARACTERIZED IN THAT said apparatus further includes:

c. means (**107**) for altering the value of the frame difference for any pel in said block if said frame difference is small, and

d. means (**125**) for encoding the value of $N-K$ of said coefficients, where K is the number of pels for which said frame difference is small.

4,281,345

SYNCHRONIZATION OF DIGITAL MEMORY WITH TV SIGNAL HAVING INTERLACE

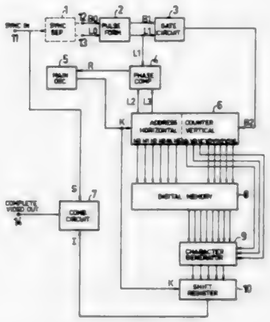
Stefan Wärn, Järfälla, Sweden, assignor to Globe Computers AB, Stockholm, Sweden

Filed Mar. 28, 1980, Ser. No. 135,108

Claims priority, application Sweden, Mar. 30, 1979, 7902862

Int. Cl.³ H04N 5/22, 7/08, 5/04

U.S. Cl. 358—149 **2 Claims**



1. A method for synchronizing a digital memory, such as a memory arranged in a microprocessor or in a display terminal, with an existing TV-system in which a TV-picture is transmitted with video interlace, characterized by the following steps:

(a) forming and time adjusting field and line synchronizing pulses separated from a composite sync signal of the TV-system;
(b) gating the formed and time adjusted field and line synchronizing pulses in order to generate a corrected field synchronizing pulse, which, in spite of the video interlace, always appears at the starting point of a line;
(c) supplying the corrected field synchronizing pulse to an address counter for the digital memory in order to reset, at the starting point of a picture field, the part of the address counter, which is associated with the vertical addressing of the memory to a starting position;
(d) comparing the phase position between the formed and time adjusted line synchronizing pulses and line frequency pulses supplied from the address counter for producing a voltage for correcting the frequency of a main oscillator utilized for clock control of the address counter; and
(e) combining the composite sync signal of the TV-system with an information signal read from the digital memory by means of the address counter for generating a video signal according to the standards of the TV-system.

4,281,346

COMPLEMENTARY PRE-EMPHASIS AND DE-EMPHASIS CIRCUITS FOR A VIDEO SIGNAL TRANSFER CHANNEL

Caljon H. Strobele, Santa Ana, Calif., assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 754,757, Dec. 27, 1976, Pat. No. 4,200,889. This application Jul. 12, 1979, Ser. No. 56,896
The portion of the term of this patent subsequent to Apr. 29, 1997, has been disclaimed.
Int. Cl.³ H04N 5/14
U.S. Cl. 358—166 **3 Claims**



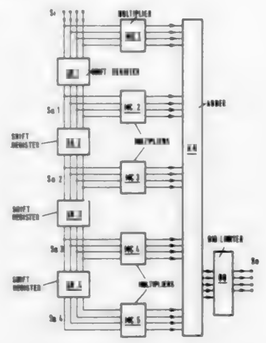
1. In a wide band signal transfer system including a wide band signal transfer channel which is subject to unwanted noise across the wide band, pre-emphasis means for increasing, prior to introduction of said signal into said channel in pre-emphasized form, the amplitude of higher-frequency wide band signal components relative to lower frequency wide band signal components without overdriving of the transfer channel, said pre-emphasis means comprising:
input connections for receiving a signal having a wide band of frequencies within a predetermined amplitude range; and
amplifying means coupled to said input connections, the output of said amplifying means having connected thereto a network for producing a gain that is a direct function of frequency to a limit, said network comprising an inductance-resistance combination; and
means in shunt connection with said inductance for switching the gain of said amplifying means for the amplitude peaks of said resultant amplified signal which exceed a predetermined magnitude,
whereby the gain of said amplifying means is made a non-linear function of frequency and of the amplitude of the higher frequency components of said wide band signal.

4,281,347

CORRECTION CIRCUIT FOR IMPROVING THE SHARPNESS OF CONTOUR OF VIDEO IMAGES

Gottfried Tschannen, Zürich, Switzerland, assignor to Siemens-Albis AG, Zürich, Switzerland

Filed Feb. 26, 1980, Ser. No. 124,792
Claims priority, application Switzerland, Mar. 8, 1979, 2225/79
Int. Cl.³ H04N 5/14
U.S. Cl. 358—166 **9 Claims**



1. A correction circuit for improving the contour quality of video images in devices where the video signals are converted into digital form, comprising:
an even number of series connected multi-stage shift registers, each having input means;
a respective multiplier operatively associated with each of the shift registers;
adder means having inputs and an output side;
the input means of the shift registers being connected by their related multipliers with related inputs of the adder means;
each of the shift registers having output means;
a further multiplier for connecting the outputs of the last shift register with further inputs of the adder means;
the multiplier factors of the multipliers constitute a symmetrical series having an absolute maximum at the center of the series;
the absolute value of the multiplier factor of one of said multipliers defining an intermediate multiplier is greater than the actual value of all other multiplier factors;
the sign of the intermediate multiplier factor being opposite to the sign of the algebraic sum of all other multiplier factors; and
a digital limiter circuit connected with the output side of said adder means for limiting the values representative of input signals of the correction circuit such that at an output of the digital limiter circuit there appears either as a multi-bit-video output signal a minimum-grey stage value output signal for input signals whose represented value is smaller than the value of a certain number of grey stages or a maximum-grey stage value-output signal for input signals whose represented value is greater than the value of a predetermined second number of grey stages, and in all other cases the relevant input signal remains unchanged.

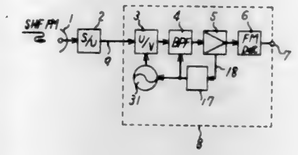
4,281,348

TELEVISION SIGNAL RECEIVING APPARATUS

Osamu Shizuya, Higashi-Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Aug. 2, 1979, Ser. No. 63,098
Int. Cl.³ H04N 5/44
U.S. Cl. 358—188 **6 Claims**

1. In an apparatus for receiving an FM television signal, the carrier wave thereof being frequency-modulated by a video signal including a synchronizing component and a video component with an amplitude larger than that of said synchronizing component, said apparatus comprising a band-pass filter for selectively taking out said FM television signal with a pass band width corresponding to one channel and an FM detector



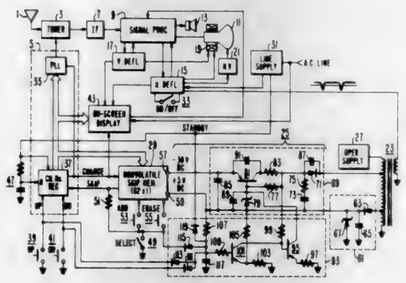
for reproducing said video signal by FM-detecting said FM television signal taken out from said band-pass filter,
the improvement is that the center frequency of the pass band of said band-pass filter is set to be a frequency shifted from the center frequency of said FM television signal to the side of an instantaneous frequency modulated by a white level video signal.

4,281,349

POWER SUPPLY ARRANGEMENT FOR A TUNING SYSTEM

John B. George, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 29, 1980, Ser. No. 145,317
Int. Cl.³ H04N 5/44
U.S. Cl. 358—191.1 **13 Claims**



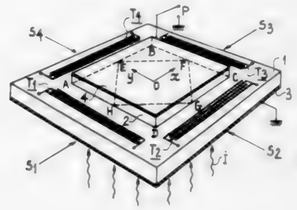
10. In a television receiver including a picture tube for generating an electron beam; signal processing means for generating a video signal for modulating said electron beam; horizontal and vertical deflection means for generating horizontal and vertical deflection signals to deflect said electron beam to form an image; tuning register means for storing binary signals representing a selected channel; channel selection means for changing the binary signals stored in said register means when operated; converter means for converting said binary signals to a tuning voltage; frequency selective means responsive to said tuning voltage for tuning said television receiver to various channels; and channel number display means responsive to said deflection signals for displaying the channel number of said selected channel in a predetermined portion of said image for a display time after said selected channel is selected; apparatus comprising:
power supply means for generating at least one supply voltage for said tuning means in response to one of said deflection signals; and
power supply control means connected to said power supply means and said channel selection means for normally causing the magnitude of said supply voltage to be at a relatively low value and selectively causing the magnitude of said supply voltage to be a relatively high value for a predetermined time longer than said display time after said channel change selection means is operated and thereafter automatically causing the magnitude of said supply voltage to return to said relatively low value.

4,281,350

ACOUSTOELECTRIC DEVICE FOR READING OR PROCESSING A TWO-DIMENSIONAL OPTICAL IMAGE

Charles Maerfeld, and Herve Gautier, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Sep. 13, 1979, Ser. No. 75,225
Claims priority, application France, Sep. 19, 1978, 78 26817
Int. Cl.³ H04N 5/30
U.S. Cl. 358—213 **10 Claims**



1. An acoustoelectric device for reading or processing a two-dimensional optical image, comprising a piezoelectric medium carrying four electromechanical transducers for converting an electrical signal into elastic waves which propagate in only two distinct directions at the surface of the piezoelectric medium and reciprocally, a photosensitive medium for receiving the optical image on an interaction surface and for converting the photons constituting the image into electric charges, and an electrically non-linear medium electrically coupled to said photosensitive medium, said elastic waves producing non-linear interaction in said non-linear medium, the amplitude of said interaction depending on the concentration of the electric charges, the output signal of the device being produced by said interactions, the wave vectors of said four elastic waves being such that the vector resulting from the non-linear interaction of three of said waves is equal and opposite to the wave vector of the fourth of said elastic waves.

4,281,351

APPARATUS FOR THE LINE BY LINE OPTICAL SCANNING OF A FILM

Dieter Poetsch, Darmstadt; Werner Becker, Mainz; Ottokar Klein, Weiterstadt, and Rudolf Wulf, Riedstadt, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

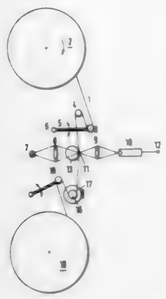
Filed Sep. 24, 1979, Ser. No. 77,985
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842218
Int. Cl.³ H04N 3/36
U.S. Cl. 358—214 **14 Claims**

1. In the art of converting the image content of motion picture film, having image frames and marginal portions, to television image signals,
apparatus for the optical scanning of the film frames having a light source (**7**, **51**);
means (**8**, **42**, **50**) in the path of the light from the source for furnishing a beam of light and for directing said beam to the frames of the film;
a sensor (**10**) receiving the beam of light after having passed through the frame, the region between the beam furnishing means and the sensor defining a scanning region;

and means for moving the film through the scanning region, and comprising

means for guiding the film in a predetermined curved path through said scanning region including

means for supporting the film at said marginal portions and outside of the flim frames, located adjacent the scanning



region, and having convex surfaces facing the film, moving with the film, and engaging the film at one side thereof;

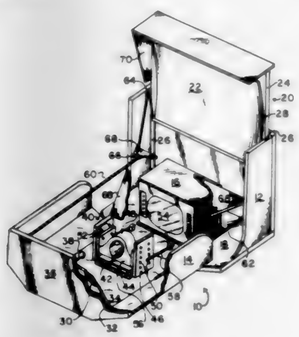
and rotating film guide means (3, 4, 26, 28) guiding the film in the curved path over said convex movable surface support means positioned remotely from said scanning region.

4,281,352

COMPACT PROJECTION TELEVISION SYSTEM

Andrew E. Hoffman, 710 Riverside Ave., #1, Santa Cruz, Calif. 95060

Filed Mar. 23, 1979, Ser. No. 23,182
Int. Cl.³ H04N 5/74
U.S. Cl. 358—237 **13 Claims**



1. A compact projection television system comprising:

enclosure means including

a fixed portion having a substantially horizontal first surface, and

a movable portion coupled to said fixed portion and having a second surface, said movable portion being movable between a closed position in which said first surface and said second surface are substantially perpendicular and an open position in which said first surface and said second surface are substantially parallel;

television receiver means supported by said first surface and occupying a first volume of space;

screen means coupled to said fixed portion so as to be movable between a raised position and a lowered position, said screen means including

a screen support slidably coupled to said fixed portion so as to be vertically movable between said raised postion and said lowered position,

a screen, and

an adjustable bracket means for attaching said screen to said screen support;

first linkage means coupling said screen means to said movable portion so that when said movable portion is in said closed position said screen means is in said lowered position and when said movable portion is in said open position said screen means is in said raised position;

mirror means coupled to said movable portion for reflecting a picture image produced by said television receiver means onto said screen means when said movable portion is in said open position and

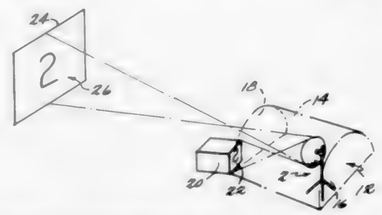
lens means disposed along an optical path between said television receiver means and said mirror means when said movable closure portion is in said open position.

4,281,353

APPARATUS FOR PROJECTING ENLARGED VIDEO IMAGES

Bifford L. Scarborough, Jr., 604 JFK Ct., Suffolk, Va. 23434

Filed Jan. 12, 1979, Ser. No. 3,037
Int. Cl.³ H04N 5/64
U.S. Cl. 358—254 **3 Claims**



1. Apparatus for projecting an enlarged video image onto a display surface, comprising:

a television set adjusted to project an inverted image;

a housing having an opening at one end thereof, said television set being located at a bottom portion of the opening and arranged such that the image faces the interior of the housing;

a single optical element located within the housing for reflecting the projected image beyond said housing onto the display surface, said optical element comprising a concave parabolic mirror; and

means for adjusting said mirror to reflect the image through a top portion of said opening onto the display surface.

4,281,354

APPARATUS FOR MAGNETIC RECORDING OF CASUAL EVENTS RELATING TO MOVABLE MEANS

Raffaele Conte, Via S. Barnaba 30, Milano, Italy

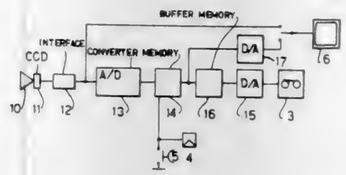
Filed May 17, 1979, Ser. No. 40,036
Claims priority, application Italy, May 19, 1979, 23605 A/78
Int. Cl.³ H04N 7/18
U.S. Cl. 360—5 **5 Claims**

1. An apparatus for video surveillance of the environment about a vehicle, said apparatus comprising:

(a) scanning means, mountable on said vehicle, for scanning said environment and converting images of said environment to electric signals;

(b) storage means for receiving and storing said signals, said storage means having a specific storage capacity and being adapted to update stored signals when said storage capacity is full, whereby said updating is effected by superposition of newly received signals upon the oldest stored signals to thereby erase said oldest stored signals; and

(c) Sensor means, mountable on said vehicle, for sensing



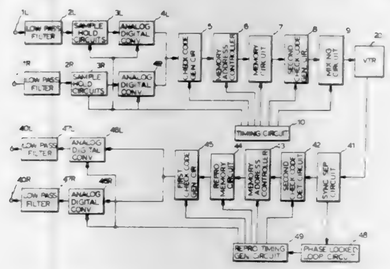
specified changes in travel of said vehicle and, in response to said sensed changes, automatically preventing said updating of said storage means to provide fixed storage signals.

4,281,355

DIGITAL AUDIO SIGNAL RECORDER

Ryoichi Wada, Habikino; Mitsuharu Tsuchiya, Katano; Kanji Odagi, Neyagawa, and Takanori Senoo, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 29, 1979, Ser. No. 7,851
Claims priority, application Japan, Feb. 1, 1978, 53-10980; Feb. 2, 1978, 53-11275
Int. Cl.³ G11B 5/00, 5/09
U.S. Cl. 360—32 **13 Claims**



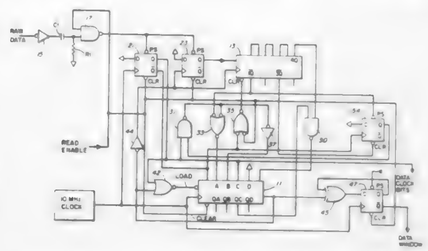
1. A digital audio signal recorder for digitallizing analog signals in an audio frequency band to pulse-code-modulated signals and for recording the digitallized signals on a recording medium, the recorder comprising: first check code generating means for producing a first check code signal by the sume of module 2 per bit of signals for individual pieces of digitallized data sampled at a given time; memory means connected to said first check code generating means for receiving the output of signals for said pieces of data in a set of signals for the set of pieces constituted by the individual pieces of sampled data and said first check code at addresses in said memory means spaces from each other along a time axis by a time interval greater than the expected time interval of the dropped-out signal; second check code generating means connected to said memory means and for producing a second check code signal and adding it to the signals of said set; and a recording means connected to said second check code generating means for receiving the output from said second check code generating meand and recording it on a recording medium.

4,281,356

MAGNETIC DISK MEMORY

Frank E. Sousa, Pelham, N.H., assignor to R. C. Sanders Technology Systems, Inc., Amherst, N.H.

Filed Nov. 28, 1979, Ser. No. 98,347
Int. Cl.³ G11B 5/09
U.S. Cl. 360—45 **12 Claims**



1. In apparatus for reading binary data serially recorded on magnetic media at a high density tending to produce bit shifting, there being a nominal time interval between possible bit positions during readback, the improvement of an adaptive time base comprising:

means providing a clock signal at a frequency which is a large multiple of the frequency corresponding to said nominal interval;

a presettable counter which can be stepped by said clock signal;

means for generating a data window signal, which means includes means for complementing the state of said data window signal at the end of a count sequence of said counter;

a shift register; and

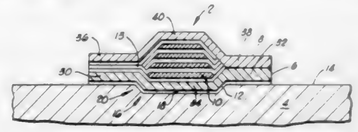
means, operative in response to a bit received from the media, for loading said counter and for entering a bit corresponding to the received bit into said shift register, said means being also operative, at the end of each count sequence, for loading into said counter a value which is a function of the state of said shift register and for advancing the state of said shift register.

4,281,357

THIN FILM MAGNETIC HEAD AND METHOD OF MAKING THE SAME

Fred S. Lee, Oklahoma City, Okla., assignor to Magnex Corporation, San Jose, Calif.

Filed Sep. 10, 1979, Ser. No. 74,246
Int. Cl.³ G11B 5/20
U.S. Cl. 360—125 **13 Claims**



1. A thin film magnetic head comprising:

a substrate having a top surface;

a first layer of magnetic film having a first front gap portion, a first back gap portion, and a first offset portion extending between said first front gap and said first back gap, said first offset portion defining a first sloping surface disposed in angular relationship to said top surface;

a second layer of magnetic film having a second front gap portion disposed in aligned spaced relation to said first front gap portion, a second back gap portion disposed adjacent said first back gap portion, and a second offset

portion, said second offset portion defining a second sloping surface disposed in angular relationship to said top surface and in spaced relation to said first sloping surface so that a cavity is defined between said first and second sloping surfaces; and

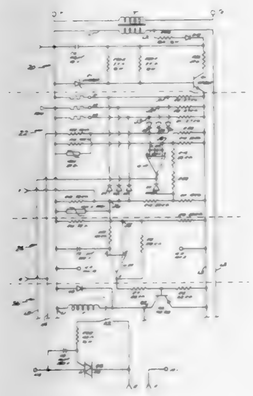
a layer of electrically conductive material disposed within said cavity.

4,281,358

MULTIFUNCTION DYNAMOELECTRIC PROTECTION SYSTEM

Leo A. Plouffe, North Dighton, and Diethard Unterweger, Plainville, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 1, 1978, Ser. No. 939,087
Int. Cl.³ H02H 7/08
U.S. Cl. 361—22 **28 Claims**



13. A protection system for a deynamoelectric machine comprising

a source of power and switching means for switching the power to and from the dynamoelectric machine,

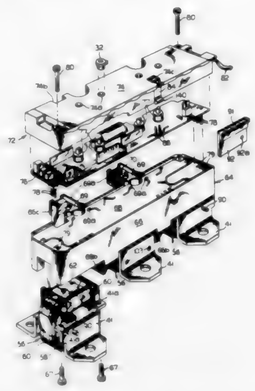
control means adapted to control the switching mmeans comprising first and second voltage comparators each having two inputs and an output, a source of d.c. power, a first voltage divider connected between the d.c. power source and common comprising a reference resistor and a temperature dependent resistor forming a first junction therebetween, the first junction connected to one input of the first comparator, a second voltage divider ccomprising two resistors forming a second junction therebetween, the second voltage divider serially connected to another resistance, the voltage divider and the said another resistor connected between the d.c. power source and common, the second junction connected to one input of the second comparator, reference voltage means connected to the other inputs of the first and second comparators, a diode coupled between the first and second junctions, the output of first comparator connected to a point between the second voltage divider and the said another resistance, so that upon a selected change in temperature and concomitant change in resistance of the temperature dependent resistor or upon shorting of the temperature dependent resistor, the output of the second comparator will switch and cause the switching means to interrupt power to the machine.

4,281,359

STATIC TRIP UNIT FOR MOLDED CASE CIRCUIT BREAKERS

Eric W. Bayer, Wolcott, and Edward A. Palmisano, Simsbury, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed Mar. 14, 1980, Ser. No. 130,321
Int. Cl.³ H02B 1/18
U.S. Cl. 361—115 **14 Claims**



1. A multi-pole solid state trip unit structured to be replaceably mounted within the molded case of a multi-pole industrial circuit breaker, said solid state trip unit comprising, in combination:

A. a first module including

(1) a first support structure

(2) a separate current transformer sub-assembly for each breaker pole secured to said first support structure and including a load strap for serial electrical connection in its associated breaker pole circuit, a magnetic core embracing said load strap, and a multi-turn secondary winding wound about said core, and

(3) a plurality of first electrical connectors carried by said first module and to which the terminations of all of said secondary windings are separately electrically connected; and

B. a second module including

(1) a second support structure

(2) a circuit board mounted by said support structure and, in turn, mounting electronic signal processing circuitry, and

(3) a plurality of second electrical connectors electrically connected with said signal processing circuitry and supported by said second module and individually mating with said first connectors and thus electrically connecting said secondary windings into said signal processing circuitry.

4,281,360

HIGH-VOLTAGE CAPACITOR

Robert F. Brehse, Fort Wayne, Ind., assignor to General Electric Company, Salem, Va.

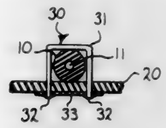
Filed Dec. 17, 1979, Ser. No. 104,672
Int. Cl.³ H01G 1/035
U.S. Cl. 361—303 **2 Claims**

1. A high-voltage capacitor comprising:

a length of high-voltage insulated lead cable having a center conductor adapted for connection to a source of high-voltage, the center conductor further serving as a first capacitor plate;

a base member comprising a flat insulating sheet having a plurality of apertures therethrough; and

a conductive envelope surrounding the cable for a predetermined distance along the length thereof, the conductive envelope serving as a second capacitor plate and being fixedly secured to the base member, said conductive envelope including two parts, the first part being an elongated generally U-shaped metallic component provided with



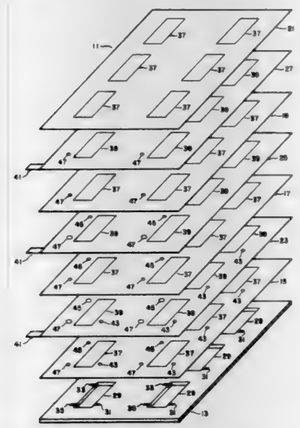
tabs extending from the sides of the U, the second part being a conductive plate on the underside of the flat insulating sheet, the tabs being arranged to project through corresponding ones of said apertures so as to make electrical contact with the conductive plate, the tabs and the conductive plate being soldered together for electrical continuity and mechanical connection.

4,281,361

SIMPLIFIED MULTILAYER CIRCUIT BOARD

Benjamin W. Patz, Orlando; Herbert Berke, Maitland, and Donald R. Mesdorf, Altamonte Springs, all of Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 17, 1980, Ser. No. 130,804
Int. Cl.³ H05K 1/18
U.S. Cl. 361—401 **10 Claims**



1. A multilayer circuit board comprising, in combination:

a mounting board having a plurality of rectangular shaped apertures therein, each aperture of which has a plurality of voltage connector terminals attached to the edge thereof, said voltage connector terminals extending along the upper surface of said mounting board;

a plurality of dielectric sheets stacked upon the upper surface of said mounting board, each of which has therein a plurality of rectangular shaped apertures in alignment with the rectangular shaped apertures of said mounting board;

a plurality of conductive sheets, each of which is positioned between a pair of adjacent dielectric sheets and each of which has located therein a plurality of rectangular shaped apertures in alignment with the rectangular shaped apertures of said mounting board;

a plurality of holes extending from the upper surface of said mounting board to individual conductive sheets at each appropriate connection point thereof, said plurality of holes being in alignment with the voltage connector terminals of the rectangular shaped apertures of said mounting board; and

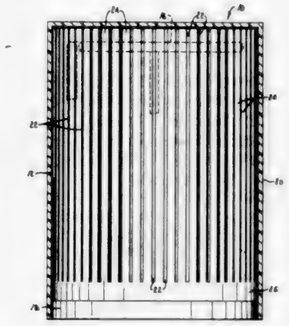
a plurality of conductive discs, each of which is inserted into one of said plurality of holes so as to connect the voltage connector terminals of the rectangular shaped apertures of said mounting board to the appropriate connection points of each of said plurality of conductive sheets.

4,281,362

ELECTROSTATIC SHIELD FOR DIATHERMY TREATMENT HEAD

Fred M. Berry, Johnson County, Mo., assignor to International Medical Electronics, Ltd., Kansas City, Mo.

Filed Mar. 31, 1980, Ser. No. 136,101
Int. Cl.³ A61N 1/06
U.S. Cl. 361—437 **5 Claims**



1. An electrostatic shield for use with a shortwave diathermy apparatus having a diathermy applicator head, said shield adapted to be placed between the diathermy applicator head having a current carrying coil located therein and the body of the patient being treated, said shield comprising:

a first plurality of electrically conductive strips which are arranged to substantially surround said current carrying coil; and

a second plurality of electrically conductive strips wherein each of said second plurality of electrically conducted strips is electrically coupled with one strip of said first plurality of electrically conducted strips, said second plurality of electrically conductive strips being arranged to define a plane that is substantially parallel to the plane of said coil.

4,281,363

MULTILAMP PHOTOFLASH UNIT WITH REFLECTIVE-PROTECTIVE CIRCUIT BOARD ELEMENT

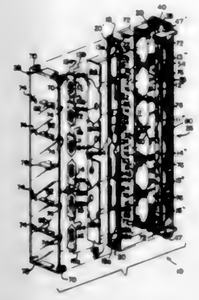
David W. Mecone; Donald W. Hartman, and Donald E. Armstrong, all of Williamsport, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Nov. 29, 1979, Ser. No. 98,458
Int. Cl.³ G03B 15/02
U.S. Cl. 362—6 **8 Claims**

1. A multilamp photoflash unit comprising, in combination,

a printed circuit board having lamp-firing circuitry on a surface thereof, an array of electrically ignitable flashlamps positioned over said surface and having lead-in wires connected to said circuitry, and a flat sheet of material secured to said circuit

board and interposed between said lamps and said circuitry for reflecting heat and light away from said circuit board and



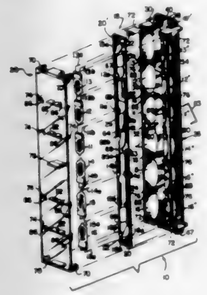
insulating at least portions of said circuitry from the radiant output of said lamps during flashing.

4,281,364

MULTILAMP PHOTOFLASH UNIT CONSTRUCTION

Randall H. LeFever, Williamsport; William J. Harvey, Trout Run, and Glen E. Flook, Jr., Williamsport, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Oct. 12, 1979, Ser. No. 84,235
Int. Cl.³ G03B *15/02*
U.S. Cl. 362—10 **8 Claims**



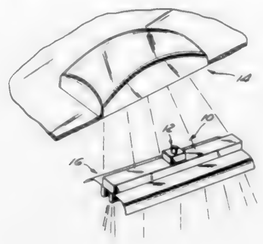
1. A multilamp photoflash unit comprising, in combination, a printed circuit board having lamp-firming circuitry on a surface thereof, an array of electrically ignitable flashlamps disposed on said circuit board, each of said flashlamps having a pair of lead-in wires connected to said circuitry, said circuitry including a common circuit conductor run on said surface of the circuit board connected electrically to one lead-in wire of each of said array of lamps, a housing member having a channel within which said printed circuit board is located, said circuit board being disposed substantially parallel to a wall of said channel with said wall facing the opposite side of said circuit board from said surface thereof, a light-transmitting cover panel attached to said housing member and enclosing said flashlamps therein, and a staple of conductive material having a pair of legs extending through both said wall of said housing channel and said circuit board and having a center region positioned on the exterior of said housing on the side of said channel wall opposite that facing the circuit board, said legs being bent over said surface of the circuit board so as to secure said circuit board to said wall of said housing channel by means of said staple, with at least one of said legs of the staple being in contact with said common circuit conductor run, whereby said staple provides electrostatic protection by extending electrical ground to the exterior of the unit.

4,281,365

VARIABLE PHOTOELECTRIC CELL

Robert L. Elving, 1315 E. Romneya, Anaheim, Calif. 92805, and Randolph S. Carlson, Irvine, Calif., assignors to Robert L. Elving, Anaheim, Calif.

Filed Sep. 25, 1979, Ser. No. 78,886
Int. Cl.³ F21V *19/04*
U.S. Cl. 362—20 **27 Claims**



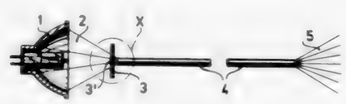
1. An illumination control device for regulating illumination in a controlled lighting area, including both natural and artificial lighting, comprising:
means for turning on an artificial light when the amount of natural light entering said controlled lighting area reaches a first predetermined level;
means for turning off said artificial light when said natural light reaches a second predetermined level;
first means for adjusting said first predetermined level; and
second means for adjusting said second predetermined level independently of said first predetermined level.

4,281,366

LIGHTING SYSTEMS FOR SURGICAL OPERATIONS

Helmut Wurster, Oberderdingen, and Ernst Blanc, Oberderdingen-Gross-Villars, both of Fed. Rep. of Germany, assignors to Richard Wolf GmbH, Knittlengen, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,075
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1979, 7906381
Int. Cl.³ F21V *7/04*
U.S. Cl. 362—32 **5 Claims**



1. A lighting system for surgical examinations and comprising an optical fibre bundle having an intake area into which the light of an ellipsoidal mirror lamp can be beamed, wherein a concave lens area located in the area facing away from said optical fibre bundle is co-axially situated forwardly adjacent said light intake area of said optical fibre bundle.

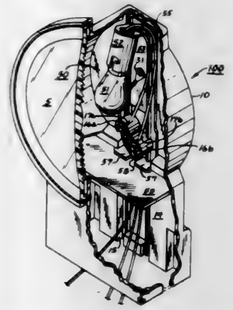
4,281,367

SUBMERSIBLE LAMP WIRING TERMINALS

Dennis G. Moore, 576 Debra, Livermore, Calif. 94550, and Lawrence N. Johnson, 130 W. High St., Spokane, Wash. 99203

Filed Jun. 4, 1979, Ser. No. 44,923
Int. Cl.³ F21V *33/00*
U.S. Cl. 362—96 **7 Claims**

1. In a submersible electric lamp having a housing defining an enclosure for retaining a predetermined volume of air and an opening formed in said housing through which liquid may pass such that upon submersion of said housing in liquid to a level below said opening formed therein said predetermined volume of air will be compressed creating a force sufficient to prevent the liquid which may pass within said housing from rising above a predetermined level, and an electric lamp carried within said housing above said predetermined level and having electrical leads for coupling said electric lamp to a source of illuminating electrical energy for lighting said electrical lamp, the improvement comprising



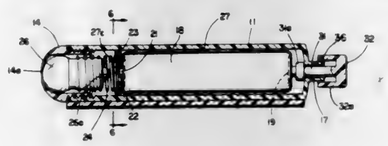
terminal coupling means carried within said lamp housing at a position above said predetermined level to which liquid will rise therein for electrically coupling said electrical leads to a source of illuminating electrical energy and thereby preventing contact of the coupling with the liquid when submerged therein.

4,281,368

KEYHOLE ILLUMINATING APPARATUS

A. Robert Humbert, 5514 S. Adams St., Marion, Ind. 45952

Filed Nov. 2, 1979, Ser. No. 90,681
Int. Cl.³ E05B *17/10*
U.S. Cl. 362—100 **8 Claims**



1. A keyhole illumination apparatus comprising an elongated tubular housing adapted for mounting on a surface adjacent a keyhole, a translucent closure cap removably fastened in one end of said housing and an axially moveable actuating member extending from the other end of the housing, a cylindrical battery within the housing having a central positive terminal stud at one end with its opposite end wall forming the negative terminal, an annular retainer disc encircling said positive terminal stud, an electrically conductive thin metal strap overlying and extending from said opposite end wall of the battery to said disc and anchored to the disc with a portion of the strap exposed at the face of the disc remote from the battery, a helical wire compression spring carrying at one end an electrical bulb having positive and negative terminals, said spring extending within said housing bottomed on said disc and electrically contacting the negative bulb terminal and said exposed portion of the conductive strap, the positive bulb terminal at the base of the bulb being aligned with said central positive battery terminal, said spring being stressed so that it exerts an axial force urging said battery toward said other end of the housing and said bulb against said closure cap, depression of said actuating member bodily moving said battery against the force exerted by said spring and engaging the positive terminals of the bulb and battery to energize the bulb.

4,281,369

METHOD AND APPARATUS FOR SOLAR POWER LIGHTING

Christopher L. Batte, 7816 Purdue, Dallas, Tex. 75225

Filed Dec. 11, 1978, Ser. No. 967,962
Int. Cl.³ F21M *5/02*; F21P *1/00*
U.S. Cl. 362—183 **7 Claims**



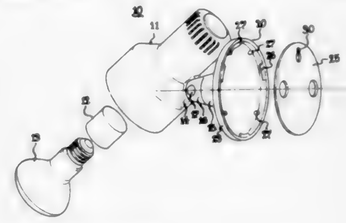
1. An improved lighting system illuminating an area in times of darkness of the type having an upstanding light pole of generally hollow interior construction extending from an underlying base secured upon the ground for supporting a plurality of light emitting elements thereabove wherein the improvement comprises:
a remotely disposed, moveable solar collector panel disposed about said light pole;
a tracking mechanism for orientating said collector panels relative to the sun;
a plurality of storage batteries secured to said lighting pole;
means coupling said storage batteries to said collector panel or the energization of said batteries therefrom;
means interconnecting said storage batteries to said light emitting elements for the energization thereof; and
control means secured to said light pole for interconnecting said collector panel to said batteries and said batteries to said light emitting element in response to the amount of sunlight falling on said collector panels; and
a conveyor elevator within said light pole housing said storage batteries therein, said light pole including an entry door for providing access to said storage batteries upon said conveyor elevator.

4,281,370

SWIVEL BASE LIGHTING FIXTURE

John H. Masenheimer, Prospect, Ky., and Irving Bradley, Novelty, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 7, 1979, Ser. No. 64,403
Int. Cl.³ F21V *29/00*
U.S. Cl. 362—287 **8 Claims**



1. A swivel-base lighting fixture comprising:
a lamp,
a socket,

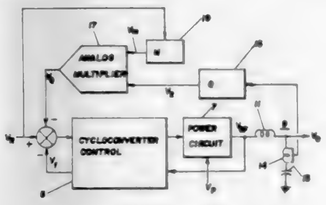
a housing for at least partially enclosing the said lamp and socket,
an inner base,
an outer base,
a connecting arm for supportively attaching said housing to said outer base,
said outer base at least partially surrounding and recessing said inner base and having a means for retaining said inner base therein,
the interior of said outer base and the exterior of said inner base being cooperatively configured to permit rotational movement therebetween,
wherein said inner base engages said outer base to secure the angular position of said fixture.

4,281,371

CYCLOCONVERTER WITH WAVEFORM IMPROVING NONLINEAR FEEDBACK

Donal E. Baker, American Township, Allen County, Ohio, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 5, 1980, Ser. No. 127,601
Int. Cl.³ H02P 13/30; H02M 5/27
U.S. Cl. 363—10 **8 Claims**



1. Apparatus for synthesizing from a multiphase AC source voltage an output waveform which follows an AC reference waveform comprising:
a naturally commutated thyristor power circuit connected across the multiphase AC source;
a control circuit for sequentially firing the thyristors in said power circuit at firing angles determined as a function of an AC control signal to generate an unfiltered output voltage from said power circuit;
an output filter for generating a filtered output voltage from said unfiltered output voltage; and
a feedback circuit comprising
(a) means for generating a feedback signal proportional to the filtered output voltage,
(b) means for generating a compensating signal having a magnitude which varies as a function of said firing angle,
(c) means for multiplying said feedback signal by said compensating signal to generate a compensated feedback signal, and
(d) means for summing said compensated feedback signal in opposition with said reference waveform to generate said control signal.

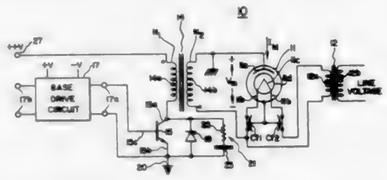
4,281,372

POWER SUPPLY FOR MAGNETRON AND THE LIKE LOADS

William P. Korarumpf, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,826
Int. Cl.³ H05B 6/68
U.S. Cl. 363—20 **10 Claims**

1. A power supply for energizing a self-rectifying load, through which a current flows only when a voltage of predetermined polarity and magnitude is exceeded thereacross, comprising:
source means for providing an operating potential;
a transformer having a single high-voltage secondary winding connected directly across said load and having an untapped primary winding having a mutual inductance to said secondary winding;
a switching device having a controlled-current path coupled, as the only controllable device, in electrical series connection with said transformer primary winding across the operating potential of said source means, said switching device having an input terminal for receiving a periodic signal controlling the flow of current in said controlled-current path and said primary winding;
unidirectional current flow means connected in parallel with said controlled-current path of said switching device for conducting to prevent a flow of current through the controlled-current path of said switching device in a reverse direction and for preventing application of voltages of improper polarity across said switching device;



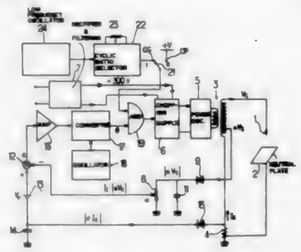
an electrical capacitance effectively connected in parallel across the mutual inductance of said transformer and resonant therewith at a predetermined first frequency; and
circuit means for driving the input of said switching device with said periodic signal of magnitude sufficient to cause said controlled-current path to heavily conduct a flow of current therethrough commencing while said unidirectional current flow means is conducting and continuing during a first portion of a predetermined time interval; said circuit means providing said periodic signal at a second frequency less than said first frequency and causing said signal to terminate to abruptly end the flow of current through said controlled-current path at the end of said time interval first portion, to cause said capacitance to charge and apply a voltage aross said load causing said load to periodically conduct a flow of current therethrough at said second frequency and during another portion of said time interval after said first portion.

4,281,373

HIGH FREQUENCY VOLTAGE GENERATOR

Pierre Mabille, Bordeaux, France, assignor to Societe SATELEC, Talence, France

Filed May 16, 1978, Ser. No. 906,556
Claims priority, application France, May 18, 1977, 77 15246
Int. Cl.³ A61B 17/36; H02M 3/335, 7/537
U.S. Cl. 363—21 **7 Claims**



1. A high frequency voltage generator, usable in particular in surgery for supplying an electric bistoury or lancet, comprising a rectifying and filtering stage connected to electric mains

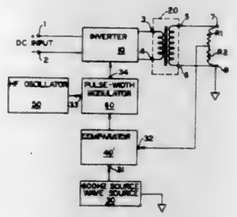
supply, a high frequency power oscillator, an output transformer supplied by said high frequency power oscillator, a chopping supply connected to said high frequency oscillator and connected to the output of said rectifying and filtering stage, the chopping frequency of said chopping supply being much higher than that of said mains supply, an error detector having two inputs, means for applying to a first input of said error detector a first signal corresponding to information relative to the voltage taken from the output transformer of the high frequency oscillator, means for applying to the second input of said error detector a second signal corresponding to information relative to the current of the high frequency power oscillator, said error detector being connected to the chopping supply to control said chopping supply;
first and second regulation loops respectively connected to said first and said second inputs of said error detector, said first regulation loop providing for the servo-control of the output voltage from said output transformer while said second loop provides a positive feedback proportional to current in a tissue to be cut which increases the reference voltage of the output voltage proportionally to the output current, said two servo-control loop rendering the output impedance of the generator negative;
said first regulation loop extending between an intermediate point of the secondary winding of said output transformer and said first input of said error detector and comprising a first potentiometer for adjusting the output power, said second regulation loop comprising a circuit through which passes a current proportional to the output current and connected to a pole of a source of voltage, the other pole of which is connected to the second input of said error detector and which supplies a reference voltage; and
a first transistor constituting a monostable multivibrator, a second transistor triggering said first transistor at each beginning of alternation, a third transistor from the collector of which are taken pulses controlling said chopping supply and which are interrupted by said second transistor, and a second potentiometer connected so as to continuously to vary the time during which said chopping supply control pulses are interrupted, from long interruptions in the case of strong coagulation to the total absence of interruption in the case of a pure cut.

4,281,374

ELECTRICAL CIRCUIT FOR PRODUCING CONTROLLED HIGH VOLTAGE AC OUTPUT

William R. Archer, Fort Wayne, Ind., assignor to General Electric Company, Salem, Va.

Filed May 29, 1979, Ser. No. 42,766
Int. Cl.³ H02M 1//12
U.S. Cl. 363—41 **3 Claims**



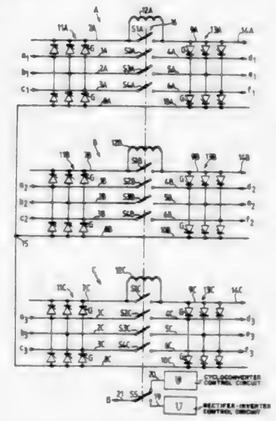
1. A power supply for producing high voltage AC output power at a relatively low base frquency from relatively low voltage DC input power, comprising:
a pulse-width modulated inverter for converting the DC input power to a pulse width modulated power signal, said inverter chopping the DC input power at a frequency relatively high with respect to the base frequency;
a voltage step-up transformer having high inductive and capacitive reactance at the chopping frequency, said transformer including a primary winding connected to said inverter for receiving said power signal and a secondary winding for developing the high-voltage AC output power, the reactance of said transformer serving to filter the high-frequency component of said power signal while raising to high voltage the base frequency component of said power signal;
means for sensing the voltage magnitude of said AC output power and for generating a voltage signal representative thereof;
a reference voltage source for producing a reference voltage representative of a desired voltage magnitude of the AC output power; and
means for comparing said voltage signal to said reference voltage, said comparing means providing a signal to said inverter for varying the duty cycle of said power signal as a function of the difference between the magnitude of said reference voltage and the magnitude of said voltage signal thereby to adjust said voltage magnitude of said AC output power in a manner to minimize said difference.

4,281,375

STATIC FREQUENCY CONVERTER

Jean-Paul Pouillange, Aulnay-sous-Bois, France, assignor to BBC Brown, Boveri & Company, Ltd., Baden, Switzerland

Filed Jan. 15, 1980, Ser. No. 112,236
Claims priority, application France, Jan. 29, 1979, 79 02174
Int. Cl.³ H02M 5/27
U.S. Cl. 363—37 **8 Claims**



1. A natural commutation static frequency converter intended particularly for supplying a synchronous motor, comprising:
a polyphase cycloconverter having a control circuit, said polyphase cycloconverter comprising n monophase cycloconverters each having two reversed Graetz bridges, said Graetz bridges having inputs interconnected and a pair of outputs also interconnected, one of the outputs of each monophase cycloconverter being connected to a neutral point;
at least one self-inductance connected in series between the other output of said Graetz bridges of each monophase converter;
at least one natural commutation rectifier-inverter control circuit; and
commutation switching means for enabling breaking of the connections between the inputs to the two Graetz bridges of at least one of monophase cycloconverters, as well as of the outputs of said bridges which are not connected to the neutral point such that said self-inductance is inserted

between the opened Graetz bridge outputs not connected to said neutral point, said commutation switching means resulting in replacement of the cycloconverter control circuit with said natural commutation rectifier-inverter control circuit so as to form at least one natural commutation rectifier-inverter, said commutation switching means further enabling replacement of Graetz bridge outputs not connected to said neutral point of the polyphase converter with outputs of at least one rectifier-inverter so formed.

4,281,376

PROTECTED CONVERTER ARRANGEMENT

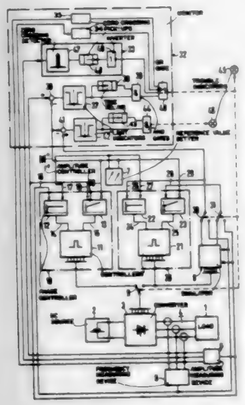
Eberhard Münchow, Nuremberg; Paul Mourick, Hausen, and Jürgen Strop, Langensendelbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,462

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1978, 2827443

Int. Cl.³ H02J *9/06*

U.S. Cl. 363—50 **3 Claims**



1. A power converter, secure against breakdown, having an electronic power circuit in which the controlled valves are addressed by electronic information processing circuits, comprising:

(a) a single electronic power circuit;

(b) redundant information processing circuits having at least two parallel control units, of which one controls the power circuits as leading control and another operates in standby condition; and

(c) a monitoring device coupled to the control units which, in the event of a disturbance in the leading control unit, switches control of the power circuit to a standby unit.

4,281,377

POWER SUPPLY CIRCUITS

Kenneth S. Evans, Blackpool, England, assignor to Lucas Industries Limited, Birmingham, England

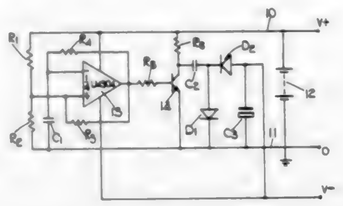
Filed Jun. 11, 1979, Ser. No. 47,315

Claims priority, application United Kingdom, Jun. 21, 1978, 27506/78

Int. Cl.³ H02M *3/18*

U.S. Cl. 363—63 **5 Claims**

1. A power supply circuit comprising first and second power supply rails for connection to opposite poles of a power supply, an oscillator including an operational amplifier having first and second supply terminals, a buffer amplifier connected across said first and second rails and connected to be driven by the output of said operational amplifier and a diode pump circuit connected between the output of said buffer amplifier and said second rail, characterized in that the first and second supply terminals of the operational amplifier are connected to said



first rail and the output terminal of the pump circuit, respectively.

4,281,378

FREQUENCY INVERTER

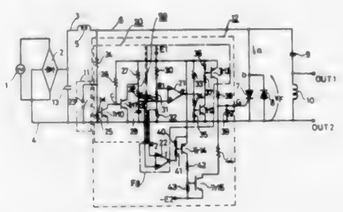
Yoshio Ogino, Nishinomiya; Takumi Mizukawa, Neyagawa, and Hirokazu Yoshida, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 22, 1979, Ser. No. 51,202

Claims priority, application Japan, Jun. 30, 1978, 53-79902

Int. Cl.³ H02P *13/18*

U.S. Cl. 363—96 **4 Claims**



1. A frequency inverter comprising:

a thyristor connected across a positive feed line and a negative feed line, a resonance circuit comprising an inductor and a condenser which are connected across said positive and negative feed lines,

a diode inversely connected in parallel to said thyristor, and

a gate signal circuit which generates gate signals from its output terminal to the gate terminal of said thyristor,

characterized in that

said gate signal circuit comprises

a charge-discharge circuit having a second condenser and a resistor branch, said charge-discharge circuit being connected to a switching circuit for making said second condenser charge and discharge responding to the voltage across the anode and the cathode of the thyristor,

a first comparator circuit which compares output signals of said charge-discharge circuit with a first predetermined reference voltage and generates positive signals of specified timings to said output terminal, and

a second comparator circuit which compares output signals of said charge-discharge circuit with a second predetermined reference voltage and generates negative signals to said output terminal with timings different from those of said specified timings of said positive signals.

4,281,379

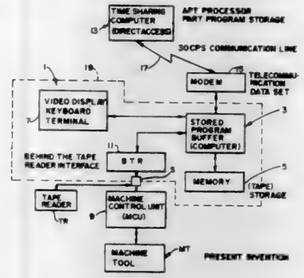
COMPUTER DRIVEN CONTROL SYSTEM FOR A NUMERICALLY CONTROLLED MACHINE TOOL

Len S. Austin, Madison County, Ill., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Dec. 18, 1978, Ser. No. 970,163

Int. Cl.³ G06F *15/16, 15/46;* **G05B** *19/417*

U.S. Cl. 364—102 **15 Claims**



1. In a numerically controlled machine tool including a machine control unit for controlling operation of the numerically controlled machine tool, a general purpose computer for providing operating commands to said machine control unit, said general purpose computer including means for generating a control program, the improvement which comprises a control system interposed between said general purpose computer and said machine control unit, and means for linking said control system to said general purpose computer to enable said control system to access said computer on a time sharing basis to receive said control program for said machine tool, said control system including an individual computer dedicated to said numerically controlled machine tool, said dedicated computer being connected to said machine control unit and being linked to said general computer on a time sharing basis, a storage memory operatively connected to said dedicated computer, a peripheral input/output device connected to said dedicated computer and located proximate to the numerically controlled machine tool, said dedicated computer being interfaced with said machine control unit so as to provide an input directly to the machine control unit so that said dedicated computer functions as a control data buffer for said machine control unit, said input/output device enabling an operator to modify the control program held in the storage memory of said dedicated computer from a location proximate said machine tool and to update the control program in said general purpose computer on a time sharing basis.

4,281,380

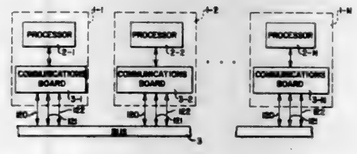
BUS COLLISION AVOIDANCE SYSTEM FOR DISTRIBUTED NETWORK DATA PROCESSING COMMUNICATIONS SYSTEM

Nicanor P. DeMesa, III, and John E. Laabs, both of North Stonington, Conn., assignors to Harris Corporation, Melbourne, Fla.

Filed Dec. 27, 1978, Ser. No. 973,684

Int. Cl.³ G06F *15/16;* **H04Q** *3/00;* **H04J** *3/00*

U.S. Cl. 364—200 **39 Claims**



1. In a digital data communication network wherein a plurality of processor devices are indirectly coupled to a communication bus over which messages between respective devices are transmitted, a system for preventing simultaneous transmission of messages by plural ones of said devices and thereby avoiding a transmission collision on said bus comprising:

first means, coupled with a respective device and responsive to a request for a transmission from its processor, for causing a bus seizure representative signal to be placed on said bus and to thereby be supplied to each of the devices coupled to the bus;

second means, coupled to said bus and coupled to and responsive to the operation of said first means, for examining said bus for the presence of a bus seizure representative signal that has been placed on the bus by another device; and

third means, coupled to said second means, said bus and said device, for causing said device to transmit a message over said bus in response to said second means finding that no bus seizure signal has been placed on the bus by another device, but otherwise inhibiting said device from proceeding with the transmission of a message.

4,281,381

DISTRIBUTED FIRST-COME FIRST-SERVED BUS ALLOCATION APPARATUS

Sudhir R. Ahuja, Matawan, and Dhiraj K. Sharma, Gillette, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 14, 1979, Ser. No. 38,834

Int. Cl.³ G06F *3/04*

U.S. Cl. 364—200 **6 Claims**

1. A first-come first-served resource allocation system in which a plurality of devices share a common resource, each device being adapted for requesting control of said resource and for relinquishing control of said resource, said system including means (**110**, **140**, **141**, **142**) for establishing an ordinal ranking among successive ones of said devices requesting control of said resource and means (**120**) responsive to relinquishment of control of the resource by a device contiguous in said ordinal ranking with an individual one of said devices for transferring control of said resource to the individual one of said requesting devices, said rank establishing means (**110**, **140**, **141**, **142**) characterized by,

first means (**111**) for storing an indicium of an unassigned ordinal position,

separate means (**112**) associated with respective ones of said devices responsive to a request for control of said resource by one of said devices for assigning to that same device the indicium of the unassigned ordinal position currently stored in said first storing means (**111**), and

first means (**113***a*, **113***b*, **114**, **115**) responsive to each request for control of said resource by any of said devices for changing the indicium of the assigned ordinal position in said first storing means (**111**) to the indicium of the next unassigned ordinal position,

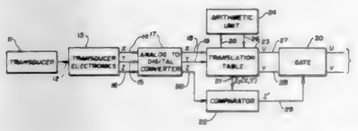
wherein the rank establishing means operates independent from and concurrent with the means for transferring control of the resource thereby allowing control to be transferred from one device relinquishing control of the resource to the requesting device with minimal delay.

4,281,382

RADIATION SIGNAL PROCESSING SYSTEM

Glenn F. Knoll, Ann Arbor; Donald R. Strange, Howell, and Matthew C. Bennett, Jr., Ann Arbor, all of Mich., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation of Ser. No. 862,889, Dec. 21, 1977, Pat. No. 4,212,061. This application Dec. 3, 1979, Ser. No. 99,691
The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.
Int. Cl.³ G06F *7/38*; G01T *1/20*
U.S. Cl. 364—414 **13 Claims**



1. An improved signal processing system for radiation imaging apparatus, comprising:

a radiation transducer producing transducer signals proportional to the energy content of detected radiation events;

means for storing one or more selected energy limiting values as a function of event spatial coordinates;

means for comparing the energy content of the transducer signals of the detected radiation events to the limiting value or values corresponding to the event spatial coordinates; and

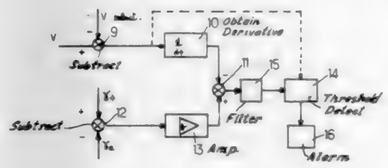
output means for producing an output signal, said output means responsive to said transducer signals and to said means for comparing, so that only those transducer signals corresponding to one or more energy ranges related to said limiting value or values contribute to form said output signal.

4,281,383

PROCESS AND SYSTEM FOR THE RAPID DETECTION OF A WIND GRADIENT

Jean-Louis Lebrun, Antony, France, assignor to Societe Francaise d'Equipements pour la Navigatior Aerienne (S.F.E.N.A.), France

Continuation of Ser. No. 750,245, Dec. 13, 1976, abandoned.
This application Sep. 27, 1979, Ser. No. 79,517
Int. Cl.³ G06G *7/70*; G05D *1/12*
U.S. Cl. 364—428 **10 Claims**



1. A process for rapidly detecting wind shear taking into account vertical and horizontal wind components, without requiring a direct measure of ground speed, comprising:

a. determining the rate of change of air speed of the aircraft;

b. determining the actual flight path angle of the aircraft;

c. determining the acceleration of the aircraft along its velocity vector;

d. utilizing said actual flight path angle and acceleration of the aircraft along its velocity vector to determine a total flight path angle which is directly related to the rate of change of total energy of the aircraft, the total energy of the aircraft being the sum of the kinetic and potential energy components of the aircraft;

e. utilizing said rate of change of air speed, said actual flight path angle and said total flight path angle to provide a display to the pilot which is an indication of the wind shear affecting the aircraft; and

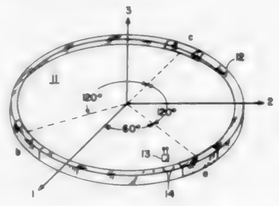
f. utilizing a measure of wind shear severity to provide an anticipation to the pilot of a critical angle of attack, including the steps of generating a threshold value of wind shear severity, and indicating to the pilot when the measure of wind shear severity exceeds said threshold value.

4,281,384

RIM INERTIAL MEASURING SYSTEM

Nelson J. Groom, White Marsh; Williard W. Anderson, Yorktown, and William H. Phillips, Hampton, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 7, 1979, Ser. No. 102,002
Int. Cl.³ G01C *23/00*
U.S. Cl. 364—453 **10 Claims**



1. An inertial measuring system for measuring the angular rate of a vehicle about two mutually perpendicular axes comprising:

a rim attached to said vehicle such that the plane of said rim is parallel to the plane of said two axes;

several magnetic bearing elements located around said rim for magnetically suspending said rim;

means for spinning said rim;

each of said magnetic bearing elements including means for controlling the position of said rim in the axial and radial directions the last mentioned means including means for producing a signal proportional to the movements of the rim in the axial direction; and

computer means receiving said signals proportional to the movement of the rim in the axial direction from each of said several magnetic bearing elements for producing the angular rates of said vehicle about said two mutually perpendicular axes.

4,281,385

CONTROL SYSTEM FOR A MACHINE TOOL

Toru Nakaso, Nagoya; Kenji Nomura, Aichi, and Kunimichi Nakashima, Anjo, all of Japan, assignors to Toyoda-Koki Kabushiki Kaisha, Kariya, Japan

Filed Jun. 22, 1979, Ser. No. 51,187
Claims priority, application Japan, Jul. 6, 1978, 53-82607
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—474 **7 Claims**

1. A control system for a machine tool having a tool spindle rotatably carried therein, a motor drivingly connected to said tool spindle for rotating said tool spindle, and a plurality of servomotors for effecting movement of said tool spindle along first and second orthogonal axes relative to a workpiece mounted on said machine tool, said control system comprising:

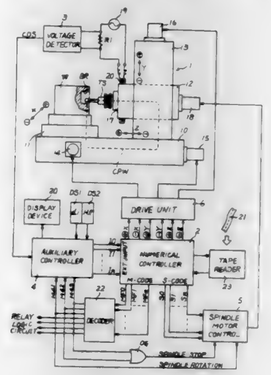
feed control means connected to said servomotors for selectively controlling said servomotors in accordance with feed pulses and axis designation signals;

a touch sensitive tool capable of being received in said tool spindle;

touch sensing circuit means electrically connected to said touch sensitive tool for detecting contact of said touch sensitive tool with said workpiece and for emitting a contact detection signal upon such contact detection, said workpiece being formed with a bore;

auxiliary controller means connected to said touch sensing circuit means and said feed control means for performing the following functions:

(i) a centering control in response to a centering instruction signal for applying feed pulses and axis designation signals to said feed control means while controlling the application of said feed pulses and said axis designation signals in response to said contact detection signal to



thereby align the rotational axis of said tool spindle with the axis of said workpiece bore, and

(ii) a diameter measuring control in response to a measuring instruction signal for applying feed pulses and axis designation signal to said feed control means so as to move said tool spindle relative to said workpiece from one position to another position at each of which said touch sensitive tool contacts said workpiece, along a path passing through the center of said workpiece bore, to thereby measure the diameter of said workpiece bore; and

a motor control circuit connected to said motor for controlling said motor;

said motor and motor control circuit rotating said tool spindle at a predetermined speed said centering control function and inhibiting the rotation of said tool spindle when said auxiliary controller means is performing said diameter measuring control function.

4,281,386

SYSTEMS FOR DETECTING FAULTS IN ELECTRIC POWER SYSTEMS

Ryotaro Kondow, Fuchu, and Eiichi Okamoto, Tokyo, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

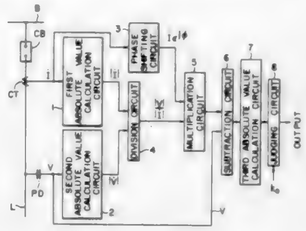
Filed Aug. 1, 1979, Ser. No. 62,622
Int. Cl.³ G06F *15/20*; G01R *31/08*
U.S. Cl. 364—492 **4 Claims**

1. In a protective relay system in which a fault in an electric power system is detected using a current and a voltage of the electric power system, and a circuit breaker provided in the electric power system is tripped in accordance with the fault detection, the improvement which comprises:

first means for detecting a current and a voltage of the electric power system,

second means responsive to the detected current and the detected voltage for producing a first quantity having an absolute value equal to that of said detected voltage and having a phase in advance of said detected current by a predetermined impendance angle of the electric power system,

third means responsive to said detected voltage and said first quantity for obtaining the absolute value of the difference between said voltage and said first quantity, and



fourth means responsive to said absolute value from said third means for comparing it with a predetermined constant and producing a fault detection signal if, as a result of the comparison, said absolute value is found to be smaller than said constant,

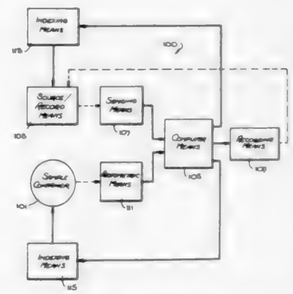
said circuit breaker being tripped in accordance with said fault detection signal.

4,281,387

AUTOMATIC CHEMICAL ANALYSIS APPARATUS AND METHOD

Thomas L. Kraft; Howard A. Vick, both of Houston, Tex., and Miles G. Hossom, Hauppauge, N.Y., assignors to American Home Products Corp., New York, N.Y.

Filed May 21, 1979, Ser. No. 40,524
Int. Cl.³ G06F *15/20*; G01N *33/16*
U.S. Cl. 364—497 **45 Claims**



1. Apparatus for automatically analyzing a plurality of samples in a variable sequence when provided with a source means containing information of the analyzing sequence, said apparatus comprising:

information sensing means for sensing information of the analyzing sequence from the source means and providing first electrical signals representative of this information;

sample characteristics determining means for providing second electrical signals from a plurality of test cells in accordance with the characteristics of the samples;

recording means for recording information representative of the analysis of the samples, said recording means being adapted to record such analysis information on record means;

correlating means for providing correlation between the

source means and said information sensing means and between the record means and said recording means; and

computer circuit means for receiving said first and second signals and providing:

signals to said correlating means for providing said correlation; and

signals to said recording means for recording the analysis information.

4,281,388

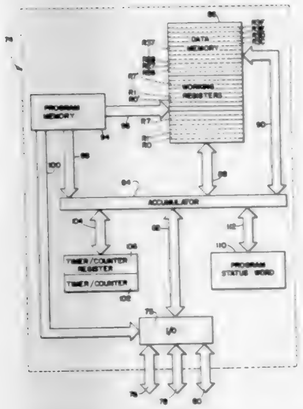
TACHOMETER

Kenneth D. Friend, Cedar Falls; David W. Gadtke, Waterloo, both of Iowa, and Duane H. Ziegler, Colona, Ill., assignors to Deere & Company, Moline, Ill.

Filed Jul. 9, 1979, Ser. No. 55,834

Int. Cl.³ G01P *3/48*

U.S. Cl. 364—565 **53 Claims**



1. In a tachometer: a rotating member, first means for providing an first electrical signal indicative of the speed of rotation of the member, second means responsive to the first electrical signal for providing successive digital signals representative of the speed of rotation during successive time intervals, third means for averaging the successive digital signals and providing an average value, storage means for storing the average value, fourth means for comparing the most recent digital signal with the average value and updating the stored average with the most recent signal if the difference between the average value and the most recent signal is less a predetermined amount or alternately replacing the stored average with the most recent digital signal if the difference is greater than or equal to the predetermined amount, and fifth means responsive to the contents of the storage means for providing an output signal indicative of the speed of rotation of the member.

4,281,389

PACING TIMER MOUNTING ARRANGEMENT

Kent G. Smith, 51 W. 83rd St., New York, N.Y. 10024

Filed Jun. 22, 1979, Ser. No. 51,135

Int. Cl.³ G06F *15/20*; **A41D** *19/00*

U.S. Cl. 364—569 **12 Claims**

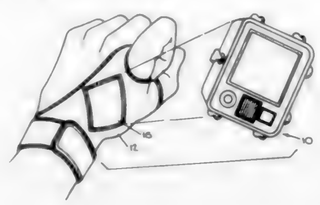
1. A pacing timer display mounting arrangement including in combination:

(a) a glove piece worn between the wrist and at least index finger and thumb;

(b) a mounting means for detachably mounting said pacing timer;

(c) a pacing timer adapted to be detachably affixed to said glove piece by said mounting means, said timer including a face and reverse side with said reverse side being directed toward said wrist when said pacing timer is mounted on said glove piece;

(d) said face of said pacing timer including a means for displaying information to the wearer;



(e) said reverse side including an input means for entering information into the pacing timer.

4,281,390

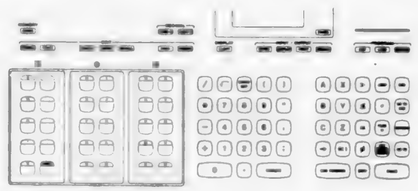
PROGRAMMABLE CALCULATOR INCLUDING MEANS FOR PERFORMING COMPUTED AND UNCOMPUTED RELATIVE BRANCHING DURING PROGRAM EXECUTION

Emil E. Olander, Jr., Fort Collins; Rex L. James, Loveland; Ivar W. Larson, Loveland; Wayne F. Covington, Loveland; Jack M. Walden, Loveland; Robert E. Watson, Loveland; Francis J. Yockey, Loveland; Fred Wenninger, Jr., Loveland, and Homer C. Russell, Berthoud, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 802,323, Jun. 1, 1977, Pat. No. 4,178,633, which is a division of Ser. No. 510,921, Sep. 30, 1974, Pat. No. 4,028,538, which is a division of Ser. No. 212,581, Dec. 27, 1971, Pat. No. 3,839,630. This application Jun. 25, 1979, Ser. No. 51,581

Int. Cl.³ G06F *15/00, 9/36*

U.S. Cl. 364—706 **5 Claims**



1. An electronic calculator comprising:

keyboard input means including a plurality of alphameric and control keys for entering alphameric statement lines into the calculator, said alphameric and control keys being operative for entering an unconditional relative branch statement into the calculator;

memory means, coupled to said keyboard input means, for storing a program comprising a plurality of alphameric statement lines entered into the calculator;

processing means, coupled to said keyboard input means and memory means, for processing the alphameric statement lines stored as a program in said memory means to perform selected functions;

said processing means being responsive to an unconditional relative branch statement, including specification of an argument, encountered during processing of a line of a program stored in said memory means, for transferring processing of that program to a line located an incremental number of lines within said program from the line containing the unconditional relative branch statement, as specified by said argument; and

output means, coupled to said processing means, for providing a visual indication of selected functions performed by the calculator.

4,281,391

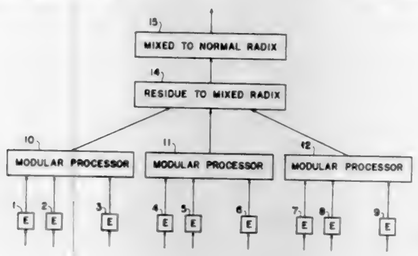
NUMBER THEORETIC PROCESSOR

Alan Huang, Menlo Park, Calif., assignor to Leland Stanford Junior University, Stanford, Calif.

Filed Jan. 15, 1979, Ser. No. 3,745

Int. Cl.³ H03K *13/24*

U.S. Cl. 364—746 **21 Claims**



1. A system for converting a mixed radix number to a normal radix number comprising:

a means for storing a normal radix number at a location specified by each value of each mixed radix coefficient;

a means for retrieving from the storage means the normal radix numbers corresponding to each of the mixed radix coefficients to be converted connected to the output of said storage means;

and a means for adding the normal radix numbers which have been produced by the retrieval means connected to the output of said retrieval means.

4,281,392

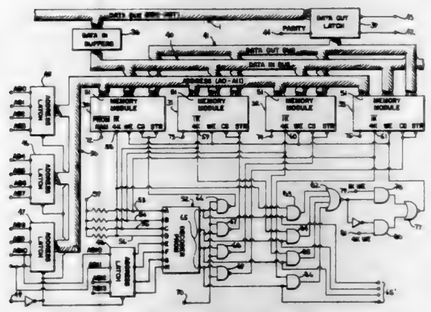
MEMORY CIRCUIT FOR PROGRAMMABLE MACHINES

Valdis Grants, Lyndhurst; Ron Schultz, Willoughby, and Timothy E. McAdams, Willowick, all of Ohio, assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed May 1, 1979, Ser. No. 35,068

Int. Cl.³ G06F *13/06*; **G11C** *5/06, 7/00, 9/00*

U.S. Cl. 364—900 **9 Claims**



1. A memory circuit which comprises:

a set of memory modules, each module having address terminals for receiving a multi-bit address code, each module having a data terminal, each module having an enable terminal for receiving an enable signal which enables the module to respond to the multi-bit address code and couple data through the data terminal, and each module having means for generating a size feedback signal which is indicative of the number of separate, contiguous addresses required by the memory module; and

a decoder circuit having a first input connected to receive at least one bit of the multi-bit address code applied to said memory modules and a set of second inputs each of which second inputs is connected to receive the size feedback signal from a respective one of said memory modules, and in which said decoder circuit includes a set of output terminals, each of which is connected to a respective one of said memory module enable terminals;

wherein said decoder circuit is operable in response to an applied address code and the size feedback signals generated by said memory modules to generate an enable signal at selected ones of its output terminals and to thereby enable each memory module when an address is applied to the memory module which lies within its allocated address space.

4,281,393

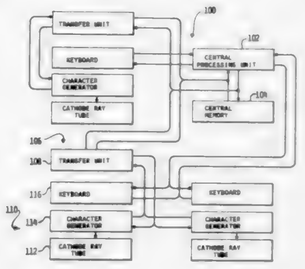
PROGRAMMABLE COMPUTER TERMINAL SYSTEM

Ephraim Gitelman, Needham; Glendon P. Marston, Manchester, and Peter A. Bird, Winchester, all of Mass., assignors to Computek, Inc., Burlington, Mass.

Continuation of Ser. No. 805,120, Jun. 9, 1977, abandoned. This application Aug. 10, 1979, Ser. No. 65,552

Int. Cl.³ G06F *3/14*

U.S. Cl. 364—900 **2 Claims**



1. An input-output terminal for operative connection to a digital data processor, said terminal comprising:

(a) a cathode ray tube including a source for generating an electron beam, a screen on which different point locations are illuminated by impingement of said electron beam at different times, a horizontal control and a vertical control for positioning said electron beam with respect to said screen, and a video control for allowing and preventing said impingement of said electron beam on selected ones of said different point locations at selected ones of said different times;

(b) a character generator for data display signals, said character generator including a sync drive for generating sync signals and a read-only memory for generating video signals, said sync signals being applied to said horizontal control and said vertical control in order to establish a succession of groups of raster lines of said point locations, said video signals being applied to said video control in order to provide serial indications representing the presence and absence of dots at said point locations, a restricted matrix of rows and columns of said dots being established by said readonly memory in accordance with the configuration of a character, a sequence of such restricted matrices constituting the configurations of a row of characters in a group of raster lines, each of said raster lines of said group extending continuously the full width of said row of characters through corresponding rows of said sequence of restricted matrices;

(c) a transfer unit operatively connected to said digital data processor for access to said digital data processor in terms of data storage signals and operatively connected to said character generator for access to said character generator

in terms of data buffer signals, said transfer unit including a plurality of registers containing character indicia and link indicia, said character indicia including grid indicia representing character format information and data indicia representing character identity information, said link indicia organizing said character indicia in a linked list, said character indicia corresponding to said data storage signals from said digital data processor and corresponding to said data buffer signals to said character generator;

(d) said character generator including: a clock pulse generator for producing pulses corresponding to said point locations; a point counter and decoder responsive to said clock pulse generator; a column counter and decoder responsive to said point counter and decoder; a line counter and decoder responsive to said column counter and decoder; a row counter and decoder responsive to said line counter and decoder; a first shift register responsive to said transfer unit, said point counter and decoder, and said line counter and decoder; an attribute delay register responsive to said first shift register; a plurality of point matrix memories responsive to said first shift register, said line counter and decoder, and said attribute delay register; a second shift register responsive to said point counter and decoder and to said plurality of point matrix memories; and a video logic circuit responsive to said second shift register, said attribute delay register, said column counter and decoder, and said row counter and decoder; said horizontal control being responsive to said column counter and decoder; said vertical control being responsive to said row counter and decoder; and said video control being responsive to said video logic;

(e) said transfer unit including: a control unit; a latch register responsive to said control unit and to memory data from said digital data processor; a link register responsive to said latch register; a first address register; a second address register responsive to said link register; a first gate responsive to said control unit, said first address register, and said second address register in order to provide signals representing a memory address; a configuration register responsive to said latch register to provide signals representing configuration parameters; a second gate responsive to said latch register; a cursor register responsive to said latch register; an attribute storage responsive to said second gate; a first shift register responsive to said second gate and to said control unit; an end-of-row logic circuit responsive to said second gate; an attribute logic circuit responsive to said cursor register and said attribute storage; and a second shift register responsive to said attribute logic circuit in order to provide signals representing attributes.

4,281,394

MONITORING AND SIGNALLING SYSTEM INCLUDING APPARATUS FOR PROCESSING BINARY SIGNALS HAVING MULTIPLE MESSAGES

Jeffrey R. Fox, Concord; Arthur Margolies, Ashland; Rob Mooleabeek, Dover, and Martin L. Resnick, Chestnut Hill, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 14, 1979, Ser. No. 94,015
Int. Cl.³ G06F *11/08, 11/30*
U.S. Cl. 364—900 **25 Claims**

1. In a monitoring and signalling system, apparatus comprising:

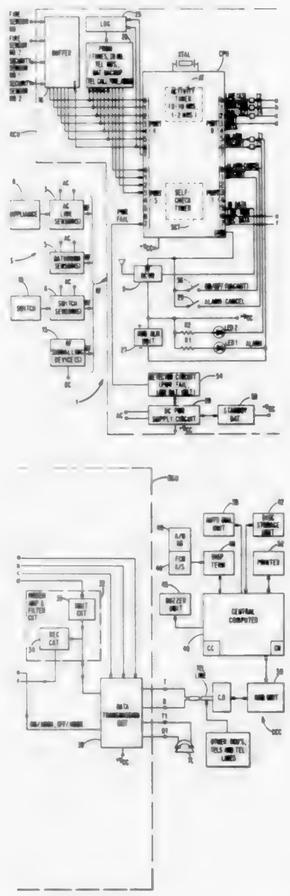
sensor means operative to monitor the occurrence of a particular activity and in response thereto to produce a binary coded signal including a predetermined number of messages in succession within a predetermined first fixed period of time, each of said messages including a binary word, and successive ones of the binary words having an interword therebetween; and

processing means operative to receive and process the binary coded signal produced by the sensor means, said processing means comprising:

(a) data storage means for storing bits of data;

(b) means operative to detect the bits of messages of the coded signal and operative in response to detecting a bit of a first logic value to place a bit of that value in the data storage means, and operative in response to detecting a bit of a second logic value to place a bit of that value in the data storage means;

(c) means operative to detect in interword in the coded signal and in response thereto to examine the data storage means to determine the presence in the data storage



means of a predetermined quantity of data related to the number of bits of a binary word in a message; and

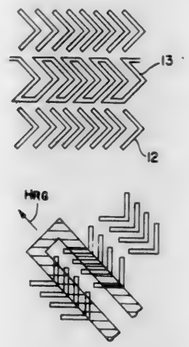
(d) test means operative if the data storage means contains the predetermined quantity of data therein as derived from the processing of one message of the coded signal to test the data as to its satisfaction of predetermined requirements for acceptance of the data and, if the data satisfies the predetermined requirements, to establish a predetermined second fixed period of time within which like data of the next succeeding message of the coded signal must be derived from the next succeeding message and satisfy the predetermined requirements for acceptance of the data.

4,281,395

MAGNETIC BUBBLE MEMORY DEVICE

Ryo Suzuki, Kokubunji; Atsushi Asano, Tokyo; Masatoshi Takeshita, Hachioji, and Teruaki Takeuchi, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 28, 1978, Ser. No. 973,819
Claims priority, application Japan, Jan. 6, 1978, 53/211
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—15 **8 Claims**



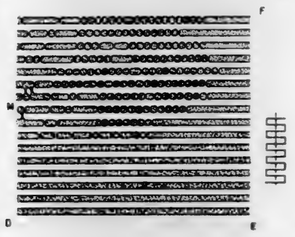
1. A magnetic bubble memory device comprising: a layer of magnetic material in which a magnetic bubble is movable in response to the rotation of a rotating magnetic field; a plurality of minor loops provided on said layer, each minor loop having first and second ends; a first major line connected through a first gate to at least one of said first ends of said minor loops; a nucleation type magnetic bubble generator provided at one end of said first major line; a second major line connected through a second gate to at least a said second end of said minor loops; and a magnetic bubble detector provided at the other end of said second major line; wherein said generator is arranged by geometrical rotation with respect to said detector in a chip to operate said generator and said detector at different phases in the same cycle of rotation of said rotating magnetic field.

4,281,396

MAGNETIC STRIP DOMAIN MEMORY SYSTEM

Jan Roos, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 9, 1977, Ser. No. 859,058
Claims priority, application Netherlands, Jan. 25, 1977, 7700270
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—29 **12 Claims**



1. A memory device comprising:

a domain layer of magnetic material having a two-dimensional configuration of strip domains therein, said strip domains having domain walls extending substantially perpendicular to a first coordinate direction in the layer and having a direction of magnetization substantially transverse to the layer, adjacent strip domains having substantially oppositely oriented magnetizations;

generating means for generating in the domain layer one or more pairs of domain walls extending substantially along the first coordinate direction; and

detector means for detecting pairs of domain walls extending substantially along the first coordinate direction;

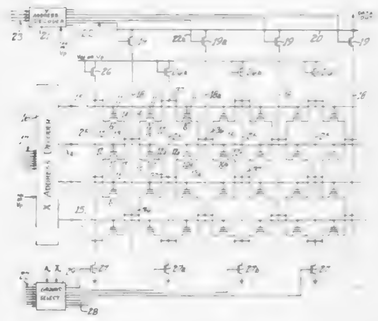
wherein the pairs of domain walls extending substantially along the first coordinate direction each comprise an interruption in a strip domain, said interruption extending substantially along the first coordinate direction to the adjacent strip domains of opposite magnetization, said interruptions each comprising a region whose magnetization is substantially opposite to that of the interrupted strip domain.

4,281,397

VIRTUAL GROUND MOS EPROM OR ROM MATRIX

Joseph H. Neal, Missouri City, and Paul A. Reed, Houston, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 29, 1979, Ser. No. 88,789
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—189 **9 Claims**



1. A semiconductor memory device comprising an array of rows and columns of memory cells in a face of a semiconductor body, each cell including a transistor having a control electrode and a current path between first and second electrodes, a plurality of row lines, the control electrodes of all transistors in a row being electrically connected to a row line, a plurality of column lines, alternate first and second column lines adjacent one another functioning as ground lines and output lines, respectively, all of the first electrodes of adjacent transistors in adjacent columns of cells being connected to a first column line functioning as a ground line, all of the second electrodes of adjacent transistors in adjacent columns of cells being connected to a second column line functioning as an output line, row decode means for selecting row lines for accessing the array, and column decode means for selecting first column lines and selecting second column line for accessing the array.

4,281,398

BLOCK REDUNDANCY FOR MEMORY ARRAY

Vernon G. McKenny, and David L. Taylor, both of Carrollton, Tex., assignors to Mostek Corporation, Carrollton, Tex.

Filed Feb. 12, 1980, Ser. No. 120,929
Int. Cl.³ G11C *13/00, 11/40*
U.S. Cl. 365—200 **6 Claims**

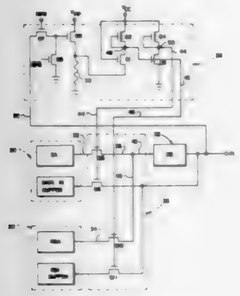
1. A fault tolerant memory system comprising:

a plurality of primary memory blocks having data storage cells arranged in rows and columns;

a redundant memory block of data storage cells arranged in rows and columns;

data detection means coupled to each primary and redundant memory block, said data detection means each including a data output node for separately conducting data from the storage cells of the block to which it is coupled to an external data terminal in response to row and column address signals;

a multiplexer circuit coupled to the data detection means for each primary memory block and to the corresponding external data terminal, each multiplexer circuit having primary and redundant data input nodes and a data output node, each primary data input node being coupled to the data output node of the corresponding data detection



means, each redundant data input node being coupled to the data output node of the redundant memory block data detection means, and each multiplexer data output node being separately coupled to the corresponding external data terminal; and,

independently programmable means for selectively rendering each multiplexer circuit from a first stable state to a second stable state, a first data path being established from the primary data node of the corresponding primary memory block to the corresponding external data terminal when the multiplexer citcuit is in its first stable state, and a second data path being established from the redundant data node of the redundant memory block to the corresponding external data terminal when the multiplexer is in its second stable state.

4,281,399

SEMICONDUCTOR MEMORY DEVICE

Shin'ichiro Yamamoto, Yokohama, Japan, assignor to VLSI Technology Research Association, Japan

Filed Jul. 20, 1979, Ser. No. 59,127
Claims priority, application Japan, Jul. 25, 1978, 53-90609
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—203 **12 Claims**

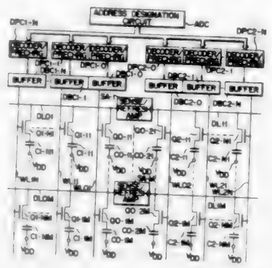
7. A semiconductor memory device comprising:

memory cells each including a single field effect transistor and a single capacitor, and being arranged in a matrix fashion;

a plurality of word lines each connected to the gate terminals of those of said field effect transistors which are arranged on the same column;

a plurality of digit lines which are each connected commonly to one of the drain and source terminals of said field effect transistors arranged on the same row and are connected to a first power source terminal to be selectively charged to a power source voltage level; and

means for writing data into said capacitor of a selected one of said memory cells at a voltage equal to said power source voltage level comprising a plurality of energizing circuits which are each connected to a corresponding one of said word lines, and which energize a word line corresponding to said selected memory cell to a higher voltage level than said power source voltage level when a digit



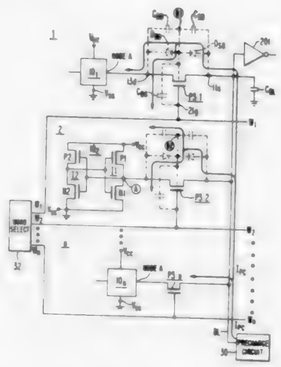
line corresponding to said selected memory cell is energized to said power source voltage level.

4,281,400

CIRCUIT FOR REDUCING THE LOADING EFFECT OF AN INSULATED-GATE FIELD-EFFECT TRANSISTOR (IGFET) ON A SIGNAL SOURCE

Henry I. Schanzer, Edison, and Roger G. Stewart, Neshanic Station, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 28, 1979, Ser. No. 108,222
Int. Cl.³ G11C *7/00, 11/40*
U.S. Cl. 365—203 **9 Claims**



1. In combination with an insulated-gate field-effect transistor (IGFET) having source and drain regions spaced apart by a substrate region, and wherein said source region forms a first rectifying junction with said substrate region and said drain region forms a second rectifying junction with said substrate region, said first and second junctions being poled to conduct current in opposite direction and wherein said substrate region is electrically floating, the improvement comprising:

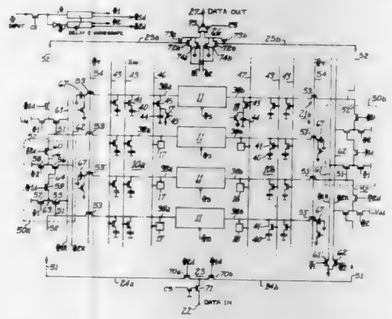
means for first applying to said source region a signal making a first transition from a first voltage (V_1) to a second voltage (V_2) of a polarity and magnitude to forward bias said source-to-substrate junction for placing said substrate region at a potential close to said second voltage and for then applying a signal making a second transition of a polarity opposite to said first transition for reverse biasing said source-to-substrate junction and isolating said substrate region from said source region.

4,281,401

SEMICONDUCTOR READ/WRITE MEMORY ARRAY HAVING HIGH SPEED SERIAL SHIFT REGISTER ACCESS

Donald J. Redwine; Lionel S. White, Jr., and G. R. Mohan Rao, all of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 23, 1979, Ser. No. 96,957
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—222 **10 Claims**



1. A semiconductor memory device fabricated in a single MOS/LSI integrated semiconductor circuit, comprising:

an array of M rows and N columns of random access type memory cells, where M and N are integral powers of two;

N sense amplifiers each one connected to one of the columns;

a serial shift register split into two separate registers, each separate register having N/2 stages, one stage associated with each of said columns;

two separate sets of transfer means for loading bits into the two shift registers from alternate ones of said columns in response to a transfer signal;

means for receiving an address from a source external to the device and for addressing the array for selecting one of the rows for actuation; and

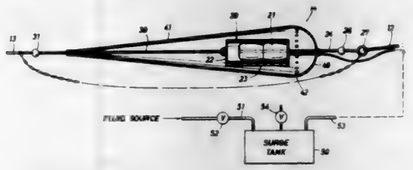
means for transmitting data serially out of said register to external, the data being alternated bit-by-bit from the two separate registers.

4,281,402

MARINE CABLE DECOUPLER

Vitold R. Kruka, and Charles W. Ruth, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 2, 1979, Ser. No. 54,220
Int. Cl.³ G01V *1/38*
U.S. Cl. 367—15 **13 Claims**



1. A decoupling apparatus for substantially isolating a towed seismic cable from noise transmitted along the tow cable from the towing vessel, said decoupling apparatus comprising:

a fluid spring means, said spring means being disposed in said tow cable between said tow vessel and said seismic cable;

means coupled to spring means for minimizing the spring constant of the spring means; and

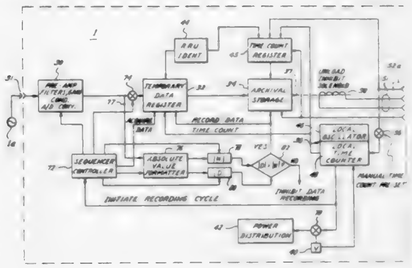
said spring means being coupled between one end of said seismic cable and one end of said tow cable whereby said seismic cable is isolated from the tow cable.

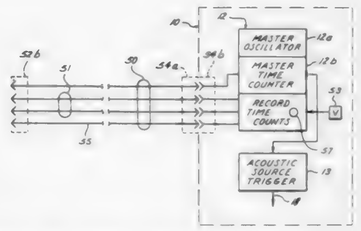
4,281,403

SEISMIC DATA RECORDING METHOD AND APPARATUS

Lee E. Siems, and James A. Porter, both of Houston, Tex., assignors to Litton Resources Systems, Inc., Houston, Tex.

Filed Sep. 12, 1979, Ser. No. 74,587
Int. Cl.³ G01V *1/24*
U.S. Cl. 367—76 **21 Claims**





1. A seismic data acquisition system comprising:

a central station including a master clock;

a plurality of remote recording units for receiving and recording seismic signals as a function of time during a recording period when the remote recording units are incommunicado with respect to the central station;

a local clock associated with each remote recording unit;

means for determining by direct comparison the relative time errors that accumulate between the master clock and each local clock during the recording period

means responsive to the relative determined time errors for determining the pro rata portion of the time error associated with the time of each enablement of each remote recording unit

apportioning a pro-rata portion of the respective accumulated time errors associated with each said local clock to the initiation time of each recording cycle.

4,281,404

DEPTH FINDING APPARATUS

Ray E. Morrow, Jr., and Richard W. Woodson, both of Salem, Oreg., assignors to Morrow Electronics, Inc., Salem, Oreg.

Filed Aug. 27, 1979, Ser. No. 69,858
Int. Cl.³ G01S *15/14*
U.S. Cl. 367—108 **12 Claims**

1. Depth finding apparatus comprising:

a hand held self-contained housing having a water immersible nose portion at the forward end thereof carrying a sonic transducer adapted to transmit and receive sonic impulses in a direction substantially forward of said nose portion within a body of water into which said nose por-

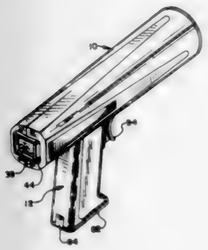
tion is submerged, such that the direction of transmission and reception of sonic impulses within said body of water is predetermined by the manual orientation of said housing with respect to the body of water,

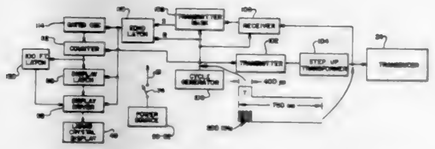
transmitting and receiving circuitry located within said housing and having electrical connection with said transducer for operating the same to transmit sonic impulses beneath the surface of said body of water and receive echoes from beneath said surface, wherein an interior portion of said housing containing said circuitry is substantially watertight,

means for providing power within said housing for energizing said transmitting and receiving circuitry,

and manually controllable switch means for causing said transmitting and receiving circuitry respectively to initiate transmission of sonic impulses by said transducer and the reception of echoes from beneath said surface,

said housing further including a display means mounted rearwardly of said nose portion above the water surface when said nose portion is submerged for providing a visibly readable indication to the operator of the apparatus, said display means being coupled to the receiving circuitry within said housing for providing a depth reading indication corresponding to echoes received from beneath said surface,





said housing including a substantially barrel-shaped portion having said nose portion on the forward end thereof and having said display means mounted on the opposite end thereof and including a hand grip portion extending outwardly from the barrel-shaped portion,

a battery cartridge slidably receivable into the hand grip portion from the end thereof remote from said barrel-shaped portion, said battery cartridge carrying batteries comprising said means for providing power, wherein said battery cartridge is provided with contact means for making connection with said transmitting and receiving circuitry within said housing when said battery cartridge is slid into position, said battery cartridge including sealing means proximate the end thereof remote from said barrel-shaped portion for forming a watertight seal with said hand grip portion when said battery cartridge is in place,

said battery cartridge including a trigger lever extending upwardly from the remote end of said battery cartridge and located externally of the watertight interior, said trigger lever having a trigger handle and a magnet carried thereby, said trigger handle being flexible for moving said magnet toward self hand grip portion, said switch means comprising reed switch means carried by said battery cartridge within the interior of said hand grip portion and adapted for connecting said batteries to said transmitting and receiving circuitry when said magnet is positioned by said trigger arm in close proximity to the reed contacts thereof.

11. Depth finding apparatus comprising:

a sonic transducer adapted to transmit and receive sonic impulses in a body of water,

transmitting and receiving circuitry having electrical connection with said transducer for operating the same to transmit periodic sonic impulses beneath the surface of said body of water and receive echoes from beneath said surface,

display means for providing a readout to the operator of the apparatus, said readout being indicative of depth information corresponding to echoes received,

a counter for measuring the time for an echo to return, said counter being initiated in counting operation in time relation with the transmission of a sonic impulse,

means for receiving the output of the counter and coupling the same to said display means when an echo is received,

and means for disabling said means for receiving the output of said counter and coupling the same to said display means in response to a predetermined count of said counter in excess of a predetermined value corresponding to the maximum count displayable by said display means.

4,281,405

REDUCTION OF ENERGY CONSUMPTION OF ELECTRONIC TIMEPIECE

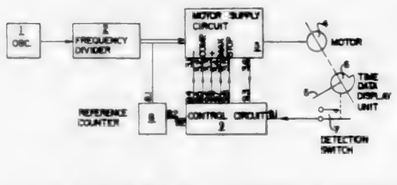
Rene Besson, Neuchatel, and Igor Scherrer, Colombier, both of Switzerland, assignors to Ebauches S.A., Switzerland

Filed Jun. 20, 1979, Ser. No. 50,340

Claims priority, application Switzerland, Jun. 20, 1978, 6715/78

Int. Cl.³ G04B 9/00

U.S. Cl. 368—66 **10 Claims**



1. A method for reducing the consumption of electrical energy in an electronic time piece wherein a motor is supplied by electrical energy for driving a time data displaying means in accordance with a time data signal, comprising the steps of:

periodically providing a reference signal in response to said data signal;

reducing said energy in response to said reference signal;

detecting a possible error in position of said displaying means on the basis of said time data signal;

correcting said possible error; and

subsequently adjusting said energy in dependance of said detecting.

4,281,406

WATER-PROOF CASE FOR DIGITAL ELECTRONIC TIMEPIECES

Eiichiro Tanaka, Tokorozawa, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Nov. 9, 1979, Ser. No. 92,932

Claims priority, application Japan, Nov. 22, 1978, 53-144784

Int. Cl.³ G04C 19/00, 23/02; G04B 37/00

U.S. Cl. 368—82 **9 Claims**

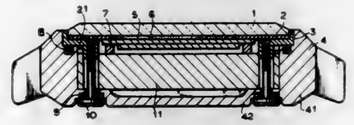
1. A water-proof case for use in digital display timepieces comprising:

(a) a cover plate;

(b) a panel cover coupled with the back surface of the cover plate;

(c) a display panel arranged on the back side of the panel cover and the periphery of said display panel being concealed by said panel cover;

(d) a coupling member attached to the back surface of said panel cover as a unitary structure and having at least one hole therein, the hole being adapted to grip a fastener;



(e) a case body and a back cover being of a one-piece construction formed as a unitary structure;

(f) an aperture in said back cover corresponding to each of said holes in the coupling member, each aperture being coaxially positioned with each hole;

(g) each aperture being provided with a fastener, the fastener penetrating the back cover through one of said apertures and being gripped by the corresponding hole in the coupling member.

4,281,407

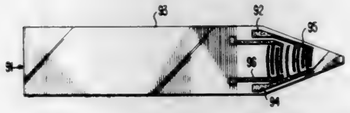
SURFACE ACOUSTIC WAVE PICKUP AND RECORDING DEVICE

Soitiro Toeima, Machida, Japan, assignor to RCA Corporation, New York, N.Y.

Filed Dec. 14, 1979, Ser. No. 103,444

Int. Cl.³ G11B 3/00; H04R 17/04

U.S. Cl. 369—130 **10 Claims**



1. In a disc record or playback system for recording or retrieving information in the form of surface variations in a disc-shaped record medium, a surface acoustic wave stylus, comprising:

an elongated member tapered to a tip at one end, said member being arranged to support the propagation of surface acoustic wave in at least one region of said member; and

electrode means provided in the vicinity of said tip for focusing surface acoustic waves to said tip.

4,281,408

DIGITAL SIGNAL PROCESSING ARRANGEMENT FOR CONTROLLING THE LEVEL OF A FREQUENCY-DIVISION MULTIPLEX SIGNAL

Georges Bonnerot, Les Ulis, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 21, 1979, Ser. No. 41,032

Claims priority, application France, Jun. 8, 1978, 78 17126

Int. Cl.³ H04J 1/05

U.S. Cl. 370—70 **2 Claims**

1. A level control arrangement for controlling the level of a frequency-division multiplex signal which includes a pilot signal, the level control arrangement comprising

an amplifier having an adjustable gain factor and having means responsive to a setting signal for adjusting the gain factor thereof,

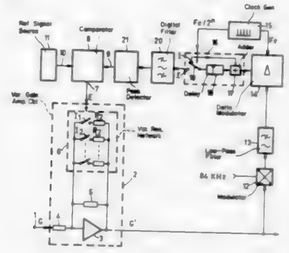
setting signal-generating means coupled to the output of said amplifier and comprising:

=frequency transposition means for transposing the frequency range of the multiplex signal to lower the frequency of the pilot signal;

=a low-pass filter which has its input coupled to the output of the frequency transposition means;

=converting means for converting an analog signal into a digital signal, the input of the converting means being connected to the output of said low-pass filter;

=digital filter means, having an input connected to the output of the converting means, for generating a digital output signal which is characteristic of said pilot signal; and



=means for comparing the peak value of the output of the digital filter means with a reference level to produce the setting signal for application to the amplifier;

which level control arrangement is characterized in that said converting means comprise:

a delta modulator for generating a delta-modulation signal, the delta modulator being controlled by sampling pulses occuring with a sampling rate Fe and which has its input connected to the output of the low-pass filter; and

means for converting the delta-modulation signal into a permuted signal whose code words occur with a frequency $Fe/2^n$, n representing an integer.

4,281,409

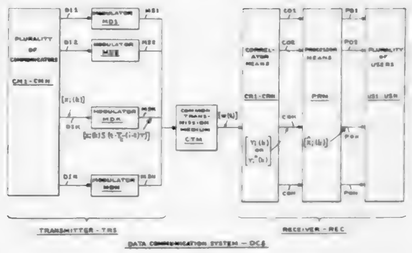
METHOD AND APPARATUS FOR MULTIPLEX BINARY DATA COMMUNICATION

Kenneth S. Schneider, 134 Birchwood Park Dr., Jericho, N.Y. 11753

Filed Jun. 25, 1979, Ser. No. 50,927

Int. Cl.³ H04J 13/00, 11/00

U.S. Cl. 370—18 **26 Claims**



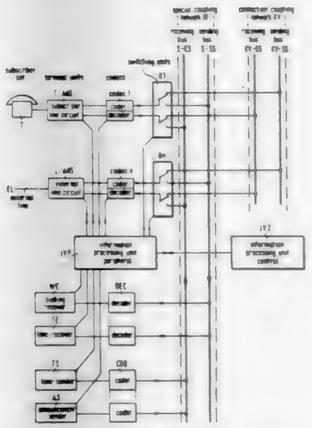
11. In a data communication system wherein a plurality of communicators at a transmitter emit bits of information to respective modulators, each operating with a modulation signal, which transmit bit-modulated signals to a plurality of users, each associated with a definite communicator at a receiver over a common transmission medium, the modulation signals being mutually linearly independent, the method of signal processing comprising the steps of first sequentially transmitting from said transmitter to said receiver a modula-

tion signal from each modulator, at the receiver storing a representation of each received modulation signal, and utilizing each stored representation to detect bits for the respective users in a stream of modulated signals.

4,281,410
CIRCUIT ARRANGEMENT FOR TELECOMMUNICATIONS ESPECIALLY TELEPHONE INSTALLATIONS THAT SWITCH THROUGH DIGITALLY BY TIME DIVISION

Manfred Agricola, Zeuläckerstrasse 10B, 6000 Frankfurt 60; Klaus Dietze, Niedwiesenstr. 25a, 6000 Frankfurt 50; Horst Mayr-Stein, Spiesfeldstr. 1, 6382 Friedrichsdorf; Karl-Heinz Reimer, Brandenburgerstr. 1, 6051 Ober-Roden; Andreas Reinbold, Jägerstrasse 9, 6457 Maintal 3; Adolf Schmid, Hammarskjöldring 27, 6000 Frankfurt 50, and Johannes-Georg Schoenig, An der Lübe 10, 6 Frankfurt 90, all of Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,371
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1978, 2819119
Int. Cl.³ H04J *3/12*
U.S. Cl. 370—110 **6 Claims**



1. In a digital telephone exchange with time division multiplex switching having a plurality of terminal units for the connection of subscriber lines and external lines wherein each terminal unit is individually connected with external lines and with a codec, said codec comprising a coder and decoder for the analog to digital and digital to analog conversion of the subscriber signals and wherein the digital switching is performed via a connection coupling network, said coupling network comprising a sending and receiving bus, whereby the coder of each codec has access to said sending bus and the decoder of each codec has access to said receiving bus and the switching within the connection coupling network is performed by switching units controlled by a peripheral and by a central information processing unit, the improvement comprising:

a second special coupling network which consists of a sending and a receiving bus;

a plurality of receivers such as dialling receivers and tone receivers which are connected via decoders with the sending bus of said second special coupling network;

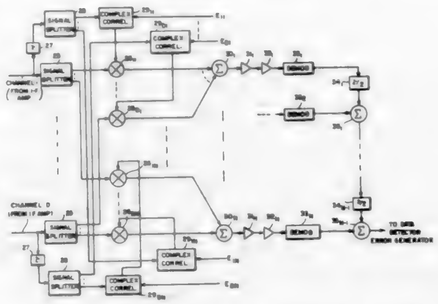
a plurality of senders such as tone senders and announcement senders which are connected via coders with the receiving bus of said second special coupling network; and

means for selectively switching the terminal units to the coupling network or to the second special coupling network.

4,281,411
HIGH SPEED DIGITAL COMMUNICATION RECEIVER

Jerrold L. Bona, Waltham; Paul F. Mahoney, Brighton, and Peter Monsen, Stow, all of Mass., assignors to Signatron, Inc., Lexington, Mass.

Filed Jun. 25, 1979, Ser. No. 51,722
Int. Cl.³ H04B *7/08*
U.S. Cl. 375—14 **9 Claims**



1. A receiver for processing signals transmitted through a dispersive medium from a transmitter and received in a plurality of diversity channels, said receiver comprising

forward transversal filter equalizer and combining means responsive to said received signals in each of said channels for processing said received signals to produce a combined demodulated weighted output signal, said forward transversal filter equalizer and combining means including weighting means associate with each said diversity channel and responsive to the received signal at said channel and to an error signal for producing a plurality of weighted signals at each said channel;

means for selectively combining said plurality of weighted signals to produce a plurality of combined weighted signals;

means for demodulating each of said plurality of combined weighted signals to produce a plurality of demodulated weighted signals; and

time delay and combining means responsive to said demodulated weighted signals for combining said demodulated weighted signals at selected time spaced intervals to produce said combined demodulated weighted output signal; and

means responsive to said combined demodulated weighted output signal to produce said error signal.

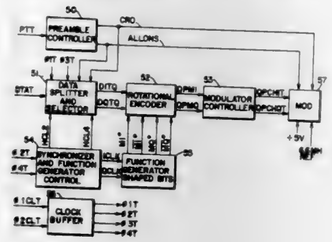
4,281,412
METHOD OF AND APPARATUS FOR TRANSMITTING AND RECOVERING OFFSET QPSK MODULATED DATA

Frank A. Wissel, Cincinnati, Ohio; Donald E. Smith, Melbourne, Fla.; Robert L. Martinet, Roanoke, Va.; Mark J. Dapper, and Douglas A. Kilman, both of Cincinnati, Ohio, assignors to Cincinnati Electronics Corporation, Cincinnati, Ohio

Filed Jul. 5, 1979, Ser. No. 54,902
Int. Cl.³ H03D *3/22;* **H04L** *27/22*
U.S. Cl. 375—86 **32 Claims**

1. A method of achieving bit timing references at a receiver for a carrier modulated by OQPSK, the modulation being achieved with a pair of orthogonal components, comprising transmitting the carrier with a constant reference phase modulation during a first interval, then during a second interval transmitting the carrier with rotational phase modulation representing binary bit values so that the orthogonal components phase modulate the carrier with a predetermined bit sequence at the receiver; responding to the carrier with constant phase modulation to lock the frequency and phase of a variable

frequency oscillator of a carrier recovery loop including a loop filter driven by outputs of orthogonal processing channels responsive to the oscillator; then responding to the carrier with rotational phase modulation to achieve bit synchronization at the receiver with the bits modulating the carrier while maintaining the frequency and phase lock; activating the carrier recovery loop to decision directed operation after achieving bit synchronization, the decision directed operation being

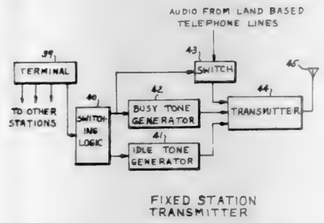


achieved by sampling and comparing components derived in the orthogonal channels in response to the carrier with rotational phase modulation; reducing the bandwidth of a filter used in achieving bit synchronization after the decay of transients in the carrier tracking loop resulting from a transition between locking of the loop and initiation of the decision directed operation; and then adjusting the bandwidth of the carrier tracking loop as a function of the quality of the received rotational modulated suppressed carrier.

4,281,413
MULTICHANNEL RADIO TELEPHONE SYSTEM

Robert T. Forrest, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Dec. 3, 1979, Ser. No. 99,551
Int. Cl.³ H04B *3/60*
U.S. Cl. 455—34 **8 Claims**

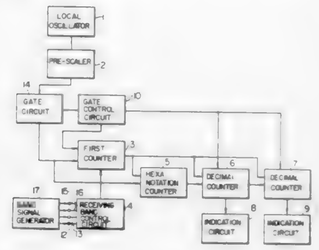


1. In a communication system having a plurality of spaced radio channels on which intermodulation signals may be present, and having means for transmitting an idle tone on a selected one of said channels to indicate that said one channel is idle and available for communication, the improvement comprising means for transmitting a busy tone on each channel that is being used for communication, whereby intermodulation signals which are present include both said idle channel tone and said busy tone, and said idle channel includes said idle tone without said busy tone.

4,281,414
RECEIVING CHANNEL NUMBER INDICATION SYSTEM FOR TELEVISION RECEIVER

Kiyoshi Fushimi, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 12, 1980, Ser. No. 148,782
Claims priority, application Japan, May 11, 1979, 54-56904
Int. Cl.³ H04B *1/26;* **G01R** *23/10*
U.S. Cl. 455—158 **3 Claims**



1. A receiving channel number indication system for a television receiver, comprising (a) a local oscillator having an output terminal for producing a local oscillation signal, (b) band signal generator means having an output terminal for producing a band signal representing a receiving band associated with the operation of said local oscillator, (c) a receiving band control circuit having an input terminal connected to the output terminal of said band signal generator circuit and an output terminal for producing an initial value signal set for each receiving band, (d) a gate circuit having an input terminal connected to the output terminal of said local oscillator and an output terminal for producing an output signal obtained by controlling the passage of said local oscillation signal, (e) a first counter having an input terminal connected to the output terminal of said gate circuit, an input terminal connected to the output terminal of said receiving band control circuit, and an output terminal for producing a control signal when the count of the output signal of said gate circuit exceeds the value of said initial value signal, (f) m base notation counter (m: channel separation number) having an input terminal connected to the output terminal of said gate circuit, an input terminal connected to the output terminal of said first counter, and an output terminal for producing the result of counting the output of said gate circuit in response to the control signal produced from said first counter, (g) an indicator having an input terminal connected to the output terminal of said m base notation counter, said indicator indicating the number of pulses applied thereto, and (h) control means for supplying driving pulses to said gate circuit, said first counter and said indicator.

4,281,415
DIGITAL TUNER

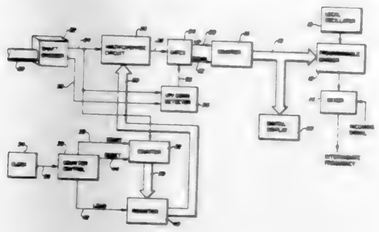
Joseph Rock, Jr., Frederick, Md., assignor to Norlin Industries, Inc., Deerfield, Ill.

Filed Sep. 24, 1979, Ser. No. 78,493
Int. Cl.³ H04B *1/40*
U.S. Cl. 455—173 **10 Claims**

1. A digital variable rate tuner drive circuit comprising:

tuning control means, means responsive thereto for providing a rate signal and a direction signal digitally indicating the rate of activity of said control means and the direction of effectiveness of said control means respectively, an incrementable and decrementable digital counter for storing a quantity which determines the frequency of a tuner, a digitally programmable multiplication circuit receiving said rate signal and digitally multiplying said rate signal by a selected factor, means for applying the output of said multiplication circuit for digitally incrementing or decrementing the quantity stored in said digital counter

whereby to raise or lower the tuner frequency, means responsive to said direction signal and arranged to cause said multiplication circuit output to increment said counter quantity when said tuning control means is effective in one direction and to decrement said counter quantity when said tuning control means is effective in the opposite direction, and means responsive to said rate signal to program said multiplication circuit to select a multiplication factor which is proportional to said rate signal, whereby the rate of change of tuner frequency is a function of the rate of activity of said control means.

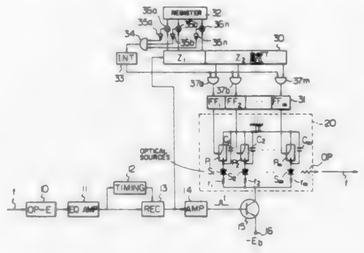


4,281,416
LIGHT SOURCE SYSTEM IN AN OPTICAL TRANSMISSION REPEATER
Norio Seki, Tokyo; Yohtaro Yatsuzuka, Yokohama, and Haruo Sakaguchi, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan
Filed Sep. 4, 1979, Ser. No. 72,283
Claims priority, application Japan, Sep. 8, 1978, 53-109766
Int. Cl.³ H04N 9/00
U.S. Cl. 455—601 **4 Claims**

1. An optical transmission repeater comprising of an optical-electrical converter connected to the input optical fiber for converting the optical energy from the optical fiber to the electrical energy, an equalization circuit for the equalization of the output electrical signal of said optical-electrical converter, a timing circuit for extracting the timing information in the output of said equalization amplifier, a regenerative recognition circuit for the regeneration of a pulse signal to be transmitted according to the output of said timing circuit, a power amplifier for the power amplification of the output of said regenerative recognition circuit, a optical source for generating the optical energy which is conducted to an output optical fiber, and a switching transistor for supplying the bias current to said optical source according to the output pulse from said power amplifier,

characterized in that

said optical source has a plurality of optical source elements, a plurality of switching circuits each corresponding to each optical source elements, means for connecting the optical energy from said plurality of optical source elements to a single output optical fiber, and control means for controlling said switching circuits so that only one of the switching circuits is in the ON state.



DESIGNS

JULY 28, 1981

259,970
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,421
Term of patent 14 years
Int. Cl. D02—07
U.S. Cl. D2—440





259,971
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,422
Term of patent 14 years
Int. Cl. D02—07
U.S. Cl. D2—440



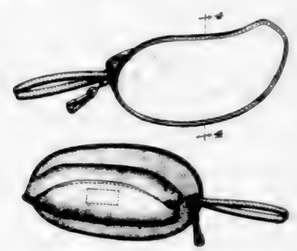


259,972
BELT BUCKLE
Ryk Van Brouwer, Los Angeles, Calif., assignor to Raintree Buckle & Jewelry, Inc., Los Angeles, Calif.
Filed Aug. 7, 1979, Ser. No. 64,427
Term of patent 14 years
Int. Cl. D02—07
U.S. Cl. D2—440





259,973
SKI GOGGLE CASE
Stanley Walasek, 1116 Colonial Way, Bridgewater, N.J. 08807
Filed Mar. 5, 1979, Ser. No. 17,689
Term of patent 14 years
Int. Cl. D3—02
U.S. Cl. D3—34



259,974
LUGGAGE BAG
Louis Schneider, Landsham; Hans A. Muth, Hechendorf, and Wolfgang Kloth, Munich, all of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Mar. 14, 1979, Ser. No. 20,317
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 11455
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71



259,975
CARRYING CASE FOR A TYPEWRITER
Angelo M. LaBarbera, Liverpool, N.Y., assignor to SCM Corporation, New York, N.Y.
Filed Dec. 14, 1979, Ser. No. 103,824
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—72



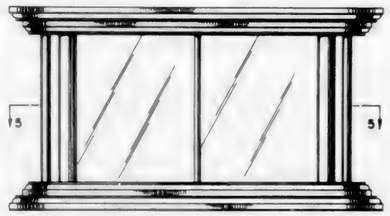
259,976
TOOTHBRUSH
Barry G. Seelig, Tuxedo Park, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Oct. 1, 1979, Ser. No. 80,837
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—25



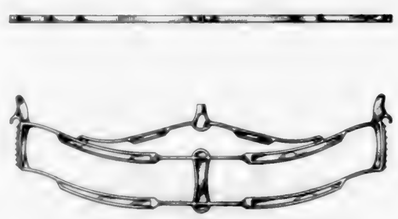
259,977
TOOTHBRUSH
Robert P. Porper, New York, N.Y., assignor to Plakadent International, Ltd., White Plains, N.Y.
Filed Dec. 28, 1978, Ser. No. 974,141
Term of patent 14 years
Int. Cl. D4—*02*
U.S. Cl. D4—25



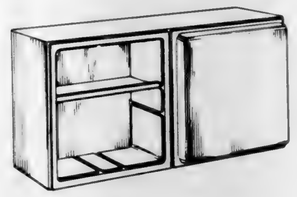
259,978
PICTURE FRAME
John F. Hamilton, Sr., P.O. Box 527, Laverne, Okla. 73848
Filed Mar. 12, 1979, Ser. No. 20,002
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—235



259,979
GARMENT HANGER BODY
Martin G. Hazenveld, Suezlaan 48, 5750 AB Deurne, Netherlands
Filed May 15, 1979, Ser. No. 39,137
Claims priority, application Benelux, Dec. 6, 1978, 53235-00
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—257



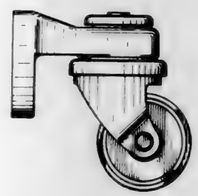
259,980
CABINET
Ludovico Magistretti, Milan, Italy, assignor to Diver-Viss S.r.l., Milan, Italy
Filed Oct. 27, 1978, Ser. No. 955,421
Claims priority, application Italy, May 31, 1978, 53369 A/78
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—127



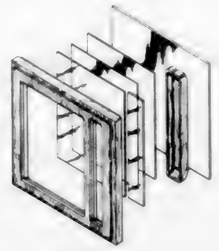
259,981
TABLE
Alan Alpert, 405 E. 54th St., Apartment 11B, New York, N.Y. 10022
Filed May 21, 1979, Ser. No. 40,683
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



259,982
CASTER
Kiyoaki Kameda, 2635 Omiya, Fujinomiya-shi, Japan
Filed Oct. 12, 1978, Ser. No. 950,669
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—191

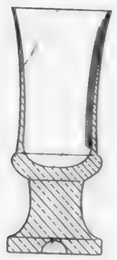


259,983
PICTURE FRAME
Joseph R. English, 1168 Oakleigh Dr., East Point, Ga. 30344
Filed Sep. 23, 1977, Ser. No. 835,977
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—234



259,984
GOBLET OR SIMILAR ARTICLE
Veli T. Wirkkala, Helsinki, Finland, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland
Filed Jul. 22, 1977, Ser. No. 818,164
Claims priority, application Finland, Feb. 28, 1977, 152
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—13

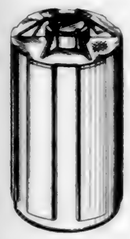




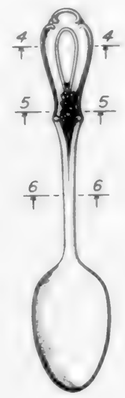
259,985
PLATE
Don Dramm, 110 Corson Ave., Akron, Ohio 44308, and John P. Mazzola, 143 W. Market St., Akron, Ohio 44303
Filed Jan. 22, 1979, Ser. No. 2,931
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—27



259,986
MULTI-COMPARTMENTAL CONDIMENT SHAKER
Sami Shemtov, 1228 E. 73rd St., Brooklyn, N.Y. 11234
Filed Feb. 21, 1978, Ser. No. 880,021
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D7—57



259,987
SPOON OR SIMILAR ARTICLE
Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Aug. 29, 1979, Ser. No. 70,811
Term of patent 14 years
Int. Cl. D07—*03*
U.S. Cl. D7—137



259,988
SPOON OR SIMILAR ARTICLE
Colin B. Richmond, II, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Aug. 29, 1979, Ser. No. 70,812
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—137

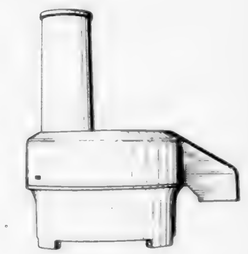


259,989
SPOON OR SIMILAR ARTICLE
Frank R. Perry, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Nov. 29, 1979, Ser. No. 98,502
Term of patent 14 years
Int. Cl. D07—*03*
U.S. Cl. D7—137



259,990
SPOON OR SIMILAR ARTICLE
Colin B. Richmond, II, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Nov. 29, 1979, Ser. No. 98,503
Term of patent 14 years
Int. Cl. D07—*03*
U.S. Cl. D7—137





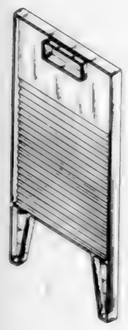


259,991
SPOON OR SIMILAR ARTICLE
Colin B. Richmond, II, Oneida, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Dec. 11, 1979, Ser. No. 102,460
Term of patent 14 years
Int. Cl. D07—*03*
U.S. Cl. D7—137



259,992
FOOD PROCESSOR ATTACHMENT FOR AN ELECTRIC FOOD MACHINE
Hartwig Kahlcke, Bad Soden, Fed. Rep. of Germany, assignor to Braun AG, Frankfurt am Main, Fed. Rep. of Germany
Filed Jul. 31, 1979, Ser. No. 62,856
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1979, 73 MR 8773
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—160

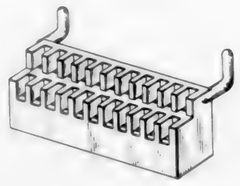
259,993
WASH BOARD
Walter A. Kunze, Corapolis, Pa., assignor to Cities Service Company, Tulsa, Okla.
Filed Apr. 12, 1979, Ser. No. 29,175
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—201



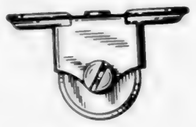
259,994
KEY BLANK
Joseph T. Salcedo, Rocky Mount, N.C., assignor to Unican Security Systems, Ltd., Montreal, Canada
Filed Nov. 8, 1979, Ser. No. 92,356
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—348



259,995
MULTIPOSITION PEGHOOK BRACKET
Marvin Zaro, New York, N.Y., assignor to Advertising Displays Company, Englewood, N.J.
Filed Dec. 20, 1979, Ser. No. 105,460
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—354



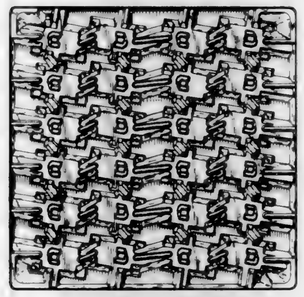
259,996
LUGGAGE ROLLER
Samuel R. Sheiman, Brooklyn, and Julius Sheiman, North Woodmere, both of N.Y., assignors to Crest Lock Company, Inc., New York, N.Y.
Filed Apr. 27, 1979, Ser. No. 33,868
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—375



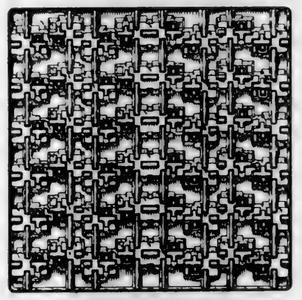
259,997
SURGICAL INSTRUMENT PEEL POUCH
Don D. Porteous, 2794 Moraga Dr., Los Angeles, Calif. 90024
Filed May 18, 1979, Ser. No. 40,336
Term of patent 14 years
Int. Cl. D9—*05*
U.S. Cl. D9—306



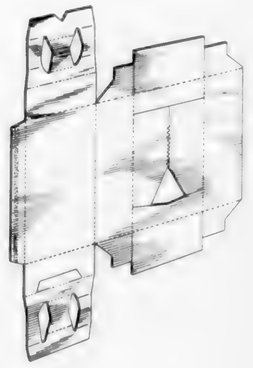
259,998
SHIPPING TRAY FOR DYNAMOELECTRIC MACHINES
Harold E. Wilkerson, DeKalb, Ill., assignor to General Electric Company, Fort Wayne, Ind.
Filed Jul. 13, 1979, Ser. No. 57,300
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—424



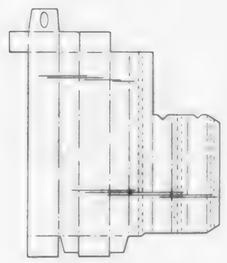
259,999
SHIPPING TRAY FOR DYNAMOELECTRIC MACHINES
Harold E. Wilkerson, DeKalb, Ill., assignor to General Electric Company, Fort Wayne, Ind.
Filed Jul. 13, 1979, Ser. No. 57,298
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—424



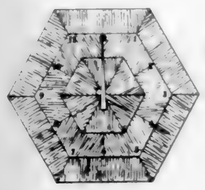
260,000
DISPLAY CARTON BLANK
Harry I. Roccaforte, Western Springs, Ill., assignor to Champion International Corporation, Stamford, Conn.
Filed Oct. 26, 1978, Ser. No. 954,990
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



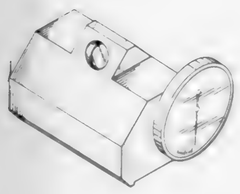
260,001
BLANK FOR FORMING AN EMERGENCY MEDICATION PACKAGE
Harold R. Jaeschke, Milwaukee, and Daniel J. Boyle, Hartland, both of Wis., assignors to Champion International Corporation, Stamford, Conn.
Filed Dec. 13, 1978, Ser. No. 969,250
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—433



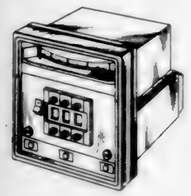
260,002
CLOCK
Robert F. Dokter, Rte. 2, Box 38A, Raymond, Wash. 98577
Filed Apr. 16, 1979, Ser. No. 30,115
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—21



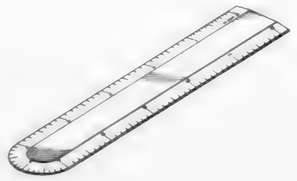
260,003
MELT POINT TESTER
John S. Burgett, P.O. Box 143, Farmington, Conn. 06032
Filed Jan. 23, 1980, Ser. No. 114,657
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—46



260,004
TEMPERATURE CONTROLLER
Yasuo Ohhasi, Kyoto; Minoru Ishikawa, Nagaokakyo; Kunio Nagata, Nagaokakyo, and Toshiaki Nagao, Nagaokakyo, all of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan
Filed Aug. 25, 1978, Ser. No. 936,917
Claims priority, application Japan, Feb. 28, 1978, 53-7635
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—50



260,005
RULER
Max M. Sandfield, 3928 Wentwood Dr., Dallas, Tex. 75225
Filed Oct. 5, 1979, Ser. No. 82,145
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—71



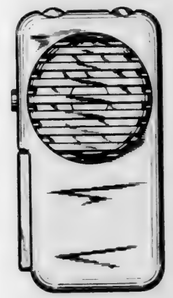
260,006
COMBINED SCALE AND TAPE MEASURE
Hon K. Woo, Flat C and D, Yip Fat Factory Bldg., 7th Floor, 77 Hoi Yuen Rd., Kwun Tong, Kowloon, Hong Kong
Filed Sep. 28, 1979, Ser. No. 80,090
Claims priority, application United Kingdom, Jun. 5, 1979, 990205
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—88



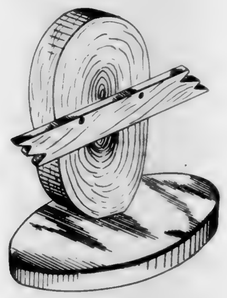
260,007
WEIGHING SCALE
Mark Leo, and Brenda Leo, both of 8381 Garden Grove Blvd., Apt. 6, Garden Grove, Calif. 92644
Filed Aug. 29, 1979, Ser. No. 70,813
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—92



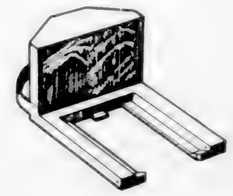
260,008
PERSONAL SECURITY ALARM
John Wistrand, New Canaan, Conn., assignor to Clairol Incorporated, New York, N.Y.
Filed Feb. 26, 1979, Ser. No. 15,514
Term of patent 14 years
Int. Cl. D10—*05*
U.S. Cl. D10—106



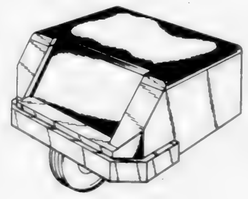
260,009
SCULPTURE
Zelda Zieselman, 32 Dzamba Grove, Stamford, Conn. 06903
Filed Mar. 12, 1979, Ser. No. 19,768
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—131



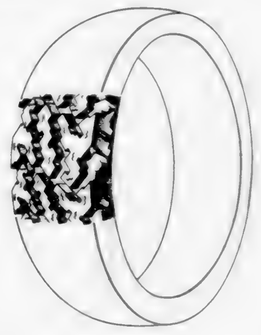
260,010
REMOTE CONTROLLED FORK TRUCK
Olof H. Lindfors, Goteborg, Sweden, assignor to Aktiebolaget Volvo, Goteborg, Sweden
Filed Nov. 24, 1978, Ser. No. 963,567
Claims priority, application Sweden, May 25, 1978, 781360
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D12—57



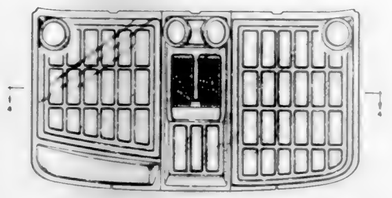
260,011
TRAILER
Neil E. Williams, 3101 Somerset Pl., Oklahoma City, Okla. 73116
Filed Jan. 17, 1979, Ser. No. 4,176
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—102



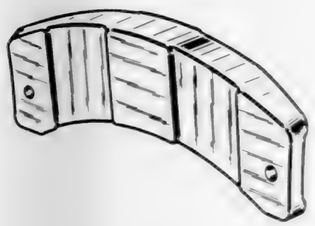
260,012
PNEUMATIC TIRE TREAD AND BUTTRESS
Gerassimos C. Candiliotis, Grosse Pointe Farms, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed Sep. 22, 1978, Ser. No. 945,038
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



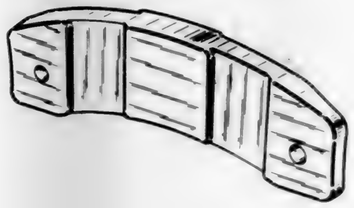
260,013
VEHICLE OVERHEAD CONSOLE
Fred O. Hoese, P.O. Box 41, Bulverde, Tex. 78216
Filed Jun. 18, 1979, Ser. No. 49,742
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—155



260,014
DISC BRAKE PAD YOKE
David D. Sheill, Farmington Hills, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Continuation of Ser. No. 878,958, Feb. 17, 1978, abandoned.
This application Oct. 12, 1979, Ser. No. 84,266
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—180



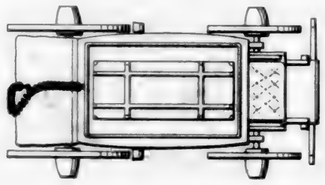
260,015
DISC BRAKE PAD YOKE
David D. Sheill, Farmington Hills, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Continuation of Ser. No. 879,662, Feb. 21, 1978, abandoned.
This application Oct. 12, 1979, Ser. No. 84,267
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—180



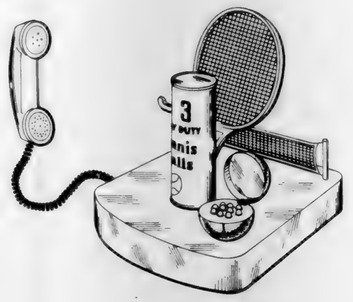
260,016
TELEPHONE
Wesley L. Thomas, 109 S. Catalina St., Los Angeles, Calif. 90004
Filed May 7, 1979, Ser. No. 36,594
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



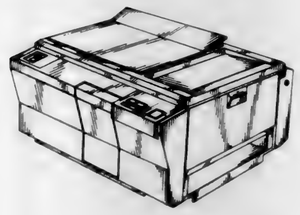
260,017
TELEPHONE
Wesley L. Thomas, 109 S. Catalina St., Los Angeles, Calif. 90004
Filed May 7, 1979, Ser. No. 36,596
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



260,018
TELEPHONE
Wesley L. Thomas, 109 S. Catalina St., Los Angeles, Calif. 90004
Filed Jul. 13, 1979, Ser. No. 57,280
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



260,019
ELECTROSTATIC COPIER
Yasuyoshi Onoue, and Toshio Yamamoto, both of Yokohama, Japan, assignors to Ricoh Company, Ltd., Japan
Filed Oct. 18, 1978, Ser. No. 952,576
Claims priority, application Japan, Apr. 28, 1978, 53-16830
Term of patent 3½ years
Int. Cl. D16—*03*
U.S. Cl. D16—31



260,020
WRITING INSTRUMENT
Thomas H. DuBois, Van Nuys, Calif., and Theodore J. Peters, East Williston, N.Y., assignors to Jonathan Bradley Pens, Inc., Long Island City, N.Y.
Filed Jan. 21, 1980, Ser. No. 115,245
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—42



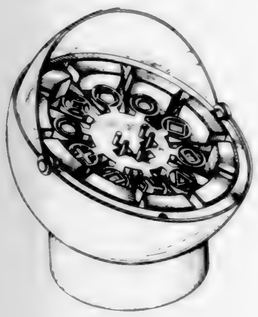
260,021
BALL-POINT PEN
Alain Carré, Paris, France, assignor to Waterman, S.A., Paris, France
Filed Jun. 11, 1979, Ser. No. 47,107
Claims priority, application France, Dec. 12, 1978, 77 111
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—49



260,022
DECAL FOR CHILDRENS' GARMENTS
Arlene Kingston, 5059 W. Bloomfield Lake Rd., West Bloomfield, Mich. 48033
Continuation-in-part of Ser. No. 811,479, Jun. 30, 1977, abandoned. This application Aug. 2, 1979, Ser. No. 63,325
Term of patent 14 years
Int. Cl. D20—*99*
U.S. Cl. D20—11



260,023
ELECTRONIC GAME CASING
David A. Psgasi, Minnetonka, and Peter D. Pook, Bloomington, both of Minn., assignors to Leisure Dynamics, Inc., Minneapolis, Minn.
Filed Aug. 17, 1979, Ser. No. 67,700
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—13



260,024
SERVING MACHINE FOR USE IN PRACTICING VOLLEYBALL
Retsuo Saito, apd Junji Nagase, both of Odawara, Japan, assignors to Kabushiki Kaisha Tokiwa Seisakusho, Odawara, Japan
Filed May 30, 1979, Ser. No. 43,830
Claims priority, application Japan, Jan. 29, 1979, 54-002962
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—210

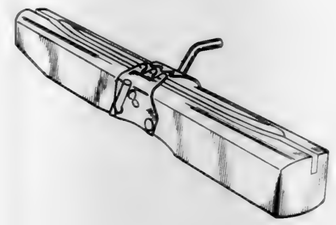




260,025
RACKET FRAME
David Epstein, 8A Ground Floor, Tung Shan Ter., Stubbs Rd., Hong Kong, Hong Kong
Filed Jan. 25, 1979, Ser. No. 6,962
Claims priority, application United Kingdom, Aug. 1, 1978, 985722/78
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—212



260,026
GUARD FOR SKATE BLADES
Ingvar Rosen, PL 2372, 790 30 Insjön, Sweden
Filed Nov. 6, 1978, Ser. No. 957,776
Claims priority, application Sweden, May 11, 1978, 781257
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—225



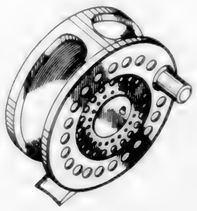
260,027
PLAYGROUND BOUNCE AND BEND
Donald S. Ament, Encino, and Duane S. Ament, Hollywood, both of Calif., assignors to Miracle Recreation Equipment Company, Grinnell, Iowa
Filed Sep. 20, 1979, Ser. No. 77,362
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—245



260,028
PLAYGROUND MERRY-GO-ROUND
Paul W. Ahrens, Grinnell, Iowa, assignor to Miracle Recreation Equipment Company, Grinnell, Iowa
Filed Oct. 1, 1979, Ser. No. 80,384
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—249



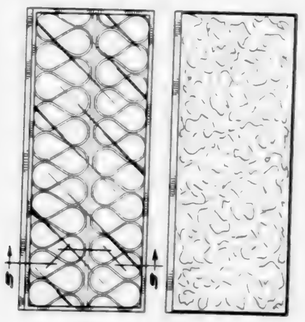
260,029
FISHING REEL
George E. Gehrke, P.O. Drawer 1204, Salida, Colo. 81201
Filed Oct. 9, 1979, Ser. No. 82,648
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



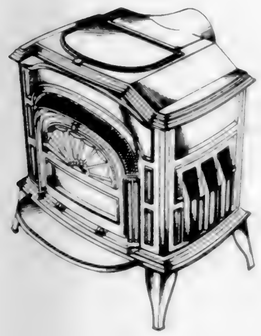
260,030
FISHING LURE
William T. Neavin, 3736 Berry Dr., Studio City, Calif. 91604
Filed Sep. 20, 1979, Ser. No. 77,386
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—28



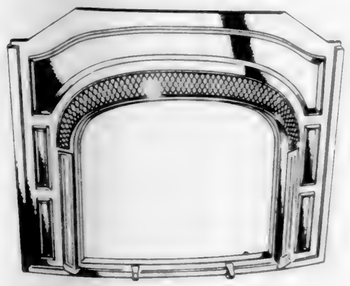
260,031
SOLAR HEATING PANEL
Darrell A. Pearson, Rock Falls, Iowa, assignor to Lord's Power Company, Inc., New Richland, Minn.
Filed Apr. 19, 1979, Ser. No. 31,495
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—72



260,032
WOOD BURNING STOVE
Duncan C. Syme, Chelsea, Vt., assignor to Vermont Castings, Inc., Randolph, Vt.
Filed Oct. 19, 1979, Ser. No. 86,519
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97



260,033
FRONT FOR A WOOD BURNING STOVE
Duncan C. Syme, Chelsea, Vt., assignor to Vermont Castings, Inc., Randolph, Vt.
Filed Oct. 19, 1979, Ser. No. 86,517
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—128



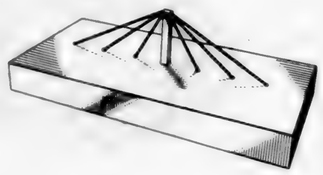
260,034
DOOR FOR A WOOD BURNING STOVE
Duncan C. Syme, Chelsea, Vt., assignor to Vermont Castings, Inc., Randolph, Vt.
Filed Oct. 19, 1979, Ser. No. 86,520
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—128



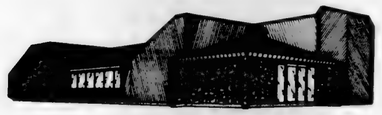
260,035
SPHYGMOMANOMETER PRESSURE GAUGE
Emanuel Berliner, Valley Stream, N.Y., assignor to Bristoline, Inc., Freeport, N.Y.
Filed Aug. 28, 1978, Ser. No. 937,146
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—21



260,036
CABLE STAY BUILDING
Adam T. Schildge, Jr., 899 Green St., San Francisco, Calif. 94133
Filed Dec. 10, 1979, Ser. No. 102,123
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—1



260,037
RESTAURANT BUILDING
Gerald S. Office, Jr., New Carlisle, Ohio, assignor to Ponderosa System, Inc., Vandalia, Ohio
Filed Oct. 29, 1979, Ser. No. 88,910
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—17



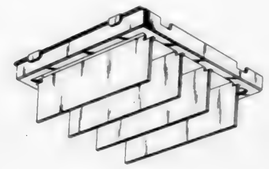
260,038
BUILDING
W. Don Wiley, P.O. Box 66, Foster, Okla. 73039
Filed Jun. 15, 1979, Ser. No. 49,020
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—24



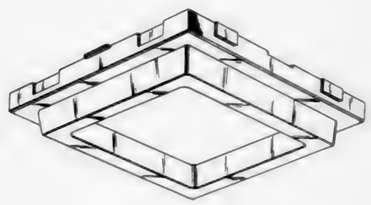
260,039
CEILING PANEL ELEMENT
Cornelis B. de Ruiter, Dordrecht, Netherlands, assignor to Hunter Douglas N.V., Curaco, Netherlands Antilles
Filed Nov. 9, 1978, Ser. No. 959,160
Claims priority, application Benelux, May 16, 1978, 5273501; May 16, 1978, 5273502
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



260,040
TRANSLUCENT INTERLOCKING PANEL MEMBER FOR CEILINGS OR THE LIKE
Edward J. Maresca, Fort Lauderdale, Fla., assignor to Cal-Mar Industries, Inc., Miami, Fla.
Filed Nov. 13, 1979, Ser. No. 93,393
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91



260,041
TRANSLUCENT INTERLOCKING PANEL MEMBER FOR CEILINGS OR THE LIKE
Edward J. Maresca, Fort Lauderdale, Fla., assignor to Cal-Mar Industries, Inc., Miami, Fla.
Filed Nov. 13, 1979, Ser. No. 93,394
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91



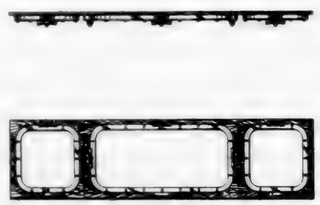
260,042
EXAMINATION LIGHT
Thomas Brendgord, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.
Filed Mar. 9, 1979, Ser. No. 19,269
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—65



260,043
PET FEEDING CENTER
Paul H. Robinson, 465 Legace Ave., Dorval, Quebec, Canada (H9S 5J6)
Filed Sep. 11, 1979, Ser. No. 74,430
Claims priority, application Canada, Mar. 23, 1979, 23-03-79-1; Apr. 27, 1979, 27-04-79-1
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16



260,044
AQUARIUM COVER
Osvaldo J. Lorenzo, Box 29545, 65th Infantry Station, Rio Piedras, P.R. 00929
Filed Sep. 19, 1979, Ser. No. 77,077
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—12



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AB Asea-Atom: *See—*
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Baumann, Hans, 4,280,955, Cl. 260-149.000.
Grychtol, Klaus, 4,280,964, Cl. 260-465.00D.
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.
Stoeckigt, Dieter; Kiessling, Dieter; Perner, Johannes; Trieselt, Wolfgang; and Trapp, Horst, 4,280,919, Cl. 252-135.000.
Strobele, Caljon H., 4,281,346, Cl. 358-166.000.

BASF Wyandotte Corporation: *See—*
Kienzle, Charles; Gebura, Stanley E.; and Boghosian, John W., 4,281,067, Cl. 521-56.000.
Langdon, William K., 4,281,199, Cl. 564-475.000.

Bassi, Aldo; Radaelli, Dario; and Rogora, Edoardo, to Alfa Romeo S.p.A. Automatic regulator of the idling in an internal-combustion engine. 4,280,460, Cl. 123-382.000.

Bassist, Rudolph G. Method of knitting a velour lace fabric. 4,280,259, Cl. 28-160.000.

Bassompierre-Sewrin, Christian C., to Martech International, Inc. Underwater trenching machine for burying pipeline and the like. 4,280,289, Cl. 37-63.000.

Bastida, Ezio M., to C.I.S.E. Centro Informazioni Studi Esperienze S.p.A. Instrument for measuring moisture in materials. 4,281,285, Cl. 324-58.50B.

Batte, Christopher L. Method and apparatus for solar power lighting. 4,281,369, Cl. 362-183.000.

Battelle Development Corporation: *See—*
Chauhan, Satya P.; Feldmann, Herman F.; Stambaugh, Edgel P.; and Liu, Ke-Tien, 4,280,817, Cl. 44-1.00R.
Fawcett, Sherwood L.; and Anno, James N., 4,280,325, Cl. 60-370.000.

Batting, Robert D.; Chabot, Donald G.; and Poland, Donald R., to Leesona Corporation. Product separation and granulation system. 4,280,626, Cl. 209-658.000.

Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., to Bell Telephone Laboratories, Incorporated. Collection of messages from data terminals using different protocols and formats. 4,281,315, Cl. 340-147.00R.

Baum, Heinz W., to Lucas Industries Limited. Brake wear indicator. 4,280,594, Cl. 188-1.00A.

Baumann, Edward J. Method and apparatus for controlling aeration in biological treatment processes. 4,280,910, Cl. 210-614.000.

Baumann, Hans, to BASF Aktiengesellschaft. Sulfo, chloro phenolazoacetoacetylbenzamide dyes. 4,280,955, Cl. 260-149.000.

Baumann, Werner, to Sandoz Ltd. 3-Dicyanomethylidene-2,3-dihydrothiophen-1,1-dioxide derivatives. 4,281,115, Cl. 542-441.000.

Baumert, Dietrich: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,281,121, Cl. 544-134.000.

Baxter Travenol Laboratories, Inc.: *See—*
Van Baelen, Armand R., 4,280,496, Cl. 128-214.00R.

Bayer Aktiengesellschaft: *See—*
Bartl, Herbert; and Mietzsch, Fritz, 4,280,937, Cl. 260-17.00A.
Berger-Lohr, Bernd; Schundehutte, Karl H.; and Soll, Manfred, 4,281,124, Cl. 544-208.000.
de Montigny, Armand; and Moretto, Hans-Heinrich, 4,281,144, Cl. 556-416.000.
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.
Franckowiak, Gerhard; Bossert, Friedrich; Heise, Arend; and Towart, Robertson, 4,280,998, Cl. 424-250.000.
Frank, Walter; Bendszus, Otto; Freier, Hans J; and Traenckner, Hans-Joachim, 4,281,068, Cl. 521-62.000.
George, Joachim, 4,281,195, Cl. 564-271.000.
Lehment, Klaus-Friedrich; Raue, Roderich; and Gleinig, Harald, 4,281,112, Cl. 542-417.000.
Nonn, Konrad; Walz, Klaus; Wolf, Karlheinz; and Boehmke, Gunther, 4,280,960, Cl. 260-403.000.
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, 4,281,101, Cl. 528-196.000
Schreiner, Kurt; Jager, Horst; and Schwaebel, Richard, 4,280,956, Cl. 260-242.200.
Siegle, Peter; Kuhle, Engelbert; Hammann, Ingeborg; and Behrenz, Wolfgang, 4,281,011, Cl. 424-277.000.
Zecher, Wilfried; and Merten, Rudolf, 4,281,140, Cl. 548-313.000

Bayer, Eric W.; and Palmisano, Edward A., to General Electric Company. Static trip unit for molded case circuit breakers. 4,281,359, Cl. 361-115.000.

Bayer, Franz; Schubert, Hermann; and Kagerhuber, Franz, to Voest-Alpine Aktiengesellschaft. Driving roll stand for a continuous casting plant. 4,280,552, Cl. 164-448.000.

BBC Brown, Boveri & Co Limited: *See—*
vonAllmen, Martin; and Wittmer, Marc, 4,281,236, Cl. 219-121.0LC.

BBC Brown, Boveri & Company, Ltd.: *See—*
Pouillange, Jean-Paul, 4,281,375, Cl. 363-37.000.

Bean, Samuel L.; Swaine, James W., Jr.; and Crawford, Paul R., to Allied Chemical Corporation. System and process for storing energy. 4,280,553, Cl. 165-1.000.

Bearden, Roby; and Stuntz, Gordon F., to Exxon Research & Engineering Co. Passivation of cracking catalysts. 4,280,896, Cl. 208-113.000.

Bearden, Roby: *See—*
Stuntz, Gordon F.; and Bearden, Roby, 4,280,895, Cl. 208-113.000.

Beazley, Dwight: *See—*
Salmon, John K.; and Beazley, Dwight, 4,280,600, Cl. 188-312.000.

Bechard, Conrad E.; Davenport, John M.; and Lynch, Denis A., Jr., to General Electric Co. Discharge lamp having vitreous shield. 4,281,274, Cl. 315-49.000.

Becker, Rudolf, to Liebherr-Werk Ehingen GmbH. Heavy-duty crane with counterweight. 4,280,627, Cl. 212-198.000.

Becker, Werner: *See—*
Poetsch, Dieter; Becker, Werner; Klein, Ottokar; and Wulf, Rudolf, 4,281,351, Cl. 358-214.000.

Beckerer, Frank S., Jr. Cover plate construction for boat decks. 4,280,434, Cl. 114-174.000.

Beckish, John. Golf swing training device. 4,280,701, Cl. 273-191.00A.

Beestman, George B.; and Deming, John M., to Monsanto Company. Encapsulation by interfacial polycondensation, and aqueous herbicidal composition containing microcapsules produced thereby. 4,280,833, Cl. 71-100.000.

Begin, Louis E.: *See—*
Dunbar, Joseph E.; and Begin, Louis E., 4,281,118, Cl. 544-85.000.

Behrenz, Wolfgang: *See—*
Siegle, Peter; Kuhle, Engelbert; Hammann, Ingeborg; and Behrenz, Wolfgang, 4,281,011, Cl. 424-277.000.

Beimgraben, Herbert W., to Baker International Corporation. Apparatus and method for closing a failed open fluid pressure actuated relief valve. 4,280,524, Cl. 137-268.000.

Beirne, Patrick R.: *See—*
Cowpland, Michael C. J.; and Beirne, Patrick R., 4,281,219, Cl. 179-18.0FA.

Belden, Lorne H., Jr.: *See—*
Andrews, Charles L.; and Belden, Lorne H., Jr., 4,281,287, Cl. 324-95.000.

Bell Telephone Laboratories, Incorporated: *See—*
Ahuja, Sudhir R.; and Sharma, Dhiraj K., 4,281,381, Cl. 364-200.000.
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.
Candy, James C.; and Wooley, Bruce A., 4,281,318, Cl. 340-347.0DD.
Chuang, Chin-Sheng; and LaMarche, Robert E., 4,281,218, Cl. 179-1.0SC.
Mounts, Frank W.; and Netravali, Arun N., 4,281,344, Cl. 358-136.000.
Silfvast, William T., 4,281,030, Cl. 427-42.000.

Belli, Frank G.: *See—*
Buckley, David A.; Ciccarelli, Roger N.; and Belli, Frank G., 4,281,050, Cl. 430-41.000.

Bellis, Harold E., to Du Pont de Nemours, E. I., and Company. Process for preparing substituted formamides. 4,281,193, Cl. 564-215.000.

Bendix Corporation, The: *See—*
Hemmer, Valentine J., 4,280,749, Cl. 339-177.00R.

Bendszus, Otto: *See—*
Frank, Walter; Bendszus, Otto; Freier, Hans J; and Traenckner, Hans-Joachim, 4,281,068, Cl. 521-62.000.

Bengtsson, Anders G.: *See—*
Eng, Kjell; and Bengtsson, Anders G., 4,280,342, Cl. 66-177.000.

Benkmann, Christian: *See—*
Lassmann, Eberhard; and Benkmann, Christian, 4,280,824, Cl. 55-26.000.

Bennett, Matthew C., Jr.: *See—*
Knoll, Glenn F.; Strange, Donald R.; and Bennett, Matthew C., Jr., 4,281,382, Cl. 364-414.000.

Benoit, Robert A.: *See—*
Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., 4,280,953, Cl. 260-112.50S.

Benzing, J. Paige: *See—*
Siniscal, Paul D.; Hebert, David L.; and Benzing, J. Paige, 4,280,615, Cl. 198-470.000.

Berenson, Allen V., to Sunbeam Corporation. Safety circuit for electric bedcover. 4,281,237, Cl. 219-511.000.

Berg, Richard C.; and Kvall, Emil J., to Minnesota Mining and Manufacturing Company. Powered air respirator. 4,280,491, Cl. 128-201.240.

Berger-Lohr, Bernd; Schundehutte, Karl H.; and Soll, Manfred, to Bayer Aktiengesellschaft. Reactive quaternary compounds, their preparation and their use for increasing the affinity of anionic dyestuffs for fibres which contain nitrogen or hydroxyl groups. 4,281,124, Cl. 544-208.000.

Berger, Rupert: *See—*
Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, 4,280,688, Cl. 266-245.000.

Berginski, Werner, to Leopold Kostal, Firma. Ignition switch. 4,281,226, Cl. 200-44.000.

Berke, Carl M., to Polaroid Corporation. Method for forming noble metal silver precipitating nuclei. 4,281,056, Cl. 430-232.000.

Berke, Herbert: *See—*
Patz, Benjamin W.; Berke, Herbert; and Mendorf, Donald R., 4,281,361, Cl. 361-401.000.

Berkowitz, Irving L.; and Bourgeois, John J., to Kason Hardware Corporation. Safety closure system. 4,280,725, Cl. 292-223.000.

Berlin, Donald M., Jr.: *See—*
Zukausky, Keith E.; and Berlin, Donald M., Jr., 4,280,682, Cl. 251-251.000.

Berry, Fred M., to International Medical Electronics, Ltd. Electrostatic shield for diathermy treatment head. 4,281,362, Cl. 361-437.000.

Berry, W. James, III; and Berry, William J., to Darco Water Systems, Inc. Water purification unit and method. 4,280,912, Cl. 210-662.000.

Berry, William J.: *See—*
Berry, W. James, III; and Berry, William J., 4,280,912, Cl. 210-662.000.

Bertin, Claude L.; De La Moneda, Francisco H.; and Soderman, Donald A., to International Business Machines Corporation. Method of making a dual DMOS device by ion implantation and diffusion. 4,280,855, Cl. 148-1.500.

Besson, Rene; and Scherrer, Igor, to Ebauches S.A. Reduction of energy consumption of electronic timepiece. 4,281,405, Cl. 368-66.000.

Best, Donald A., to Exxon Production Research Company. Method for producing heavy crude. 4,280,559, Cl. 166-303.000.

Beta Manufacturing Corp.: *See—*
Poleschuk, Nicholas A.; and Purdy, Samuel E., 4,281,229, Cl. 200-52.00R.

Bethkenhagen, Jurgen; and Kolpe, Dieter. Valved blood sampling device. 4,280,509, Cl. 128-766.000.

Betts, William M. Device for holding flexible bags. 4,280,676, Cl. 248-97.000.

Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, to Siemens Aktiengesellschaft. Electrical filter circuit utilizing charge transfer devices formed as looped circuits. 4,281,296, Cl. 333-165.000.

Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, to Siemens Aktiengesellschaft. Electrical filter circuit utilizing charge transfer delay lines utilizing individual charge transfer delay elements. 4,281,297, Cl. 333-165.000.

Bhat, Waman V., to Boeing Company, The. Noise-suppressing jet engine nozzles and method. 4,280,587, Cl. 181-213.000.

Bianchi, Nereo: *See—*
Carbonato, Gianfranco; and Bianchi, Nereo, 4,280,424, Cl. 112-158.00E.

Bible, Harley V.; and Moon, William T., Jr., to Robertshaw Controls Company. Control unit and method of making the same. 4,280,532, Cl. 137-882.000.

Bilsky, Herbert W.; and Callen, Patrick J., to RCA Corporation. Redundant battery protection system. 4,281,278, Cl. 320-13.000.

Biotronik Mess-und Therapiegerate G.m.b.H. & Co.: *See—*
Karr, Dieter E.; and Shanks, Scott B., 4,280,512, Cl. 128-785.000.

Bird, Peter A.: *See—*
Gitelman, Ephraim; Marston, Glendon P.; and Bird, Peter A., 4,281,393, Cl. 364-900.000.

Bird & Son, Inc.: *See—*
Cunning, Joseph M., 4,280,399, Cl. 98-42.00A.

Bischoff, Martin: *See—*
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Bishop, Thomas G., to HPM Corporation. Combination thermoplastic and glass loaded thermosetting injection molding machine and method for operating same. 4,280,972, Cl. 264-39.000.

Bittner, Friedrich: *See—*
Hentschel, Klaus; and Bittner, Friedrich, 4,281,123, Cl. 544-194.000.

Bivens, Joseph R.; Lyerly, William M.; and Simmons, Walter J., to Du Pont de Nemours, E. I., and Company. Organic grouting composition for anchoring a bolt in a hole. 4,280,943, Cl. 260-29.20E.

Black & Decker Inc.: *See—*
Alessio, Lorenzo E.; and Cuneo, Giuseppe, 4,280,542, Cl. 144-230.000.

Chaconas, Peter C.; and Schafebook, Richard A., 4,280,776, Cl. 408-72.00R.

Blanc, Ernst: *See—*
Wurster, Helmut; and Blanc, Ernst, 4,281,366, Cl. 362-32.000.

Blaylock, Tommy J. Clutch throw-out bearing plate. 4,280,607, Cl. 192-98.000.

Bleicher, Manfred: *See—*
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, 4,280,359, Cl. 73-123.000.

Blevins, Jan M.: *See—*
Homan, Gary R.; and Blevins, Jan M., 4,281,094, Cl. 528-30.000.

Bliemeister, Robert M., to Allis-Chalmers Corporation. Seal for rotating cylinder such as kilns and the like. 4,280,707, Cl. 277-84.000.

Blount, David H. Process for the production of broken down lignin-cellulose silicate copolymers. 4,281,110, Cl. 536-84.000.

Bloxham, Steven R. System for monitoring and improving motor vehicle operating efficiency. 4,280,457, Cl. 123-198.00R.

Blum, Herbert, to Hoechst Aktiengesellschaft. Sheet feeding device. 4,280,691, Cl. 271-11.000.

Blumenthal, Gunter; and Bollmann, Alfred, to Bochumer Eisenhuette Heintzmann GmbH & Co. Arrangement for controlled engagement of the tools of a mining machine with a mine face. 4,280,734, Cl. 299-34.000.

Bochumer Eisenhuette Heintzmann GmbH & Co.: *See—*
Blumenthal, Gunter; and Bollmann, Alfred, 4,280,734, Cl. 299-34.000.

Bodin, Ove. Fork-lift truck having means for regulating the horizontal distance between the tines and for laterally displacing the tines. 4,280,781, Cl. 414-671.000.

Bodine, Albert G. Sonic apparatus for cleaning wells, pipe structures and the like. 4,280,557, Cl. 166-177.000.

Bodine, Albert G. Sonic technique and system for facilitating the extraction of mineral material. 4,280,558, Cl. 166-245.000.

Boehmke, Gunther: *See—*
Nonn, Konrad; Walz, Klaus; Wolf, Karlheinz; and Boehmke, Gunther, 4,280,960, Cl. 260-403.000.

Boeing Company, The: *See—*
Bhat, Waman V., 4,280,587, Cl. 181-213.000.

Bogese, Stephen B., II, to Virginia Patent Development Corp. Cable assembly having shielded conductor. 4,281,212, Cl. 174-36.000.

Boghosian, John W.: *See—*
Kienzle, Charles; Gebura, Stanley E.; and Boghosian, John W., 4,281,067, Cl. 521-56.000.

Bogoshian, Gregory V., to Xerox Corporation. Roll fuser loading system. 4,280,443, Cl. 118-60.000.

Boise Cascade Corporation: *See—*
Elias, Thomas C., 4,280,653, Cl. 229-43.000.

Boldridge, Austin G., Jr., to Conversational Systems, Inc. Barooptical verification apparatus. 4,281,313, Cl. 340-146.3SY.

Bollmann, Alfred: *See—*
Blumenthal, Gunter; and Bollmann, Alfred, 4,280,734, Cl. 299-34.000.

Bond, Gary L., to Eastman Kodak Company. Dyeing process and compositions. 4,280,814, Cl. 8-588.000.

Bond, John L.: *See—*
Johnson, Donald L.; Bond, John L.; Rogols, Saul; and Salter, John W., 4,280,718, Cl. 282-27.500.

Bond, Robert; and Williams, Arthur R., to Dunlop Limited. Pneumatic tires. 4,280,543, Cl. 152-209.00R.

Boning, Otto H.: *See—*
Khan, Asadulla R.; and Boning, Otto H., 4,280,332, Cl. 62-156.000.

Bonn, Jerrold L.; Mahoney, Paul F.; and Monsen, Peter, to Signatron, Inc. High speed digital communication receiver. 4,281,411, Cl. 375-14.000.

Bonnerot, Georges, to U.S. Philips Corporation. Digital signal processing arrangement for controlling the level of a frequency-division multiplex signal. 4,281,408, Cl. 370-70.000.

Bontempelli, Jean-Claude, to Rhone-Poulenc Industries. Process and apparatus for handling and/or storing gallium in the metallic state. 4,280,980, Cl. 422-40.000.

Borg-Warner Corporation: *See—*
LaBuda, Edward F.; and Wang, Ting M., 4,280,608, Cl. 192-113.00B.

Borom, Marcus P.; and Schultz, John, Jr., to General Electric Company. Magnesia insulated heating elements. 4,280,932, Cl. 252-521.000.

Boros, Stephan A. Safety warning device for ignition switch. 4,280,633, Cl. 220-241.000.

Bossert, Friedrich: *See—*
Franckowiak, Gerhard; Bossert, Friedrich; Heise, Arend; and Towart, Robertson, 4,280,998, Cl. 424-250.000.

Bourgeois, John J.: *See—*
Berkowitz, Irving L.; and Bourgeois, John J., 4,280,725, Cl. 292-223.000.

Boursier, Leon, to Keyes Fibre Company. Molded paper pulp container. 4,280,648, Cl. 229-2.5EC.

Bovier, Edward M.: *See—*
Hunt, Walter G.; Kovats, Leslie P.; and Bovier, Edward M., 4,281,111, Cl. 536-111.000.

Bowen, John G.: *See—*
Kovalenko, Eugene N.; and Bowen, John G., 4,280,293, Cl. 40-587.000.

Bowyer, William H.: *See—*
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.

BP Chemicals Limited: *See—*
McCormick, Bryan H., 4,281,098, Cl. 528-139.000.

Bracco, Dario: *See—*
Sguazzi, Angelo, 4,280,499, Cl. 128-303.100.

Bradley, Irving: *See—*
Masenheimer, John H.; and Bradley, Irving, 4,281,370, Cl. 362-287.000.

Braestrup, Claus; and Squires, Richard F. Process for determining the concentration of benzodiazepines in a body fluid. 4,280,993, Cl. 424-1.000.

Brandes, Gunter; Wollner, Johannes; Neier, Wilhelm; and Webers, Werner, to Deutsche Texaco Aktiengesellschaft. Method of conducting reactions in a trickle-type reactor. 4,281,206, Cl. 568-396.000.

Brandt, Klaus: *See—*
Haering, Rudolph R.; Stiles, James A. R.; and Brandt, Klaus, 4,281,048, Cl. 429-218.000.

Brauer, Melvin; and Kroplinski, Thaddeus F., to NL Industries, Inc. Electrical devices containing a grease compatible, mineral oil extended polyurethane. 4,281,210, Cl. 174-23.00C.

Brazeau, Paul E., Jr.: *See—*
Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., 4,280,953, Cl. 260-112.50S.

Breazeale, Almut F., to Du Pont de Nemours, E. I., and Company. Vulcanizable fluorinated copolymers. 4,281,092, Cl. 526-247.000.

Breen, Dale H., to International Harvester Company. Agricultural disk having non-directional fracture properties. 4,280,566, Cl. 172-604.000.

Brehse, Robert F., to General Electric Company. High-voltage capacitor. 4,281,360, Cl. 361-303.000.

Briggs, Donald E., to Surface Systems, Inc. Apparatus and method for detecting wet and icy conditions on the surface of a pathway. 4,281,286, Cl. 324-61.00R.

Briggs, William D.: *See—*
Wilson, Jeffrey V.; and Briggs, William D., 4,280,430, Cl. 114-51.000.

Bristol Tool & Gauge Company Limited: *See—*
Richards, Gordon, 4,280,377, Cl. 74-813.00R.

British Gas Corporation: *See—*
Banks, Reginald G. S.; and Williams, Alan, 4,280,820, Cl. 48-214.00A.

Broadhurst, Peter J.: *See—*
Howard, Peter B.; and Broadhurst, Peter J., 4,280,849, Cl. 106-300.000.

Brock, Jean. Cape protector. 4,280,227, Cl. 2-88.000.

Brogardh, Torgny; and Stensland, Leif, to ASEA Aktiebolag. Fiber optical measurement apparatus. 4,281,245, Cl. 250-227.000.

Brokmann, Manfred; Sanders, Kurt; Sanders, Dieter; and Westhoff, Hermann. Furniture such as chairs and couches. 4,280,548, Cl. 160-383.000.

Bromberg, Henry, to Tech Industries, Inc. Apparatus and method for lining caps. 4,280,864, Cl. 156-500.000.

Bromley, Robert L.: *See—*
Burzen, Don N.; Workman, David E.; Bromley, Robert L.; Elles, Daniel G.; and Wilkuski, James E., 4,280,247, Cl. 16-112.000.

Brooks, Alvin R., Jr.: *See—*
Bryan, James S.; Tell, Mayo B.; Brooks, Alvin R., Jr.; and Gaster, Ivan, 4,280,383, Cl. 83-140.000.

Brooks, Jeffrey B.: *See—*
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,334, Cl. 346-153.100.
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,335, Cl. 346-153.100.

Brouwer, Nicholaas L.: *See—*
Dameron, H. Clifford, Jr.; Brouwer, Nicholaas L.; and Martin, Guy E., 4,280,857, Cl. 148-156.000.

Brown, Eugene W., to B. F. Goodrich Company, The. Self righting, automatically inflatable life raft. 4,280,239, Cl. 9-11.00A.

Brown & Williamson Tobacco Corporation: *See—*
Scholten, David L., 4,280,903, Cl. 209-469.000.

Bruhn, Larry C., to LBF Properties, Inc. Trailer hitch. 4,280,713, Cl. 280-415.00A.

Brunswick Corporation: *See—*
Staerzl, Richard E., 4,280,465, Cl. 123-494.000.

Bruun & Sorensen AB: *See—*
Alexandersson, Sven, 4,280,417, Cl. 110-346.000.

Bryan, James S.; Tell, Mayo B.; Brooks, Alvin R., Jr.; and Gaster, Ivan, to Dayco Corporation. Textile cot remover. 4,280,383, Cl. 83-140.000.

Brzack, Jeffrey A. Glider. 4,280,673, Cl. 244-13.000.

Bubik, Alfred; Kurtz, Rudiger; and Kutzelmann, Hermann, to Escher Wyss GmbH. Pulp feed for a papermaking machine. 4,280,870, Cl. 162-336.000.

Buchholz, Bernard; Welsh, Charles B.; and Miller, Henry C., to Pennwalt Corporation. Preparation of mercapto-alcohols. 4,281,202, Cl. 568-62.000.

Buchy, Francois: *See—*
Charles, Eliane; Hildebrandt, Mieczyslaw; and Buchy, Francois, 4,280,846, Cl. 106-73.200.

Buck, Ronald G., to Litton Systems, Inc. Method of cooking thin meats in a microwave oven. 4,281,022, Cl. 426-233.000.

Buckley, David A.; Ciccarelli, Roger N.; and Belli, Frank G., to Xerox Corporation. Migration imaging system. 4,281,050, Cl. 430-41.000.

Budzich, Mieczyslaw; Fitz, Forest G., Jr.; and Lawrence, Andrew M., to Nassau Recycle Corporation. Method and apparatus for separating finely sized materials. 4,280,901, Cl. 209-154.000.

Buisson, Marc F. B.: *See—*
Arliguie, Jean-Claude M.; Buisson, Marc F. B.; and Caruel, Jacques E. J., 4,280,324, Cl. 60-261.000.

Bullard, Herbert L.; and Osborn, Robert A., to Goodyear Tire & Rubber Company, The. Age resistant resin compositions containing anilino aryl acrylamide polymer. 4,281,080, Cl. 525-205.000.

Bunker Ramo Corporation: *See—*
Hovey, Ralph J., 4,280,882, Cl. 204-15.000.

Bunn, Christopher B., to Dyform Engineering Limited. Concrete slab surface finishing apparatus. 4,280,800, Cl. 425-62.000.

Burch, William M., to Capital Territory Health Commission. Diagnostic compositions. 4,280,991, Cl. 424-1.000.

Burke, John F.: *See—*
Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., 4,280,954, Cl. 260-123.700.

Burnett, Bradley W.; Fiterman, Charles E.; and Fish, Leonard A., to Bank Computer Network Corporation. Noise responsive data input apparatus and method. 4,281,323, Cl. 340-712.000.

Burnett, Jerry L. Gearless quadrophasor. 4,280,367, Cl. 74-42.000.

Burnier, Pierre H.: *See—*
Virolleau, Alain F.; Kant, Michel; and Burnier, Pierre H., 4,281,263, Cl. 310-13.000.

Burns Bros.: *See—*
Martinelli, Rene J., 4,280,545, Cl. 152-222.000.

Burns, Gary J.: *See—*
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.

Burroughs Corporation: *See—*
Doucette, Richard L., 4,281,258, Cl. 307-455.000.

Burzen, Don N.; Workman, David E.; Bromley, Robert L.; Elles, Daniel G.; and Wilkuski, James E., to Samsonite Corporation. Luggage case handle assembly. 4,280,247, Cl. 16-112.000.

Bush, Richard W.; Jenkins, Russell J.; and Rie, John E., to W. R. Grace & Co. Screen printable, UV curable opaque legend ink composition. 4,280,888, Cl. 204-159.150.

Butler, John M.: *See—*
United States of America, National Aeronautics and Space Administration; St. Clair, Terry L.; and Butler, John M., 4,281,102, Cl. 528-229.000.

Buxbaum, Lothar: *See—*
Kainmuller, Thomas; Habermeier, Jurgen; and Buxbaum, Lothar, 4,281,103, Cl. 528-289.000.

Buzzard, Clair A.: *See—*
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.

Byatt, Dennis W. G., to Marconi Company Limited, The. Stereoscopic television system. 4,281,341, Cl. 358-92.000.

Byrnes, Francis R., to Center Compression Lock Company, Inc. Tamperproof cap assembly for hydrant. 4,280,525, Cl. 137-296.000.

C-I-L Inc.: *See—*
Allen, John R.; Desrochers, Louis-Georges; and Loyer, Alain, 4,280,407, Cl. 102-320.000.

C.I.S.E. Centro Informazioni Studi Esperienze S.p.A.: *See—*
Bastida, Ezio M., 4,281,285, Cl. 324-58.50B.

C. R. Bard, Inc.: *See—*
Harnsberger, Frederick D., 4,280,981, Cl. 422-46.000.

Caldarella, Riccardo; and Nobile, Riccardo, to Societa Italiana Telecomunicazioni Siemens S.p.A. Sampling system for decoding biphase-coded data messages. 4,281,292, Cl. 329-50.000.

Calfo, Raymond M.; Mulach, Arthur; and Jones, Warren W., to Westinghouse Electric Corp. Dynamoelectric machine with flux screen. 4,281,266, Cl. 310-256.000.

Callahan, James L.: *See—*
Shaw, Wilfrid G.; Paparizos, Christos; and Callahan, James L., 4,280,929, Cl. 252-439.000.

Callen, Patrick J.: *See—*
Bilsky, Herbert W.; and Callen, Patrick J., 4,281,278, Cl. 320-13.000.

Candy, James C.; and Wooley, Bruce A., to Bell Telephone Laboratories, Incorporated. Digital-to-digital code converter. 4,281,318, Cl. 340-347.0DD.

Canon Kabushiki Kaisha: *See—*
Ito, Hiroshi; Endo, Ichiro; and Ohno, Shigeru, 4,281,052, Cl. 430-48.000.
Ogawa, Yukio; Suzuki, Ryoichi; Kinoshita, Takao; and Uchiyama, Takashi, 4,280,761, Cl. 354-29.000.
Yano, Yasuhiro; Haruta, Masahiro; and Ohta, Tokuya, 4,281,329, Cl. 346-1.100.

Canron Corp.: *See—*
Stewart, John K., 4,280,613, Cl. 198-406.000.

Capital Territory Health Commission: *See—*
Burch, William M., 4,280,991, Cl. 424-1.000.

Carbonato, Gianfranco; and Bianchi, Nereo, to Necchi S.p.A. Household type sewing machine having microprocessor control. 4,280,424, Cl. 112-158.00E.

Cardozo, Douglas W.: *See—*
Gilbert, Richard S.; and Cardozo, Douglas W., 4,280,513, Cl. 128-785.000.

Carlson, Douglas C.: *See—*
Richards, Harry F.; and Carlson, Douglas C., 4,280,916, Cl. 252-33.400.

Carlson, Emery J.: *See—*
Armor, John N.; and Carlson, Emery J., 4,281,194, Cl. 564-267.000.
Carlson, Lee G., to American Petro Mart, Inc. High capacity folded moving bed ion exchange apparatus and method for treating phosphoric acid. 4,280,904, Cl. 210-676.000.
Carlson, Randolph S.: *See—*
Elving, Robert L.; and Carlson, Randolph S., 4,281,365, Cl. 362-20.000.
Carpenter, David V.: *See—*
Rackley, Ray A.; and Carpenter, David V., 4,280,329, Cl. 60-754.000.
Caruel, Jacques E. J.: *See—*
Arliguie, Jean-Claude M.; Buisson, Marc F. B.; and Caruel, Jacques E. J., 4,280,324, Cl. 60-261.000.
Cash, David A.: *See—*
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.
Castagna, John F., to Sparkomatic Corporation. Grille covered speaker assembly construction for compact automobiles and the like. 4,281,224, Cl. 179-146.00R.
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., to International Business Machines Corporation. Variable pre-spin drying time control of photoresists thickness. 4,281,057, Cl. 430-270.000.
Ceglowski, Jerzy W., to Universal Framework Coupling (Proprietary) Limited. Joint and framework. 4,280,769, Cl. 403-218.000.
Center Compression Lock Company, Inc.: *See—*
Byrnes, Francis R., 4,280,525, Cl. 137-296.000.
Centro Ricerche Fiat S.p.A.: *See—*
Palazzetti, Mario; Ponti, Cesare; and Tenci, Pier L., 4,280,853, Cl. 136-246.000.
Cerdan, Jean-Pierre: *See—*
Marjollet, Jacques; Tondeur, Gerard; Cerdan, Jean-Pierre; and Talleu, Patrick, 4,280,825, Cl. 55-203.000.
Ceskoslovenska akademie ved: *See—*
Coupek, Jiri; Filka, Karel; and Kocourek, Jan, 4,281,233, Cl. 260-112.00R.
Cessna Aircraft Company, The: *See—*
Alderson, Loren L., 4,280,403, Cl. 100-43.000.
Chabot, Donald G.: *See—*
Batting, Robert D.; Chabot, Donald G.; and Poland, Donald R., 4,280,626, Cl. 209-658.000.
Chaconas, Peter C.; and Schafebook, Richard A., to Black & Decker Inc. Apparatus for installation of a door lockset. 4,280,776, Cl. 408-72.00R.
Chamberlain, Terence R.; and Bantick, John R., to Fisons Limited. Pharmaceutical heterocyclic compounds and compositions. 4,281,008, Cl. 424-269.000.
Chambers, Doyle M.: *See—*
Steelman, Carrol D.; Chambers, Doyle M.; and Andis, Michael D., 4,280,999, Cl. 424-251.000.
Champion International Corporation: *See—*
Montealegre, James, 4,280,649, Cl. 229-11.000.
Montealegre, James; and Dutcher, Daniel P., 4,280,651, Cl. 229-20.000.
Chapman, Peter; and Redfern, Martin W., to Elliott Brothers (London) Limited. Circuit for driving deflection coil. 4,281,275, Cl. 315-399.000.
Chapman, Virginia J. Environmental manicure system. 4,280,519, Cl. 132-73.500.
Charles, Eliane; Hildebrandt, Mieczyslaw; and Buchy, Francois, to Thomson-CSF. Method of fabrication of dielectric material having volume-distributed insulating barriers for use at high voltages and a ceramic body fabricated by said method. 4,280,846, Cl. 106-73.200.
Chattem, Inc.: *See—*
Pratt, Charles E., 4,280,917, Cl. 252-37.700.
Chatterley, Samuel: *See—*
Grobbelaar, Jacobus H.; Colson, Richard N.; Levitt, Charlie M.; and Chatterley, Samuel, 4,280,625, Cl. 209-582.000.
Chattha, Mohinder S., to Ford Motor Company. Sulfonate ester catalysts in thermosetting compositions. 4,281,075, Cl. 525-110.000.
Chauhan, Satya P.; Feldmann, Herman F.; Stambaugh, Edgel P.; and Liu, Ke-Tien, to Battelle Development Corporation. Solid fuel preparation method. 4,280,817, Cl. 44-1.00R.
Chauvette, Pamela A.; and Chauvette, Robert R., to Eli Lilly and Company. Process for 3-chloro cephalosporin nucleus. 4,281,117, Cl. 544-016.000.
Chauvette, Robert R., to Eli Lilly and Company. 3-Halo cephalosporins. 4,281,116, Cl. 544-16.000.
Chauvette, Robert R.: *See—*
Chauvette, Pamela A.; and Chauvette, Robert R., 4,281,117, Cl. 544-016.000.
Chemische Fabrik Stockhausen & Cie: *See—*
Kuster, Erich; Dahmen, Kurt; and Barthell, Eduard, 4,281,186, Cl. 564-46.000.
Chemische Werke Huls AG: *See—*
Leithauser, Horst; Osterhoff, Heinz; and Trukenbrod, Karl, 4,281,036, Cl. 427-222.000.
Chevron Research Company: *See—*
Current, Steven P., 4,281,174, Cl. 560-204.000.
Childs, William H.; and Mahle, Christoph E., to Communications Satellite Corporation. Planar QPSK demodulator. 4,281,293, Cl. 329-105.000.
Chin-Chi, Liao. Disintegrable lump abrasive grains and process for producing same. 4,280,821, Cl. 51-298.000.
Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt: *See—*
Szekely, Istvan; and Lovasz nee Gaspar, Marianna, 4,281,170, Cl. 560-124.000.
Choung, Hun R., to DAP, Inc. Cleaning and priming composition containing titanium acetylacetonate and method. 4,281,037, Cl. 427-407.300.
Chow, Kirk K. Reversihble ratchet drive. 4,280,379, Cl. 81-62.000.
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., to Merck & Co., Inc. 3-(2-Aminoethylthio)-6-amido-7-oxo-1-azabicyclo(3.2.0)-hept-2-ene-2-carboxylic acid. 4,281,002, Cl. 424-263.000.
Christensen, Carl O., to Roll-Rite Corp. Self-steering caster. 4,280,246, Cl. 16-35.00D.
Christensen, Erik C., to F. L. Smidth & Co. Apparatus for and method of demounting slide shoe. 4,280,267, Cl. 29-426.300.
Christensen, Richard G.: *See—*
White, Edward, V; Hertz, Harry S.; and Christensen, Richard G., 4,281,246, Cl. 250-282.000.
Chrysler Corporation: *See—*
Graham, Kenneth A., 4,280,463, Cl. 123-445.000.
Chuang, Chin-Sheng; and LaMarche, Robert E., to Bell Telephone Laboratories, Incorporated. Speech-nonspeech detector-classifier. 4,281,218, Cl. 179-1.0SC.
Ciba-Geigy Corporation: *See—*
Darms, Roland; Kvita, Vratislav; and Greber, Gerd, 4,280,946, Cl. 260-326.00N.
Kainmuller, Thomas; Habermeier, Jurgen; and Buxbaum, Lothar, 4,281,103, Cl. 528-289.000.
Ciccarelli, Roger N.: *See—*
Buckley, David A.; Ciccarelli, Roger N.; and Belli, Frank G., 4,281,050, Cl. 430-41.000.
Cieslak, Leo. Heat exchanger for exhaust outlet of a room heating unit. 4,280,555, Cl. 165-47.000.
Cincinnati Electronics Corporation: *See—*
Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., 4,281,412, Cl. 375-86.000.
Citizen Watch Co., Ltd.: *See—*
Tanaka, Eiichiro, 4,281,406, Cl. 368-82.000.
Clark Control, Inc.: *See—*
Weeks, Robert W., 4,281,305, Cl. 335-132.000.
Clark Equipment Company: *See—*
Bartow, Richard J., 4,280,592, Cl. 187-9.00E.
Cruise, Phillip D., 4,280,609, Cl. 192-113.00B.
Clark, Randall N. Trailers for hauling logs and the like and adapted for use in tandem. 4,280,712, Cl. 280-144.000.
Clarke, Robert L.; and Daum, Sol J., to Sterling Drug Inc. Lower-alkyl 4,6,7,8,8a-9-hexahydro-6,9-ethanothieno[3,2-f]indolizine-10-carboxylate. 4,281,130, Cl. 546-63.000.
Cleland, Marshall R.: *See—*
Thompson, Chester C.; and Cleland, Marshall R., 4,281,251, Cl. 250-398.000.
Cleland, Robert K. Brew rail adapter. 4,280,401, Cl. 99-295.000.
Clemence, Francois: *See—*
Humbert, Daniel; Clemence, Francois; and Dagnaux, Michele, 4,281,012, Cl. 424-278.000.
Cochran, Clarence D., to Cochran, John. Masonry saw. 4,280,472, Cl. 125-13.00R.
Cochran, John: *See—*
Cochran, Clarence D., 4,280,472, Cl. 125-13.00R.
Colson, Richard N.: *See—*
Grobbelaar, Jacobus H.; Colson, Richard N.; Levitt, Charlie M.; and Chatterley, Samuel, 4,280,625, Cl. 209-582.000.
Comer, Robert C.; and Kruzel, Thomas F., to Toro Company, The. Reciprocating cutter. 4,280,276, Cl. 30-144.000.
Commissariat a l'Energie Atomique: *See—*
Corfa, Yves-Paul; Marchal, Paul; Roussel, Victor; and Vertut, Jean, 4,280,288, Cl. 37-54.000.
Ferrari, Luciano; Fourest, Bernard; Kayser, Gaston; and Martin, Robert, 4,280,872, Cl. 176-38.000.
Communications Satellite Corporation: *See—*
Childs, William H.; and Mahle, Christoph E., 4,281,293, Cl. 329-105.000.
Stegens, Ronald E., 4,281,302, Cl. 333-204.000.
Compagnie Internationale pour l'Informatique-CII Honeywell Bull: *See—*
Lamare, Jean-Claude; and Maury, Christian, 4,281,291, Cl. 329-50.000.
Computek, Inc.: *See—*
Gitelman, Ephraim; Marston, Glendon P.; and Bird, Peter A., 4,281,393, Cl. 364-900.000.
Connery, James G.; DiNapoli, Louis D.; and Punis, Giancarlo, to Leeds & Northrup Company. Ultrasonic Doppler flowmeter with correction for vibratory signals at zero-flow conditions. 4,280,365, Cl. 73-861.250.
Consarc Corporation: *See—*
Roberts, Raymond J., 4,280,550, Cl. 164-252.000.
Consolidated Foods Corporation: *See—*
King, James F.; and Horton, Gilbert L., 4,280,350, Cl. 72-7.000.
Container Corporation of America: *See—*
Gardner, Jeffrey M.; Sensenbrenner, Ronald R.; and Nelson, Bennie C., Jr., 4,280,650, Cl. 229-15.000.
Nelson, Bennie C., Jr., 4,280,622, Cl. 206-592.000.
Conte, Raffaele. Apparatus for magnetic recording of casual events relating to movable means. 4,281,354, Cl. 360-5.000.
Continental Group, Inc., The: *See—*
Gordon, Gerald, 4,280,268, Cl. 29-446.000.

Continental Gummi-Werke Aktiengesellschaft: *See—*
Zimtarra, Helmut; and Klupfel, Olaf, 4,280,617, Cl. 198-699.000.
Continental Instruments Corporation: *See—*
Mannion, Robert S., 4,281,242, Cl. 235-449.000.
Continental Plastics, Inc.: *See—*
Lewis, Duane H., 4,280,636, Cl. 220-307.000.
Control Concepts, Inc.: *See—*
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,280,396, Cl. 91-320.000.
Conversational Systems, Inc.: *See—*
Boldridge, Austin G., Jr., 4,281,313, Cl. 340-146.3SY.
Conveyor Improvements (Doncaster) Limited: *See—*
Ward, Christopher J.; and Hughes, Septimus, 4,280,619, Cl. 198-823.000.
Conzelmann, Gerhard: *See—*
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.
Cook, Albert N.; and Kornatowski, Boleslaw, to Singer Company, The. Foot controller. 4,281,310, Cl. 338-108.000.
Coon, Michael D.; Grace, Martin K.; and Smith, Steven R., to Motorola Inc. Timing apparatus and method. 4,281,239, Cl. 235-92.0GA.
Cooper, George H., to Suntimc, Inc. Heat exchanger-tank assembly for hot water heating system. 4,280,556, Cl. 165-76.000.
Cordova, Sam; and Cordova, Stella. Camping clean-up equipment center. 4,280,643, Cl. 294-141.000.
Cordova, Stella: *See—*
Cordova, Sam; and Cordova, Stella, 4,280,643, Cl. 294-141.000.
Corfa, Yves-Paul; Marchal, Paul; Roussel, Victor; and Vertut, Jean, to Commissariat a l'Energie Atomique. Modular draging unit for collecting solid bodies on an underwater bed. 4,280,288, Cl. 37-54.000.
Corliss, John M.; and Stickford, George H., to United States of America, Energy. Passive environmental temperature control system. 4,280,333, Cl. 62-259.100.
Corning Glass Works: *See—*
Johnson, Ronald E., 4,280,939, Cl. 260-23.0AR.
Murphy, Edward F.; and Portzer, James R., 4,280,827, Cl. 65-11.00W.
Sheth, Kalapi D., 4,280,829, Cl. 65-158.000.
Corse, Louis G., to Machines Chambon. Rotary printing machine. 4,280,406, Cl. 101-177.000.
Cosgrove, Robert J., Jr.; and Smolen, Victor F. System for automatic feedback-controlled administration of drugs. 4,280,494, Cl. 128-213.00R.
Costello, Edward C.: *See—*
Simon, David J.; and Costello, Edward C., 4,281,316, Cl. 340-347.05Y.
Cottis, Robert A.: *See—*
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.
Cotton Incorporated: *See—*
Warner, Lee A.; and Willcutt, Michael H., 4,280,779, Cl. 414-420.000.
Council, Edward L. Nose shield. 4,280,493, Cl. 128-207.180.
Coupek, Jiri; Filka, Karel; and Kocourek, Jan, to Ceskoslovenska akademie ved. Hydrophilic macroporous three dimensional copolymers of hydroxyalkyl acrylates or methacrylates with crosslinking agents and the method of their manufacturing. 4,281,233, Cl. 260-112.00R.
Covington, Wayne F.: *See—*
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.
Covrad Limited: *See—*
Cowell, Timothy A. T., 4,280,352, Cl. 72-186.000.
Cowell, Timothy A. T., to Covrad Limited. Apparatus for forming corrugated sheet material. 4,280,352, Cl. 72-186.000.
Cowpland, Michael C. J.; and Beirne, Patrick R., to Mitel Corporation. Telephone line circuit. 4,281,219, Cl. 179-18.0FA.
Cox, Johnny C.: *See—*
Babb, James H.; and Cox, Johnny C., 4,280,884, Cl. 204-109.000.
Cox, Raymond C.: *See—*
Balaban, Stephen M.; and Cox, Raymond C., 4,281,122, Cl. 544-190.000.
Coyte, Raymond G.: *See—*
Molins, Desmond W.; Hinchcliffe, Dennis; Heybourn, Frank; and Coyte, Raymond G., 4,280,611, Cl. 198-347.000.
CPC International Inc.: *See—*
Walon, Raoul, 4,281,028, Cl. 426-658.000.
Craig, Robert S., to Acme Resin Corporation. Catechol resins for the shell process. 4,281,090, Cl. 525-501.000.
Crandall, Thomas L.: *See—*
Kerr, Douglas M.; Crandall, Thomas L.; and Scalf, Daniel J., 4,280,413, Cl. 105-150.000.
Crawford, Paul R.: *See—*
Bean, Samuel L.; Swaine, James W., Jr.; and Crawford, Paul R., 4,280,553, Cl. 165-1.000.
Creusot-Loire: *See—*
Giraud, Jean; and Laigneau, Richard, 4,280,393, Cl. 89-36.00H.
Crichlow, Walter W., to Kobe, Inc. Centrifugal pitot pump with means for improving net positive suction head. 4,280,790, Cl. 415-89.000.
Croll, Ian M.: *See—*
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., 4,281,057, Cl. 430-270.000.
Crompton & Knowles Corporation: *See—*
Wheeler, Norton C., Jr.; Seuferling, John G.; and Pennila, Simo A. O., 4,280,801, Cl. 425-113.000.
Crosby, Edward L., Jr., to RCA Corporation. Balloon with deflation port. 4,280,674, Cl. 244-99.000.
Crow, Jr., Arthur F. Auxiliary shovels for agricultural implement. 4,280,563, Cl. 172-126.000.
Crown Cork & Seal Company, Inc.: *See—*
Potts, Vinson S., 4,280,427, Cl. 113-121.00C.
Croyle, Gene F., to PCE Corporation. Method and apparatus for electro-pneumatic control of a stitching machine. 4,280,425, Cl. 112-272.000.
Cruise, Phillip D., to Clark Equipment Company. Wet disc brake or clutch with curved stator disc tabs. 4,280,609, Cl. 192-113.00B.
CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See—*
DiVita, Pietro, 4,280,751, Cl. 350-96.150.
Culver, William H., to Optelecom, Inc. Applications of dual function electro-optic transducer in optical signal transmission. 4,281,253, Cl. 250-551.000.
Cummins Engine Company, Inc.: *See—*
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., 4,280,659, Cl. 239-124.000.
Cuneo, Giuseppe: *See—*
Alessio, Lorenzo E.; and Cuneo, Giuseppe, 4,280,542, Cl. 144-230.000.
Cunning, Joseph M., to Bird & Son, Inc. Roof ridge ventilator. 4,280,399, Cl. 98-42.00A.
Current, Steven P., to Chevron Research Company. Oxidative carbonylation of alcohols to produce dialkyl oxalates. 4,281,174, Cl. 560-204.000.
Cutler, John H.; and Walker, Loren H., to General Electric Company Dual mode AC motor drive system. 4,281,276, Cl. 318-803.000.
Cutter Laboratories, Inc.: *See—*
Warner, Willis L.; and Nelson, Edward J., 4,280,497, Cl. 128-272.000.
Czarnecki, Jan: *See—*
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.
Dagnaux, Michele: *See—*
Humbert, Daniel; Clemence, Francois; and Dagnaux, Michele, 4,281,012, Cl. 424-278.000.
Dahmen, Kurt: *See—*
Kuster, Erich; Dahmen, Kurt; and Barthell, Eduard, 4,281,186, Cl. 564-46.000.
Daimler-Benz Aktiengesellschaft: *See—*
Grabner, Christian; Reinhard, Theodor; Krugener, Rolf; and Kurth, Hermann W., 4,280,349, Cl. 70-358.000.
Dale, John N.: *See—*
Hartel, Edward O.; and Dale, John N., 4,280,792, Cl. 415-117.000.
Dale Products, Inc.: *See—*
Simonton, Robert D., 4,280,865, Cl. 156-538.000.
Dali, Carmelo; and Rich, David R., to Novametrix Medical Systems, Inc. Fixation ring for transcutaneous gas sensor probe. 4,280,505, Cl. 128-635.000.
Daloisio, Pasquale C., to Pennsylvania Pacific Corporation. Integral double-wall container. 4,280,640, Cl. 222-561.000.
Dalton, John, to Keystone Lighting Corp. Spring latch. 4,280,724, Cl. 292-87.000.
Dameron, H. Clifford, Jr.; Brouwer, Nicholaas L.; and Martin, Guy E., to Aluminum Company of America. Continuous draw anneal system. 4,280,857, Cl. 148-156.000.
Dana Corporation: *See—*
Knierim, Larry, 4,280,683, Cl. 254-17.000.
Daneman, Alexis G.: *See—*
Polsky, Robert D.; and Daneman, Alexis G., 4,280,488, Cl. 128-80.00H.
Daniel, Edmond; Guesnon, Jean; and Laurencin, Andre, to Institut Francais du Petrole. Connector with rotatable locking ring, particularly for a riser used in offshore oil exploration and production. 4,280,719, Cl. 285-90.000.
Dannheim, Walter R.; and McNaboe, John A., to Monsanto Company. Process of embossing and perforating thermoplastic film. 4,280,978, Cl. 264-156.000.
Danzig, Ivan F., to General Electric Company. Zinc electrode made from a modified zinc oxide for use in rechargeable electrochemical cells. 4,281,047, Cl. 429-217.000.
DAP, Inc.: *See—*
Choung, Hun R., 4,281,037, Cl. 427-407.300.
Dapper, Mark J.: *See—*
Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., 4,281,412, Cl. 375-86.000.
Darco Water Systems, Inc.: *See—*
Berry, W. James, III; and Berry, William J., 4,280,912, Cl. 210-662.000.
Darms, Roland; Kvita, Vratislav; and Greber, Gerd, to Ciba-Geigy Corporation. Crosslinkable bis-imidyl derivatives. 4,280,946, Cl. 260-326.00N.
Datta, Pabitra; and Friel, Ronald N., to RCA Corporation. Video discs and molding compositions therefor. 4,280,941, Cl. 260-23.0XA.
Daum, Sol J.: *See—*
Clarke, Robert L.; and Daum, Sol J., 4,281,130, Cl. 546-63.000.
Davenport, John M.: *See—*
Bechard, Conrad E.; Davenport, John M.; and Lynch, Denis A., Jr., 4,281,274, Cl. 315-49.000.

Davis, Charles, Jr., to Union Carbide Corporation. Dry cell with electrolyte disperson channels through the cathode mix. 4,281,046, Cl. 429-72.000.

Davis, Lynn M.; and Theis, James V., Jr. Controllable kite. 4,280,675, Cl. 244-155.00A.

Day, Charles E.: *See—*
Schurr, Paul E.; and Day, Charles E., 4,281,013, Cl. 424-283.000.

Dayco Corporation: *See—*
Bryan, James S.; Tell, Mayo B.; Brooks, Alvin R., Jr.; and Gaster, Ivan, 4,280,383, Cl. 83-140.000.
Guptil, Richard A.; Gaster, Ivan; and Meadows, Roger D., 4,280,722, Cl. 285-244.000.

De La Moneda, Francisco H.: *See—*
Bertin, Claude L.; De La Moneda, Francisco H.; and Soderman, Donald A., 4,280,855, Cl. 148-1.500.

Dean, Homer B.; and Mahurin, Ballard T., to International Business Machines Corporation. Heat fuser roll and method of manufacture. 4,280,263, Cl. 29-132.000.

Dean, Norman L.: *See—*
Perettie, Donald J.; and Dean, Norman L., 4,281,135, Cl. 546-345.000.

Deere & Company: *See—*
Friend, Kenneth D.; Gadtke, David W.; and Ziegler, Duane H., 4,281,388, Cl. 364-565.000.

Deffeyes, Robert J., to Graham Magnetics, Inc. Polymodal magnetic recording media and compositions useful therein. 4,281,043, Cl. 428-457.000.

DeGoler, Warren H. Animal tattooing paste and method of making the same. 4,280,813, Cl. 8-404.000.

Degussa Aktiengesellschaft: *See—*
Koehler, Wolfgang, 4,281,041, Cl. 428-336.000.

de Jong, Hendrik J., to N.V. Nederlandsche Apparatenfabriek NEDAP. Fastener apparatus. 4,280,256, Cl. 24-155.0BR.

DelBello, Vincenzo, to Societa Italiana Telecomunicazioni Siemens S.p.A. Condenser microphone. 4,281,221, Cl. 179-111.00R.

Delsing, Dale; and Fogelson, Mark, to Zenith Radio Corporation. Method and composition for electrically resistive material for television cathode ray tubes. 4,280,931, Cl. 252-518.000.

Demco, Inc.: *See—*
Babb, James H.; and Cox, Johnny C., 4,280,884, Cl. 204-109.000.

DeMesa, Nicanor P., III; and Laabs, John E., to Harris Corporation. Bus collision avoidance system for distributed network data processing communications system. 4,281,380, Cl. 364-200.000.

Deming, John M.: *See—*
Beesman, George B.; and Deming, John M., 4,280,833, Cl. 71-100.000.

de Montigny, Armand; and Moretto, Hans-Heinrich, to Bayer Aktiengesellschaft. Preparation of multi-branched silicon-functional polyorgano-siloxanes. 4,281,144, Cl. 556-416.000.

Demoute, Jean-Pierre: *See—*
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Jolly, Jean, 4,281,182, Cl. 562-506.000.

Denkowski, Walter J.; and Warsing, Daniel S., to Philadelphia Gear Corporation. Portable drive unit for valve actuator. 4,280,373, Cl. 74-625.000.

Dennison Manufacturing Company: *See—*
Shair, Irwin, 4,281,331, Cl. 346-75.000.

DePompei, Michael F.; and Hlynsky, Alex, to Diamond Shamrock Corporation. Quinoline catalyzed synthesis of pyridazinone pharmaceutical intermediates. 4,281,125, Cl. 544-239.000.

Deptolla, Udo: *See—*
Fabinski, Walter; and Deptolla, Udo, 4,281,248, Cl. 250-345.000.

Desrochers, Louis-Georges: *See—*
Allen, John R.; Desrochers, Louis-Georges; and Loyer, Alain, 4,280,407, Cl. 102-320.000.

Dessel, Thomas F. Quick-release fitting for a sailboat stay. 4,280,432, Cl. 114-109.000.

Deutsch, Adolf: *See—*
Koelichen, Harald; and Deutsch, Adolf, 4,280,277, Cl. 33-23.00D.

Deutsch, Daniel H. Microporous member with interconnected, oriented tapered voids. 4,280,909, Cl. 210-490.000.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Hentschel, Klaus; and Bittner, Friedrich, 4,281,123, Cl. 544-194.000.
Kleemann, Axel; Nubert, Ingomar; Stroman, Fritz; and Thiemer, Klaus, 4,281,010, Cl. 424-275.000.
Knorre, Helmut; and Fischer, Joachim, 4,280,914, Cl. 210-743.000.

Deutsche Texaco Aktiengesellschaft: *See—*
Brandes, Gunter; Wollner, Johannes; Neier, Wilhelm; and Webers, Werner, 4,281,206, Cl. 568-396.000.

Devico, Michael J.: *See—*
Hillman, Gary; and Devico, Michael J., 4,281,031, Cl. 427-45.100.

Dewhirst, Floyd E., to Forsyth Dental Infirmary for Children. Dental-cement composition and method of preparing and using same. 4,280,842, Cl. 106-35.000.

Dhabhar, Dadi J.; Heyd, Allen; and Schmidt, Nicholas F., to Richardson-Merrell Inc. Denture adhesive of sodium carboxymethylcellulose, poly(ethylene oxide) homopolymer and mineral oil. 4,280,936, Cl. 260-13.000.

Diamond International Corporation: *See—*
Struble, Glenn E., 4,280,810, Cl. 493-356.000.

Diamond Shamrock Corporation: *See—*
DePompei, Michael F.; and Hlynsky, Alex, 4,281,125, Cl. 544-239.000.

Dieck, Ronald L., to General Electric Company. Modified polyester compositions. 4,280,948, Cl. 260-40.00R.

Dieck, Ronald L., to General Electric Company. Modified polyester compositions containing mineral filler. 4,280,949, Cl. 260-40.00R.

Diehl GmbH & Co.: *See—*
Weber, Adolf; Rhau, Siegfried; and Ahlers, Utz-Udo, 4,280,408, Cl. 102-501.000.
Weidner, Peter, 4,280,410, Cl. 102-210.000.

Dietze, Klaus: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.

DiNapoli, Louis D.: *See—*
Connery, James G.; DiNapoli, Louis D.; and Punis, Giancarlo, 4,280,365, Cl. 73-861.250.

di Rosa, Gaetano, to Fata European Group S.p.A. Apparatus for cutting and metering slabs or bales of unvulcanized rubber. 4,280,575, Cl. 177-123.000.

Disko, Harry: *See—*
Katzman, Allison W.; Disko, Harry; and Jaworski, Eugene, 4,280,297, Cl. 46-41.000.
Kulesza, Ralph J.; Disko, Harry; and Thibault, James G., 4,280,300, Cl. 46-204.000.

Divine, David L. Combination fence and solar heater for swimming pools. 4,280,477, Cl. 126-416.000.

DiVita, Pietro, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Two-way coupler for branched light-transmission network. 4,280,751, Cl. 350-96.150.

Dixie Electrical Manufacturing Company: *See—*
Pardue, James I., Jr.; Hornsby, William M.; and Noble, Henry J., III, 4,280,768, Cl. 403-3.000.

Dohogne, L. Ranney, to Emerson Electric Co. Method of induction annealing squirrel cage rotors. 4,281,234, Cl. 219-10.430.

Dolby, Ray M. Apparatus and method for the identification of specially encoded FM stereophonic broadcasts. 4,281,217, Cl. 179-1.0GN.

Donaldson, Darrell J.; and Harper, Robert J., Jr., to United States of America, Agriculture. Method of imparting smolder resistance to cotton-containing textiles. 4,280,812, Cl. 8-116.00P.

Donaldson, Erle C.; and Sutterfield, F. Dexter, to United States of America, Energy. Method of determining interwell oil field fluid saturation distribution. 4,281,289, Cl. 324-355.000.

Donnally, William; and Smith, Chester L., to United States of America, Army. Fuze data quantizing system. 4,280,355, Cl. 73-5.000.

Doucette, Richard L., to Burroughs Corporation. High speed, low component count, CML exclusive NOR gate. 4,281,258, Cl. 307-455.000.

Dow Chemical Company, The: *See—*
Dunbar, Joseph E.; and Begin, Louis E., 4,281,118, Cl. 544-85.000.
Malhotra, Sudarshan K.; and Ricks, Michael J., 4,281,133, Cl. 546-298.000.
McCarty, Leslie P., 4,281,020, Cl. 424-342.000.
Perettie, Donald J.; and Dean, Norman L., 4,281,135, Cl. 546-345.000.
Sanner, James W.; and Owen, Peter W., 4,281,137, Cl. 548-239.000.
Small, Hamish; and Solc, Jitka K., 4,280,923, Cl. 252-323.000.
Snoble, Karel A. J., 4,281,200, Cl. 564-487.000.

Dow Corning Corporation: *See—*
Homan, Gary R.; and Blevins, Jan M., 4,281,094, Cl. 528-30.000.

Drago, Russell S.: *See—*
Gaul, John H., Jr.; and Drago, Russell S., 4,281,086, Cl. 525-330.000.

Drainoni, Riccardo A.: *See—*
Parsons, George W., Jr.; and Drainoni, Riccardo A., 4,281,252, Cl. 250-497.000.

Drake, Charles A., to Leach Industries. Game racquet. 4,280,699, Cl. 273-73.00C.

Dreml, Johann, to Peterzimmer America, Inc. Assembly for supporting printing screen. 4,280,405, Cl. 101-127.100.

Dressen, Anton, to Siemens Aktiengesellschaft. Circuit arrangement for evaluating pulse generator signals of various amplitudes. 4,281,262, Cl. 307-350.000.

Dresser Industries, Inc.: *See—*
Fuller, Dennis D., 4,280,571, Cl. 175-337.000.
McPhee, William A.; and Speights, Junius L., 4,280,568, Cl. 175-4.000.

Duill, Helmut: *See—*
Ansen, Jakob; Duill, Helmut; and Fasbender, Heinz, 4,280,283, Cl. 34-10.000.

Dunbar, Joseph E.; and Begin, Louis E., to Dow Chemical Company, The. Aminoalkylsulfides, aminoalkylsulfoxides, and aminoalkylsulfones. 4,281,118, Cl. 544-85.000.

Dunham, Harry K.: *See—*
Dunham, Heyward O.; and Dunham, Harry K., 4,280,852, Cl. 134-8.000.

Dunham, Heyward O.; and Dunham, Harry K. Metal tube cleaning method. 4,280,852, Cl. 134-8.000.

Dunleavy, Raymond A.; and Gill, William A., to Union Carbide Corporation. Copolymers, compositions, and articles, and methods for making same. 4,280,979, Cl. 264-157.000.

Dunlop Limited: *See—*
Bond, Robert; and Williams, Arthur R., 4,280,543, Cl. 152-209.00R.

Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, to Bayer Aktiengesellschaft. Coating compositions obtained by reacting amino carboxylic acids derivatives with polyisocyanates and compounds containing carboxylic groups to produce polymers containing hydantoin rings and amide groups. 4,281,095, Cl. 528-49.000.

Du Pont de Nemours, E. I., and Company: *See—*
Akers, Richard L., 4,280,667, Cl. 242-43.00R.
Anderson, Burton C.; and Frazer, August H., 4,281,106, Cl. 528-344.000.
Bellis, Harold E., 4,281,193, Cl. 564-215.000.
Bivens, Joseph R.; Lyerly, William M.; and Simmons, Walter J., 4,280,943, Cl. 260-29.20E.
Breazeale, Almut F., 4,281,092, Cl. 526-247.000.
Nelson, Thomas L., 4,280,261, Cl. 28-271.000.
Pamm, Georges, 4,281,042, Cl. 428-361.000.
Pazos, Jose F., 4,281,089, Cl. 525-456.000.
Strolle, Clifford H.; and Thornley, Glenn D., 4,281,078, Cl. 525-131.000.

Duprez, Wayne R.; and Wong, Backman, to Standard-Thomson Corporation. Automotive thermostatic valve. 4,280,655, Cl. 236-34.500.

Durda, Daniel J.; and Quigley, John T., to Aeration Industries. Method for treating water. 4,280,911, Cl. 210-629.000.

Durrant, Richard. Bulk loading facility having a drop way. 4,280,243, Cl. 14-71.100.

Dusza, John P.; and Albright, Jay D., to American Cyanamid Company. Substituted pyrazolo (1,5-a)pyrimidines and their use as anxiolytic agents. 4,281,000, Cl. 424-251.000.

Dutcher, Daniel P.: *See—*
Montealegre, James; and Dutcher, Daniel P., 4,280,651, Cl. 229-20.000.

Duval, Eugene F.; Bagshaw, David P.; Kast, Michael A.; Masters, Gilbert M.; and Whitehouse, Harry T. Freeze protection apparatus for solar collectors. 4,280,478, Cl. 126-420.000.

Dyachkov, Vasily M.: *See—*
Shlykov, Gennady N.; Dyachkov, Vasily M.; Zhestkov, Vitaly I.; and Tikhonov, Valentin N., 4,280,252, Cl. 19-255.000.

Dyche, Leslie, to Tool Production and Design Company Limited, The. Feed mechanism. 4,280,786, Cl. 414-749.000.

Dyform Engineering Limited: *See—*
Bunn, Christopher B., 4,280,800, Cl. 425-62.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Lang, Egon; and Nachtigall, Wilhelm, 4,280,802, Cl. 425-208.000.

E.C.-Hospitalsinventor A/S: *See—*
Vonsbaek, Ebbe; Hansen, Claus C.; and Munthe, Lene, 4,280,716, Cl. 280-642.000.

E M I -Varian Limited: *See—*
Baker, John E., 4,281,273, Cl. 315-39.610.

Eacret, Dan P., to Roberts, David P., a part interest. Cloth snag repair tool. 4,280,641, Cl. 223-1.000.

Eastham, John F.; and Evans, Peter D., to KGEL Limited. Disc motor with A.C. and D.C. stator windings. 4,281,265, Cl. 310-254.000.

Eastman Kodak Company: *See—*
Bond, Gary L., 4,280,814, Cl. 8-588.000.
Hyatt, John A.; French, Stephen E.; and Maggiulli, Cataldo A., 4,281,143, Cl. 548-360.000.
Irick, Gether, Jr.; and Wang, Richard H. S., 4,281,129, Cl. 546-6.000.
Kiefer, John E., 4,280,925, Cl. 252-428.000.
Tang, Ching W., 4,281,053, Cl. 430-58.000.
Wilson, John C., 4,281,207, Cl. 568-433.000.

Eaton Corporation: *See—*
Goscenski, Edward J., Jr., 4,280,375, Cl. 74-711.000.
Whitcomb, Paul H., 4,280,539, Cl. 144-2.00Z.
Zukausky, Keith E.; and Berlin, Donald M., Jr., 4,280,682, Cl. 251-251.000.

Ebauches S.A.: *See—*
Besson, Rene; and Scherrer, Igor, 4,281,405, Cl. 368-66.000.

Ebersole, Ralph R.: *See—*
Peacey, John G.; Ebersole, Ralph R.; Kitzinger, Frank; and Viens, Jean-Claude, 4,281,290, Cl. 324-426.000.

Eck, Leonard F.; and Horgen, Lyle, to Kansas Jack, Inc. Radius plate structure. 4,280,280, Cl. 33-203.120.

Eckberg, Keith S., II, to Stout Industries, Inc. Universal sign. 4,280,294, Cl. 40-606.000.

Eckerdt, Lawrence W., to Albany International Corp. Suction dewatering system with cam actuated adjustable slot, 4,280,869, Cl. 162-252.000.

Edgerton, Philip. Rotary valve for a regenerative thermal reactor. 4,280,416, Cl. 110-254.000.

Egawa, Hideharu; Matsuki, Koji; and Suzuki, Yasoji, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for preparing complementary semiconductor device. 4,280,272, Cl. 29-571.000.

Eggers, Edward T., to Sperry Corporation. Tensioning apparatus. 4,280,320, Cl. 56-341.000.

Ehrrich, John E., to Ercon Corporation. Liquid filter and mass transfer means. 4,280,658, Cl. 239-6.000.

Eilerman, Robert G.: *See—*
Willis, Brian J.; and Eilerman, Robert G., 4,281,204, Cl. 568-361.000.

Eisemann, Kurt; and Montag, Jurgen, to U.S. Philips Corporation. Record player. 4,280,705, Cl. 369-233.000.

Eisenbeiss, Friedhelm: *See—*
Gunkel, Werner; and Eisenbeiss, Friedhelm, 4,280,905, Cl. 210-198.200.

Elahi, Nasik. Macroencapsulated immunosorbent assay technique and element therefor. 4,280,816, Cl. 23-230.00B.

Electricite de France: *See—*
Marjollet, Jacques; Tondeur, Gerard; Cerdan, Jean-Pierre; and Talleu, Patrick, 4,280,825, Cl. 55-203.000.

Electro-Catheter Corporation: *See—*
Ackerman, Bernard, 4,280,503, Cl. 128-419.00P.

Eli Lilly and Company: *See—*
Chauvette, Pamela A.; and Chauvette, Robert R., 4,281,117, Cl. 544-016.000.
Chauvette, Robert R., 4,281,116, Cl. 544-16.000.
Merritt, Leander; and Pioch, Richard P., 4,281,141, Cl. 548-342.000.
Miesel, John L., 4,281,003, Cl. 424-263.000.

Elias, Thomas C., to Boise Cascade Corporation. Composite container including a peelable membrane closure member, and method 4,280,653, Cl. 229-43.000.

Elles, Daniel G.: *See—*
Burzen, Don N.; Workman, David E.; Bromley, Robert L.; Elles, Daniel G.; and Wilkuski, James E., 4,280,247, Cl. 16-112.000

Elliott Brothers (London) Limited: *See—*
Chapman, Peter; and Redfern, Martin W., 4,281,275, Cl 315-399.000.

Ellis, Don A.: *See—*
Flader, Tom R.; and Ellis, Don A., 4,280,758, Cl. 351-55.000.

Ellis, Jeffrey R.: and Wagner, Herman B., to Tile Council of America Inc. Sag resistant mortar compositions. 4,280,848, Cl. 106-90.000.

Elmar Plastics, Inc.: *See—*
Schor, S. Allen, 4,280,670, Cl. 242-68.500.

Elving, Robert L.; and Carlson, Randolph S., to Elving, Robert L. Variable photoelectric cell. 4,281,365, Cl. 362-20.000.

Emerson Electric Co.: *See—*
Dohogne, L. Ranney, 4,281,234, Cl. 219-10.430.

Endo, Ichiro: *See—*
Ito, Hiroshi; Endo, Ichiro; and Ohno, Shigeru, 4,281,052, Cl 430-48.000.

Endo, Toshinaga: *See—*
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.

Energistics, Inc.: *See—*
Rosen, George, 4,280,376, Cl. 74-788.000.

Energy Conversion Devices, Inc.: *See—*
Ovshinsky, Stanford R.; Angell, Daniel K.; and Yu, Terry T., 4,281,058, Cl. 430-296.000.

Eng, Kjell; and Bengtsson, Anders G., to AB Aiser. Protective pad or garment for the human body or parts thereof. 4,280,342, Cl. 66-177.000.

Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, to Voest-Alpine Aktiengesellschaft. Tiltable converter arrangement. 4,280,688, Cl. 266-245.000.

Envirex, Inc.: *See—*
Applegate, Charles S.; and Erickson, Paul R., 4,280,913, Cl. 210-669.000.

Ercon Corporation: *See—*
Ehrrich, John E., 4,280,658, Cl. 239-6.000.

Erhard, Helmut, to Heidelberger Zement Aktiengesellschaft. Method of combining in-the-mill drying and firing of coal with enhanced heat recovery. 4,280,418, Cl. 110-347.000.

Erickson, John W.; and Petrie, Harold L., to Kobe, Inc. Erosion resistant jet pump and method of making same. 4,280,662, Cl. 239-591.000.

Erickson, Paul R.: *See—*
Applegate, Charles S.; and Erickson, Paul R., 4,280,913, Cl. 210-669.000.

Escher, Balint; Prince, Dominique; and Vasseux, Jean, to Societe Lignes Telegraphics et Telephoniques. Process for the manufacture of tantalum solid electrolyte capacitors. 4,280,270, Cl. 29-570.000.

Escher Wyss GmbH: *See—*
Bubik, Alfred; Kurtz, Rudiger; and Kutzelmann, Hermann, 4,280,870, Cl. 162-336.000.

Escott, Barnee M.; Reynolds, Jerald J.; and Ward, William C., to International Business Machines Corporation. Method for coating mold. 4,281,032, Cl. 427-135.000.

Eshghy, Siavash, to Rockwell International Corporation. Tension control of fasteners. 4,280,380, Cl. 81-470.000.

Ethyl Corporation: *See—*
Hafele, Robert X., 4,280,630, Cl. 215-100.00A.
Hafele, Robert X., 4,280,805, Cl. 425-525.000.

Eurosil, GmbH: *See—*
Moegen, Gerhard; and Wotruba, Gottfried, 4,281,260, Cl. 307-573.000.

Evans, John H., to Stant Inc. Torque override threaded locking cap. 4,280,346, Cl. 70-165.000.

Evans, John H., to Stant Inc. Torque override threaded locking cap. 4,280,347, Cl. 70-165.000.

Evans, Kenneth S., to Lucas Industries Limited. Power supply circuits. 4,281,377, Cl. 363-63.000.

Evans, Peter D.: *See—*
Eastham, John F.; and Evans, Peter D., 4,281,265, Cl. 310-254.000.

Exxon Production Research Company: *See—*
Best, Donald A., 4,280,559, Cl. 166-303.000.

Exxon Research & Engineering Co.: *See—*
Bearden, Roby; and Stuntz, Gordon F., 4,280,896, Cl. 208-113.000.
Stuntz, Gordon F.; and Bearden, Roby, 4,280,895, Cl. 208-113.000.
Taylor, William F., 4,280,894, Cl. 208-15.000.

Eysn, Manfred: *See—*
Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, 4,280,688, Cl. 266-245.000.

F. L. Smidth & Co.: *See—*
Christensen, Erik C., 4,280,267, Cl. 29-426.300.

F.lli Marzoli & C. S.p.A.: *See—*
Marzoli, Angelo, 4,280,321, Cl. 57-81.000.
Fabinski, Walter; and Deptolla, Udo, to Hartmann & Braun Aktiengesellschaft. Nondispersive infrared gas analyzer. 4,281,248, Cl. 250-345.000.
Falchle, Jorg: *See—*
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, 4,280,359, Cl. 73-123.000.
Falconer, Claude J. Utilization of solar energy. 4,280,328, Cl. 60-641.00A.
Farrar, James G.: *See—*
Narlow, Douglas A.; and Farrar, James G., 4,281,321, Cl. 340-572.000.
Fasbender, Heinz: *See—*
Ansen, Jakob; Duill, Helmut; and Fasbender, Heinz, 4,280,283, Cl. 34-10.000.
Fata European Group S.p.A.: *See—*
di Rosa, Gaetano, 4,280,575, Cl. 177-123.000.
Fawcett, Sherwood L.; and Anno, James N., to Battelle Development Corporation. Unidirectional energy converter. 4,280,325, Cl. 60-370.000.
Fearing, Ralph B.; Telschow, Jeffrey E.; and Weil, Edward D., to Stauffer Chemical Company. Filled unsaturated polyester resin compositions having lowered viscosities. 4,281,071, Cl. 525-2.000.
Featherstone, Garnet I. Crepe cooking machine. 4,280,402, Cl. 99-355.000.
Federal Signal Corporation: *See—*
Gosswiller, Earl W., 4,281,311, Cl. 340-81.00R.
Feicho, Lutz: *See—*
Wischniewski, Martin; Feicho, Lutz; Fischer, Gerhard; and Peschke, Guenter, 4,280,971, Cl. 264-15.000.
Feldmann, Herman F.: *See—*
Chauhan, Satya P.; Feldmann, Herman F.; Stambaugh, Edgel P.; and Liu, Ke-Tien, 4,280,817, Cl. 44-1.00R.
Fellmann, Robert P.; Kory, Daniel R.; and Staas, William H., to Rohm and Haas Company. Cocontinuous interpenetrating morphological network composition of polymer of methyl methacrylate and polymer of ethylene-vinyl acetate. 4,281,084, Cl. 525-309.000.
Ferguson, Fred E.; Hughes, Rory R.; and Fersch, Kenneth E., to O. M. Scott and Sons Company. Urea-formaldehyde granular fertilizer. 4,280,830, Cl. 71-25.000.
Fernando, Quintus: *See—*
Zeitlm, Harry; and Fernando, Quintus, 4,280,986, Cl. 423-41.000.
Fernlund, Ingemar, to SKF Industries, Inc. Double-row spherical roller bearing. 4,280,743, Cl. 308-217.000.
Ferrari, Luciano; Fourest, Bernard; Kayser, Gaston; and Martin, Robert, to Commissariat a l'Energie Atomique. Core catcher device. 4,280,872, Cl. 176-38.000.
Fersch, Kenneth E.: *See—*
Ferguson, Fred E.; Hughes, Rory R.; and Fersch, Kenneth E., 4,280,830, Cl. 71-25.000.
Field, George F.; and Zally, William J., to Hoffmann-La Roche Inc. Imidazolecarboxaldehydes. 4,281,142, Cl. 548-343.000.
Filer, Burt, to Filer, Sandra Lee. Tube extracting apparatus. 4,280,274, Cl. 29-726.000.
Filer, Sandra Lee: *See—*
Filer, Burt, 4,280,274, Cl. 29-726.000.
Filka, Karel: *See—*
Coupek, Jiri; Filka, Karel; and Kocourek, Jan, 4,281,233, Cl. 260-112.00R.
Firestone Tire & Rubber Company, The: *See—*
Lohr, Delmar F., Jr., 4,280,927, Cl. 252-431.00N.
Firmenich SA: *See—*
Schulte-Elte, Karl-Heinrich, 4,280,934, Cl. 252-522.00R.
Fischer, Artur; and Fischer, Klaus, to Fischer, Artur. Arrangement for anchoring a mounting element in a support structure and mounting an object on the same. 4,280,391, Cl. 411-15.000.
Fischer, Gerhard: *See—*
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Fischer, Raymond C., to International Harvester Company. Pneumatic system for conveying granular material. 4,280,419, Cl. 111-80.000.
Fischli, Albert E.; and Szente, Andre, to Hoffmann-La Roche Inc. N'[3-(halobenzoyl)-4-(glycylamino)phenyl]ureas. 4,281,188, Cl. 564-51.000.
Fish, Leonard A.: *See—*
Burnett, Bradley W.; Fiterman, Charles E.; and Fish, Leonard A., 4,281,323, Cl. 340-712.000.
Fisons Limited: *See—*
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Fitch, James F., Jr.: *See—*
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Fiterman, Charles E.: *See—*
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Fitz, Forest G., Jr.: *See—*
Budzich, Mieczyslaw; Fitz, Forest G., Jr.; and Lawrence, Andrew M., 4,280,901, Cl. 209-154.000.
Flader, Tom R.; and Ellis, Don A., to Flader, Tom R. Vertically adjustable bifocal eye glasses. 4,280,758, Cl. 351-55.000.
Fleissner, Hans, to Vepa AG. Apparatus for the continuous wet treatment of liquid-permeable textile material or the like. 4,280,343, Cl. 68-158.000.
Flook, Glen E., Jr.: *See—*
LeFever, Randall H.; Harvey, William J.; and Flook, Glen E., Jr., 4,281,364, Cl. 362-10.000.
Floyd, Middleton B., Jr.; Weiss, Martin J.; Grudzinskas, Charles V.; and Lai Chen, Sow-Mei, to American Cyanamid. 15-Deoxy-16-hydroxy-16-substituted prostanoic acids and congeners. 4,281,153, Cl. 560-118.000.
FMC Corporation: *See—*
Milberger, Lionel J.; and Tucker, Albert R., 4,280,531, Cl. 137-624.110.
Yaffe, Jerome, 4,281,014, Cl. 424-285.000.
Fobes, Norman H.: *See—*
Miller, Paul W.; and Fobes, Norman H., 4,280,671, Cl. 242-78.300.
Foderick, John W. Inflatable catheter means and method. 4,280,501, Cl. 128-349.00B.
Fodor, Joseph E. Forced-air heat exchange system. 4,280,481, Cl. 126-429.000.
Fogelson, Mark: *See—*
Delsing, Dale; and Fogelson, Mark, 4,280,931, Cl. 252-518.000.
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Spaziante, Placido; Sioli, Giancarlo; and Giuffre, Luigi, 4,281,184, Cl. 562-603.000.
Ford, Geoffrey E., to TI Fords Limited. Bottle inspection apparatus. 4,280,624, Cl. 209-524.000.
Ford Motor Company: *See—*
Chattha, Mohinder S., 4,281,075. Cl. 525-110.000.
Moskowitz, David; and Terner, Leslie L., 4,280,973, Cl. 264-63.000.
Oblinger, Fred G., 4,281,197, Cl. 564-393.000.
Van Wicklin, Warren A., Jr., 4,280,372, Cl. 74-552.000.
Formica Corporation: *See—*
Green, Robert W., 4,280,942, Cl. 260-27.00R.
Forrest, Robert T., to General Electric Company. Multichannel radio telephone system. 4,281,413, Cl. 455-34.000.
Forsman, Lars O. Apparatus for indicating inside dimensions. 4,280,278, Cl. 33-178.00R.
Forsyth Dental Infirmary for Children: *See—*
Dewhirst, Floyd E., 4,280,842, Cl. 106-35.000.
Foseco International Limited: *See—*
Hawthorne, Peter F.; and Rollin, Peter J., 4,281,035, Cl. 427-199.000.
Fourest, Bernard: *See—*
Ferrari, Luciano; Fourest, Bernard; Kayser, Gaston; and Martin, Robert, 4,280,872, Cl. 176-38.000.
Fowler, Herman H.: *See—*
Pechnyo, Michael; and Fowler, Herman H., 4,280,522, Cl. 137-72.000.
Fox, Jeffrey R.; Margolies, Arthur; Moolenbeek, Rob; and Resnick, Martin L., to GTE Laboratories Incorporated. Monitoring and signalling system including apparatus for processing binary signals having multiple messages. 4,281,394, Cl. 364-900.000.
Frailey, George E. Telephone dialing and answering device. 4,281,220, Cl. 179-90.0AD.
Franckowiak, Gerhard; Bossert, Friedrich; Heise, Arend; and Towart, Robertson, to Bayer Aktiengesellschaft. 1,4-Dihydropyridazine-3-carboxylic acid derivatives, a process for their preparation and their use as antihypertensives. 4,280,998, Cl. 424-250.000.
Frank, Walter; Bendszus, Otto; Freier, Hans J; and Traenckner, Hans-Joachim, to Bayer Aktiengesellschaft. Aqueous polyester emulsions for the production of open-pore coatings. 4,281,068, Cl. 521-62.000.
Fraula, Louis F.; McMahon, William H.; and Heckman, Thomas B., to Hobart Corporation. Warewashing machine splashover return system. 4,280,520, Cl. 134-60.000.
Frazer, August H.: *See—*
Anderson, Burton C.; and Frazer, August H., 4,281,106, Cl. 528-344.000.
Frazier, Lawrence M.; and Johnson, William H., to General Dynamics, Pomona Division. Range corrector circuit for a bistatic passive radar display. 4,281,327, Cl. 343-12.00R.
Fredd, John V., to Otis Engineering Corporation. Valve. 4,280,561, Cl. 166-332.000.
Fredriksson, Lars O. A., to K A Bergs Smide AB. Grab hook. 4,280,728, Cl. 294-78.00R.
Freel, John: *See—*
Montagna, John C.; Galli, Robert D.; and Freel, John, 4,280,881, Cl. 203-51.000.
Freelander, Israel R.; and Freelander, Michael S. Toy ski. 4,280,715, Cl. 280-623.000.
Freelander, Michael S.: *See—*
Freelander, Israel R.; and Freelander, Michael S., 4,280,715, Cl. 280-623.000.
Freier, Hans J: *See—*
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Freitag, Dieter: *See—*
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, 4,281,101, Cl. 528-196.000.
French, Stephen E.: *See—*
Hyatt, John A.; French, Stephen E.; and Maggiulli, Cataldo A., 4,281,143, Cl. 548-360.000.
Frey, Hans-Helmut: *See—*
Klug, Helmut; and Frey, Hans-Helmut, 4,280,940, Cl. 260-23.0XA.

Friedrich Wilh. Schwing GmbH: *See—*
Schwing, Friedrich W.; and von Eckardstein, Karl-Ernst, 4,280,771, Cl. 405-150.000.
Friel, Ronald N.: *See—*
Datta, Pabitra; and Friel, Ronald N., 4,280,941, Cl. 260-23.0XA.
Friend, Kenneth D.; Gadtke, David W.; and Ziegler, Duane H., to Deere & Company. Tachometer. 4,281,388, Cl. 364-565.000.
Friese, Karl-Hermann; Haecker, Wolf-Dieter; and Pfeiffer, Burkhard, to Robert Bosch GmbH. Electrochemical sensor for oxygen concentration determination in gases and method of making the same. 4,280,890, Cl. 204-195.00S.
Friesorger, David F.: *See—*
Shannon, Gilbert E.; and Friesorger, David F., 4,280,338, Cl. 64-2.00R.
Fritzsche Dodge & Olcott Inc.: *See—*
Willis, Brian J.; and Eilerman, Robert G., 4,281,204, Cl. 568-361.000.
Fryer, Rodney I.: *See—*
Walser, Armin; and Fryer, Rodney I., 4,280,957, Cl. 260-244.400.
Fuji Jukogyo Kabushiki Kaisha: *See—*
Yamaguchi, Hiroshi; Kaneko, Hiroaki; and Nagano, Toshihiro, 4,280,455, Cl. 123-196.00M.
Fuji Photo Film Co., Ltd.: *See—*
Usami, Toshimasa; Kobayashi, Tomoyuki; Tatsuta, Sumitaka; and Komine, Shigeo, 4,281,060, Cl. 430-618.000.
Fujii, Etsuo: *See—*
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Fujishiro, Takeshi: *See—*
Kobayashi, Hiroshi; Kita, Toru; and Fujishiro, Takeshi, 4,280,360, Cl. 73-198.000.
Fujitsu Limited: *See—*
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Fukui, Shinya: *See—*
Nagata, Yoshiaki; and Fukui, Shinya, 4,280,950, Cl. 260-42.210.
Fuller, Dennis D., to Dresser Industries, Inc. Rock bit. 4,280,571, Cl. 175-337.000.
Funabashi, Katsunori: *See—*
Kouyama, Mikihiro; and Funabashi,. Katsunori, 4,280,582, Cl. 180-219.000.
Furtner, Walter: *See—*
Kerscher, Albert; and Furtner, Walter, 4,280,398, Cl. 92-29.000.
Fushimi, Kiyoshi, to Hitachi, Ltd. Receiving channel number indication system for television receiver. 4,281,414, Cl. 455-158.000.
Fussi, Fernando, to Hepar Industries, Inc. Process for obtaining low molecular weight heparins endowed with elevated pharmacological properties, and product so obtained. 4,281,108, Cl. 536-21.000.
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., to Cummins Engine Company, Inc. Fuel injector. 4,280,659, Cl. 239-124.000.
Gabriel of Canada Limited: *See—*
Patriquin, William G., 4,280,601, Cl. 188-316.000.
Gadtke, David W.: *See—*
Friend, Kenneth D.; Gadtke, David W.; and Ziegler, Duane H., 4,281,388, Cl. 364-565.000.
GAF Corporation: *See—*
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Galli, Robert D.: *See—*
Montagna, John C.; Galli, Robert D.; and Freel, John, 4,280,881, Cl. 203-51.000.
Galperin, Alexandr L.: *See—*
Onikov, Eduard A.; Galperin, Alexandr L.; Serebryannikov, Albert S.; Zabotin, Alexandr A.; and Loschilin, Evgeny D., 4,280,537, Cl. 139-436.000.
Gambaro, Susan M. Tooth cleaning implement. 4,280,518, Cl. 132-93.000.
Ganoung, David P. Powertrain and apparatus using a continuously variable ratio transmission to improve fuel economy. 4,280,469, Cl. 123-568.000.
Gant, Gary L.: *See—*
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., 4,280,659, Cl. 239-124.000.
Garden, William D., to Imperial Chemical Industries Limited. Catalyst compositions and their use in the preparation of release coatings. 4,281,093, Cl. 528-15.000.
Gardner, Jeffrey M.; Sensenbrenner, Ronald R.; and Nelson, Bennie C., Jr., to Container Corporation of America. Partition structure. 4,280,650, Cl. 229-15.000.
Garrett Corporation, The: *See—*
Mackay, Robin, 4,280,327, Cl. 60-641.0AC.
Rackley, Ray A.; and Carpenter, David V., 4,280,329, Cl. 60-754.000.
Garvey, Michael J.; and Griffiths, Ian C., to Lever Brothers Company. Stabilized aluminosilicate slurries. 4,280,920, Cl. 252-173.000.
Gaster, Ivan: *See—*
Bryan, James S.; Tell, Mayo B.; Brooks, Alvin R., Jr.; and Gaster, Ivan, 4,280,383, Cl. 83-140.000.
Guptil, Richard A.; Gaster, Ivan; and Meadows, Roger D., 4,280,722, Cl. 285-244.000.
Gates Rubber Company, The: *See—*
Heikes, George E., Jr.; and Henderson, Claude L., 4,280,709, Cl. 277-229.000.
Stuemky, Robert E., 4,280,339, Cl. 64-9.00R.
Gaul, John H., Jr.; and Drago, Russell S., to University of Illinois Foundation, The. Polymer bound multidentate complexes. 4,281,086, Cl. 525-330.000.
Gausman, James W.: *See—*
Willenbring, Armer J.; Osby, Warren J.; and Gausman, James W., 4,280,381, Cl. 83-86.000.
Gautier, Herve: *See—*
Maerfeld, Charles; and Gautier, Herve, 4,281,350, Cl. 358-213.000.
Gawne, Gordon S. Bi-directional pump-turbine. 4,280,791, Cl. 415-90.000.
Gebura, Stanley E.: *See—*
Kienzle, Charles; Gebura, Stanley E.; and Boghosian, John W., 4,281,067, Cl. 521-56.000.
Geiser, Joseph F.: *See—*
Hopper, Roger J.; Sturm, Budd H.; and Geiser, Joseph F., 4,280,967, Cl. 260-785.000.
Gellert, Jobst U.: *See—*
Lord, John; and Gellert, Jobst U., 4,280,908, Cl. 210-446.000.
General Dynamics: *See—*
Holland, Charles L., 4,280,804, Cl. 425-388.000.
General Dynamics, Pomona Division: *See—*
Frazier, Lawrence M.; and Johnson, William H., 4,281,327, Cl. 343-12.00R.
Shores, Marvin W., 4,281,328, Cl. 343-763.000.
General Electric Company: *See—*
Ammann, Charles L., 4,280,975, Cl. 264-81.000.
Andrews, Charles L.; and Belden, Lorne H., Jr., 4,281,287, Cl. 324-95.000.
Archer, William R., 4,281,374, Cl. 363-41.000.
Ashby, Bruce A., 4,281,146, Cl. 556-456.000.
Bayer, Eric W.; and Palmisano, Edward A., 4,281,359, Cl. 361-115.000.
Bechard, Conrad E.; Davenport, John M.; and Lynch, Denis A., Jr., 4,281,274, Cl. 315-49.000.
Borom, Marcus P.; and Schultz, John, Jr., 4,280,932, Cl. 252-521.000.
Brehse, Robert F., 4,281,360, Cl. 361-303.000.
Cutler, John H.; and Walker, Loren H., 4,281,276, Cl. 318-803.000.
Danzig, Ivan F., 4,281,047, Cl. 429-217.000.
Dieck, Ronald L., 4,280,948, Cl. 260-40.00R.
Dieck, Ronald L., 4,280,949, Cl. 260-40.00R.
Forrest, Robert T., 4,281,413, Cl. 455-34.000.
Graff, William A., 4,280,843, Cl. 106-48.000.
Heft, Eldon B., 4,281,303, Cl. 335-16.000.
Johnson, Peter D., 4,281,267, Cl. 313-25.000.
Keim, Thomas A.; and Jones, Donald W., 4,281,264, Cl. 310-194.000.
Kinson, Philip L., 4,281,088, Cl. 525-439.000.
Kornrumpf, William P., 4,281,372, Cl. 363-20.000.
Masenheimer, John H.; and Bradley, Irving, 4,281,370, Cl. 362-287.000.
Mitchell, Tyrone D., 4,281,145, Cl. 556-440.000.
Olander, Walter K., 4,280,963, Cl. 260-429.00C.
Schoendube, Charles W., 4,281,306, Cl. 336-5.000.
Sciscione, Philip, 4,281,213, Cl. 174-68.00B.
Shade, Ray W., 4,281,149, Cl. 556-472.000.
Takekoshi, Tohru, 4,281,100, Cl. 528-188.000.
Wojcik, Dennis J., 4,280,580, Cl. 180-169.000.
Wooten, William H., Jr.; and Speir, Donald W., 4,280,660, Cl. 239-265.350.
General Electric Company Limited, The: *See—*
Vincent, Vera M., 4,280,273, Cl. 29-577.00R.
General Foods Corporation: *See—*
Pitchon, Esra; O'Rourke, Joseph D.; and Joseph, Theodore H., 4,280,851, Cl. 127-33.000.
General Foods Limited: *See—*
Pyves, Richard R., 4,281,023, Cl. 426-385.000.
General Motors Corporation: *See—*
Klomp, Edward D., 4,280,456, Cl. 123-196.00R.
Lakey, Leroy E., 4,281,277, Cl. 320-6.000.
Shannon, Gilbert E.; and Friesorger, David F., 4,280,338, Cl. 64-2.00R.
Shaw, Arthur R., 4,280,395, Cl. 91-47.000.
Walters, Leslie K., 4,280,466, Cl. 123-520.000.
Gengnagel, Kurt: *See—*
Papenfuhs, Theodor; and Gengnagel, Kurt, 4,281,187, Cl. 564-50.000.
George, Joachim, to Bayer Aktiengesellschaft. Process for the preparation of Schiff's bases by the reaction of aromatic amines with ketones. 4,281,195, Cl. 564-271.000.
George, John B., to RCA Corporation. Power supply arrangement for a tuning system. 4,281,349, Cl. 358-191.100.
Gerber, B. Lynn. Remotely adjustable sighting device for tractors. 4,280,281, Cl. 33-264.000.
Germain, Robert A., to True Temper Corporation. Injection molded snow shovel. 4,280,727, Cl. 294-54.000.
Gewerkschaft Eisenhutte Westfalia: *See—*
Lobbe, Armin, 4,280,735, Cl. 299-81.000.
Rassmann, Christoph; Hauschopp, Alois; Schwolow, Gunter; and Huss, Horst, 4,280,733, Cl. 299-34.000.
Geyer, Hermann: *See—*
Ambros, Peter; and Geyer, Hermann, 4,281,038, Cl. 428-131.000.
Gibbons, Ian: *See—*
Zuk, Robert F.; Gibbons, Ian; Rowley, Gerald L.; and Ullman, Edwin F., 4,281,061, Cl. 435-7.000.
Gibbs, Stephen, to Keystone International, Inc. Apparatus and process for die-casting. 4,280,549, Cl. 164-113.000.
Gilbert, Richard S.; and Cardozo, Douglas W. Tool and method for attaching electrode to body tissue. 4,280,513, Cl. 128-785.000.

Gilbride, Andrew J., to USM Corporation. Segmented lasting wiper. 4,280,242, Cl. 12-12.400.

Gill, William A.: *See—*
Dunleavy, Raymond A.; and Gill, William A., 4,280,979, Cl. 264-157.000.

Gilles, Richard C.: *See—*
Scheetz, Howard A.; and Gilles, Richard C., 4,281,070, Cl. 525-1.000.

Gilmore, Herbert O., to Goodyear Tire & Rubber Company, The. Tire having a folded fabric reinforcement member and a method of building same. 4,280,547, Cl. 152-354.00R.

Gilmore, John F.: *See—*
Young, Robert G.; and Gilmore, John F., 4,281,271, Cl 313-493.000.

Gimelfarb, Natan M.; Lugovnev, Fedor T.; and Misjura, Nikolai E. Apparatus for cleansing cattle hides. 4,280,345, Cl. 69-32.000.

Giolito, Silvio L.: *See—*
Mirviss, Stanley B.; and Giolito, Silvio L., 4,280,945, Cl. 260-30.60R.

Giraud, Jean; and Laigneau, Richard, to Creusot-Loire. Light weight armored vehicle. 4,280,393, Cl. 89-36.00H.

Gitelman, Ephraim; Marston, Glendon P.; and Bird, Peter A., to Computek, Inc. Programmable computer terminal system. 4,281,393, Cl. 364-900.000.

Giuffre, Luigi: *See—*
Spaziante, Placido; Sioli, Giancarlo; and Giuffre, Luigi, 4,281,184, Cl. 562-603.000.

Givaudan Corporation: *See—*
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Gjesdal, J. Harvey. Rotary seed cleaner. 4,280,900, Cl. 209-34.000.

Glaum, Gerald V.: *See—*
Subramanian, Kohur N.; Glaum, Gerald V.; and Walli, Einar, 4,280,988, Cl. 423-140.000.

Gleinig, Harald: *See—*
Lehment, Klaus-Friedrich; Raue, Roderich; and Gleinig, Harald, 4,281,112, Cl. 542-417.000.

Glinecke, Hermann R., to Globe Fire Equipment Company. Distributor for fire protection sprinkler head. 4,280,562, Cl. 169-39.000.

Globe Computers AB: *See—*
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Globe Fire Equipment Company: *See—*
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Gnant, Erich. Connecting device for insulated duct work. 4,280,536, Cl. 138-149.000.

Gnilitsky, Boris S.: *See—*
Koshman, Vitaly I.; Petrichenko, Vladimir F.; Gnilitsky, Boris S.; Mironenko, Vyacheslav G.; and Kamshitsky, Pavel V., 4,281,304, Cl. 335-72.000.

Goguet, Jean A., to Societe Anonyme Automobiles Citroen; and Automobiles Peugeot. Universal joint, notably for automobile vehicle transmissions. 4,280,340, Cl. 64-21.000.

Goldstein, Raymond: *See—*
Goss, Willis C.; and Goldstein, Raymond, 4,280,766, Cl. 356-350.000.

Goncharko, Michael, to Singer Company, The. Display arrangement for giving a visible pattern corresponding to one or more stitch parameters in a sewing machine. 4,280,423, Cl. 112-158.00E.

Gonzalez Barrera, Roberto: *See—*
Longenecker, John G., 4,281,025, Cl. 426-496.000.

Gonzalez, Ricardo, to Worcester Controls Corp. Lockable end plug for valve housings. 4,280,526, Cl. 137-315.000.

Goodden, Dennis D. Harness for lifting heavy objects. 4,280,645, Cl. 224-259.000.

Goodwin, Wendell W. Sacrificial anodic protector kit for a propeller shaft. 4,280,794, Cl. 416-146.00R.

Goodyear Tire & Rubber Company, The: *See—*
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Bullard, Herbert L.; and Osborn, Robert A., 4,281,080, Cl. 525-205.000.
Gilmore, Herbert O., 4,280,547, Cl. 152-354.00R.
Hopper, Roger J.; Sturm, Budd H.; and Geiser, Joseph F., 4,280,967, Cl. 260-785.000.

Gorder, Paul R. Personnel carrier for weed control. 4,280,711, Cl. 280-32.500.

Gordon, Gerald, to Continental Group, Inc., The. Adhesive application of two-part container. 4,280,268, Cl. 29-446.000.

Gordon, Philip L.: *See—*
Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., 4,280,954, Cl. 260-123.700.

Gordon, Travis H.: *See—*
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.

Gorshe, Thomas M.: *See—*
Akkala, Walter I.; and Gorshe, Thomas M., 4,280,313, Cl. 53-175.000.

Goscenski, Edward J., Jr., to Eaton Corporation. Controlled differential. 4,280,375, Cl. 74-711.000.

Goss, John B.; and Morrow, William D. Anti-two block system. 4,280,628, Cl. 212-266.000.

Goss, Willis C.; and Goldstein, Raymond, to United States of America, National Aeronautics and Space Administration. Optical gyroscope system. 4,280,766, Cl. 356-350.000.

Gosswiller, Earl W., to Federal Signal Corporation. Method and apparatus for increasing effective light intensity of a rotating light. 4,281,311, Cl. 340-81.00R.

Goto, Kazuhiro: *See—*
Maruyama, Yutaka; Goto, Kazuhiro; and Terazawa, Michio, 4,281,001, Cl. 424-256.000.

Gounji, Takashi; and Kasai, Yoshihiko, to Fujitsu Limited. Flexural transducer. 4,281,298, Cl. 333-186.000.

Grabner, Christian; Reinhard, Theodor; Krugener, Rolf; and Kurth, Hermann W., to Daimler-Benz Aktiengesellschaft. Rotary cylinder lock, especially for automotive vehicles. 4,280,349, Cl. 70-358.000.

Grace, Martin K.: *See—*
Coon, Michael D.; Grace, Martin K.; and Smith, Steven R., 4,281,239, Cl. 235-92.0GA.

Graden, Lester E. Water elevating wheel. 4,280,789, Cl. 415-6.000.

Gradient: *See—*
Virolleau, Alain F.; Kant, Michel; and Burnier, Pierre H., 4,281,263, Cl. 310-13.000.

Graff, William A., to General Electric Company. Frit glass composition. 4,280,843, Cl. 106-48.000.

Graham, Kenneth A., to Chrysler Corporation. Fuel spray bar for internal combustion engine. 4,280,463, Cl. 123-445.000.

Graham Magnetics, Inc.: *See—*
Deffeyes, Robert J., 4,281,043, Cl. 428-457.000.

Grajek, Stanley A.: *See—*
Klaiber, George S.; Grajek, Stanley A.; and Hill, Robert S., 4,280,389, Cl. 84-212.000.

Granda, Edward J.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,280,933, Cl. 252-522.00R.

Grants, Valdis; Schultz, Ron; and McAdams, Timothy E., to Allen-Bradley Company. Memory circuit for programmable machines. 4,281,392, Cl. 364-900.000.

Gray, Thomas C. Baled hay handling apparatus. 4,280,777, Cl. 414-24.600.

Greber, Gerd: *See—*
Darms, Roland; Kvita, Vratislav; and Greber, Gerd, 4,280,946, Cl. 260-326.00N.

Green Cross Corporation, The: *See—*
Okamoto, Hiroyuki; Tsuda, Yoshio; and Yokoyama, Kazumasa, 4,280,996, Cl. 424-199.000.

Green, Norman W., to Occidental Research Corporation. Coal pyrolysis process. 4,280,876, Cl. 201-9.000.

Green, Robert W., to Formica Corporation. Aqueous acrylic contact adhesive. 4,280,942, Cl. 260-27.00R.

Greenberg, Lawrence J.; and Hyman, Gregory E. Educational toy. 4,280,809, Cl. 434-343.000.

Greer Hydraulics, Incorporated: *See—*
Jacobellis, A. A., 4,280,533, Cl. 138-30.000.

Greier, Josef. *See—*
List, Hans; Skatsche, Othmar; and Greier, Josef, 4,280,453, Cl. 123-195.00R.

Griesen, Bertus; and Gundlach, Harry C. W., to Hazemeijer B.V. High tension vacuum switches. 4,281,231, Cl. 200-144.00B.

Griffin, Alphonso. Pre-engineered construction system utilizing prefabricated members. 4,280,307, Cl. 52-90.000.

Griffiths, Ian C.: *See—*
Garvey, Michael J.; and Griffiths, Ian C., 4,280,920, Cl. 252-173.000.

Grisar, J. Martin; and Wiech, Norbert L., to Richardson-Merrell Inc. 2-(Diphenylalkylimino)piperidine-3-carboxanilides as inhibitors of gastrointestinal hypersecretion. 4,281,006, Cl. 424-267.000.

Grobbelaar, Jacobus H.; Colson, Richard N.; Levitt, Charlie M.; and Chatterley, Samuel. Shade determination. 4,280,625, Cl. 209-582.000.

Groom, Nelson J.; Anderson, Williard W.; and Phillips, William H., to United States of America, National Aeronautics and Space Administration. Rim inertial measuring system. 4,281,384, Cl. 364-453.000.

Grudzinskas, Charles V.: *See—*
Floyd, Middleton B., Jr.; Weiss, Martin J.; Grudzinskas, Charles V.; and Lai Chen, Sow-Mei, 4,281,153, Cl. 560-118.000.

Gruffaz, Max; and Micaelli, Odile, to Rhone-Poulenc Industries. Preparation of ethyl carboxylates. 4,281,176, Cl. 560-247.000.

Grundfest, Michael A., to Thomas & Betts Corporation. Alignment tool. 4,280,279, Cl. 33-180.00R.

Grychtol, Klaus, to BASF Aktiengesellschaft. Basic dyes. 4,280,964, Cl. 260-465.00D.

GTE Laboratories Incorporated: *See—*
Fox, Jeffrey R.; Margolies, Arthur; Moolenbeek, Rob; and Resnick, Martin L., 4,281,394, Cl. 364-900.000.
Smith, J. Thomas; Quackenbush, Carr L. W.; and Reid, F. Joseph, 4,280,850, Cl. 106-73.200.

GTE Products Corporation: *See—*
LeFever, Randall H.; Harvey, William J.; and Flook, Glen E., Jr., 4,281,364, Cl. 362-10.000.
Mecone, David W.; Hartman, Donald W.; and Armstrong, Donald E., 4,281,363, Cl. 362-6.000.

Guesnon, Jean: *See—*
Daniel, Edmond; Guesnon, Jean; and Laurencin, Andre, 4,280,719, Cl. 285-90.000.

Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., to Salk Institute for Biological Studies, The. Glycosylated analogs of somatostatin. 4,280,953, Cl. 260-112.50S.

Gujer, Peter: *See—*
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Gulbransen, Jerry. Pocket for an athletic shoe. 4,280,287, Cl. 36-136.000.

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Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Gulf Oil Corporation: *See—*
Back, Gayle E., 4,281,007, Cl. 424-269.000.
Huemmer, Thomas F.; and Lakshmanan, Pallavoor R., 4,281,152, Cl. 560-52.000.
Patel, Natu R., 4,280,831, Cl. 71-92.000.

Gulf Research & Development Company: *See—*
Hartle, Robert J.; and Singerman, Gary M., 4,280,819, Cl. 44-64.000.
Montagna, John C.; Galli, Robert D.; and Freel, John, 4,280,881, Cl. 203-51.000.
Schulz, Johann G.; Stanulonis, John J.; and Wajert, William R., 4,280,818, Cl. 44-56.000.
Wu, Ching-Yong; and Kobylinski, Thaddeus P., 4,280,924, Cl. 252-416.000.

Gundlach, Harry C. W.: *See—*
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Gunkel, Werner; and Eisenbeiss, Friedhelm, to Merck Patent Gesellschaft mit beschrankter Haftung. Chromatography column. 4,280,905, Cl. 210-198.200.

Guptil, Richard A.; Gaster, Ivan; and Meadows, Roger D., to Dayco Corporation. Hose clamp. 4,280,722, Cl. 285-244.000.

Gurley, James R. Work machine. 4,280,798, Cl. 418-54.000.

Gurwicz, David, to NADA Electronics Limited. Chopper-controlled alternator for battery charging. 4,281,279, Cl. 320-45.000.

Gustavsson, Lennart: *See—*
Jacobsen, Finn; and Gustavsson, Lennart, 4,280,902, Cl. 209-211.000.

Guthikonda, Ravindra N.: *See—*
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,281,002, Cl. 424-263.000.

Guthrie, Elmer F.; and Lundberg, Lennart A., to A. H. Lundberg Associates, Inc. Closed conditioning system for peeler logs. 4,280,284, Cl. 34-60.000.

Haag, James W., to Texaco Inc. Peak reading bottom hole pressure instrument. 4,280,362, Cl. 73-709.000.

Haas, Robert N., to Singer Company, The. Simulator complex data transmission system having self-testing capabilities. 4,280,285, Cl. 434-30.000.

Haberle, Wilhelm. Separating device. 4,280,907, Cl. 210-408.000.

Habermeier, Jurgen: *See—*
Kainmuller, Thomas; Habermeier, Jurgen; and Buxbaum, Lothar, 4,281,103, Cl. 528-289.000.

Hacheney, Wilfried. Process and apparatus for producing highly colloidized water-cement mixtures and for coating pipes. 4,280,847, Cl. 106-89.000.

Haddock, Cecil F. Underwater appendages for vessels. 4,280,433, Cl. 114-140.000.

Haecker, Wolf-Dieter: *See—*
Friese, Karl-Hermann; Haecker, Wolf-Dieter; and Pfeiffer, Burkhard, 4,280,890, Cl. 204-195.00S.

Haering, Rudolph R.; Stiles, James A. R.; and Brandt, Klaus. Battery cathode and method of making same. 4,281,048, Cl. 429-218.000.

Hafele, Robert X., to Ethyl Corporation. Container with handle. 4,280,630, Cl. 215-100.00A.

Hafele, Robert X., to Ethyl Corporation. Injection blow molding apparatus. 4,280,805, Cl. 425-525.000.

Hagihara, Kazuyo: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Hahn, Gunter, to Interatom, International Atomreaktorbau GmbH. Nuclear power installation with loop arrangement. 4,280,873, Cl. 176-65.000.

Hales, Eric C., to Automotive Products Limited. Pressure modulating valves. 4,280,739, Cl. 303-6.00C.

Hall, Charles M.; and Wright, John B., to Upjohn Company, The. Phenylene dioxamate esters. 4,281,151, Cl. 560-44.000.

Hall, Richard J.: *See—*
Ross, Joseph H.; and Hall, Richard J., 4,281,283, Cl. 324-51.000.

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Yano, Kozo; Inami, Yasuhiko; Hamada, Hiroshi; and Uede, Hisashi, 4,280,754, Cl. 350-357.000.

Hamajima, Shigemitsu: *See—*
Nishida, Kouji; Miyake, Osamu; Kawai, Taneichi; and Hamajima, Shigemitsu, 4,280,420, Cl. 112-103.000.

Hamden Industries, Inc.: *See—*
Piazza, Matthew R., 4,280,974, Cl. 264-69.000.

Hamisch, Paul H., Jr., to Monarch Marking Systems, Inc. Label printing and applying apparatus. 4,280,862, Cl. 156-384.000.

Hamisch, Paul H., Jr; Karn, Donald L.; and Makley, James A., to Monarch Marking Systems, Inc. Label printing and applying apparatus. 4,280,863, Cl. 156-387.000.

Hammann, Ingeborg: *See—*
Siegle, Peter; Kuhle, Engelbert; Hammann, Ingeborg; and Behrenz, Wolfgang, 4,281,011, Cl. 424-277.000.

Hanai, Kiyoshi; and Kondo, Takeo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Suspension arm mounting. 4,280,717, Cl. 280-663.000.

Haneda, Satoshi: *See—*
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Hansen, Claus C.: *See—*
Vonsbaek, Ebbe; Hansen, Claus C.; and Munthe, Lene, 4,280,716, Cl. 280-642.000.

Hansen Manufacturing Company, The: *See—*
Norton, James F., 4,280,523, Cl. 137-74.000.

Hara, Kunio, to Nifco Inc. Thermal cut-off fuse. 4,281,307, Cl 337-114.000.

Hardtmann, Goetz E., to Sandoz, Inc. 4-Hydroxy-2-quinolinone-3-carboxylic acids and salts thereof. 4,281,131, Cl. 546-90.000.

Harmon, Robert W. Tool for making and breaking load currents. 4,281,228, Cl. 200-51.00R.

Harnsberger, Frederick D., to C. R. Bard, Inc. Blood oxygenator. 4,280,981, Cl. 422-46.000.

Harper, Robert J., Jr.: *See—*
Donaldson, Darrell J.; and Harper, Robert J., Jr., 4,280,812, Cl 8-116.00P.

Harris Corporation: *See—*
DeMesa, Nicanor P., III; and Laabs, John E., 4,281,380, Cl 364-200.000.

Harris, Edward, to Koppers Company, Inc. Center link disc valve. 4,280,681, Cl. 251-229.000.

Harris, Nicholas, to Morton-Norwich Products, Inc. Process for preparing N-[2-(p-hydroxyphenyl)-ethyl]-p-chlorobenzamide. 4,281,190, Cl. 564-185.000.

Harris, Thomas G., to Armstrong World Industries, Inc. Phenolic foam. 4,281,069, Cl. 521-123.000.

Harris, Verdell; and Miller, Richard L., to Harris, Verdell. Vehicle heating and cooling system. 4,280,330, Cl. 62-3.000.

Hartel, Edward O.; and Dale, John N., to Avco Corporation. Air-cooled turbine rotor shroud with restraints. 4,280,792, Cl 415-117.000.

Hartle, Robert J.; and Singerman, Gary M., to Gulf Research & Development Company. Diesel fuel compositions containing certain azides for improved cetane number. 4,280,819, Cl. 44-64.000.

Hartman, Donald W.: *See—*
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Hartmann & Braun Aktiengesellschaft: *See—*
Fabinski, Walter; and Deptolla, Udo, 4,281,248, Cl. 250-345.000

Hartmann, Ludwig A., to ICI Americas Inc. Preparation of cyano substituted benzyl esters. 4,280,965, Cl. 260-465.00D.

Haruta, Masahiro: *See—*
Yano, Yasuhiro; Haruta, Masahiro; and Ohta, Tokuya, 4,281,329, Cl. 346-1.100.

Harvey, William J.: *See—*
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Hasegawa, Yoichi: *See—*
Hojo, Shiro; Hasegawa, Yoichi; Ichimiya, Tuyoshi; and Kimura, Kazuo, 4,281,198, Cl. 564-464.000.

Hashimoto, Tetsutaro: *See—*
Suzuki, Osamu; Jigami, Yoshifumi; Nakasato, Satoshi; and Hashimoto, Tetsutaro, 4,281,064, Cl. 435-134.000.

Haslehner, Hermann: *See—*
Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, 4,280,688, Cl. 266-245.000.

Haspert, John C., to United States Pipe and Foundry Company, a part interest. Method and apparatus for mining. 4,280,732, Cl. 299-11.000.

Hauberg, Georg H. H.; Krag, Jens; and Pisecky, Jan, to Aktieselskabet Niro Atomizer. Method for spray drying liquid products. 4,281,024, Cl. 426-471.000.

Hauni-Werke Korber & Co. KG: *See—*
Reuland, Joachim, 4,280,516, Cl. 131-84.00C.

Hauschopp, Alois: *See—*
Rassmann, Christoph; Hauschopp, Alois; Schwolow, Gunter; and Huss, Horst, 4,280,733, Cl. 299-34.000.

Haussener, Ernst: *See—*
Schneider, Fred; and Sirtl, Wolfgang, 4,280,961, Cl. 260-412.800.

Havlik, Jaroslav J. Process and apparatus for the separation of hydrocarbons from petroleum bearing materials. 4,280,892, Cl. 208-8.00R.

Hawthorne, Peter F.; and Rollin, Peter J., to Foseco International Limited. Marking composition and method of using same. 4,281,035, Cl. 427-199.000.

Hayama, Takatsura, to Kabushikigaisha Nippon Kogu Seisakusho. Ball end mill. 4,280,774, Cl. 407-36.000.

Hayward, John A. D. Lost motion linkage assembly for a front loader. 4,280,783, Cl. 414-686.000.

Hazelbaker, Dale P. Insulation packaging machine. 4,280,538, Cl. 141-73.000.

Hazemeijer B.V.: *See—*
Griesen, Bertus; and Gundlach, Harry C. W., 4,281,231, Cl. 200-144.00B.

Health and Safety Executive: *See—*
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Heath, John S., to International Business Machines Corporation. Printing apparatus. 4,280,767, Cl. 400-216.200.

Hebenstreit, Ernst: *See—*
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,296, Cl. 333-165.000.

Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,297, Cl. 333-165.000.

Hebert, David L.: *See*—
Sinnsal, Paul D.; Hebert, David L.; and Benzing, J. Paige, 4,280,615, Cl. 198-470.000.

Heckman, Thomas B.: *See*—
Fraula, Louis F.; McMahon, William H.; and Heckman, Thomas B., 4,280,520, Cl. 134-60.000.

Heft, Eldon B., to General Electric Company. Individual circuit breaker pole trip mechanism. 4,281,303, Cl. 335-16.000.

Heidelberger Zement Aktiengesellschaft: *See*—
Erhard, Helmut, 4,280,418, Cl. 110-347.000.

Heidrich, Jochen: *See*—
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Heikes, George E., Jr.; and Henderson, Claude L., to Gates Rubber Company, The. Piston rubber. 4,280,709, Cl. 277-229.000.

Heilweil, Emanuel: *See*—
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Heise, Arend: *See*—
Franckowiak, Gerhard; Bossert, Friedrich; Heise, Arend; and Towart, Robertson, 4,280,998, Cl. 424-250.000.

Heligren, Hans; and Marklund, Erland, to Renholmens Mekaniska Verkstad AB. Saw arrangement having plural operator stations. 4,280,382, Cl. 83-106.000.

Helms, Horace H.: *See*—
Rozner, Alexander G.; and Helms, Horace H., 4,280,409, Cl. 102-364.000.

Hemmer, Valentine J., to Bendix Corporation, The. Socket and pin contacts for coaxial cable. 4,280,749, Cl. 339-177.00R.

Hempel, Rodney A., to American Standard Inc. Fireplace having outside air supply. 4,280,473, Cl. 126-120.000.

Henderson, Claude L.: *See*—
Heikes, George E., Jr.; and Henderson, Claude L., 4,280,709, Cl. 277-229.000.

Henderson, Henning M., to Kiloking (Proprietary) Limited. Monitoring the operation of an internal combustion engine. 4,280,358, Cl. 73-115.000.

Henkel Corporation: *See*—
Johnson, Donald L.; Bond, John L.; Rogols, Saul; and Salter, John W., 4,280,718, Cl. 282-27.500.

Henkel Kommanditgesellschaft auf Aktien: *See*—
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Henryson, Leif A. S., to AB Bergu Jarn- & Rorkonstruktioner. Method for handling palleted loads comprising bulk material contained in bags. 4,280,787, Cl. 414-786.000.

Hentschel, Klaus; and Bittner, Friedrich, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for introducing three substituents in cyanuric chloride. 4,281,123, Cl. 544-194.000.

Hepar Industries, Inc.: *See*—
Fussi, Fernando, 4,281,108, Cl. 536-21.000.

Hercules Incorporated: *See*—
Maslanka, William W.; and Spence, Gavin G., 4,281,082, Cl. 525-296.000.

Herion, Dieter: *See*—
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Herman, Luther R. Self-uncapping honeycomb and extractor means for use therewith. 4,280,236, Cl. 6-2.00R.

Hermans, Johny C., to s.a. Texaco Belgium n.v. Bispiperazido phosphorus compounds. 4,281,128, Cl. 544-337.000.

Herrling, Siegfried. 7H-1,3,4-Thiadiazolo-[3,2-a]-pyrimidin-7-one-5-carboxylic compounds. 4,281,120, Cl. 544-117.000.

Herron, Don: *See*—
Pitts, William M.; and Herron, Don, 4,280,731, Cl. 297-487.000.

Hertz, Harry S.: *See*—
White, Edward, V; Hertz, Harry S.; and Christensen, Richard G., 4,281,246, Cl. 250-282.000.

Herubel, Jean-Frederic, to N. Schlumberger & Cie. Compressed-air pistol of the humane killer type. 4,280,248, Cl. 17-1.00B.

Herzog, Donald E.; and Thomas, Larry, to St. Louis Conveyor Company, Inc. Material handling system and method. 4,280,301, Cl. 51-5.00R.

Hess, Jurgen: *See*—
Struve, Hans-Dirk; Hess, Jurgen; and Vysiotis, Theodor, 4,280,799, Cl. 418-97.000.

Heuschen, Jean; Jerome, Robert; and Teyssie, Philippe, to Teyssie, Philippe. Lactone copolymers, process for their preparation and compositions containing them. 4,281,087, Cl. 525-361.000.

Hewlett-Packard Company: *See*—
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.
Rosenberg, Neil A., 4,280,507, Cl. 128-696.000.

Hexa Chemical: *See*—
Nagata, Yoshiaki; and Fukui, Shinya, 4,280,950, Cl. 260-42.210.

Heybourn, Frank: *See*—
Molins, Desmond W.; Hinchcliffe, Dennis; Heybourn, Frank; and Coyte, Raymond G., 4,280,611, Cl. 198-347.000.

Heyd, Allen: *See*—
Dhabhar, Dadi J.; Heyd, Allen; and Schmidt, Nicholas F., 4,280,936, Cl. 260-13.000.

Hibi, Katuhiko: *See*—
Kobayashi, Kenji; Hibi, Katuhiko; Kobayashi, Hisabumi; and Kato, Shoichi, 4,280,834, Cl. 71-103.000.

Hiester, Kenneth R., to Shop-Vac Corporation. Sound dome for electric vacuum cleaner. 4,280,245, Cl. 15-326.000.

Higuchi, Yasushi: *See*—
Nakayama, Yoshiki; Higuchi, Yasushi; and Yazawa, Chihiro, 4,280,958, Cl. 260-326.11R.

Hildebrandt, Mieczyslaw: *See*—
Charles, Eliane; Hildebrandt, Mieczyslaw; and Buchy, Francois, 4,280,846, Cl. 106-73.200.

Hilka International Co., Ltd.: *See*—
Uchiyama, Mutsuo, 4,280,750, Cl. 350-76.000.

Hill, James. Collator. 4,280,690, Cl. 270-58.000.

Hill, Robert S.: *See*—
Klaiber, George S.; Grajek, Stanley A.; and Hill, Robert S., 4,280,389, Cl. 84-212.000.

Hille Engineering Company Limited: *See*—
Wilson, Alexander I., 4,280,351, Cl. 72-21.000.

Hillman, Gary; and Devico, Michael J., to Machine Technology, Inc. Method and apparatus for processing workpieces. 4,281,031, Cl. 427-45.100.

Hills, Isaac A., to Animal Toys Plus, Inc. Torso-and display-supportable puppet. 4,280,292, Cl. 40-538.000.

Hinchcliffe, Dennis: *See*—
Molins, Desmond W.; Hinchcliffe, Dennis; Heybourn, Frank; and Coyte, Raymond G., 4,280,611, Cl. 198-347.000.

Hipps, Larry W. Pressure controlled electro-hydraulic brake system. 4,280,737, Cl. 303-3.000.

Hirai, Akira; Tanaka, Yukihisa; and Ohashi, Shigeo, to Nihon Kaiheiki Kogyo Kabushiki Kaisha. Small illuminating switch. 4,281,232, Cl. 200-315.000.

Hirakata, Kazuo: *See*—
Tomita, Tohru; Saitoh, Shinya; and Hirakata, Kazuo, 4,280,266, Cl. 29-241.000.

Hirzy, J. William, to Monsanto Company. Plastifiers, method of preparation and PVC compositions containing same. 4,281,077, Cl. 525-129.000.

Hitachi, Ltd.: *See*—
Fushimi, Kiyoshi, 4,281,414, Cl. 455-158.000.
Kawai, Toshio; Yamashita, Junichi; and Takamatsu, Jun, 4,280,874, Cl. 176-78.000.
Kuroiwa, Hiroshi; and Oyama, Yoshishige, 4,280,462, Cl. 123-437.000.
Sawa, Toshio; Kubota, Masayoshi; Takahashi, Sankichi; and Kaneko, Toyohiko, 4,280,886, Cl. 204-149.000.
Suzuki, Ryo; Asano, Atsushi; Takeshita, Masatoshi; and Takeuchi, Teruaki, 4,281,395, Cl. 365-15.000.
Takahashi, Kenji; Nagahara, Shusaku; Sato, Kazuhiro; Umemoto, Masuo; Akiyama, Toshiyuki; and Izumita, Morishi, 4,281,338, Cl. 358-44.000.
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Hlynsky, Alex: *See*—
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Hobart Corporation: *See*—
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Hodgson, Robert A., to Maloney-Crawford Corporation. Glycol regeneration. 4,280,867, Cl. 159-47.00R.

Hodogaya Chemicals Co., Ltd.: *See*—
Kurosu, Yasuhisa; Kawada, Hiroshi; Kanasugi, Haruki; and Kashima, Akiko, 4,281,016, Cl. 424-300.000.

Hoechst Aktiengesellschaft: *See*—
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Klug, Helmut; and Frey, Hans-Helmut, 4,280,940, Cl. 260-23.0XA.
Moraw, Roland, 4,281,049, Cl. 430-9.000.
Papenfuhs, Theodor; and Gengnagel, Kurt, 4,281,187, Cl. 564-50.000.

Hoeving, Philip; and Litovich, Michael. Jig-o-matic. 4,280,295, Cl. 43-19.200.

Hoffman, Andrew E. Compact projection television system. 4,281,352, Cl. 358-237.000.

Hoffmann, Jurgen, to Kraftwerk Union Aktiengesellschaft. Live steam shut-off device for pressurized water reactors. 4,280,871, Cl. 176-38.000.

Hoffmann-La Roche Inc.: *See*—
Field, George F.; and Zally, William J., 4,281,142, Cl. 548-343.000.
Fischli, Albert E.; and Szente, Andre, 4,281,188, Cl. 564-51.000.
LeMahieu, Ronald A.; and Nason, William C., 4,281,127, Cl. 544-287.000.
Tilley, Jefferson W., 4,281,189, Cl. 564-92.000.
Walser, Armin; and Fryer, Rodney I., 4,280,957, Cl. 260-244.400.

Hofstein, Steven R., to World Medical Marketing Corporation. Foot exerciser. 4,280,486, Cl. 128-25.00B.

Hogg, Gerald J.; Newman, Robert A.; and Pfeifer, Robert F., to Motorola Inc. Key management for encryption/decryption systems. 4,281,216, Cl. 178-22.080.

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Hojo, Shiro; Hasegawa, Yoichi; Ichimiya, Tuyoshi; and Kimura, Kazuo, to Japan Hydrazine Co., Inc. Process for producing methylhydrazines. 4,281,198, Cl. 564-464.000.

Holac-Maschinenbau GmbH: *See*—
Kienzl, Arnold, 4,280,385, Cl. 83-404.300.

Holbro A.G.: *See*—
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Holcomb, John W.: *See*—
Jackson, Jerald A.; and Holcomb, John W., 4,280,664, Cl. 241-39.000.

Holland, Charles L., to General Dynamics. Vacuum curing tool for composite materials. 4,280,804, Cl. 425-388.000.

Hollister Incorporated: *See*—
Jensen, Marvin E., 4,280,498, Cl. 128-283.000.

Holt, Dennis S., to Owens-Corning Fiberglas Corporation. Method for collecting fibrous material. 4,280,253, Cl. 19-296.000.

Homan, Gary R.; and Blevins, Jan M., to Dow Corning Corporation. Novel mercaptoorganopolysiloxanes. 4,281,094, Cl. 528-30.000.

Homola, Andrew M.; and Rice, Sondra L., to International Business Machines Corporation. Magnetic particle dispersions. 4,280,918, Cl. 252-62.510.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Kouyama, Mikihiro; and Funabashi, Katsunori, 4,280,582, Cl. 180-219.000.
Ohmori, Taiji; Tsuchiya, Yoshikazu; Sato, Makoto; Miyakawa, Yoshitaka; and Fujii, Etsuo, 4,280,740, Cl. 303-92.000.

Honeywell Inc.: *See*—
Newbold, William F., 4,281,299, Cl. 333-187.000.
Szonntagh, Eugene L., 4,280,823, Cl. 55-15.000.
Szonntagh, Eugene L., 4,280,889, Cl. 204-195.00F.

Hopper, Roger J.; Sturm, Budd H.; and Geiser, Joseph F., to Goodyear Tire & Rubber Company, The. Vulcanization of rubber with 2-(alkylsulfinyl)-benzothiazoles. 4,280,967, Cl. 260-785.000.

Horgan, Anthony M.; and Radler, Richard W., to Xerox Corporation. Overcoated photoreceptor containing injecting contact. 4,281,054, Cl. 430-59.000.

Horgen, Lyle: *See*—
Eck, Leonard F.; and Horgen, Lyle, 4,280,280, Cl. 33-203.120.

Horike, Masanori, to Ricoh Company, Ltd. Deflection compensated ink ejection printing apparatus. 4,281,332, Cl. 346-75.000.

Hornsby, William M.: *See*—
Pardue, James I., Jr.; Hornsby, William M.; and Noble, Henry J., III, 4,280,768, Cl. 403-3.000.

Hort, Eugene V.: *See*—
Parthasarathy, R.; and Hort, Eugene V., 4,280,959, Cl. 260-346.110.

Horton, Gilbert L.: *See*—
King, James F.; and Horton, Gilbert L., 4,280,350, Cl. 72-7.000.

Hosiden Electronics Co., Ltd.: *See*—
Nakagawa, Sadayoshi; and Shinohara, Mitsuharu, 4,281,222, Cl. 179-111.00E.

Hosono, Takashi: *See*—
Mitamura, Ichiro; Isono, Katsuo; and Hosono, Takashi, 4,281,340, Cl. 358-67.000.

Hossom, Miles G.: *See*—
Kraft, Thomas L.; Vick, Howard A.; and Hossom, Miles G., 4,281,387, Cl. 364-497.000.

Hoveler, Egon: *See*—
Zodrow, Rudolf; and Hoveler, Egon, 4,280,866, Cl. 156-568.000.

Hovey, Ralph J., to Bunker Ramo Corporation. Method for electroplating selected areas of article and articles plated thereby. 4,280,882, Cl. 204-15.000.

Howard, Peter B.; and Broadhurst, Peter J., to Tioxide Group Limited. Aqueous dispersions. 4,280,849, Cl. 106-300.000.

Howe, Milton A., Jr., to W. R. Grace & Co., Cryovac Division. Bag dispenser. 4,280,811, Cl. 493-386.000.

HPM Corporation: *See*—
Bishop, Thomas G., 4,280,972, Cl. 264-39.000.

Hsu, Teh-An: *See*—
Tsao, George T.; Ladisch, Michael R.; Ladisch, Christine M.; and Hsu, Teh-An, 4,281,063, Cl. 435-99.000.

Huang, Alan, to Leland Stanford Junior University. Number theoretic processor. 4,281,391, Cl. 364-746.000.

Huang, Chor: *See*—
Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., 4,280,954, Cl. 260-123.700.

Hubenett, Fritz, to Merck Patent Gesellschaft mit beschrankter Haftung. Process for the preparation of alkanesulfonyl chlorides. 4,280,966, Cl. 260-543.00R.

Hudler, Heinz. Apparatus for detecting postage stamps on envelopes. 4,281,243, Cl. 250-223.00R.

Hudson's Bay Oil and Gas Company Limited: *See*—
Jagodzinski, Richard F.; and Kerr, Richard K., 4,280,990, Cl. 423-574.00R.

Huelsekopf, Alfred G. Window frame assembly. 4,280,309, Cl. 52-212.000.

Huemmer, Thomas F.; and Lakshmanan, Pallavoor R., to Gulf Oil Corporation. Acrylate monomers and photopolymerizable compositions containing same. 4,281,152, Cl. 560-52.000.

Hughes Aircraft Company: *See*—
Zurcher, Rudolf F., 4,280,506, Cl. 128-690.000.

Hughes, Rory R.: *See*—
Ferguson, Fred E.; Hughes, Rory R.; and Fersch, Kenneth E., 4,280,830, Cl. 71-25.000.

Hughes, Septimus: *See*—
Ward, Christopher J.; and Hughes, Septimus, 4,280,619, Cl. 198-823.000.

Hughes, William G.: *See*—
Sidi, Henri; and Hughes, William G., 4,281,178, Cl. 562-412.000.

Humbert, A. Robert. Keyhole illuminating apparatus. 4,281,368, Cl. 362-100.000.

Humbert, Daniel; Clemence, Francois; and Dagnaux, Michele, to Roussel Uclaf. [4H]-1,3-Benzodioxin-2-carboxylic acids. 4,281,012, Cl. 424-278.000.

Hummel, Robert A. Intraocular lens device. 4,280,232, Cl. 3-13.000.

Hunt, Theodore R., to Wagner, Morris S., a part interest. Selection switching apparatus. 4,281,314, Cl. 340-147.00R.

Hunt, Walter G.; Kovats, Leslie P.; and Bovier, Edward M., to Anheuser-Busch, Incorporated. Cold water hydrating starch. 4,281,111, Cl. 536-111.000.

Hurlemann, Ernst, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Cartridge feed apparatus for an automatic firing weapon. 4,280,392, Cl. 89-33.0SF.

Huss, Horst: *See*—
Rassmann, Christoph; Hauschopp, Alois; Schwolow, Gunter; and Huss, Horst, 4,280,733, Cl. 299-34.000.

Hutchinson, Peter; and Pauk, Henry T., to Nashua Corporation. Cassette with lockable lift plate. 4,280,692, Cl. 271-160.000.

Hyatt, John A.; French, Stephen E.; and Maggiulli, Cataldo A., to Eastman Kodak Company. Process for preparing 1-aryl-3-amino-5-pyrazolones. 4,281,143, Cl. 548-360.000.

Hyman, Gregory E.: *See*—
Greenberg, Lawrence J.; and Hyman, Gregory E., 4,280,809, Cl. 434-343.000.

Iatron Laboratories, Inc.: *See*—
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Ichiki, Takemoto; Yoshida, Ryo; Sumida, Seizo; and Katsuzo, Kamoshita, to Sumitomo Chemical Company, Limited. Herbicidal N-phenyl-N-methylurea derivatives. 4,280,835, Cl. 71-120.000.

Ichimiya, Tuyoshi: *See*—
Hojo, Shiro; Hasegawa, Yoichi; Ichimiya, Tuyoshi; and Kimura, Kazuo, 4,281,198, Cl. 564-464.000.

ICI Americas Inc.: *See*—
Hartmann, Ludwig A., 4,280,965, Cl. 260-465.00D.
Keihm, Neil W., 4,280,638, Cl. 222-180.000.

Iezuka, Isamu: *See*—
Nakanishi, Kiyoshi; Ito, Kazuhiko; Okumura, Takeshi; Iezuka, Isamu; and Yasukawa, Masao, 4,280,459, Cl. 123-307.000.

Ignatowicz, Alexander M., to Western Electric Company, Inc. Connector arranged to permanently lock onto a cable. 4,280,746, Cl. 339-107.000.

Ihara Chemical Industry Co., Ltd.: *See*—
Nakayama, Yoshiki; Higuchi, Yasushi; and Yazawa, Chihiro, 4,280,958, Cl. 260-326.11R.

Ihara, Sinji, to Matsushita Electric Works, Ltd. Brush attachment to hair dresser. 4,280,517, Cl. 132-9.000.

Iino, Yasuo: *See*—
Kametani, Yoshiya; and Iino, Yasuo, 4,281,175, Cl. 560-217.000.

Iizuka, Chiyokichi; and Maeda, Hiroaki, to Noda Shokkin Kogyo Kabushiki Gaisha. Method of accelerating coloring and sweetening of citrus fruits. 4,281,021, Cl. 426-61.000.

Ijas, Seppo, to Oy Ensio Miettinen AB. Device for driving root supports of poles into the ground. 4,280,567, Cl. 173-129.000.

Ikeda, Hiroharu; and Shimozato, Yasuyuki, to Japan Synthetic Rubber Company, Ltd. Rubber compound capable of giving a vulcanized rubber having a high modulus of elasticity. 4,281,085, Cl. 525-326.000.

Ikegami, Shiro: *See*—
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,281,015, Cl. 424-287.000.

Illinois Tool Works Inc.: *See*—
McVey, John K., 4,281,308, Cl. 337-407.000.

Imai, Terutoyo: *See*—
Kuwano, Yukinori; Imai, Terutoyo; and Umetani, Masakazu, 4,281,208, Cl. 136-249.000.

Imperial Chemical Industries Limited: *See*—
Garden, William D., 4,281,093, Cl. 528-15.000.

Inada, Kohji: *See*—
Miyake, Tetsuya; Ogawa, Norito; Inada, Kohji; and Takeda, Kunihiko, 4,280,984, Cl. 423-6.000.

Inami, Yasuhiko: *See*—
Yano, Kozo; Inami, Yasuhiko; Hamada, Hiroshi; and Uede, Hisashi, 4,280,754, Cl. 350-357.000.

Industrial Electronic Rubber Co.: *See*—
Murray, Myles N., 4,280,390, Cl. 411-542.000.

Industrie Pirelli S.p.A.: *See*—
Mancosu, Federico, 4,280,484, Cl. 126-450.000.

Inger, Siegfried, to Palitex Project Company GmbH. Textile yarn processing machine with yarn break monitoring mechanism. 4,280,322, Cl. 57-81.000.

Inokuti, Yukio; Shimizu, Yoh; and Shimanaka, Hiroshi, to Kawasaki Steel Corporation. Method for producing grain-oriented silicon steel sheets having a very high magnetic induction and a low iron loss. 4,280,856, Cl. 148-111.000.

Inoue, Mitsuyori; and Yamabe, Akira, to Iwatani Sangyo Kabushiki Kaisha. Process for manufacturing cocoa powder. 4,281,027, Cl. 426-631.000.

Institut Francais du Petrole: *See*—
Daniel, Edmond; Guesnon, Jean; and Laurencin, Andre, 4,280,719, Cl. 285-90.000.

Interatom, International Atomreaktorbau GmbH: *See—*
Hahn, Gunter, 4,280,873, Cl. 176-65.000.

Intermedics, Inc.: *See—*
Baker, Ross G., Jr.; and Van Calfee, Richard, 4,280,502, Cl. 128-419.0PG.

International Business Machines Corporation: *See—*
Bertin, Claude L.; De La Moneda, Francisco H.; and Soderman, Donald A., 4,280,855, Cl. 148-1.500.
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., 4,281,057, Cl. 430-270.000.
Dean, Homer B.; and Mahurin, Ballard T., 4,280,263, Cl. 29-132.000.
Escott, Barnee M.; Reynolds, Jerald J.; and Ward, William C., 4,281,032, Cl. 427-135.000.
Heath, John S., 4,280,767, Cl. 400-216.200.
Homola, Andrew M.; and Rice, Sondra L., 4,280,918, Cl. 252-62.510.

International Flavors & Fragrances Inc.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,280,515, Cl. 131-276.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,280,933, Cl. 252-522.00R.
Sprecker, Mark A.; Trenkle, Robert W.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,281,177, Cl. 260-513.00R.

International Harvester Company: *See—*
Breen, Dale H., 4,280,566, Cl. 172-604.000.
Fischer, Raymond C., 4,280,419, Cl. 111-80.000.
McHenney, John R.; and Knowles, Martin A., 4,280,748, Cl. 339-147.00R.

International Medical Electronics, Ltd.: *See—*
Berry, Fred M., 4,281,362, Cl. 361-437.000.

International Nickel Co., Inc., The: *See—*
Subramanian, Kohur N.; Glaum, Gerald V.; and Walli, Einar, 4,280,988, Cl. 423-140.000.

Intertherm Inc.: *See—*
Khan, Asadulla R.; and Boning, Otto H., 4,280,332, Cl. 62-156.000.

Irick, Gether, Jr.; and Wang, Richard H. S., to Eastman Kodak Company. Piperidinyl hydrogen 2-hydroxyalkyl phosphates and metal salts thereof. 4,281,129, Cl. 546-6.000.

Irwin, Roger F. Catalyst unloading mechanism. 4,280,983, Cl. 422-219.000.

Ishida, Yukihito: *See—*
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,281,015, Cl. 424-287.000.

Ishihara, Nobuoki: *See—*
Shiozaki, Morio; Kawashima, Mitsuaki; Shimoyama, Yoshiaki; and Ishihara, Nobuoki, 4,280,837, Cl. 75-54.000.

Ishii, Yashunori: *See—*
Sawa, Tsuna; and Ishii, Yashunori, 4,281,268, Cl. 313-60.000.

Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, to Sato, Ryuichi. Germanium-containing organic polymer and it's use in the treatment of psychoneurological disorders. 4,281,015, Cl. 424-287.000.

Ishizaki, Hidenosuke. Button. 4,280,255, Cl. 24-95.000.

Isono, Katsuo: *See—*
Mitamura, Ichiro; Isono, Katsuo; and Hosono, Takashi, 4,281,340, Cl. 358-67.000.

Isuzu Motors Ltd.: *See—*
Kawamura, Hideo; and Itou, Takahiko, 4,280,452, Cl. 123-179.0BG.

Itek Corporation: *See—*
Albertinetti, Nedo P., 4,280,756, Cl. 350-360.000.

Ito, Hiroshi; and Sakaguchi, Shigeya, to Nippon Tungsten Co., Ltd. Method for manufacturing a mechanical seal ring. 4,280,841, Cl. 75-203.000.

Ito, Hiroshi; Endo, Ichiro; and Ohno, Shigeru, to Canon Kabushiki Kaisha. Image forming member. 4,281,052, Cl. 430-48.000.

Ito, Kazuhiko: *See—*
Nakanishi, Kiyoshi; Ito, Kazuhiko; Okumura, Takeshi; Iezuka, Isamu; and Yasukawa, Masao, 4,280,459, Cl. 123-307.000.

Ito, Masazumi: *See—*
Murata, Tomoji; and Ito, Masazumi, 4,281,244, Cl. 250-225.000.

Ito, Thomas I.: *See—*
Paciorek, Kazimiera J. L.; Kratzer, Reinhold H.; Ito, Thomas I.; and Nakahara, James H., 4,281,185, Cl. 564-13.000.

Ito, Tsugio; Aizawa, Kenshiro; and Okada, Hisashi, to Nippon Gakki Seizo Kabushiki Kaisha. Pickup cartridge for reproducing signals recorded on a 45-45 stereophonic record disk. 4,281,225, Cl. 369-139.000.

Itoh, Akira: *See—*
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Itou, Takahiko: *See—*
Kawamura, Hideo; and Itou, Takahiko, 4,280,452, Cl. 123-179.0BG.

ITT Industries, Inc.: *See—*
Adam, Fritz G., 4,281,261, Cl. 307-270.000.
Lupertz, Hans-Henning; and Riedel, Peter, 4,280,738, Cl. 303-6.00C.

Ives, Jeffrey L., to Pfizer Inc. Phenylguanidine therapeutic agents. 4,281,004, Cl. 424-263.000.

Iwasaki, Hideo: *See—*
Shibata, Hiroshi; Iwasaki, Hideo; and Yamada, Kunio, 4,280,854, Cl. 148-1.500.

Iwata, Hiroshi; Yamaoka, Tetsuo; and Mitsui, Hajime, to West Electric Company, Ltd. Flash camera. 4,280,760, Cl. 354-21.000.

Iwata, Toshihiko: *See—*
Shikano, Hiroshi; and Iwata, Toshihiko, 4,280,844, Cl. 106-56.000.

Iwatani Sangyo Kabushiki Kaisha: *See—*
Inoue, Mitsuyori; and Yamabe, Akira, 4,281,027, Cl. 426-631.000.

Izumi, Kaichi, to Kao Soap Company Limited. Apparatus for the measurement of the mechanical output of induction motors. 4,281,288, Cl. 324-158.0MG.

Izumita, Morishi: *See—*
Takahashi, Kenji; Nagahara, Shusaku; Sato, Kazuhiro; Umemoto, Masuo; Akiyama, Toshiyuki; and Izumita, Morishi, 4,281,338, Cl. 358-44.000.

J. M. Huber Corporation: *See—*
Wason, Satish K., 4,280,822, Cl. 51-308.000.

J. Ray McDermott & Co., Inc.: *See—*
Petrie, Warren A., 4,280,237, Cl. 9-8.00R.

Jackson, Barry N., to American Hospital Supply Corporation. Pulsating inflatable-deflatable pad assembly and method. 4,280,487, Cl. 128-33.000.

Jackson, Jerald A.; and Holcomb, John W. Solids reducing and mixing device. 4,280,664, Cl. 241-39.000.

Jackson, Robert. Boat hull anti-fouling shroud. 4,280,436, Cl. 114-222.000.

Jackson, Robert. Boat hull anti-fouling shroud. 4,280,437, Cl. 114-222.000.

Jackson, Robert. Boat hull anti-fouling shroud. 4,280,438, Cl. 114-222.000.

Jackson, Robert. Boat hull anti-fouling shroud. 4,280,439, Cl. 114-222.000.

Jacobellis, A. A., to Greer Hydraulics, Incorporated. Low pressure, low cost accumulator. 4,280,533, Cl. 138-30.000.

Jacobsen, Finn; and Gustavsson, Lennart, to Kamyr Aktiebolag. Separation of dense impurities from a fluid. 4,280,902, Cl. 209-211.000.

Jacobsen, Stephen C.: *See—*
Stenehjem, Jerome C.; and Jacobsen, Stephen C., 4,280,695, Cl. 272-8.00N.

Jacquet, Bernard; Mahieu, Claude; and Papantoniou, Christos, to L'Oreal. N-(2,5-Dihydroxy-3,4,6-trimethyl-benzyl)-acrylamide and-methacrylamide. 4,281,192, Cl. 564-207.000.

Jagenberg Werke AG: *See—*
Zodrow, Rudolf; and Hoveler, Egon, 4,280,866, Cl. 156-568.000.

Jager, Horst: *See—*
Schreiner, Kurt; Jager, Horst; and Schwaebel, Richard, 4,280,956, Cl. 260-242.200.

Jagodzinski, Richard F.; and Kerr, Richard K., to Hudson's Bay Oil and Gas Company Limited; and Alberta Energy Company Ltd. High pressure process for recovery of sulphur from gases. 4,280,990, Cl. 423-574.00R.

James, David B.: *See—*
Wetton, Raymond E.; and James, David B., 4,281,072, Cl. 525-4.000.

James, Rex L.: *See—*
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Japan Air Lines Co., Ltd.: *See—*
Mihirogi, Kiyoshi, 4,280,412, Cl. 104-281.000.

Japan Hydrazine Co., Inc.: *See—*
Hojo, Shiro; Hasegawa, Yoichi; Ichimiya, Tuyoshi; and Kimura, Kazuo, 4,281,198, Cl. 564-464.000.

Japan Synthetic Rubber Company, Ltd.: *See—*
Ikeda, Hiroharu; and Shimozato, Yasuyuki, 4,281,085, Cl. 525-326.000.

Jarman, Alonzo B.: *See—*
Zeuner, Kenneth W.; and Jarman, Alonzo B., 4,280,396, Cl. 91-320.000.

Jarowenko, Wadym; and Solarek, Daniel B., to National Starch and Chemical Corporation. Pollution-free cationization of starch. 4,281,109, Cl. 536-50.000.

Jarva, Curt W., to American Science and Engineering, Inc. Positive feedback meter pulse initiator. 4,281,325, Cl. 340-870.290.

Jaworski, Eugene: *See—*
Katzman, Allison W.; Disko, Harry; and Jaworski, Eugene, 4,280,297, Cl. 46-41.000.

Jedlinski, Stanislaw: *See—*
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, to Polska Akademia Nauk, Zaklad Polimerow. Process of manufacturing cured unsaturated polyester resins with a regular network structure. 4,281,074, Cl. 525-40.000.

Jenkins, Russell J.: *See—*
Bush, Richard W.; Jenkins, Russell J.; and Rie, John E., 4,280,888, Cl. 204-159.150.

Jensen, James H., to Armour and Company. Device for handling meat logs and other articles. 4,280,618, Cl. 198-782.000.

Jensen, Marvin E., to Hollister Incorporated. Valved drain assembly for urostomy pouch. 4,280,498, Cl. 128-283.000.

Jerome, Robert: *See—*
Heuschen, Jean; Jerome, Robert; and Teyssie, Philippe, 4,281,087, Cl. 525-361.000.

Jersey, Chester A.; and Kiscaden, Roy W., to Westinghouse Electric Corp. Gas turbine fuel control having fuel viscosity compensation to provide improved ignition reliability. 4,280,323, Cl. 60-39.14R.

Jigami, Yoshifumi: *See—*
Suzuki, Osamu; Jigami, Yoshifumi; Nakasato, Satoshi; and Hashimoto, Tetsutaro, 4,281,064, Cl. 435-134.000.

Johansson, Kurt E. System for measurement of force with directionally orientated strain gauges. 4,280,363, Cl. 73-768.000.

John Wyeth & Brother Limited: *See—*
Ward, Terence J., 4,281,132, Cl. 546-224.000.

Johns-Manville Corporation: *See—*
Lockard, Donald F., 4,280,311, Cl. 52-748.000.

Johnsen, James B.; and Oien, Hal J., to Jordco, Inc. Endodontic file holder. 4,280,808, Cl. 433-77.000.

Johnson, Allen S., Jr., to Staclean Diffuser Company. Bag-type filter apparatus with high pressure air jet cleaning. 4,280,826, Cl. 55-302.000.

Johnson, Donald L.; Bond, John L.; Rogols, Saul; and Salter, John W., to Henkel Corporation. Pressure sensitive recording sheet containing size classified cereal starch granules. 4,280,718, Cl. 282-27.500.

Johnson, Glenn W., Jr. Ankle brace. 4,280,489, Cl. 128-80.00H.

Johnson, Lawrence N.: *See—*
Moore, Dennis G.; and Johnson, Lawrence N., 4,281,367, Cl. 362-96.000.

Johnson, Leighton C., to Miles Laboratories, Inc. Apparatus for producing monocellular layers of cell-containing biological fluid. 4,280,442, Cl. 118-52.000.

Johnson, Peter D., to General Electric Company. High intensity discharge lamp with coating on arc discharge tube. 4,281,267, Cl. 313-25.000.

Johnson, Ronald E., to Corning Glass Works. Thermoplastic ink composition for decorating glass, glass-ceramic, and ceramic ware. 4,280,939, Cl. 260-23.0AR.

Johnson, William H.: *See—*
Frazier, Lawrence M.; and Johnson, William H., 4,281,327, Cl. 343-12.00R.

Johnston, David B. R.: *See—*
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,281,002, Cl. 424-263.000.

Jolly, Jean: *See—*
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Jolly, Jean, 4,281,182, Cl. 562-506.000.

Jones, Donald W.: *See—*
Keim, Thomas A.; and Jones, Donald W., 4,281,264, Cl. 310-194.000.

Jones, Robert H. Hand held granulator. 4,280,666, Cl. 241-169.100.

Jones, Terry L. Protective shield for a baseboard or the like. 4,280,444, Cl. 118-504.000.

Jones, Warren W.: *See—*
Calfo, Raymond M.; Mulach, Arthur; and Jones, Warren W., 4,281,266, Cl. 310-256.000.

Jordco, Inc.: *See—*
Johnsen, James B.; and Oien, Hal J., 4,280,808, Cl. 433-77.000.

Jorgensen, Allen R.: *See—*
Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., 4,280,669, Cl. 242-56.00A.

Joseph, Theodore H.: *See—*
Pitchon, Esra; O'Rourke, Joseph D.; and Joseph, Theodore H., 4,280,851, Cl. 127-33.000.

Jost, Heinz; Knoell, Hellmuth; Markert, Gerhard; and Pennewiss, Horst, to Rohm GmbH. Process for graft copolymerization. 4,281,081, Cl. 525-281.000.

Joy Manufacturing Company: *See—*
Peveto, John E., 4,280,397, Cl. 91-452.000.

Jung, Arno, to Pfaff Industriemaschinen GmbH. Guide device for sewing machines. 4,280,422, Cl. 112-147.000.

Jung, Richard: *See—*
Thomas, Gerhard; and Jung, Richard, 4,280,877, Cl. 202-91.000.

Justman, Daniel B., to Smith International, Inc. Wall contacting tool. 4,280,742, Cl. 308-4.00A.

K A Bergs Smide AB: *See—*
Fredriksson, Lars O. A., 4,280,728, Cl. 294-78.00R.

Kabushiki Kaisha Komatsu Seisakusho: *See—*
Kanai, Seikichi; Komiyama, Kunihiko; and Togashi, Koichi, 4,280,464, Cl. 123-447.000.

Kabushiki Kaisha Shikishima Tipton: *See—*
Kobayashi, Hisamine, 4,280,304, Cl. 51-315.000.

Kabushiki Kaisha Toyoto Chuo Kenkyusho: *See—*
Tanasawa, Yasusi; Saito, Akinori; and Kawamura, Kiyomi, 4,280,661, Cl. 239-409.000.

Kabushikigaisha Nippon Kogu Seisakusho: *See—*
Hayama, Takatsura, 4,280,774, Cl. 407-36.000.

Kagerhuber, Franz: *See—*
Bayer, Franz; Schubert, Hermann; and Kagerhuber, Franz, 4,280,552, Cl. 164-448.000.

Kahlbrock, Heinz: *See—*
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.

Kainmuller, Thomas; Habermeier, Jurgen; and Buxbaum, Lothar, to Ciba-Geigy Corporation. Dicarboxylic acids containing triazine rings, and polyesters formed from these dicarboxylic acids. 4,281,103, Cl. 528-289.000.

Kajimoto, Tsutomu: *See—*
Marukawa, Katsukiyo; Yamazaki, Isao; Anezaki, Syoji; and Kajimoto, Tsutomu, 4,280,838, Cl. 75-60.000.

Kali-Chemie Pharma GmbH: *See—*
Wischniewski, Martin; Feicho, Lutz; Fischer, Gerhard; and Peschke, Guenter, 4,280,971, Cl. 264-15.000.

Kallis, Karl-Heinz, to Veb Arzneimittelwerk Dresden. Test for the identification of glucose and for the determination of glucose. 4,281,062, Cl. 435-14.000.

Kamensky, Veniamin V.: *See—*
Sudnishnikov, Boris V.; Kamensky, Veniamin V.; Varnello, Eduard P.; Tupitsyn, Sergei K.; and Tupitsyn, Konstantin K., 4,280,573, Cl. 175-418.000.

Kametani, Yoshiya; and Iino, Yasuo, to Nitto Chemical Industry Co., Ltd. Process for producing dimethylaminoethyl methacrylate. 4,281,175, Cl. 560-217.000.

Kamimura, Masaaki, to Kansai Paint Company, Limited. Thermosetting acrylic resin powder coating compositions. 4,281,076, Cl. 525-124.000.

Kamshitsky, Pavel V.: *See—*
Koshman, Vitaly I.; Petrichenko, Vladimir F.; Gnilitsky, Boris S.; Mironenko, Vyacheslav G.; and Kamshitsky, Pavel V., 4,281,304, Cl. 335-72.000.

Kamyr Aktiebolag: *See—*
Jacobsen, Finn; and Gustavsson, Lennart, 4,280,902, Cl. 209-211.000.

Kanai, Seikichi; Komiyama, Kunihiko; and Togashi, Koichi, to Kabushiki Kaisha Komatsu Seisakusho. Fuel injection control system for internal combustion engine. 4,280,464, Cl. 123-447.000.

Kanasugi, Haruki: *See—*
Kurosu, Yasuhisa; Kawada, Hiroshi; Kanasugi, Haruki; and Kashima, Akiko, 4,281,016, Cl. 424-300.000.

Kaneko, Hiroaki: *See—*
Yamaguchi, Hiroshi; Kaneko, Hiroaki; and Nagano, Toshihiro, 4,280,455, Cl. 123-196.00M.

Kaneko, Tadashi: *See—*
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Kaneko, Toyohiko: *See—*
Sawa, Toshio; Kubota, Masayoshi; Takahashi, Sankichi; and Kaneko, Toyohiko, 4,280,886, Cl. 204-149.000.

Kansai Paint Company, Limited: *See—*
Kamimura, Masaaki, 4,281,076, Cl. 525-124.000.

Kansas Jack, Inc.: *See—*
Eck, Leonard F.; and Horgen, Lyle, 4,280,280, Cl. 33-203.120.

Kant, Michel: *See—*
Virolleau, Alain F.; Kant, Michel; and Burnier, Pierre H., 4,281,263, Cl. 310-13.000.

Kanwar, Randhir, to Automotive Products Limited. Brake applying device. 4,280,603, Cl. 188-343.000.

Kao Soap Company Limited: *See—*
Izumi, Kaichi, 4,281,288, Cl. 324-158.0MG.

Karn, Donald L.: *See—*
Hamisch, Paul H., Jr; Karn, Donald L.; and Makley, James A., 4,280,863, Cl. 156-387.000.

Karr, Dieter E.; and Shanks, Scott B., to Biotronik Mess-und Therapiegerate G.m.b.H. & Co. Cardiac pacemaker electrode for transvenous application. 4,280,512, Cl. 128-785.000.

Kartsounes, George T.: *See—*
Ahrens, Frederick W.; and Kartsounes, George T., 4,281,256, Cl. 290-1.00R.

Kasai, Yoshihiko: *See—*
Gounji, Takashi; and Kasai, Yoshihiko, 4,281,298, Cl. 333-186.000.

Kashima, Akiko: *See—*
Kurosu, Yasuhisa; Kawada, Hiroshi; Kanasugi, Haruki; and Kashima, Akiko, 4,281,016, Cl. 424-300.000.

Kason Hardware Corporation: *See—*
Berkowitz, Irving L.; and Bourgeois, John J., 4,280,725, Cl. 292-223.000.

Kast, Michael A.: *See—*
Duval, Eugene F.; Bagshaw, David P.; Kast, Michael A.; Masters, Gilbert M.; and Whitehouse, Harry T., 4,280,478, Cl. 126-420.000.

Katayose, Shinji; Sasabe, Yukiyoshi; Yokota, Yoshiaki; Kuroki, Junsuke; and Torii, Shuuji, to Nissan Motor Company, Limited. Aerial car suspension. 4,280,411, Cl. 104-112.000.

Kato, Shoichi: *See—*
Kobayashi, Kenji; Hibi, Katuhiko; Kobayashi, Hisabumi; and Kato, Shoichi, 4,280,834, Cl. 71-103.000.

Katsuzo, Kamoshita: *See—*
Ichiki, Takemoto; Yoshida, Ryo; Sumida, Seizo; and Katsuzo, Kamoshita, 4,280,835, Cl. 71-120.000.

Katzman, Allison W.; Disko, Harry; and Jaworski, Eugene, to Marvin Glass & Associates. Doll with water activated shower cap. 4,280,297, Cl. 46-41.000.

Kawabata, Toshihiko: *See—*
Saito, Takashi; Asai, Kiyotsugu; and Kawabata, Toshihiko, 4,280,944, Cl. 260-29.2TN.

Kawada, Hiroshi: *See—*
Kurosu, Yasuhisa; Kawada, Hiroshi; Kanasugi, Haruki; and Kashima, Akiko, 4,281,016, Cl. 424-300.000.

Kawai, Taneichi: *See—*
Nishida, Kouji; Miyake, Osamu; Kawai, Taneichi; and Hamajima, Shigemitsu, 4,280,420, Cl. 112-103.000.

Kawai, Toshio; Yamashita, Junichi; and Takamatsu, Jun, to Hitachi, Ltd. Nuclear reactor core structure with zones of varying enrichment. 4,280,874, Cl. 176-78.000.

Kawajiri, Yoshio: *See*—
Matsuhisa, Koh; Takezawa, Mamoru; and Kawajiri, Yoshio, 4,280,693, Cl. 271-246.000.

Kawamura, Hideo; and Itou, Takahiko, to Isuzu Motors Ltd. Engine start enhancement device. 4,280,452, Cl. 123-179.0BG.

Kawamura, Kiyomi: *See*—
Tanasawa, Yasusi; Saito, Akinori; and Kawamura, Kiyomi, 4,280,661, Cl. 239-409.000.

Kawasaki Steel Corporation: *See*—
Inokuti, Yukio; Shimizu, Yoh; and Shimanaka, Hiroshi, 4,280,856, Cl. 148-111.000.

Kawashima, Mitsuaki: *See*—
Shiozaki, Morio; Kawashima, Mitsuaki; Shimoyama, Yoshiaki; and Ishihara, Nobuoki, 4,280,837, Cl. 75-54.000.

Kayser, Gaston: *See*—
Ferrari, Luciano; Fourest, Bernard; Kayser, Gaston; and Martin, Robert, 4,280,872, Cl. 176-38.000.

Keihm, Neil W., to ICI Americas Inc. Fluid dispensing apparatus. 4,280,638, Cl. 222-180.000.

Keim, Thomas A.; and Jones, Donald W., to General Electric Company. Mounting of armature conductors in air-gap armatures. 4,281,264, Cl. 310-194.000.

Kemp, George T. Low-side oil-separation and re-use system for ammonia-refrigeration apparatus. 4,280,337, Cl. 62-470.000.

Kendall Company, The: *See*—
Arkans, Edward J., 4,280,485, Cl. 128-24.00R.

Kennelly, William J.: *See*—
Kirch, Lawrence S.; and Kennelly, William J., 4,280,928, Cl. 252-432.000.

Kepco, Inc.: *See*—
Nercessian, Sarkis, 4,281,282, Cl. 323-350.000.

Kercheville, James D., to NL Industries, Inc. Salt stable lubricant for water base drilling fluids. 4,280,915, Cl. 252-8.50C.

Kerr, Douglas M.; Crandall, Thomas L.; and Scalf, Daniel J., to Acco Industries Inc. Conveyor system. 4,280,413, Cl. 105-150.000.

Kerr, Richard K.: *See*—
Jagodzinski, Richard F.; and Kerr, Richard K., 4,280,990, Cl. 423-574.00R.

Kerscher, Albert; and Furtner, Walter, to Knorr-Bremse GmbH. Rapid release mechanism for a spring-loaded brake cylinder. 4,280,398, Cl. 92-29.000.

Kesling, Haven S., Jr., to Atlantic Richfield Company. Preparation of unsaturated diesters by catalytic oxidative carbonylation of diolefins. 4,281,173, Cl. 560-204.000.

Kesting, Robert E., to Puropore Inc. Polyoxyethylene grafted membrane materials with grafting links derived from a diisocyanate. 4,280,970, Cl. 264-1.700.

Keyes Fibre Company: *See*—
Boursier, Leon, 4,280,648, Cl. 229-2.5EC.

Keystone International, Inc.: *See*—
Gibbs, Stephen, 4,280,549, Cl. 164-113.000.

Keystone Lighting Corp.: *See*—
Dalton, John, 4,280,724, Cl. 292-87.000.

KGEL Limited: *See*—
Eastham, John F.; and Evans, Peter D., 4,281,265, Cl. 310-254.000.

Khan, Asadulla R.; and Boning, Otto H., to Intertherm Inc. Defrost control monitoring fan motor temperature rise. 4,280,332, Cl. 62-156.000.

Kiefer, John E., to Eastman Kodak Company. Filter for sorption of heavy metals. 4,280,925, Cl. 252-428.000.

Kienzl, Arnold, to Holac-Maschinenbau GmbH. Apparatus for cutting foodstuffs or the like. 4,280,385, Cl. 83-404.300.

Kienzle, Charles; Gebura, Stanley E.; and Boghosian, John W., to BASF Wyandotte Corporation. Method of polymerizing styrene. 4,281,067, Cl. 521-56.000.

Kiessling, Dieter: *See*—
Stoeckigt, Dieter; Kiessling, Dieter; Perner, Johannes; Trieselt, Wolfgang; and Trapp, Horst, 4,280,919, Cl. 252-135.000.

Kikutake, Junichiro: *See*—
Sugiura, Masakuzu; Kikutake, Junichiro; Yoshida, Masaru; and Kondo, Shigeharu, 4,280,992, Cl. 424-1.000.

Kiliman, Douglas A.: *See*—
Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., 4,281,412, Cl. 375-86.000.

Kiloking (Proprietary) Limited: *See*—
Henderson, Henning M., 4,280,358, Cl. 73-115.000.

Kimura, Kazuo: *See*—
Hojo, Shiro; Hasegawa, Yoichi; Ichimiya, Tuyoshi; and Kimura, Kazuo, 4,281,198, Cl. 564-464.000.

King, James F.; and Horton, Gilbert L., to Consolidated Foods Corporation. Wire bending system. 4,280,350, Cl. 72-7.000.

King, Paul C. Prevaporizing oil burner and method. 4,280,806, Cl. 431-208.000.

Kinoshita, Takao: *See*—
Ogawa, Yukio; Suzuki, Ryoichi; Kinoshita, Takao; and Uchiyama, Takashi, 4,280,761, Cl. 354-29.000.

Kinson, Philip L., to General Electric Company. Novel halobisphenolethylene polycarbonate-polyester blends. 4,281,088, Cl. 525-439.000.

Kinzler, Hans, to Siemens Aktiengesellschaft. Connection lead-in plug. 4,280,747, Cl. 339-126.0RS.

Kiovsky, Thomas E., to Shell Oil Company. Antiknock component. 4,280,458, Cl. 123-198.00A.

Kirch, Lawrence S.; and Kennelly, William J., to Rohm and Haas Company. Catalyst compositions and their use for the preparation of methacrolein. 4,280,928, Cl. 252-432.000.

Kiscaden, Roy W.: *See*—
Jersey, Chester A.; and Kiscaden, Roy W., 4,280,323, Cl. 60-39.14R.

Kishi, Kenichi; and Sasaki, Takashi, to Konishiroku Photo Industry Co., Ltd. Photographic material. 4,281,059, Cl. 430-551.000.

Kita, Toru: *See*—
Kobayashi, Hiroshi; Kita, Toru; and Fujishiro, Takeshi, 4,280,360, Cl. 73-198.000.

Kitagawa, Tsuneo: *See*—
Arai, Kenichi; Shibazaki, Kenji; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,280,763, Cl. 355-14.00R.

Kitzinger, Frank: *See*—
Peacey, John G.; Ebersole, Ralph R.; Kitzinger, Frank; and Viens, Jean-Claude, 4,281,290, Cl. 324-426.000.

Kiwala, Jacob: *See*—
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,280,515, Cl. 131-276.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,280,933, Cl. 252-522.00R.
Sprecker, Mark A.; Trenkle, Robert W.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,281,177, Cl. 260-513.00R.

Klaiber, George S.; Grajek, Stanley A.; and Hill, Robert S., to Wurlitzer Company, The. Piano soundboard. 4,280,389, Cl. 84-212.000.

Kleemann, Axel; Nubert, Ingomar; Stroman, Fritz; and Thiemer, Klaus, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Dithienylalkylamines and process for their production. 4,281,010, Cl. 424-275.000.

Klein, Ottokar: *See*—
Poetsch, Dieter; Becker, Werner; Klein, Ottokar; and Wulf, Rudolf, 4,281,351, Cl. 358-214.000.

Klockner-Humboldt-Deutz AG: *See*—
Ansen, Jakob; Duill, Heimut; and Fasbender, Heinz, 4,280,283, Cl. 34-10.000.

Klomp, Edward D., to General Motors Corporation. Engine with intake ported cylinders and porous port liners for oil control. 4,280,456, Cl. 123-196.00R.

Kloster, Kenneth D., to Alvey, Inc. Strut suspension repair structure. 4,280,602, Cl. 188-322.000.

Kloubert, Udo: *See*—
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Klug, Helmut; and Frey, Hans-Helmut, to Hoechst Aktiengesellschaft. Thermoplastic composition comprising vinyl chloride polymer and two chlorinated polyethylenes. 4,280,940, Cl. 260-2 .0XA.

Klupfel, Olaf: *See*—
Zintarra, Helmut; and Klupfel, Olaf, 4,280,617, Cl. 198-699.000.

Knierim, Larry, to Dana Corporation. Utility puller. 4,280,683, Cl. 254-17.000.

Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., to Australasian Training Aids (Pty.) Ltd. Firing range. 4,281,241, Cl. 235-400.000.

Knippel, Willis H., to Pullman Incorporated. Hopper car door operating mechanism. 4,280,778, Cl. 414-387.000.

Knoell, Hellmuth: *See*—
Jost, Heinz; Knoell, Hellmuth; Markert, Gerhard; and Pennewiss, Horst, 4,281,081, Cl. 525-281.000.

Knoll, Glenn F.; Strange, Donald R.; and Bennett, Matthew C., Jr., to Medtronic, Inc. Radiation signal processing system. 4,281,382, Cl. 364-414.000.

Knopf, Robert J., to Union Carbide Corporation. Acrylyl esters of polyester-polyether copolymers. 4,281,172, Cl. 560-185.000.

Knopp, Hans: *See*—
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Knorr-Bremse GmbH: *See*—
Kerscher, Albert; and Furtner, Walter, 4,280,398, Cl. 92-29.000.
Pollinger, Hans, 4,280,598, Cl. 188-218.0XL.
Schorwerth, Mathias, 4,280,597, Cl. 188-218.0XL.

Knorre, Helmut; and Fischer, Joachim, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for automatically controlling the detoxification of waste waters containing nitrite ions. 4,280,914, Cl. 210-743.000.

Knowles, Marlin A.: *See*—
McHenney, John R.; and Knowles, Marlin A., 4,280,748, Cl. 339-147.00R.

Knudson, Donald R., to Massachusetts Institute of Technology. System to effect digital encoding of an image. 4,281,312, Cl. 340-146.3MA.

Kobayashi, Hiroshi; Kita, Toru; and Fujishiro, Takeshi, to Nissan Motor Company, Limited. Fluid measuring device. 4,280,360, Cl. 73-198.000.

Kobayashi, Hisabumi: *See*—
Kobayashi, Kenji; Hibi, Katuhiko; Kobayashi, Hisabumi; and Kato, Shoichi, 4,280,834, Cl. 71-103.000.

Kobayashi, Hisamine, to Kabushiki Kaisha Shikishima Tipton. Deburring method for workpieces. 4,280,304, Cl. 51-315.000.

Kobayashi, Kenji; Hibi, Katuhiko; Kobayashi, Hisabumi; and Kato, Shoichi, to Nippon Kayaku Kabushiki Kaisha. Novel diphenyl ether derivative and herbicidal composition containing the same as an active component. 4,280,834, Cl. 71-103.000.

Kobayashi, Tomoyuki: *See*—
Usami, Toshimasa; Kobayashi, Tomoyuki; Tatsuta, Sumitaka; and Komine, Shigeo, 4,281,060, Cl. 430-618.000.

Kobe, Inc.: *See*—
Crighlow, Walter W., 4,280,790, Cl. 415-89.000.
Erickson, John W.; and Petrie, Harold L., 4,280,662, Cl. 239-591.000.

Kobelt, Jacob. Control lever assembly. 4,280,371, Cl. 74-480.00B.

Kobylinski, Thaddeus P.: *See*—
Wu, Ching-Yong; and Kobylinski, Thaddeus P., 4,280,924, Cl. 252-416.000.

Koch, Christian: *See*—
Kunstle, Konrad; Reiter, Kurt; and Koch, Christian, 4,280,449, Cl. 122-4.00R.

Koch, Earl E., to Sperry Corporation. Infinite reel adjustment mechanism. 4,280,318, Cl. 56-221.000.

Kocourek, Jan: *See*—
Coupek, Jiri; Filka, Karel; and Kocourek, Jan, 4,281,233, Cl. 260-112.00R.

Koehler, Wolfgang, to Degussa Aktiengesellschaft. Hard solderable metal layers on ceramic. 4,281,041, Cl. 428-336.000.

Koelichen, Harald; and Deutsch, Adolf, to Standardgraph Filler & Fiebig GmbH. Inscription instrument. 4,280,277, Cl. 33-23.00D.

Koerner, Gotz; Kropac, Vaclav; and Rau, Harald, to Th. Goldschmidt AG. Process for the production of aqueous solutions of alkali organosiliconates. 4,281,147, Cl. 556-459.000.

Koerwer, John F., to Union Carbide Corporation. Pyridyloxyphenoxyalkane carboxylic acids and derivatives as sugar enhancers for plants. 4,280,832, Cl. 71-94.000.

Koike, Yoshio: *See*—
Sumi, Takehiko; Oshige, Yoshinobu; Koike, Yoshio; and Matsumoto, Kazuya, 4,281,045, Cl. 428-516.000.

Kokusai Denshin Denwa Co., Ltd.: *See*—
Seki, Norio; Yatsuzuka, Yohtaro; and Sakaguchi, Haruo, 4,281,416, Cl. 455-601.000.

Kolb, Erich: *See*—
Wiesenberger, Alfred; Mager, Lutz; Kolb, Erich; and Kreim, Karl, 4,280,634, Cl. 220-270.000.

Kolpe, Dieter: *See*—
Bethkenhagen, Jurgen; and Kolpe, Dieter, 4,280,509, Cl. 128-766.000.

Komatsu, Makoto; and Tanaka, Toru, to Mitsubishi Gas Chemical Company, Inc. Process for producing terephthalic acid with high purity. 4,281,179, Cl. 562-416.000.

Komine, Shigeo: *See*—
Usami, Toshimasa; Kobayashi, Tomoyuki; Tatsuta, Sumitaka; and Komine, Shigeo, 4,281,060, Cl. 430-618.000.

Komiyama, Kunihiko: *See*—
Kanai, Seikichi; Komiyama, Kunihiko; and Togashi, Koichi, 4,280,464, Cl. 123-447.000.

Kondo, Shigeharu: *See*—
Sugiura, Masakuzu; Kikutake, Junichiro; Yoshida, Masaru; and Kondo, Shigeharu, 4,280,992, Cl. 424-1.000.

Kondo, Takeo: *See*—
Hanai, Kiyoshi; and Kondo, Takeo, 4,280,717, Cl. 280-663.000.

Kondow, Ryotaro; and Okamoto, Eiichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Systems for detecting faults in electric power systems. 4,281,386, Cl. 364-492.000.

Konig, Klaus: *See*—
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, 4,281,101, Cl. 528-196.000.

Konishi, Jin-emon, to Nippon Zoki Pharmaceutical Co., Ltd. Hydantoin derivatives. 4,281,009, Cl. 424-273.00R.

Konishiroku Photo Industry Co., Ltd.: *See*—
Kishi, Kenichi; and Sasaki, Takashi, 4,281,059, Cl. 430-551.000.
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Konstantouros, Efthimios, to Siemens Aktiengesellschaft. Method of regenerating ammoniacal etching solutions useful for etching metallic copper. 4,280,887, Cl. 204-150.000.

Kontrovitz, Harold S.: *See*—
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,334, Cl. 346-153.100.
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,335, Cl. 346-153.100.

Koppers Company, Inc.: *See*—
Harris, Edward, 4,280,681, Cl. 251-229.000.

Kornatowski, Boleslaw: *See*—
Cook, Albert N.; and Kornatowski, Boleslaw, 4,281,310, Cl. 338-108.000.

Kornrumpf, William P., to General Electric Company. Power supply for magnetron and the like loads. 4,281,372, Cl. 363-20.000.

Kory, Daniel R.: *See*—
Fellmann, Robert P.; Kory, Daniel R.; and Staas, William H., 4,281,084, Cl. 525-309.000.

Koshman, Vitaly I.; Petrichenko, Vladimir F.; Gnilitsky, Boris S.; Mironenko, Vyacheslav G.; and Kamshitsky, Pavel V. Electric circuit switchgear. 4,281,304, Cl. 335-72.000.

Kostanecki, Andrew T., to Timex Corporation. Clasp for adjustable watch band. 4,280,257, Cl. 24-206.00R.

Kotas, Antoni: *See*—
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

Kotyza, Heinrich: *See*—
Schmid, Leo; and Kotyza, Heinrich, 4,280,572, Cl. 175-417.000.

Kouyama, Mikihiro; and Funabashi, Katsunori, to Honda Giken Kogyo Kabushiki Kaisha. Vehicle frame arrangement in motorized two-wheeled vehicle. 4,280,582, Cl. 180-219.000.

Kovalenko, Eugene N.; and Bowen, John G. Stationary display member for a rotating hub cap. 4,280,293, Cl. 40-587.000.

Kovats, Leslie P.: *See*—
Hunt, Walter G.; Kovats, Leslie P.; and Bovier, Edward M., 4,281,111, Cl. 536-111.000.

Kowal, Emil D. Inserts for fluid-type mattresses. 4,280,235, Cl. 5-458.000.

Kozhevnikov, Vladimir S.: *See*—
Mamatov, Juldash; Akhmadaliev, Makhammadzhon; and Kozhevnikov, Vladimir S., 4,281,114, Cl. 542-432.000.

Kraft, Thomas L.; Vick, Howard A.; and Hossom, Miles G., to American Home Products Corp. Automatic chemical analysis apparatus and method. 4,281,387, Cl. 364-497.000.

Kraftwerk Union Aktiengesellschaft: *See*—
Hoffmann, Jurgen, 4,280,871, Cl. 176-38.000.
Kunstle, Konrad; Reiter, Kurt; and Koch, Christian, 4,280,449, Cl. 122-4.00R.
Puthawala, Anwer; Meichsner, Othmar; and Marr, Erich, 4,280,922, Cl. 252-301.10W.
Werres, Lothar, 4,280,875, Cl. 176-87.000.

Krag, Jens: *See*—
Hauberg, Georg H. H.; Krag, Jens; and Pisecky, Jan, 4,281,024, Cl. 426-471.000.

Kratzer, Reinhold H.: *See*—
Paciorek, Kazimiera J. L.; Kratzer, Reinhold H.; Ito, Thomas I.; and Nakahara, James H., 4,281,185, Cl. 564-13.000.

Kreim, Karl: *See*—
Wiesenberger, Alfred; Mager, Lutz; Kolb, Erich; and Kreim, Karl, 4,280,634, Cl. 220-270.000.

Kren, George J.: *See*—
Wheeler, William R.; and Kren, George J., 4,280,354, Cl. 73-1.0DV.

Kronenberg, Stanley; Siebentritt, Carl R.; and Van Gorden, Harry, to United States of America, Army. Radiation dose rate meter. 4,281,250, Cl. 250-377.000.

Kropac, Vaclav: *See*—
Koerner, Gotz; Kropac, Vaclav; and Rau, Harald, 4,281,147, Cl. 556-459.000.

Kroplinski, Thaddeus F.: *See*—
Brauer, Melvin; and Kroplinski, Thaddeus F., 4,281,210, Cl. 174-23.00C.

Krude, Werner, to Uni-Cardan AG. Telescopic drive shaft. 4,280,341, Cl. 64-23.000.

Krugener, Rolf: *See*—
Grabner, Christian; Reinhard, Theodor; Krugener, Rolf; and Kurth, Hermann W., 4,280,349, Cl. 70-358.000.

Kruka, Vitold R.; and Ruth, Charles W., to Shell Oil Company. Marine cable decoupler. 4,281,402, Cl. 367-15.000.

Kruzel, Thomas F.: *See*—
Comer, Robert C.; and Kruzel, Thomas F., 4,280,276, Cl. 30-144.000.

Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Transmission for use in motor vehicle. 4,280,374, Cl. 74-695.000.

Kubota, Masayoshi: *See*—
Sawa, Toshio; Kubota, Masayoshi; Takahashi, Sankichi; and Kaneko, Toyohiko, 4,280,886, Cl. 204-149.000.

Kubota, Norikazu: *See*—
Yoshii, Kazuhiro; and Kubota, Norikazu, 4,280,331, Cl. 62-148.000.

Kugler, Artur: *See*—
Zaunberger, Franz X.; and Kugler, Artur, 4,280,579, Cl. 180-6.440.

Kuhle, Engelbert: *See*—
Siegle, Peter; Kuhle, Engelbert; Hammann, Ingeborg; and Behrenz, Wolfgang, 4,281,011, Cl. 424-277.000.

Kulesza, Ralph J.; Disko, Harry; and Thibault, James G., to Marvin Glass & Associates. Toy vehicle. 4,280,300, Cl. 46-204.000.

Kulzer, Walter P. B. Toy model flying machine. 4,280,298, Cl. 46-78.000.

Kunstle, Konrad; Reiter, Kurt; and Koch, Christian, to Kraftwerk Union Aktiengesellschaft. Steam generator for a solar power plant. 4,280,449, Cl. 122-4.00R.

Kunz, Peter, to Mettler Instrumente AG. Temperature-protected weighing apparatus with bearing enclosure. 4,280,577, Cl. 177-179.000.

Kunze, Dieter, to Siemens Aktiengesellschaft. Cable sleeve having a closable, longitudinal slit. 4,280,258, Cl. 24-257.000.

Kuramochi, Koujiro: *See*—
Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,280,374, Cl. 74-695.000.

Kuroiwa, Hiroshi; and Oyama, Yoshishige, to Hitachi, Ltd. Electronically controlled carburetor for internal combustion engine. 4,280,462, Cl. 123-437.000.

Kuroiwa, Katsumasa: *See*—
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Kuroki, Junsuke: *See*—
Katayose, Shinji; Sasabe, Yukiyoshi; Yokota, Yoshiaki; Kuroki, Junsuke; and Toru, Shuuji. 4,280,411, Cl. 104-112.000.

Kurosu, Yasuhisa; Kawada, Hiroshi; Kanasugi, Haruki; and Kashima, Akiko, to Hodogaya Chemicals Co., Ltd. Nematocidal composition. 4,281,016, Cl. 424-300.000.

Kurth, Hermann W.: *See*—
Grabner, Christian; Reinhard, Theodor; Krugener, Rolf; and Kurth, Hermann W., 4,280,349, Cl. 70-358.000.

Kurtz, Rudiger: *See*—
Bubik, Alfred; Kurtz, Rudiger; and Kutzelmann, Hermann, 4,280,870, Cl. 162-336.000.

Kuster, Erich; Dahmen, Kurt; and Barthell, Eduard, to Chemische Fabrik Stockhausen & Cie. Acrylyl and methacrylyl ureas containing quaternary groups, process for their preparation and their use in the preparation of polymers. 4,281,186, Cl. 564-46.000.

Kusters, Eduard: *See*—
Ahrweiler, Karl-Heinz, 4,280,262, Cl. 29-116.0AD.

Kusuhara, Akinobu: *See*—
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.

Kutzelmann, Hermann: *See*—
Bubik, Alfred; Kurtz, Rudiger; and Kutzelmann, Hermann, 4,280,870, Cl. 162-336.000.

Kuwano, Yukinori; Imai, Terutoyo; and Umetani, Masakazu, to Sanyo Electric Co., Ltd. Photovoltaic device and method of manufacturing thereof. 4,281,208, Cl. 136-249.000.

Kvall, Emil J.: *See*—
Berg, Richard C.; and Kvall, Emil J., 4,280,491, Cl. 128-201.240.

Kvita, Vratislav: *See*—
Darms, Roland; Kvita, Vratislav; and Greber, Gerd, 4,280,946, Cl. 260-326.00N.

Kyoei Steel Ltd.: *See*—
Maeda, Yukimasa, 4,280,836, Cl. 75-12.000.

Kyoraku Co., Ltd.: *See*—
Sumi, Takehiko; Oshige, Yoshinobu; Koike, Yoshio; and Matsumoto, Kazuya, 4,281,045, Cl. 428-516.000.

Kyushima, Tatsuo: *See*—
Kubo, Sentoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,280,374, Cl. 74-695.000.

L. & C. Steinmuller GmbH: *See*—
Thomas, Gerhard; and Jung, Richard, 4,280,877, Cl. 202-91.000.

Laabs, John E.: *See*—
DeMesa, Nicanor P., III; and Laabs, John E., 4,281,380, Cl. 364-200.000.

LaBuda, Edward F.; and Wang, Ting M., to Borg-Warner Corporation. Self-contained Belleville spring-type wet clutch. 4,280,608, Cl. 192-113.00B.

Ladisch, Christine M.: *See*—
Tsao, George T.; Ladisch, Michael R.; Ladisch, Christine M.; and Hsu, Teh-An, 4,281,063, Cl. 435-99.000.

Ladisch, Michael R.: *See*—
Tsao, George T.; Ladisch, Michael R.; Ladisch, Christine M.; and Hsu, Teh-An, 4,281,063, Cl. 435-99.000.

LaFleur, Ruby S. Disposable training panties. 4,280,230, Cl. 2-408.000.

Lagow, Richard J.; Adcock, James L.; and Maraschin, Norma J., to Massachusetts Institute of Technology. Cryogenically controlled direct fluorination process, apparatus and products resulting therefrom. 4,281,119, Cl. 544-106.000.

LaHaye, John: *See*—
Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., 4,280,669, Cl. 242-56.00A.

Lai Chen, Sow-Mei: *See*—
Floyd, Middleton B., Jr.; Weiss, Martin J.; Grudzinskas, Charles V.; and Lai Chen, Sow-Mei, 4,281,153, Cl. 560-118.000.

Laigneau, Richard: *See*—
Giraud, Jean; and Laigneau, Richard, 4,280,393, Cl. 89-36.00H.

Lakdawala, Ness R. Water condensate recovery device. 4,280,334, Cl. 62-277.000.

Lakey, Leroy E., to General Motors Corporation. Dual secondary cell charging system. 4,281,277, Cl. 320-6.000.

Lakshmanan, Pallavoor R.: *See*—
Huemmer, Thomas F.; and Lakshmanan, Pallavoor R., 4,281,152, Cl. 560-52.000.

LaMarche, Robert E.: *See*—
Chuang, Chin-Sheng; and LaMarche, Robert E., 4,281,218, Cl. 179-1.0SC.

Lamare, Jean-Claude; and Maury, Christian, to Compagnie Internationale pour l'Informatique-CII Honeywell Bull. Arrangement for detecting the binary values of bit cells having center transitions subject to phase distortion. 4,281,291, Cl. 329-50.000.

Lambicco, Rocco. Servo-arrangement with an electric gear shift disposition for the hand, respectively automatic control of a gear change, by elimination of the clutch pedal. 4,280,604, Cl. 192-0.080.

Lampert, Seymour R., to Sarns, Inc. Air emboli detection. 4,280,495, Cl. 128-214.00E.

Lang, Egon; and Nachtigall, Wilhelm, to Dynamit Nobel Aktiengesellschaft. Screw-type extruder for polyvinylidene fluoride filaments. 4,280,802, Cl. 425-208.000.

Langdon, William K., to BASF Wyandotte Corporation. Polyalkylene polyamine ether derivatives of polyoxyalkylene compounds. 4,281,199, Cl. 564-475.000.

Lapidus, Stanley N., to Machlett Laboratories, Incorporated, The. Stepped scanner imaging system. 4,281,249, Cl. 250-363.00S.

Larson, Ivar W.: *See*—
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Lassmann, Eberhard; and Benkmann, Christian, to Linde Aktiengesellschaft. Process for providing a feed gas for a chemical reaction and for the separation of a gaseous reaction product. 4,280,824, Cl. 55-26.000.

Latham, Phillip B. Tracheostomy tube. 4,280,492, Cl. 128-207.150.

Laughlin, William C.: *See*—
Tolley, William K.; and Laughlin, William C., 4,280,839, Cl. 75-82.000.

Laurencin, Andre: *See*—
Daniel, Edmond; Guesnon, Jean; and Laurencin, Andre, 4,280,719, Cl. 285-90.000.

Laurenz, Frank R., to Agricultural Research & Development Inc. Animal facility equipment. 4,280,447, Cl. 119-28.000.

Lavielle, Solange: *See*—
Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., 4,280,953, Cl. 260-112.50S.

Lawrence, Andrew M.: *See*—
Budzich, Mieczyslaw; Fitz, Forest G., Jr.; and Lawrence, Andrew M., 4,280,901, Cl. 209-154.000.

LBF Properties, Inc.: *See*—
Bruhn, Larry C., 4,280,713, Cl. 280-415.00A.

Leach Industries: *See*—
Drake, Charles A., 4,280,699, Cl. 273-73.00C.

Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., to Magna-Graphics Corporation. Automatic web rewinder for tensioned web. 4,280,669, Cl. 242-56.00A.

Leas, Arnold M. Integrated coal conversion process. 4,280,893, Cl. 208-10.000.

LeBlanc, John R.: *See*—
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,280,938, Cl. 260-21.000.
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,281,091, Cl. 525-518.000.

Lebrun, Jean-Louis, to Societe Francaise d'Equipements pour la Navigatior Aerienne (S.F.E.N.A.). Process and system for the rapid detection of a wind gradient. 4,281,383, Cl. 364-428.000.

Ledley, Robert S. Microfocus X-ray tube. 4,281,269, Cl. 313-60.000.

Lee, Fred S., to Magnex Corporation. Thin film magnetic head and method of making the same. 4,281,357, Cl. 360-125.000.

Leeds & Northrup Company: *See*—
Connery, James G.; DiNapoli, Louis D.; and Punis, Giancarlo, 4,280,365, Cl. 73-861.250.

Leesona Corporation: *See*—
Batting, Robert D.; Chabot, Donald G.; and Poland, Donald R., 4,280,626, Cl. 209-658.000.

LeFever, Randall H.; Harvey, William J.; and Flook, Glen E., Jr., to GTE Products Corporation. Multilamp photoflash unit construction. 4,281,364, Cl. 362-10.000.

Legorreta, Gildardo S. Method and apparatus for controlling, orienting and analyzing biological cells in liquid suspension. 4,280,623, Cl. 209-3.100.

Lehment, Klaus-Friedrich; Raue, Roderich; and Gleinig, Harald, to Bayer Aktiengesellschaft. Process for the preparation of cationic dyestuffs. 4,281,112, Cl. 542-417.000.

Lehnert, Gunther: *See*—
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, 4,281,101, Cl. 528-196.000.

Leithauser, Horst; Osterhoff, Heinz; and Trukenbrod, Karl, to Chemische Werke Huls AG. Method for coating fine particulate expandable styrene polymers. 4,281,036, Cl. 427-222.000.

Leland Stanford Junior University: *See*—
Huang, Alan, 4,281,391, Cl. 364-746.000.

LeMahieu, Ronald A.; and Nason, William C., to Hoffmann-La Roche Inc. Trans-3-(4-oxo-4H-quinazolin-3-yl)-2-propenoic acid derivatives. 4,281,127, Cl. 544-287.000.

Lemaitre, Gerard. Dispenser for granular or powdered product with crenellated dispensing blade. 4,280,639, Cl. 222-217.000.

Leopold Kostal, Firma: *See*—
Berginski, Werner, 4,281,226, Cl. 200-44.000.

Leuchtmann, Guenter: *See*—
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Lever Brothers Company: *See*—
Garvey, Michael J.; and Griffiths, Ian C., 4,280,920, Cl. 252-173.000.

LeVert, Francis E. Manual automobile pusher. 4,280,684, Cl. 254-35.000.

Levine, Abraham I. Ski sharpener. 4,280,378, Cl. 76-83.000.

Levitt, Charlie M.: *See*—
Grobbelaar, Jacobus H.; Colson, Richard N.; Levitt, Charlie M.; and Chatterley, Samuel, 4,280,625, Cl. 209-582.000.

Lewalter, Jurgen: *See*—
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.

Lewis, Duane H., to Continental Plastics, Inc. Container cover locking assembly. 4,280,636, Cl. 220-307.000.

Licentia Patent-Verwaltungs-G.m.b.H.: *See*—
Sommer, Karlheinz; and Sonntag, Alois, 4,281,336, Cl. 357-38.000.

Liebherr-Werk Ehingen GmbH: *See*—
Becker, Rudolf, 4,280,627, Cl. 212-198.000.

Liljegren, Lennart, to AB Asea-Atom. Filter for separating solid contaminants from a fluid, especially solid contaminants in a reactor cooling water used in nuclear reactor plants. 4,280,906, Cl. 210-282.000.

Lilly Industries Limited: *See*—
Williamson, William R. N., 4,281,017, Cl. 424-308.000.

Lin, Cheng-I; and Singh, Prithipal, to Syva Company. Phencyclidine conjugates to antigenic proteins and enzymes. 4,281,065, Cl. 435-188.000.

Lindblom, Curtis H.; and Shriver, Joe E., to Sperry Corporation. Adjustable coupling apparatus. 4,280,317, Cl. 56-15.600.

Linde Aktiengesellschaft: *See*—
Lassmann, Eberhard; and Benkmann, Christian, 4,280,824, Cl. 55-26.000.

Lindner, Christian: *See*—
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, 4,281,101, Cl. 528-196.000.

Lindstrom, Fred B., to Aktiebolaget IRO. Thread-storage and delivery device for textile machines. 4,280,668, Cl. 242-47.120.

Ling, Nicholas C.: *See*—
Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., 4,280,953, Cl. 260-112.50S.

List, Hans; Skatsche, Othmar; and Greier, Josef, to List, Hans. Multicylinder internal combustion engine. 4,280,453, Cl. 123-195.00R.

Litovich, Michael: *See*—
Hoesing, Philip; and Litovich, Michael, 4,280,295, Cl. 43-19.200.

Litton Resources Systems, Inc.: *See*—
Siems, Lee E.; and Porter, James A., 4,281,403, Cl. 367-76.000.

Litton Systems, Inc.: *See*—
Buck, Ronald G., 4,281,022, Cl. 426-233.000.

Liu, Ke-Tien: *See*—
Chauhan, Satya P.; Feldmann, Herman F.; Stambaugh, Edgel P.; and Liu, Ke-Tien, 4,280,817, Cl. 44-1.00R.

Lobbe, Armin, to Gewerkschaft Eisenhutte Westfalia. Non-rotary mining cutter with recessed nozzle insert. 4,280,735, Cl. 299-81.000.

Lockard, Donald F., to Johns-Manville Corporation. Method and apparatus for fastening a sheet of material to a support. 4,280,311, Cl. 52-748.000.

Logsdon, Duane D., to Logsdon Foundation, The. Roof flashings for use with solar collector. 4,280,305, Cl. 52-58.000.

Logsdon Foundation, The: *See*—
Logsdon, Duane D., 4,280,305, Cl. 52-58.000.

Lohr, Delmar F., Jr., to Firestone Tire & Rubber Company, The. Polymerization catalyst and process for polymerizing dienes therewith. 4,280,927, Cl. 252-431.00N.

Lohrman, Richard D., to Owens-Illinois, Inc. Safety closure and container with snap cap liner. 4,280,631, Cl. 215-204.000.

Lombardi, Frank: *See*—
United States of America, National Aeronautics and Space Administration; and Lombardi, Frank, 4,280,689, Cl. 269-21.000.

Lomenech, Herve; and Sarrailh, Jean-Paul, to Societe Nationale Elf Aquitaine (Production). Horizontally developing multi-functions rotating connection. 4,280,720, Cl. 285-136.000.

Longenecker, John G., td Gonzalez Barrera, Roberto. Method for shaping and precooking tortilla dough. 4,281,025, Cl. 426-496.000.

Longworth, Archibald L. Fume cupboards. 4,280,400, Cl. 98-115.0LH.

Lonseal Corporation: *See*—
Miura, Nobuo; and Akiba, Yuichi, 4,281,039, Cl. 428-159.000.

Loomis, Donald W. One piece anchor for adjustably tethering a rope suspended boat fender. 4,280,435, Cl. 114-219.000.

Loran, Muriel R., to Pharmaceutical Associates, Inc. Oral suspension of phenytoin. 4,280,995, Cl. 424-180.000.

Lord, John; and Gellert, Jobst U., to Mold-Masters Limited. Injection molding filter assembly. 4,280,908, Cl. 210-446.000.

L'Oreal: *See*—
Jacquet, Bernard; Mahieu, Claude; and Papantoniou, Christos, 4,281,192, Cl. 564-207.000.

Loschilin, Evgeny D.: *See*—
Onikov, Eduard A.; Galperin, Alexandr L.; Serebryannikov, Albert S.; Zabotin, Alexandr A.; and Loschilin, Evgeny D., 4,280,537, Cl. 139-436.000.

Lou, Perry W.; Ponder, James E.; and Tubbs, Graham S., to Texas Instruments Incorporated. Three level interconnect process for manufacture of integrated circuit devices. 4,280,271, Cl. 29-571.000.

Louisiana State University Board of Supervisors: *See*—
Steelman, Carrol D.; Chambers, Doyle M.; and Andis, Michael D., 4,280,999, Cl. 424-251.000.

Lovasz nee Gaspar, Marianna: *See*—
Szekely, Istvan; and Lovasz nee Gaspar, Marianna, 4,281,170, Cl. 560-124.000.

Lowe, Jerry B. Card drive operating apparatus and method. 4,280,249, Cl. 19-98.000.

Loyer, Alain: *See*—
Allen, John R.; Desrochers, Louis-Georges; and Loyer, Alain, 4,280,407, Cl. 102-320.000.

Lucas Industries Limited: *See*—
Baum, Heinz W., 4,280,594, Cl. 188-1.00A.
Evans, Kenneth S., 4,281,377, Cl. 363-63.000.
Skinner, Robert T. J., 4,280,454, Cl. 123-195.00A.

Ludwig, Guy, to Societe Alsacienne de Constructions Mecaniques de Mulhouse. Feed chimney for a textile machine supplied with textile fiber tufts. 4,280,251, Cl. 19-105.000.

Lugovnev, Fedor T.: *See*—
Gimelfarb, Natan M.; Lugovnev, Fedor T.; and Misjura, Nikolai E., 4,280,345, Cl. 69-32.000.

Lundberg, Lennart A.: *See*—
Guthrie, Elmer F.; and Lundberg, Lennart A., 4,280,284, Cl. 34-60.000.

Lupertz, Hans-Henning; and Riedel, Peter, to ITT Industries, Inc. Tandem master cylinder. 4,280,738, Cl. 303-6.00C.

Lyerly, William M.: *See*—
Bivens, Joseph R.; Lyerly, William M.; and Simmons, Walter J., 4,280,943, Cl. 260-29.20E.

Lynch, Denis A., Jr.: *See*—
Bechard, Conrad E.; Davenport, John M.; and Lynch, Denis A., Jr., 4,281,274, Cl. 315-49.000.

Mabille, Pierre, to Societe SATELEC. High frequency voltage generator. 4,281,373, Cl. 363-21.000.

MacGregor, David C. Endocardial pacemaker electrode. 4,280,514, Cl. 128-786.000.

Machine Technology, Inc.: *See*—
Hillman, Gary; and Devico, Michael J., 4,281,031, Cl. 427-45.100.

Machines Chambon: *See*—
Corse, Louis G., 4,280,406, Cl. 101-177.000.

Machlett Laboratories, Incorporated, The: *See*—
Lapidus, Stanley N., 4,281,249, Cl. 250-363.00S.

Mack Trucks, Inc.: *See*—
Stieg, Robert W., 4,280,583, Cl. 180-250.000.

Mackay, Robin, to Garrett Corporation, The. Solar powered turbine system. 4,280,327, Cl. 60-641.0AC.

Macurdy, William B.; and Thompson, Albert E., Jr., to PPG Industries, Inc. Device for and method of measuring glazing rabbet loads. 4,280,364, Cl. 73-818.000.

Maeda, Hiroaki: *See*—
Iizuka, Chiyokichi; and Maeda, Hiroaki, 4,281,021, Cl. 426-61.000.

Maeda, Yukimasa, to Kyoei Steel Ltd. Method of preheating iron scraps in steel-making by the electric arc furnace. 4,280,836, Cl. 75-12.000.

Maender, Otto W., to Monsanto Company. Alkylthioimidazolidinetriones. 4,281,139, Cl. 548-307.000.

Maerfeld, Charles; and Gautier, Herve, to Thomson-CSF. Acoustoelectric device for reading or processing a two-dimensional optical image. 4,281,350, Cl. 358-213.000.

Mager, Lutz: *See*—
Wiesenberger, Alfred; Mager, Lutz; Kolb, Erich; and Kreim, Karl, 4,280,634, Cl. 220-270.000.

Maggiulli, Cataldo A.: *See*—
Hyatt, John A.; French, Stephen E.; and Maggiulli, Cataldo A., 4,281,143, Cl. 548-360.000.

Magna-Graphics Corporation: *See*—
Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., 4,280,669, Cl. 242-56.00A.

Magnaflux Corporation: *See*—
Mlot-Fijalkowski, Adolf, 4,281,033, Cl. 427-157.000.

Magnex Corporation: *See*—
Lee, Fred S., 4,281,357, Cl. 360-125.000.

Mahieu, Claude: *See*—
Jacquet, Bernard; Mahieu, Claude; and Papantoniou, Christos, 4,281,192, Cl. 564-207.000.

Mahle, Christoph E.: *See*—
Childs, William H.; and Mahle, Christoph E., 4,281,293, Cl. 329-105.000.

Mahoney, Paul F.: *See*—
Bonn, Jerrold L.; Mahoney, Paul F.; and Monsen, Peter, 4,281,411, Cl. 375-14.000.

Mahurin, Ballard T.: *See*—
Dean, Homer B.; and Mahurin, Ballard T., 4,280,263, Cl. 29-132.000.

Majcher, John P.: *See*—
Rexroad, James O.; and Majcher, John P., 4,281,227, Cl. 200-50.0AA.

Makino, Tomoatsu: *See*—
Okuda, Ryoichi; Makino, Tomoatsu; and Miwa, Katsuteru, 4,280,461, Cl. 123-418.000.

Makishima, Yoshihiro, to NSK-Warner K.K. Emergency locking retractor. 4,280,584, Cl. 180-268.000.

Makley, James A.: *See*—
Hamisch, Paul H., Jr; Karn, Donald L.; and Makley, James A., 4,280,863, Cl. 156-387.000.

Malhotra, Sudarshan K.; and Ricks, Michael J., to Dow Chemical Company, The. Substituted phenoxy and phenylthio picolinaldehydes. 4,281,133, Cl. 546-298.000.

Maloney-Crawford Corporation: *See*—
Hodgson, Robert A., 4,280,867, Cl. 159-47.00R.

Mamatov, Juldash; Akhmadaliev, Makhammadzhon; and Kozhevnikov, Vladimir S. Method for preparing difurfurylideneacetone oligomer. 4,281,114, Cl. 542-432.000.

Mancosu, Federico, to Industrie Pirelli S.p.A. Solar roofs. 4,280,484, Cl. 126-450.000.

Mannion, Robert S., to Continental Instruments Corporation. Balancing apparatus for magnetic circuits employed in data storage and retrieval systems. 4,281,242, Cl. 235-449.000.

Manowitz, Milton: *See*—
Virgilio, Joseph A.; Manowitz, Milton; and Heilweil, Emanuel, 4,281,136, Cl. 548-206.000.

Maraschin, Norma J.: *See*—
Lagow, Richard J.; Adcock, James L.; and Maraschin, Norma J., 4,281,119, Cl. 544-106.000.

Marathon Oil Company: *See—*
Sydansk, R. D., 4,280,560, Cl. 166-305.00R.

Marchal, Paul: *See—*
Corfa, Yves-Paul; Marchal, Paul; Roussel, Victor; and Vertut, Jean, 4,280,288, Cl. 37-54.000.

Marconi Company Limited, The: *See—*
Byatt, Dennis W. G., 4,281,341, Cl. 358-92.000.

Marek, Donald C.: *See—*
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Maresca, Louis M., to Union Carbide Corporation. Process for stabilizing polyarylates with an aromatic phenol. 4,281,099, Cl. 528-176.000.

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Marini, Thomas O., to Suntemp Industries, Inc. Method of securing an article to the edge of a panel. 4,280,269, Cl. 29-526.00R.

Marjollet, Jacques; Tondeur, Gerard; Cerdan, Jean-Pierre; and Talleu, Patrick, to Stein Industrie; and Electricite de France. Vertical separator for separating liquid or solid particles from a vapor or a gas. 4,280,825, Cl. 55-203.000.

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Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,334, Cl. 346-153.100.
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Markert, Gerhard: *See—*
Jost, Heinz; Knoell, Hellmuth; Markert, Gerhard; and Pennewiss, Horst, 4,281,081, Cl. 525-281.000.

Marklund, Erland: *See—*
Hellgren, Hans; and Marklund, Erland, 4,280,382, Cl. 83-106.000.

Marr, Erich: *See—*
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Marston, Glendon P.: *See—*
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Martech International, Inc.: *See—*
Bassompierre-Sewrin, Christian C., 4,280,289, Cl. 37-63.000.

Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Jolly, Jean, to Roussel UCLAF. Novel lactones of cis 2,2-dimethyl-cyclopropane-1-carboxylic acid and their use. 4,281,182, Cl. 562-506.000.

Martin, Graham, to Platt Saco Lowell Limited. Textile carding machine frame construction. 4,280,250, Cl. 19-98.000.

Martin, Guy E.: *See—*
Dameron, H. Clifford, Jr.; Brouwer, Nicholaas L.; and Martin, Guy E., 4,280,857, Cl. 148-156.000.

Martin, Robert: *See—*
Ferrari, Luciano; Fourest, Bernard; Kayser, Gaston; and Martin, Robert, 4,280,872, Cl. 176-38.000.

Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, to BASF Aktiengesellschaft. Apparatus for threading up a texturizing nozzle. 4,280,260, Cl. 28-255.000.

Martinelli, Rene J., to Burns Bros. Wire rope traction device for tires. 4,280,545, Cl. 152-222.000.

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Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., 4,281,412, Cl. 375-86.000.

Marukawa, Katsukiyo; Yamazaki, Isao; Anezaki, Syoji; and Kajimoto, Tsutomu, to Sumitomo Metal Industries, Ltd. Production of carbon steel and low-alloy steel with bottom blowing basic oxygen furnace. 4,280,838, Cl. 75-60.000.

Maruoka, Hiroyuki, to Nissan Motor Company, Limited. Air-fuel mixture ratio control using electrostatic force. 4,280,467, Cl. 123-536.000.

Maruyama, Noboru. Liquid heating apparatus. 4,280,450, Cl. 122-17.000.

Maruyama, Yutaka; Goto, Kazuhiro; and Terazawa, Michio, to Yoshitomi Pharmaceutical Industries, Ltd. Method for treatment of rheumatism. 4,281,001, Cl. 424-256.000.

Marvin Glass & Associates: *See—*
Katzman, Allison W.; Disko, Harry; and Jaworski, Eugene, 4,280,297, Cl. 46-41.000.
Kulesza, Ralph J.; Disko, Harry; and Thibault, James G., 4,280,300, Cl. 46-204.000.

Marzoli, Angelo, to F.lli Marzoli & C. S.p.A. Safety spindle-stopping device for a spinning frame. 4,280,321, Cl. 57-81.000.

Masaki, Kenji, to Nissan Motor Company, Limited. Control system for internal combustion engine. 4,280,471, Cl. 123-571.000.

Maschinenfabrik Rissen GmbH: *See—*
Schmidt, Werner, 4,280,652, Cl. 229-43.000.

Masenheimer, John H.; and Bradley, Irving, to General Electric Company. Swivel base lighting fixture. 4,281,370, Cl. 362-287.000.

Maslanka, William W.; and Spence, Gavin G., to Hercules Incorporated. Organic pigments. 4,281,082, Cl. 525-296.000.

Massachusetts Institute of Technology: *See—*
Knudson, Donald R., 4,281,312, Cl. 340-146.3MA.
Lagow, Richard J.; Adcock, James L.; and Maraschin, Norma J., 4,281,119, Cl. 544-106.000.
Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., 4,280,954, Cl. 260-123.700.

Massimei, Gerald G.; and Massimei, Gerald G., Jr. Method for playing a military warfare board game. 4,280,704, Cl. 273-258.000.

Massimei, Gerald G., Jr.: *See—*
Massimei, Gerald G.; and Massimei, Gerald G., Jr., 4,280,704, Cl. 273-258.000.

Masters, Gilbert M.: *See—*
Duval, Eugene F.; Bagshaw, David P.; Kast, Michael A.; Masters, Gilbert M.; and Whitehouse, Harry T., 4,280,478, Cl. 126-420.000.

Matsuhisa, Koh; Takezawa, Mamoru; and Kawajiri, Yoshio, to Ricoh Co., Ltd. Sheet feeding device for printing apparatus. 4,280,693, Cl. 271-246.000.

Matsuhisa, Tadaaki; and Soejima, Shigeo, to NGK Insulators, Ltd. Cordierite ceramic. 4,280,845, Cl. 106-62.000.

Matsuki, Koji: *See—*
Egawa, Hideharu; Matsuki, Koji; and Suzuki, Yasoji, 4,280,272, Cl. 29-571.000.

Matsumoto, Kazuya: *See—*
Sumi, Takehiko; Oshige, Yoshinobu; Koike, Yoshio; and Matsumoto, Kazuya, 4,281,045, Cl. 428-516.000.

Matsumoto, Masanori: *See—*
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
Ogino, Yoshio; Mizukawa, Takumi; and Yoshida, Hirokazu, 4,281,378, Cl. 363-96.000.
Shizuya, Osamu, 4,281,348, Cl. 358-188.000.
Wada, Ryoichi; Tsuchiya, Mitsuharu; Odagi, Kanji; and Senoo, Takanori, 4,281,355, Cl. 360-32.000.

Matsushita Electric Works, Ltd.: *See—*
Ihara, Sinji, 4,280,517, Cl. 132-9.000.

Matula, Jerry: *See—*
Barrus, Gordon B.; and Matula, Jerry, 4,280,404, Cl. 101-93.030.

Maury, Christian: *See—*
Lamare, Jean-Claude; and Maury, Christian, 4,281,291, Cl. 329-50.000.

May, John R., to Newport News Industrial Corporation. Immobilization of waste material. 4,280,921, Cl. 252-301.10W.

Maynes, Alan D. Two-sided portable scoreboard. 4,280,291, Cl. 40-495.000.

Mayr-Stein, Horst: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.

Mazur, Stanislaw: *See—*
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

McAdams, Timothy E.: *See—*
Grants, Valdis; Schultz, Ron; and McAdams, Timothy E., 4,281,392, Cl. 364-900.000.

McCarty, Leslie P., to Dow Chemical Company, The. Deuterated analogues of methoxyflurane useful as an anesthetic. 4,281,020, Cl. 424-342.000.

McCoag, John, to Aardee Spring & Lock Company Limited. Keyless lockable security devices. 4,280,726, Cl. 292-327.000.

McCormick, Bryan H., to BP Chemicals Limited. Control of phenol-/aldehyde condensation reactions. 4,281,098, Cl. 528-139.000.

McDonnell Douglas Corporation: *See—*
Austin, Len S., 4,281,379, Cl. 364-102.000.

McHenney, John R.; and Knowles, Marlin A., to International Harvester Company. Fusible terminal. 4,280,748, Cl. 339-147.00R.

McKenny, Vernon G.; and Taylor, David L., to Mostek Corporation. Block redundancy for memory array. 4,281,398, Cl. 365-200.000.

McMahon, William H.: *See—*
Fraula, Louis F.; McMahon, William H.; and Heckman, Thomas B., 4,280,520, Cl. 134-60.000.

McNaboe, John A.: *See—*
Dannheim, Walter R.; and McNaboe, John A., 4,280,978, Cl. 264-156.000.

McNaney, Joseph T. Graphic symbol selection and recording apparatus. 4,280,755, Cl. 350-358.000.

McNeely, Gerald W., to Akzona Incorporated. Temperature indicator. 4,280,441, Cl. 116-219.000.

McPhee, William A.; and Speights, Junius L., to Dresser Industries, Inc. Sidewall sampling apparatus. 4,280,568, Cl. 175-4.000.

McVey, John K., to Illinois Tool Works Inc. Thermal switch with split ring construction. 4,281,308, Cl. 337-407.000.

Meacham, Craig L., to Rockwell International Corporation. Adjustable squeeze point safety device. 4,280,610, Cl. 192-132.000.

Meacham, G. B. Kirby. Log splitter. 4,280,540, Cl. 144-193.00C.

Meadows, Roger D.: *See—*
Guptil, Richard A.; Gaster, Ivan; and Meadows, Roger D., 4,280,722, Cl. 285-244.000.

Mecone, David W.; Hartman, Donald W.; and Armstrong, Donald E., to GTE Products Corporation. Multilamp photoflash unit with reflective-protective circuit board element. 4,281,363, Cl. 362-6.000.

Medtronic, Inc.: *See—*
Knoll, Glenn F.; Strange, Donald R.; and Bennett, Matthew C., Jr., 4,281,382, Cl. 364-414.000.
O'Neill, Edward G., 4,280,510, Cl. 128-784.000.
O'Neill, Edward G., 4,280,511, Cl. 128-784.000.

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Puthawala, Anwer; Meichsner, Othmar; and Marr, Erich, 4,280,922, Cl. 252-301.10W.

Melamed, Avraham: *See—*
Wirguin, Joseph M.; and Melamed, Avraham, 4,280,415, Cl. 110-224.000.

Mele, Cam. Apparatus for making a bow. 4,280,642, Cl. 223-46.000.

Mendorf, Donald R.: *See—*
Patz, Benjamin W.; Berke, Herbert; and Mendorf, Donald R., 4,281,361, Cl. 361-401.000.

Merck & Co., Inc.: *See—*
Baldwin, John J., 4,281,005, Cl. 424-263.000.
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,281,002, Cl. 424-263.000.

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Gunkel, Werner; and Eisenbeiss, Friedhelm, 4,280,905, Cl. 210-198.200.
Hubenett, Fritz, 4,280,966, Cl. 260-543.00R.

Merrick, John A. Elevating device. 4,280,589, Cl. 182-2.000.

Merritt, Leander; and Pioch, Richard P., to Eli Lilly and Company. 3-(Imidazol-4-yl)-2-phenylpropanenitriles. 4,281,141, Cl. 548-342.000.

Mersereau, J. Mark: *See—*
Walters, Linwood A.; and Mersereau, J. Mark, 4,281,044, Cl. 428-460.000.

Merten, Rudolf: *See—*
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.
Zecher, Wilfried; and Merten, Rudolf, 4,281,140, Cl. 548-313.000.

Messer Griesheim GmbH: *See—*
Munch, Gerhard, 4,280,687, Cl. 266-50.000.

Mettler Instrumente AG: *See—*
Kunz, Peter, 4,280,577, Cl. 177-179.000.

Meyer, Karl-Heinrich: *See—*
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.

Micaelli, Odile: *See—*
Gruffaz, Max; and Micaelli, Odile, 4,281,176, Cl. 560-247.000.

Michel, Joseph P., to Anciaux widow Vastesaeger, Martine, a part interest. Method of producing cross-linked, unsaturated polyesters. 4,281,073, Cl. 525-11.000.

Miesel, John L., to Eli Lilly and Company. 1-(2-6-Dihalobenzoyl)-3-(5-substituted-2-pyridinyl)urea insecticides and insecticidal method. 4,281,003, Cl. 424-263.000.

Mietzsch, Fritz: *See—*
Bartl, Herbert; and Mietzsch, Fritz, 4,280,937, Cl. 260-17.00A.

Mihirogi, Kiyoshi, to Japan Air Lines Co., Ltd. Independent suspension system for attraction type magnetically floated travelling body. 4,280,412, Cl. 104-281.000.

Milberger, Lionel J.; and Tucker, Albert R., to FMC Corporation. Method and apparatus for hydraulically controlling subsea well equipment. 4,280,531, Cl. 137-624.110.

Miles Laboratories, Inc.: *See—*
Johnson, Leighton C., 4,280,442, Cl. 118-52.000.

Milinic, Vojin. Convertible enclosure for buildings and areas. 4,280,306, Cl. 52-63.000.

Miller, Henry C.: *See—*
Buchholz, Bernard; Welsh, Charles B.; and Miller, Henry C., 4,281,202, Cl. 568-62.000.

Miller, Paul W.; and Fobes, Norman H., to Wean United, Inc. Gripper mechanism for tension reel mandrel and the like. 4,280,671, Cl. 242-78.300.

Miller, Richard L.: *See—*
Harris, Verdell; and Miller, Richard L., 4,280,330, Cl. 62-3.000.

Miller, Roy W., to Pullman Incorporated. Air brake arrangement for center sill-less hopper cars. 4,280,596, Cl. 188-52.000.

Millman, Mitchell W. Regenerative reciprocating open cycle internal combustion engine. 4,280,468, Cl. 123-546.000.

Min, Mart V.: *See—*
Pungas, Toom A.; Parve, Toomas E.; and Min, Mart V., 4,281,281, Cl. 323-271.000.

Minnesota Mining and Manufacturing Company: *See—*
Berg, Richard C.; and Kvall, Emil J., 4,280,491, Cl. 128-201.240.

Minolta Camera Kabushiki Kaisha: *See—*
Arai, Kenichi; Shibazaki, Kenji; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,280,763, Cl. 355-14.00R.
Murata, Tomoji; and Ito, Masazumi, 4,281,244, Cl. 250-225.000.

Mironenko, Vyacheslav G.: *See—*
Koshman, Vitaly I.; Petrichenko, Vladimir F.; Gnilitsky, Boris S.; Mironenko, Vyacheslav G.; and Kamshitsky, Pavel V., 4,281,304, Cl. 335-72.000.

Mirviss, Stanley B.; and Giolito, Silvio L., to Stauffer Chemical Company. Vinyl chloride compositions plasticized with meta-tertiary-butylphenyl diphenyl phosphate. 4,280,945, Cl. 260-30.60R.

Misjura, Nikolai E.: *See—*
Gimelfarb, Natan M.; Lugovnev, Fedor T.; and Misjura, Nikolai E., 4,280,345, Cl. 69-32.000.

Mistretta, Victor S. Multi-annular chamber, tubeless safety tire. 4,280,546, Cl. 152-330.0RF.

Mitamura, Ichiro; Isono, Katsuo; and Hosono, Takashi, to Sony Corporation. Horizontal scanning rate correction apparatus for beam index color cathode-ray tube. 4,281,340, Cl. 358-67.000.

Mitchell, Richard F.: *See—*
Stevens, Richard; Mitchell, Richard F.; and White, Philip D., 4,281,301, Cl. 333-195.000.

Mitchell, Robert P., to Rowe International, Inc. Merchandising machine shelf supporting structure. 4,280,745, Cl. 312-323.000.

Mitchell, Tyrone D., to General Electric Company. Process for producing alkoxylated silanes. 4,281,145, Cl. 556-440.000.

Mitel Corporation: *See—*
Cowpland, Michael C. J.; and Beirne, Patrick R., 4,281,219, Cl. 179-18.0FA.

Mitsubishi Denki Kabushiki Kaisha: *See—*
Yoshioka, Akiyoshi; Shibuya, Yoshikazu; and Nakanishi, Ioichiro, 4,281,209, Cl. 174-14.00R.

Mitsubishi Gas Chemical Company, Inc.: *See—*
Komatsu, Makoto; and Tanaka, Toru, 4,281,179, Cl. 562-416.000.

Mitsui, Hajime: *See—*
Iwata, Hiroshi; Yamaoka, Tetsuo; and Mitsui, Hajime, 4,280,760, Cl. 354-21.000.

Mitsui Mfg. Co., Ltd.: *See—*
Mitsui, Yoshiaki, 4,280,275, Cl. 29-732.000.

Mitsui-Nisso Corporation: *See—*
Saito, Takashi; Asai, Kiyotsugu; and Kawabata, Toshihiko, 4,280,944, Cl. 260-29.2TN.

Mitsui, Yoshiaki, to Mitsui Mfg. Co., Ltd. Apparatus for laminated core manufacture. 4,280,275, Cl. 29-732.000.

Miura, Nobuo; and Akiba, Yuichi, to Lonseal Corporation. Method for making a vinyl chloride resin sheet and sheet formed by said method. 4,281,039, Cl. 428-159.000.

Miwa, Katsuteru: *See—*
Okuda, Ryoichi; Makino, Tomoatsu; and Miwa, Katsuteru, 4,280,461, Cl. 123-418.000.

Miyakawa, Yoshitaka: *See—*
Ohmori, Taiji; Tsuchiya, Yoshikazu; Sato, Makoto; Miyakawa, Yoshitaka; and Fujii, Etsuo, 4,280,740, Cl. 303-92.000.

Miyake, Osamu: *See—*
Nishida, Kouji; Miyake, Osamu; Kawai, Taneichi; and Hamajima, Shigemitsu, 4,280,420, Cl. 112-103.000.

Miyake, Tetsuya; Ogawa, Norito; Inada, Kohji; and Takeda, Kunihiko, to Asahi Kasei Kogyo Kabushiki Kaisha. Isotope separation. 4,280,984, Cl. 423-6.000.

Miyamoto, Yoshimi; and Tanigawa, Tetsuo, to Nippondenso Co., Ltd.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Ignition coil cover. 4,281,214, Cl. 174-138.00F.

Mizukawa, Takumi: *See—*
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Mlot-Fijalkowski, Adolf, to Magnaflux Corporation. Fluorescent penetrant system. 4,281,033, Cl. 427-157.000.

Moalic, Jean J.: *See—*
Pophillat, Lucien J. P.; Moalic, Jean J.; and Sorel, Yvon J., 4,280,765, Cl. 356-73.100.

Mobil Oil Corporation: *See—*
Arbit, Harold A., 4,281,083, Cl. 525-305.000.
Yan, Tsoung-yuan, 4,280,985, Cl. 423-7.000.

Modern Mfg. Co., Inc.: *See—*
Stuck, Matthew A., 4,280,314, Cl. 53-241.000.

Moegen, Gerhard; and Wotruba, Gottfried, to Eurosil, GmbH. Controlled power supply for integrated circuits. 4,281,260, Cl. 307-573.000.

Mold-Masters Limited: *See—*
Lord, John; and Gellert, Jobst U., 4,280,908, Cl. 210-446.000.

Moldestad, Jon P. Safety device for hose connections. 4,280,723, Cl. 285-376.000.

Molins, Desmond W.; Hinchcliffe, Dennis; Heybourn, Frank; and Coyte, Raymond G., to Molins Limited. Cigarette conveyor systems. 4,280,611, Cl. 198-347.000.

Molins Limited: *See—*
Molins, Desmond W.; Hinchcliffe, Dennis; Heybourn, Frank; and Coyte, Raymond G., 4,280,611, Cl. 198-347.000.

Monarch Marking Systems, Inc.: *See—*
Hamisch, Paul H., Jr., 4,280,862, Cl. 156-384.000.
Hamisch, Paul H., Jr; Karn, Donald L.; and Makley, James A., 4,280,863, Cl. 156-387.000.

Mono Pumps Limited: *See—*
Nelson, Hugh D., 4,280,793, Cl. 415-199.500.

Monsanto Company: *See—*
Baer, Massimo, 4,281,079, Cl. 525-152.000.
Balaban, Stephen M.; and Cox, Raymond C., 4,281,122, Cl. 544-190.000.
Beestman, George B.; and Deming, John M., 4,280,833, Cl. 71-100.000.
Dannheim, Walter R.; and McNaboe, John A., 4,280,978, Cl. 264-156.000.
Hirzy, J. William, 4,281,077, Cl. 525-129.000.
Maender, Otto W., 4,281,139, Cl. 548-307.000.
Shen, Hsiang-Sheng; Plischke, LeMoyne W.; Baggett, William M.; and Osborne, Franklin T., 4,280,860, Cl. 156-167.000.
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,280,938, Cl. 260-21.000.
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,281,091, Cl. 525-518.000.

Monsen, Peter: *See—*
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Montag, Jurgen: *See—*
Eisemann, Kurt; and Montag, Jurgen, 4,280,705, Cl. 369-233.000.

Montagna, John C.; Galli, Robert D.; and Freel, John, to Gulf Research & Development Company. Separating indene from unsaturated alkylaromatics. 4,280,881, Cl. 203-51.000.

Montealegre, James, to Champion International Corporation. Air freshener carton. 4,280,649, Cl. 229-11.000.

Montealegre, James; and Dutcher, Daniel P., to Champion International Corporation. Air freshener carton. 4,280,651, Cl. 229-20.000.

Monteiro, George. Underwater video camera housing. 4,281,343, Cl. 358-99.000.

Moodie, Keith, to Health and Safety Executive. Generators of impulses. 4,280,326, Cl. 60-547.00R.

Moog, Robert A., to Norlin Music, Inc. Frequency following circuit. 4,280,387, Cl. 84-1.010.

Mookherjee, Braja D.: *See*—
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,280,515, Cl. 131-276.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,280,933, Cl. 252-522.00R.
Sprecker, Mark A.; Trenkle, Robert W.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,281,177, Cl. 260-513.00R.

Moolenbeek, Rob: *See*—
Fox, Jeffrey R.; Margolies, Arthur; Moolenbeek, Rob; and Resnick, Martin L., 4,281,394, Cl. 364-900.000.

Moon, William T., Jr.: *See*—
Bible, Harley V.; and Moon, William T., Jr., 4,280,532, Cl. 137-882.000.

Moore, Dennis G.; and Johnson, Lawrence N. Submersible lamp wiring terminals. 4,281,367, Cl. 362-96.000.

Moore, Edward J. High compression vacuum cycle engine. 4,280,451, Cl. 123-90.600.

Moore, Paul O.: *See*—
Nametz, Richard C.; and Moore, Paul O., 4,280,952, Cl. 260-45.95G.

Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., to Markem Corporation. Electrostatic label printing system. 4,281,334, Cl. 346-153.100.

Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., to Markem Corporation. Electrostatic label printing system. 4,281,335, Cl. 346-153.100.

Moore, W. Michael. Diagonal elevator. 4,280,593, Cl. 187-12.000.

Moraw, Roland, to Hoechst Aktiengesellschaft. Color separation transparency and process for the preparation thereof. 4,281,049, Cl. 430-9.000.

Morawski, Janusz. Floor mat. 4,280,729, Cl. 296-1.00F.

Moretto, Hans-Heinrich: *See*—
de Montigny, Armand; and Moretto, Hans-Heinrich, 4,281,144, Cl. 556-416.000.

Mori, Tokishige. Paint containing silicone elastomer. 4,280,947, Cl. 260-33.6SB.

Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, to Konishiroku Photo Industry Co., Ltd. Photosensitive element with water soluble interlayer. 4,281,055, Cl. 430-60.000.

Morimoto, Kiyoshi: *See*—
Takagi, Toshinori; Morimoto, Kiyoshi; and Watanabe, Hiroshi, 4,281,029, Cl. 427-38.000.

Morishita, Masanobu; and Tanaka, Takanori, to Nippon Electric Co., Ltd. Color solid state image pick-up apparatus. 4,281,339, Cl. 358-52.000.

Morrow Electronics, Inc.: *See*—
Morrow, Ray E., Jr.; and Woodson, Richard W., 4,281,404, Cl. 367-108.000.

Morrow, Ray E., Jr.; and Woodson, Richard W., to Morrow Electronics, Inc. Depth finding apparatus. 4,281,404, Cl. 367-108.000.

Morrow, William D.: *See*—
Goss, John B.; and Morrow, William D., 4,280,628, Cl. 212-266.000.

Morton-Norwich Products, Inc.: *See*—
Harris, Nicholas, 4,281,190, Cl. 564-185.000.

Moskowitz, David; and Terner, Leslie L., to Ford Motor Company. Process for producing Si_3N_4 base articles by the cold press sinter method. 4,280,973, Cl. 264-63.000.

Mostek Corporation: *See*—
McKenny, Vernon G.; and Taylor, David L., 4,281,398, Cl. 365-200.000.

Motion Analysis Inc.: *See*—
Plagenhoef, Stanley, 4,280,700, Cl. 273-77.00A.

Motor Wheel Corporation: *See*—
Swan, Larry G., 4,280,426, Cl. 113-116.00D.

Motorola, Inc.: *See*—
Arvanitis, Aristotelis S., 4,281,300, Cl. 333-192.000.
Coon, Michael D.; Grace, Martin K.; and Smith, Steven R., 4,281,239, Cl. 235-92.0GA.
Hogg, Gerald J.; Newman, Robert A.; and Pfeifer, Robert F., 4,281,216, Cl. 178-22.080.
Pace, W. David, 4,281,317, Cl. 340-347.0NT.

Mount, Houston B., II, to Standard Oil Company (Indiana). Fluid flow restrictor valve for a drill hole coring tool. 4,280,569, Cl. 175-26.000.

Mounts, Frank W.; and Netravali, Arun N., to Bell Telephone Laboratories, Incorporated. Video interframe transform coding technique. 4,281,344, Cl. 358-136.000.

Mourick, Paul: *See*—
Munchow, Eberhard; Mourick, Paul; and Strop, Jurgen, 4,281,376, Cl. 363-50.000.

Mulach, Arthur: *See*—
Calfo, Raymond M.; Mulach, Arthur; and Jones, Warren W., 4,281,266, Cl. 310-256.000.

Muller, Frank: *See*—
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, 4,280,359, Cl. 73-123.000.

Munch, Gerhard, to Messer Griesheim GmbH. Flame cutter. 4,280,687, Cl. 266-50.000.

Munchow, Eberhard; Mourick, Paul; and Strop, Jurgen, to Siemens Aktiengesellschaft. Protected converter arrangement. 4,281,376, Cl. 363-50.000.

Muntean, George L.: *See*—
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., 4,280,659, Cl. 239-124.000.

Munthe, Lene: *See*—
Vonsbaek, Ebbe; Hansen, Claus C.; and Munthe, Lene, 4,280,716, Cl. 280-642.000.

Murata, Tomoji; and Ito, Masazumi, to Minolta Camera Kabushiki Kaisha. Apparatus for detecting sheet-formed support material. 4,281,244, Cl. 250-225.000.

Murata, Tomoji: *See*—
Arai, Kenichi; Shibazaki, Kenji; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,280,763, Cl. 355-14.00R.

Murphy, Edward F.; and Portzer, James R., to Corning Glass Works. System for measuring optical waveguide fiber diameter. 4,280,827, Cl. 65-11.00W.

Murphy, James W. Pliers. 4,280,265, Cl. 29-229.000.

Murphy, Kelly J., to Ball Corporation. Machine with pneumatic stripping. 4,280,353, Cl. 72-345.000.

Murphy, Richard W. Vase cover. 4,280,635, Cl. 220-306.000.

Murray, Myles N., to Industrial Electronic Rubber Co. Sealing element. 4,280,390, Cl. 411-542.000.

Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. Use of a mixture of isomers of caryophyllene alcohol or dihydro caryophyllene alcohol in augmenting or enhancing the aroma or taste of smoking tobacco, smoking tobacco articles and/or smoking tobacco flavors. 4,280,515, Cl. 131-276.000.

Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Derivatives of cis-3-hexenol and process for producing compositions of matter containing cis-3-hexenal and products produced thereby and organoleptic uses thereof. 4,280,933, Cl. 252-522.00R.

N. Schlumberger & Cie: *See*—
Herubel, Jean-Frederic, 4,280,248, Cl. 17-1.00B.

Nachtigall, Wilhelm: *See*—
Lang, Egon; and Nachtigall, Wilhelm, 4,280,802, Cl. 425-208.000.

NADA Electronics Limited: *See*—
Gurwicz, David, 4,281,279, Cl. 320-45.000.

Nagahara, Shusaku: *See*—
Takahashi, Kenji; Nagahara, Shusaku; Sato, Kazuhiro; Umemoto, Masuo; Akiyama, Toshiyuki; and Izumita, Morishi, 4,281,338, Cl. 358-44.000.

Nagano, Toshihiro: *See*—
Yamaguchi, Hiroshi; Kaneko, Hiroaki; and Nagano, Toshihiro, 4,280,455, Cl. 123-196.00M.

Nagano, Yasuaki, to Shibuya Kogyo Company, Ltd. Positioning device for bottles having protruded or indented spots. 4,280,612, Cl. 198-379.000.

Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, to Nitto Boseki Co., Ltd.; and Iatron Laboratories, Inc. Novel L-γ-glutamyl-3-carboxy-4-hydroxyanilide and salts thereof. 4,281,181, Cl. 562-453.000.

Nagata, Kenzo: *See*—
Arai, Kenichi; Shibazaki, Kenji; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,280,763, Cl. 355-14.00R.

Nagata, Yoshiaki; and Fukui, Shinya, to Hexa Chemical. Molding having grain of a natural material and method for producing same. 4,280,950, Cl. 260-42.210.

Nagayama, Mitsuyoshi: *See*—
Nasu, Tetsuji; and Nagayama, Mitsuyoshi, 4,281,322, Cl. 340-638.000.

Nakagawa, Sadayoshi; and Shinohara, Mitsuharu, to Hosiden Electronics Co., Ltd. Miniaturized unidirectional electret microphone. 4,281,222, Cl. 179-111.00E.

Nakahara, James H.: *See*—
Paciorek, Kazimiera J. L.; Kratzer, Reinhold H.; Ito, Thomas I.; and Nakahara, James H., 4,281,185, Cl. 564-13.000.

Nakamura, Takanori: *See*—
Shindome, Mamoru; Yanagita, Takanori; Nakamura, Takanori; and Otsuji, Hiroyuki, 4,280,982, Cl. 422-185.000.

Nakamura, Takashi, to Sony Corporation. Apparatus for detecting the color temperature of a source of light and automatic white balancing means for use therewith. 4,281,337, Cl. 358-29.000.

Nakanishi, Ioichiro: *See*—
Yoshioka, Akiyoshi; Shibuya, Yoshikazu; and Nakanishi, Ioichiro, 4,281,209, Cl. 174-14.00R.

Nakanishi, Kiyoshi; Ito, Kazuhiko; Okumura, Takeshi; Iezuka, Isamu; and Yasukawa, Masao, to Toyota Jidosha Kogyo Kabushiki Kaisha. Combustion chamber of an internal combustion engine. 4,280,459, Cl. 123-307.000.

Nakanishi, Motoyoshi. Multi-sound speaker system. 4,280,585, Cl. 181-147.000.

Nakano, Takaaki: *See*—
Noma, Hideyuki; and Nakano, Takaaki, 4,281,238, Cl. 219-535.000.

Nakano, Yutaka. Foldable desk. 4,280,744, Cl. 312-240.000.

Nakasato, Satoshi: *See*—
Suzuki, Osamu; Jigami, Yoshifumi; Nakasato, Satoshi; and Hashimoto, Tetsutaro, 4,281,064, Cl. 435-134.000.

Nakashima, Kunimichi: *See*—
Nakaso, Toru; Nomura, Kenji; and Nakashima, Kunimichi, 4,281,385, Cl. 364-474.000.

Nakaso, Toru; Nomura, Kenji; and Nakashima, Kunimichi, to Toyoda-Koki Kabushiki Kaisha. Control system for a machine tool. 4,281,385, Cl. 364-474.000.

Nakatsuji, Tadao: *See*—
Abe, Kazunobu; and Nakatsuji, Tadao, 4,280,926, Cl. 252-430.000.

Nakayama, Yoshiki; Higuchi, Yasushi; and Yazawa, Chihiro, to Ihara Chemical Industry Co., Ltd. Process for producing indoline derivative. 4,280,958, Cl. 260-326.11R.

Nametz, Richard C.; and Moore, Paul O., to Velsicol Chemical Corporation. Flame retardant polystyrene plastic compositions. 4,280,952, Cl. 260-45.95G.

Narayan, Raichur S., to Sunbeam Corporation. Plating on plastics by softening with trichloroethylene and methylene chloride bath. 4,281,034, Cl. 427-191.000.

Narkon, Norman W., to United Technologies Corporation. Angularly lockable fitting. 4,280,721, Cl. 285-179.000.

Narlow, Douglas A.; and Farrar, James G., to Sensormatic Electronics Corporation. Surveillance system employing a floor mat radiator. 4,281,321, Cl. 340-572.000.

Nashua Corporation: *See*—
Hutchinson, Peter; and Pauk, Henry T., 4,280,692, Cl. 271-160.000.

Nason, William C.: *See*—
LeMahieu, Ronald A.; and Nason, William C., 4,281,127, Cl. 544-287.000.

Nassau Recycle Corporation: *See*—
Budzich, Mieczyslaw; Fitz, Forest G., Jr.; and Lawrence, Andrew M., 4,280,901, Cl. 209-154.000.

Nasu, Tetsuji; and Nagayama, Mitsuyoshi, to Nissan Motor Company, Ltd. Fuse blowing detector. 4,281,322, Cl. 340-638.000.

National Research Dev'p Corp.: *See*—
Wetton, Raymond E.; and James, David B., 4,281,072, Cl. 525-4.000.

National Starch and Chemical Corporation: *See*—
Jarowenko, Wadym; and Solarek, Daniel B., 4,281,109, Cl. 536-50.000.

Naylor, Carl A., to Allis-Chalmers Corporation. Anti-arc prod. 4,281,230, Cl. 200-61.58R.

Neal, Joseph H.; and Reed, Paul A., to Texas Instruments Incorporated. Virtual ground MOS EPROM or ROM matrix. 4,281,397, Cl. 365-189.000.

Necchi S.p.A.: *See*—
Carbonato, Gianfranco; and Bianchi, Nereo, 4,280,424, Cl. 112-158.00E.

Neefe, Charles W. Permeable wettable contact lens. 4,280,759, Cl. 351-160.00R.

Neelameggham, Ramaswami, to AMAX Magnesium Corporation. Electrode assembly for melt cell. 4,280,891, Cl. 204-243.00R.

Negrich, George, Sr., deceased; and by Negrich, Helen, executrix. Method for fabricating large diameter gears, gear-blanks and the like. 4,280,264, Cl. 29-159.200.

Negrich, Helen, executrix: *See*—
Negrich, George, Sr., deceased; and Negrich, Helen, executrix, 4,280,264, Cl. 29-159.200.

Nehring, Kenneth L.: *See*—
Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., 4,280,669, Cl. 242-56.00A.

Neier, Wilhelm: *See*—
Brandes, Gunter; Wollner, Johannes; Neier, Wilhelm; and Webers, Werner, 4,281,206, Cl. 568-396.000.

Nelson, Bennie C., Jr., to Container Corporation of America. Tapered insert. 4,280,622, Cl. 206-592.000.

Nelson, Bennie C., Jr.: *See*—
Gardner, Jeffrey M.; Sensenbrenner, Ronald R.; and Nelson, Bennie C., Jr., 4,280,650, Cl. 229-15.000.

Nelson, Edward J.: *See*—
Warner, Willis L.; and Nelson, Edward J., 4,280,497, Cl. 128-272.000.

Nelson, Hugh D., to Mono Pumps Limited. Bore hole pumps. 4,280,793, Cl. 415-199.500.

Nelson, Thomas L., to Du Pont de Nemours, E. I., and Company. Process for making heather yarn from bulked continuous-filament yarns. 4,280,261, Cl. 28-271.000.

Nercessian, Sarkis, to Kepco, Inc. High positive and negative voltages programmed by a low voltage returned to common. 4,281,282, Cl. 323-350.000.

Netravali, Arun N.: *See*—
Mounts, Frank W.; and Netravali, Arun N., 4,281,344, Cl. 358-136.000.

Neubauer, Frank W. Flexible mirror assembly. 4,280,753, Cl. 350-295.000.

Neufeldt, Jacob J. Refuse container. 4,280,780, Cl. 414-572.000.

Neuscheler, Wilhelm. Handle for water ski towline with engagement and disengagement means for water ski safety belt. 4,280,240, Cl. 9-310.00A.

Newbold, William F., to Honeywell Inc. Signal isolator. 4,281,299, Cl. 333-187.000.

Newcomb, Ross G. Wheel line chain lubricator. 4,280,591, Cl. 184-17.000.

Newman, Robert A.: *See*—
Hogg, Gerald J.; Newman, Robert A.; and Pfeifer, Robert F., 4,281,216, Cl. 178-22.080.

Newnham, Robert C.: *See*—
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.

Newport News Industrial Corporation: *See*—
May, John R., 4,280,921, Cl. 252-301.10W.

NGK Insulators, Ltd.: *See*—
Matsuhisa, Tadaaki; and Soejima, Shigeo, 4,280,845, Cl. 106-62.000.
Suzuki, Go, 4,280,977, Cl. 264-153.000.

Niemand, Carel W. P.: *See*—
Payne, Barrett M. M., 4,280,680, Cl. 251-175.000.

Nifco Inc.: *See*—
Hara, Kunio, 4,281,307, Cl. 337-114.000.

Nihon Kaiheiki Kogyo Kabushiki Kaisha: *See*—
Hirai, Akira; Tanaka, Yukihisa; and Ohashi, Shigeo, 4,281,232, Cl. 200-315.000.

Nilsson, Gosta, to AB Gemla Plast. Slit valve ventilator and method of attaching same. 4,280,647, Cl. 227-147.000.

Nilsson, Jack E., Sr., to Seige Corporation. Method and apparatus for collectng, intensifying and storing solar energy. 4,280,482, Cl. 126-430.000.

Nippon Electric Co., Ltd.: *See*—
Morishita, Masanobu; and Tanaka, Takanori, 4,281,339, Cl. 358-52.000.
Tsuzuki, Mitsuo; and Suga, Michihisa, 4,281,333, Cl. 346-140.00R.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Ito, Tsugio; Aizawa, Kenshiro; and Okada, Hisashi, 4,281,225, Cl. 369-139.000.

Nippon Kayaku Kabushiki Kaisha: *See*—
Kobayashi, Kenji; Hibi, Katuhiko; Kobayashi, Hisabumi; and Kato, Shoichi, 4,280,834, Cl. 71-103.000.
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,281,180, Cl. 562-448.000.

Nippon Steel Corporation: *See*—
Shiozaki, Morio; Kawashima, Mitsuaki; Shimoyama, Yoshiaki; and Ishihara, Nobuoki, 4,280,837, Cl. 75-54.000.

Nippon Tungsten Co., Ltd.: *See*—
Ito, Hiroshi; and Sakaguchi, Shigeya, 4,280,841, Cl. 75-203.000.

Nippon Zoki Pharmaceutical Co., Ltd.: *See*—
Konishi, Jin-emon, 4,281,009, Cl. 424-273.00R.

Nippondenso Co., Ltd.: *See*—
Miyamoto, Yoshimi; and Tanigawa, Tetsuo, 4,281,214, Cl. 174-138.00F.
Okuda, Ryoichi; Makino, Tomoatsu; and Miwa, Katsuteru, 4,280,461, Cl. 123-418.000.

Nishida, Katsutoshi: *See*—
Seimiya, Motoo; and Nishida, Katsutoshi, 4,280,989, Cl. 423-344.000.

Nishida, Kouji; Miyake, Osamu; Kawai, Taneichi; and Hamajima, Shigemitsu, to Aisin Seiki Kabushiki Kaisha. Automatic embroidery sewing machine. 4,280,420, Cl. 112-103.000.

Nishimura, Satoshi; Shimizu, Tetsuo; Sato, Kenichi; and Asano, Takehiko, to Sanyo Electric Co., Ltd. Noise reducing apparatus. 4,281,295, Cl. 333-14.000.

Nishizawa, Rinzo: *See*—
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,281,180, Cl. 562-448.000.

Nissan Motor Company, Limited: *See*—
Katayose, Shinji; Sasabe, Yukiyoshi; Yokota, Yoshiaki; Kuroki, Junsuke; and Torii, Shuuji, 4,280,411, Cl. 104-112.000.
Kobayashi, Hiroshi; Kita, Toru; and Fujishiro, Takeshi, 4,280,360, Cl. 73-198.000.
Maruoka, Hiroyuki, 4,280,467, Cl. 123-536.000.
Masaki, Kenji, 4,280,471, Cl. 123-571.000.
Nasu, Tetsuji; and Nagayama, Mitsuyoshi, 4,281,322, Cl. 340-638.000.

Nitto Boseki Co., Ltd.: *See*—
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Nitto Chemical Industry Co., Ltd.: *See*—
Kametani, Yoshiya; and Iino, Yasuo, 4,281,175, Cl. 560-217.000.

NL Industries, Inc.: *See*—
Brauer, Melvin; and Kroplinski, Thaddeus F., 4,281,210, Cl. 174-23.00C.
Kercheville, James D., 4,280,915, Cl. 252-8.50C.

Nobile, Riccardo: *See*—
Caldarella, Riccardo; and Nobile, Riccardo, 4,281,292, Cl. 329-50.000.

Noble, Henry J., III: *See*—
Pardue, James I., Jr.; Hornsby, William M.; and Noble, Henry J., III, 4,280,768, Cl. 403-3.000.

Noda Shokkin Kogyo Kabushiki Gaisha: *See*—
Iizuka, Chiyokichi; and Maeda, Hiroaki, 4,281,021, Cl. 426-61.000.

Noma, Hideyuki; and Nakano, Takaaki, to Shin-Etsu Polymer Co., Ltd. Tubular jacket heater. 4,281,238, Cl. 219-535.000.

Nomori, Hiroyuki: *See*—
Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki, 4,281,055, Cl. 430-60.000.

Nomura, Kenji: *See—*
Nakaso, Toru; Nomura, Kenji; and Nakashima, Kunimichi, 4,281,385, Cl. 364-474.000.

Nomura, Takao; Umemoto, Yoshiro; and Takao, Shuichiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Manufacturing process for polyurethane auto parts and auto parts manufactured thereby. 4,281,096, Cl. 528-53.000.

Nonn, Konrad; Walz, Klaus; Wolf, Karlheinz; and Boehmke, Gunther, to Bayer Aktiengesellschaft. Phosphonic acid esters. 4,280,960, Cl. 260-403.000.

Nonomura, Keisaku; Takamatsu, Toshiaki; Uede, Hisashi; and Wada, Tomio, to Sharp Kabushiki Kaisha. Matrix type liquid crystal display. 4,281,324, Cl. 340-784.000.

Noorlander, Daniel O. Inflation for teat cup assembly. 4,280,446, Cl. 119-14.490.

Noranda Mines Limited: *See—*
Peacey, John G.; Ebersole, Ralph R.; Kitzinger, Frank; and Viens, Jean-Claude, 4,281,290, Cl. 324-426.000.

Nordica S.p.A.: *See—*
Sartor, Mariano, 4,280,286, Cl. 36-118.000.

Norlin Industries, Inc.: *See—*
Rock, Joseph, Jr., 4,281,415, Cl. 455-173.000.

Norlin Music, Inc.: *See—*
Moog, Robert A., 4,280,387, Cl. 84-1.010.

Norlund, Bruce K.: *See—*
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,334, Cl. 346-153.100.
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,335, Cl. 346-153.100.

Norton, James F., to Hansen Manufacturing Company, The. Thermal responsive coupling. 4,280,523, Cl. 137-74.000.

Novametrix Medical Systems, Inc.: *See—*
Dali, Carmelo; and Rich, David R., 4,280,505, Cl. 128-635.000.

Noyori, Ryoji, to Shin-Etsu Chemical Co., Ltd. Method for the preparation of a triorganosilylated 2,3-unsaturated alcohol. 4,281,148, Cl. 556-470.000.

NSK-Warner K.K.: *See—*
Makishima, Yoshihiro, 4,280,584, Cl. 180-268.000.

Nubert, Ingomar: *See—*
Kleemann, Axel; Nubert, Ingomar; Stroman, Fritz; and Thiemer, Klaus, 4,281,010, Cl. 424-275.000.

Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., to Schering Aktiengesellschaft. 1,3,4-Thiadiazole-2-carboxylic acid derivatives, process for making the same and fungicidal and nematocidal compositions containing same. 4,281,121, Cl. 544-134.000.

N.V. Nederlandsche Apparatenfabriek NEDAP: *See—*
de Jong, Hendrik J., 4,280,256, Cl. 24-155.0BR.

O. M. Scott and Sons Company: *See—*
Ferguson, Fred E.; Hughes, Rory R.; and Fersch, Kenneth E., 4,280,830, Cl. 71-25.000.

Oberhardt, Bruce J.; and Wotherspoon, Neil, to Technicon Instruments Corporation. Electrochemiluminescent immunoassay and apparatus therefor. 4,280,815, Cl. 23-230.00B.

Oblinger, Fred G., to Ford Motor Company. Hydrolytic decomposition method. 4,281,197, Cl. 564-393.000.

Occidental Research Corporation: *See—*
Green, Norman W., 4,280,876, Cl. 201-9.000.

O'Connor, John D. Device for rinsing and cleaning a drag cloth. 4,280,344, Cl. 68-213.000.

Odagi, Kanji: *See—*
Wada, Ryoichi; Tsuchiya, Mitsuharu; Odagi, Kanji; and Senoo, Takanori, 4,281,355, Cl. 360-32.000.

Ogawa, Norito: *See—*
Miyake, Tetsuya; Ogawa, Norito; Inada, Kohji; and Takeda, Kunihiko, 4,280,984, Cl. 423-6.000.

Ogawa, Yukio; Suzuki, Ryoichi; Kinoshita, Takao; and Uchiyama, Takashi, to Canon Kabushiki Kaisha. Electromagnetic shutter driving circuit. 4,280,761, Cl. 354-29.000.

Ogino, Yoshio; Mizukawa, Takumi; and Yoshida, Hirokazu, to Matsushita Electric Industrial Co., Ltd. Frequency inverter. 4,281,378, Cl. 363-96.000.

Ogiwara, Osao, to Akebono Brake Industry Company, Ltd. Friction material comprising an iron powder having a carbon content of from 0.5–1 percent. 4,280,935, Cl. 260-3.000.

Ohara, Isao. Centrifugal casting apparatus for dentistry. 4,280,551, Cl. 164-287.000.

Ohashi, Shigeo: *See—*
Hirai, Akira; Tanaka, Yukihisa; and Ohashi, Shigeo, 4,281,232, Cl. 200-315.000.

Ohishi, Hiroyuki: *See—*
Saito, Toranosuke; and Ohishi, Hiroyuki, 4,280,951, Cl. 260-45.80R.

Ohmori, Taiji; Tsuchiya, Yoshikazu; Sato, Makoto; Miyakawa, Yoshitaka; and Fujii, Etsuo, to Honda Giken Kogyo Kabushiki Kaisha. Skid prevention method and an anti-skid brake device. 4,280,740, Cl. 303-92.000.

Ohno, Ietatsu. Grinding method and apparatus. 4,280,302, Cl. 51-7.000.

Ohno, Shigeru: *See—*
Ito, Hiroshi; Endo, Ichiro; and Ohno, Shigeru, 4,281,052, Cl. 430-48.000.

Ohta, Tokuya: *See—*
Yano, Yasuhiro; Haruta, Masahiro; and Ohta, Tokuya, 4,281,329, Cl. 346-1.100.

Oien, Hal J.: *See—*
Johnsen, James B.; and Oien, Hal J., 4,280,808, Cl. 433-77.000.

Oka, Toshio, to Zenzaburo Kawanishi. Whistle. 4,280,299, Cl. 46-179.000.

Okada, Hisashi: *See—*
Ito, Tsugio; Aizawa, Kenshiro; and Okada, Hisashi, 4,281,225, Cl. 369-139.000.

Okamoto, Eiichi: *See—*
Kondow, Ryotaro; and Okamoto, Eiichi, 4,281,386, Cl. 364-492.000.

Okamoto, Hiroyuki; Tsuda, Yoshio; and Yokoyama, Kazumasa, to Green Cross Corporation, The. Fat emulsion for intravenous injection. 4,280,996, Cl. 424-199.000.

Okuda, Ryoichi; Makino, Tomoatsu; and Miwa, Katsuteru, to Nippondenso Co., Ltd. Contactless ignition system for internal combustion engines. 4,280,461, Cl. 123-418.000.

Okumura, Takeshi: *See—*
Nakanishi, Kiyoshi; Ito, Kazuhiko; Okumura, Takeshi; Iezuka, Isamu; and Yasukawa, Masao, 4,280,459, Cl. 123-307.000.

Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., to Hewlett-Packard Company. Programmable calculator including means for performing computed and uncomputed relative branching during program execution. 4,281,390, Cl. 364-706.000.

Olander, Walter K., to General Electric Company. Manganese complexes of salicylaldehyde-alkanolimines as catalysts for the polymerization of 2,6-di-substituted phenols. 4,280,963, Cl. 260-429.00C.

Olson, Harry W. Thermally actuated cut-off link or switch and method of making the same. 4,281,309, Cl. 337-409.000.

Olympus Optical Co., Ltd.: *See—*
Tojo, Tsutomu, 4,280,757, Cl. 350-414.000.

O'Neill, Edward G., to Medtronic, Inc. Sutureless myocardial lead introducer. 4,280,510, Cl. 128-784.000.

O'Neill, Edward G., to Medtronic, Inc. Ring electrode for pacing lead and process of making same. 4,280,511, Cl. 128-784.000.

Onikov, Eduard A.; Galperin, Alexandr L.; Serebryannikov, Albert S.; Zabotin, Alexandr A.; and Loschilin, Evgeny D. Apparatus for gripping a running weft thread on travelling-wave looms. 4,280,537, Cl. 139-436.000.

Ono, Kazuaki. Tubular flexible medical instrument. 4,280,500, Cl. 128-348.000.

Optelecom, Inc.: *See—*
Culver, William H., 4,281,253, Cl. 250-551.000.

O'Rourke, Joseph D.: *See—*
Pitchon, Esra; O'Rourke, Joseph D.; and Joseph, Theodore H., 4,280,851, Cl. 127-33.000.

Orthopedic Technology, Inc.: *See—*
Polsky, Robert D.; and Daneman, Alexis G., 4,280,488, Cl. 128-80.00H.

Osborn, Robert A.: *See—*
Bullard, Herbert L.; and Osborn, Robert A., 4,281,080, Cl. 525-205.000.

Osborne, Franklin T.: *See—*
Shen, Hsiang-Sheng; Plischke, LeMoyne W.; Baggett, William M.; and Osborne, Franklin T., 4,280,860, Cl. 156-167.000.

Osby, Warren J.: *See—*
Willenbring, Armer J.; Osby, Warren J.; and Gausman, James W., 4,280,381, Cl. 83-86.000.

Oscar Mayer & Company, Inc.: *See—*
Balch, James L.; Anderson, James E.; and Sadeski, Boleslaus J., 4,280,614, Cl. 198-425.000.

Oshige, Yoshinobu: *See—*
Sumi, Takehiko; Oshige, Yoshinobu; Koike, Yoshio; and Matsumoto, Kazuya, 4,281,045, Cl. 428-516.000.

Osterhoff, Heinz: *See—*
Leithauser, Horst; Osterhoff, Heinz; and Trukenbrod, Karl, 4,281,036, Cl. 427-222.000.

Ostermann, Jerry L. Livestock sorting device. 4,280,448, Cl. 119-155.000.

Otis Elevator Company: *See—*
Salmon, John K.; and Beazley, Dwight, 4,280,600, Cl. 188-312.000.

Otis Engineering Corporation: *See—*
Fredd, John V., 4,280,561, Cl. 166-332.000.

Otsuji, Hiroyuki: *See—*
Shindome, Mamoru; Yanagita, Takanori; Nakamura, Takanori; and Otsuji, Hiroyuki, 4,280,982, Cl. 422-185.000.

Otts, Charles. Apparatus for installing strips of material to support elements of a building. 4,280,312, Cl. 52-749.000.

Oude Alink, Bernardus A., to Petrolite Corporation. N-Substituted 1,2,3,4-tetrahydropyrimidines, Hexahydropyrimidines and process for their preparation. 4,281,126, Cl. 544-242.000.

Ovshinsky, Stanford R.; Angell, Daniel K.; and Yu, Terry T., to Energy Conversion Devices, Inc. Tellurium imaging composition. 4,281,058, Cl. 430-296.000.

Owen, Peter W.: *See—*
Sanner, James W.; and Owen, Peter W., 4,281,137, Cl. 548-239.000.

Owens-Corning Fiberglas Corporation: *See—*
Holt, Dennis S., 4,280,253, Cl. 19-296.000.

Owens-Illinois, Inc.: *See—*
Lohrman, Richard D., 4,280,631, Cl. 215-204.000.
Santiago, Edgardo, 4,281,040, Cl. 428-195.000.

Oy Ensio Miettinen AB: *See—*
Ijas, Seppo, 4,280,567, Cl. 173-129.000.

Oyama, Yoshishige: *See—*
Kuroiwa, Hiroshi; and Oyama, Yoshishige, 4,280,462, Cl. 123-437.000.

Ozawa, Toshiyuki, to Sanyo Electric Co., Ltd.; and Tokyo Sanyo Electric Co., Ltd. Digital phase comparing apparatus. 4,281,259, Cl. 307-514.000.

Pace, W. David, to Motorola, Inc. Masked hysteresis in dual-slope analog-to-digital converter. 4,281,317, Cl. 340-347.0NT.

Paciorek, Kazimiera J. L.; Kratzer, Reinhold H.; Ito, Thomas I.; and Nakahara, James H., to United States of America, Air Force. Symmetrical diphosphatetraazacyclooctatetraenes. 4,281,185, Cl. 564-13.000.

PAJ Corporation: *See—*
Wright, Patrick, 4,280,282, Cl. 33-427.000.

Pako Corporation: *See—*
Willenbring, Armer J.; Osby, Warren J.; and Gausman, James W., 4,280,381, Cl. 83-86.000.

Palazzetti, Mario; Ponti, Cesare; and Tenci, Pier L., to Centro Ricerche Fiat S.p.A. Solar energy conversion unit. 4,280,853, Cl. 136-246.000.

Palitex Project Company GmbH: *See—*
Inger, Siegfried, 4,280,322, Cl. 57-81.000.

Palmisano, Edward A.: *See—*
Bayer, Eric W.; and Palmisano, Edward A., 4,281,359, Cl. 361-115.000.

Pamm, Georges, to Du Pont de Nemours, E. I., and Company. Polyester fiberfill blends. 4,281,042, Cl. 428-361.000.

Papadopoulos, George. Automatically locking brake assembly. 4,280,605, Cl. 192-8.00R.

Papantoniou, Christos: *See—*
Jacquet, Bernard; Mahieu, Claude; and Papantoniou, Christos, 4,281,192, Cl. 564-207.000.

Paparizos, Christos: *See—*
Shaw, Wilfrid G.; Paparizos, Christos; and Callahan, James L., 4,280,929, Cl. 252-439.000.

Papenfuhs, Theodor; and Gengnagel, Kurt, to Hoechst Aktiengesellschaft. Process for the preparation of 2,4-dinitrophenyl urea. 4,281,187, Cl. 564-50.000.

Pardon, David W.: *See—*
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.

Pardue, James I., Jr.; Hornsby, William M.; and Noble, Henry J., III, to Dixie Electrical Manufacturing Company. Anchor drive coupler. 4,280,768, Cl. 403-3.000.

Parsons, George W., Jr.; and Drainoni, Riccardo A., to Technical Operations, Inc. Coupling apparatus for portable radiography systems. 4,281,252, Cl. 250-497.000.

Parthasarathy, R.; and Hort, Eugene V., to GAF Corporation. Oxidative dehydrogenation of alkenes or alkadienes to furan compounds. 4,280,959, Cl. 260-346.110.

Parve, Toomas E.: *See—*
Pungas, Toom A.; Parve, Toomas E.; and Min, Mart V., 4,281,281, Cl. 323-271.000.

Patel, Natu R., to Gulf Oil Corporation. Benzylsulfonyl diethylcarbamyl triazole and use as a selective herbicide. 4,280,831, Cl. 71-92.000.

Patriquin, William G., to Gabriel of Canada Limited. Shock absorber with improved piston compression valve mechanism. 4,280,601, Cl. 188-316.000.

Patz, Benjamin W.; Berke, Herbert; and Mendorf, Donald R., to United States of America, Navy. Simplified multilayer circuit board. 4,281,361, Cl. 361-401.000.

Pauk, Henry T.: *See—*
Hutchinson, Peter; and Pauk, Henry T., 4,280,692, Cl. 271-160.000.

Payne, Barrett M. M., to Niemand, Carel W. P., a part interest. Fluid valves. 4,280,680, Cl. 251-175.000.

Pazos, Jose F., to Du Pont de Nemours, E. I., and Company. Polyurethane compositions and process. 4,281,089, Cl. 525-456.000.

PCE Corporation: *See—*
Croyle, Gene F., 4,280,425, Cl. 112-272.000.

Peacey, John G.; Ebersole, Ralph R.; Kitzinger, Frank; and Viens, Jean-Claude, to Noranda Mines Limited. Voltage monitor. 4,281,290, Cl. 324-426.000.

Pease, James F. Fluid control valve and support assembly. 4,280,527, Cl. 137-343.000.

Pechnyo, Michael; and Fowler, Herman H., to Rockwell International Corporation. Fire seal for valves. 4,280,522, Cl. 137-72.000.

Peloquin, Conrad, to Tri Delta Industries, Inc. Method for welding ferrous alloys to aluminum and aluminum alloys or refractory metals. 4,281,235, Cl. 219-121.0ED.

Pennewiss, Horst: *See—*
Jost, Heinz; Knoell, Hellmuth; Markert, Gerhard; and Pennewiss, Horst, 4,281,081, Cl. 525-281.000.

Pennila, Simo A. O.: *See—*
Wheeler, Norton C., Jr.; Seuferling, John G.; and Pennila, Simo A. O., 4,280,801, Cl. 425-113.000.

Pennsylvania Pacific Corporation: *See—*
Daloisio, Pasquale C., 4,280,640, Cl. 222-561.000.

Pennwalt Corporation: *See—*
Buchholz, Bernard; Welsh, Charles B.; and Miller, Henry C., 4,281,202, Cl. 568-62.000.
Taylor, Kenneth W. J., 4,280,606, Cl. 192-56.00C.

Perettie, Donald J.; and Dean, Norman L., to Dow Chemical Company, The. Preparation of highly chlorinated pyridines. 4,281,135, Cl. 546-345.000.

Perez, Arthur; and Abraham, Fayez F., to Tyler Refrigeration Corporation. Icebank refrigerating and cooling systems for supermarkets. 4,280,335, Cl. 62-332.000.

Perkins, Jack E., to Roberts, Margaret P., a part interest. Motorized walker for the disabled. 4,280,578, Cl. 180-6.500.

Perner, Johannes: *See—*
Stoeckigt, Dieter; Kiessling, Dieter; Perner, Johannes; Trieselt, Wolfgang; and Trapp, Horst, 4,280,919, Cl. 252-135.000.

Peschke, Guenter: *See—*
Wischniewski, Martin; Feicho, Lutz; Fischer, Gerhard; and Peschke, Guenter, 4,280,971, Cl. 264-15.000.

Peter Eckes, Firma: *See—*
Wiesenberger, Alfred; Mager, Lutz; Kolb, Erich; and Kreim, Karl, 4,280,634, Cl. 220-270.000.

Petersen, Ted W. Speaker enclosure. 4,280,586, Cl. 181-150.000.

Peterson, Per V.: *See—*
Hoglund, Hans E.; and Peterson, Per V., 4,280,868, Cl. 162-28.000.

Peterzimmer America, Inc.: *See—*
Dreml, Johann, 4,280,405, Cl. 101-127.100.

Petrichenko, Vladimir F.: *See—*
Koshman, Vitaly I.; Petrichenko, Vladimir F.; Gnilitsky, Boris S.; Mironenko, Vyacheslav G.; and Kamshitsky, Pavel V., 4,281,304, Cl. 335-72.000.

Petrie, Harold L.: *See—*
Erickson, John W.; and Petrie, Harold L., 4,280,662, Cl. 239-591.000.

Petrie, Warren A., to J. Ray McDermott & Co., Inc. Floating buoy. 4,280,237, Cl. 9-8.00R.

Petrolite Corporation: *See—*
Oude Alink, Bernardus A., 4,281,126, Cl. 544-242.000.

Peveto, John E., to Joy Manufacturing Company. Hydraulic fluid control apparatus. 4,280,397, Cl. 91-452.000.

Pfaff, Deborah L. Child's book. 4,280,241, Cl. 11-1.00R.

Pfaff Industriemaschinen GmbH: *See—*
Jung, Arno, 4,280,422, Cl. 112-147.000.

Pfeifer, Robert F.: *See—*
Hogg, Gerald J.; Newman, Robert A.; and Pfeifer, Robert F., 4,281,216, Cl. 178-22.080.

Pfeiffer, Aloysius T.: *See—*
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., 4,281,057, Cl. 430-270.000.

Pfeiffer, Burkhard: *See—*
Friese, Karl-Hermann; Haecker, Wolf-Dieter; and Pfeiffer, Burkhard, 4,280,890, Cl. 204-195.00S.

Pfeil, Horst, to Aktiengesellschaft Kuhnle, Kopp & Kausch. Method of controlling the supercharge pressure in an internal-combustion engine, and exhaust-gas turbosupercharger for performing the method. 4,280,797, Cl. 417-406.000.

Pfizer Inc.: *See—*
Ives, Jeffrey L., 4,281,004, Cl. 424-263.000.

Pharmaceutical Associates, Inc.: *See—*
Loran, Muriel R., 4,280,995, Cl. 424-180.000.

Philadelphia Gear Corporation: *See—*
Denkowski, Walter J.; and Warsing, Daniel S., 4,280,373, Cl. 74-625.000.

Phillips, Evan M., to AHI Operations Limited. Methods of and/or apparatus for milking animals. 4,280,445, Cl. 119-14.020.

Phillips, William H.: *See—*
Groom, Nelson J.; Anderson, Williard W.; and Phillips, William H., 4,281,384, Cl. 364-453.000.

Piazza, Matthew R., to Hamden Industries, Inc. Process and apparatus for making a plurality of building modules having a foam core and a cementitious shell. 4,280,974, Cl. 264-69.000.

Pieroh, Ernst A.: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,281,121, Cl. 544-134.000.

Pioch, Richard P.: *See—*
Merritt, Leander; and Pioch, Richard P., 4,281,141, Cl. 548-342.000.

Pisecky, Jan: *See—*
Hauberg, Georg H. H.; Krag, Jens; and Pisecky, Jan, 4,281,024, Cl. 426-471.000.

Pitchon, Esra; O'Rourke, Joseph D.; and Joseph, Theodore H., to General Foods Corporation. Process for cooking or gelatinizing materials. 4,280,851, Cl. 127-33.000.

Pitts, William M.; and Herron, Don, to Pitts, William M. Restraining device for wheelchairs and the like. 4,280,731, Cl. 297-487.000.

Plachy, Ivo T., to Telex Computer Products, Inc. Tape transport capstan. 4,280,646, Cl. 226-190.000.

Plagenhoef, Stanley, to Motion Analysis Inc. Golf club and golf club set. 4,280,700, Cl. 273-77.00A.

Platt Saco Lowell Limited: *See—*
Martin, Graham, 4,280,250, Cl. 19-98.000.

Plischke, LeMoyne W.: *See—*
Shen, Hsiang-Sheng; Plischke, LeMoyne W.; Baggett, William M.; and Osborne, Franklin T., 4,280,860, Cl. 156-167.000.

Plouffe, Leo A.; and Unterweger, Diethard, to Texas Instruments Incorporated. Multifunction dynamoelectric protection system. 4,281,358, Cl. 361-22.000.

Poetsch, Dieter; Becker, Werner; Klein, Ottokar; and Wulf, Rudolf, to Robert Bosch GmbH. Apparatus for the line by line optical scanning of a film. 4,281,351, Cl. 358-214.000.

Poland, Donald R.: *See—*
Batting, Robert D.; Chabot, Donald G.; and Poland, Donald R., 4,280,626, Cl. 209-658.000.

Polaroid Corporation: *See—*
Berke, Carl M., 4,281,056, Cl. 430-232.000.

Poleschuk, Nicholas A.; and Purdy, Samuel E., to Beta Manufacturing Corp. Buzzer switch. 4,281,229, Cl. 200-52.00R.

Polizzi Enterprises: *See—*
Polizzi, Louis M., 4,280,590, Cl. 182-214.000.

Polizzi, Louis M., to Polizzi Enterprises. Stabilizing attachment for ladders. 4,280,590, Cl. 182-214.000.

Pollinger, Hans, to Knorr-Bremse GmbH. Brake disk. 4,280,598, Cl. 188-218.0XL.

Polska Akademia Nauk, Zaklad Polimerow: *See—*
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

Polsky, Robert D.; and Daneman, Alexis G., to Orthopedic Technology, Inc. Ankle support with elastic panel. 4,280,488, Cl. 128-80.00H.

Polymer Corporation, The: *See—*
Scheetz, Howard A.; and Gilles, Richard C., 4,281,070, Cl. 525-1.000.

Ponder, James E.: *See—*
Lou, Perry W.; Ponder, James E.; and Tubbs, Graham S., 4,280,271, Cl. 29-571.000.

Ponti, Cesare: *See—*
Palazzetti, Mario; Ponti, Cesare; and Tenci, Pier L., 4,280,853, Cl. 136-246.000.

Pophillat, Lucien J. P.; Moalic, Jean J.; and Sorel, Yvon J. Optical fiber transfer function measuring system. 4,280,765, Cl. 356-73.100.

Porter, James A.: *See—*
Siems, Lee E.; and Porter, James A., 4,281,403, Cl. 367-76.000.

Portzer, James R.: *See—*
Murphy, Edward F.; and Portzer, James R., 4,280,827, Cl. 65-11.00W.

Potts, Vinson S., to Crown Cork & Seal Company, Inc. Easy open can end. 4,280,427, Cl. 113-121.00C.

Pouillange, Jean-Paul, to BBC Brown, Boveri & Company, Ltd. Static frequency converter. 4,281,375, Cl. 363-37.000.

Pouliot, Harvey N., to Vadetec Corporation. Ball/ramp system for torque transmission. 4,280,369, Cl. 74-191.000.

PPG Industries, Inc.: *See—*
Macurdy, William B.; and Thompson, Albert E., Jr., 4,280,364, Cl. 73-818.000.
Raetzsch, Carl W., 4,280,883, Cl. 204-98.000.
Seymour, Samuel L., 4,280,828, Cl. 65-106.000.

Pratt, Charles E., to Chattem, Inc. Grease compositions and oxyaluminum acylate intermediate compositions useful in the preparation thereof. 4,280,917, Cl. 252-37.700.

Pratt & Whitney Aircraft of Canada, Limited: *See—*
Roberts, Ivor J., 4,280,678, Cl. 251-61.200.

Preh, Elektrofeinmechanische Werke, Jakob Preh Nachf GmbH & Co.: *See—*
Ambros, Peter; and Geyer, Hermann, 4,281,038, Cl. 428-131.000.

Price, Elvin C. Open edge folder. 4,280,421, Cl. 112-147.000.

Prince, Dominique: *See—*
Escher, Balint; Prince, Dominique; and Vasseux, Jean, 4,280,270, Cl. 29-570.000.

Printronix, Inc.: *See—*
Barrus, Gordon B.; and Matula, Jerry, 4,280,404, Cl. 101-93.030.

Prochnow, Claus, to Rollei-Werke Franke & Heidecke GmbH & Co. Camera having an independently focused retractable objective lens. 4,280,762, Cl. 354-187.000.

Protectoseal Co., The: *See—*
Shaw, Harry N., 4,280,679, Cl. 251-144.000.

Pullman Incorporated: *See—*
Knippel, Willis H., 4,280,778, Cl. 414-387.000.
Miller, Roy W., 4,280,596, Cl. 188-52.000.
Swiecicki, Z. Alexander, 4,280,840, Cl. 75-43.000.

Pungas, Toom A.; Parve, Toomas E.; and Min, Mart V. Reference voltage source. 4,281,281, Cl. 323-271.000.

Punis, Giancarlo: *See—*
Connery, James G.; DiNapoli, Louis D.; and Punis, Giancarlo, 4,280,365, Cl. 73-861.250.

Purdue Frederick Company, The: *See—*
Shetty, Bola V.; and Airey, John E., 4,281,138, Cl. 548-306.000.

Purdue Research Foundation: *See—*
Tsao, George T.; Ladisch, Michael R.; Ladisch, Christine M.; and Hsu, Teh-An, 4,281,063, Cl. 435-99.000.

Purdy, Samuel E.: *See—*
Poleschuk, Nicholas A.; and Purdy, Samuel E., 4,281,229, Cl. 200-52.00R.

Puropore Inc.: *See—*
Kesting, Robert E., 4,280,970, Cl. 264-1.700.

Puthawala, Anwer; Meichsner, Othmar; and Marr, Erich, to Kraftwerk Union Aktiengesellschaft. Method and apparatus for embedding radioactive pulverulent organic waste in a thermoplastic mass. 4,280,922, Cl. 252-301.10W.

Pyves, Richard R., to General Foods Limited. Soluble coffee process. 4,281,023, Cl. 426-385.000.

Quackenbush, Carr L. W.: *See—*
Smith, J. Thomas; Quackenbush, Carr L. W.; and Reid, F. Joseph, 4,280,850, Cl. 106-73.200.

Quad Chemical Corporation: *See—*
Abend, Phillip G., 4,281,201, Cl. 564-506.000.

Quigley, John T.: *See—*
Durda, Daniel J.; and Quigley, John T., 4,280,911, Cl. 210-629.000.

R. C. Sanders Technology Systems, Inc.: *See—*
Sousa, Frank E., 4,281,356, Cl. 360-45.000.

Raab, Simon. Bone connective prosthesis comprising a reinforcement element carrying a polymer layer having a varying modulus of elasticity. 4,280,233, Cl. 3-1.910.

Racke, Joseph. Belt retention means for garments. 4,280,254, Cl. 24-336.000.

Rackley, Ray A.; and Carpenter, David V., to Garrett Corporation, The. Radiant surface combustor. 4,280,329, Cl. 60-754.000.

Radaelli, Dario: *See—*
Bassi, Aldo; Radaelli, Dario; and Rogora, Edoardo, 4,280,460, Cl. 123-382.000.

Radiation Dynamics, Inc.: *See—*
Thompson, Chester C.; and Cleland, Marshall R., 4,281,251, Cl. 250-398.000.

Radler, Richard W.: *See—*
Horgan, Anthony M.; and Radler, Richard W., 4,281,054, Cl. 430-59.000.

Raetzsch, Carl W., to PPG Industries, Inc. Method of operating a solid polymer electrolyte chlor-alkali cell. 4,280,883, Cl. 204-98.000.

Ramacciotti, William S. Animal carcass handling vehicle. 4,280,784, Cl. 414-722.000.

Ramer, James L. Concrete railroad track. 4,280,657, Cl. 238-267.000.

Ramon, Yoav. Jaw and facial muscle exerciser. 4,280,696, Cl. 272-95.000.

Rao, G. R. Mohan: *See—*
Redwine, Donald J.; White, Lionel S., Jr.; and Rao, G. R. Mohan, 4,281,401, Cl. 365-222.000.

Raposo, Sulpicio B. Solar heating plant. 4,280,480, Cl. 126-429.000.

Rassmann, Christoph; Hauschopp, Alois; Schwolow, Gunter; and Huss, Horst, to Gewerkschaft Eisenhutte Westfalia. Asymmetric mineral mining plough. 4,280,733, Cl. 299-34.000.

Rau, Harald: *See—*
Koerner, Gotz; Kropac, Vaclav; and Rau, Harald, 4,281,147, Cl. 556-459.000.

Raudman, Charles J. Vehicle wheel. 4,280,736, Cl. 301-6.0CS.

Raue, Roderich: *See—*
Lehment, Klaus-Friedrich; Raue, Roderich; and Gleinig, Harald, 4,281,112, Cl. 542-417.000.

RCA Corporation: *See—*
Abeles, Benjamin, 4,281,270, Cl. 313-444.000.
Bilsky, Herbert W.; and Callen, Patrick J., 4,281,278, Cl. 320-13.000.
Crosby, Edward L., Jr., 4,280,674, Cl. 244-99.000.
Datta, Pabitra; and Friel, Ronald N., 4,280,941, Cl. 260-23.0XA.
George, John B., 4,281,349, Cl. 358-191.100.
Schanzer, Henry I.; and Stewart, Roger G., 4,281,400, Cl. 365-203.000.
Tosima, Soitiro, 4,281,407, Cl. 369-130.000.

Reale, Lucio. Preparing fruit juice powder. 4,281,026, Cl. 426-599.000.

Redfern, Martin W.: *See—*
Chapman, Peter; and Redfern, Martin W., 4,281,275, Cl. 315-399.000.

Redwine, Donald J.; White, Lionel S., Jr.; and Rao, G. R. Mohan, to Texas Instruments Incorporated. Semiconductor read/write memory array having high speed serial shift register access. 4,281,401, Cl. 365-222.000.

Reed, Paul A.: *See—*
Neal, Joseph H.; and Reed, Paul A., 4,281,397, Cl. 365-189.000.

Reid, F. Joseph: *See—*
Smith, J. Thomas; Quackenbush, Carr L. W.; and Reid, F. Joseph, 4,280,850, Cl. 106-73.200.

Reimer, Karl-Heinz: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.

Reimler Associates, Inc.: *See—*
Reimler, Marion W.; Reimler, James L.; and Reimler, John S., 4,280,541, Cl. 144-208.00E.

Reimler, James L.: *See—*
Reimler, Marion W.; Reimler, James L.; and Reimler, John S., 4,280,541, Cl. 144-208.00E.

Reimler, John S.: *See—*
Reimler, Marion W.; Reimler, James L.; and Reimler, John S., 4,280,541, Cl. 144-208.00E.

Reimler, Marion W.; Reimler, James L.; and Reimler, John S., to Reimler Associates, Inc. Debarking tool for log debarking machines. 4,280,541, Cl. 144-208.00E.

Reiners, Neville H.: *See—*
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., 4,280,659, Cl. 239-124.000.

Reinhard, Theodor: *See—*
Grabner, Christian; Reinhard, Theodor; Krugener, Rolf; and Kurth, Hermann W., 4,280,349, Cl. 70-358.000.

Reinhold, Andreas: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.

Reinsch, Arnold O. W. Flash jet coolant circulation system. 4,280,796, Cl. 417-176.000

Reiter, Kurt: *See—*
Kunstle, Konrad; Reiter, Kurt; and Koch, Christian, 4,280,449, Cl. 122-4.00R.

Renholmens Mekaniska Verkstad AB: *See—*
Hellgren, Hans; and Marklund, Erland, 4,280,382, Cl. 83-106.000.

Resnick, Martin L.: *See—*
Fox, Jeffrey R.; Margolies, Arthur; Moolenbeek, Rob; and Resnick, Martin L., 4,281,394, Cl. 364-900.000.

Reuland, Joachim, to Hauni-Werke Korber & Co. KG. Method and apparatus for producing a continuous filler of tobacco or the like. 4,280,516, Cl. 131-84.00C.

Rexroad, James O.; and Majcher, John P., to Westinghouse Electric Corp. Drawout switchgear with blow-out prevention device. 4,281,227, Cl. 200-50.0AA.

Reynolds, Jerald J.: *See—*
Escott, Barnee M.; Reynolds, Jerald J.; and Ward, William C., 4,281,032, Cl. 427-135.000.

Rhau, Siegfried: *See—*
Weber, Adolf; Rhau, Siegfried; and Ahlers, Utz-Udo, 4,280,408, Cl. 102-501.000.

Rhone-Poulenc Industries: *See—*
Bontempelli, Jean-Claude, 4,280,980, Cl. 422-40.000.
Gruffaz, Max; and Micaelli, Odile, 4,281,176, Cl. 560-247.000.

Ricca, Robert F.: *See—*
Bauer, Henry C.; Burns, Gary J.; Buzzard, Clair A.; Gordon, Travis H.; Kahlbrock, Heinz; Ricca, Robert F.; and Zachok, Robert M., 4,281,315, Cl. 340-147.00R.

Rice, Sondra L.: *See—*
Homola, Andrew M.; and Rice, Sondra L., 4,280,918, Cl. 252-62.510.

Rich, David R.: *See—*
Dali, Carmelo; and Rich, David R., 4,280,505, Cl. 128-635.000.

Richard Wolf GmbH: *See—*
Wurster, Helmut; and Blanc, Ernst, 4,281,366, Cl. 362-32.000.

Richards, Gordon, to Bristol Tool & Gauge Company Limited. Indexing device. 4,280,377, Cl. 74-813.00R.

Richards, Harry F.; and Carlson, Douglas C., to Shell Oil Company. Lubricant composition. 4,280,916, Cl. 252-33.400.

Richards, John A. Thermal electric converter. 4,281,280, Cl. 322-2.00R.

Richardson-Merrell Inc.: *See—*
Dhabhar, Dadi J.; Heyd, Allen; and Schmidt, Nicholas F., 4,280,936, Cl. 260-13.000.
Grisar, J. Martin; and Wiech, Norbert L., 4,281,006, Cl. 424-267.000.

Ricks, Michael J.: *See—*
Malhotra, Sudarshan K.; and Ricks, Michael J., 4,281,133, Cl. 546-298.000.

Ricoh Company, Ltd.: *See—*
Horike, Masanori, 4,281,332, Cl. 346-75.000.
Matsuhisa, Koh; Takezawa, Mamoru; and Kawajiri, Yoshio, 4,280,693, Cl. 271-246.000.
Roberts, Ben D., Jr., 4,281,319, Cl. 340-347.0DA.
Sakai, Katsuo, 4,281,051, Cl. 430-42.000.

Rie, John E.: *See—*
Bush, Richard W.; Jenkins, Russell J.; and Rie, John E., 4,280,888, Cl. 204-159.150.

Riedel, Peter: *See—*
Lupertz, Hans-Henning; and Riedel, Peter, 4,280,738, Cl. 303-6.00C.

Robbins, Clayton B.: *See—*
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,334, Cl. 346-153.100.
Moore, Robert A.; Norlund, Bruce K.; Kontrovitz, Harold S.; Robbins, Clayton B.; and Brooks, Jeffrey B., 4,281,335, Cl. 346-153.100.

Robert Bosch GmbH: *See—*
Friese, Karl-Hermann; Haecker, Wolf-Dieter; and Pfeiffer, Burkhard, 4,280,890, Cl. 204-195.00S.
Poetsch, Dieter; Becker, Werner; Klein, Ottokar; and Wulf, Rudolf, 4,281,351, Cl. 358-214.000.
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, 4,280,359, Cl. 73-123.000.
Struve, Hans-Dirk; Hess, Jurgen; and Vysiotis, Theodor, 4,280,799, Cl. 418-97.000.

Roberts, Ben D., Jr., to Ricoh Company, Ltd. Digital-to-analog converter. 4,281,319, Cl. 340-347.0DA.

Roberts, David P.: *See—*
Eacret, Dan P., 4,280,641, Cl. 223-1.000.

Roberts, Ivor J., to Pratt & Whitney Aircraft of Canada, Limited. Bleed valve. 4,280,678, Cl. 251-61.200.

Roberts, Margaret P.: *See—*
Perkins, Jack E., 4,280,578, Cl. 180-6.500.

Roberts, Raymond J., to Consarc Corporation. Electroslag remelting furnace with improved power connection. 4,280,550, Cl. 164-252.000.

Robertshaw Controls Company: *See—*
Bible, Harley V.; and Moon, William T., Jr., 4,280,532, Cl. 137-882.000.
Sliger, Boyd P., 4,280,654, Cl. 236-34.500.

Rock, Joseph, Jr., to Norlin Industries, Inc. Digital tuner. 4,281,415, Cl. 455-173.000.

Rockwell International Corporation: *See—*
Eshghy, Siavash, 4,280,380, Cl. 81-470.000.
Meacham, Craig L., 4,280,610, Cl. 192-132.000.
Pechnyo, Michael; and Fowler, Herman H., 4,280,522, Cl. 137-72.000.
Siniscal, Paul D.; Hebert, David L.; and Benzing, J. Paige, 4,280,615, Cl. 198-470.000.

Rodler, Hans, to Somartec S.A., Firma. Device for treatment with interference currents. 4,280,504, Cl. 128-420.00A.

Rogers Corporation: *See—*
Walters, Linwood A.; and Mersereau, J. Mark, 4,281,044, Cl. 428-460.000.

Rogge, Gail E. Third axle attachment for motor vehicles. 4,280,710, Cl. 280-81.00R.

Rogols, Saul: *See—*
Johnson, Donald L.; Bond, John L.; Rogols, Saul; and Salter, John W., 4,280,718, Cl. 282-27.500.

Rogora, Edoardo: *See—*
Bassi, Aldo; Radaelli, Dario; and Rogora, Edoardo, 4,280,460, Cl. 123-382.000.

Rohm GmbH: *See—*
Jost, Heinz; Knoell, Hellmuth; Markert, Gerhard; and Pennewiss, Horst, 4,281,081, Cl. 525-281.000.

Rohm and Haas Company: *See—*
Fellmann, Robert P.; Kory, Daniel R.; and Staas, William H., 4,281,084, Cl. 525-309.000.
Kirch, Lawrence S.; and Kennelly, William J., 4,280,928, Cl. 252-432.000.

Roll-Rite Corp.: *See—*
Christensen, Carl O., 4,280,246, Cl. 16-35.00D.

Rollei-Werke Franke & Heidecke GmbH & Co.: *See—*
Prochnow, Claus, 4,280,762, Cl. 354-187.000.

Rollin, Peter J.: *See—*
Hawthorne, Peter F.; and Rollin, Peter J., 4,281,035, Cl. 427-199.000.

Rolls-Royce Limited: *See—*
Savage, Philip, 4,280,357, Cl. 73-104.000.

Roman, Steven A., to Shell Oil Company. Oxyimino-substituted cyclopropanecarboxylate. 4,281,183, Cl. 562-506.000.

Romankiw, Lubomyr T.: *See—*
Castellani, Eugene E.; Croll, Ian M.; Pfeiffer, Aloysius T.; and Romankiw, Lubomyr T., 4,281,057, Cl. 430-270.000.

Roos, Jan, to U.S. Philips Corporation. Magnetic strip domain memory system. 4,281,396, Cl. 365-29.000.

Roper Corporation: *See—*
Scanland, Joseph E., 4,280,319, Cl. 56-255.000.

Rosen, George, to Energistics, Inc. Planetary gear system and gears therefore. 4,280,376, Cl. 74-788.000.

Rosenberg, Ariel. Combined protective barrier and burglar alarm. 4,281,320, Cl. 340-545.000.

Rosenberg, Neil A., to Hewlett-Packard Company. Patient cable with distributed resistance protection in conductors. 4,280,507, Cl. 128-696.000.

Ross, Edgar A.: *See—*
Tatum, Odes D.; and Ross, Edgar A., 4,281,211, Cl. 174-36.000.

Ross, Joseph H.; and Hall, Richard J. Audio cable tester. 4,281,283, Cl. 324-51.000.

Rottmaier, Ludwig: *See—*
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.

Roussel Uclaf: *See—*
Humbert, Daniel; Clemence, Francois; and Dagnaux, Michele, 4,281,012, Cl. 424-278.000.
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Jolly, Jean, 4,281,182, Cl. 562-506.000.

Roussel, Victor: *See—*
Corfa, Yves-Paul; Marchal, Paul; Roussel, Victor; and Vertut, Jean, 4,280,288, Cl. 37-54.000.

Rowe International, Inc.: *See—*
Mitchell, Robert P., 4,280,745, Cl. 312-323.000.

Rowley, Gerald L.: *See—*
Zuk, Robert F.; Gibbons, Ian; Rowley, Gerald L.; and Ullman, Edwin F., 4,281,061, Cl. 435-7.000.

Rozner, Alexander G.; and Helms, Horace H., to United States of America, Navy. Molten metal-liquid explosive device. 4,280,409, Cl. 102-364.000.

Rudwick, Lawrence A. Motor and pedal driven bicycles. 4,280,581, Cl. 180-207.000.

Ruegg, Harvey L., Sr. Heat hugger. 4,280,474, Cl. 126-121.000.

Runciman, Susann I. C., to Runciman, Susann I. C.; and Thompson, John R. Constant feed device. 4,280,637, Cl. 222-39.000.

Rusche, Fredric. Leadless method and apparatus for driving piles. 4,280,772, Cl. 405-232.000.

Russell, Homer C.: *See—*
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Ruth, Charles W.: *See—*
Kruka, Vitold R.; and Ruth, Charles W., 4,281,402, Cl. 367-15.000.

Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, to Henkel Kommanditgesellschaft auf Aktien. Quaternary ammonium compounds, their preparation, and their use as softening agents. 4,281,196, Cl. 564-292.000.

Ryndak, Boleslaw: *See—*
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

Sadeski, Boleslaus J.: *See—*
Balch, James L.; Anderson, James E.; and Sadeski, Boleslaus J., 4,280,614, Cl. 198-425.000.

Saino, Tetsushi: *See—*
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,281,180, Cl. 562-448.000.

St. Angelo, James E. Guard post for loading docks. 4,280,685, Cl. 256-1.000.

St. Clair, Terry L.: *See—*
United States of America, National Aeronautics and Space Administration; St. Clair, Terry L.; and Butler, John M., 4,281,102, Cl. 528-229.000.
St. Louis Conveyor Company, Inc.: *See—*
Herzog, Donald E.; and Thomas, Larry, 4,280,301, Cl. 51-5.00R.
Saito, Akinori: *See—*
Tanasawa, Yasusi; Saito, Akinori; and Kawamura, Kiyomi, 4,280,661, Cl. 239-409.000.
Saito, Takashi; Asai, Kiyotsugu; and Kawabata, Toshihiko, to Mitsui-Nisso Corporation. Thermosetting polyurethane resin and coating agent thereof prepared from at least two polyoxyalkylene polyols, blocking agent, chain-elongating agent, cross-linking agent and a mixture of diisocyanates. 4,280,944, Cl. 260-29.2TN.
Saito, Toranosuke; and Ohishi, Hiroyuki, to Sanko Kaihatsu Kagaku Kenkyusho. Flame retardants. 4,280,951, Cl. 260-45.80R.
Saitoh, Shinya: *See—*
Tomita, Tohru; Saitoh, Shinya; and Hirakata, Kazuo, 4,280,266, Cl. 29-241.000.
Sakaguchi, Haruo: *See—*
Seki, Norio; Yatsuzuka, Yohtaro; and Sakaguchi, Haruo, 4,281,416, Cl. 455-601.000.
Sakaguchi, Shigeya: *See—*
Ito, Hiroshi; and Sakaguchi, Shigeya, 4,280,841, Cl. 75-203.000.
Sakai Chemical Industry Co., Ltd.: *See—*
Abe, Kazunobu; and Nakatsuji, Tadao, 4,280,926, Cl. 252-430.000.
Sakai, Katsuo, to Ricoh Company, Ltd. Three color electrostatographic process. 4,281,051, Cl. 430-42.000.
Sakurai, Sadaaki: *See—*
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.
Sala, Franco, to Sala, Franco. Device for detecting the defrosting of frozen products. 4,280,361, Cl. 73-356.000.
Salk Institute for Biological Studies, The: *See—*
Guillemin, Roger C. L.; Lavielle, Solange; Brazeau, Paul E., Jr.; Ling, Nicholas C.; and Benoit, Robert A., 4,280,953, Cl. 260-112.50S.
Salmon, John K.; and Beazley, Dwight, to Otis Elevator Company. Self-refilling hydraulic actuator. 4,280,600, Cl. 188-312.000.
Salomon, Georges P. J., to S.A. Etablissements Francois Salomon & Fils. Safety bindings for skis. 4,280,714, Cl. 280-611.000.
Salter, John W.: *See—*
Johnson, Donald L.; Bond, John L.; Rogols, Saul; and Salter, John W., 4,280,718, Cl. 282-27.500.
Salzgitter Maschinen und Anlagen Aktiengesellschaft: *See—*
Schmid, Leo; and Kotyza, Heinrich, 4,280,572, Cl. 175-417.000.
Samsonite Corporation: *See—*
Burzen, Don N.; Workman, David E.; Bromley, Robert L.; Elles, Daniel G.; and Wilkuski, James E., 4,280,247, Cl. 16-112.000.
Sanders, Dieter: *See—*
Brokmann, Manfred; Sanders, Kurt; Sanders, Dieter; and Westhoff, Hermann, 4,280,548, Cl. 160-383.000.
Sanders, Kurt: *See—*
Brokmann, Manfred; Sanders, Kurt; Sanders, Dieter; and Westhoff, Hermann, 4,280,548, Cl. 160-383.000.
Sandoz, Inc.: *See—*
Hardtmann, Goetz E., 4,281,131, Cl. 546-90.000.
Sandoz Ltd.: *See—*
Baumann, Werner, 4,281,115, Cl. 542-441.000.
Sanko Kaihatsu Kagaku Kenkyusho: *See—*
Saito, Toranosuke; and Ohishi, Hiroyuki, 4,280,951, Cl. 260-45.80R.
Sanner, James W.; and Owen, Peter W., to Dow Chemical Company, The. Purification of 2-oxazolines. 4,281,137, Cl. 548-239.000.
Santer, J. Owen: *See—*
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,280,938, Cl. 260-21.000.
Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, 4,281,091, Cl. 525-518.000.
Santiago, Edgardo, to Owens-Illinois, Inc. Abrasion resistant coating for foamed plastic substrates. 4,281,040, Cl. 428-195.000.
Santos, Frank; and Santos, Larry E. Compact fire hose washer and winder. 4,280,672, Cl. 242-86.000.
Santos, Larry E.: *See—*
Santos, Frank; and Santos, Larry E., 4,280,672, Cl. 242-86.000.
Santy, James L. Universal splint. 4,280,490, Cl. 128-88.000.
Sanyo Chemical Industries, Ltd.: *See—*
Sugiura, Masakuzu; Kikutake, Junichiro; Yoshida, Masaru; and Kondo, Shigeharu, 4,280,992, Cl. 424-1.000.
Sanyo Electric Co., Ltd.: *See—*
Kuwano, Yukinori; Imai, Terutoyo; and Umetani, Masakazu, 4,281,208, Cl. 136-249.000.
Nishimura, Satoshi; Shimizu, Tetsuo; Sato, Kenichi; and Asano, Takehiko, 4,281,295, Cl. 333-14.000.
Ozawa, Toshiyuki, 4,281,259, Cl. 307-514.000.
Yoshii, Kazuhiro; and Kubota, Norikazu, 4,280,331, Cl. 62-148.000.
Sarns, Inc.: *See—*
Lampert, Seymour R., 4,280,495, Cl. 128-214.00E.
Sarrailh, Jean-Paul: *See—*
Lomenech, Herve; and Sarrailh, Jean-Paul, 4,280,720, Cl. 285-136.000.
Sartor, Mariano, to Nordica S.p.A. Ski boot. 4,280,286, Cl. 36-118.000.
Sasabe, Yukiyoshi: *See—*
Katayose, Shinji; Sasabe, Yukiyoshi; Yokota, Yoshiaki; Kuroki, Junsuke; and Torii, Shuuji, 4,280,411, Cl. 104-112.000.
Sasaki, Takashi: *See—*
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Sato, Kazuhiro: *See—*
Takahashi, Kenji; Nagahara, Shusaku; Sato, Kazuhiro; Umemoto, Masuo; Akiyama, Toshiyuki; and Izumita, Morishi, 4,281,338, Cl. 358-44.000.
Sato, Kenichi: *See—*
Nishimura, Satoshi; Shimizu, Tetsuo; Sato, Kenichi; and Asano, Takehiko, 4,281,295, Cl. 333-14.000.
Sato, Makoto: *See—*
Ohmori, Taiji; Tsuchiya, Yoshikazu; Sato, Makoto; Miyakawa, Yoshitaka; and Fujii, Etsuo, 4,280,740, Cl. 303-92.000.
Sato, Ryuichi: *See—*
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,281,015, Cl. 424-287.000.
Satoh, Hiroshi: *See—*
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,281,015, Cl. 424-287.000.
Sattler, Michael: *See—*
Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, 4,280,688, Cl. 266-245.000.
Savage, Philip, to Rolls-Royce Limited. Inspection of electrically non-conductive workpieces. 4,280,357, Cl. 73-104.000.
Savery, James W. Method of and apparatus for active electro-chemical water and similar environmental contaminant elimination in semiconductor and other electronic and electrical devices and the like. 4,280,885, Cl. 204-129.000.
Sawa, Toshio; Kubota, Masayoshi; Takahashi, Sankichi; and Kaneko, Toyohiko, to Hitachi, Ltd. Method for treatment of sewage. 4,280,886, Cl. 204-149.000.
Sawa, Tsuna; and Ishii, Yashunori, to Tokyo Shibaura Denki Kabushiki Kaisha. X-ray tube with cooled shield between target and rotor. 4,281,268, Cl. 313-60.000.
Sax, Hans. Bath aid. 4,280,234, Cl. 4-540.000.
Scalf, Daniel J.: *See—*
Kerr, Douglas M.; Crandall, Thomas L.; and Scalf, Daniel J., 4,280,413, Cl. 105-150.000.
Scanland, Joseph E., to Roper Corporation. Deck construction for rotary mower. 4,280,319, Cl. 56-255.000.
Scarborough, Bifford L., Jr. Apparatus for projecting enlarged video images. 4,281,353, Cl. 358-254.000.
Schafebook, Richard A.: *See—*
Chaconas, Peter C.; and Schafebook, Richard A., 4,280,776, Cl. 408-72.00R.
Schaffer, I. Lawrence. Solar heater. 4,280,483, Cl. 126-433.000.
Schanzer, Henry I.; and Stewart, Roger G., to RCA Corporation. Circuit for reducing the loading effect of an insulated-gate field-effect transistor (IGFET) on a signal source. 4,281,400, Cl. 365-203.000.
Scharenberg, William F., Jr.: *See—*
Stutz, David E.; Atterbury, Thomas; and Scharenberg, William F., Jr., 4,281,284, Cl. 324-58.00A.
Scheetz, Howard A.; and Gilles, Richard C., to Polymer Corporation, The. Melt processable UHMWPE. 4,281,070, Cl. 525-1.000.
Schering Aktiengesellschaft: *See—*
Nusslein, Ludwig; Baumert, Dietrich; and Pieroh, Ernst A., 4,281,121, Cl. 544-134.000.
Scherrer, Igor: *See—*
Besson, Rene; and Scherrer, Igor, 4,281,405, Cl. 368-66.000.
Schmid, Adolf: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.
Schmid, Leo; and Kotyza, Heinrich, to Salzgitter Maschinen und Anlagen Aktiengesellschaft. Chisel for a percussive tool. 4,280,572, Cl. 175-417.000.
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, to Robert Bosch GmbH. Rotary cam drive for impact tool. 4,280,359, Cl. 73-123.000.
Schmidt, Nicholas F.: *See—*
Dhabhar, Dadi J.; Heyd, Allen; and Schmidt, Nicholas F., 4,280,936, Cl. 260-13.000.
Schmidt, Volker. Apparatus for cutting strips of material of varying lengths. 4,280,384, Cl. 83-234.000.
Schmidt, Werner, to Maschinenfabrik Rissen GmbH; and 4P Nicolaus Kempten GmbH. Cover for containers. 4,280,652, Cl. 229-43.000.
Schmitt, Frederick L.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,280,515, Cl. 131-276.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,280,933, Cl. 252-522.00R.
Sprecker, Mark A.; Trenkle, Robert W.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., 4,281,177, Cl. 260-513.00R.
Schmitt, Susan M.: *See—*
Christensen, Burton G.; Guthikonda, Ravindra N.; Johnston, David B. R.; and Schmitt, Susan M., 4,281,002, Cl. 424-263.000.
Schneider, Fred; and Sirtl, Wolfgang, to Haussener, Ernst. Method of recovering and/or refining animal fats. 4,280,961, Cl. 260-412.800.
Schneider, Kenneth S. Method and apparatus for multiplex binary data communication. 4,281,409, Cl. 370-18.000.

Schoendube, Charles W., to General Electric Company. Electric bus bar assembly for polyphase distribution transformers. 4,281,306, Cl. 336-5.000.
Scholten, David L., to Brown & Williamson Tobacco Corporation. Apparatus for separating sand from botanical fines. 4,280,903, Cl. 209-469.000.
Schor, S. Allen, to Elmar Plastics, Inc. Winding core for magnetic tape adapted for stacking. 4,280,670, Cl. 242-68.500.
Schorwerth, Mathias, to Knorr-Bremse GmbH. Brake disc for railway vehicles. 4,280,597, Cl. 188-218.0XL.
Schosnig, Johannes-Georg: *See—*
Agricola, Manfred; Dietze, Klaus; Mayr-Stein, Horst; Reimer, Karl-Heinz; Reinhold, Andreas; Schmid, Adolf; and Schosnig, Johannes-Georg, 4,281,410, Cl. 370-110.000.
Schreckenberg, Manfred; Konig, Klaus; Freitag, Dieter; Lehnert, Gunther; and Lindner, Christian, to Bayer Aktiengesellschaft. Process for the preparation of aliphatic-aromatic polycarbonates with diphenol carbonate end groups and their use for the preparation of high-molecular, segmented, aliphatic-aromatic polycarbonate elastomers which can be processed as thermoplastics. 4,281,101, Cl. 528-196.000.
Schreiber, Roland: *See—*
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,296, Cl. 333-165.000.
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,297, Cl. 333-165.000.
Schreiner, Friedrich, to Zahnradfabrik Friedrichshafen AG. Clutch assembly for gear-type transmission system. 4,280,370, Cl. 74-339.000.
Schreiner, Kurt; Jager, Horst; and Schwaebel, Richard, to Bayer Aktiengesellschaft. Phthalocyanine reactive dyestuffs. 4,280,956, Cl. 260-242.200.
Schubert, Hermann: *See—*
Bayer, Franz; Schubert, Hermann; and Kagerhuber, Franz, 4,280,552, Cl. 164-448.000.
Schulte, Bernhard: *See—*
Dunwald, Willi; Lewalter, Jurgen; Merten, Rudolf; Rottmaier, Ludwig; Schulte, Bernhard; and Meyer, Karl-Heinrich, 4,281,095, Cl. 528-49.000.
Schulte-Elte, Karl-Heinrich, to Firmenich SA. Cyclopentane derivatives useful as perfuming agents. 4,280,934, Cl. 252-522.00R.
Schultz, John, Jr.: *See—*
Borom, Marcus P.; and Schultz, John, Jr., 4,280,932, Cl. 252-521.000.
Schultz, Ron: *See—*
Grants, Valdis; Schultz, Ron; and McAdams, Timothy E., 4,281,392, Cl. 364-900.000.
Schulz, Johann G.; Stanulonis, John J.; and Wajert, William R., to Gulf Research & Development Company. Novel compositions of matter and process for utilizing same. 4,280,818, Cl. 44-56.000.
Schundehutte, Karl H.: *See—*
Berger-Lohr, Bernd; Schundehutte, Karl H.; and Soll, Manfred, 4,281,124, Cl. 544-208.000.
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Schwaebel, Richard: *See—*
Schreiner, Kurt; Jager, Horst; and Schwaebel, Richard, 4,280,956, Cl. 260-242.200.
Schwartz, Herbert S. Apparatus for repairing laminated safety glass. 4,280,861, Cl. 156-382.000.
Schwing, Friedrich W.; and von Eckardstein, Karl-Ernst, to Friedrich Wilh. Schwing GmbH. Apparatus for distributing concrete, especially in the shuttering of gallery linings in mine and tunnel workings. 4,280,771, Cl. 405-150.000.
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Rassmann, Christoph; Hauschopp, Alois; Schwolow, Gunter; and Huss, Horst, 4,280,733, Cl. 299-34.000.
Scisicione, Philip, to General Electric Company. Insulating support structure for an electric bus conductor. 4,281,213, Cl. 174-68.00B.
Seachman, Ned J., to Xerox Corporation. Self scanned photosensitive array. 4,281,254, Cl. 250-578.000.
Seige Corporation: *See—*
Nilsson, Jack E., Sr., 4,280,482, Cl. 126-430.000.
Seimiya, Motoo; and Nishida, Katsutoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of preparing silicon nitride. 4,280,989, Cl. 423-344.000.
Seki, Norio; Yatsuzuka, Yohtaro; and Sakaguchi, Haruo, to Kokusai Denshin Denwa Co., Ltd. Light source system in an optical transmission repeater. 4,281,416, Cl. 455-601.000.
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Wada, Ryoichi; Tsuchiya, Mitsuharu; Odagi, Kanji; and Senoo, Takanori, 4,281,355, Cl. 360-32.000.
Sensenbrenner, Ronald R.: *See—*
Gardner, Jeffrey M.; Sensenbrenner, Ronald R.; and Nelson, Bennie C., Jr., 4,280,650, Cl. 229-15.000.
Sensormatic Electronics Corporation: *See—*
Narlow, Douglas A.; and Farrar, James G., 4,281,321, Cl. 340-572.000.
Serebryannikov, Albert S.: *See—*
Onikov, Eduard A.; Galperin, Alexandr L.; Serebryannikov, Albert S.; Zabotin, Alexandr A.; and Loschilin, Evgeny D., 4,280,537, Cl. 139-436.000.
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Wheeler, Norton C., Jr.; Seuferling, John G.; and Pennila, Simo A. O., 4,280,801, Cl. 425-113.000.
Seymour, Samuel L., to PPG Industries, Inc. Shaping glass sheets by drop forming with pressure assist. 4,280,828, Cl. 65-106.000.
Sguazzi, Angelo, to Bracco, Dario. Oryotherapy apparatus. 4,280,499, Cl. 128-303.100.
Shade, Ray W., to General Electric Company. Process for treating silicon particles within a silicone reactor system. 4,281,149, Cl. 556-472.000.
Shah, Syed M.; and Tu, Hosheng, to UOP Inc. Removal of contaminating metals from FCC catalyst by NH_4 citrate chelates. 4,280,897, Cl. 208-113.000.
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Shair, Irwin, to Dennison Manufacturing Company. Variable rate ink jet printing. 4,281,331, Cl. 346-75.000.
Shanks, Scott B.: *See—*
Karr, Dieter E.; and Shanks, Scott B., 4,280,512, Cl. 128-785.000.
Shannon, Gilbert E.; and Friesorger, David F., to General Motors Corporation. Rotatable flexible drive shaft with noise abatement. 4,280,338, Cl. 64-2.00R.
Sharma, Dhiraj K.: *See—*
Ahuja, Sudhir R.; and Sharma, Dhiraj K., 4,281,381, Cl. 364-200.000.
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Nonomura, Keisaku; Takamatsu, Toshiaki; Uede, Hisashi; and Wada, Tomio, 4,281,324, Cl. 340-784.000.
Yano, Kozo; Inami, Yasuhiko; Hamada, Hiroshi; and Uede, Hisashi, 4,280,754, Cl. 350-357.000.
Shaw, Arthur R., to General Motors Corporation. Hydraulic brake booster. 4,280,395, Cl. 91-47.000.
Shaw, Harry N., to Protectoseal Co., The. Dually-operated tank car bottom unloading valve. 4,280,679, Cl. 251-144.000.
Shaw, Wilfrid G.; Paparizos, Christos; and Callahan, James L., to Standard Oil Company. Attrition resistant-higher active component fluid bed catalysts. 4,280,929, Cl. 252-439.000.
Shea, Michael H.: *See—*
Gaal, Stephen L.; Gant, Gary L.; Muntean, George L.; Reiners, Neville H.; and Shea, Michael H., 4,280,659, Cl. 239-124.000.
Shell Oil Company: *See—*
Kiovsky, Thomas E., 4,280,458, Cl. 123-198.00A.
Kruka, Vitold R.; and Ruth, Charles W., 4,281,402, Cl. 367-15.000.
Richards, Harry F.; and Carlson, Douglas C., 4,280,916, Cl. 252-33.400.
Roman, Steven A., 4,281,183, Cl. 562-506.000.
Stewart, Thomas L., 4,280,356, Cl. 73-40.50R.
Syrier, Johannes L. M.; and Van Berkel, Johannes, 4,281,203, Cl. 568-303.000.
Ten Haken, Pieter; Webb, Shirley B.; and Smith, Graham C., 4,281,134, Cl. 546-334.000.
Shen, Hsiang-Sheng; Plischke, LeMoyne W.; Baggett, William M.; and Osborne, Franklin T., to Monsanto Company. Process for manufacturing nonwoven fabrics composed of crimped filaments. 4,280,860, Cl. 156-167.000.
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Sheth, Kalapi D., to Corning Glass Works. Apparatus for controlling internal pressure of a bait tube. 4,280,829, Cl. 65-158.000.
Shetty, Bola V.; and Airey, John E., to Purdue Frederick Company, The. Antimicrobial bis-benzimidazale compounds. 4,281,138, Cl. 548-306.000.
Shibata, Hiroshi; Iwasaki, Hideo; and Yamada, Kunio, to VLSI Technology Research Association. Method of manufacturing a semiconductor device having conductive and insulating portions formed of a common material utilizing selective oxidation and angled ion-implantation. 4,280,854, Cl. 148-1.500.
Shibazaki, Kenji: *See—*
Arai, Kenichi; Shibazaki, Kenji; Kitagawa, Tsuneo; Murata, Tomoji; and Nagata, Kenzo, 4,280,763, Cl. 355-14.00R.
Shibue, Yuji: *See—*
Yamada, Yasunori; and Shibue, Yuji, 4,280,987, Cl. 423-119.000.
Shibuya Kogyo Company, Ltd.: *See—*
Nagano, Yasuaki, 4,280,612, Cl. 198-379.000.
Shibuya, Yoshikazu: *See—*
Yoshioka, Akiyoshi; Shibuya, Yoshikazu; and Nakanishi, Ioichiro, 4,281,209, Cl. 174-14.00R.
Shikano, Hiroshi; and Iwata, Toshihiko. Refractory brick for molding molten steel. 4,280,844, Cl. 106-56.000.
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Inokuti, Yukio; Shimizu, Yoh; and Shimanaka, Hiroshi, 4,280,856, Cl. 148-111.000.
Shimizu, Tetsuo: *See—*
Nishimura, Satoshi; Shimizu, Tetsuo; Sato, Kenichi; and Asano, Takehiko, 4,281,295, Cl. 333-14.000.
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Shiozaki, Morio; Kawashima, Mitsuaki; Shimoyama, Yoshiaki; and Ishihara, Nobuoki. 4,280,837, Cl. 75-54.000.

Shimozato, Yasuyuki: *See—*
Ikeda, Hiroharu; and Shimozato, Yasuyuki. 4,281,085, Cl. 525-326.000.

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Moriguchi, Hiroyuki; Haneda, Satoshi; Kaneko, Tadashi; Itoh, Akira; Shimura, Takeo; Matsumoto, Masanori; and Nomori, Hiroyuki. 4,281,055, Cl. 430-60.000.

Shin-Etsu Chemical Co., Ltd.: *See—*
Noyori, Ryoji. 4,281,148, Cl. 556-470.000.

Shin-Etsu Polymer Co., Ltd.: *See—*
Noma, Hideyuki; and Nakano, Takaaki. 4,281,238, Cl. 219-535.000.

Shindelka, Frank A. Protective gun sling. 4,280,644, Cl. 224-149.000.

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Shinohara, Mitsuharu: *See—*
Nakagawa, Sadayoshi; and Shinohara, Mitsuharu. 4,281,222, Cl. 179-111.00E.

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Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi. 4,281,180, Cl. 562-448.000.

Shizuya, Osamu, to Matsushita Electric Industrial Co., Ltd. Television signal receiving apparatus. 4,281,348, Cl. 358-188.000.

Shlykov, Gennady N.; Dyachkov, Vasily M.; Zhestkov, Vitaly I.; and Tikhonov, Valentin N. Double-apron drawing mechanism. 4,280,252, Cl. 19-255.000.

Shop-Vac Corporation: *See—*
Hiester, Kenneth R., 4,280,245, Cl. 15-326.000.

Shores, Marvin W., to General Dynamics, Pomona Division. Slip ring assembly. 4,281,328, Cl. 343-763.000.

Showa Aluminum Industries K.K.: *See—*
Yamada, Yasunori; and Shibue, Yuji. 4,280,987, Cl. 423-119.000.

Showa Sangyo Co., Ltd.: *See—*
Watanabe, Haruo; Watanabe, Mutsuhito; Arima, Takao; and Yamada, Kosei. 4,280,962, Cl. 260-424.000.

Shreve, James S., to United States of America, Army. Solid-medium coherent optical processor. 4,280,752, Cl. 350-162.0SF.

Shriver, Joe E.: *See—*
Lindblom, Curtis H.; and Shriver, Joe E., 4,280,317, Cl. 56-15.600.

Sica, Louis, Jr.; and Szu, Hwaling H., to United States of America, Navy. Phase-conjugate interferometer. 4,280,764, Cl. 356-35.500.

Sidi, Henri; and Hughes, William G., to Tenneco Chemicals, Inc. Process for the production of benzoic acid from process residues that contain benzyl benzoate. 4,281,178, Cl. 562-412.000.

Siebentritt, Carl R.: *See—*
Kronenberg, Stanley; Siebentritt, Carl R.; and Van Gorden, Harry, 4,281,250, Cl. 250-377.000.

Siegle, Peter; Kuhle, Engelbert; Hammann, Ingeborg; and Behrenz, Wolfgang, to Bayer Aktiengesellschaft. Insecticidal N-methyl-N-(benzene sulfonic acid methylamide-N'-sulfenyl)-carbamic acid oxime esters. 4,281,011, Cl. 424-277.000.

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Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,296, Cl. 333-165.000.
Betzl, Hermann; Hebenstreit, Ernst; and Schreiber, Roland, 4,281,297, Cl. 333-165.000.
Dressen, Anton, 4,281,262, Cl. 307-350.000.
Kinzler, Hans, 4,280,747, Cl. 339-126.0RS.
Konstantouros, Efthimios, 4,280,887, Cl. 204-150.000.
Kunze, Dieter, 4,280,258, Cl. 24-257.000.
Munchow, Eberhard; Mourick, Paul; and Strop, Jurgen, 4,281,376, Cl. 363-50.000.

Siemens-Alris AG: *See—*
Tschannen, Gottfried, 4,281,347, Cl. 358-166.000.

Siems, Lee E.; and Porter, James A., to Litton Resources Systems, Inc. Seismic data recording method and apparatus. 4,281,403, Cl. 367-76.000.

Signatron, Inc.: *See—*
Bonn, Jerrold L.; Mahoney, Paul F.; and Monsen, Peter, 4,281,411, Cl. 375-14.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-6a-carba-PGI_2 sulfonylamides. 4,281,150, Cl. 560-10.000.

Sih, John C., to Upjohn Company, The. 9-Deoxy-9-methylene-11-deoxy-19-oxo-PGF_2 compounds. 4,281,154, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-19-oxo-PGF_2 compounds. 4,281,155, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-19-oxo-PGE_2 compounds. 4,281,156, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-inter-oxa-19-oxo-PGF_1 compounds. 4,281,157, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 9-Deoxy-9-methylene-inter-oxa-19-oxo-PGF_1 compounds. 4,281,158, Cl. 560-121.000.

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Sih, John C., to Upjohn Company, The. 11-Deoxy-19-oxo-PGF_1 compounds. 4,281,161, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 9-Deoxy-9-methylene-11-deoxy-11-hydroxymethyl-19-oxo-PGF_1 compounds. 4,281,162, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-19-oxo-PGE_1 compounds. 4,281,163, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-11-hydroxymethyl-19-oxo-PGF_1 compounds. 4,281,164, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 9-Deoxy-9-methylene-19-oxo-PGF_2 compounds. 4,281,165, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 9-Deoxy-9-methylene-11-deoxy-11-hydroxymethyl-inter-oxa-19-PGF_1 compounds. 4,281,166, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-inter-oxa-19-oxo-PGF_1 compounds. 4,281,167, Cl. 560-121.000.

Sih, John C., to Upjohn Company, The. 11-Deoxy-inter-oxa-19-oxo-PGE_1 compounds. 4,281,168, Cl. 560-121.000.

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Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-PG amides. 4,281,191, Cl. 564-189.000.

Sih, John C., to Upjohn Company, The. 2-Decarboxy-2-hydroxymethyl-19-hydroxy-6-oxo-PGF_1 compounds. 4,281,205, Cl. 568-380.000.

Sih, John C.: *See—*
Axen, Udo F.; and Sih, John C., 4,281,113, Cl. 542-426.000.

Silfvast, William T., to Bell Telephone Laboratories, Incorporated. Implantation of vaporized material on melted substrates. 4,281,030, Cl. 427-42.000.

Silver, Frederick H.: *See—*
Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., 4,280,954, Cl. 260-123.700.

Silvestri, Giancarlo. Vented fuel tank cap. 4,280,529, Cl. 137-493.300.

Simmons, Walter J.: *See—*
Bivens, Joseph R.; Lyerly, William M.; and Simmons, Walter J., 4,280,943, Cl. 260-29.20E.

Simon, David J.; and Costello, Edward C., to Singer Company, The. Successive approximation S/D converter with inherent quantization error centering. 4,281,316, Cl. 340-347.0SY.

Simonton, Robert D., to Dale Products, Inc. Synchronized drive for heat sealing roller anvils. 4,280,865, Cl. 156-538.000.

Sims, Marc. Liquid carbon dioxide extraction of pyrethrins. 4,281,171, Cl. 560-124.000.

Singenberger, Emil; and Wilhelm, Heinz, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Marine firing weapon. 4,280,394, Cl. 89-37.00A.

Singer Company, The: *See—*
Cook, Albert N.; and Kornatowski, Boleslaw, 4,281,310, Cl. 338-108.000.
Goncharko, Michael, 4,280,423, Cl. 112-158.00E.
Haas, Robert N., 4,280,285, Cl. 434-30.000.
Simon, David J.; and Costello, Edward C., 4,281,316, Cl. 340-347.0SY.

Singerman, Gary M.: *See—*
Hartle, Robert J.; and Singerman, Gary M., 4,280,819, Cl. 44-64.000.

Singh, Prithipal: *See—*
Lin, Cheng-I; and Singh, Prithipal, 4,281,065, Cl. 435-188.000.

Single Buoy Moorings, Inc.: *See—*
van Heijst, Willem J., 4,280,238, Cl. 9-8.00R.

Siniscal, Paul D.; Hebert, David L.; and Benzing, J. Paige, to Rockwell International Corporation. Bundle entry device. 4,280,615, Cl. 198-470.000.

Sioli, Giancarlo: *See—*
Spaziante, Placido; Sioli, Giancarlo; and Giuffre, Luigi, 4,281,184, Cl. 562-603.000.

Sirtl, Wolfgang: *See—*
Schneider, Fred; and Sirtl, Wolfgang, 4,280,961, Cl. 260-412.800.

Skatsche, Othmar: *See—*
List, Hans; Skatsche, Othmar; and Greier, Josef, 4,280,453, Cl. 123-195.00R.

SKF Industries, Inc.: *See—*
Fernlund, Ingemar, 4,280,743, Cl. 308-217.000.

Skinner, Robert T. J., to Lucas Industries Limited. Engine installations. 4,280,454, Cl. 123-195.00A.

Slaughter, Bobby L., to Anchor Brush Company, Inc. Container for nail polish or the like. 4,280,629, Cl. 215-1.00C.

Sliger, Boyd P., to Robertshaw Controls Company. Thermostat construction with an annular sealing member. 4,280,654, Cl. 236-34.500.

Slone, Keith W. Three dimensional game with political theme. 4,280,703, Cl. 273-241.000.

Small, Hamish; and Solc, Jitka K., to Dow Chemical Company, The. Method for fractionating soluble polymers and colloidal particles. 4,280,923, Cl. 252-323.000.

Smeets, Andreas L. M. T. Gas carburettor to be mounted on a petrol carburettor of a combustion engine. 4,280,968, Cl. 261-16.000.

Smejkal, Helmut: *See—*
Enkner, Bernhard; Berger, Rupert; Eysn, Manfred; Haslehner, Hermann; Smejkal, Helmut; and Sattler, Michael, 4,280,688, Cl. 266-245.000.

Smilgys, Bruno S., to Veeder Industries Inc. Fuel pump counter transfer mechanism. 4,281,240, Cl. 235-139.00R.

Smith, Charles W., Jr.; Zimmerman, Franz X.; and Walker, William H., to Autoclave Engineers, Inc. Autoclave furnace with cooling system. 4,280,807, Cl. 432-205.000.

Smith, Chester L.: *See—*
Donnally, William; and Smith, Chester L., 4,280,355, Cl. 73-5.000.

Smith, Donald E.: *See—*
Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., 4,281,412, Cl. 375-86.000.

Smith, Graham C.: *See—*
Ten Haken, Pieter; Webb, Shirley B.; and Smith, Graham C., 4,281,134, Cl. 546-334.000.

Smith International, Inc.: *See—*
Justman, Daniel B., 4,280,742, Cl. 308-4.00A.

Smith, J. Thomas; Quackenbush, Carr L. W.; and Reid, F. Joseph, to GTE Laboratories, Incorporated. S13N4 Having high temperature strength and method. 4,280,850, Cl. 106-73.200.

Smith, James L., Jr. Low profile tension mounted load cell industrial scale. 4,280,576, Cl. 177-126.000.

Smith, Kent G. Pacing timer mounting arrangement. 4,281,389, Cl. 364-569.000.

Smith, Steven R.: *See—*
Coon, Michael D.; Grace, Martin K.; and Smith, Steven R., 4,281,239, Cl. 235-92.0GA.

Smolen, Victor F.: *See—*
Cosgrove, Robert J., Jr.; and Smolen, Victor F., 4,280,494, Cl. 128-213.00R.

Snoble, Karel A. J., to Dow Chemical Company, The. Catalytic process for converting oxazolidinones to their corresponding aminoalcohols. 4,281,200, Cl. 564-487.000.

Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Caldarella, Riccardo; and Nobile, Riccardo, 4,281,292, Cl. 329-50.000.
DelBello, Vincenzo, 4,281,221, Cl. 179-111.00R.

Societe Alsacienne de Constructions Mecaniques de Mulhouse: *See—*
Ludwig, Guy, 4,280,251, Cl. 19-105.000.

Societe Anonyme Automobiles Citroen: *See—*
Goguet, Jean A., 4,280,340, Cl. 64-21.000.

S.A. Etablissements Francois Salomon & Fils: *See—*
Salomon, Georges P. J., 4,280,714, Cl. 280-611.000.

s.a. Texaco Belgium n.v.: *See—*
Hermans, Johny C., 4,281,128, Cl. 544-337.000.

Societe Francaise d'Equipements pour la Navigatior Aerienne (S.F.E.N.A.): *See—*
Lebrun, Jean-Louis, 4,281,383, Cl. 364-428.000.

Societe Lignes Telegraphics et Telephoniques: *See—*
Escher, Balint; Prince, Dominique; and Vasseux, Jean, 4,280,270, Cl. 29-570.000.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation: *See—*
Arliguie, Jean-Claude M.; Buisson, Marc F. B.; and Caruel, Jacques E. J., 4,280,324, Cl. 60-261.000.

Societe Nationale Elf Aquitaine (Production): *See—*
Lomenech, Herve; and Sarrailh, Jean-Paul, 4,280,720, Cl. 285-136.000.

Societe SATELEC: *See—*
Mabille, Pierre, 4,281,373, Cl. 363-21.000.

Soderman, Donald A.: *See—*
Bertin, Claude L.; De La Moneda, Francisco H.; and Soderman, Donald A., 4,280,855, Cl. 148-1.500.

Soderstrom, Sigvard V., to Aktiebolaget Electrolux. Waste water conveyance apparatus. 4,280,528, Cl. 137-408.000.

Soejima, Shigeo: *See—*
Matsuhisa, Tadaaki; and Soejima, Shigeo, 4,280,845, Cl. 106-62.000.

Sofen, Morris B. Device for supporting and storing the mainsail of a sailboat on the boom thereof. 4,280,431, Cl. 114-105.000.

Solarek, Daniel B.: *See—*
Jarowenko, Wadym; and Solarek, Daniel B., 4,281,109, Cl. 536-50.000.

Solc, Jitka K.: *See—*
Small, Hamish; and Solc, Jitka K., 4,280,923, Cl. 252-323.000.

Soll, Manfred: *See—*
Berger-Lohr, Bernd; Schundehutte, Karl H.; and Soll, Manfred, 4,281,124, Cl. 544-208.000.

Somartec S.A., Firma: *See—*
Rodler, Hans, 4,280,504, Cl. 128-420.00A.

Sommer, Karlheinz; and Sonntag, Alois, to Licentia Patent-Verwaltungs-G.m.b.H. Thyristor element with short turn-off time and method for producing such element. 4,281,336, Cl. 357-38.000.

Sonntag, Alois: *See—*
Sommer, Karlheinz; and Sonntag, Alois, 4,281,336, Cl. 357-38.000.

Sony Corporation: *See—*
Mitamura, Ichiro; Isono, Katsuo; and Hosono, Takashi, 4,281,340, Cl. 358-67.000.
Nakamura, Takashi, 4,281,337, Cl. 358-29.000.
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.

Sorel, Yvon J.: *See—*
Pophillat, Lucien J. P.; Moalic, Jean J.; and Sorel, Yvon J., 4,280,765, Cl. 356-73.100.

Sousa, Frank E., to R. C. Sanders Technology Systems, Inc. Magnetic disk memory. 4,281,356, Cl. 360-45.000.

Southern Weaving Company: *See—*
Tatum, Odes D.; and Ross, Edgar A., 4,281,211, Cl. 174-36.000.

Sparkomatic Corporation: *See—*
Castagna, John F., 4,281,224, Cl. 179-146.00R.

Spaziante, Placido; Sioli, Giancarlo; and Giuffre, Luigi, to Fondazione deNora. Monochloroacetic acid process. 4,281,184, Cl. 562-603.000.

Spector, George: *See—*
Testa, Victor; and Spector, George, 4,281,257, Cl. 290-42.000.

Speights, Junius L.: *See—*
McPhee, William A.; and Speights, Junius L., 4,280,568, Cl. 175-4.000.

Speir, Donald W.: *See—*
Wooten, William H., Jr.; and Speir, Donald W., 4,280,660, Cl. 239-265.350.

Spence, Gavin G.: *See—*
Maslanka, William W.; and Spence, Gavin G., 4,281,082, Cl. 525-296.000.

Sperry Corporation: *See—*
Eggers, Edward T., 4,280,320, Cl. 56-341.000.
Koch, Earl E., 4,280,318, Cl. 56-221.000.
Lindblom, Curtis H.; and Shriver, Joe E., 4,280,317, Cl. 56-15.600.
Spilsbury, Thomas W., 4,281,272, Cl. 315-1.000.

Spilsbury, Thomas W., to Sperry Corporation. High voltage switching power supply for penetration cathode ray displays. 4,281,272, Cl 315-1.000.

Spirig, Ernst. Dirt collecting floor mat apparatus. 4,280,244, Cl. 15-97.00R.

Sprecker, Mark A.; Trenkle, Robert W.; Mookherjee, Braja D.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. 6-Hydroxy-2,6-dimethylheptanal, organoleptic uses thereof and processes for preparing the same. 4,281,177, Cl. 260-513.00R.

Sprenger, Gerald E. Structure and process for reclaiming heat from charcoal production facility. 4,280,878, Cl. 202-93.000.

Squires, Richard F.: *See—*
Braestrup, Claus; and Squires, Richard F., 4,280,993, Cl. 424-1.000.

Staas, William H.: *See—*
Fellmann, Robert P.; Kory, Daniel R.; and Staas, William H., 4,281,084, Cl. 525-309.000.

Staclean Diffuser Company: *See—*
Johnson, Allen S., Jr., 4,280,826, Cl. 55-302.000.

Staerzl, Richard E., to Brunswick Corporation. Throttle control for an electronic fuel-injection control circuit. 4,280,465, Cl. 123-494.000.

Stambaugh, Edgel P.: *See—*
Chauhan, Satya P.; Feldmann, Herman F.; Stambaugh, Edgel P.; and Liu, Ke-Tien, 4,280,817, Cl. 44-1.00R.

Standard Oil Company: *See—*
Shaw, Wilfrid G.; Paparizos, Christos; and Callahan, James L., 4,280,929, Cl. 252-439.000.

Standard Oil Company (Indiana): *See—*
Mount, Houston B., II, 4,280,569, Cl. 175-26.000.
Tatterson, David F.; and Vasalos, Iacovos A., 4,280,898, Cl. 208-119.000.

Standard-Thomson Corporation: *See—*
Duprez, Wayne R.; and Wong, Backman, 4,280,655, Cl. 236-34.500.

Standardgraph Filler & Fiebig GmbH: *See—*
Koelichen, Harald; and Deutsch, Adolf, 4,280,277, Cl. 33-23.00D.

Stant Inc.: *See—*
Evans, John H., 4,280,346, Cl. 70-165.000.
Evans, John H., 4,280,347, Cl. 70-165.000.

Stanulonis, John J.: *See—*
Schulz, Johann G.; Stanulonis, John J.; and Wajert, William R., 4,280,818, Cl. 44-56.000.

Stauffer Chemical Company: *See—*
Fearing, Ralph B.; Telschow, Jeffrey E.; and Weil, Edward D., 4,281,071, Cl. 525-2.000.
Mirviss, Stanley B.; and Giolito, Silvio L., 4,280,945, Cl. 260-30.60R.

Steelman, Carrol D.; Chambers, Doyle M.; and Andis, Michael D., to Louisiana State University Board of Supervisors. Insecticidal process utilizing certain uracils. 4,280,999, Cl. 424-251.000.

Stegens, Ronald E., to Communications Satellite Corporation. Quasi-elliptic function microstrip interdigital filter. 4,281,302, Cl. 333-204.000.

Stein Industrie: *See—*
Marjollet, Jacques; Tondeur, Gerard; Cerdan, Jean-Pierre; and Talleu, Patrick, 4,280,825, Cl. 55-203.000.

Stein, Paul. Maternity clothing garment. 4,280,229, Cl. 2-221.000.

Stenehjem, Jerome C.; and Jacobsen, Stephen C. Product for simulating a human body part. 4,280,695, Cl. 272-8.00N.

Stensland, Leif: *See—*
Brogardh, Torgny; and Stensland, Leif, 4,281,245, Cl. 250-227.000.

Sterling Drug Inc.: *See—*
Clarke, Robert L.; and Daum, Sol J., 4,281,130, Cl. 546-63.000.

Stevens, Richard; Mitchell, Richard F.; and White, Philip D., to U.S. Philips Corporation. Acoustic wave devices. 4,281,301, Cl. 333-195.000.

Stewart, Duncan: *See—*
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.

Stewart, John K., to Canron Corp. Tie plate conveying and orientating system. 4,280,613, Cl. 198-406.000.

Stewart, Roger G.: *See—*
Schanzer, Henry I.; and Stewart, Roger G., 4,281,400, Cl. 365-203.000.

Stewart, Thomas L., to Shell Oil Company. Pipeline leak detection. 4,280,356, Cl. 73-40.50R.

Stickford, George H.: *See—*
Corliss, John M.; and Stickford, George H., 4,280,333, Cl. 62-259.100.

Stieg, Robert W., to Mack Trucks, Inc. Automatic differential control apparatus. 4,280,583, Cl. 180-250.000.

Stiles, James A. R.: *See—*
Haering, Rudolph R.; Stiles, James A. R.; and Brandt, Klaus, 4,281,048, Cl. 429-218.000.

Stockman, Richard F., to Air Preheater Company, Inc., The. Heat tube. 4,280,554, Cl. 165-11.00R.

Stoeckigt, Dieter; Kiessling, Dieter; Perner, Johannes; Trieselt, Wolfgang; and Trapp, Horst, to BASF Aktiengesellschaft. Detergents and cleansers containing oxyalkylated alcohols as biodegradable, low-foam surfactants. 4,280,919, Cl. 252-135.000.

Stoll, Kurt. Piston rod support. 4,280,741, Cl. 308-3.500.

Stout Industries, Inc.: *See—*
Eckberg, Keith S., II, 4,280,294, Cl. 40-606.000.

Strange, Donald R.: *See—*
Knoll, Glenn F.; Strange, Donald R.; and Bennett, Matthew C., Jr., 4,281,382, Cl. 364-414.000.

Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, to Monsanto Company. High solids air-drying coating compositions. 4,280,938, Cl. 260-21.000.

Strazik, William F.; LeBlanc, John R.; and Santer, J. Owen, to Monsanto Company. Unsaturated melamine condensates. 4,281,091, Cl. 525-518.000.

Strobele, Caljon H., to BASF Aktiengesellschaft. Complementary pre-emphasis and de-emphasis circuits for a video signal transfer channel. 4,281,346, Cl. 358-166.000.

Strolle, Clifford H.; and Thornley, Glenn D., to Du Pont de Nemours, E. I., and Company. High-solids polyurethane enamel coating composition. 4,281,078, Cl. 525-131.000.

Stroman, Fritz: *See—*
Kleemann, Axel; Nubert, Ingomar; Stroman, Fritz; and Thiemer, Klaus, 4,281,010, Cl. 424-275.000.

Strop, Jurgen: *See—*
Munchow, Eberhard; Mourick, Paul; and Strop, Jurgen, 4,281,376, Cl. 363-50.000.

Struble, Glenn E., to Diamond International Corporation. Method of folding and securing a box cover. 4,280,810, Cl. 493-356.000.

Struve, Hans-Dirk; Hess, Jurgen; and Vysiotis, Theodor, to Robert Bosch GmbH. Compressor with guide baffles and gas-permeable material separating means. 4,280,799, Cl. 418-97.000.

Stuck, Matthew A., to Modern Mfg. Co., Inc. Device for packaging elongated articles. 4,280,314, Cl. 53-241.000.

Stuemky, Robert E., to Gates Rubber Company, The. Torque transfer device for flexible shaft couplings. 4,280,339, Cl. 64-9.00R.

Stumpf, Gunter O. Air cushion table for transporting layers of laminar material, e.g. layers of fabric. 4,280,782, Cl. 414-676.000.

Stuntz, Gordon F.; and Bearden, Roby, to Exxon Research & Engineering Co. Passivation of cracking catalysts. 4,280,895, Cl. 208-113.000.

Stuntz, Gordon F.: *See—*
Bearden, Roby; and Stuntz, Gordon F., 4,280,896, Cl. 208-113.000.

Sturm, Budd H.: *See—*
Hopper, Roger J.; Sturm, Budd H.; and Geiser, Joseph F., 4,280,967, Cl. 260-785.000.

Stutz, David E.; Atterbury, Thomas; and Scharenberg, William F., Jr., to Transmet Corporation. Method and apparatus for electrically contacting a material specimen to the conductors of a coaxial cable. 4,281,284, Cl. 324-58.00A.

Suami, Tetsuo. Neamine derivatives and process for preparing the same. 4,281,107, Cl. 536-17.00R.

Subramanian, Kohur N.; Glaum, Gerald V.; and Walli, Einar, to International Nickel Co., Inc., The. Recovery of nickel and cobalt from leach slurries. 4,280,988, Cl. 423-140.000.

Sudnishnikov, Boris V.; Kamensky, Veniamin V.; Varnello, Eduard P.; Tupitsyn, Sergei K.; and Tupitsyn, Konstantin K. Rock-breaking tool for percussive-action machines. 4,280,573, Cl. 175-418.000.

Suga, Michihisa: *See—*
Tsuzuki, Mitsuo; and Suga, Michihisa, 4,281,333, Cl. 346-140.00R.

Sugiura, Masakuzu; Kikutake, Junichiro; Yoshida, Masaru; and Kondo, Shigeharu, to Sanyo Chemical Industries, Ltd. Immunologically active substance-glass conjugates, process for producing the same and diagnostic reagents containing the same. 4,280,992, Cl. 424-1.000.

Sulzmann, Donna J. Infant nursing garment. 4,280,228, Cl. 2-104.000.

Sumi, Takehiko; Oshige, Yoshinobu; Koike, Yoshio; and Matsumoto, Kazuya, to Kyoraku Co., Ltd. Multi-layer extruded article. 4,281,045, Cl. 428-516.000.

Sumida, Seizo: *See—*
Ichiki, Takemoto; Yoshida, Ryo; Sumida, Seizo; and Katsuzo, Kamoshita, 4,280,835, Cl. 71-120.000.

Sumitomo Chemical Company, Limited: *See—*
Ichiki, Takemoto; Yoshida, Ryo; Sumida, Seizo; and Katsuzo, Kamoshita, 4,280,835, Cl. 71-120.000.

Sumitomo Metal Industries, Ltd.: *See—*
Marukawa, Katsukiyo; Yamazaki, Isao; Anezaki, Syoji; and Kajimoto, Tsutomu, 4,280,838, Cl. 75-60.000.

Sun Visors, Inc.: *See—*
Turner, Joseph D., 4,280,730, Cl. 296-97.00G.

Sunbeam Corporation: *See—*
Berenson, Allen V., 4,281,237, Cl. 219-511.000.
Narayan, Raichur S., 4,281,034, Cl. 427-191.000.

Sunds Defibrator Aktiebolag: *See—*
Hoglund, Hans E.; and Peterson, Per V., 4,280,868, Cl. 162-28.000.

Suntemp Industries, Inc.: *See—*
Marini, Thomas O., 4,280,269, Cl. 29-526.00R.

Suntime, Inc.: *See—*
Cooper, George H., 4,280,556, Cl. 165-76.000.

Surface Systems, Inc.: *See—*
Briggs, Donald E., 4,281,286, Cl. 324-61.00R.

Sutterfield, F. Dexter: *See—*
Donaldson, Erle C.; and Sutterfield, F. Dexter, 4,281,289, Cl. 324-355.000.

Suyama, Hideo: *See—*
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.

Suzuki, Go, to NGK Insulators, Ltd. Method of working ceramic green sheet. 4,280,977, Cl. 264-153.000.

Suzuki, Masao: *See—*
Umezawa, Hamao; Aoyagi, Takaaki; Shirai, Tadashi; Nishizawa, Rinzo; Suzuki, Masao; and Saino, Tetsushi, 4,281,180, Cl. 562-448.000.

Suzuki, Osamu; Jigami, Yoshifumi; Nakasato, Satoshi; and Hashimoto, Tetsutaro, to Agency of Industrial Science and Technology, The. Process for producing lipids having a high linoleic acid content. 4,281,064, Cl. 435-134.000.

Suzuki, Ryo; Asano, Atsushi; Takeshita, Masatoshi; and Takeuchi, Teruaki, to Hitachi, Ltd. Magnetic bubble memory device. 4,281,395, Cl. 365-15.000.

Suzuki, Ryoichi: *See—*
Ogawa, Yukio; Suzuki, Ryoichi; Kinoshita, Takao; and Uchiyama, Takashi, 4,280,761, Cl. 354-29.000.

Suzuki, Yasoji: *See—*
Egawa, Hideharu; Matsuki, Koji; and Suzuki, Yasoji, 4,280,272, Cl. 29-571.000.

Svensson, Lennart. Lintel. 4,280,308, Cl. 52-98.000.

Swaine, James W., Jr.: *See—*
Bean, Samuel L.; Swaine, James W., Jr.; and Crawford, Paul R., 4,280,553, Cl. 165-1.000.

Swan, Larry G., to Motor Wheel Corporation. Method of manufacturing wheel discs. 4,280,426, Cl. 113-116.00D.

Swanson, Alfred B. Elbow prosthesis. 4,280,231, Cl. 3-1.910.

Swanson, Mervin D. Chimney heat economizer. 4,280,656, Cl. 237-55.000.

Swanson, Wilbur M. Carburetor. 4,280,969, Cl. 261-62.000.

Swiecicki, Z. Alexander, to Pullman Incorporated. Method of processing sponge iron. 4,280,840, Cl. 75-43.000.

Sydansk, R. D., to Marathon Oil Company. Potassium hydroxide clay stabilization process. 4,280,560, Cl. 166-305.00R.

Sykes, Arie B., Jr. Solar heat collector. 4,280,479, Cl. 126-426.000.

Syrier, Johannes L. M.; and Van Berkel, Johannes, to Shell Oil Company. (Cyclopropyl)vinyl alkyl ether derivatives. 4,281,203, Cl. 568-303.000.

Syva Company: *See—*
Lin, Cheng-I; and Singh, Prithipal, 4,281,065, Cl. 435-188.000.
Zuk, Robert F.; Gibbons, Ian; Rowley, Gerald L.; and Ullman, Edwin F., 4,281,061, Cl. 435-7.000.

Szekely, Istvan; and Lovasz nee Gaspar, Marianna, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Process for the preparation of pyrethrins and analogues thereof and insecticidal compositions containing the same. 4,281,170, Cl. 560-124.000.

Szente, Andre: *See—*
Fischli, Albert E.; and Szente, Andre, 4,281,188, Cl. 564-51.000.

Szonntagh, Eugene L., to Honeywell Inc. Method and apparatus for sonic separation and analysis of components of a fluid mixture. 4,280,823, Cl. 55-15.000.

Szonntagh, Eugene L., to Honeywell Inc. Solid state ion responsive and reference electrodes. 4,280,889, Cl. 204-195.00F.

Szu, Hwaling H.: *See—*
Sica, Louis, Jr.; and Szu, Hwaling H., 4,280,764, Cl. 356-35.500.

Taciuk, William, to Alberta Oil Sands Technology and Research Authority. Apparatus and process for recovery of hydrocarbons from inorganic host materials. 4,280,879, Cl. 202-100.000.

Takabayashi, Katsuyuki: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Takagi, Toshinori; Morimoto, Kiyoshi; and Watanabe, Hiroshi. Method of coating with a stoichiometric compound. 4,281,029, Cl. 427-38.000.

Takahashi, Kenji; Nagahara, Shusaku; Sato, Kazuhiro; Umemoto, Masuo; Akiyama, Toshiyuki; and Izumita, Morishi, to Hitachi, Ltd. Solid state color imaging apparatus. 4,281,338, Cl. 358-44.000.

Takahashi, Sankichi: *See—*
Sawa, Toshio; Kubota, Masayoshi; Takahashi, Sankichi; and Kaneko, Toyohiko, 4,280,886, Cl. 204-149.000.

Takamatsu, Jun: *See—*
Kawai, Toshio; Yamashita, Junichi; and Takamatsu, Jun, 4,280,874, Cl. 176-78.000.

Takamatsu, Toshiaki: *See—*
Nonomura, Keisaku; Takamatsu, Toshiaki; Uede, Hisashi; and Wada, Tomio, 4,281,324, Cl. 340-784.000.

Takao, Shuichiro: *See—*
Nomura, Takao; Umemoto, Yoshiro; and Takao, Shuichiro, 4,281,096, Cl. 528-53.000.

Takara Co., Ltd.: *See—*
Tomita, Tohru; Saitoh, Shinya; and Hirakata, Kazuo, 4,280,266, Cl. 29-241.000.

Takeda, Kunihiko: *See—*
Miyake, Tetsuya; Ogawa, Norito; Inada, Kohji; and Takeda, Kunihiko, 4,280,984, Cl. 423-6.000.

Takekoshi, Tohru, to General Electric Company. Injection moldable polyetherimide oligomers and method for making. 4,281,100, Cl. 528-188.000.

Takeshita, Masatoshi: *See—*
Suzuki, Ryo; Asano, Atsushi; Takeshita, Masatoshi; and Takeuchi, Teruaki, 4,281,395, Cl. 365-15.000.

Takeuchi, Teruaki: *See—*
Suzuki, Ryo; Asano, Atsushi; Takeshita, Masatoshi; and Takeuchi, Teruaki, 4,281,395, Cl. 365-15.000.

Takezawa, Mamoru: *See—*
Matsuhisa, Koh; Takezawa, Mamoru; and Kawajiri, Yoshio, 4,280,693, Cl. 271-246.000.

Takizawa, Norimasa: *See—*
Nagasawa, Takeshi; Kuroiwa, Katsumasa; Takabayashi, Katsuyuki; Takizawa, Norimasa; Hagihara, Kazuyo; and Akatsuka, Tadami, 4,281,181, Cl. 562-453.000.

Talleu, Patrick: *See—*
Marjollet, Jacques; Tondeur, Gerard; Cerdan, Jean-Pierre; and Talleu, Patrick, 4,280,825, Cl. 55-203.000.

Tanaka, Eiichiro, to Citizen Watch Co., Ltd. Water-proof case for digital electronic timepieces. 4,281,406, Cl. 368-82.000.

Tanaka, Takanori: *See—*
Morishita, Masanobu; and Tanaka, Takanori, 4,281,339, Cl. 358-52.000.

Tanaka, Toru: *See—*
Komatsu, Makoto; and Tanaka, Toru, 4,281,179, Cl. 562-416.000.

Tanaka, Yukihisa: *See—*
Hirai, Akira; Tanaka, Yukihisa; and Ohashi, Shigeo, 4,281,232, Cl. 200-315.000.

Tanasawa, Yasusi; Saito, Akinori; and Kawamura, Kiyomi, to Kabushiki Kaisha Toyoto Chuo Kenkyusho. Intermittent injection type fuel injection valve. 4,280,661, Cl. 239-409.000.

Tang, Ching W., to Eastman Kodak Company. Multilayer organic photovoltaic elements. 4,281,053, Cl. 430-58.000.

Tanigawa, Tetsuo: *See—*
Miyamoto, Yoshimi; and Tanigawa, Tetsuo, 4,281,214, Cl. 174-138.00F.

Tatsuta, Sumitaka: *See—*
Usami, Toshimasa; Kobayashi, Tomoyuki; Tatsuta, Sumitaka; and Komine, Shigeo, 4,281,060, Cl. 430-618.000.

Tatterson, David F.; and Vasalos, Iacovos A., to Standard Oil Company (Indiana). Fluid catalytic cracking of heavy petroleum fractions. 4,280,898, Cl. 208-119.000.

Tatum, Odes D.; and Ross, Edgar A., to Southern Weaving Company. Woven cover for electrical transmission cable. 4,281,211, Cl. 174-36.000.

Taylor, David L.: *See—*
McKenny, Vernon G.; and Taylor, David L., 4,281,398, Cl. 365-200.000.

Taylor, Frank, to Holbro A.G. Portable cooler with food receptacle. 4,280,336, Cl. 62-457.000.

Taylor, John D. Bridle bit sugar cube holder. 4,280,316, Cl. 54-8.000.

Taylor, Kenneth W. J., to Pennwalt Corporation. Torque limiting device. 4,280,606, Cl. 192-56.00C.

Taylor, William F., to Exxon Research & Engineering Co. High thermal stability liquid hydrocarbons and methods for producing them. 4,280,894, Cl. 208-15.000.

Tech Industries, Inc.: *See—*
Bromberg, Henry, 4,280,864, Cl. 156-500.000.

Technical Operations, Inc.: *See—*
Parsons, George W., Jr.; and Drainoni, Riccardo A., 4,281,252, Cl. 250-497.000.

Technicon Instruments Corporation: *See—*
Oberhardt, Bruce J.; and Wotherspoon, Neil, 4,280,815, Cl. 23-230.00B.

Telex Computer Products, Inc.: *See—*
Plachy, Ivo T., 4,280,646, Cl. 226-190.000.

Tell, Mayo B.: *See—*
Bryan, James S.; Tell, Mayo B.; Brooks, Alvin R., Jr.; and Gaster, Ivan, 4,280,383, Cl. 83-140.000.

Telschow, Jeffrey E.: *See—*
Fearing, Ralph B.; Telschow, Jeffrey E.; and Weil, Edward D., 4,281,071, Cl. 525-2.000.

Tenci, Pier L.: *See—*
Palazzetti, Mario; Ponti, Cesare; and Tenci, Pier L., 4,280,853, Cl. 136-246.000.

Tencor Instruments: *See—*
Wheeler, William R.; and Kren, George J., 4,280,354, Cl. 73-1.0DV.

Ten Haken, Pieter; Webb, Shirley B.; and Smith, Graham C., to Shell Oil Company. Derivatives of certain phenyliminomethylpyridines. 4,281,134, Cl. 546-334.000.

Tenneco Chemicals, Inc.: *See—*
Sidi, Henri; and Hughes, William G., 4,281,178, Cl. 562-412.000.

Terazawa, Michio: *See—*
Maruyama, Yutaka; Goto, Kazuhiro; and Terazawa, Michio, 4,281,001, Cl. 424-256.000.

Terner, Leslie L.: *See—*
Moskowitz, David; and Terner, Leslie L., 4,280,973, Cl. 264-63.000.

Terp, Gerald W.: *See—*
Leanna, Dale D.; Jorgensen, Allen R.; Terp, Gerald W.; LaHaye, John; and Nehring, Kenneth L., 4,280,669, Cl. 242-56.00A.

Terraillon, Paul. Balance with selectable multiple reading scales. 4,280,574, Cl. 177-41.000.

Tessier, Jean: *See—*
Martel, Jacques; Tessier, Jean; Demoute, Jean-Pierre; and Jolly, Jean, 4,281,182, Cl. 562-506.000.

Testa, Victor; and Spector, George. Wave powered generator. 4,281,257, Cl. 290-42.000.

Teston, Richard E. Automotive vehicle wheel cover locking means. 4,280,348, Cl. 70-166.000.

Texaco Inc.: *See—*
Haag, James W., 4,280,362, Cl. 73-709.000.

Texas Instruments Incorporated: *See—*
Lou, Perry W.; Ponder, James E.; and Tubbs, Graham S., 4,280,271, Cl. 29-571.000.
Neal, Joseph H.; and Reed, Paul A., 4,281,397, Cl. 365-189.000.
Plouffe, Leo A.; and Unterweger, Diethard, 4,281,358, Cl. 361-22.000.
Redwine, Donald J.; White, Lionel S., Jr.; and Rao, G. R. Mohan, 4,281,401, Cl. 365-222.000.

Teyssie, Philippe: *See—*
Heuschen, Jean; Jerome, Robert; and Teyssie, Philippe, 4,281,087, Cl. 525-361.000.

Th. Goldschmidt AG: *See—*
Koerner, Gotz; Kropac, Vaclav; and Rau, Harald, 4,281,147, Cl. 556-459.000.

Theis, James V., Jr.: *See—*
Davis, Lynn M.; and Theis, James V., Jr., 4,280,675, Cl. 244-155.00A.

Thibault, James G.: *See—*
Kulesza, Ralph J.; Disko, Harry; and Thibault, James G., 4,280,300, Cl. 46-204.000.

Thiemer, Klaus: *See—*
Kleemann, Axel; Nubert, Ingomar; Stroman, Fritz; and Thiemer, Klaus, 4,281,010, Cl. 424-275.000.

Thomas & Betts Corporation: *See—*
Grundfest, Michael A., 4,280,279, Cl. 33-180.00R.

Thomas, Gerhard; and Jung, Richard, to L. & C. Steinmuller GmbH. Apparatus for providing coal dust to a reaction chamber. 4,280,877, Cl. 202-91.000.

Thomas, Larry: *See—*
Herzog, Donald E.; and Thomas, Larry, 4,280,301, Cl. 51-5.00R.

Thompson, Albert E., Jr.: *See—*
Macurdy, William B.; and Thompson, Albert E., Jr., 4,280,364, Cl. 73-818.000.

Thompson, Chester C.; and Cleland, Marshall R., to Radiation Dynamics, Inc. Scanning beam deflection system and method. 4,281,251, Cl. 250-398.000.

Thompson, John R.: *See—*
Runciman, Susann I. C., 4,280,637, Cl. 222-39.000.

Thompson, Mortimer S. Method of manufacturing a blow-molded container with an integral handle. 4,280,859, Cl. 156-73.500.

Thomsen, Alfred, to A/S Alfred Thomsen. Scattering apparatus. 4,280,663, Cl. 239-685.000.

Thomson-CSF: *See—*
Charles, Eliane; Hildebrandt, Mieczyslaw; and Buchy, Francois, 4,280,846, Cl. 106-73.200.
Maerfeld, Charles; and Gautier, Herve, 4,281,350, Cl. 358-213.000.

Thornley, Glenn D.: *See—*
Strolle, Clifford H.; and Thornley, Glenn D., 4,281,078, Cl. 525-131.000.

Thran, Volker; and Treige, Werner. Transportable apparatus for taking samples for microbiological, particularly bacteriological tests from surfaces. 4,281,066, Cl. 435-292.000.

TI Fords Limited: *See—*
Ford, Geoffrey E., 4,280,624, Cl. 209-524.000.

Tikhonov, Valentin N.: *See—*
Shlykov, Gennady N.; Dyachkov, Vasily M.; Zhestkov, Vitaly I.; and Tikhonov, Valentin N., 4,280,252, Cl. 19-255.000.

Tile Council of America Inc.: *See—*
Ellis, Jeffrey R.; and Wagner, Herman B., 4,280,848, Cl. 106-90.000.

Tilley, Jefferson W., to Hoffmann-La Roche Inc. Sulfonamide intermediates for adrenergic blocking agents. 4,281,189, Cl. 564-92.000.

Timex Corporation: *See—*
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Egawa, Hideharu; Matsuki, Koji; and Suzuki, Yasoji, 4,280,272, Cl. 29-571.000.
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Tonrey, John F. Laminar child resistant package. 4,280,621, Cl. 206-534.000.
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Hanai, Kiyoshi; and Kondo, Takeo, 4,280,717, Cl. 280-663.000.
Kubo, Seitoku; Kuramochi, Koujiro; and Kyushima, Tatsuo, 4,280,374, Cl. 74-695.000.
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Bush, Richard W.; Jenkins, Russell J.; and Rie, John E., 4,280,888, Cl. 204-159.150.

W. R. Grace & Co., Cryovac Division: *See*—
Howe, Milton A., Jr., 4,280,811, Cl. 493-386.000.

Wack, David T. Rail end mounting bracket. 4,280,686, Cl. 256-65.000.

Wada, Ryoichi; Tsuchiya, Mitsuharu; Odagi, Kanji; and Senoo, Takanori, to Matsushita Electric Industrial Co., Ltd. Digital audio signal recorder. 4,281,355, Cl. 360-32.000.

Wada, Tomio: *See*—
Nonomura, Keisaku; Takamatsu, Toshiaki; Uede, Hisashi; and Wada, Tomio, 4,281,324, Cl. 340-784.000.

Wadensten, Theodore S. Vibratory belt cleaner with auxiliary vibratory resonance. 4,280,616, Cl. 198-499.000.

Wagner, Herman B.: *See*—
Ellis, Jeffrey R.; and Wagner, Herman B., 4,280,848, Cl. 106-90.000.

Wagner, Morris S.: *See*—
Hunt, Theodore R., 4,281,314, Cl. 340-147.00R.

Waidmann, Raymond C.: *See*—
Timms, Rayford W.; and Waidmann, Raymond C., 4,280,595, Cl. 188-31.000.

Wajert, William R.: *See*—
Schulz, Johann G.; Stanulonis, John J.; and Wajert, William R., 4,280,818, Cl. 44-56.000.

Walden, Jack M.: *See*—
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Walker, Loren H.: *See*—
Cutler, John H.; and Walker, Loren H., 4,281,276, Cl. 318-803.000.

Walker-Neer Mfg. Co., Inc.: *See*—
Willis, Clyde A., 4,280,535, Cl. 138-112.000.

Walker, William H.: *See*—
Smith, Charles W., Jr.; Zimmerman, Franz X.; and Walker, William H., 4,280,807, Cl. 432-205.000.

Walkowicz, Mieczyslaw: *See*—
Jedlinski, Zbigniew; Kotas, Antoni; Ryndak, Boleslaw; Mazur, Stanislaw; Czarnecki, Jan; Walkowicz, Mieczyslaw; and Jedlinski, Stanislaw, 4,281,074, Cl. 525-40.000.

Walli, Einar: *See*—
Subramanian, Kohur N.; Glaum, Gerald V.; and Walli, Einar, 4,280,988, Cl. 423-140.000.

Walon, Raoul, to CPC International Inc. Maltulose-containing syrups. 4,281,028, Cl. 426-658.000.

Walser, Armin; and Fryer, Rodney I., to Hoffmann-La Roche Inc. Imidazodiazepines and processes therefor. 4,280,957, Cl. 260-244.400.

Waltenberger, Peter: *See*—
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Walter, Hans-Philipp. Drill hammer. 4,280,570, Cl. 175-92.000.

Walters, Leslie K., to General Motors Corporation. Evaporative emission control device. 4,280,466, Cl. 123-520.000.

Walters, Linwood A.; and Mersereau, J. Mark, to Rogers Corporation. Adhesion of phenolics to copper. 4,281,044, Cl. 428-460.000.

Walz, Klaus: *See*—
Nonn, Konrad; Walz, Klaus; Wolf, Karlheinz; and Boehmke, Gunther, 4,280,960, Cl. 260-403.000.

Wang, Richard H. S.: *See*—
Irick, Gether, Jr.; and Wang, Richard H. S., 4,281,129, Cl. 546-6.000.

Wang, Ting M.: *See*—
LaBuda, Edward F.; and Wang, Ting M., 4,280,608, Cl. 192-113.00B.

Wanner, Karl: *See*—
Schmid, Wolfgang; Wanner, Karl; Falchle, Jorg; Bleicher, Manfred; and Muller, Frank, 4,280,359, Cl. 73-123.000.

Ward, Christopher J.; and Hughes, Septimus, to Conveyor Improvements (Doncaster) Limited. Moving belt conveyor mechanism. 4,280,619, Cl. 198-823.000.

Ward Machinery Company, The: *See*—
Ward, William F., Sr., 4,280,386, Cl. 83-500.000.

Ward, Terence J., to John Wyeth & Brother Limited. Piperidino ureas and thioureas. 4,281,132, Cl. 546-224.000.

Ward, William C.: *See*—
Escott, Barnee M.; Reynolds, Jerald J.; and Ward, William C., 4,281,032, Cl. 427-135.000.

Ward, William F., Sr., to Ward Machinery Company, The. Paperboard slitting apparatus. 4,280,386, Cl. 83-500.000.

Warn, Stefan, to Globe Computers AB. Synchronization of digital memory with TV signal having interlace. 4,281,345, Cl. 358-149.000.

Warner, Lee A.; and Willcutt, Michael H., to Cotton Incorporated. Method and apparatus for emptying the contents of a container. 4,280,779, Cl. 414-420.000.

Warner, Willis L.; and Nelson, Edward J., to Cutter Laboratories, Inc. Container for platelet storage. 4,280,497, Cl. 128-272.000.

Warrick, Nancy J. Medical procedures monitoring and recording device. 4,281,330, Cl. 346-20.000.

Warsing, Daniel S.: *See*—
Denkowski, Walter J.; and Warsing, Daniel S., 4,280,373, Cl. 74-625.000.

Wason, Satish K., to J. M. Huber Corporation. Method for production of abrasive composition for use in toothpaste. 4,280,822, Cl. 51-308.000.

Watanabe, Haruo; Watanabe, Mutsuhito; Arima, Takao; and Yamada, Kosei, to Showa Sangyo Co., Ltd. Methods for refining oils and fats. 4,280,962, Cl. 260-424.000.

Watanabe, Hiroshi: *See*—
Takagi, Toshinori; Morimoto, Kiyoshi; and Watanabe, Hiroshi, 4,281,029, Cl. 427-38.000.

Watanabe, Mutsuhito: *See*—
Watanabe, Haruo; Watanabe, Mutsuhito; Arima, Takao; and Yamada, Kosei, 4,280,962, Cl. 260-424.000.

Watson, Robert E.: *See*—
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Wavin B.V.: *See*—
van Dongeren, Jan P., 4,280,534, Cl. 138-109.000.

Wean United, Inc.: *See*—
Miller, Paul W.; and Fobes, Norman H., 4,280,671, Cl. 242-78.300.

Webb, James E. Stove having auxiliary damper operably connected to access door. 4,280,476, Cl. 126-286.000.

Webb, Shirley B.: *See*—
Ten Haken, Pieter; Webb, Shirley B.; and Smith, Graham C., 4,281,134, Cl. 546-334.000.

Weber, Adolf; Rhau, Siegfried; and Ahlers, Utz-Udo, to Diehl GmbH & Co. Projectile. 4,280,408, Cl. 102-501.000.

Weber, Hermann. Plastic pellet cleaning apparatus and method for optical lense molding. 4,280,303, Cl. 51-163.100.

Webers, Werner: *See*—
Brandes, Gunter; Wollner, Johannes; Neier, Wilhelm; and Webers, Werner, 4,281,206, Cl. 568-396.000.

Weeks, Robert W., to Clark Control, Inc. Electromagnetic switching apparatus. 4,281,305, Cl. 335-132.000.

Wegener, Ingo: *See*—
Rutzen, Horst; Heidrich, Jochen; Bischoff, Martin; Kloubert, Udo; Waltenberger, Peter; and Wegener, Ingo, 4,281,196, Cl. 564-292.000.

Weidner, Peter, to Diehl GmbH & Co. Electrical projectile detonator. 4,280,410, Cl. 102-210.000.

Weil, Edward D.: *See*—
Fearing, Ralph B.; Telschow, Jeffrey E.; and Weil, Edward D., 4,281,071, Cl. 525-2.000.

Weiss, Martin J.: *See*—
Floyd, Middleton B., Jr.; Weiss, Martin J.; Grudzinskas, Charles V.; and Lai Chen, Sow-Mei, 4,281,153, Cl. 560-118.000.

Wells, Edward R. Floating boat storage dry dock. 4,280,429, Cl. 114-45.000.

Welsh, Charles B.: *See*—
Buchholz, Bernard; Welsh, Charles B.; and Miller, Henry C., 4,281,202, Cl. 568-62.000.

Wenninger, Fred, Jr.: *See*—
Olander, Emil E., Jr.; James, Rex L.; Larson, Ivar W.; Covington, Wayne F.; Walden, Jack M.; Watson, Robert E.; Yockey, Francis J.; Wenninger, Fred, Jr.; and Russell, Homer C., 4,281,390, Cl. 364-706.000.

Werkzeugmaschinenfabrik Oerlikon-Buhrle AG: *See*—
Hurlemann, Ernst, 4,280,392, Cl. 89-33.05F.
Singenberger, Emil; and Wilhelm, Heinz, 4,280,394, Cl. 89-37.00A.

Werner, John, Jr. Non-heeling sailboat. 4,280,428, Cl. 114-39.000.

Werres, Lothar, to Kraftwerk Union Aktiengesellschaft. Safety device for preventing unscrewing of cylinder-head screws having an inner polygon, and plastic deformation tool for use with the device. 4,280,875, Cl. 176-87.000.

West Electric Company, Ltd.: *See*—
Iwata, Hiroshi; Yamaoka, Tetsuo; and Mitsui, Hajime, 4,280,760, Cl. 354-21.000.

Western Electric Company, Inc.: *See*—
Ignatowicz, Alexander M., 4,280,746, Cl. 339-107.000.

Westhoff, Hermann: *See*—
Brokmann, Manfred; Sanders, Kurt; Sanders, Dieter; and Westhoff, Hermann, 4,280,548, Cl. 160-383.000.

Westinghouse Electric Corp.: *See*—
Baker, Donal E., 4,281,371, Cl. 363-10.000.

Calfo, Raymond M.; Mulach, Arthur; and Jones, Warren W., 4,281,266, Cl. 310-256.000.

Jersey, Chester A.; and Kiscaden, Roy W., 4,280,323, Cl. 60-39.14R.

Rexroad, James O.; and Majcher, John P., 4,281,227, Cl. 200-50.0AA.

Young, Robert G.; and Gilmore, John F., 4,281,271, Cl. 313-493.000.

Wetton, Raymond E.; and James, David B., to National Research Dev'p Corp. Amorphous complexes of polythioethers with salts. 4,281,072, Cl. 525-4.000.

Wheeler, Norton C., Jr.; Seuferling, John G.; and Pennila, Simo A. O., to Crompton & Knowles Corporation. Crosshead. 4,280,801, Cl. 425-113.000.

Wheeler, William R.; and Kren, George J., to Tencor Instruments. Acoustic method and apparatus for measuring surfaces of wafers and similar articles. 4,280,354, Cl. 73-1.0DV.

Whitcomb, Paul H., to Eaton Corporation. Tree processing apparatus. 4,280,539, Cl. 144-2.00Z.

White, Edward, V; Hertz, Harry S.; and Christensen, Richard G., to United States of America, Environmental Protection Agency. Continuous-flow solution concentrator and liquid chromatograph/mass spectrometer interface and methods for using both. 4,281,246, Cl. 250-282.000.

White, Fred C., to B R International. Tire traction device. 4,280,544, Cl. 152-221.000.

White, J. Paul. Apparatus and method for generating chorus and celeste tones. 4,280,388, Cl. 84-1.240.

White, Lionel S., Jr.: *See*—
Redwine, Donald J.; White, Lionel S., Jr.; and Rao, G. R. Mohan, 4,281,401, Cl. 365-222.000.

White, Philip D.: *See*—
Stevens, Richard; Mitchell, Richard F.; and White, Philip D., 4,281,301, Cl. 333-195.000.

Whitehouse, Harry T.: *See*—
Duval, Eugene F.; Bagshaw, David P.; Kast, Michael A.; Masters, Gilbert M.; and Whitehouse, Harry T., 4,280,478, Cl. 126-420.000.

Wiech, Norbert L.: *See*—
Grisar, J. Martin; and Wiech, Norbert L., 4,281,006, Cl. 424-267.000.

Wiesenberger, Alfred; Mager, Lutz; Kolb, Erich; and Kreim, Karl, to Peter Eckes, Firma; and Adam Heldmann Kunststoffverarbeitung. Device for the repeated opening and closing of an aperture in a cover of a container. 4,280,634, Cl. 220-270.000.

Wilhelm, Heinz: *See*—
Singenberger, Emil; and Wilhelm, Heinz, 4,280,394, Cl. 89-37.00A.

Wilkuski, James E.: *See*—
Burzen, Don N.; Workman, David E.; Bromley, Robert L.; Elles, Daniel G.; and Wilkuski, James E., 4,280,247, Cl. 16-112.000.

Willcutt, Michael H.: *See*—
Warner, Lee A.; and Willcutt, Michael H., 4,280,779, Cl. 414-420.000.

Willenbring, Armer J.; Osby, Warren J.; and Gausman, James W., to Pako Corporation. Film tray assembly for photographic film cutter. 4,280,381, Cl. 83-86.000.

Williams, Alan: *See*—
Banks, Reginald G. S.; and Williams, Alan, 4,280,820, Cl. 48-214.00A.

Williams, Arthur R.: *See*—
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Williams, Frederick J.: *See*—
Knight, Lindsay C.; Cash, David A.; Stewart, Duncan; Cottis, Robert A.; Bowyer, William H.; Newnham, Robert C.; Williams, Frederick J.; and Pardon, David W., 4,281,241, Cl. 235-400.000.

Williamson, William R. N., to Lilly Industries Limited. Pharmaceutically active indane derivatives. 4,281,017, Cl. 424-308.000.

Willis, Brian J.; and Eilerman, Robert G., to Fritzsche Dodge & Olcott Inc. Substituted spirocyclic derivatives. 4,281,204, Cl. 568-361.000.

Willis, Clyde A., to Walker-Neer Mfg. Co., Inc. Inner tube assembly for dual conduit drill pipe. 4,280,535, Cl. 138-112.000.

Wilson, Alexander I., to Hille Engineering Company Limited. Taper rolling of metal. 4,280,351, Cl. 72-21.000.

Wilson, Jeffrey V.; and Briggs, William D., to United States of America, Navy. Linked-spar motion-compensated lifting system. 4,280,430, Cl. 114-51.000.

Wilson, John C., to Eastman Kodak Company. Aldehyde-containing vinylaryl ethers. 4,281,207, Cl. 568-433.000.

Wirguin, Joseph M.; and Melamed, Avraham. Method and apparatus for drying and processing moisture-containing solids. 4,280,415, Cl. 110-224.000.

Wirz, Armin: *See*—
Martin, Wolfgang; Knopp, Hans; Herion, Dieter; Conzelmann, Gerhard; Leuchtmann, Guenter; Gujer, Peter; Guldenfels, Dieter; and Wirz, Armin, 4,280,260, Cl. 28-255.000.

Wischniewski, Martin; Feicho, Lutz; Fischer, Gerhard; and Peschke, Guenter, to Kali-Chemie Pharma GmbH. Process for the production of pancreatin pellets. 4,280,971, Cl. 264-15.000.

Wismer & Becker Contracting Engineers: *See*—
Albrecht, Robert G., 4,280,785, Cl. 414-735.000.

Wissel, Frank A.; Smith, Donald E.; Martinet, Robert L.; Dapper, Mark J.; and Kiliman, Douglas A., to Cincinnati Electronics Corporation. Method of and apparatus for transmitting and recovering offset QPSK modulated data. 4,281,412, Cl. 375-86.000.

Wittmer, Marc: *See*—
vonAllmen, Martin; and Wittmer, Marc, 4,281,236, Cl. 219-121.0LC.

Wojcik, Dennis J., to General Electric Company. Proximity detector system for a medical diagnostic device. 4,280,580, Cl. 180-169.000.

Wolf, Karlheinz: *See*—
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Wollner, Johannes: *See*—
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Woltering, Howard M. Devices for producing vibratory forces. 4,280,368, Cl. 74-61.000.

Wong, Backman: *See*—
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Wood, Ross C. Hole drilling machine and work positioning system 4,280,775, Cl. 408-3.000.

Woodruff, Roy J. Apparatus for compacting soil. 4,280,770, Cl. 404-133.000.

Woodson, Richard W.: *See*—
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Wooley, Bruce A.: *See*—
Candy, James C.; and Wooley, Bruce A., 4,281,318, Cl. 340-347.0DD.

Wooten, William H., Jr.; and Speir, Donald W., to General Electric Company. Vectorable nozzle. 4,280,660, Cl. 239-265.350.

Worcester Controls Corp.: *See*—
Gonzalez, Ricardo, 4,280,526, Cl. 137-315.000.

Workman, David E.: *See*—
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World Medical Marketing Corporation: *See*—
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Wotherspoon, Neil: *See*—
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Wotruba, Gottfried: *See*—
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Wright, John B.: *See*—
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Wright, Patrick, to PAJ Corporation. Template for stairway construction and the like. 4,280,282, Cl. 33-427.000.

Wu, Ching-Yong; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Regenerating perosmate catalyst. 4,280,924, Cl. 252-416.000.

Wulf, Rudolf: *See*—
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Wurlitzer Company, The: *See*—
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Wurster, Helmut; and Blanc, Ernst, to Richard Wolf GmbH. Lighting systems for surgical operations. 4,281,366, Cl. 362-32.000.

Xerox Corporation: *See*—
Bogoshian, Gregory V., 4,280,443, Cl. 118-60.000.
Buckley, David A.; Ciccarelli, Roger N.; and Belli, Frank G., 4,281,050, Cl. 430-41.000.
Horgan, Anthony M.; and Radler, Richard W., 4,281,054, Cl. 430-59.000.
Seachman, Ned J., 4,281,254, Cl. 250-578.000.

Yaffe, Jerome, to FMC Corporation. Stabilized compositions containing N-aminosulfenylated derivatives of carbofuran. 4,281,014, Cl. 424-285.000.

Yamabe, Akira: *See*—
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Yamada, Kosei: *See*—
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Yamada, Kunio: *See*—
Shibata, Hiroshi; Iwasaki, Hideo; and Yamada, Kunio, 4,280,854, Cl. 148-1.500.

Yamada, Yasunori; and Shibue, Yuji, to Showa Aluminum Industries K.K. Method for treatment of Bayer liquor. 4,280,987, Cl. 423-119.000.

Yamagata, Ichiro: *See*—
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Yamaguchi, Hiroshi; Kaneko, Hiroaki; and Nagano, Toshihiro, to Fuji Jukogyo Kabushiki Kaisha. Internal combustion engine. 4,280,455, Cl. 123-196.00M.

Yamamoto, Shin'ichiro, to VLSI Technology Research Association. Semiconductor memory device. 4,281,399, Cl. 365-203.000.

Yamaoka, Shigenori: *See*—
Ugaji, Masana; Suyama, Hideo; Sakurai, Sadaaki; Yamaoka, Shigenori; Endo, Toshinaga; and Kusuhara, Akinobu, 4,281,223, Cl. 179-115.00R.

Yamaoka, Tetsuo: *See*—
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Yamashita, Junichi: *See*—
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Yamazaki, Isao: *See*—
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Yan, Tsoung-yuan, to Mobil Oil Corporation. Process for the elution of ion exchange resins in uranium recovery. 4,280,985, Cl. 423-7.000.
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Yannas, Ioannis V.; Gordon, Philip L.; Huang, Chor; Silver, Frederick H.; and Burke, John F., to Massachusetts Institute of Technology. Crosslinked collagen-mucopolysaccharide composite materials. 4,280,954, Cl. 260-123.700.
Yano, Kozo; Inami, Yasuhiko; Hamada, Hiroshi; and Uede, Hisashi, to Sharp Kabushiki Kaisha. Electrochromic display device and method of manufacture. 4,280,754, Cl. 350-357.000.
Yano, Yasuhiro; Haruta, Masahiro; and Ohta, Tokuya, to Canon Kabushiki Kaisha. Liquid recording medium. 4,281,329, Cl. 346-1.100.
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Yi, Kon H. Water-flow-control device. 4,280,530, Cl. 137-624.110.
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Yokota, Yoshiaki: *See*—
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Yoshii, Kazuhiro; and Kubota, Norikazu, to Sanyo Electric Co., Ltd.; and Tokyo Sanyo Electric Co., Ltd. Single effect and double effect absorption refrigerating system. 4,280,331, Cl. 62-148.000.
Yoshioka, Akiyoshi; Shibuya, Yoshikazu; and Nakanishi, Ioichiro, to Mitsubishi Denki Kabushiki Kaisha. Gas-insulated electrical apparatus with dielectric particle trapping barriers. 4,281,209, Cl. 174-14.00R.
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Zecher, Wilfried; and Merten, Rudolf, to Bayer Aktiengesellschaft. Process for the preparation of hydantoins. 4,281,140, Cl. 548-313.000.
Zeigler, Theodore R. Hub assembly for collapsible structures. 4,280,521, Cl. 135-4.00R.
Zeitlin, Harry; and Fernando, Quintus, to University Patents, Inc. Method for separating metal values from sea nodules. 4,280,986, Cl. 423-41.000.
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Zenzaburo Kawanishi: *See*—
Oka, Toshio, 4,280,299, Cl. 46-179.000.
Zeuner, Kenneth W.; and Jarman, Alonzo B., to Control Concepts, Inc. Hydraulic oscillator. 4,280,396, Cl. 91-320.000.
Zhestkov, Vitaly I.: *See*—
Shlykov, Gennady N.; Dyachkov, Vasily M.; Zhestkov, Vitaly I.; and Tikhonov, Valentin N., 4,280,252, Cl. 19-255.000.
Ziegler, Duane H.: *See*—
Friend, Kenneth D.; Gadtke, David W.; and Ziegler, Duane H., 4,281,388, Cl. 364-565.000.
Zimmerman, Franz X.: *See*—
Smith, Charles W., Jr.; Zimmerman, Franz X.; and Walker, William H., 4,280,807, Cl. 432-205.000.
Zintarra, Helmut; and Klupfel, Olaf, to Continental Gummi-Werke Aktiengesellschaft. Conveyor belt. 4,280,617, Cl. 198-699.000.
Zodrow, Rudolf; and Hoveler, Egon, to Jagenberg Werke AG. Labeling station. 4,280,866, Cl. 156-568.000.
Zuk, Robert F.; Gibbons, Ian; Rowley, Gerald L.; and Ullman, Edwin F., to Syva Company. Double antibody for enhanced sensitivity in immunoassay. 4,281,061, Cl. 435-7.000.
Zukausky, Keith E.; and Berlin, Donald M., Jr., to Eaton Corporation. Cam actuated butterfly valve. 4,280,682, Cl. 251-251.000.
Zurcher, Rudolf F., to Hughes Aircraft Company. Digital watch/infrared plethysmograph having a removable pulse sensor unit for use with a finger cuff extension. 4,280,506, Cl. 128-690.000.
4P Nicolaus Kempten GmbH: *See*—
Schmidt, Werner, 4,280,652, Cl. 229-43.000.

LIST OF REISSUE PATENTEES

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Browning, Bruce E., Jr.: *See*—
Gray, Edward L.; and Browning, Bruce E., Jr., Re. 30,689, Cl. 83-471.200.
Canalizo, Carlos R., to Otis Engineering Corporation. Seal. Re. 30,690, Cl. 166-191.000.
Ellson, John C., to Northern Telecom Limited. Method and apparatus for measuring telephone line characteristics. Re. 30,692, Cl. 179-175.30R.
Gray, Edward L.; and Browning, Bruce E., Jr. Foldable bench for a portable hand-held circular saw. Re. 30,689, Cl. 83-471.200.
Hallstrom, James R.; Hoffman, Raymond J.; and Walling, Ronald L. Method of applying a wearing surface. Re. 30,691, Cl. 427-140.000.
Hoffman, Raymond J.: *See*—
Hallstrom, James R.; Hoffman, Raymond J.; and Walling, Ronald L., Re. 30,691, Cl. 427-140.000.
Northern Telecom Limited: *See*—
Ellson, John C., Re. 30,692, Cl. 179-175.30R.
Otis Engineering Corporation: *See*—
Canalizo, Carlos R., Re. 30,690, Cl. 166-191.000.
Schloemann-Siemag Aktiengesellschaft: *See*—
Zilges, Franz J.; and Siegert, Klaus, Re. 30,688, Cl. 72-273.500.
Siegert, Klaus: *See*—
Zilges, Franz J.; and Siegert, Klaus, Re. 30,688, Cl. 72-273.500.
Walling, Ronald L.: *See*—
Hallstrom, James R.; Hoffman, Raymond J.; and Walling, Ronald L., Re. 30,691, Cl. 427-140.000.
Zilges, Franz J.; and Siegert, Klaus, to Schloemann-Siemag Aktiengesellschaft. Extrusion press for indirect extrusion. Re. 30,688, Cl. 72-273.500.

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Wirkkala, Veli T., 259,984, Cl. D7-13.000.
Advertising Displays Company: *See*—
Zaro, Marvin, 259,995, Cl. D8-354.000.
Ahrens, Paul W., to Miracle Recreation Equipment Company. Playground merry-go-round. 260,028, 7-28-81, Cl. D21-249.000.
Aktiebolaget Volvo: *See*—
Lindfors, Olof H., 260,010, Cl. D12-57.000.
Alpert, Alan. Table. 259,981, 7-28-81, Cl. D6-177.000.
Ament, Donald S.; and Ament, Duane S., to Miracle Recreation Equipment Company. Playground bounce and bend. 260,027, 7-28-81, Cl. D21-245.000.
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Ament, Donald S.; and Ament, Duane S., 260,027, Cl. D21-245.000.
American Sterilizer Company: *See*—
Brendgord, Thomas, 260,042, Cl. D26-65.000.
Bayerische Motoren Werke Aktiengesellschaft: *See*—
Schneider, Louis; Muth, Hans A.; and Kloth, Wolfgang, 259,974, Cl. D3-71.000.
Berliner, Emanuel, to Bristoline, Inc. Sphygmomanometer pressure gauge. 260,035, 7-28-81, Cl. D24-21.000.
Boyle, Daniel J.: *See*—
Jaeschke, Harold R.; and Boyle, Daniel J., 260,001, Cl. D9-433.000.
Braun AG: *See*—
Kahlcke, Hartwig, 259,992, Cl. D7-160.000.
Brendgord, Thomas, to American Sterilizer Company. Examination light. 260,042, 7-28-81, Cl. D26-65.000.
Bristoline, Inc.: *See*—
Berliner, Emanuel, 260,035, Cl. D24-21.000.
Burgett, John S. Melt point tester. 260,003, 7-28-81, Cl. D10-46.000.
Cal-Mar Industries, Inc.: *See*—
Maresca, Edward J., 260,040, Cl. D25-91.000.
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Candiliotis, Gerassimos C., to Uniroyal, Inc. Pneumatic tire tread and buttress. 260,012, 7-28-81, Cl. D12-147.000.
Carre, Alain, to Waterman, S.A. Ball-point pen. 260,021, 7-28-81, Cl. D19-49.000.
Champion International Corporation: *See*—
Jaeschke, Harold R.; and Boyle, Daniel J., 260,001, Cl. D9-433.000.
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Cities Service Company: *See*—
Kunze, Walter A., 259,993, Cl. D7-201.000.
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Wistrand, John, 260,008, Cl. D10-106.000.
Colgate-Palmolive Company: *See*—
Seelig, Barry G., 259,976, Cl. D4-25.000.
Crest Lock Company, Inc.: *See*—
Sheiman, Samuel R.; and Sheiman, Julius, 259,996, Cl. D8-375.000.
de Ruiter, Cornelis B., to Hunter Douglas N.V. Ceiling panel element. 260,039, 7-28-81, Cl. D25-74.000.
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Magistretti, Ludovico, 259,980, Cl. D6-127.000.
Dokter, Robert F. Clock. 260,002, 7-28-81, Cl. D10-21.000.
Drumm, Don; and Mazzola, John P. Plate. 259,985, 7-28-81, Cl. D7-27.000.
DuBois, Thomas H.; and Peters, Theodore J., to Jonathan Bradley Pens, Inc. Writing instrument. 260,020, 7-28-81, Cl. D19-42.000.
English, Joseph R. Picture frame. 259,983, 7-28-81, Cl. D6-234.000.
Epstein, David. Racket frame. 260,025, 7-28-81, Cl. D21-212.000.
Gehrke, George E. Fishing reel. 260,029, 7-28-81, Cl. D22-25.000.
General Electric Company: *See*—
Wilkerson, Harold E., 259,998, Cl. D9-424.000.
Wilkerson, Harold E., 259,999, Cl. D9-424.000.
Hamilton, John F., Sr. Picture frame. 259,978, 7-28-81, Cl. D6-235.000.
Hazenveld, Martin G. Garment hanger body. 259,979, 7-28-81, Cl. D6-257.000.
Hoese, Fred O. Vehicle overhead console. 260,013, 7-28-81, Cl. D12-155.000.
Hunter Douglas N.V.: *See*—
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Ishikawa, Minoru: *See*—
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Jaeschke, Harold R.; and Boyle, Daniel J., to Champion International Corporation. Blank for forming an emergency medication package. 260,001, 7-28-81, Cl. D9-433.000.
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DuBois, Thomas H.; and Peters, Theodore J., 260,020, Cl. D19-42.000.
Kabushiki Kaisha Tokiwa Seisakusho: *See*—
Saito, Retsuo; and Nagase, Junji, 260,024, Cl. D21-210.000.
Kahlcke, Hartwig, to Braun AG. Food processor attachment for an electric food machine. 259,992, 7-28-81, Cl. D7-160.000.
Kameda, Kiyoaki. Caster. 259,982, 7-28-81, Cl. D6-191.000.
Kelsey-Hayes Company: *See*—
Sheill, David D., 260,014, Cl. D12-180.000.
Sheill, David D., 260,015, Cl. D12-180.000.
Kingston, Arlene. Decal for childrens' garments. 260,022, 7-28-81, Cl. D20-11.000.
Kloth, Wolfgang: *See*—
Schneider, Louis; Muth, Hans A.; and Kloth, Wolfgang, 259,974, Cl. D3-71.000.
Kunze, Walter A., to Cities Service Company. Wash board. 259,993, 7-28-81, Cl. D7-201.000.
LaBarbera, Angelo M., to SCM Corporation. Carrying case for a typewriter. 259,975, 7-28-81, Cl. D3-72.000.
Leisure Dynamics, Inc.: *See*—
Pagani, David A.; and Pook, Peter D., 260,023, Cl. D21-13.000.
Leo, Brenda: *See*—
Leo, Mark; and Leo, Brenda, 260,007, Cl. D10-92.000.
Leo, Mark; and Leo, Brenda. Weighing scale. 260,007, 7-28-81, Cl. D10-92.000.
Lindfors, Olof H., to Aktiebolaget Volvo. Remote controlled fork truck. 260,010, 7-28-81, Cl. D12-57.000.
Lord's Power Company, Inc.: *See*—
Pearson, Darrell A., 260,031, Cl. D23-72.000.
Lorenzo, Osvaldo J. Aquarium cover. 260,044, 7-28-81, Cl. D30-12.000.
Magistretti, Ludovico, to Diver-Viss S.r.l. Cabinet. 259,980, 7-28-81, Cl. D6-127.000.

Manderfield, Ellen B., to Oneida Ltd. Spoon or similar article. 259,987, 7-28-81, Cl. D7-137.000.
Maresca, Edward J., to Cal-Mar Industries, Inc. Translucent interlocking panel member for ceilings or the like. 260,040, 7-28-81, Cl. D25-91.000.
Maresca, Edward J., to Cal-Mar Industries, Inc. Translucent interlocking panel member for ceilings or the like. 260,041, 7-28-81, Cl. D25-91.000.
Mazzola, John P.: *See*—
Drumm, Don; and Mazzola, John P., 259,985, Cl. D7-27.000.
Miracle Recreation Equipment Company: *See*—
Ahrens, Paul W., 260,028, Cl. D21-249.000.
Ament, Donald S.; and Ament, Duane S., 260,027, Cl. D21-245.000.
Muth, Hans A.: *See*—
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Nagao, Toshiaki: *See*—
Ohhasi, Yasuo; Ishikawa, Minoru; Nagata, Kunio; and Nagao, Toshiaki, 260,004, Cl. D10-50.000.
Nagase, Junji: *See*—
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Nagata, Kunio: *See*—
Ohhasi, Yasuo; Ishikawa, Minoru; Nagata, Kunio; and Nagao, Toshiaki, 260,004, Cl. D10-50.000.
Neavin, William T. Fishing lure. 260,030, 7-28-81, Cl. D22-28.000.
Office, Gerald S., Jr., to Ponderosa System, Inc. Restaurant building. 260,037, 7-28-81, Cl. D25-17.000.
Ohhasi, Yasuo; Ishikawa, Minoru; Nagata, Kunio; and Nagao, Toshiaki, to Omron Tateisi Electronics Co. Temperature controller. 260,004, 7-28-81, Cl. D10-50.000.
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Onoue, Yasuyoshi; and Yamamoto, Toshio, to Ricoh Company, Ltd. Electrostatic copier. 260,019, 7-28-81, Cl. D16-31.000.
Pagani, David A.; and Pook, Peter D., to Leisure Dynamics, Inc. Electronic game casing. 260,023, 7-28-81, Cl. D21-13.000.
Pearson, Darrell A., to Lord's Power Company, Inc. Solar heating panel. 260,031, 7-28-81, Cl. D23-72.000.
Perry, Frank R., to Oneida Ltd. Spoon or similar article. 259,989, 7-28-81, Cl. D7-137.000.
Peters, Theodore J.: *See*—
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Office, Gerald S., Jr., 260,037, Cl. D25-17.000.
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Pagani, David A.; and Pook, Peter D., 260,023, Cl. D21-13.000.
Porper, Robert P., to Plakadent International, Ltd. Toothbrush. 259,977, 7-28-81, Cl. D4-25.000.
Porteous, Don D. Surgical instrument peel pouch. 259,997, 7-28-81, Cl. D9-306.000.
Raintree Buckle & Jewelry, Inc.: *See*—
Van Brouwer, Ryk, 259,970, Cl. D2-440.000.
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Richmond, Colin B., II, to Oneida Ltd. Spoon or similar article. 259,988, 7-28-81, Cl. D7-137.000.
Richmond, Colin B., II, to Oneida Ltd. Spoon or similar article. 259,990, 7-28-81, Cl. D7-137.000.
Richmond, Colin B., II, to Oneida Ltd. Spoon or similar article. 259,991, 7-28-81, Cl. D7-137.000.
Ricoh Company, Ltd.: *See*—
Onoue, Yasuyoshi; and Yamamoto, Toshio, 260,019, Cl. D16-31.000.
Robinson, Paul H. Pet feeding center. 260,043, 7-28-81, Cl. D30-16.000.
Roccaforte, Harry I., to Champion International Corporation. Display carton blank. 260,000, 7-28-81, Cl. D9-433.000.
Rosen, Ingvar. Guard for skate blades. 260,026, 7-28-81, Cl. D21-225.000.
Saito, Retsuo; and Nagase, Junji, to Kabushiki Kaisha Tokiwa Seisakusho. Serving machine for use in practicing volleyball. 260,024, 7-28-81, Cl. D21-210.000.
Salcedo, Joseph T., to Unican Security Systems, Ltd. Key blank. 259,994, 7-28-81, Cl. D8-348.000.
Sandfield, Max M. Ruler. 260,005, 7-28-81, Cl. D10-71.000.
Schildge, Adam T., Jr. Cable stay building. 260,036, 7-28-81, Cl. D25-1.000.
Schneider, Louis; Muth, Hans A.; and Kloth, Wolfgang, to Bayerische Motoren Werke Aktiengesellschaft. Luggage bag. 259,974, 7-28-81, Cl. D3-71.000.
SCM Corporation: *See*—
LaBarbera, Angelo M., 259,975, Cl. D3-72.000.
Seelig, Barry G., to Colgate-Palmolive Company. Toothbrush. 259,976, 7-28-81, Cl. D4-25.000.
Sheill, David D., to Kelsey-Hayes Company. Disc brake pad yoke. 260,014, 7-28-81, Cl. D12-180.000.
Sheill, David D., to Kelsey-Hayes Company. Disc brake pad yoke. 260,015, 7-28-81, Cl. D12-180.000.
Sheiman, Julius: *See*—
Sheiman, Samuel R.; and Sheiman, Julius, 259,996, Cl. D8-375.000.
Sheiman, Samuel R.; and Sheiman, Julius, to Crest Lock Company, Inc. Luggage roller. 259,996, 7-28-81, Cl. D8-375.000.
Shemtov, Sami. Multi-compartmental condiment shaker. 259,986, 7-28-81, Cl. D7-57.000.
Syme, Duncan C., to Vermont Castings, Inc. Wood burning stove. 260,032, 7-28-81, Cl. D23-97.000.
Syme, Duncan C., to Vermont Castings, Inc. Front for a wood burning stove. 260,033, 7-28-81, Cl. D23-128.000.
Syme, Duncan C., to Vermont Castings, Inc. Door for a wood burning stove. 260,034, 7-28-81, Cl. D23-128.000.
Thomas, Wesley L. Telephone. 260,016, 7-28-81, Cl. D14-53.000.
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Unican Security Systems, Ltd.: *See*—
Salcedo, Joseph T., 259,994, Cl. D8-348.000.
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Van Brouwer, Ryk, to Raintree Buckle & Jewelry, Inc. Belt buckle. 259,970, 7-28-81, Cl. D2-440.000.
Van Brouwer, Ryk, to Raintree Buckle & Jewelry, Inc. Belt buckle. 259,971, 7-28-81, Cl. D2-440.000.
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Syme, Duncan C., 260,032, Cl. D23-97.000.
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Walasek, Stanley. Ski goggle case. 259,973, 7-28-81, Cl. D3-34.000.
Waterman, S.A.: *See*—
Carre, Alain, 260,021, Cl. D19-49.000.
Wiley, W. Don. Building. 260,038, 7-28-81, Cl. D25-24.000.
Wilkerson, Harold E., to General Electric Company. Shipping tray for dynamoelectric machines. 259,998, 7-28-81, Cl. D9-424.000.
Wilkerson, Harold E., to General Electric Company. Shipping tray for dynamoelectric machines. 259,999, 7-28-81, Cl. D9-424.000.
Williams, Neil E. Trailer. 260,011, 7-28-81, Cl. D12-102.000.
Wirkkala, Veli T., to A. Ahlstrom Osakeyhtio. Goblet or similar article. 259,984, 7-28-81, Cl. D7-13.000.
Wistrand, John, to Clairol Incorporated. Personal security alarm. 260,008, 7-28-81, Cl. D10-106.000.
Woo, Hon K. Combined scale and tape measure. 260,006, 7-28-81, Cl. D10-88.000.
Yamamoto, Toshio: *See*—
Onoue, Yasuyoshi; and Yamamoto, Toshio, 260,019, Cl. D16-31.000.
Zaro, Marvin, to Advertising Displays Company. Multiposition peghook bracket. 259,995, 7-28-81, Cl. D8-354.000.
Zieselman, Zelda. Sculpture. 260,009, 7-28-81, Cl. D11-131.000.

LIST OF PLANT PATENTEES

Williams, Ernest D. Miniature rose plant. 4,754, 7-28-81, Cl. 7.000.

Williams, Ernest D. Miniature rose plant. 4,755, 7-28-81, Cl. 7.000.

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36 H 4,280,393
37 A 4,280,394

CLASS 91
47 4,280,395
320 4,280,396
452 4,280,397

CLASS 92
29 4,280,398

CLASS 98
42 A 4,280,399
115 LH 4,280,400

CLASS 99
295 4,280,401
355 4,280,402

CLASS 100
43 4,280,403

CLASS 101
93.03 4,280,404
127.1 4,280,405
177 4,280,406

CLASS 102
210 4,280,410
320 4,280,407
364 4,280,409
501 4,280,408

CLASS 104
112 4,280,411
281 4,280,412

CLASS 105
150 4,280,413

CLASS 106
35 4,280,842
48 4,280,843
56 4,280,844
62 4,280,845
73.2 4,280,846
4,280,850
89 4,280,847
90 4,280,848
300 4,280,849

CLASS 109
49.5 4,280,414

CLASS 110
224 4,280,415
254 4,280,416
346 4,280,417
347 4,280,418

CLASS 111
80 4,280,419

CLASS 112
103 4,280,420
147 4,280,421
4,280,422
158 E 4,280,423
4,280,424
272 4,280,425

CLASS 113
116 D 4,280,426
121 C 4,280,427

CLASS 114
39 4,280,428
45 4,280,429
51 4,280,430
105 4,280,431
109 4,280,432
140 4,280,433
174 4,280,434
219 4,280,435
222 4,280,436
4,280,437
4,280,438
4,280,439
230 4,280,440

CLASS 116
219 4,280,441

CLASS 118
52 4,280,442
60 4,280,443
504 4,280,444

CLASS 119
14.02 4,280,445
14.49 4,280,446
28 4,280,447
155 4,280,448

CLASS 122
4 R 4,280,449
17 4,280,450

CLASS 123
90.6 4,280,451
179 BG 4,280,452
195 A 4,280,454
195 R 4,280,453
196 M 4,280,455
196 R 4,280,456
198 A 4,280,458
198 R 4,280,457
307 4,280,459
382 4,280,460
418 4,280,461
437 4,280,462
445 4,280,463
447 4,280,464
494 4,280,465
520 4,280,466
536 4,280,467
546 4,280,468
568 4,280,469
569 4,280,470
571 4,280,471

CLASS 125
13 R 4,280,472

CLASS 126
120 4,280,473
121 4,280,474
164 4,280,475
286 4,280,476
416 4,280,477
420 4,280,478
426 4,280,479
429 4,280,480
4,280,481
430 4,280,482
433 4,280,483
450 4,280,484

CLASS 127
33 4,280,851

CLASS 128
24 R 4,280,485
25 B 4,280,486
33 4,280,487
XII H 4,280,488
4,280,489
XII 4,280,490
201.24 4,280,491
207.15 4,280,492
207.18 4,280,493
213 R 4,280,494
214 E 4,280,495
214 R 4,280,496
272 4,280,497
283 4,280,498
303.1 4,280,499
348 4,280,500
349 B 4,280,501
419 P 4,280,503
419 PG 4,280,502
420 A 4,280,504
635 4,280,505
690 4,280,506
696 4,280,507
736 4,280,508
766 4,280,509
784 4,280,510
4,280,511
785 4,280,512
4,280,513
786 4,280,514

CLASS 131
84 C 4,280,516
276 4,280,515

CLASS 132
9 4,280,517
73.5 4,280,519
93 4,280,518

CLASS 134
8 4,280,852
60 4,280,520

CLASS 135
4 R 4,280,521

CLASS 136
246 4,280,853
249 4,281,208

CLASS 137
72 4,280,522
74 4,280,523
268 4,280,524
296 4,280,525
315 4,280,526
343 4,280,527
408 4,280,528
493.3 4,280,529
624.11 4,280,530
4,280,531
882 4,280,532

CLASS 138
30 4,280,533
109 4,280,534
112 4,280,535
149 4,280,536

CLASS 139
436 4,280,537

CLASS 141
73 4,280,538

CLASS 144
2 Z 4,280,539
193 C 4,280,540
208 E 4,280,541
230 4,280,542

CLASS 148
1.5 4,280,854
4,280,855
111 4,280,856
156 4,280,857
175 4,280,858

CLASS 152
209 R 4,280,543
221 4,280,544
222 4,280,545
330 RF 4,280,546
354 R 4,280,547

CLASS 156
73.5 4,280,859
167 4,280,860
382 4,280,861
384 4,280,862
387 4,280,863
500 4,280,864
538 4,280,865
568 4,280,866

CLASS 159
47 R 4,280,867

CLASS 160
383 4,280,548

CLASS 162
28 4,280,868
252 4,280,869
336 4,280,870

CLASS 164

113 4,280,549
252 4,280,550
287 4,280,551
448 4,280,552

CLASS 165

1 4,280,553
11 R 4,280,554
47 4,280,555
76 4,280,556

CLASS 166

177 4,280,557
191 Re.30,690
245 4,280,558
303 4,280,559
305 R 4,280,560
332 4,280,561

CLASS 169

39 4,280,562

CLASS 172

126 4,280,563
151 4,280,564
548 4,280,565
604 4,280,566

CLASS 173

129 4,280,567

CLASS 174

14 R 4,281,209
23 C 4,281,210
36 4,281,211
4,281,212
68 B 4,281,213
138 F 4,281,214

CLASS 175

4 4,280,568
26 4,280,569
92 4,280,570
337 4,280,571
417 4,280,572
418 4,280,573

CLASS 176

38 4,280,871
4,280,872
65 4,280,873
78 4,280,874
87 4,280,875

CLASS 177

41 4,280,574
123 4,280,575
126 4,280,576
179 4,280,577

CLASS 178

22.08 4,281,215
4,281,216

CLASS 179

1 GN 4,281,217
1 SC 4,281,218
18 FA 4,281,219
90 AD 4,281,220
111 E 4,281,222
111 R 4,281,221
115 R 4,281,223
146 R 4,281,224
175.3 R Re.30,692

CLASS 180

6.44 4,280,579
6.5 4,280,578
169 4,280,580
207 4,280,581
219 4,280,582
250 4,280,583
268 4,280,584

CLASS 181

147 4,280,585
150 4,280,586
213 4,280,587
240 4,280,588

CLASS 182

2 4,280,589
214 4,280,590

CLASS 184

17 4,280,591

CLASS 187

9 E 4,280,592
12 4,280,593

CLASS 188

1 A 4,280,594
31 4,280,595
52 4,280,596
218 XL 4,280,597
4,280,598
310 4,280,599
312 4,280,600
316 4,280,601
322 4,280,602
343 4,280,603

CLASS 192

0.08 4,280,604
8 R 4,280,605
56 C 4,280,606
98 4,280,607
113 B 4,280,608
4,280,609
132 4,280,610

CLASS 198

347 4,280,611
379 4,280,612
406 4,280,613
425 4,280,614
470 4,280,615
499 4,280,616
699 4,280,617
782 4,280,618
823 4,280,619
825 4,280,620

CLASS 200

44 4,281,226
50 AA 4,281,227
51 R 4,281,228
52 R 4,281,229
61.58 R 4,281,230
144 B 4,281,231
315 4,281,232

CLASS 201

9 4,280,876

CLASS 202

91 4,280,877
93 4,280,878
100 4,280,879

CLASS 203

23 4,280,880
51 4,280,881

CLASS 204

15 4,280,882
98 4,280,883
109 4,280,884
129 4,280,885
149 4,280,886
150 4,280,887
159.15 4,280,888
195 F 4,280,889
195 S 4,280,890
243 R 4,280,891

CLASS 206

534 4,280,621
592 4,280,622

CLASS 208

8 R 4,280,892
10 4,280,893
15 4,280,894
113 4,280,895
4,280,896
4,280,897
119 4,280,898
139 4,280,899

CLASS 209

3.1 4,280,623
34 4,280,900
154 4,280,901
211 4,280,902
469 4,280,903
524 4,280,624
582 4,280,625
658 4,280,626

CLASS 210

198.2 4,280,905
282 4,280,906
408 4,280,907
446 4,280,908
490 4,280,909
614 4,280,910
629 4,280,911
662 4,280,912
669 4,280,913
676 4,280,904
743 4,280,914

CLASS 212

198 4,280,627
266 4,280,628

CLASS 215

1 C 4,280,629
100 A 4,280,630
204 4,280,631
331 4,280,632

CLASS 219

10.43 4,281,234
121 ED 4,281,235
121 LC 4,281,236
511 4,281,237
535 4,281,238

CLASS 220

241 4,280,633
270 4,280,634
306 4,280,635
307 4,280,636

CLASS 222

39 4,280,637
180 4,280,638
217 4,280,639
561 4,280,640

CLASS 223

1 4,280,641
46 4,280,642

CLASS 224

149 4,280,644
259 4,280,645

CLASS 226

190 4,280,646

CLASS 227

147 4,280,647

CLASS 229

2.5 EC 4,280,648
11 4,280,649
15 4,280,650
20 4,280,651
43 4,280,652
4,280,653

CLASS 235

92 GA 4,281,239
139 R 4,281,240
400 4,281,241
449 4,281,242

CLASS 236

34.5 4,280,654
4,280,655

CLASS 237

55 4,280,656

CLASS 238

267 4,280,657

CLASS 239

6 4,280,658
124 4,280,659
265.35 4,280,660
409 4,280,661
591 4,280,662
685 4,280,663

CLASS 241

39 4,280,664
62 4,280,665
169.1 4,280,666

CLASS 242

43 R 4,280,667
47.12 4,280,668
56 A 4,280,669
68.5 4,280,670
78.3 4,280,671
86 4,280,672

CLASS 244

13 4,280,673
99 4,280,674
155 A 4,280,675

CLASS 248

97 4,280,676

CLASS 249

43 4,280,677

CLASS 250

223 R 4,281,243
225 4,281,244
227 4,281,245
282 4,281,246
324 4,281,247
345 4,281,248
363 S 4,281,249
377 4,281,250
398 4,281,251
497 4,281,252
551 4,281,253
578 4,281,254

CLASS 251

61.2 4,280,678
144 4,280,679
175 4,280,680
229 4,280,681
251 4,280,682

CLASS 252

8.5 C 4,280,915
33.4 4,280,916
37.7 4,280,917
62.51 4,280,918
135 4,280,919
173 4,280,920
301.1 W 4,280,921
4,280,922
323 4,280,923
416 4,280,924
428 4,280,925
430 4,280,926
431 N 4,280,927
432 4,280,928
439 4,280,929
466 B 4,280,930
518 4,280,931
521 4,280,932
522 R 4,280,933
4,280,934

CLASS 254

17 4,280,683
35 4,280,684

CLASS 256

1 4,280,685
65 4,280,686

CLASS 260

3 4,280,935
13 4,280,936
17 A 4,280,937
21 4,280,938
23 AR 4,280,939
23 XA 4,280,940
4,280,941
27 R 4,280,942
29.2 E 4,280,943
29.2 TN 4,280,944
30.6 R 4,280,945
33.6 SB 4,280,947
40 R 4,280,948
4,280,949
42.21 4,280,950
45.8 R 4,280,951
45.95 G 4,280,952
112 R 4,281,233
112.5 S 4,280,953
123.7 4,280,954
149 4,280,955
242.2 4,280,956
244.4 4,280,957
326 N 4,280,946
326.11 R 4,280,958
346.11 4,280,959
403 4,280,960
412.8 4,280,961
424 4,280,962
429 C 4,280,963
465 D 4,280,964
4,280,965
513 R 4,281,177
543 R 4,280,966
785 4,280,967

CLASS 261

16 4,280,968
62 4,280,969

CLASS 264

1.7 4,280,970
15 4,280,971
39 4,280,972
63 4,280,973
69 4,280,974
81 4,280,975
152 4,280,976
153 4,280,977
156 4,280,978
157 4,280,979

CLASS 266

50 4,280,687
245 4,280,688

CLASS 269

21 4,280,689

CLASS 270

58 4,280,690

CLASS 271

11 4,280,691
160 4,280,692
246 4,280,693

CLASS 272

4 4,280,694
8 N 4,280,695
95 4,280,696

CLASS 273

29 A 4,280,697
34 B 4,280,698
73 C 4,280,699
77 A 4,280,700
144 B 4,280,702
191 A 4,280,701
241 4,280,703
258 4,280,704

CLASS 277

12 4,280,706
84 4,280,707
171 4,280,708
229 4,280,709

CLASS 280

32.5 4,280,711
81 R 4,280,710
144 4,280,712
415 A 4,280,713
611 4,280,714
623 4,280,715
642 4,280,716
663 4,280,717

CLASS 282

27.5 4,280,718

CLASS 285

90 4,280,719
136 4,280,720
179 4,280,721
244 4,280,722
376 4,280,723

CLASS 290

1 R 4,281,255
4,281,256
42 4,281,257

CLASS 292

87 4,280,724
223 4,280,725
327 4,280,726

CLASS 294

54 4,280,727
78 R 4,280,728
141 4,280,643

CLASS 296

1 F 4,280,729
97 G 4,280,730

CLASS 297

487 4,280,731

CLASS 299

11 4,280,732
34 4,280,733
4,280,734
81 4,280,735

CLASS 301

6 CS 4,280,736

CLASS 303

3 4,280,737
6 C 4,280,738
4,280,739
92 4,280,740

CLASS 307

270 4,281,261
350 4,281,262
455 4,281,258
514 4,281,259
573 4,281,260

CLASS 308

3.5 4,280,741
4 A 4,280,742
217 4,280,743

CLASS 310

13 4,281,263
194 4,281,264
254 4,281,265
256 4,281,266

CLASS 312

240 4,280,744
323 4,280,745

CLASS 313

25 4,281,267
4,281,268
444 4,281,269
493 4,281,270
4,281,271

CLASS 315

1 4,281,272
39.61 4,281,273
49 4,281,274
399 4,281,275

CLASS 318

803 4,281,276

CLASS 320

6 4,281,277
13 4,281,278
45 4,281,279

CLASS 322

2 R 4,281,280

CLASS 323

271 4,281,281
350 4,281,282

CLASS 324

51 4,281,283
58 A 4,281,284
58.5 B 4,281,285
61 R 4,281,286
95 4,281,287
158 MG 4,281,288
355 4,281,289
426 4,281,290

CLASS 329

50 4,281,291
4,281,292
105 4,281,293

CLASS 331

94.5 L 4,281,294

CLASS 333

14 4,281,295
165 4,281,296
4,281,297
186 4,281,298
187 4,281,299
192 4,281,300
195 4,281,301
204 4,281,302

CLASS 335

16 4,281,303
72 4,281,304
132 4,281,305

CLASS 336

5 4,281,306

CLASS 337

114 4,281,307
407 4,281,308
409 4,281,309

CLASS 338

108 4,281,310

CLASS 339

107 4,280,746
126 RS 4,280,747
147 R 4,280,748
177 R 4,280,749

CLASS 340

81 R 4,281,311
146.3 MA 4,281,312
146.3 SY 4,281,313
147 R 4,281,314
4,281,315
347 DA 4,281,319
347 DD 4,281,318
347 NT 4,281,317
347 SY 4,281,316
545 4,281,320
572 4,281,321
638 4,281,322
712 4,281,323
784 4,281,324
870.29 4,281,325

CLASS 343

5 EM 4,281,326
12 R 4,281,327
763 4,281,328

CLASS 346

1.1 4,281,329
20 4,281,330
75 4,281,331
4,281,332
140 R 4,281,333
153.1 4,281,334
4,281,335

CLASS 350

76 4,280,750
96.15 4,280,751
162 SF 4,280,752
295 4,280,753
357 4,280,754
358 4,280,755
360 4,280,756
414 4,280,757

CLASS 351

55 4,280,758
160 R 4,280,759

CLASS 354

21 4,280,760
29 4,280,761
187 4,280,762

CLASS 355

14 R 4,280,763

CLASS 356

35.5 4,280,764
73.1 4,280,765
350 4,280,766

CLASS 357

38 4,281,336

CLASS 358

29 4,281,337
44 4,281,338
52 4,281,339
67 4,281,340
92 4,281,341
93 4,281,342
99 4,281,343
136 4,281,344
149 4,281,345
166 4,281,346
4,281,347
188 4,281,348
191.1 4,281,349
213 4,281,350
214 4,281,351
237 4,281,352
254 4,281,353

CLASS 360

5 4,281,354
32 4,281,355
45 4,281,356
125 4,281,357

CLASS 361

22 4,281,358
115 4,281,359
303 4,281,360
401 4,281,361
437 4,281,362

CLASS 362

6 4,281,363
10 4,281,364
20 4,281,365
32 4,281,366
96 4,281,367
100 4,281,368
183 4,281,369
287 4,281,370

CLASS 363

10 4,281,371
20 4,281,372
21 4,281,373
37 4,281,375
41 4,281,374
50 4,281,376
63 4,281,377
96 4,281,378

CLASS 364

102 4,281,379
200 4,281,380
4,281,381
414 4,281,382
428 4,281,383
453 4,281,384
474 4,281,385
492 4,281,386
497 4,281,387
565 4,281,388
569 4,281,389
706 4,281,390
746 4,281,391
900 4,281,392
4,281,393
4,281,394

CLASS 365

15 4,281,395
29 4,281,396
189 4,281,397
200 4,281,398
203 4,281,399
4,281,400
222 4,281,401

CLASS 367

15 4,281,402
76 4,281,403
108 4,281,404

CLASS 368

66 4,281,405
82 4,281,406

CLASS 369

130 4,281,407
139 4,281,225
233 4,280,705

CLASS 370

18 4,281,409
70 4,281,408
110 4,281,410

CLASS 375

14 4,281,411
86 4,281,412

CLASS 400

216.2 4,280,767

CLASS 403

3 4,280,768
218 4,280,769

CLASS 404

133 4,280,770

CLASS 405

150 4,280,771
232 4,280,772

CLASS 407

27 4,280,773
36 4,280,774

CLASS 408

3 4,280,775
72 R 4,280,776

CLASS 411

15 4,280,391
542 4,280,390

CLASS 414

24.6 4,280,777
387 4,280,778
420 4,280,779
572 4,280,780
671 4,280,781
676 4,280,782
686 4,280,783
722 4,280,784
735 4,280,785
749 4,280,786
786 4,280,787

CLASS 415

1 4,280,788
6 4,280,789
89 4,280,790
90 4,280,791
117 4,280,792
199.5 4,280,793

CLASS 416

146 R 4,280,794
218 4,280,795

CLASS 417

176 4,280,796
406 4,280,797

CLASS 418

54 4,280,798
97 4,280,799

CLASS 422

40 4,280,980
46 4,280,981
185 4,280,982
219 4,280,983

CLASS 423

6 4,280,984
7 4,280,985
41 4,280,986
119 4,280,987
140 4,280,988
344 4,280,989
574 R 4,280,990

CLASS 424

1 4,280,991
4,280,992
4,280,993
68 4,280,994
151 4,280,997
180 4,280,995
199 4,280,996
250 4,280,998
251 4,280,999
4,281,000
256 4,281,001
263 4,281,002
4,281,003
4,281,004
4,281,005
267 4,281,006
269 4,281,007
4,281,008
273 R 4,281,009
275 4,281,010
277 4,281,011
278 4,281,012
283 4,281,013
285 4,281,014
287 4,281,015
300 4,281,016
308 4,281,017
310 4,281,018
330 4,281,019
342 4,281,020

CLASS 425

62 4,280,800
99 4,280,803
113 4,280,801
208 4,280,802
388 4,280,804
525 4,280,805

CLASS 426

61 4,281,021
233 4,281,022
385 4,281,023
471 4,281,024
496 4,281,025
599 4,281,026
631 4,281,027
658 4,281,028

CLASS 427

38 4,281,029
42 4,281,030
45.1 4,281,031
135 4,281,032
140 Re.30,691
157 4,281,033
191 4,281,034
199 4,281,035
222 4,281,036
407.3 4,281,037

CLASS 428

131 4,281,038
159 4,281,039
195 4,281,040
336 4,281,041
361 4,281,042
457 4,281,043
460 4,281,044
516 4,281,045

CLASS 429

72 4,281,046
217 4,281,047
218 4,281,048

CLASS 430

9 4,281,049
41 4,281,050
42 4,281,051
48 4,281,052
58 4,281,053
59 4,281,054
60 4,281,055
232 4,281,056
270 4,281,057
296 4,281,058
551 4,281,059
618 4,281,060

CLASS 431

208 4,280,806

CLASS 432

205 4,280,807

CLASS 433

77 4,280,808

CLASS 434

30 4,280,285
343 4,280,809

CLASS 435

7 4,281,061
14 4,281,062
94 4,281,063
134 4,281,064
188 4,281,065
292 4,281,066

CLASS 455

34 4,281,413
158 4,281,414
173 4,281,415
601 4,281,416

CLASS 493

356 4,280,810
386 4,280,811

CLASS 521

56 4,281,067
62 4,281,068
123 4,281,069

CLASS 525

1 4,281,070
2 4,281,071
4 4,281,072
11 4,281,073
40 4,281,074
110 4,281,075
124 4,281,076
129 4,281,077
131 4,281,078
152 4,281,079
205 4,281,080
281 4,281,081
296 4,281,082
305 4,281,083
309 4,281,084
326 4,281,085
330 4,281,086
361 4,281,087
439 4,281,088
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		259,971	D7—	13	259,984	D9—	306	259,997	D12—	57	260,010	D20—	11	260,022			260,034
		259,972		27	259,985		424	259,998		102	260,011	D21—	13	260,023	D24—	21	260,035
D3—	34	259,973		57	259,986			259,999		147	260,012		210	260,024	D25—	1	260,036
	71	259,974		137	259,987		433	260,000		155	260,013		212	260,025		17	260,037
	72	259,975			259,988			260,001		180	260,014		225	260,026		24	260,038
D4—	25	259,976			259,989	D10—	21	260,002			260,015		245	260,027		74	260,039
		259,977			259,990		46	260,003	D14—	53	260,016		249	260,028		91	260,040
D6—	127	259,980			259,991		50	260,004			260,017	D22—	25	260,029			260,041
	177	259,981		160	259,992		71	260,005			260,018		28	260,030	D26—	65	260,042
	191	259,982		201	259,993		88	260,006							D30—	12	260,044
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	4,281,229		4,281,109		4,281,264		4,280,569		4,280,864		4,280,581
	4,281,382		4,281,127		4,281,267		4,280,607	45 :	4,280,249		4,280,752
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	4,280,491		4,281,142		4,281,372		4,281,357		4,280,613		4,281,102
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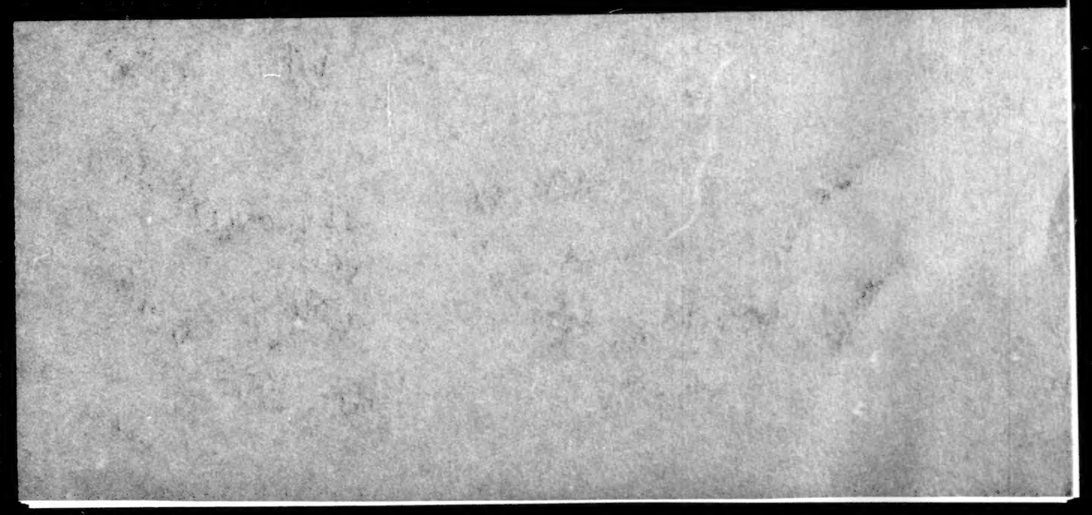
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